

International economic law and the digital divide : a new silk road?

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INTERNATIONAL ECONOMIC LAW AND THE DIGITAL DIVIDE: A NEW SILK ROAD?

A thesis submitted for the degree of PhD
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ABSTRACT

The failure of the trade negotiations at Seattle, and the collapse of the negotiations at Doha have brought increased attention to the issue of development, aid, and the implementation of special and differential rights in favour of developing countries. This thesis looks to examine one aspect of the many issues facing developed and developing countries in the negotiations that lie ahead, specifically how international economic law can be used in the application of technological processes to help address the Digital Divide.

At present, there is an emphasis on development and the needs of developing countries, and that such development needs to be *sustainable*. Research reviewed in Chapter 2 indicates that growing information technology levels leads to growth of GDP. Importantly the use of ICT's will foster growth in the trade of electronic goods and services (electronic intangibles). By making positive attempts to reduce the Digital Divide, DCs and LDCs will be in a better position to access the necessary ICTs required to help grow GDP and facilitate sustainable development. The thesis sets out various measures to help reduce the digital divide and founded in international economic law. Central to the thesis is a new *Layering Theory* that the Author argues will assist operators (both incumbents and Independent Service Providers) in the developing world to gain access to international backbone Internet networks at cost price, one of the main impediments to reducing the international digital divide. The Layering Theory sets out a procedure for accurately identifying the relevant market for providers of Next Generation Networks (NGNs) and services so that those operators who abuse their dominance by refusing to supply an interconnection service or access to a digital network can be compelled to interconnect their networks to those smaller domestic or third country Internet Service Providers (ISP) operators who require access. By gaining access/interconnection in this way, operators in DCs and LDCs will be in a much better position to take advantage of cheaper production costs to export electronic intangibles overseas. Also, the thesis sets out recommendations for reform of international telecommunications, new provisions on technology transfer to help DCs and LDCs access the ICTs needed to address the Digital Divide, including provisions on technology transfer found in the increasing take-up of bilateral and regional trade agreements—and if there is to be free trade in e-commerce—recommendations for reform of current WTO rules on the classification of electronic goods and services.

However, the thesis also argues that the digital divide cannot be addressed without strengthening the human capital base in developing and least developed countries, and that this cannot happen without such states also giving greater effect to the enforcement of civil and political, and economic, social and cultural rights “at home”. The thesis asks whether it is possible to define a relationship in IEL between civil and political, and economic social and cultural rights as a collective for example in the form of the much debated and somewhat controversial Right to Development (the “RTD” as defined in this thesis) on the one hand, with economic indicators, such Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) on the other? And if so, how the RTD can be *operationalised*.

I declare that this thesis is my own work:

Signed: 
Rohan Kariyawasam

Dated: 1st July 2012

TABLE OF CONTENTS

Contents.....	3
Table of Cases, National Acts, Treaties and Other International Measures.....	6
Abbreviations.....	10
1. INTRODUCTION AND THESIS	
OVERVIEW.....	14
1.1 Introduction.....	14
1.2 Methodology and Overview structure.....	23
1.3 Limitations.....	38
2. THE RISE OF INTERNATIONAL DIGITAL NETWORKS: DEFINING THE DIGITAL DIVIDE.....	41
2.1 Introduction.....	41
2.2 A brief overview of the evolution of the infrastructure of the internet.....	42
2.3 The Digital Divide.....	50
2.3.1 Internet Diffusion/Access.....	55
2.3.2 IT Penetration.....	59
2.3.3 Alternative Development.....	61
2.3.4 Human Capital Base.....	63
2.3.5 Competition and Telecommunications Policy.....	65
2.3.6 Innovation, Technology Transfer and Trade.....	69
2.4 Conclusion: Defining the Divide.....	71
3. INTERNATIONAL TELECOMMUNICATIONS.....	78
3.1 Introduction.....	78
3.2 The ITU.....	82
3.2.1 Cooperation Agreement between the ITU and WTO.....	84
3.2.2 Accounting rates and New Modes of Operation.....	85
3.2.3 Interconnection.....	90
3.2.4 VoIP.....	94
3.3 The WTO.....	96
3.3.1 Classification of Telecommunication issues.....	102
3.3.2 Network-based transactions and complementary services.....	106
3.3.3 Electronic intangibles.....	108
3.4 Developments in multilateral telecommunications measures.....	109
3.4.1 Annexe on Telecommunications and the Reference Paper.....	109
3.4.2 The Reference Paper in light of <i>Mexico-Telmex</i>	114
3.4. Conclusion.....	119
4. INTERNET INTERCONNECTION	
4.1 Introduction.....	120
4.2 Overview of internet peering and transit.....	123
4.3 Overview of the players in the internet market and structural breakdown of a typical international backbone operator.....	127
4.4 Anticompetitive effects of internet interconnection.....	131
4.4.1 Further anticompetitive practices.....	134
4.4.2 Abuse of market position.....	136
4.4.3 Settlements.....	142
4.5 Internet Interconnection under the WTO.....	151
4.6 ITU Recommendation D.50 and the APEC Principles.....	155

4.7 Conclusion.....	157
5. OVERVIEW OF THE EUROPEAN FRAMEWORK FOR ELECTRONIC COMMUNICATIONS MARKETS.....	161
5.1 Introduction.....	161
5.2 The European Commission's (EC's) new regulatory framework for electronic networks and services ("New Framework").....	163
5.2.1 Objectives.....	163
5.2.2 Instruments.....	163
5.2.3 Significant Market Power.....	165
5.3 Conclusion.....	168
6. A NEW LAYERING THEORY FOR REGULATING COMMUNICATIONS NETWORKS AND SERVICES?.....	171
6.1 Introduction.....	171
6.2 The Layered Policy Model.....	173
6.2.1 The United States.....	174
6.3 A New Regulatory Framework for TCP/IP networks?.....	178
6.3.1 How does the Commission define markets?.....	184
6.3.2 Market Share.....	187
6.3.2.1 Collective dominance/interdependent markets.....	188
6.3.3 Weaknesses in current test of Market Definition in Internet Cases.....	189
6.4. Applying the Layering Theory at the Multilateral Level.....	200
6.5 Conclusion.....	201
7. DEVELOPING COUNTRIES AND TELECOMMUNICATIONS.....	206
7.1 Introduction.....	206
7.1.1 Background.....	208
7.2 Developing Countries, the Reference Paper, and the Layering Theory.....	210
7.3 Using the New Modes of Operation in reverse.....	219
7.4 ITU Recommendation D.50 and packet-switched networks.....	223
7.5 Classification of Telecommunication Services in the next trade round.....	226
7.6 World Summit on the Information Society.....	229
7.7 Conclusion.....	241
8. TECHNOLOGY TRANSFER	243
8.1 Introduction.....	243
8.2 The position of developing countries.....	245
8.3 Foreign Direct Investment.....	249
8.3.1 FDI Internalised/Externalised transfers.....	250
8.3.2 FDI horizontal/vertical.....	253
8.4 Spillover.....	257
8.5 Technology transfer at the multilateral level.....	259
8.6 International investment agreements and technology transfer.....	265
8.7 Conclusion.....	267
9. THE CLASSIFICATION OF ELECTRONIC INTANGIBLES IN THE WTO.....	279
9.1 Introduction.....	279
9.2 Why be concerned with Classification?.....	281
9.3 Structural differences between the GATS, GATT, and TRIPS.....	285
9.4 Establishing a legal framework.....	288
9.4.1 Legal/Economic rules for distinguishing between goods/services.....	288
9.4.2 The Principle of Trade Neutrality.....	294
9.4.3 The Principle of Technological Neutrality.....	297

9.4.4 The Principle of Progressive Trade Liberalisation.....	298
9.5 The position of the United States and European Communities on the classification of electronic intangibles.....	298
9.6 <i>US_Gambling</i>	307
9.7 Conclusion.....	311
10. ENFORCING THE RIGHT TO DEVELOPMENT THROUGH TECHNOLOGICAL PROCESSES.....	320
10.1 Introduction.....	320
10.2 Brief Outline of the evolution of Development Theory.....	323
10.2.1 Constructing development in practice.....	324
10.2.2 Outline background to the UN Right To Development.....	326
10.2.3 Opposition to the RTD.....	328
10.3 ICTs and Development.....	331
10.4 Economic Development.....	338
10.4.1 The US Millennium Challenge Account (MCA).....	338
10.4.2 The UK Commission for Africa.....	340
10.4.3 Enforcing the RTD through International Economic Law.....	343
10.5 The Economic Right To Development Theory.....	345
10.6 The RTD and Collective Rights.....	347
10.7 The RTD and Economic Law.....	350
10.8 Obligations at the domestic (target state) level.....	354
10.9 The legal obligation.....	356
10.10 The Right To Development Tax Relief.....	359
10.11 Linking the Right To Development with economic growth (GDP) and (FDI).....	361
10.12 The link between FDI, GDP and the RTD.....	365
10.13 The RTD Development Compact.....	369
11. OPERATIONALISING THE RTD: the RTD Tax and Universal Periodic Review.....	372
11.1 Introduction.....	372
11.2 Right To Development.....	373
11.2.1 RTD Criteria: Core Norm, attributes and indicators.....	374
11.2.2 Problems with indicators and recommendations.....	375
11.2.3 Reconciling the RTD Tax Relief with the RTD Criteria.....	376
11.3 Operationalising the RTD Tax Relief: The UK Example.....	377
11.3.1 The Company's wider duties and technology transfer credit.....	378
11.4 The Universal Periodic Review (UPR).....	340
11.5 Conclusion.....	381
12.CONCLUSION.....	384
12.1 Concluding thoughts.....	396
Annexe 1 (A New Reference Paper for Bits & Bytes).....	400
Bibliography.....	402

TABLE OF NATIONAL ACTS, EC DIRECTIVES, REGULATIONS AND NOTICES, AND INTERNATIONAL TREATIES

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European Council Decision of 19 December 1994 *on the extension of the legal protection of topographies of semiconductor products to persons from certain territories* (94/828/EC)
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Technology Transfer Block Regulation EC 772/2004
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 US-Morocco (2004)
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Betting Services: Report of the Appellate Body, WT/DS285/AB/R, April 2005.

TABLE OF ABBREVIATIONS (GLOSSARY OF ACRONYMS)

Advanced Research Project Agency (ARPA)
Advanced Research Projects Agency Network (ARPANET)
Aid For Trade (AfT)
Appropriate Technology (AT)
Asia Pacific Economic Corporation (APEC)
Asynchronous Digital Subscriber Loop (ADSL)
Asynchronous Transfer Mode Technology (ATM)
Annexe on Telecommunications (AT)
Audiovisual Media Services Directive (AVMSD)
Australian Competition and Consumer Commission (ACCC)
Autonomous System (AS)
Basic Telecommunications Agreement (BTA)
Bilateral Investment Treaties (BITs)
Body of European Regulators for Electronic Communications (BEREC)
Build Operate Transfer (BOT)
Business Process Outsourcing (BPO)
Business to Business Companies (B2Bs)
Call Detail Record (CDR)
Calling Line Identification (CLI)
Central Products Classification (CPC)
Comprehensive Development Framework (CDF)
Commercial Internet eXchange (CIX)
Commission on Intellectual Property Rights (CIPR)
Commonwealth of Independent States (CIS)
Commonwealth Telecommunications Organisation (CTO)
Country code top level domain (ccTLD);
Department for International Development (DFID)
Department for Central and South Eastern Europe (CSEED)
Deep Packet Inspection (DPI)
Developing Country (DC)
Digital Subscriber Line/Loop (DSL)
Digital Solidarity Fund (DSF),
Dispute Settlement Body (DSB)
Doha Declaration on TRIPS and Public Health (Declaration)
Double Taxation Treaties (DTTs)
Electronic Communications Network Operator (ECN)
Electronic Communications Service (ECS)
Environmentally Sound Technologies (ESTs)
European Commission (EC)
Export Promoting (EP)
Federal Communications Commission (FCC)
Federal Trade Commission (FTC)
Foreign Direct Investment (FDI)
Free and Open Source Software Foundation for Africa (FOSSFA)
Free and Open-Source Software (FOSS)
Free Trade Agreements (FTAs)

G90 (WTO Coalition of developing countries)
General Agreement on Trade in Services (GATS)
General Agreement on Tariffs and Trade (GATT)
General System of Preferences (GSP)
Generic Top Level Domain (gTLD)
Gross National Income (GNI)
Gross Domestic Product (GDP)
Hypertext Transfer Protocol (HTTP) protocol
Human Rights Council (HRC)
Indefeasible Rights of Use (IRUs)
Information Communications Technology (ICTs)
Information Technology (IT)
Internet Corporation for Assigned Names and Numbers (ICANN)
International Monetary Fund (IMF)
Intellectual Property Rights (IPRs)
Integrated Switched Digital Network (ISDN)
International Backbone Operators (IBPs)
International Covenant on Civil and Political Rights (ICCPR)
International Covenant on Economic, Social and Cultural Rights (ICESCR)
International Finance Facility (IFF)
International Private Leased Circuits (IPLCs)
International Telecommunications Regulations (ITRs),
International Telecommunications Union (ITU)
International Internet Exchanges (IXPs)
International Investment Agreement (IIA)
International Maritime Satellite Organisation (INMARSAT)
International Simple Resale (ISR)
International Telecommunications Regulations (ITRs)
Internet Charging Arrangements for Internet Services (ICAIS)
Internet Governance Forum (IGF)
Internet Protocol (IP)
Internet Service Providers (ISPs)
ITU Radiocommunications (ITU-R)
ITU Telecommunication Development (ITU-D).
ITU Telecommunication Standardization (ITU-T)
ITU World Administrative Telegraph and Telephone Conference (WATTC-88)
Japan Internet Exchange (JPIX)
Kenyan Internet exchange point (KIXP)
Least Developing Country (LDC)
Local Area Networks (LANs)
London Internet Exchange (LINX)
Major Internet Exchange US West Coast (MAE-WEST)
Millennium Challenge Account (MCA)
Millennium Challenge Corporation (MCC)
Millennium Development Goals (MDGs)
Most Favoured Nation (MFN)
MultiDisciplinary Partnerships (MDPs)
Multilateral Agreement on Access to Basic Science and Technology (ABST)
Multilateral Investment Guarantee Agency (MIGA)
Multinational Corporations (MNCs)

Multinational Enterprises (MNEs)
National Competition Authorities (NCCs)
National Regulatory Authorities (NRAs)
Network Access Points (NAPs)
New International Economic Order (NIEO)
New Growth Theory (NGT)
Next Generation Networks (NGNs)
Non-Alligned Movement (NAM)
Non-agricultural market access (NAMA)
Non-Equity Modes (NEMs)
Non-governmental organisations (NGOs)
Office of Telecommunications (OFTEL, now OFCOM)
Official Development Assistance (ODA)
Open Systems Interconnection (OSI)
Open Network Provision (ONP)
Organisation for Economic Corporation and Development (OECD)
Other Licensed Operators (OLOs)
Peer-to-Peer Networks (P2P)
Permanent Sovereignty over Natural Resources (PSNR)
Permanent Virtual Circuit (PVC)
Personal Computer (PC)
Points of Presence (PoPs)
Point of Interconnect (PoI)
Public Switched Telephony Network (PSTN)
Public Land Mobile Network (PLMN)
Regulatory Reference Paper (RP)
Research & Development (R&D)
Right To Development (RTD)
RTD-Development Compact (RTD-DC)
Right To Development Theory (RTD Theory)
Service Level Agreement (SLA)
Services of a general economic interest (SGEI)
Significant Market Power (SMP)
Small, but Significant, Non-transitory Increase in Price (SSNIP)
Small Medium Sized Enterprise (SME)
Society for Worldwide Interbank Financial Telecommunication (SWIFT)
Special & Differential Rights (S&D)
Technical Barriers to Trade Agreement (TBT Agreement)
Technology Transfer Block Exemption (TTBE)
Television without Frontiers Directive (TWFD)
Trade Related Investment Measures (TRIMS)
Transmission Control Protocol (TCP)
Transit Service Providers (TSPs)
Transnational Corporations (TNCs)
Treaty of the Functioning of the European Union (TFEU)
United Nations Industrial Development Organisation (UNIDO)
United Nations Development Programme (UNDP)
United Nations central product classification (UNCPC)
United Nations International Standard Industrial Classification (ISIC)
United Nations Committee on Trade and Development (UNCTAD)

Universal Mobile Telecommunications System (UMTS)
Universal Periodic Review (UPR)
United States-Singapore Free Trade Agreement (USSFTA)
Very Small Aperture Terminals (VSAT)
Virtual Private Network (VPN)
Voice over Internet Protocol (VoIP)
Wide Area Networks (WANs)
Wireless Access Protocol (WAP)
Voice over Internet Protocol (VoIP)
World Customs Organisation (WCO)
World Intellectual Property Organisation (WIPO)
World Administrative Telegraph and Telephone Conference (WATTC)
World Summit on the Information Society (WSIS)
World Trade Organisation Working Group on Technology Transfer (WGTT)
World Telecommunication Policy Forum (WTPF)
World Telecommunication Standardization Assembly 2000 (WTSA 2000)

CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1 Introduction

In ancient history, the *Silk Road* between the East and the West provided an opportunity for the movement of labour and goods, such as silks, spices, ceramics, textiles and gems across national borders, particularly between China and Central Asia. Today, goods and services can now travel across the same types of territorial boundary, but in virtual space over the internet. As the Silk Road provided nations who could trade with increased wealth so long as they had access to the roads, the infrastructure, and the goods, so today access to the physical infrastructure of modern digital networks and the goods that flow over them is just as significant. The internet promises to be a new ‘Silk Road’ as the title to this thesis suggests, but that access to the internet is not equal for everyone creating a sense of a ‘Digital Divide’. This thesis is about how International Economic Law can be used to help address the Digital Divide between developed and developing countries. We will look more precisely at what is meant by the terms ‘Digital Divide’ and ‘Developing Countries’ in just a moment. But first, we will begin by unpacking the term ‘International Economic Law’. The noted international trade lawyer and legal jurist John H. Jackson once defined international economic law as embracing “trade, investment, services when they are involved in transactions that cross national borders, and those subjects that involve the establishment on national territory of economic activity of persons or firms originating from outside that territory.”¹ He left out competition, although it can be argued that competition by its nature would be encompassed indirectly by reference to “economic activity”. The failure of the trade negotiations at Seattle, and the collapse of the negotiations at Doha has brought increased attention to the issue of international economic law and development, specifically, the implementation of special and differential rights in favour of developing countries. This thesis examines one aspect of the many issues facing developed and developing countries in the negotiations that lie ahead: how *International Economic Law* (IEL) can be used as an

¹ Jackson J. *The World Trading System* MIT Press, 1989, p.21-22,

instrument in the application of technological processes to help address the Digital Divide.

In Jackson's terms, IEL would include a combination of Public International Law as well as including all branches of law concerned with international economic issues. Subedi has defined IEL as including "a vast array of topics ranging from public international law of trade to private international law of trade to certain aspects of international commercial law and the law of finance and investment."² Atik similarly speaks of IEL as including monetary law, competition, intellectual property, and development law³. The American Society of International Law defines IEL as encompassing international trade law, international economic integration law, private international law, international business regulation (including competition law), international financial law (including FDI), law in development, international tax law, and international intellectual property law⁴. In his thought provoking book *Perspectives in International Economic Law*, Qureshi poses three questions as critical to the understanding of IEL⁵: (i) what interests does IEL serve? (ii) what interests drive it?; and (iii) what interests exist in international economic relations? He argues "that the questions most focussed upon and often evocative are the ones which centre on the interests that drive IEL, and the interests it serves."⁶ This would include the decision-making practices of international economic organisations and the influence of the role of Transnational Corporations (TNCs) and developed economy States in shaping international economic relations. According to Qureshi, an under explored area of IEL would be the international economic interests that exist in international economic relations. Exploring this area would be the most "critical to the complete and wholesome development of the international economic order".⁷ This thesis does not attempt to do that, the scope of such an undertaking would be well beyond its boundaries, but it does seek to address in part the questions that Qureshi poses by

² Subedi S.P., Sustainable Development in *Perspectives in International Economic Law* (ed Asif Qureshi), Kluwer Law International, London 2002, p. 262.

³ Atik J., "Introductory Essay: Uncorking International Trade, Filling the Cup of International Economic Law", 2000 15(6) American University International Law Review 1231-47 at 1232.

⁴ See website of the International Economic Law group at

http://www.fletcher.tufts.edu/inter_econ_law/ielgm.html, date accessed February 2011.

⁵ Qureshi A., "Perspectives in International Economic Law-An Eclectic approach to International Economic Engagement" in *Perspectives in International Economic Law* (ed Asif Qureshi), Kluwer Law International, London 2002, p. 11

⁶ Ibid, p. 19.

⁷ Ibid.

looking specifically at how International Economic Law can help address the Digital Divide. *What is meant by the term Digital Divide?*

Research reviewed in Chapter 2 reveals that there are several definitions given for this term. First, a divide can exist between people *intra* state (the so-called ‘domestic’ divide as between rich and poor, young and old, able and less able) as well as *inter* states (the ‘international’ divide). The subject matter of this thesis is concerned with the international digital divide as exists between developed and developing nations. The available research shows that the international digital divide is linked to several factors including access to communications infrastructure and Information Communication Technology (ICT) equipment, policies on innovation, competition, and the transfer of technology, access to education and improved literacy (human capital base), and the trade in electronic intangibles. Chapter 2 reviews the available research linking these specific sectors with the Digital Divide, and further reviews several definitions of the Digital Divide by scholars available in the public domain. In the concluding part to Chapter 2, the author draws these references together to suggest a *new* definition for the international digital divide which will be used throughout this thesis:

A failure—between those users in countries who have access to communications infrastructure, services and tools to aid literacy and information literacy, and those who do not—to access the minimum available capacity of communication technologies and information within a structural context of successive innovation, competition and trade.⁸

This definition is discussed in detail in Chapter 2. From the discussion of the definition there, four sectors emerge that are instrumental in shaping the Digital Divide:

1. Competitive access and interconnection to communications and information technology networks (converging now to become *Next Generation Networks*-NGNs). NGNs can be defined as broadband networks that are layered in their structure and provide access to a range of converged services whether voice,

⁸ The term ‘Users’ can in turn be defined widely as end-users, consumers, SMEs, bodies with legal personality etc.

data, or video using one single transmission standard known as the Internet Protocol (IP). At present, current legacy networks use a variety of protocols for transmission of voice and data. NGNs are further discussed in Chapter 2;

2. The transfer of technology;
3. The trade in electronic intangibles; and
4. The human capital base.

Given these sectors, the *basis of the arguments that will underlie this thesis* include:

- a. That non-discriminatory, transparent and cost-oriented access and interconnection to the NGNs of International Backbone Operator Networks (IBPs) by DCs/LDC Internet Service Providers (ISPs) is impeded because of the lack of an effective international regulatory framework for interconnection and access to *internet* networks. Current WTO rules on interconnection do not adequately cover internet (NGN) networks;
- b. That current rules under the WTO's TRIPS agreement on technology transfer (specifically Article 66.2 TRIPS) have failed to deliver on promises of technology transfer by developed to developing nations;
- c. The current WTO rules on classification of electronic intangibles are confused and do not benefit DCs/LDCs; and
- d. That DCs/LDCs need to strengthen their human capital base. To do so will require enforcing civil and political rights and social, cultural and economic rights, and all rights collectively under a 'Right To Development', and that this RTD needs to be *operationalized*.

What is meant by the term 'Developing Country'? The WTO covered agreements do not include a specific definition of a Developing Country (although a "small nation" is defined), but many of the agreements, particularly the GATS, GATT, and TRIPS do make specific reference to the term in relation to Special and Differential rights (rights that apply specifically to benefit Developing Countries). Chapter 2 shows that the World Bank by contrast classifies DCs into four basic groups based on their level of per capita income: Low Income Economies; Lower Middle Income Economies; Middle Income Economies; and High Income Economies. The World Bank also refers to the Upper Middle Income Economies as "newly industrialized" economies. This

will be discussed further below. There is no international consensus for the term “Developing Country” and the United States and European Communities have differing definitions referred to in various statutes and often tied to *General System of Preferences* (GSP) regimes that certain developed countries apply. Rather, countries use the term “developing country” on the basis of self-selection.⁹ Basheer and Primi for example argue of self-selection:

The self-selection of countries may not represent their true status, as such selection could be a politically strategic choice. The WTO grants transitional windows to developing countries that wish to take more time to comply with WTO obligations. To date, all WTO member states with the exception of the United States, the European Union, Canada, Japan, and New Zealand have at one time or another classified themselves as developing countries for the purposes of the WTO.¹⁰

As mentioned earlier, the World Bank considers countries with low or middle-income levels as “developing”. In a recent classification, economies are grouped by using the 2009 Gross National Income (GNI) per capita figures. Economies are divided according to 2009 GNI per capita as: low income, \$995 or less; lower middle income, \$996 - \$3,945; upper middle income, \$3,946 - \$12,195; and high income, \$12,196 or more.¹¹ The World Bank states that: “Low-income and middle-income economies are sometimes referred to as developing economies. The use of the term is convenient; it is not intended to imply that all economies in the group are experiencing similar development or that other economies have reached a preferred or final stage of development.” By using these measurements, countries with GNI per capita below US\$12, 195 are classified as ‘developing’.

⁹ Keck, Alexander and Patrick Low, *Special and Differential Treatment in the WTO: why, when and how?* WTO Staff Working Paper ERSD-2004-03, Geneva: WTO, May 2004.

¹⁰ Basheer S. and Primi A., *The WIPO Development Agenda: Factoring in the “Technologically Proficient.” Developing Countries*, in Jeremy De Beer, *Implementing the World Intellectual Property Organization’s Development Agenda* (Wifrid Laurier Press, 2009), p.4.

¹¹ See World Bank classification at: <http://data.worldbank.org/about/country-classifications>, accessed February 2011.

Basheer and Primii argue that developing countries should be distinguished between those that are ‘technologically proficient’ and those that are not. They measure technological proficiency according to an index comparing (1) the share of medium- or high-technology products in total manufacturing value added, following the UNIDO classification, and (2) R&D expenditure as a percentage of GDP along horizontal and vertical axis. According to Basheer and Primii’s ‘technological proficiency’ indices, the following countries can be classed as ‘technologically proficient’ developing countries: Russia, Taiwan, China, India, Brazil, South Africa, Ukraine, Malaysia, Belarus, Argentina, Mexico, Turkey, Chile, and Indonesia.¹² The greater majority of the Least Developed Countries (LDCs) would fall outside of this classification.

The UN *Conference on Trade and Development* has created a specific list for LDCs.¹³ At the time of the 2003 review of the list, the following three criteria were used by the UN to classify a country as an LDC: *low income*, in the light of a three-year average estimate of the gross national income per capita (under \$750 for cases of addition to the list, above \$900 for cases of graduation); *weak human assets* (measured through a composite Human Assets Index); and *economic vulnerability* (measured through a composite Economic Vulnerability Index).¹⁴ By contrast, Horn and Mavroidis have created a list of developing countries selecting those countries as developing, which are both *not* members of the Organization for Economic Co-operation and Development (OECD) and *not* in the group of LDCs (UN classification).¹⁵

The distinction between DCs and LDCs is important as the WTO has within its covered agreements established separate Special & Differential (S&D) rights for both DCs and LDCs, where LDCs are able to take advantage of a broader selection of S&Ds than are otherwise available to DCs as a whole. A S&D can provide a country with a range of benefits including lower export duties, a greater range of access to preferential tariffs, exceptions to imposition of TRIPS obligations etc. The full list of

¹² Ibid, p.5.

¹³ UN Conference on Trade and Development. 2002. UN recognition of the Least Developed Countries. <http://www.unctad.org/Templates/Page.asp?intItemID=3618&lang=1>, accessed February 2011.

¹⁴ Ibid.

¹⁵ Horn, H., and Mavroidis P.C, *Remedies in the WTO Dispute Settlement System and Developing Country Interests*. Stockholm University, 1999.

S&Ds open to LDCs is set out in Annex III to the UN's *Handbook on the Least Developed Country Category*.¹⁶ The discussion of S&Ds is further covered in Chapters 7 (developing countries) and 8 (technology transfer).

The Committee for Development Policy (CDP and part of the UN's Development Policy and Analysis Division, the main research development division of the UN Secretariat¹⁷), has made clear recently the criteria¹⁸ to be used for classifying a country as a LDC. In the CDP's update of September 2011¹⁸, the CDP builds on the initial UN criteria established in 1971 as requiring a low capita gross domestic product (GDP) and structural impediments to growth for inclusion as a LDC. At its plenary session in 2011, however, the CDP now defines LDCs as 'low-income countries suffering from the most severe structural impediments to sustainable development.'¹⁹ The emphasis on 'sustainable development' is to encompass broader concerns of economic, social, and environmental development rather than a focus simply on the ability to manufacture or not (as indicated by the earlier criteria emphasising GDP for example). With the more recent emphasis on sustainable development, the criteria for definition now include Gross National Income (GNI). The CDP uses three specific criteria that need to be satisfied: (a) Gross National Income per capita; (b) Human Assets Index (HAI), and (c) Economic Vulnerability Index (EVI). For the GNI criterion, the threshold for inclusion is based on a three-year average of the level of GNI per capita, which the World Bank defines for identifying low-income countries (discussed above). The HAI criterion is an indicator for the level of development of human capital within the relevant country. The HAI consists of a simple average of four sub-indicators (two for health and nutrition and two for education). According to the CDP, the HAI threshold for inclusion is 'determined by the index number corresponding to the third quartile in the distribution of HAI results for the reference group of all least developed and other developing countries under review'.²⁰ The EVI criterion by contrast incorporates eight indicators, which are grouped into two broad

¹⁶ Available at: http://www.un.org/en/development/desa/policy/cdp/cdp_ldcs_handbook.shtml, accessed April 2011.

¹⁷ <http://www.un.org/en/development/desa/policy/index.shtml>, accessed April 2012.

¹⁸ LDC Information: The criteria for identifying Least Developed Countries at: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_criteria.shtml, accessed April 2012.

¹⁹ Supra 16, p.1

²⁰ Supra 16, p.1. Therefore if the reference group consists of 60 countries, there will be 45 countries whose HAI score are *below* the threshold and meet the HAI inclusion criterion.

categories (an exposure index and a shock index). Both these categories provide an indication of the risk of exposure of the country to external shocks that impact on a country's development. The EVI categories are not meant to indicate vulnerabilities that result from economic decisions made by the country in the past. Furthermore, the recently amended EVI (2011) now incorporates further criteria meant to reflect populations living in elevated coastal zones and victims of natural disasters due to climate change. According to the CDP, the EVI threshold for inclusion is the 'value of the index at the first quartile of the values of the reference group'.²¹ Furthermore, the CDP has introduced a new criterion in addition to GNI, HAI and EVI, such that a country cannot be classed as a LDC if it has a population in excess of 75 million.²²

The economist Hans Gosling has also produced fascinating graphics that seek to illustrate both the diversity of DCs and LDCs within Africa, for example that Cape Verde as an African country has a life expectancy at least 22 times greater than Swaziland, and that the income per person in South Africa (USD\$9, 284) is almost 25 times greater than that of the Democratic Republic of Congo (USD\$374)²³. Gosling's argument in general is that the distinction between developed and developing countries are itself fast blurring, and that the continent of Africa contains within it a diverse range of countries. Gosling's statistics point however to the fact that many of the countries of Sub-Saharan Africa show the lowest indices for life expectancy and income per person.

This thesis therefore will use the *World Bank's definition of a developing country as a country with a GNI per capita as below US\$12, 195*. Recent available statistics on GNI from Nationmaster (**2011**) reveals that both China at circa US\$865 and India at

²¹ Therefore if the reference group consists of 60 countries, there will be 45 countries whose EVI score are *above* the threshold and meet the EVI inclusion criterion.

²² The country can continue to enjoy LDC status (and not 'graduate' from outside the LDC category) if at the time of evaluation, the population is at 75 million, but grows in excess of this figure over time. The CDP have established a set of graduation rules or thresholds where for example the country in concern ceases to meet two of the criteria listed above (with the exception of where GNI per capita is at least twice the graduation threshold levels). Graduation refers to the process of the country under review moving out of the LDC country as its economic and sustainable development criteria improve with time. The UN (CDP) have established specific rules for graduation which have been refined over time, but the latest set of rules are set out in the UN's Handbook on the Least Developed Country Category at: http://www.un.org/en/development/desa/policy/cdp/cdp_ldcs_handbook.shtml, accessed April 2012.

²³ <http://www.gapminder.org/>, accessed May 2012.

US\$441 will qualify as ‘DCs’ under this definition.²⁴ Singapore by contrast would not fall within this definition. In addition, the thesis will use the definition of LDCs as given by the UN’s CDP described above. In this respect, many of the sub-Saharan countries of Africa would be included in the UN’s definition of LDCs.²⁵

Does a Digital Divide exist? As mentioned above, Chapter 2 reviews research to show that it does, but that the divide is closing. A lack of modern telecommunications and internet infrastructure is one reason for its existence, particularly in Africa. For example, UNCTAD’s *World Investment Report 2008* reports that, “.in Africa, total TNC investment commitments in infrastructure during the decade spanning 1996–2006 were \$45 billion – an amount (even if fully realized) that is barely equivalent to the region’s current *annual* infrastructure investment needs of \$40 billion”²⁶. Infrastructure in this context includes water and sewerage, electricity, transport, seaports as well as telecommunications. But the problem is not just a lack of infrastructure. Also, the existence of the digital divide concerns a lack of effective competition in the *access* to communications networks and services for end-users even with the infrastructure in place. Chapter 3 (international telecommunications) demonstrates that this problem with interconnection/access arises due to the inequality in bargaining positions between developed country operators (whether telecommunication or backbone internet operators--IBPs) and DC/LDC Internet Service Provider (ISP) operators, but that also *within* developing countries, the problem of a domestic divide exists because of an inequality between large incumbent monopoly operators who dominate data and voice infrastructures and smaller independent ISPs (Chapter 4). The divide is exacerbated because of the high costs for end-users in DCs/LDCs in gaining access to domestic and international networks and the lack of a an international regulatory regime covering access and interconnection for internet (NGN) networks. Further, Chapter 2 shows that a digital divide exists because of the lack of opportunity and training of a DC/LDC’s human capital base, and that to enhance the human capital base, states need to invest and enforce both economic, social and cultural rights, *and* civil and political rights.

²⁴ See GNI figures by countries at: http://www.nationmaster.com/graph/eco_gro_nat_inc_percap-gross-national-income-per-capita, accessed February 2011.

²⁵ A full list of LDCs can be seen at: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf, accessed April 2012.

²⁶ *World Investment Report 2008*, UNCTAD, p.17.

This thesis attempts to address the following questions:

- (i) Can IEL be used to help address the Digital Divide between developed and developing nation states?
- (ii) Can IEL be used to accelerate the process of development in developing and least developed countries through *technological processes* (viz., telecommunications and technology transfer)? and;
- (iii) Is it possible to define a relationship in IEL between civil and political, and economic social and cultural rights as a collective for example in the form of the much debated and somewhat controversial *Right to Development* (the “RTD” as defined in this thesis) on the one hand, with economic indicators, such Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) on the other? If so, how can the RTD be ‘*operationalised*’?

1.2 Methodology and Overview Structure

The methodology is based on desk research drawing mainly from WTO treaty law and jurisprudence. The methodology starts with a review based on doctrinal analysis of available scholarship on the digital divide (Chapter 2), which further to the definition of the digital divide set out in section 1.1 above highlights the following sectors as relevant:

- Competitive access and interconnection to communications and information technology networks (NGNs);
- The transfer of technology;
- The trade in electronic intangibles; and
- The human capital base.

The methodology then seeks to review the current regulation of these sectors (see below) identifying weaknesses and proposing potential solutions to address weaknesses. A comparative review of the EC’s New Regulatory Framework for electronic networks and services with the WTO’s regulatory Reference Paper is

completed in Chapter 6. In Chapter 11, the thesis includes a case study approach of amendments to the UK's Financial Services Act 2002 to introduce a tax credit to incentivise multinationals to transfer technology to producers in DCs and LDCs as a means of **operationalising** the RTD. The UK is chosen for review given the advanced status of its tax regime and established history of providing development aid to DCs and LDCS through an existing institutional framework represented by the Department for International Development (DFID). The Author argues in Chapter 11 that with such a tax credit mechanism established, the mechanism could be enforced as part of the UK's reporting obligations under the UN's *Universal Periodic Review* (UPR), and could provide the basis for other developed countries, particularly the Quad countries of the United States, the European Communities, Japan and Canada to follow suit.

1.2.1 *How are the sectors currently regulated?*

Chapter 2 discusses the rise of international backbone digital networks and the move to NGNs. The chapter illustrates how NGNs are layered in their physical structure and the corresponding problems for regulators in regulating such networks. Following a period of public consultation on concerns with access to NGNs, the European Commission issued a new *Recommendation on Regulated Access to Next Generation Access Networks* in 2010,²⁷ which sets out requirements for increased transparency and access obligations to SMP operators of NGN networks, and requirements to share collocation and duct capacity for fibre optic networks. The recommendation is discussed in Chapter 6.

Chapter 3 discusses how international telecommunications is currently regulated, particularly under rules of the WTO, specifically the regulatory Reference Paper to the Fourth Protocol, but that NGNs as internet networks currently fall *outside* this regulatory structure leaving a regulatory vacuum for rules on internet interconnection and access to NGNs.

Chapter 4 goes deeper, looking specifically at internet interconnection, the nature of peering and transit agreements and how larger backbone providers (IBPs) can abuse

²⁷ Commission recommendation on regulated access to Next Generation Access Networks, 2010/572/EU, 20th September 2010.

their positions of dominance. Chapter 4 is significant in that it attempts to illustrate the difficulties associated with internet interconnection, a matter of private contract often governed by non-disclosure agreements, and outside the regulatory jurisdiction of the WTO. Although Chapter 4 makes some reference to an older 2001 DFID report, drawing on a review of IBP contracts based on the author's own experience in private practice negotiating such agreements on behalf of IBPs with ISPs and vice-versa, much of Chapter 4 contains new material. The problems on interconnection and access identified in Chapter 4 (and highlighted below) remains prevalent as evidenced by several sources cited by the author covering reviews of the sector over the intervening years from the DFID report. This includes research by Marcus and Elixmann (2008)²⁸, Lie (2007)²⁹, the Internet Governance Forum (2007)³⁰, and Roseman (2003)³¹. Also, market power concerns with IBPs have been investigated in competition investigations, such as *MCI/WorldCom/Sprint*³², *Bell Atlantic/GTE*³³, and *AT&T/TCI*³⁴, and more recently in wholesale and retail internet services in allegations of margin squeezing in *Wanadoo Espana v. Telefonica*³⁵, and *Deutsche Telekom v. European Commission*³⁶ where in October 2010 the European Court of Justice upheld a finding against Deutsche Telekom for margin squeezing.³⁷

Chapter 4 makes clear that IBPs do not necessarily **prevent** access and interconnection. In fact, IBPs will want to interconnect with other large ISPs in order to expand their network coverage. IBPs interconnect by means of *peering* and *transit* agreements. Peering and transit are terms that are more fully defined in Chapter 4:

²⁸ Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, a study for the European Commission, January 2008

²⁹ Lie E., *International Internet Interconnection, Next Generation Networks and Development*, Global Symposium for Regulators, Dubai, 2007, discussion paper available at: http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/discussion_papers/Eric_lie_international_interconnection.pdf, accessed February 2011.

³⁰ Internet Governance Forum 2007: Best Practice Session Report, IXP Exchanges at: <http://www.isoc.org/educpillar/resources/docs/igf-ixp-report-2007.pdf>, accessed February 2011.

³¹ Roseman D., *The Digital Divide and the competitive behaviour of internet backbone providers-a way forward*, 2003.

³² Case No COMP/M.1741 - MCI WorldCom / Sprint, June 2000.

³³ Case No. 1:99CV01119, US Department of Justice, May 1999.

³⁴ Case No. 1: 98CV03170, Columbia District Court, 1998. See also EC Case No IV/M.1252-AT&T/TCI, December 1998.

³⁵ COMP/38.784, July 2007. A summary of the Commission Decision was published in OJ C 83/6 of 2.04.2008.

³⁶ Case 271/03. OJ C 128 of 24.05.2008.

³⁷ *Deutsche Telekom AG v Commission*, Case C-280/08 P, EU Press Release 104/10 at: <http://curia.europa.eu/jcms/upload/docs/application/pdf/2010-10/cp100104en.pdf>, accessed February 2011.

‘peering’ refers to the exchange of internet traffic on a settlement free basis between operators, whilst ‘transit’ refers to the payment by one operator to another for its traffic to be transported across the payee’s network. Chapter 4 makes clear that IBPs can degrade the quality of interconnection and also refuse to *peer* on a settlement free basis with smaller ISPs so as to *migrate* smaller ISPs to transit contracts where ISPs will need to pay tariffs that are not transparent or cost-oriented for transit services. This raises the costs to end-users and exacerbates the digital divide.

Also, Chapter 4 stresses that another impediment to developing country ISPs is gaining access to the incumbent telecommunication operator’s network in their own country. State incumbents with internet subsidiaries have incentives to raise the price of interconnection to other ISPs. Again, this raises the prices for end-users. Also Chapter 4 discusses various forms of anticompetitive practice that can arise where an IBP can leverage its dominance from primary to secondary downstream markets and can margin squeeze. Bundling is also discussed, although the chapter notes that **pro competitive and aggressive bundling can also be of benefit to consumers**. For example, when competition takes the form of *bundle v. bundle*, bundling will only be abusive if the price of the entire bundle is predatory.³⁸ This together with the *pro competitive* aspects of price discrimination are discussed further in Chapter 4 (Section 4.4.1 (*Settlements*)).

Chapter 5 reviews the framework for European Community rules on electronic networks and services (‘new regulatory framework’). Chapter 6 suggests how the current EC’s new regulatory framework for defining a relevant product market in internet markets is *flawed* (Chapter 6.3.3). For example, the judgment of the CFI in *Microsoft*³⁹ has been much criticized by various scholars on focusing too much on the structural issues of competition as opposed to whether actual harm had been caused to consumers⁴⁰. And in a different case involving Sun Microsystems and Microsoft,

³⁸ Papandropolous P., Tying and Bundling, *Competition Law Insight*, June 2006, p.4

³⁹ *Microsoft Corp v Commission* [2007] ECR II-3601 (CFI).

⁴⁰ See for example: A. Witt, 'The Commission's guidance paper on abusive exclusionary conduct - more radical than it appears?' E.L. Rev. 2010, 35(2), 214-235; B. Vesterdorf, 'Article 82 EC: Where do we stand after the Microsoft judgement?' *Global Antitrust Review* (2008); H. Schmidt, 'Article 82: is technological integration checkmated?' J.B.L. 2009, 4; J. Robinson, 'The Microsoft Browser case: why the Commission's decision fails to convince', J.E.C.L. & Pract. 2010, 1(4), 317-319; S. Subramanian, 'The Microsoft decision: a setback to IP rights in Europe?' J.I.P.L.P. 2010, 5(4), 245-259; A. Toth,

where Sun sued Microsoft in an attempt to prevent the capturing of the open standard of *Java*, and turning it into a closed standard, Sun failed to establish any antitrust claim because the Court of Appeals in applying standard competition analysis found that there could be no market distortion in the absence of a strict market definition, as a prerequisite to identifying any market distortion is a clear definition of the relevant market.⁴¹ Also Section 6.3.3 identifies specific issues of temporal distortions, *Schumpeterian* competition (rise and fall of dominance in rapidly innovating markets), and high levels of product differentiation, which makes the EC's current test of market definition in NGN markets particularly problematic.

Chapter 6 suggests how current rules on electronic networks and services can be used to develop the basis for a new *Layering Theory* to deal with market definition for internet (NGN) cases and the potential for abuse of dominant positions by IBPs on both domestic EU and international backbone networks. Chapter 6 then goes on to describe how the Layering Theory can be incorporated into the WTO's regulatory Reference Paper (RP), amending the RP with the inclusion of extra clauses and the four layers as set out in *Figure 1* (Chapter 6) so that it becomes relevant to the interconnection and access of internet (packet-switched) (NGN) networks. As mentioned above, the RP only applies currently to voice (circuit-switched) networks. A reworked version of the full RP incorporating the Layering Theory and *Figure 1* layers is set out in *Annex 1* to the thesis.

Chapter 7 then applies this Layering Theory to DC and LDCs both in addressing access and interconnection to the IBP international backbone networks, and also within domestic DC/LDC environments in gaining access to the digital networks of DC/LDC national incumbent telecommunication operators. The relevance of the Layering Theory is in restricting the abuse of dominance by DC/LDC state incumbents. Although the Layering Theory can grant more transparent and non-discriminatory access by DC/LDC operators to *developed* country NGN networks (thus allowing for cheaper distribution and export of electronic intangible products

'Protection of investments in European abuse of dominance cases' E.C.L.R. 2008, 29(12), 710-716; A. Andreangeli, 'Interoperability as an "essential facility" in the Microsoft case - encouraging competition or stifling innovation?' E.L. Rev. 2009, 34(4), 584-611.

⁴¹ Elkin-Koren N., and Salzberger M. E., Law, *Economics and Cyberspace: The effects of Cyberspace on the Economic Analysis of Law*, Edward Elgar, 2004, p. 44 (citing the case of Sun Microsystems Inc, 333 F. 3d 517, p.532.)

sourced and exported from DC/LDC markets where they are cheaper to manufacture—and subject to adequate technology transfer provisions, discussed below), the real power of the Layering Theory is in guaranteeing access by smaller ISPs to the state incumbent's NGN network in DC/LDCs. This is not just an issue of domestic law, but also of international economic law.

The reason for this is that access by DC/LDC ISPs to IBPs requires both *domestic* interconnection (regulated by domestic law) with the incumbent network and *cross border* interconnection (regulated by IEL) with the IBP's network *by way* of the domestic incumbent international gateway network. DC/LDC ISPs need non-discriminatory access on cost-oriented rates to such networks. A failure to interconnect in this way will lead to higher prices being passed down to consumers, thus exacerbating the digital divide. For circuit-switched (voice) networks, this problem of cost-orientation was very well demonstrated in the WTO's *Mexico-Telmex* case discussed in Chapter 3. This thesis argues that the problem is even more acute with internet networks as there is no regulatory framework within the WTO to regulate interconnection on internet networks. Chapter 7 also makes the distinction between greater access to international backbone networks controlled by companies based in developed country markets, but also better access by smaller ISPs to the domestic incumbent networks of DCs/LDCs. As the discussion earlier in this introduction noted, there is a further distinction to be made between the competitive environments in DCs to that of LDCs. As chapter 7 makes clear, telecommunication markets in LDCs tend to be controlled by the dominant incumbent operator with a majority shareholding of the incumbent itself being held by the LDC's respective government. LDC markets therefore need a higher level of ex-ante or sector specific regulation as opposed to ex-post or market competition regulation. For example, telecommunication markets in India, a pro competitive DC are quite different to the markets of a number of sub-Saharan African LDCs, such as Sudan, Ethiopia or Mali. And within the grouping of Sub-Saharan African countries there are also great differences in terms of telecommunications development with South Africa, Ghana and Nigeria demonstrating with greater telephone line density rates than Republic of Congo, Malawi, and Angola for example. As mentioned, Chapter 2 looks at digital divide issues in general.

Chapter 7 makes reference to the World Summit on the Information Society (WSIS). The WSIS was a two-phase United Nations (UN) summit to create a multi-stakeholder platform at national, regional and international levels. The first phase took place in Geneva from 10 to 12 December 2003 and the second phase took place in Tunis, from 16 to 18 November 2005. The main aim of the first phase was to develop a clear statement of political will for a global Information Society. This led to the agreement of the *Geneva Declaration of Principles and Geneva Plan of Action* that were adopted on 12th December 2003.⁴²

The aim of the second phase was to implement the Geneva Plan of Action and find solutions and reach agreements in the fields of Internet governance, financing mechanisms, and follow-up and implementation of the Geneva and Tunis documents. This led to the *Tunis Commitment and Tunis Agenda for the Information Society* both of which were adopted on 18 November 2005.⁴³

In the build up to the November 2005 WSIS (2nd Tunis meeting), there was heated discussion on how the governance of the Internet should be managed. The main issue for many DCs/LDCs (particularly China and India, and countries within the G90, but also some developed countries) was the continuing dominance of the US in the global management of the Internet. To address these issues, four models for future governance were proposed by the WSIS Working Group on Internet Governance to stakeholders in July 2005. The WSIS, however, was not able to achieve consensus on future internet governance other than the creation of the *Internet Governance Forum* (IGF), which is mainly a discussion stakeholder forum of governments, civil society, business and academic community without technical decision making capability. In December 2010, the life of the IGF by resolution of the UN General Assembly was extended for a further period of five years (2011-2015).

Since WSIS 2005, a cluster of WSIS-related events has been held on an annual basis. In 2009, the cluster of WSIS-related events was rebranded as the *WSIS Forum* with the latest 2012 Forum to be hosted by the ITU in Geneva, where issues of internet

⁴² http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1161%7C1160, accessed April 2012.

⁴³ http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=2266%7C2267, accessed April 2012.

governance and security will be discussed. Further details of the WSIS are discussed in Chapter 7.

Chapter 8 looks at the regulation of technology transfer under the TRIPS Agreement, specifically Article 7, 8, 31, and 66.2 TRIPS. The chapter looks at the special and differential rights (rights that favour developing countries) under TRIPS and the current failings of the system to guarantee and enforce such rights. Also, the chapter addresses the problems faced by DCs/LDCs in negotiating free trade and bilateral trade agreements with the Quad Countries (United States, Canada, European Community and Japan), particularly as regards intellectual property rights. The chapter illustrates the higher standards required by the Quad on IPR negotiations with DCs/LDCs (so called TRIPS-Plus provisions).

Chapter 9 looks at WTO rules on the classification of electronic intangibles and the tensions over a GATS (services) based classification for electronic intangibles as opposed to a GATT (goods) based classification. The chapter indicates that GATS is the preferred regulatory regime for those states (net importers of IP) who wish to discriminate on imports on the basis of cultural content as opposed to those who favour a GATT based regime (net exporters of IP) with rules on tariff reductions and rules of origin.

Chapter 10's focus is on the Right To Development (RTD). The chapter looks at the RTD as a composite of rights and how several international human rights instruments currently regulate the RTD. Chapter 10 argues that in order to enhance the human capital base to address the digital divide, both civil and political, and economic, social and cultural rights need to be enhanced as a collective form of the RTD. Chapter 10.10 introduces the concept of a RTD Tax relief based on a set of legal *Terms* and economic *Measures* to be determined by the WTO's Working Group on Technology Transfer (WGTT). The aim of the RTD Tax Relief is to provide an economic incentive to MNCs (or TNCs) in the developed world to transfer beneficial technology services to DCs/LDCs. Chapter 11 then looks at how the RTD Tax Relief could be *operationalised* at a country-specific level, taking the example of the UK, and through the mechanism of the UN's Universal Periodic Review (Chapter 11.4).

1.2.2 *Specific Problems identified*

This section provides an overview of specific problems identified by the thesis (numbered 1-6 below) in the current regulation of sectors relevant to the digital divide and specific solutions to these problems (a-e). In reviewing the relevant law in Chapters 3 and 4 the thesis identifies the first four problems in IEL in the telecommunications and internet sectors that need to be solved if the Digital Divide is to be addressed:

- (1) A lack of awareness as to how the ‘international rules of the game’ regulating international telecommunications can be used to assist DCs and LDCs to gain better terms for access and interconnection for both conventional voice and data circuits (Chapter 3); and
- (2) The inadequacy of WTO law to regulate IBPs who are fast upgrading their networks to NGNs and who enjoy market power and control of access through peering and transit worldwide to international Internet Exchanges (IXPs) to which DC and LDC operators seek access. The present WTO Regulatory Reference Paper does not adequately cover internet interconnection (Chapters 3 and 4);
- (3) The incentives for IBPs to migrate smaller ISPs from settlement free peering agreements to paid transit contracts often governed by non-disclosure agreements and where terms are not negotiated on a transparent, non-discriminatory and cost-oriented basis (Chapter 4); and
- (4) The lack of IXPs in DCs and LDCs, particularly in Africa, that helps sustain the monopoly grip of large local incumbent telecommunication operators in the developing world (Chapters 3 and 6).

A further problem is the presence of a high concentration of IXPs located in developed countries, which require DC/LDC ISPs to transit their traffic to such exchanges (thus paying for the transport of large volumes of data).

To address these problems, the author recommends:

- (a) Incorporating a new *Layering Theory* to enhance effective competition in international backbone networks (and all the layers in NGN networks) in local laws at the national level that can be enforced by National Regulatory Authorities (NRAs)/National Competition Authorities (NCCs) in developed countries; at the regional level by powerful trade blocks and pan-regional regulators, such as the European Commission; and at the multilateral level by the WTO for the regulation of advanced cross-border communications networks (Chapters 4-6);
- (b) Applying the international rules of telecommunications *in reverse* to gain better terms by DCs and LDCs for access and interconnection to international voice and data circuits (Chapter 7); and
- (c) Incorporating the Layering Theory into domestic laws of DCs and LDCs and *enforcing* it at regional IXP exchanges in the developing world, particularly in Africa (Chapter 7).

The author does *not* discuss the US regulatory system in the context of the Layering Theory. The author makes clear in Chapter 5 that the reason for this is that the US system is built on a silo approach, which is inflexible as compared with the EC's framework. The author argues that many DCs/LDCs--with the failure of the US system of regulation to deal with new advanced internet services--should look to the European framework as a future model for regulation of NGNs. More advanced DCs, such as China, India and South Africa are already in a position to immediately implement the Layering Theory. Already China and India are following EU policy on defining dominance (see below).

The Layering Theory sets out a new interpretation of the test of dominance (Significant Market Power-SMP) within EC competition law, modifying the test as

established in the case of *United Brands*⁴⁴. The theory aims to provide regulators with a tool to accurately define a relevant market, which as mentioned above for the electronic networks and services sector has proven difficult as evidenced by recent cases, such as *Microsoft*⁴⁵. Chapter 6 makes clear that the implementation of the theory requires the installation of *deep packet inspection* (DPI) devices at internet exchanges which can measure the individual *Component Parts* that constitute an electronic service. Chapter 6 (6.3.3) defines a Component Part as “a part of an Electronic Communications Service defined as either hardware or software and which falls into one of the Layers as defined in Figure 1. An Electronic Communications Service may consist of one or several Component Parts.” *Figure 1* (Chapter 6) refers to the four layers that constitute the Layering Theory as follows:

Content

Applications

Transport

Access

The Layering Theory makes it possible then to define any service that is required, simply by looking at which of the Layers that particular service’s Component Parts fall into. A service may be made-up of multiple Component Parts or only one Component Part. It follows that we should then be able to determine how many times a particular operator provides a particular electronic communications service (through use of an efficient system of cost accounting), and therefore the number of times a Component Part may or may not be used over a defined period of time within each Layer.

The **economic significance of each Component Part** is then determined by asking the question as to whether selling a smaller quantity of the Component Part at a higher price would be more profitable for the undertaking than selling a larger quantity at a

⁴⁴ Case 27/76 *United Brands Company and United Brands Continentaal v Commission* [1978] ECR 207, paragraph 65.

⁴⁵ *Microsoft Cases: United States of America v. Microsoft Corporation* (364 U.S. App D.C. 330), and in Europe, Case T-201/04 *Microsoft Corp. v Commission of the European Communities* [2004] 5 C.M.L.R. 21, COMP/C-3/37.792, 2001/462/EC, ECSC, OJ L162, 19.06.2001. *Microsoft Corp v Commission* [2007] ECR II-3601 (CFI). *Microsoft Corporation v. Commission of the European Communities* [2009] 4 C.M.L.R. 16.

lower price. This in turn will depend on how sensitive demand is to changes in price (the “elasticity of demand”⁴⁶). The Author contends that with modern pricing methodologies currently available for packet-switched networks, data is now becoming available for National Regulatory Authorities (or Competition Authorities operating under the principle of concurrency) in the advanced developed countries to calculate the elasticity of demand for relevant Component Parts for IP-based networks for each of the Layers set out in the theory.

DPI can be defined as a packet filtering technique used by Internet service providers (ISPs) to intercept and examine all unencrypted content exchanged over networks.⁴⁷ Although Chapter 6 makes clear that such measurements are not 100% perfect given that encryption techniques make it possible to ‘hide’ Component Parts, modern techniques for DPI, which operators are currently using and which are in common use, allow for even encrypted components to be detected. For example, DPI is commonly used to shape traffic and to block unauthorised file sharing on peer-to-peer networks (P2P). In the United Kingdom, several ISPs have used a new DPI-like technology, known as *Phorm*, in order to establish targeted advertising⁴⁸.

In Chapter 6 (6.3.3), the author discusses the Commission’s most recent approach to relevant product market definition in electronic networks and services⁴⁹, and also the Commission’s most recent Recommendation on access to NGNs (‘NGN Recommendation’) issued in 2010. The EC has identified NGNs as being critical to the future delivery of broadband services in the EU. The 2010 NGN Recommendation is meant to address particular issues with competitive access and to increase competition in EU NGN markets. However, the author identifies as a specific

⁴⁶ The critical elasticity of demand is the value of elasticity of demand necessary to leave profits unchanged following a price increase. It should also be noted at this stage that in fast changing IP-based technology network markets, there would also be a need to use “competitive” rather than “prevailing” prices for Component Parts to avoid the “Cellophane Trap”. The Cellophane trap relates to the US case of *United States v. El du Pont de Nemours & Co* 118 F Supp 41 (D Del 1953) aff’d 351 US 377 (US Sup Ct 1956), where a dominant undertaking has already been able to increase prices to a monopolistic level, effectively creating a situation where those prices are artificially high. Any use of these prices by the SSNIP test might then yield erroneous results. See Rodger B., and MacCulloch A., *Competition Law and Policy in the EC and UK*, Cavendish Publishing, Third Edition, 2004, pages 86-87 for a more complete analysis of the Cellophane Trap. See also Graham C., *EU and UK Competition Law*, Longman, 2010, pp. 534-535.

⁴⁷ EPIC, ‘Deep Packet Inspection and Privacy’ at: <http://epic.org/privacy/dpi/>, accessed February 2011.

⁴⁸ <http://www.phorm.com/>, accessed February 2011.

⁴⁹ C(2007) 5406 rev 1.

weakness in the NGN Recommendation the focus on lower network ‘infrastructure’ layers as opposed to the upper ‘messaging’ layers⁵⁰. For example, the NGN Recommendation is focused on network infrastructure operating at the **lower level** of the OSI stack (the Open Systems Interconnection stack, a model for describing the structure of a network). This is a weakness as a significant component of innovation and competition in broadband services in the NGN market will be focused in the upper messaging layers where most of the code for ‘content’ is based.

Section 6.3.3 thesis highlights the specific problem of **access** to NGNs and that current EC jurisprudence with regard to relevant market definition, and also Articles 5 and 12 EC’s Access & Interconnection Directive⁵¹ that regulate network access issues, are insufficient to deal with NGN access problems. The author argues that access is a *subset* of interconnection and that often for operators offering new and innovative services in the broadband market, it is the issue of access rights that are significant. The author argues that the Layering Theory operating across several different layers from infrastructure to content is uniquely positioned to deal with problems of access in broadband markets.

The Layering Theory can be summarised as a new *interpretation* of the test of SMP. This new interpretation is defined as:

An undertaking shall be deemed to have SMP if either individually or jointly with others, it enjoys a position equivalent to dominance **for the relevant Component Part in a particular Layer (as set out in Schedule 1) in the supplier’s relevant geographic market**, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.

The author argues that if such a framework was acceptable to the European Commission it could provide a very useful precedent for regulation elsewhere, for example in moving US regulatory policy away from its current ‘silo’ approach to a

⁵⁰ Commission recommendation on regulated access to Next Generation Access Networks, 2010/572/EU, 20th September 2010.

⁵¹ Directive 2002/19/EC on access to, and interconnection of, electronic communication networks and associated facilities. OJ L108/7 24.04.02.

more flexible ‘layered’ approach (Chapter 5), and that in major developing countries, such as China⁵² and India⁵³, where there is convergence with EU competition law jurisprudence (as both DCs have now adopted similar concepts of dominance to the test established in *United Brands*⁵⁴), the Layering Theory could be adopted (Chapter 6).

Also the author argues how multilateral instruments, such as the WTO’s regulatory Reference Paper could be amended in light of the Layering Theory. This will help to enhance competition on worldwide IBP backbone networks, bringing down the costs for internet access to end-users globally in much the same way as the current Reference Paper achieved further liberalisation and competition in telecommunication services when first brought into the GATS in 1998. Incorporating the theory into the RP would be a huge stepping-stone for DCs/LDCs in addressing the digital divide in giving competitive and regulated access and interconnection (peering and transit) by small ISPs in developing countries to large IBP networks.

In Chapter 7, the Author looks specifically at this issue and how the Layering Theory could be used to the advantage of DCs and LDCs. The author raises the problem of acceptance of the theory in DC/LDC markets where national leaders may be sceptical of accepting a regulatory instrument either at the level of the WTO through an amended Reference Paper, or through amendments to their own domestic legal frameworks and following disappointment with the outcome of the Doha Round. The author argues however that there are strong incentives to do so, for example in gaining access to IBP networks in OECD markets on transparent, non-discriminatory and cost-oriented rates which would result in lower costs for export of more cheaply manufactured intangible products from DC/LDCs.

Chapters 8 and 9 identify two further problems in IEL:

- (5) The weakness of current international regulation to encourage Transnational Corporations (TNCs), the primary source of

⁵² See Chapter 3 (Article 17) *Anti Monopoly Law of the People’s Republic of China* 2008.

⁵³ See Chapter 2 (Section 4) *Indian Competition Act 2002* (as amended 2007, 2009).

⁵⁴ *United Brands Company and United Brands Continental BV v. Commission of the European Communities* [1978] ECR 207 paragraph 38.

- technological know-how, to provide beneficial (and appropriate) technology transfer to producers in DCs and LDCs (Chapter 8); and
- (6) A lack of consensus on how electronic intangibles should be classified in law, whether as goods under the GATT, as services under the GATS, or even as a hybrid, as a form of intellectual property right under TRIPS. Also, that the current moratorium of not imposing customs duties on imports of electronic intangibles agreed at the WTO in 1998 is detrimental to the interests of DCs and LDCs in terms of loss of tariff revenues (Chapter 9);

In Chapter 8, the Author raises the problem of a lack of compliance of developed countries on Article 66.2 TRIPS on *technology transfer* (Chapter 2 indicated the significance of technology transfer in addressing the Digital Divide). The author argues in Chapter 8 that the Layering Theory could be delivered to DCs and LDCs as part of a program of technology transfer from the developed world and in enforcing Article 66.2. Chapter 9 discusses the trade in electronic intangibles under both the WTO's GATT and GATS rules. The thesis suggests specific solutions to problems (5) and (6) above:

- (d) To help DCs and LDCs gain access to valuable know-how through technology transfer by:
- (i) Adopting legislation governing the transfer of technology into their territories that combine both *ex-ante* (sector specific) and *ex-post* (competition) measures; and
 - (ii) Adopting *harmonisation* measures in bilateral and regional trade agreements between DCs so that resources for the regulation of competition and IPRs can be pooled (both discussed in Chapter 8); and
- (e) To help address the current stalemate on the trade and classification of electronic intangibles at the WTO by adopting the test set out by the *Streamlined Sales Tax Project* in the United States to distinguish between electronic goods and services and classify *all* electronic intangibles as goods. With a goods classification in place, to *not* renew the current moratorium of not charging import

tariffs on electronic intangibles and to allow charging in accordance with rules of origin (Chapter 9).

1.3 Limitations

In order to limit discussion to a manageable level within the thesis, policy level issues on economic sovereignty and good governance, although important to the economic well being of a country, will not be discussed in detail here other than in the examination of state sovereignty in relation to bilateral and free trade agreements.

Also not discussed in detail is the role of various IEL institutions, such as the World Bank and IMF, other than only as they appear in the context of reviewing the sectors of IEL above, for example in discussing the position of DCs and LDCs in multilateral negotiations on trade and investment. Debt relief and fiscal monetary policy is not covered (for example, the G8 group of major developed countries agreement on debt relief agreed at the Gleneagles Summit in July 2005). In terms of IEL institutions, the focus for discussion remains those institutions and programs central to the regulation of technology and trade, including the WTO, International Telecommunications Union (ITU), WIPO, UNDP, UNCTAD, OECD, APEC, Internet Corporation for Assigned Names and Numbers (ICANN), the Federal Communications Commission (FCC) in the US, and the European Commission.

The issue of the markets to study within the vast sector of technology and trade is also problematic. Although there are many markets for export that DCs and LDCs have historically been involved in including agriculture, commodities, textiles, movement of labour to name a few, but also new markets that such countries are increasingly being drawn to including software and hardware, electronic goods and services, biotechnology, plant products, and semiconductors etc., a full investigation of the application of economic law to both the high and low technology sectors would be beyond the scope of this thesis. The Author has focused therefore on the communications sector and specifically the market for electronic intangibles as being most directly linked to the Digital Divide.

In terms of “Western best practice” in the regulation of the communications sector, the Author has looked specifically at EU and US markets, given that these two markets were the first to introduce competition in the delivery of telecommunications services by their national incumbent telecommunication carriers (AT&T in the US, and the various national incumbents, such as BT, France Telecom, and Deutsche Telekom in Europe) and on which many of the regulatory regimes of other countries are based⁵⁵. Only recently, in the early 1990s did the Japanese government consider detailed regulation to take account of the dominant position that both NTT (domestic market) and KDD (international market) had on Japanese telecommunications markets⁵⁶. Note also that the impact of reform of domestic regulation measures under Article VI GATS, particularly on mutual recognition agreements and standards setting in the communications sector is also an area that needs to be addressed by the WTO, but is outside the scope of this thesis.

In developing a new *Layering Theory* for the regulation of advanced digital networks, and suggesting how the Layering Theory could be applied to WTO telecommunications measures, such as the Reference Paper to the WTO’s Fourth Protocol or Basic Agreement on Telecommunications (Chapter 3), the Author does not discuss the detailed WTO procedures that would need to be followed in order to bring about suggested amendments to the Reference Paper (the subject of potential further research). The discussion here is restricted by necessity to the merits of such an amendment in terms of increasing access to international telecommunications markets, particularly from the viewpoint of DCs and LDCs.

⁵⁵ Kariyawasam R. in *Telecommunications Law* (eds Walden I., and Angel J.), Blackstone Press, London, 2001., pp 153-156. Mention must also be made of the market in New Zealand, where the regulator introduced competition between the incumbent Telecom New Zealand, and Clear Communications. However, the regulation of interconnection in that jurisdiction posed particular problems and long-standing litigation between the two carriers.

⁵⁶ Fransman M., “Evolution of the Telecommunications Industry in the Internet Age” in *Telecoms in the Internet Age From Boom to Bust to?*, OUP, 2002 for a more detailed explanation of the Japanese fixed and wireless mobile sector and deregulation in that sector since the 1990s.

CHAPTER 2

THE RISE OF INTERNATIONAL DIGITAL NETWORKS: DEFINING THE DIGITAL DIVIDE

2.1 Introduction

This chapter attempts to do three things: (a) to provide a brief overview on the rise and structure of the internet and evolution to New Generation Networks (NGNs); (b) to set out some basic indicators of the Digital Divide (linkages) and clarify in outline the significance of these linkages in terms of helping us to identify the sectors of IEL that have the most relevance in addressing the Digital Divide; and (c) to review various definitions of the Digital Divide available in current literature so as to arrive at one overriding definition that can be used throughout this thesis.

In the context of this thesis, an international digital network is a network that provides connectivity to the backbone internet, the global infrastructure of links connecting Internet Backbone Providers (IBPs). As such when reviewing the international Digital Divide, we first need to understand how the internet developed in the first instance. Given that this thesis is focused on law, the Author will not discuss the underlying development in technology or of the management of the *domain name system*¹ currently administered by the Internet Corporation for Assigned Names and Numbers (ICANN)², but will focus instead on the main technological milestones that allowed the infrastructure of the internet to develop. In section 2.2, the Author looks first at the emergence of the internet in the United States and the development of the two protocols that helped facilitate its growth, the *Transmission Control Protocol* (TCP) and the *Internet Protocol* (IP). The Author also looks briefly at other technologies that have helped to accelerate the development of the internet, such as the advent of Local Area Networks and fibre optic cable, and the migration of existing networks to NGNs.

¹ Domain names are structured into a hierarchy of levels including at the top the generic Top Level Domains (.com, .org, .net, .edu etc), and also Country Code Top Level Domains (ccLTDs), such as .uk, and second level domains, such as .gov.uk .net.uk etc. Third level domains are normally web addresses such as essex.ac.uk etc.

² For a more detailed discussion of the work of ICANN and of the Domain Name Server (DNS) system, which is now administered through a series of ICANN contracts with separate domain name registries around the world, see the ICANN site at www.icann.org.

Section 2.3 discusses the linkages to the Digital Divide, and in the concluding section 2.4, definitions of the divide.

2.2 A brief overview of the evolution of the infrastructure of the internet

The present day internet can be described as a “network of networks”, but the catalyst for its early development was the desire of the academic community to enable computers to interoperate with each other. In 1965, the US Defence Department’s Advanced Research Project Agency (ARPA) funded the first computer network, the forerunner to Advanced Research Projects Agency Network ARPANET (the first wide area network)³. By the later 1960s ARPA was using a variety of electronic, computer and communications technologies, and a decade later, when computer networking was beginning to really take-off, the use of Local Area Networks (LANs) began to proliferate. A fundamental idea of ARPA’s research was a new approach to interconnecting LANs and Wide Area Networks (WANs) that became known as the “internetwork”, later abbreviated to the “internet”. ARPANET continued to grow steadily through the 1970s to include international connections to Norway and the UK, trans-Pacific connections to Hawaii, and domestic network of some 15-20 sites across the United States⁴. In the early 1980s, the Personal Computer (PC) allowed intelligence in the network to move to Local Area Networks (LANs), whereas up until this point, networks consisted mainly of dumb terminals directly connected to centralised mainframe computers on a time-share basis. Easy access to computers meant that there was a need to “scale-up” communications between these LANs (now consisting of intelligent terminals). One of the problems in achieving scalability was that much of the software used at the time by hardware vendors was proprietary and which prevented the portability of information technology between different hardware platforms. This problem was overcome eventually through the development of UNIX as the first open source software, and also the development of *Open Systems Interconnection* (OSI) standards in 1984⁵. The OSI standards set in place a common set of layers that designers could now build networks around and which would allow

³ See the early history of the internet at: <http://www.isoc.org/internet/history/brief.html>, date accessed October 2010.

⁴ Ibid.

⁵ Cromer D., *The Internet Book: Everything you need to know about Computer Networking and How the Internet Works*, Prentice-Hall, United States, 1995 (“Cromer 1995”).

different hardware and software protocols to interoperate. Particularly important was the innovative Internet Protocol (IP) software, which provides basic communications, and the Transmission Control Protocol (TCP) software, which provides additional features that internet applications require⁶. Both IP and TCP work together to send data reliably across the internet: IP provides a set of rules as to how to present packets of information, allowing an interconnected set of networks to operate like a single large network. The current version of IP is IPv4, sometimes referred to as the “thin layer” due to the limited level of functionality that it provides, limited in terms of *addressing availability*⁷ and also in its ability (or lack-off) to facilitate real-time applications. The Internet Engineering Task Force is currently working on a new version of IP (IPv6) that will allow for increased addressing space and also for real-time applications⁸. The TCP protocol revolutionised the way that traffic on networks could be conveyed⁹.

As Vint Cerf once said: “the internet problem...was to get host computers to communicate across multiple packet networks without knowing the network technology underneath.”¹⁰ The network technology referred to by Cerf was the telecommunications carriers underlying network: the problem lay in the fact that different telecommunications carriers used different network technologies and the trick was to somehow make communications between computers transparent to the underlying network technology. The solution was IP¹¹. Simultaneously, the US carrier, AT&T was developing a new form of data network (the underlying network) that would allow for increased throughput speeds between computer networks. This technology was based on a new form of switching called “packet-switching” as

⁶ Note however that both TCP and IP were invented in the early 1970s before the OSI standard was produced in 1984.

⁷ The number of available IP addresses that can be supported: every PC on a network will be allocated an IP address (similar to a telephone number). These addresses can be both dynamic (changing) or fixed depending on the type of network used. See Cromer (1995) for more information.

⁸ See IPv6 overview at: <http://playground.sun.com/ipv6/>, accessed October 2010.

⁹ TCP was invented by Vinton Cerf and Robert Kahn in the early 1970s and IP established by 1978.

¹⁰ Cerf V., How the Internet Came To Be at: <http://www.bell-labs.com/user/zhwang/vcerf.html>, date accessed October 2010.

¹¹ By 1978, Cerf and Kahn proposed splitting the TCP protocol into a host-to-host protocol and an IP. The IP passed individual packets between machines (host to packet-switch or between packet-switches), whilst TCP ordered the packets into reliable connections between hosts. See Fransman M., Evolution of the Telecommunications Industry, in *World Telecommunications Markets* (ed Gary Madden), Edward Elgar, 2003, p.31.

opposed to the conventional technology of the time “circuit-switching”.¹² It was from this point that telecommunications carriers began the transition from analogue to digital signalling, which allowed for increased efficiency and the ability to transport multiple types of traffic¹³. The International cable systems were the first networks to be controlled by digital signalling¹⁴. During the mid 1970s to 1980s, data networks continued to be rolled-out separately to voice networks, and delivery speed and transmission capability improved with new digital technologies such as Integrated Switched Digital Network (ISDN), Frame-Relay, and Asynchronous Transfer Mode Technology (ATM)¹⁵. However, it was not until the invention of fibre-optic cable in the late 1970s that the great leap in transmission speed and capacity came. Fibre-optic cables allowed for a carrying capacity many times greater than conventional copper cables. This coupled with the advent of digital multiplexing, which allowed different digital traffic streams to be “switched” or aggregated onto the same transmission channel really revolutionised switching technology and allowed data and voice networks to now share common switching and transmission facilities.¹⁶

In 1991, after the National Science Foundation in the United States lifted the restrictions on commercial use of the internet, the Commercial Internet eXchange (CIX) Association was formed by several US companies including General Atomics (CERFnet), Performance Systems International (PSInet), and Uninet Technologies (AlterNet). From there the internet grew exponentially. New carriers, such as Colt (City of London Communications), MCI (later part of WorldCom), Level 3, WorldCom, Energis started rolling-out data networks which relied on heavy investment in R&D by their switch suppliers (Siemens, Ericsson, Alcatel, Nortel etc), and which utilised advanced packet-switch and multiplexing techniques, and that contrasted sharply with the old regime where incumbent operators such as AT&T, France Telecom, NTT, and BT had pursued R&D through in-house departments or

¹² A data communications network that uses packet-switching technology (a switching procedure whereby two parties have a logical connection across a network, but no dedicated facilities (unlike a circuit-switched network which sets up a dedicated connection), and where units of transmission have a maximum size (usually 128 or 256 octets): this is a store and forward technique where nodes in the network may store a packet for some time before forwarding it to the next node (or router) in line. See Kessler G., *ISDN*, McGraw-Hill, 1990, p. 281.

¹³ ACCC (Australian Competition and Consumer Council) report: *1234 Internet Interconnection*, 2001, p. 8

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid p.9

specialised laboratories (Bell Labs-AT&T, Martlesham-BT, Electrical Communications Laboratories-NTT) which had been slower to adopt packet-switching technology. As such, with fewer overheads and smaller operations, the new carriers were able to adapt to the changing communications market more quickly. Many of the new carriers were US financed and by the mid to late 1990s had rapidly started to roll-out pan-European networks¹⁷. In 1990, the World Wide Web was created by Berners Lee, Cailliau and others at CERN in Switzerland, and in 1994 Mosaic Communications went onto develop Netscape, the first internet browser. By 1995, Bill Gates of Microsoft had recognised the growing significance of the internet and the use of digital networks¹⁸. With Microsoft's acceptance of the internet, the net spread exponentially in the US.

In the rest of the world, particularly Asia, Europe, and Africa, the internet has had a more uneven and less meteoric rise. For example in Western Europe, the European Commission launched the *e-Europe* initiative in 1999 in order to accelerate the take-up of the internet. The Commission's three main objectives for a cheaper, faster, and more secure internet was subsequently endorsed by the European Parliament. The Commission also saw accelerated unbundling of the local loop (the copper lines linking residential customers with the national telecoms network) as a means of increasing facilities based competition and take-up of broadband internet services by end-users. However the real problem remained the high cost of leased-line capacity that ISPs required in order to interconnect with the main (generally US) backbone operators. In 1998, EuroISPA, the association of European ISPs indicated that it was common practice for many European ISPs to route their European traffic through American peering points (either private or public)¹⁹. Following several competition enquiries by the European Commission into the cost of leased-lines within Europe,

¹⁷ See Fransman M., Evolution of the Telecommunications Industry, in *World Telecommunications Markets* (ed Gary Madden), Edward Elgar, 2003, pp 18-21.

¹⁸ In May 1995 Bill Gates issued the now famous memo: "*The Internet Tidal Wave*" that indicated Microsoft's acceptance of the internet. For more background, see Inside Microsoft (Part 2) at <http://www.businessweek.com/1996/29/b34842.htm>, accessed October 2010.

¹⁹ A peering point is essentially where two internet operators interconnect their networks in order to exchange traffic. Peering points can be at public internet exchanges such as MAE-WEST or MAE-EAST in the United States or at private bilateral peering points. Transit by contrast involves a fee that one operator pays another to allow its traffic to transit across the paid operator's network either to terminate on a third operator's another network or the paid operator's network. For more details see Interconnection, Access and Peering: Law and Precedent, by Kariyawasam R., in *Telecommunications Law*, (eds Walden I., and Angel J.), Blackstone Press, London, 2001.

the costs for bandwidth have fallen substantially (also in part due to the increased take-up of fibre optic cable-discussed above), and the roll-out of pan-European networks by new Other Licensed Operators (OLOs). In the last few years, entrants in the internet backbone market have rolled-out over 10,000 route miles of fibre optic network²⁰.

By contrast in Africa development has been slow. In 1999, the total number of computers permanently connected to the internet in Africa (excluding South Africa) broke the 10,000 mark as measured by Network Wizards²¹. However Network Address Translation, which allows re-use of the same IP address across a number of computers in different networks effectively means that many more users might be connected to the internet than otherwise indicated. In 2001, there were approximately 1.3 million subscribers in Africa, 250,000 in North Africa and approximately 750,000 in South Africa²². By 2001, most African capitals also had more than one ISP. Fourteen countries had five or more ISPs, while seven countries had ten or more active ISPs: Egypt, Morocco, Nigeria, South Africa, Tanzania, and Togo²³. In the early 1990s, like Europe, African ISPs also suffered with the high cost of international bandwidth caused mainly by a monopoly stranglehold on international leased circuits by African incumbent telecommunication operators in that region. However this situation slowly changed and by 2001, the total international outgoing internet bandwidth in Africa was approximately 250Mps, which although tiny by Western standards (many multiples of this) was nevertheless an achievement. In Europe the position was accelerated due to the lowering of leased-line tariffs brought down through competitive pressure, but also increased regulation and competition authority oversight. By 2007, Africa still only had 17 IXP exchanges compared with 67 in the Asia-Pacific region, 107 in Europe, 20 in Latin America, and 87 in North America.²⁴ An IXP is a shared switching facility that allows ISPs to exchange traffic with each other through peering and transit agreements. IXP exchanges however are strongly

²⁰ Giovannetti E., Internet connectivity and competition policy, in *Information Technology Policy and the Digital Divide: Lessons for Developing Countries*, (eds Mitsuhiro K., Tsuji M., and Giovannetti E), London, Edward Elgar, 2004, pp 35-59.

²¹ Jensen M., *The African Internet-A Status Report*, 2001, available at: <http://demiurge.wn.apc.org/africa/afstat.htm>, accessed October 2010.

²² Ibid, p. 2.

²³ Ibid, p.3.

²⁴ Internet Governance Forum: Best Practices Session Report, Internet Society Reports, 2007, p. 6 at: <http://www.isoc.org/educpillar/resources/docs/igf-ixp-report-2007.pdf>, accessed October 2010.

resisted by monopoly or incumbent operators, particularly in DCs and LDCs who view the IXP as another channel where competing services, such as Voice over Internet Protocol (VoIP) can be developed, bypassing the incumbent's lucrative voice services.

Between 2000 and 2011, the average worldwide internet user growth rate was in excess of 528%, with the highest growth rate in Africa (2,988.4%), the Middle East (2,244.8%), Latin America and the Caribbean registering 1205.1% with Asia at 789.6% (www.InternetWorldStats.com). More recent data indicates that the number of internet users worldwide is 2.26 billion (32.7% of world population)²⁵. China has shown incredible growth with almost 477 million internet subscribers connected by March 2011 (although it still has a low computer penetration rate of 38.4%). Africa showed growth of 139.8 million users by 2011 (13.5% population). However according to UNCTAD's *Information Economy Report 2010*, in 2009 the overall gap in broadband access between developed and developing countries remains high (26 fixed broadband subscribers 100 for developed countries compared with 3.5 for developing countries). Despite these statistics, according to UNCTAD's report of 2010, by 2009, UNCTAD still found that a massive gap existed between developed and particularly (least developed countries), where "a person in a developed country is on average over 600 times more likely to have access to fixed broadband than someone living in a LDC."²⁶ However internet access via mobile phones is showing much better potential in DCs (Morocco and South Africa particularly where mobile broadband has exceeded fixed broadband subscriptions). According to UNCTAD at the end of 2009, about one third of ITU members-almost all developing countries-had yet to launch a mobile broadband service (ITU, 2010a). By contrast, in LDCs, one third (16) had launched mobile broadband networks by the end of 2009."²⁷ This statistic reflects the fact that mobile infrastructure is often easier to put in place than fixed line infrastructure in environments where there are geographical constraints. As such, in UNCTAD's view mobile broadband has much greater potential to reduce the high speed digital divide, subject to spectrum availability and bandwidth.

²⁵ UNCTAD *Information Economy Report 2010*, p. xv.

²⁶ P. xii, Executive Summary, Chapter 2, *Information Economy Report 2010*.

²⁷ *Ibid* p. xxvi

The two most current important developments in internet architecture--and that will have important implications for network connectivity between the developed and developing worlds--are the migration of existing internet networks to a breed of New Generation Networks (NGNs) and the exhaustion of IPv4 addresses and the rollout of new IPv6 addresses in 2010/2011. A recent report by WIK Consult in 2008 highlights the significance of NGNs and the challenge for regulators:

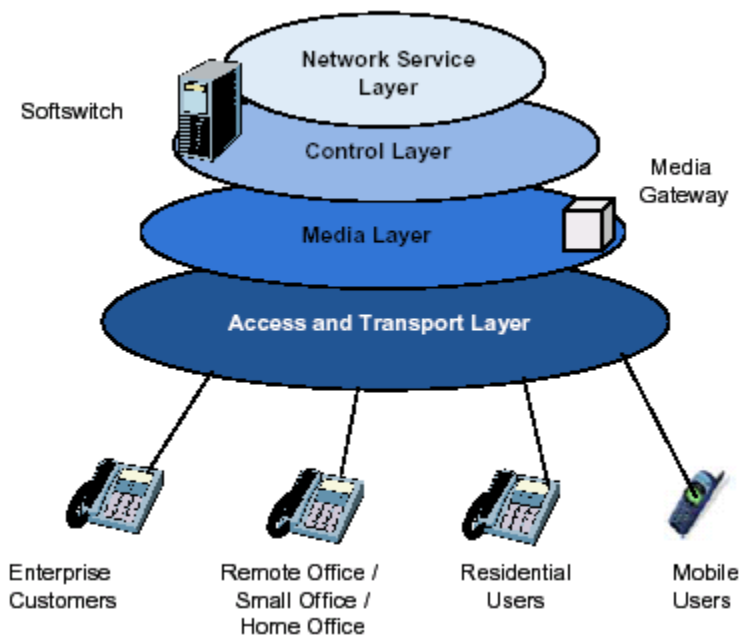
A number of technological and market developments pose challenges to IP-based interconnection, and to traditional interconnection in the fixed (PSTN) and mobile (PLMN) networks as well. Notably, these networks are physically and logically converging to IP-based Next Generation Networks (NGNs). Interconnection arrangements for switched PSTN/PLMN networks have been markedly different than those for IP networks, not only at a technical level, but also in terms of associated regulatory obligations. The convergence of these networks raises difficult questions as to how interconnection should be regulated going forward.²⁸

The report's authors make clear that the single most important driver of change is the convergence of the network, with a "single integrated IP-based network (whether called an NGN or not) delivering some combination of data, voice and video." This migration to NGN then makes it possible for different underlying platforms (for example, fixed telecommunications and cable television) to offer equivalent services, that has both the potential to benefit competition, but simultaneously enables bundled offers of multiple services to the end-user that could give rise to new anticompetitive concerns. Chapter 4 discusses anticompetitive effects and makes clear that although both bundling and price discrimination can be **pro competitive**, IBPs often migrate smaller ISPs from settlement free interconnection arrangements to paying transit agreements and it is this process that can give regulators cause for concern.

The NGN architecture is layered with the physical infrastructure layer at the bottom and the higher-end service layers built on top. A schematic of this new layering structure is given below in Figure 1.

Figure 1: The NGN Layered Structure

²⁸ European Commission, Marcus J., Elixmann D., *The Future of IP Interconnection: Technical, Economic and Public Policy Aspects*, January 2008, p. VI.



Source: Final Report: The Future of IP Interconnection (2008)²⁹

It is this layering concept that the new technology can deliver, making use of very high-speed communications through optical fibre and therefore delivery of high bandwidth applications, such as video over internet. The fundamental difference with existing legacy networks is the use of the IP protocol as the basic transmission standard for NGNs. The IP protocol allows for different types of network, whether cable or telecommunication to provide a wide array of broadband services seamlessly. For vertically integrated operators, this would then allow for complete control of all the layers of the NGN from the lower physical layers to the upper messaging and content layers.

The layering concept provides for interconnection of networks at the lower physical (infrastructure layer) but also access to each of the layers above the infrastructure layer. The upside is that this more flexible structure provides for operators to provide a wide spectrum of services and networks within one or simultaneously several layers. The downside is the creation of a much more complex market environment where an operator may have market power in one layer, but not another, or the possibility to

²⁹ Ibid, p. 19: The authors cite Uebele and Verhoeyen's schematic in Uebele R. & Verhoeyen M. "Strategy for migrating Voice Networks to the Next Generation Architecture" in *Alcatel Telecommunications Review*, 2nd Quarter 2001, pp. 85-90.

leverage its market power from one ‘downstream’ layer to several ‘upstream’ layers. This creates a potential regulatory nightmare for NRAs, who faced with the task of having to define a relevant market to check for potential abuse of market power for competition purposes, have to ‘unpick services’ that interconnect and access simultaneously at different layers of the service stack (this is discussed in further detail in Chapter 6).

The migration to NGN is taking place now in the developed world and in some more developed DC markets, such as China and India. The challenge for DC and LDC ISPs however in most of the developing world is to gain access to these NGN networks (and the separate layers) on equitable and transparent terms bringing the cost benefits of faster and more efficient communications to their end-users. A failure to do so will exacerbate the Digital Divide, the subject of the next section.

2.3 The Digital Divide

Bruno Lanvin argues that the major trends that characterize the end of the twentieth century are:

- (a) the globalization of the markets for trade, finance, technology and ideas, and the rapid expansion of a greater reliance on market mechanisms worldwide;
- (b) the globalization of information networks, accompanied and permitted by a continuous decrease in price-performance ratios, a steady process of convergence and digitalization, and the emergence of information as a central production factor and engine of growth, often at the origin of new business and industrial organization models, such as in the Internet realm; and
- (c) the emergence of a global role for non-governmental players and for civil society.³⁰

³⁰ Lanvin B., International efforts to bridge the digital divide, in *World Telecommunications Markets* (ed Gary Madden), Edward Elgar, 2003, p. 242.

Lanvin argues that this combination of trends has provided the basis for globalisation and that it is this globalisation that is providing the backdrop for the Digital Divide. There is no doubt some truth to this and yet the Digital Divide cannot just be explained in terms of globalisation as the divide does not appear to have any one single point of definition. As is clear from the brief history of the rise of international digital networks, many actors have played key roles in the development of internet technology and networks. Key issues are investment in R&D and the utilisation and innovation following-on from R&D. Before entering a more detailed discussion of the meaning and scope of the term “Digital Divide”, it is first important to define the meaning of the term “Developing Country” and “Least Developing Country”, for the discussion of the Digital Divide in this thesis is with regard to DCs and LDCs (the “international Digital Divide”) as opposed to the Digital Divide that may exist *within* a developed country, for example the United States due to issues of universal service/universal access, geography and differing levels of poverty.

The WTO covered agreements do not include a specific definition of a Developing Country (although a “small nation” is defined), but many of the agreements, particularly the GATS, GATT, and TRIPS do make specific reference to the term in relation to Special and Differential rights (rights that apply specifically to Developing Countries). As mentioned in Chapter 1, the World Bank considers countries with low or middle-income levels as “developing”. In a recent classification, economies are grouped by using the 2009 Gross National Income (GNI) per capita figures. Economies are divided according to 2009 GNI per capita as: low income, \$995 or less; lower middle income, \$996 - \$3,945; upper middle income, \$3,946 - \$12,195; and high income, \$12,196 or more.³¹ The World Bank states that: “Low-income and middle-income economies are sometimes referred to as developing economies. The use of the term is convenient; it is not intended to imply that all economies in the group are experiencing similar development or that other economies have reached a preferred or final stage of development.” By using these measurements, countries with GNI per capita below US\$12, 195 are classified as ‘developing’. This thesis therefore will use the *World Bank’s definition of a developing country as a country with a GNI per capita as below US\$12, 195*. The latest figures (2011) reveal that both

³¹ See World Bank classification at: <http://data.worldbank.org/about/country-classifications>, accessed January 2011.

China at circa US\$865 and India at US\$441 will qualify as ‘DCs’ under this definition.³²

The Committee for Development Policy (CDP and part of the UN’s Development Policy and Analysis Division, the main research development division of the UN Secretariat³³), has made clear recently the criteria to be used for classifying a country as a LDC. In the CDP’s update of September 2011³⁴, the CDP builds on the initial UN criteria established in 1971 as requiring a low capita gross domestic product (GDP) and structural impediments to growth for inclusion as a LDC. At its plenary session in 2011, however, the CDP now defines LDCs as ‘low-income countries suffering from the most severe structural impediments to sustainable development.’³⁵ With the more recent emphasis on sustainable development, the criteria for definition now include Gross National Income (GNI). The CDP uses three specific criteria that need to be satisfied: (a) Gross National Income per capita; (b) Human Assets Index (HAI), and (c) Economic Vulnerability Index (EVI). For the GNI criterion, the threshold for inclusion is based on a three-year average of the level of GNI per capita, which the World Bank defines for indentifying low-income countries (discussed above). The HAI consists of a simple average of four sub-indicators (two for health and nutrition and two for education). The EVI criterion by contrast incorporates eight indicators, which are grouped into two broad categories (an exposure index and a shock index). Both these categories provide an indication of the risk of exposure of the country to external shocks that impact on a country’s development. According to the CDP, the EVI threshold for inclusion is the ‘value of the index at the first quartile of the values of the reference group’.³⁶ Furthermore, the CDP has introduced a new criterion in addition to GNI, HAI and EVI, such that a country cannot be classed as a LDC if it has a population in excess of 75 million.³⁷

³² See GNI figures by countries at: http://www.nationmaster.com/graph/eco_gro_nat_inc_percap-gross-national-income-per-capita, accessed January 2011.

³³ <http://www.un.org/en/development/desa/policy/index.shtml>, accessed April 2012.

³⁴ LDC Information: The criteria for identifying Least Developed Countries at:

http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_criteria.shtml, accessed April 2012.

³⁵ Supra 33, p.1

³⁶ Therefore if the reference group consists of 60 countries, there will be 45 countries whose EVI score are *above* the threshold and meet the EVI inclusion criterion.

³⁷ The country can continue to enjoy LDC status (and not ‘graduate’ from outside the LDC category) if at the time of evaluation, the population is at 75 million, but grows in excess of this figure over time. The CDP have established a set of graduation rules or thresholds where for example the country in concern ceases to meet two of the criteria listed above (with the exception of where GNI per capita is at

This thesis therefore makes use of the CDP's definition of LDCs and therefore whenever the thesis refers directly to a LDC, it is referring to the list of countries as set out by the UN.³⁸ Chapter 7 also makes the distinction between greater access to international backbone networks controlled by companies based in developed country markets, but also better access by smaller ISPs to the domestic incumbent networks of DCs/LDCS. As the discussion earlier in the introduction to this thesis noted, there is a further distinction to be made between the competitive environments in DCs to that of LDCs. Chapter 7 makes clear that telecommunication markets in LDCs tend to be controlled by the dominant incumbent operator with a majority shareholding of the incumbent itself being held by the LDC's respective government. LDC markets therefore need a higher level of ex-ante or sector specific regulation as opposed to ex-post or market competition regulation. For example, telecommunication markets in India, a pro competitive DC, are quite different to the markets of a number of sub-Saharan African LDCs, such as Sudan, Ethiopia or Mali. And within the grouping of Sub-Saharan African countries there are also great differences in terms of telecommunications development within South Africa, Ghana and Nigeria demonstrating with greater telephone line density rates than Republic of Congo, Malawi, and Angola for example.

The international Digital Divide in relation to DCs and LDCs has been a subject of intense research over the last five years. As mentioned above, there is no single point of definition. Fransman for example argues that the information (info) communications industry (based on content delivery over the internet and digital networks) is open with barriers to entry into the innovation system low and with entry facilitated by the widespread knowledge of the main operating systems, software languages and protocols which Fransman calls a "common knowledge" effectively

least twice the graduation threshold levels). Graduation refers to the process of the country under review moving out of the LDC country as its economic and sustainable development criteria improve with time. The UN (CDP) have established specific rules for graduation which have been refined over time, but the latest set of rules are set out in the UN's *Handbook on the Least Developed Country Category at: http://www.un.org/en/development/desa/policy/cdp/cdp_ldcs_handbook.shtml*, accessed April 2012.

³⁸ A full list of LDCs can be accessed at: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf, accessed April 2012.

bought about by the *defacto* standardization of HTML³⁹, TCP/IP and Wireless Access Protocol (WAP)⁴⁰. He argues that this new info communications industry differs widely from the old telecommunications industry: the innovation process was only open to the monopoly network operator and favoured suppliers. This led to differing national standards and practices resulting in a fragmented knowledge base.⁴¹ The significance of this ‘standards’ linkage to the debate on the Digital Divide is that many incumbent operators in DCs and LDCs still have control over their national telecommunications markets, resulting in the slower innovation and fragmented standards that Fransman speaks off, although on the standards side, many of these operators would also need to conform to international telephony rules (for example on signalling, network integrity etc) that the International Telecommunications Union (ITU) imposes⁴². The critical point however appears to be the lack of competition from alternative service providers and smaller more advanced network operators. In this way, there arises a “Digital Divide”. Both chapters 3 and 4 to follow will discuss the impact that monopolies have on domestic and international markets for voice and internet services.

Another approach to the Digital Divide comes from the relative concentrations of Customer Premises/Information Communications Technology (ICT) Equipment available. James for example defines the Digital Divide as the unequal distribution of computers, internet connections, and fax machines between countries⁴³. He describes it “as another technological gap that emanates from and reflects the highly skewed distribution of global research expenditures between the north and the south.”⁴⁴ In Chapter 7 we will see that the WTO’s Information Technology Agreement has made good progress in bringing down the cost of imports of IT equipment. The significance of this linkage is explored further in section 2.3.2 below on IT penetration.

The electronic dictionary, *Webopedia* defines the Digital Divide as follows:

³⁹ Hypertext Mark-Up Language (HTML) the common code used for webpage design making it much easier for documents to be universally posted to different websites hosted on different networks.

⁴⁰ Wireless Application Protocol, which performs a function similar to HTML, but used for access to wireless networks.

⁴¹ Fransman M., Evolution of the Telecommunications Industry, in *World Telecommunications Markets* (ed Gary Madden), Edward Elgar, 2003, pp 18-21.

⁴² See for example the Blue Book and Red Book rules of the ITU at www.itu.org.

⁴³ James J., *Bridging the Digital Divide*, Edward Elgar, London 2003, p. 23.

⁴⁴ *Ibid.*

A term used to describe the discrepancy between people who have access to and the resources to use new information and communication tools, such as the Internet, and people who do not have the resources and access to the technology. The term also describes the discrepancy between those who have the skills, knowledge and abilities to use the technologies and those who do not. The digital divide can exist between those living in rural areas and those living in urban areas, between the educated and uneducated, between economic classes, and on a global scale between more and less industrially developed nations.⁴⁵

This is a useful definition, looking at the Divide that exists not only at an international level, but recognising that a similar technological divide exists within the nation-state itself. This thesis has as its emphasis the reduction of the Digital Divide as between developed and developing nations. But the definition appears vague. It brings together both the domestic and international divide. Is it possible to come to a sharper definition of the international divide? What factors might contribute to the international digital divide? The next section reviews research from several different perspectives, including internet diffusion/access, IT penetration, competition and telecommunications policy, and innovation/trade each of which make links to the digital divide. From these links, we can draw some general conclusions as to the factors that influence the Digital Divide. We can then use these factors in a review of a series of digital divide definitions in the available literature to come to one overriding definition that will be used throughout this thesis.

2.3.1 Internet Diffusion/Access

Kagami *et al* are more specific in narrowing the concept to *internet diffusion*, arguing that a critical measure of internet diffusion is the share of the US among global internet users, and that the growing disparity in internet access among countries or

⁴⁵ Webopedia dictionary at: http://isp.webopedia.com/TERM/D/digital_divide.html), accessed September 2008.

socio-economic groups is called the 'Digital Divide'.⁴⁶ By all accounts in terms of internet population and the penetration rate of internet access, the US leads the world⁴⁷. Kagami argues that "a deepening digital divide in the Internet age is a critical policy issue because the Internet as a general purpose technology has become essential not only for communications needs but also in economic, social and political arenas."⁴⁸

At the multilateral level, the OECD has defined the Digital Divide as the difference in internet and electronic commerce access opportunities between OECD and non-OECD countries. More specifically that the term Digital Divide refers to the "gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities."⁴⁹ The most basic indicator of the digital divide is the number of access lines per 100 inhabitants. In its report, *Understanding the Digital Divide*, the OECD also draws on the distinction between penetration rates in terms of the number of lines per 100 inhabitants, but also as to the level of *digitalisation* (the number of lines or switches that use digital as opposed to analogue technology⁵⁰). Those countries with

⁴⁶ Kagami M. Tsuji M., and Giovannetti E., *Information Technology Policy and the Digital Divide: Lessons for Developing Countries*, Edward Elgar, London 2004, p.62.

⁴⁷ See Nielsen/NetRatings, *Global Internet Index 2001*, cited in Kagami et al, *ibid* at p. 63. That the US has pioneered the development of the Internet and leads the world in the global export of electronic intangible products is partly due to its success in developing at an early stage effective competition in telecommunications services and access to telecommunication networks. This is due to legislative reform and market reform (the break-up of AT&T and the introduction of the US Telecommunications Act 1996), but also to the extension of the concept of *universal service* to internet access under s.254(b)(2) Telecommunications Act 1996 which provides that "access to advanced telecommunications and information services should be provided in all regions of the Nation". In looking at universal service, it is important to distinguish it from universal *access*. A universal access obligation refers to an obligation on an operator to provide for a functioning, affordable public telephone facility that can be reached by the whole population of a country, and that inhabitants of rural regions can have equal access to a telephone at similar prices as those living in cities. Universal service by contrast is subtly different, setting out an obligation on an operator to provide a minimum level of service to the home, and on-demand (request for connection). Universal access mainly refers to providing access to an affordable public or community telephone, and which is not subject to a request for connection in the same way as universal service. See Cave M., Milne C., and Scanlan M., *Meeting Universal Service Obligations in a Competitive Telecommunications Sector*, Report to DGIV, European Commission, March 1994.

⁴⁸ Kagami M. Tsuji M., and Giovannetti E., *Information Technology Policy and the Digital Divide: Lessons for Developing Countries*, Edward Elgar, London 2004, p.62.

⁴⁹ *Understanding the Digital Divide*, OECD/DSTI, 2001, p.5

⁵⁰ Digital technology works purely in terms of binary codes of "1" or "0" sending small packets of information along transmission lines, whereas analogue technology works by way of transmitting information in the form of electromagnetic waves, which requires much higher bandwidth (the capacity of the transmission pipe) and also a dedicated point-to-point link. Digital information can be sent by

the least developed networks in terms of network reach but who have been able to quickly replace analogue switches with digital switches have had the highest digitalisation among non-member OECD countries for most of the 1990s, even though saddled with low penetration rates. A digital network is important for the least developed countries (LDCs) as it provides a basic platform upon which network extensions can be built: the digital divide is as much about network *access* as having the latest technology.

One aspect of the digital divide concerns access to the telecommunications (voice) network, but another concerns pure *internet access*: here the OECD measures the digital divide (as regards the internet) in relation to the penetration rate for *internet hosts* (the number of internet hosts per 1000 inhabitants)⁵¹. The OECD reports that while Africa, Asia, Central and South America are increasing their penetration rates, the pace is very slow. Although by 31st December 2011, total African internet users numbered 139.8 million (13.5% of the African population) with Nigeria the highest at 45 million and Tunisia the lowest at 3.9 million, in Asia, the total number of internet users (2011) was 1.01 billion with China at 477 million and Malaysia at 16.9 million.⁵² In Asia, the growth rate is mainly attributed to OECD Member countries. This means that the international digital divide, as measured by the number of internet users, is beginning to be addressed. For example, in October 1997, the digital divide in Internet host penetration between Africa and North America was a multiple of 267. By October 2000, this had grown to a multiple of 540⁵³. According to the OECD (*Communications Outlook* 2011), as of January 2010, the number of internet hosts worldwide exceeded 730 million (up from less than 72 million in 2000).⁵⁴ The number of web servers worldwide grew from 33 million in mid 2008 to nearly 46 million in mid 2010. However, data growth almost halved from 67% (2006-08) to 38% (2008-2010) because of economics of growth of *cloud computing*.⁵⁵ As regards

way of a myriad of paths, not requiring a dedicated link. This in turn leads to digital technology being cheaper and easier to set-up, manage, and operate.

⁵¹ An internet host can be defined as any computer on a *network* that is a repository for services available to other computers on the *network*. A host machine can provide several services, such as *SMTP* (email) and *HTTP* (web). See Matisse Enzer's dictionary of internet terms at: <http://www.matisse.net/files/glossary.html#H>, date accessed November 2010.

⁵² www.worldinternetstats.com, accessed April 2011.

⁵³ Supra note 42.

⁵⁴ OECD *Communications Outlook* 2011, p. 173.

⁵⁵ Ibid, p. 174.

the digital divide with respect to electronic commerce, the OECD defines a key indicator as the number of *secure servers* in each country⁵⁶. In 2010, the OECD estimated that 63.3% of all secure servers are located in the OECD area, while the other 36.7% are attributed to firms in non-member countries.⁵⁷

Further analysis and measurement of the Digital Divide⁵⁸ can be found in the research of Wong who evaluates the Digital Divide in Asian countries based on penetration levels of telephone main lines, PCs and internet use⁵⁹. By analysing comparisons of the scale of IT adoption relative to national income, Wong finds that that the Digital Divide in Asia is wide and has the potential to become more severe. Kraemer and Dedrick look at a panel of 40 Asian and non-Asian countries over the period 1995-2000 finding that there is a large and growing divide within the Asian block itself, and a large and growing divide between non-Asian and Asian countries⁶⁰.

What is the significance of this link between internet diffusion and the digital divide? We can summarise that the growing disparity in internet access among countries or socio-economic groups is called the 'Digital Divide'. Also that the divide refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies, the level of digitalisation, and the penetration rate for internet hosts.

Therefore the important factors that could influence our definition of the digital divide should include the gap in opportunity to access information and communications technologies (which presumably would also indicate a disparity in internet access). To address the digital divide therefore, we need mechanisms in IEL to address any inequality of access to information and communications technologies.

⁵⁶ A secure server can be defined as a computer, or a software package, that provides a specific kind of service to *client* software running on other computers. It is made secure through the use of an encryption technology (such as a secure socket layer protocol).

⁵⁷ OECD Communications Outlook 2011, p. 175).

⁵⁸ Also cited and further reviewed in the work of Dewan, Ganley and Kraemer mentioned above.

⁵⁹ Wong, P.K., *ICT Production and Diffusion in Asia: Digital Dividends or Digital Divide?* Information Economics and Policy 14(2), 167-187, 2002.

⁶⁰ Kraemer K.L and Dedrick J., Information technology in SouthEast Asia: engine of growth or digital divide? in *Information Technology in Asia: New Development Paradigms* (eds CS Yue and JJ Lim), Institute of Southeast Asian Studies, Singapore, 2002.

2.3.2 IT Penetration

In recent research, Dewan, Ganley and Kraemer examined a panel of 40 countries over the period 1985-2001 based on data from three distinct generations of information technology (IT): mainframes, personal computers, and the internet⁶¹. In terms of the empirical framework they use for measuring the Digital Divide, they argue that:

The most common characterization of the global Digital Divide is in terms of the dispersion of in IT penetration across countries, under the premise that if there were no Divide then there would be no differences in IT penetration across countries⁶².

To measure the Digital Divide they use per capita measures (IT penetration per capita) and also IT penetration per GDP, arguing that the latter measurement illustrates the tight association of digital access with income levels, and the co linearity of income with other factors such as education and telephone penetration. Within this framework, they also use a number of different variables classed into three different categories: (i) *Economic* which incorporates the income and cost factors that affect technology adoption decisions; (ii) *Demographic* which includes factors that affect the value of access to technology, such as the size of the urban population (population residing in urban areas) and also the stock of human capital, characterized by the average education level of the population in terms of years of schooling; and (iii) *Environmental*, which includes telephone infrastructure measured in terms of density of telephone main lines and also the importance of trade in the economy (the larger the trade sector the greater the pressures to conform to technology norms and practices of the network of global trading partners). In including these various variables in their survey, Derwan *et al* produce a very comprehensive view of the Digital Divide not just in terms of conventional measures (such as the number of internet hosts), but also a measure of the *socio-economic* impact of the divide. Before conducting their own research, they review fairly extensively existing econometric

⁶¹ Dewan S., Ganley D., and Kraemer K., *Across the Digital Divide: A Cross-Country Analysis of the Determinants of IT Penetration*, 2004, PCIC, Graduate School of Management, University of California, Irvine at: www.pcic.gsm.uci.edu, date accessed November 2010.

⁶² Ibid.

studies on the Digital Divide, hoping to build on such work, some of which the Author discusses further below. Derwan *et al's* results are quite revealing indicating:

To the extent that the Digital Divide is a concept that relates IT adoption to national income, the quantile regression results for the GDP per capita variable are fundamental to illuminating the mechanisms behind the Divide. We find that not only is the association between GDP per capita and IT penetration positive and significant, but it is stronger at higher levels of IT penetration. This “feedback effect” between GDP per capita and IT penetration drives a wedge between developed and developing countries, reinforcing the Digital Divide⁶³.

The results do not indicate whether the relationship works the other way around i.e., by increasing GDP, IT penetration also increases. They also find that DCs get disproportionate benefits to lowering their infrastructure costs, improving their human capital and increasing the participation in the global economy. Recognising that none of these can be achieved quickly, they suggest that long-term investments in these particular areas will “offer the best levers to the developing countries for closing the Digital Divide over time.”⁶⁴ The report indicates that the Digital Divide appears to have largely stabilized and that although developed countries continue to have access to more digital resources than DCs, penetrations relative to the mean have shrunk and continue to do so at a slow pace. To help reduce the Digital Divide they urge policy makers in DCs and LDCs to reduce tariffs and taxes on IT products and services, encourage deregulation of telecommunication services and accelerate the pace of technology transfer from technology exporting countries⁶⁵.

Although Derwan et al acknowledge that future research would involve expanding the data set to allow for coverage of emerging countries that were underrepresented in their study, factors such as human capital and the size of the trade sector are having a stronger impact on encouraging internet use in DCs than they did with previous technologies: “If internet use is the most important marker we have to date of the

⁶³ Ibid, p. 19.

⁶⁴ Ibid, p.20.

⁶⁵ Ibid, p.21.

Digital Divide, as many currently believe, then this is the opportunity that developing countries have been waiting for to catch up to their more advanced neighbours.”⁶⁶

As with internet diffusion what is the significance of this link between IT Penetration and the digital divide? The research shows that the association between GDP per capita and IT penetration is both positive and significant, and is stronger at higher levels of IT penetration. Further that this “feedback effect” between GDP per capita and IT penetration is maintaining the divide between developed and developing countries. Again, internet use appears to be an important marker for the digital divide.

The important factors therefore that could influence our definition must include a reference to the disparity between countries in appropriating Information Technology Products (which presumably covers also internet use).

2.3.3 Alternative Development

Soeftestad and Sein in adopting a more policy-oriented approach have also conceptualised the Digital Divide by linking to a broader set of Information Communications Technologies (ICTs) (than say internet or telecommunication statistics). They argue that ICT magnifies the digital divide, the difference between knowledge and technological capabilities of the developed and developing world, and that the information gap leads to a competitive gap and the result is the development gap⁶⁷. They cite an earlier study by Hamelink defining ICT in development as:

ICTs encompass all those technologies that enable the handling of information and facilitate different forms of communication among human actors, between human beings and electronic systems, and among electronic systems. These

⁶⁶ Ibid.

⁶⁷ Soeftestad L., and Sein M., ICT and Development: East is East and West is West and Twain may yet Meet, in *The Digital Challenge: Information Technology in the Development Context* (eds S.Krishna and S. Madon), Ashgate, London, 2003, p. 67 citing Sirimanne S. (1996), The Information Technology Revolution: What about developing countries? Express, No. 04 1996, IDIC, CIDA.

technologies can be sub-divided into: capturing technologies, storage technologies, communication technologies and display technologies.⁶⁸

In contrast to the institutional approach of measuring the Digital Divide, such as the indices used by UNDP and OECD mentioned above, Soeftestad and Sein argue that many of these statistics hide a number of key aspects. They argue:

...donor agencies are more preoccupied with numbers and the supply side of ICT. Thus such indicators as ‘numbers of phones’ or ‘percentage of population with access to the internet’ are taken to indicate ICT diffusion. Whilst these are necessary conditions to study the impact of ICTs on national development, they are far from being sufficient conditions. These statistics only represent the first and second order effects of technology diffusion in society...⁶⁹

The *first* order effect deals with simple substitution of old technology with new (mobile phones replacing letters and land phones) and the *second* order with people communicating more as a consequence of the first order effect. However the impact of ICT diffusion on a society according to Soeftestad and Sein can only be truly studied through measurement of a *third* order effect, which is the generation of new related businesses and societal change (virtual organisations, empowerment of women etc.)⁷⁰ Soeftestad and Sein’s argue that much more attention needs to be given to models of *Alternative Development*.⁷¹

The link here is not to focus on the number and supply side of ICT as an indicator of the divide. Information gaps lead to competitive gaps, which then gives rise to

⁶⁸ Ibid, p. 65 citing Hamelink C.J *New Information and Communication technologies, social development and cultural change*. Discussion paper No. 86 Geneva: UNRISD, 1997. (<http://www.unrisd.org/enginindex/publ/list/dp/dp86/dp86.htm>).

⁶⁹ Soeftestad L., and Sein M., ICT and Development: East is East and West is West and Twain may yet Meet, in *The Digital Challenge: Information Technology in the Development Context* (eds S.Krishna and S. Madon), Ashgate, London, 2003, p. 67.

⁷⁰ Ibid.

⁷¹ Described as a marriage of two paradigms: human development and alternative development, where the former focuses on important indices to measure socio-economic development and areas to target the use of ICTs, and the latter focusing on political freedom and citizen participation in democracy, the role of civil society and the importance of local context and culture. See Soeftestad L., and Sein M., ICT and Development: East is East and West is West and Twain may yet Meet, in *The Digital Challenge: Information Technology in the Development Context* (eds S.Krishna and S. Madon), Ashgate, London, 2003, p. 69.

development gaps. A measure of the divide too is the ability of a society to use ICTs to both handle information and generate new related business, and societal change.

The important factors therefore that could influence our definition of the divide should include a reference to the ability or not for a society to use information tools to innovate (which presumably would include the generation of new business and societal change).

2.3.4 Human Capital Base

Several research surveys point to the fact that addressing the Digital Divide cannot happen without investment in the human capital base, in other words the education and development of those in schools and colleges, and a general development in the level of literacy and media penetration. In a separate panel of 100 countries measured over 1999, Arquette finds that the Digital Divide parallels the gap in economic and human development⁷². In a panel of 105 countries, Beilock and Dimitrova analyse the impact of GNP, measures of *civil liberties*, and infrastructure and regional variables on internet use on IT penetration or diffusion, finding that the most important factor is GNP, although increasing civil liberties also has a significant impact⁷³.

Kiiski and Pohjola use a panel of 60 countries over the years 1995-2000 looking at a range of variables including income per capita, telephone access costs and the *average years of schooling*, and also the five year growth rate of internet hosts⁷⁴. Kiiski and Pohjola find that GDP per capita and internet access cost are important factors in OECD countries, but that the least important factor is education. However this position changes when DCs are included in the sample and education becomes an important variable in the penetration and diffusion of IT.

⁷² Arquette T.J., *Social Discourse, Scientific Method, and the Digital Divide: Using the Information Intelligence Quotient (IIQ) to Generate a Multi-Layered Empirical Analysis of Digital Division*, Northwestern University, 2002.

⁷³ Beilock R., and Dimitrova DV, *An exploratory model of inter-country Internet diffusion*, *Telecommunications Policy*, 27(3-4), pages 237-252, 2003.

⁷⁴ Kiiski S., and Pohjola M., *Cross-country Diffusion of the Internet*, United Nations University, World Institute for Development Economic Research, 2001.

Quibria in separate analysis of 100 countries over 1999 seems to confirm this result⁷⁵. Phojola confirms using a data set set over the years 1993-2000 that IT investment is tightly related to income measures and *human capital*⁷⁶. Again these findings indicate that DCs and LDCs by focusing on effective education programs for their nationals can help to address the Digital Divide.

Guillen and Suarez review a panel of 141 countries over the period 1998-1999 using a range of policy variables including telecommunications policy and infrastructure, as well as two variables that indicate to some extent the level of entrepreneurship in the country in question; predictable policy making and a *democracy index*⁷⁷. They find that the number of internet hosts and the number of internet users per capita are impacted by the policy variables when the entrepreneurship variables are left out, but that the policy variables lose their effect when the entrepreneurship variables are included. They conclude that public policy should look at general conditions supporting entrepreneurship and not just telecommunications policy. This again is an important finding indicating possibly that other legislative measures such as on competition policy, venture fund capital, and policies that stimulate local small business activity could have an impact on entrepreneurship other than just telecommunications policy.

Norris examines the dispersion of internet use by grouping information on internet use in over 100 countries into a “New Media Index” and comparing it with an “Old Media Index” that indicates the level of penetration of radio, newspaper readership and television sets in each country⁷⁸. She discovers that the two indices are highly correlated concluding that the problems of illiteracy and strict government controls on access to the Old Media also applied to the New Media and internet access. The issue then is whether increasing the democracy index could result in increased internet

⁷⁵ Quibria G.M., Ahmed S.N., Tschang T., and Reyes-Macasaquit M.L., *Digital Divide: determinants and policies with special reference to Asia*, Journal of Asian Economics, Vol 13, pp 811-825, 2003.

⁷⁶ Pohjola M., *The Adoption and Diffusion of ICT Across Countries: Patterns and Determinants*, The New Economy Handbook (ed D.C. Jones), California, Academic Press, 2003.

⁷⁷ Guillen M.F., and Suarez S.L., *Developing the Internet: entrepreneurship and public policy in Ireland, Singapore, Argentina, and Spain*, Telecommunications Policy, Vol 25(3-4), 2001, pp 349-371.

⁷⁸ Norris P., *The Global Divide: Information Poverty and Internet Access Worldwide*, Internet Conference at the International Political Science World Congress, Quebec City, 2000.

hosts and internet users per capita: without investment in IT and telecommunications infrastructure of course this would not be possible.

What is the significance of the link between the human capital base and the digital divide? The research indicates that the Digital Divide parallels the gap in economic and human development. Education is an important variable in the penetration and diffusion of IT, and investment in IT is tightly related to income measures and human capital. A disparity in education, specifically information literacy is therefore critical to any definition of the divide.

2.3.5 Competition and Telecommunications Policy

In terms of the effect of competition policy, Dasgupta *et al* examines internet use in a panel of 44 countries over the period 1990-1997 assessing the impact on the ratio of internet hosts/telephone mainlines of measures including urban population, income per capita, and an index of *competition policy*⁷⁹. They find that the ratio is significantly and positively related to policy and percentage urban population, although income per capita was not found to be significant. Again this result is interesting from the point of view as to whether effective enforcement of competition policy could yield positive benefits for increased internet use. Chinn and Fairlie's results appear to confirm Dasgupta *et al*'s finding of the "regulatory factor" significance. For example, in a review of a panel of 161 countries over the period 1999-2001, Chinn and Fairlie find that variables such as GDP, telephone density and regulatory quality (as measured by an index assessing market-friendly policies) are important for growth in PC and internet density⁸⁰. Wallsten in a review of a panel of 45 countries finds that the more formal and controlled a country's regulatory system, the fewer internet users and hosts⁸¹. In a separate study for the United Kingdom's Department of International Development (DFID)⁸², completed by the Author as part

⁷⁹ Dasgupta S., Lall S., and Wheeler D., *Policy Reform, Economic Growth, and the Digital Divide: An Econometric Analysis*, Development Research Group, World Bank, 2001.

⁸⁰ Chinn M.D., and Fairlie R.W., *The Determinants of the Global Digital Divide: A Cross-Country Analysis of Computer and Internet Penetration*, Madison, University of Wisconsin, 2004.

⁸¹ Wallsten S., *Regulation and internet use in developing countries*, AEI and Brookings Institution, Washington, 2003.

⁸² Collins H., Dixon M., Garthwaite N., Gillwald A., Groves T., Hunter J., Jensen M., Kariyawasam R., Lucas W., Milne C., Unadkat C., and Wirzenius A., *Reducing the costs for internet access in developing countries*. Report produced for Department for International Development, UK

of a research team investigating the costs of internet access in developing countries in Cambodia, India, Nepal, South Africa, Uganda, and Zambia, the team found that generally the costs for internet access varied considerably among the case study countries, and were generally lower in the larger and more *competitive* ones⁸³. Internet Service Provider (ISP) costs generally accounted for under half of end user costs in these countries, with telecommunication operator charges (especially for higher users) comprising the greater portion. The research team found that liberalisation and regulation of telecommunications within DCs and LDCs, with a primary focus on effective competition for both international and domestic leased circuits and permitting internet telephony would accelerate the growth of internet markets in these countries⁸⁴. Other conclusions included:

- Liberalisation and regulation of telecoms within the developing countries, with a primary focus on effective competition for both international and domestic leased lines, and on permitting internet telephony;
- Sharing between developing country carriers and ISPs the revenues paid by users for calls to the internet;
- Making better use of scarce international bandwidth, for example by setting up local and regional internet exchange points and by caching content;
- Developing alternative lower-cost technologies, with a focus on wireless and cheap terminal equipment;
- Monitoring the competitive situation for the supply to developing countries of international bandwidth, and intensifying competition by helping developing country ISPs to get best available buys.⁸⁵

The DFID Internet Costs study reveals that the main problem for many DCs and LDCs (at least in the case study countries) remains extreme poverty, leading to small markets and an inability to take advantage of economies of scale. The study authors recommend that increased internet take-up by businesses and institutions, better-off

Government (2001), Antelope Consulting, 2001, published on the internet at: http://www.antelope.org.uk/telecommunications_development/DC_overview.pdf, accessed October 2008.

⁸³ Ibid, Executive Summary.

⁸⁴ Ibid.

⁸⁵ Ibid.

personal users and telecentres will build market size and attract more effective competition wherever this is permitted. In a similar study conducted by the Author as part of an Antelope Consulting research team (including the Commonwealth Telecommunications Organisation (CTO)) for the Department for Central and South Eastern Europe (CSEED) of DFID⁸⁶, the team compiled information from the region on technical and regulatory structures⁸⁷, and on the social utilisation of new Information Communications Technologies (ICTs). The aim of the research was to inform CSEED's decision-making on how ICTs could be introduced and used in a more equitable and inclusive way. The team found that there was a much greater variation in the CSEE region than in Western Europe for telephone mainline density and internet use by capita. In 2000, telephone density ranged from 3 lines per hundred people in Albania to 37 in Slovenia. In Western Europe, the range at the time was 40 per 100 in Portugal to 68 per 100 in Sweden⁸⁸. The Team also found wide differences in the geographical coverage of telecommunications (and therefore also internet access). In Western Europe both rural and urban areas had a near 100% network coverage, whereas in the CSEE region, urban coverage was good but rural penetration far from complete⁸⁹. On average only 15% of rural households in the region had a telephone line. Romania, Albania and Poland all had several thousand villages with no network access at all⁹⁰. No doubt these conditions have since changed, although the large differences in the levels of internet access and the wide range of country performance were due for the most part to low and varying economic achievement, although accession plans by a number of the countries to accede to the EU showed a willingness on the part of most of the countries to adopt EU policies in key enabling areas such as telecommunications. The research also indicated that the countries of CSEE were unequal societies with potential for social exclusion based on socio-

⁸⁶ Lundy P., Stewart I., Souter D., Swain N., Milne C., Garthwaite N., and Kariyawasam R., *Improving the quality of transition in Central and South Eastern Europe through Information and Communication Technologies*, Antelope Consulting for Department for International Development's Central and South Eastern Europe Department, 2000, available on the internet at:

http://66.249.93.104/search?q=cache:IK2S4DYh0foJ:www.antelope.org.uk/telecommunications_development/CSEED_report.pdf+CSEED.+antelope+consulting&hl=en&gl=uk&ct=clnk&cd=1&client=firefox-a, accessed December 2010.

⁸⁷ The central and south eastern European (CSEE) region defined for the purposes of this report included 15 countries: *Estonia, Latvia, Lithuania, Poland, Hungary, Czech Republic, Slovakia, Romania, Bulgaria, Slovenia, Croatia, Bosnia Herzegovina, Former Yugoslav Republic of Macedonia, Albania, and the then Federal Republic of Yugoslavia.*

⁸⁸ *Supra* note 76., *Executive summary*

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

economic group, ethnicity, sex and age, and that unemployment had greatly increased since the end of Communism, seriously affecting many groups, and especially the *Roma*⁹¹. The use of the Internet also tended to be concentrated among the urban, educated (perhaps male) young, and that although Governments in the region had policies for the Information Society, the take-up of ICTs was mixed: Central Europe, but less so in the Balkans, they had made considerable progress in establishing a presence on the web. Interactive services were generally not available however, partly because of resistance to transition from paper-based, physically signed and rubber-stamped transactions⁹². Also commercial companies were responding rapidly to the new technologies, although, with the exception of vanguard software and e-commerce companies (of which most of the case study countries had a number), the picture was one of presence on the web rather than e-commerce. This was related to the low number of true credit cards used in the countries. At the time, the research indicated that areas for future development to make the Internet more accessible would include making telephone access cheaper, making electronic payment easier, providing public access points to the internet, and providing training in ICT skills and the English language.

Both of these DFID studies (also discussed in Chapter 7) appear to point to the adoption of more effective telecommunications, IP, competition, and trade laws to help address the Digital Divide. This is borne out through more recent research by UNCTAD. For example in the *World Investment Report 2008*, UNCTAD states:

As regards hard technology, in telecommunications for instance, market entry by international operators from both developing and developed countries has contributed to lowering the threshold of access to and use of information and communication technologies in developing countries.⁹³

Although, much of the research referred to above appears to point the way to increased flexibility in telecommunication policy possibly through the use of competition law in order to enhance IT penetration and internet use, it must also be

⁹¹ Ibid.

⁹² Ibid.

⁹³ UNCTAD, *World Investment Report 2008*, p. 18.

stressed that many of the developed countries' national telecommunication incumbents achieved their positions of market power over long periods of monopoly and that to suddenly open DC or LDCs national telecommunication markets to fierce competition in both basic and advanced services might not be the first step. For example, although DCs and LDCs may be willing to liberalise their national markets in order to attract increased foreign investment, they might also want to consider how legislative measures protecting those operators providing services of a *general economic interest*, such as universal service/access or broadcasting obligations (similar for example to the operation of Article 86 EC Treaty on liberalisation measures) might need to be implemented to protect domestic operators during a transitional phase to increased competition in the domestic market (Chapter 7 explores this issue in more detail).

The link here between telecommunications policy and competition and the digital divide indicates the significance of regulatory quality for growth in PC and internet density. Interest costs are lower in the larger and more competitive countries where liberalisation and regulation of telecommunications has led to more effective competition. Our definition of the divide therefore should include a reference to competition, as competition should result from increased liberalisation and deregulation.

2.3.6 Innovation, Technology Transfer and Trade

Another important aspect of the Digital Divide is gaining access to the necessary technology to help with the process of *innovation* and manufacturing in the country itself. Lal and Petrobelli argue in their discussion of sub-Saharan Africa:

...technology is vital to industrialisation at all levels...Manufacturing is still the main engine for transforming the economic structure of low-income countries, letting them shift from slow-growing, low-return activities, with high productivity and strong growth potential. It is the most potent user and carrier of technology to the economy, the main agent for the creation, transfer and application of new technologies. It provides the hardware of production

(machinery) to all economic sectors and catalyses new methods of management, organisation, ownership, financing, and governance...⁹⁴

Lal and Petrobelli suggest that some new forces are making it easier for developing countries to become competitive, such as the growth in TNCs in transferring new technologies across the world, and the availability of technology to local firms in the form of capital goods, licensing, consultancy or sub-contracting. They also argue that there are limits to the involvement of DCs in the globalisation of technology as “many of the tools of industrial policy apart from import restrictions (local content rules, export subsidies, directed credit, reverse engineering) are being constricted or forbidden by international rules and agreements.”⁹⁵ These issues are discussed in detail in Chapter 8 on technology transfer.

The lowering of tariffs on the trade in electronic intangibles is also key to DC/LDC economies. Research by UNCTAD shows that the switching of trade in physical products to electronic intangibles could have serious implications for developing countries in terms of loss of revenue from import tariffs if the current moratorium on not charging import duties on electronic intangibles agreed at the WTO in 1998 remains in place. At present, DCs tend on average to charge much higher additional tariffs on imports on physical products that could in the future be substituted with electronic intangibles (so called additional import duties and taxes, such as excise taxes, value-added taxes, and consumption taxes). At present, these high taxes are restricting access to content and also the corresponding ability of DCs/LDCs to trade and export electronic intangibles. However as the UNCTAD economist Teltscher argues:

Whether zero tariffs would actually increase developing countries’ exports on e-commerce goods is not certain. While a decrease in border tariffs is usually followed by an increase in trade, in the case of e-commerce, many developing countries do not have the telecommunications infrastructure or the human

⁹⁴ Lal S., and Pietrobelli C., *Failing to Compete: technology development and technology systems in Africa*, Edward Elgar, London 2002, p. 2.

⁹⁵ Ibid pages 4-5.

resources necessary to develop their e-commerce export capacities. Instead, they may face fiercer competition from outside and a growth of e-commerce imports. On the other hand, the gradual elimination of tariffs on certain electronic goods may have a beneficial effect on some countries' economies. For example, a reduction on software products could support domestic investment in high-technology sectors, an important industry for helping developing countries participate in e-commerce.⁹⁶

The significance of the link here between innovation and the digital divide is in gaining access to the necessary technology to help with the process of innovation. A failure to access appropriate technology will exacerbate the divide as technology is vital to industrialisation at all levels. Furthermore in terms of trade, the gradual elimination of tariffs on certain electronic goods could have a beneficial effect on DC and LDC economies as physical goods are substituted for electronic ones. Our definition of the divide therefore should include failure to gain access to technology transfer and innovation as well as to successively reduce trade tariffs on goods relevant to e-commerce.

The trade in electronic intangibles and the problems of classification of such goods are discussed in more detail in Chapter 9.

2.4 Conclusion: Defining the Divide

As mentioned at the beginning of this chapter, the Digital Divide has no single point of definition. The results of the published research reviewed above indicates quite clearly that the Digital Divide can be linked to several sectors including; telecommunications and competition policy, internet diffusion and access to infrastructure; IT penetration; alternative development; trade policy and a country's policies on transfer of technology (including IPRs)/innovation.

⁹⁶ Teltscher S, *Tariffs, Taxes and Electronic Commerce: Revenue implications for developing countries*, UNCTAD, October 2001, p. 10.

From a review of the available research above which shows the significant links between the various sectors and the digital divide, the following list of elements emerge as central to any definition of the divide:

- an inequality of access to information and communications technologies;
- a reference to the disparity between countries in appropriating Information Technology Products (which presumably also covers internet use);
- a reference to the ability or not for a society to use information tools to innovate (which presumably would also include the generation of new business and societal change);
- a reference to the disparity in education, specifically information literacy;
- a reference to competition (which presumably would result from increased liberalisation and deregulation); and
- a reference to the failure to gain access to technology transfer and innovation as well as to successively reduce tariffs on trade (electronic intangibles).

As can be seen, most of these elements have an inbuilt reference to *time*, for example with the need to enhance competition and to successively reduce tariffs on trade. Liberalisation and deregulation takes times and the benefits of increased competition will be only felt once policy changes have been made and enforced. Further, the ability to innovate will also depend on a successful transfer of technology over a period of time whether by technology transfer licensing or foreign direct investment (discussed in Chapter 8). In drawing together these elements, our definition of the digital divide therefore needs to be *dynamic* (as opposed to static).

Before deriving a suitable definition for the divide, it will also be useful to look at other definitions that scholars have arrived at and which could inform the definition settled upon in this thesis. For example, Paliwala in his paper *Digital Divide Globalisation and Legal Regulation* talks of the divide as being:

...defined in terms of differences in access to the essential tools of the information society and to the infrastructure of the networked society or

economy. These can be measured by surveys comparing access to computers, phones, cable, and other Internet-related technologies.⁹⁷

Paliwala cites Norris, who in turn defines the divide as:

The digital divide is understood as a multidimensional phenomenon encompassing three distinct aspects. The global divide refers to the divergence of Internet access between industrialised and developing societies. The social divide concerns the gap between information rich and information poor in each nation. And finally within the online community, the democratic divide signifies the difference between those who do, and do not, use the panoply of digital resources to engage, mobilize, and participate in public life.⁹⁸

In his paper *Digital Divide and Ethics*, Koehler picks up on the point of the lack of access to information and the information society touched on by Norris in the research reviewed above:

I suggest first that the digital divide can be defined in the context of three fundamental information ethics concerns: the right of access, literacy, and information literacy. Generally, "literacy" is defined as the ability to read and process intellectually the information acquired through reading. Reading of course is defined in its broadest sense. Information literacy would better be called information technology competence, for it implies the ability to use existing technology at a certain ability level in order to compete successfully with other exploiting information and information technologies.⁹⁹

Kamacho in her paper *Digital Divide* argues that the divide is much more complex than a simple division between 'richer North and poorer South countries'. The divide encompasses a densely woven tapestry of social divides, including between "North and South, rich and poor, men and women, urban and rural populations, those with

⁹⁷ Paliwala A., *Digital Divide Globalisation and Legal Regulation* UTSLRev 2. [2004]

⁹⁸ Norris P., *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide* (2001), cited in Paliwala A., *Digital Divide Globalisation and Legal Regulation* UTSLRev 2. [2004]

⁹⁹ Koehler W., *Digital Divide and Ethics*, University of Oklahoma accessed at: <http://www.ffzg.hr/infoz/lida/lida2001/present/koehler.rtf>, September 2008.

access to information and those without. Such disparities are found not only between different cultures, but also within national borders.”¹⁰⁰ There are strong references here off course to ‘domestic’ divide issues. But from a broader perspective, she argues that the digital divide needs to be understood as the conditions that are required to appropriate technologies on a continuous basis as and when they are developed (again providing some reference to *time*) and the capacity to incorporate them as tools into daily living. In this she agrees with the opinions of Soupizet that the divide reflects:

The minimum capacity to appropriate information and communication technologies within a structural context of successive innovation is what makes the difference. In fact, in a world of globalization, this delay threatens to heighten all other disparities, the reason for which special attention is given to the digital divide.¹⁰¹

Where in many LDCs the need to have access to clean drinking water and stable power supplies are the predominate concerns, this reference to a ‘minimum capacity’ to acquire appropriate technology is also key from our perspective of understanding the Digital Divide. What is the point of importing refrigeration cooling trucks for the transportation of fresh food if the state does not also have access to a minimum level of know-how and the knowledge to maintain the cooling technology found within the trucks? As the technology for storing and transporting food improves, so must the state be ready to innovate, building on previous technologies to improve food hygiene and distribution (as Camacho/Soupizet argue, ‘working within a structural content of successive innovation’). Any definition of the international Digital Divide needs to reflect not only the failure by states to *access* appropriate ICTs but also the failure of a state to take advantage of a ‘structural context of successive innovation’. This also indicates a dynamic form of definition for the divide. In compiling these different viewpoints, one can argue that the international Digital Divide is linked to several elements: lack of access to appropriate infrastructure and ICTs; education; the ability to successively innovate, compete and trade; access to media and effective competition between service providers; and also bearing in mind that the divide exists

¹⁰⁰ Camacho K. *Digital Divide* at <http://vecam.org/article549.html>, accessed October 2008.

¹⁰¹ *ibid*, op. cit Jean Francois Soupizet (reference 12).

very much *intra* the nation-state as well as *inter* nation states, the author suggests that the *international* Digital Divide can be summarised as:

A failure between those users in countries who have access to communications infrastructure, services and tools to aid literacy and information literacy, and those who do not, to access the minimum available capacity of communication technologies and information within a structural context of successive innovation, competition and trade.¹⁰²

In looking at the definition, when we talk of a ‘*minimum capacity...*’ we are talking of those countries that by conventional measurements (reviewed above--telephone line penetration, internet host penetration, numbers of servers etc.) fall to the lowest quartile on international measurement indices by comparison with other countries, and who are:

- Failing to gain access to telecommunications and internet networks specifically the international backbone networks over which information flows (*appropriating communication technologies*); and
- Failing to gain access to the content and know-how that can help with educating their human capital bases (*appropriating information*).

The phrase, ‘*..within a structural context of successive innovation, competition and trade*’ is a reference to the success or failure of a country to appropriate communication technologies and information as a direct result of either implementing or not implementing effective policies on technology transfer, competition and the trade in electronic intangibles *over a period of time*. As such, the reference makes reference to the dynamic nature of the definition in that it captures the failure of the state to make policy adjustments (consecutively) over time in the relevant areas to improve access to communications technologies and information. The reference to ‘*innovation*’ is a broader term that captures the success or failure of a country’s policies on technology transfer, specifically the *absorption* and *spillover* of technology transferred from foreign companies into the host state. These terms are further examined in chapter 8 on technology transfer. Absorption can be defined as

¹⁰² The term ‘Users’ can in turn be defined widely as end-users, consumers, SMEs, bodies with legal personality etc.

the ability of local firms to make use of knowledge spillovers from external actors. Spillovers occur when the entry or presence of a foreign Multinational Corporation's (MNC's) affiliates leads to productivity or efficiency benefits for a host country's local firms.¹⁰³ The references to competition and trade are there to incorporate the other elements from the *list of elements* given above.

'Literacy' can be defined in its ordinary meaning as the ability to read and process information acquired through reading. 'Information literacy' has a broader meaning, referring more to the ability to use ICTs to compete with others making use of information and information access tools. The term 'users' also can encompass SMEs, corporations, and end-users.

From the definition of the divide above, we can condense down further and identify four specific sectors in which to investigate the operation of IEL, and thereby help address the Digital Divide:

- *Competitive access to communications and information technology networks* (this is the heart of the definition above: an investigation into the rules and regulations applying to access is crucial for addressing the divide);
- *The transfer of technology* (this as we have seen is linked not only to innovation but also in gaining access to information, know-how and improving information literacy, key aspects of the definition); and
- *The trade in electronic intangibles* (research reviewed above shows that the current moratorium of not imposing tariffs on electronic intangibles can be detrimental to DCs and LDCs, affecting their ability to raise revenue and to invest back in their infrastructure requirements and capacity building programs).
- *The human capital base* (research reviewed above shows that addressing the digital divide will require a human capital base sufficiently educated and trained to deal not only with the spillover of technology transfer, but also the absorption of that technology. Enhancing the human capital base will require

¹⁰³ See Chapter 8, section 8.4.

the strengthening of civil and political rights, and economic, social and cultural rights in DCs/LDCs).

In this thesis therefore, the investigation of IEL starts first by looking at the law applying to access to communications and information technology networks, which as this chapter has shown, are now in the process of converging to become NGNs. This sector by far is the most complex and to which much of this thesis is dedicated. Chapter 3 looks at the international regulation of telecommunications and access to infrastructure. Chapter 4 looks at internet interconnection and NGNs and the potential anticompetitive practices of large IBPs who control the access to the backbone networks that make up the internet. Chapters 5-7 continue with the investigation of competitive access to communications and information technology networks, but also provide solutions to improving access in the form of the Layering Theory and the applicability of the theory to DCs and LDCs. Chapters 8 and 9 look at the sectors emerging as significant to our definition of the Digital Divide: the transfer of technology and the trade in electronic intangibles respectively. Finally, Chapters 10 and 11 look at how civil and political, economic, social and cultural rights can be enhanced collectively in the form of the Right To Development. Chapter 11 looks specifically at how the RTD can be *operationalised*.

CHAPTER 3

INTERNATIONAL TELECOMMUNICATIONS

3.1 Introduction

As an *economic* sector, telecommunications is generally a vertically integrated sector generating economies of scale with very low marginal costs. Telecommunications as a *technical* sector is covered by a number of international treaties including the Outer Space Treaty 1967, the Intelsat Agreement 1971, the Convention of International Telecommunication Union (ITU Convention), the World Administrative Telegraph and Telephone Conference (WATTC), and the Conventions on Satellites. However, the aim of this chapter is not to discuss telecommunications as a technical *subject*, but to discuss telecommunications as a *sector* of international trade. In light of this, the chapter will discuss the most relevant treaties that cover telecommunications as an economic sector, specifically the WTO covered agreements¹. The Author contends that of all the multilateral institutions that will shape the focus of international telecommunications in the decades ahead, the WTO, and to a lesser extent the International Telecommunications Union (ITU) will take this role in terms of regulatory measures affecting trade in telecommunications. The ITU will retain its position of significance as regards the gatekeeper of telecommunication technical standards given its long policy making history in this area, but its role as a *de facto* regulator, for example in areas of competition and market access, are easily eclipsed by the emerging role of the WTO. There is also however, an increasing reliance by the United States and the EU on FTAs and bilateral trade agreements. A glimpse of the rising role of the WTO is reflected in the recent Dispute Settlement Body (DSB) case between the United States and Mexico on interconnection fees between incumbent telecommunication carriers². The *Mexico-Telmex* Case is a landmark case, marking the first panel ruling by the WTO's Dispute Settlement Body in the

¹ GATS, GATT, TRIPS, and Information Technology Agreement (under the GATT).

² *Mexico-Measures Affecting Telecommunications Services* 1st June 2004, DS204 (referred to in this chapter as the “*Mexico-Telmex*” Case).

telecommunications sector. The WTO's DSB is perhaps the only international regulator, which has an enforcement procedure with "real teeth", in that failure to implement its rulings could (eventually) result in trade sanctions.

This chapter, in discussing the role of the WTO in increasing international trade in telecommunications, will discuss the need for the WTO Secretariat to reform existing measures and deal with five significant challenges: (a) clarifying its role with that of the ITU³; (b) resolving classification issues of new internet services that will be important for all network-based transactions⁴; (c) developing existing provisions on competition built into the GATS, Annex on Telecommunications and regulatory Reference Paper⁵; (d) clarifying the system by which international telecommunication operators settle inter-carrier payments (Accounting Rates)⁶, particularly as more traffic is now switched through packet-switched networks⁷; and (e) increasing the participation of developing countries⁸. The aim of this chapter is to describe the "international rules of the game" as regards to telecommunications, with the main emphasis being on the role of the WTO in this sector. As the Author suggests in Chapter 1, Chapters 3-5 set out the framework of IEL that applies to telecommunications at a multilateral level, but also taking the example of the European Community (and to the United States to a lesser extent) (Chapter 5). In Europe for example, the European Commission has put in place a far-reaching regulatory framework for regulating electronic communications networks and services, which seeks to separate the regulation of digital content from the digital networks that carry that content, but applying the principles of technological neutrality that seek to embrace both elements of competition law and sector-specific

³ Section 3.2 the *ITU* in this chapter.

⁴ Section 3.3.1 on *Classification of telecommunications services* in this Chapter

⁵ Section 3.4.2 on the *Reference Paper in light of Mexico-Telmex* in this Chapter

⁶ Section 3.2.2 on *Accounting Rates* in this Chapter.

⁷ A data communications network that uses packet-switching technology (a switching procedure whereby two parties have a logical connection across a network, but no dedicated facilities (unlike a circuit-switched network which sets up a dedicated connection), and where units of transmission have a maximum size (usually 128 or 256 octets): this is a store and forward technique where nodes in the network may store a packet for some time before forwarding it to the next node (or router) in line. See Kessler G., *ISDN*, McGraw-Hill, 1990, p. 281.

⁸ Discussed in Chapter 7 (Developing Countries and Telecommunications). Note also that the impact of reform of domestic regulation measures under the GATS, Article VI, particularly on mutual recognition agreements and standards setting, is also an area that needs to be addressed by the WTO, but is outside the scope of this chapter.

regulation⁹. By contrast, the Federal Communications Commission (FCC) in the United States still labours with the distinction between an *information service* and a *telecommunication service* that has created disparities in regulating different communication sub-sectors, such as the cable and Digital Subscriber Line (DSL) networks, resulting in costly litigation and regulatory uncertainty¹⁰. In Chapter 6, the Author discusses a Layering Theory, which he argues could be used to modify WTO measures on telecommunications, such as the regulatory Reference Paper, introduced in this chapter. How such a modified RP could benefit developing countries is discussed further in Chapter 7 (Developing Countries and Telecommunications).

This chapter looks briefly at the international framework for telecommunications, reviewing the main WTO measures including the Annex on Telecommunications (AT), regulatory Reference Paper (RP), the Mexico-Telmex case, and ITU Recommendations D.50 and the “APEC principles”, the latter two issues being potentially significant for developing countries¹¹. The AT, one of the first multilateral WTO instruments on telecommunications and negotiated as part of the Uruguay Round culminating in the formation of the WTO, provides a level of regulatory certainty for foreign investors requiring access to the target state’s incumbent telecommunications carrier’s network in order to provide services (for example financial) that have been scheduled as commitments in the target state’s schedule of specific commitments. The AT applies to valued added or enhanced telecommunications services mainly (as opposed to basic or voice telecommunications services, usually the subject of a monopoly by the target state incumbent telecommunications operator). The RP, negotiated much later than the AT and coming into force in 1998, applies specifically to basic (or voice) telecommunications services. The RP’s significance lies in a set of regulatory principles, the most important being the “interconnection” principles that provide the basis for further liberalisation of a WTO member’s telecommunications sector. The

⁹ Discussed in Chapter 5.

¹⁰ As Frieden argues, “Asymmetry in regulatory treatment may provide the lesser regulated venture a competitive advantage based on the ability to accrue cost savings. See Frieden R., *Adjusting the Horizontal and Vertical in Telecommunications Regulation: A Comparison of the Traditional and a New Layered Approach*, Penn State University, 2002, p. 16. Asymmetry of regulation in US telecommunications is discussed in greater detail in Chapter 5 of this thesis.

¹¹ The impact of international measures in telecommunications impacting developing countries is discussed in more detail in Chapter 7 (*Developing Countries and Telecommunications*).

RP is classed as an *additional commitment* and therefore not compulsory for WTO Members to adopt (as opposed to the AT, which being an annexe to the GATS is mandatory), but nevertheless is often required to do so as a condition of further foreign investment into the sector (see discussion below).

The *Mexico-Telmex* case is the first dispute case (reaching a WTO panel) in telecommunications at the WTO and demonstrates the significance of telecommunications as a strategic economic sector within international trade. It also demonstrates the absolute need for governments to have effective and transparent measures in place that will stimulate both competition and innovation. The case hinges on the interpretation of the regulatory principles enshrined in the RP that apply to competition. There has been considerable disagreement over the DSB panel decision in *Mexico-Telmex* (discussed below) and the interpretation of the term “anti-competitive practices” as found in the RP. This case looks to set an important precedent for future potential disputes in this sector and introduces crucial elements of competition law into the WTO framework within the school of “Modernization” as mentioned in Chapter 1 and despite the absence of any official compact on competition policy at the level of the WTO.

As mentioned above, following the adoption of the AT, RP, and the settlement in *Mexico-Telmex*, the WTO appears to be in the “driving seat” as regards international regulation of telecommunications with the ITU a technical standard setter and important provider of technical support to developing countries. The chapter will start with an assessment of the role of the ITU in the three significant areas mentioned above (accounting rates, interconnection, and VoIP) and the ITU’s somewhat conflicting position (particularly in recent years) with that of the WTO; the role of the WTO in issues of classification of telecommunication services (current service classifications are in urgent need of revising); the contentious view of whether or not current schedules of specific commitments need to be revised to include new internet services and network-based transactions and finally with the increasing take-up of digital networks as data signals surpass voice, the role of the international regulation

of internet infrastructure services¹². By understanding the role of these institutions in the important areas of telecommunications and internet interconnection policy that most directly impacts developing countries, we can then lay the foundation for the chapter on developing countries that follow (Chapter 7).

3.2 The ITU

The ITU was established on the principle of cooperation between governments and the private sector¹³. Founded over 135 years ago, it is the oldest international organisation in the world¹⁴, and its current membership includes regulators, network operators, equipment manufacturers, hardware and software developers, regional standards-making organizations and financing institutions. As Coddling argues, the ITU has “survived two world wars, a cold war, and at least one major depression.”¹⁵ In the last decade, the ITU membership has faced rapid evolution given the changes in the way telecommunication services are delivered and the convergence of telecommunication, information technology, and broadcasting networks, resulting in a wide range of new content rich network-based transactions. Furthermore, the liberalization and deregulation of the telecommunication sector in many countries has pushed its membership, particularly many of the developing countries, to encourage the ITU to take a greater role in international policy making.

The ITU is divided into three broad Sectors - Radiocommunication (ITU-R), Telecommunication Standardization (ITU-T), and Telecommunication Development (ITU-D). These Sectors cover all aspects of telecommunication, from standards setting on interworking of equipment and systems worldwide to operational procedures for wireless services and designing programmes to improve telecommunication infrastructure in the developing world. Each of the three ITU Sectors works through conferences and meetings, where members negotiate the

¹² The international regulation of content that flows over internet networks is beyond the scope of this chapter.

¹³ See the ITU's website at: www.itu.org, date accessed November 2010.

¹⁴ Coddling G. A., *The International Telecommunications Union: 130 Years of Telecommunications Regulation*, 23 Denv. J. Int'l. & Pol'y 501, 1995, p.1.

¹⁵ Ibid, p. 9.

agreements which form the basis of telecommunication standards and services. Study groups made-up of experts drawn from separate national Public Telecommunication Operators carry out technical work, preparing the detailed studies that lead to ITU Recommendations. ITU-R draws up the technical characteristics of terrestrial and space-based wireless services and systems, and develops operational procedures. It also carries out technical studies which serve as a basis for the regulatory decisions made at radio communication conferences. ITU-T experts prepare the technical specifications for telecommunication systems, networks and services, including their operation, performance and maintenance. Their work also covers the tariff principles and accounting methods used to provide international services. Finally, ITU-D prepares recommendations, opinions, guidelines, handbooks, manuals and reports, which provide decision-makers in developing countries with 'best business practices' guidelines on standards and systems. Currently there are 24 study groups spanning the Union's three Sectors (7 in ITU-R, 14 in ITU-T, 2 in ITU-D), which together produce around 550 new or revised Recommendations every year¹⁶. All ITU Recommendations are voluntary agreements. The ITU is also responsible for the International Telecommunications Regulations (ITRs), which had their origins in the 19th Century and remain one of the oldest of the ITU treaties¹⁷. ITRs cover the international telecommunications business setting out rules for *administrations* (government department responsible for telecommunications and not private undertakings) to put in place procedures for running international telecommunications networks and services¹⁸, mutually agreed routing¹⁹, charging and accounting²⁰, and special arrangements which allows not only administrations but also private organisations or persons to conclude special arrangements for the establishment, operation and use of special telecommunications networks (for example money transfer through the Society for Worldwide Interbank Financial Telecommunication (SWIFT) or navigation, such as International Maritime Satellite Organisation (INMARSAT)²¹. The current ITRs were adopted in Melbourne in 1998 and appear in the Final Acts of the World Administrative Telegraph and Telephone Conference

¹⁶ ITU's website at: www.itu.org, date accessed November 2010.

¹⁷ Kelly T., *International Telecommunications Regulation: a trophy or atrophy*, in *World Telecommunications Markets* (ed Gary Madden), Edward Elgar, 2003, p. 200.

¹⁸ Article 1 International Telecommunications Regulations 1988.

¹⁹ Article 3 International Telecommunications Regulations 1988.

²⁰ Article 6 International Telecommunications Regulations 1988.

²¹ Article 9 International Telecommunications Regulations 1988.

(WATTC-88). The ITRs are a binding treaty instrument and form part of the Administrative Regulations of the ITU: they are to be amended through subsequent WATTCs²². The ITRs are in need of amendment to keep pace with the rapid change of technology and the introduction of the Transmission Control Protocol/Internet Protocol (TCP/IP) as the basic production standard of telecommunications networks, but there has been resistance within the ITU membership. Many of the developed countries see the ITRs as having been superceded by the WTO's Fourth Protocol and Reference Paper, although the terms of these measure remain vague. Many DCs and LDCs that still retain monopoly markets would like to see the ITRs amended and revived²³. The position has yet to be confirmed.

In 1996, the ITU initiated the World Telecommunication Policy Forum (WTPF) to harmonize telecommunication policies on issues that have a transnational nature. The forum is organised on an ad-hoc basis determined by the ITU's executive policy-making body, the *Plenipotentiary Conference* in conjunction with its annual governing body, the ITU Council.

3.2.1 Cooperation Agreement between the ITU and WTO

At the 1994 Kyoto Plenipotentiary Conference, one of the landmark conferences in the history of the ITU, members recognised the need to develop closer working relationships with other international institutions including the WTO, OECD, and the World Bank. The ITU's Strategic Plan 1995-1999 highlighted the need to "maintain ITU's claim to global technical pre-eminence in matters relating to telecommunications, the Union should continue to keep pace with developments in the areas of telecommunications policy, law, regulation, and trade."²⁴ In fact, a cooperation agreement between the ITU and WTO was not signed until six years later in November 2000, when the then WTO Director General, Mike Moore and ITU Secretary-General, Yoshio Utsumi, agreed to strengthen relations between the two organizations, by signing a Cooperation Agreement which was approved by the 2000

²² Supra note 127.

²³ Supra note 128, p. 221.

²⁴ International Telecommunications Union, *Final Acts of the Additional Plenipotentiary Conference* 49-68 (1994) at 53.

Session of the ITU Council, and later ratified by the full ITU membership in a Plenipotentiary Conference.

The Agreement was to foster cooperation activities between the WTO and ITU on matters at the intersection of trade and telecommunication policy, to provide assistance to ITU members interested in WTO accession and to allow for each organization to participate as an observer at specified meetings of the other. The agreement also provided for the ITU to receive information on dispute resolution matters.

It is difficult to assess the effect of the cooperation agreement in the day-to-day business of the two institutions. WTO advisers do sit on ITU expert groups. Further the work of the ITU in technical areas, such as interconnection, accounting rates, and standard setting for emerging technologies, such as Voice over Internet Protocol (VoIP), will most certainly have an important bearing on the future direction of the work of the Council for Trade in Services and the WTO Secretariat in reforming existing WTO measures on telecommunications, such as the regulatory Reference Paper to the Fourth Protocol (the Basic Agreement on Telecommunications). It is in perhaps these three areas: accounting rates, interconnection and VoIP that we will expect to see the greatest overlap between the work of the WTO and ITU. Each is discussed in the next three sub-sections.

3.2.2 Accounting Rates and New Modes of Operation

In recent years, reform of the international accounting rate system in telecommunications has been one of the most fiercely contested issues between the developed and developing countries. The traditional accounting rate regime clearly contravenes the MFN principles as set out in Article II GATS as the regime provides for states to set differential rates for terminating telecommunications (mainly voice) traffic within their borders according to political and economic interests. Article II requires non-discriminatory treatment between WTO members, and as a general clause, cannot be contravened, unless an exception is scheduled at the time of accession. However, when the Fourth Protocol was being negotiated by the

Negotiating Group on Basic Telecommunications following the Uruguay Round²⁵, it was agreed that a “gentleman’s agreement” should be reached whereby international accounting rates would fall outside the purview of the GATS, but subject to review at the next trade round²⁶. This position has now been “qualified” somewhat by the WTO DSB’s panel ruling in Mexico-Telmex, discussed later in this chapter²⁷.

Accounting rates are generally straightforward to apply: in the telecommunications sector, when an international telephone call is transmitted from one country to another, the PTO in the country that originates the call has usually made a compensatory payment to the operator in the country that receives the call. Payments arise when the traffic in one direction exceeds the level of traffic flowing in the other direction. The level of payment is based on bilaterally negotiated “accounting rates”²⁸. Developing countries have long argued that international settlements are required to continue to invest and upgrade existing legacy infrastructures, which in the developed world have been the preserve of monopolies for many decades. They argue that such settlements are not only used for telecommunications, but also used by national treasury departments in upgrading general infrastructure, such as power and water facilities. By contrast developed countries argue that net-payments based on artificially high settlements do not reflect actual cost structures, which are falling due

²⁵ The Fourth Protocol (sometimes referred to as Protocol 4 or as the Basic Telecommunications Agreement) was signed in March 1997.

²⁶ This is widely known as the *Understanding on Accounting Rates*, which is contained in a Report by the Group on Basic Telecommunications made on 15th February 1997 at the close of negotiations on the Fourth Protocol (BTA). The Report which appended the draft Schedules of Specific of Specific Commitments states:

“7. The Group noted that five countries had taken Article II exemptions in respect of the application of differential accounting rates to services and service suppliers of other Members. In the light of the fact that the accounting rate system established under the International Telecommunications Regulations is the usual method of terminating international traffic and by its nature involves differential rates, and in order to avoid the submission of further such exemptions, it is the understanding of the Group that:

-the application of such accounting rates would not give rise to action by Members under dispute settlement under the WTO; and

-that this understanding will be reviewed not later than the commencement of the further Round of negotiations on Services Commitments due to begin not later than 1 January 2000.”

²⁷ See section 3.4.2 on the *Reference Paper in light of Mexico-Telmex*.

²⁸ <http://www.itu.int/ITU-T/studygroups/com03/accounting-rate/>, date accessed November 2010. The accounting rate revenue division procedure envisages an international call as a single “joint-service” for which the two operators negotiate an agreed “accounting rate”. The accounting rate is then divided in half (the “settlement rate”) and applied to traffic flows in both directions. As both traffic flows are priced at the same rate, the scheme results in an overall net payment from the operator originating more traffic to the operator originating less traffic, based on the volume of traffic in each direction. See Accounting Rate Reform Undertaken by ITU-T Study Group 3, Communication from the ITU, Informal Note, Council for Trade in Services Job.2947, 11th May 2000, paragraph 2.

to improved transmission efficiencies, resulting therefore in net overpayments. The International Telecommunication Regulations (ITRs), discussed above, an international treaty administered by the ITU, sets out the accounting rate regime. ITRs in turn are complemented by the “D-Series” of Recommendations, which are the work of the ITU Study Group 3, charged with the thorny task of reforming the accounting rate system. Reform has been aggressively pushed for by net-paying countries, such as the United States, which in its unilateral attempt to accelerate the process by introducing FCC benchmark levels on accounting rates, has run into stiff opposition from developed and developing countries alike in arguments on extending territoriality of FCC jurisdiction and US courts to foreign based PTOs. It is however generally accepted now by the ITU membership that reform is required. Three main multilateral institutions have worked (and are still working) on the problem: (i) the OECD is seeking to develop a consensus among governments in developed countries; (ii) ITU Study Group 3 is studying the sector (discussed later); and (iii) the informal expert group, appointed by the previous ITU Secretary General (Dr Pekka Tarjanne) put forward a set of “guiding principles” which favoured increased competition and the “move to transparent, non-discriminatory, cost-orientated settlement arrangements.”²⁹

The Fourth Protocol to the GATS has already introduced market access opportunities³⁰ and cost-based interconnection rates by way of the regulatory Reference Paper³¹. The GATS regime has effectively signalled the end of traditional correspondent-type relationships on accounting rates, replacing the old regime with a new regime of facilities-based interconnection. This new regime has resulted in “new modes of operation” by developed countries in bypassing traditional incumbent carriers in developing countries, and therefore operating outside the conventional accounting rate regime. By operating outside the conventional accounting rate system,

²⁹ See Tarjanne’s speech on the ITU website at www.itu.org, date accessed November 2010.

³⁰ Article XVI GATS, which must be read in conjunction with the Member’s Schedule of Specific Commitments, which sets out any exceptions the Member may have taken in the four different modes of supply under the GATS (Mode 1: cross-border, Mode 2: consumption abroad, Mode 3: commercial presence, Mode 4: movement of natural persons).

³¹ Article 2.2(b) Reference Paper to the Fourth Protocol of the GATS.

foreign carriers are able to avoid paying settlement rates that exceed the actual cost for transmission. The *new modes of operation* can be summarised as³²:

- *International simple resale (ISR)*: this involves the resale of leased-line (private line) capacity to provide a public switched international telephone service. Calls originating on a Public Switched Telephony Network (PSTN) in one country are effectively aggregated and transported via a leased-line to terminate on the PSTN of the destination country. Competition in leased-lines whether domestic or international is one of the building blocks of effective competition in international telecommunications. With access to leased-lines, operators can build a global Virtual Private Network (VPN) using lines leased from incumbent carriers in different countries, and if local law allows, break-out calls onto the local PSTN.
- *Foreign Points of Presence (PoPs)*: here an operator in one country is permitted to build-out its network into the destination country, interconnecting with the destination domestic carrier by way of a point of interconnection. PoPs effectively replace the need for one carrier to negotiate for access in the destination country by using half-circuits ordered from the destination country's incumbent, a process that could be both costly and slow. With the right to install foreign PoPs granted by way of the GATS (provided that the destination country has scheduled appropriate specific commitments in the leased-lines market), the originating carrier is free to provide transmission capacity for the whole link, a system sometimes referred to as "self-termination".
- *Refile*: sometimes referred to as hubbing, re-origination or anonymous refile, where an operator directs its international traffic to a country where low charges apply for forwarding traffic to its ultimate destination or third country. As far as the third country is concerned, the traffic would appear to be originating from the country where refile is occurring. Refile depends on whether or not the refile country has a more advantageous settlement rate with the third country. If it does, then it makes sense to hub traffic through the

³² For a more extensive analysis see the ITU paper: *Transforming Economic Relationships in International Telecommunications*, Chairman's Report of the Seventh Regulatory Colloquium, Geneva, December 1997.

refile country. Refile could take place at several hubbing points before the traffic reaches its final destination. This has been made possible through digital technology where the quality of the signal does not degrade in the same way that analogue signals over older circuit-switched networks degraded with distance.

- *International alliances*: here alliances (whether by joint venture or merger) between operators who aggregate traffic over combined networks, serving mainly the needs of the Multinational Corporation. Conventional accounting rates are bypassed as the alliance provides an end-to-end or one-stop service both originating and terminating calls at either end of the global network.
- *Internet Telephony*: two general modes apply Voice over Internet Protocol (VoIP), which is predominately used over private networks providing a higher quality service and Voice over Internet, which is the transmission of voice calls over the public internet providing a generally lower quality of service. Because of its use of packet-switched networks internet telephony falls outside the conventional accounting rate system. Several jurisdictions including the US and Europe have looked at the possible regulation of internet telephony as a voice service, but have to date not sanctioned regulation or imposed universal service obligations or mandatory interconnection obligations on the providers of such services on grounds that internet calls are not directly substitutable for conventional voice calls primarily due to quality. With improvements in technology however, this situation is fast changing. Interconnection and internet telephony are discussed in more detail in sections on *Interconnection* (Section 3.2.3) and *Developments in Multilateral Telecommunications measures* (Section 3.4) below.

International settlements based on correspondent relations between operators are negotiated by the operators themselves and not by governments. As such, the WTO as a diplomatic agreement between nation states is not directly concerned with negotiations between private entities, but would have relevance for example where differential accounting rates are inconsistent with obligations under the GATS, and where specific commitments in telecommunications have been scheduled. This is

exactly what happened in the Mexico-Telmex case³³. As mentioned earlier, this inconsistency has been allowed to continue as a result of a gentleman's agreement during the talks on the Fourth Protocol (Basic Agreement on Telecommunications). The GATS provides for the replacement of the accounting rate regime with a cost-oriented interconnection regime³⁴. As such, accounting rate reform has been the subject of intense discussion by the Council for Trade in Services³⁵.

Presently, ITU-D Study Group 3, charged with accounting rate reform, is developing a set of general principles for accounting rates that will include the cost components to be included in such rates, costing methodologies for determining rates, and providing for transition periods for developing countries. Clearly the intention is to move towards a cost-orientated system of interconnection payments for both call origination and call termination as called for by Article 2 Reference Paper. The ITU's study group is working with the Council for Trade in Services to achieve a workable compromise, given that accounting rate reform will have a significant effect on trade in telecommunications³⁶. In the interim, the ITU's Understanding on Telecommunications Accounting, part of the ITU's Telecommunications Regulations will continue to apply³⁷, although it should be emphasised that the terms of the Understanding on Telecommunications have now been "qualified" to some extent by the decision of the WTO's DSB panel in the Mexico-Telmex case³⁸.

3.2.3 Interconnection

Interconnection is the foundation for competition in telecommunications. Interconnection in telecommunications is based on the fundamental principle of 'any to any connectivity'. Control of interconnection by any undertaking whether private or state-owned is essential to the control of the network and therefore the market for interconnection services, and the wider markets for domestic and international telecommunications. The upshot of this is that the regulation of wholesale

³³ Discussed in more detail in section 3.4.2 on *The Reference Paper in light of Mexico-Telmex* below.

³⁴ Article 2.2 WTO Reference Paper.

³⁵ Job No. 2974, WTO, June 2000.

³⁶ *Ibid.*

³⁷ Section 3.2 above.

³⁸ See section 3.4.2 on *The Reference Paper in light of Mexico-Telmex* below for a more detailed discussion of this case and its effect on international accounting rate settlements.

interconnection is now seen as an important lever for telecommunications regulation. Furthermore, in an IP-based network environment³⁹, interconnection (and the corresponding right of “access”) is increasingly needed over different layers and platforms.

The voice telecommunications network is founded on the principle of *universal connectivity*: the integration of networks to enable a customer connected to one carrier’s network to call a customer connected to another carrier’s network. A handset, a subscription, and a number is understood to mean that the customer can reach all other numbers and can itself also be reached. No one network can stand in isolation: To give customers value for money, a network operator is compelled to interconnect with others so as to increase the overall reach of its services. The right to interconnection is necessary in a deregulated telecommunications market. Indeed, interconnection can be described as the key fundamental to the viability of competition in telecommunications⁴⁰. However, the principle of ‘any to any connectivity’ is not the only concept as regards the regulation of interconnect. Two other important concepts also play an important role. They are:

Equal access – this denotes the ability of the customer directly connected to the incumbent network to access retail services of the new entrant on a seamless and equivalent basis to that which the customer accesses the same retail services of the incumbent;

Non-discrimination – this denotes the ability of the new entrant to be provided with interconnection services on no less favourable terms than the incumbent provides to itself.

Other forms of regulation also assist in the governance of interconnect, such as guidelines on pricing and on the way negotiations should be structured. In Europe, for example, the European Commission has issued the *Access and Interconnection*

³⁹ Discussed in more detail in section 3.4.3 *Internet Interconnection*

⁴⁰ See for example Colin Long's discussion of interconnection in *Telecommunications Law & Practice* S&M 2nd edition, 1996.

*Directive*⁴¹ to help National Regulatory Authorities (NRAs) in the various EC Member States deal with regulating interconnect.

Most countries that have opened their telecommunications markets to competition have also established general principles, which must be followed by the incumbent in order to provide interconnection. Furthermore, at least 72 Member States, representing 93% of worldwide telecoms turnover have taken Specific Commitments under the Fourth Protocol (Basic Agreement on Telecommunications) that came into force on the 5th February 1998⁴². In addition, some Members took an Additional Commitment in the form of the regulatory reference Reference Paper which details, as part of a legal framework for liberalisation, specific rules on interconnection. Section 2.2 Reference Paper sets out obligations on major suppliers⁴³ for interconnection. Under Section 2.2 (RP), interconnection must be provided:

- at any technically feasible point in the network;
- on non-discriminatory terms, rates and of a quality no less favourable than for the incumbent's own supply;
- in a timely fashion and on terms that are transparent and reasonable;
- at cost orientated rates; and
- on an unbundled basis so that a buyer does not pay for unnecessary services.

⁴¹ Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 *on access to, and interconnection of, electronic communications networks and associated facilities* (Access and Interconnection Directive). The EC's new regulatory framework for electronic networks and services is discussed in more detail in Chapter 5 of this book.

⁴² The Council of the European Communities ratified the Fourth Protocol by Decision 97/838 [1997] OJ L336.1.

⁴³ A Major Supplier is defined in the Reference Paper as one who has market power because of; (a) its control over an essential facility or (b) its position in the market. The important doctrine of 'Essential Facilities' is discussed further at the section 3.4.1 on the *Annexe on Telecommunications and the Reference Paper* below.

Not all WTO Members took out the additional commitment of the Reference Paper, applying the above principles of cost-based interconnection⁴⁴. In effect, each country will have its own framework and principles of interconnect⁴⁵. The structure of an interconnect agreement itself will be closely linked to and depend on the regulatory framework within which that agreement sits. However, the GATS now provide a gateway to a legal framework for cost-based international interconnect, and the provisions of the GATS are binding. For example, interconnection payments were the basis of the dispute between the United States and Mexico, which resulted in the Panel ruling in April 2004.

Since the coming into force of the Fourth Protocol in February 1998, new commitments have been made either by new Members, upon accession, or in a unilateral fashion by an existing Member. New negotiations on services, including telecommunications, were started at the Doha Round in 2000. Within the timeframe of the overall negotiating deadline of 1 January 2005, paragraph 15 of the Doha Development Agenda established that “participants shall submit initial requests for specific commitments by 30 June 2002 and initial offers by 31 March 2003”. Pursuant to the Doha mandate, participants in the services negotiations exchanged bilateral initial requests since 30 June 2002. Between 31 March 2003 and 30 October, 39 Members had submitted initial offers⁴⁶. Since the collapse of the Doha Round in 2006, negotiations have now come to a standstill.

Clearly the ITU has an important part to play in continuing to develop standards for interconnection both at the circuit-switched and packet-switched level. These standards in turn will need to be reflected in progressive amendments to the regulatory Reference Paper in successive trade rounds. In this way the apparent roles of the ITU and WTO become clearer to see. In the next sub-section, the last on the

⁴⁴ For a full list of current Member commitments, see the WTO website at: http://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_commit_exempt_list_e.htm, date accessed November 2010.

⁴⁵ Although WTO law does not usually have direct effect, under European law (Cases 267-269/81 *Amministrazione delle Finanze dello Stat v SPI* and *SAMI* [1983] E.C.R. 801), measures converting WTO obligations into European law have to be interpreted in accordance with WTO law (Case 69/89, *Nakajima All Precision Co Ltd v Council of the European Communities* [1991] E.C.R. 2069). It can be implied therefore that EU Member States should directly or indirectly apply WTO and therefore General Agreement on Trade in Services (GATS) law.

⁴⁶ See WTO website at: http://www.wto.org/english/tratop_e/serv_e/s_negs_e.htm, date accessed November 2010.

ITU, we see the role that the ITU has taken in the development of standards relating to VoIP.

3.2.4 VoIP

Voice over Internet Protocol (VoIP) is another crucial area where the work of the WTO and ITU could overlap and where a commonality of approach will be required. One main reason for this is that calls via the internet will soon move from its prototype status to becoming a major mode of operation for carrying commercial traffic. This could happen entirely outside the conventional regulatory framework, and certainly outside the traditional settlement system. This is because VoIP unlike most other technologies, for example wireless technology, allows operators to bypass the conventional accounting rate regime by sending voice calls in digital packets over an internet network (packet-switched network) as opposed to over a conventional circuit-switched voice network. The costs for transmission are far cheaper and consequently the marginal costs for the service are lower. The downside with VoIP has always been a quality issue in that calls over the internet have traditionally not been equivalent in terms of quality to calls over conventional voice telephony networks. This position however is fast changing. It is also important to distinguish between VoIP and Voice over the Internet. VoIP is a technical standard for internet calls over private networks whereas Voice over the Internet is a technical standard for internet calls over the public internet. VoIP over a closed private network is able to generate a much higher quality call than Voice over Internet. The question that regulators are asking, particularly at the national level, is as internet calls come closer in quality to matching conventional voice calls, whether the providers of such calls should be regulated in the same way as conventional telecommunication operators? In Europe, the European Commission has been active in this area. In June 2004, the EC issued a Communication on the treatment of VoIP under the EU Regulatory Framework⁴⁷. The

⁴⁷ European Commission. *The Treatment of Voice over Internet Protocol (VoIP) under the EU Regulatory Framework*. European Commission. DG Information Society. Brussels, 14 June 2004. See: http://europa.eu.int/information_society/topics/ecom/doc/useful_information/library/commiss_serv_dc/406_14_voip_consult_paper_v2_1.pdf. The Communication explains the conditions that apply to each different kind of VoIP and the level of obligations that each provider will face according to the type of services offered. The 2004 Communication classifies VoIP services into three main categories

Commission was building on the work of two earlier notices that it had issued on VoIP in coming to its more recent Communication⁴⁸. Under these two earlier notices, VoIP was effectively exempted from regulation in the European Union in that the regulatory framework that applied to conventional voice telephony calls did not apply to VoIP. However, under the Commission's new regulatory framework for electronic networks and services⁴⁹, and following the principle of technological neutrality, all digital networks and services including VoIP services are covered by the EC's new framework including obligations for interconnection. In the United States, VoIP has been classified as an unregulated *information service* under the US Telecommunications Act 1996⁵⁰ effectively exempting it from common carrier regulations under the US Telecommunications Act.

At the multilateral level, ITU-T is responsible for studies, naming, addressing and numbering, resource assignment for IP telephony and technical standards for IP telephony (H.323 Series). The work of the ITU-T will feed into the work of the Council for Trade in Services in discussing telecommunications. This will be particularly important for classification issues. The World Bank has already commissioned field research to determine how nation-states worldwide are classifying their telecommunication and internet services⁵¹. This is in part to determine a better system of more accurately classifying telecommunication services. Clearly there is a problem at present with the classification of telecommunication services, as the current Services Sectoral Classification List in Telecommunications service sectors (MTN.GNS/W/120), is woefully out-of-date as regards new internet-based services,

(i) Self-provided with no specific service provider charging a fee for providing a VoIP service: this category of service will fall outside the scope of the EC's Framework Directive because there is no service provided by a provider with the intention of making a profit taking it outside the scope of an "electronic communications service"(Article 1 Framework Directive); (ii) Corporate Private Networks/Internal Use: private electronic communication services will fall within the scope of both the EC Framework and Authorisation Directives; and (iii) Publicly Available IP Telephony: this provision is more complex and the type of regulation that will apply will generally depend on whether the VoIP service "looks" more like an electronic communications service or whether it looks more like a conventional voice service and therefore regulated as a Public Available Telephone Service (PATs) under the EC's Universal Service Directive 2002/22/EC (Article 2(c)). See the EC 2004 VoIP Communication for more details.

⁴⁸ Commission notice on the legal status of Voice on the Internet under Directive 90/388/EEC OJ C6, 10.1.1998 and Commission Communication on VoIP OJ C369, 22.12.2000.

⁴⁹ Discussed in detail in section 3.3.1 on *Classification of Telecommunications Services* below.

⁵⁰ See FCC website at: <http://ftp.fcc.gov/cgb/consumerfacts/voip.html>, date accessed September 2005.

⁵¹ Discussed in section 3.3.1 below (*Classification of Telecommunications Services*).

such as VoIP. Classification of telecommunications services is discussed below (Classification of Telecommunications Issues).

3.3 The WTO

The WTO Basic Telecommunications Agreement (“BTA”) is a plurilateral agreement, although only a subgroup⁵² of the WTO’s 144 members have made specific commitments for basic telecommunications, the full WTO membership can take advantage of the trade benefits conferred by those commitments. Most countries making specific commitments under the BTA did so as part of negotiations of the BTA, but countries may continue to make new (or improved) commitments through three principle routes: (1) when joining the WTO; (2) as part of a formal “round” of negotiations; or (3) unilaterally.

In telecommunications, the last decade saw unrivalled privatisation and corporatisation programmes in many countries all over the world generating the free flow of capital into the sector. The BTA played an important role in putting in place a basic regulatory framework that would assist in protecting such investment. But where did this new capital come from? Large increases in international and domestic calls and reduced costs through more efficient transmission allowed firms to generate increased margins in conjunction with increased earnings, which in turn were retained in the sector fuelling new investment. Telephone companies became increasingly profitable and with the glimpse of the new economy, such operators were able to attract investment from other sectors. The present decade however is completely different. Now, telecommunication operators are faced with managing increasing levels of debt rather than investing in new capital. Furthermore, the industry is yet to prove that technological changes and new service development will have a net impact other than in reducing the cost base and adding intense pressure on current market prices. Coupled with debt arising from huge sunk costs, the advent of IP as the basic protocol and foundation stone for the production of new telecommunication services, the

⁵² As at 2008, there were at least 89 countries who had made specific commitments on telecommunications. See WTO telecom specific commitments at http://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_commit_exempt_list_e.htm, accessed October 2008.

industry is fast transforming its whole production function. In this way, the Doha Round was completely different to that of the earlier Uruguay Round. The Uruguay Round culminated in the BTA, the Doha Round ended in a breakdown of negotiations, albeit with some small steps forward, notably as regards developing countries⁵³.

In the Doha Round of negotiations, launched in November 2001, WTO members sought to address how the special and differential (S&D) treatment provisions of the various WTO agreements might better be used to serve the interests of developing countries (which comprise the majority of the WTO membership). In the original timetable of the Doha Round, requests for market access were due by June 30, 2002, and initial offers of market access by March 31, 2003. The negotiations were set to conclude by January 1, 2005 as part of a single undertaking, with the original intention that virtually every item of the negotiation was part of a whole and indivisible package and which could not be agreed separately – “*Nothing is agreed until everything is agreed.*” Unfortunately, some commentators would argue that little has been agreed, although the WTO is keen to stress the more recent agreements at Cancun⁵⁴. The introduction to this thesis set out an important distinction between DCs and LDCs. The distinction is important in that LDCs are able to gain more extensive access to S&Ds than otherwise available to DCs as a group. For example, at the time of writing, the Ministerial Declaration agreed at the Sixth Session of the WTO Ministerial Conference in Hong Kong in December 2005, specifically included two important provisions on S&D rights for LDCs including:

- Providing duty-free and quota-free market access on a lasting basis, for all products (97% of products for countries unable to provide 100%) originating from all LDCs by 2008;
- Ensuring that preferential rules of origin applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access⁵⁵.

⁵³ See the Doha Round section of the WTO’s website at: www.wto.org, date accessed November 2010. Developing countries and telecommunications is discussed in Chapter 7.

⁵⁴ See the outcome WTO Ministerial Conference held in Cancun in September 2003 at www.wto.org, data accessed September 2005.

⁵⁵ WT/MIN(05)/DEC, 22nd December 2005, Annex F, para 36.

In future trade rounds, a major bottleneck will be on negotiations on mode 4 within GATS (movement of natural persons). Developing countries are pushing for increased liberalisation by developed countries under this mode and also of services of export interest to developing countries. DCs and LDCs are reluctant to make any further services concessions without more progress in this area, particularly de-linking the need by developed countries to link movement of natural persons *only* with commercial presence (mode 3)⁵⁶. In telecommunications, the World Bank has already commissioned research that will seek to answer a range of fundamental questions that will impact on whether or not members make new commitments in future rounds. These questions include⁵⁷:

- To provide an analytical framework for understanding, with specific reference to the telecommunications sector, the potential economic benefits and risks of accession and/or an enhanced offer under GATS/WTO.
- To explore the relationship between the WTO offer and the processes of domestic policy reforms within the telecommunications sector and other relevant policy developments, such as may be the case with competition policy.
- To demonstrate, through the use of case studies and other ‘primary’ data from selected developing countries, the economic benefits and risks that have resulted from the BTA offers made under the 1996/7 GATS/WTO framework.
- To consider the ways in which new trade agenda items may redefine the benefits and risks associated with the WTO Doha negotiations in telecommunications and to consider some of the new trade issues that are emerging as a result of broader deployment of ICTs across an economy.

In defining the work of the WTO post Doha in telecommunications, greater emphasis will be placed on the new trade agenda items cited above. Defining these items is

⁵⁶ Wunsch-Vincent S. and McIntosh J., *WTO, E-Commerce, and Information Technologies: From the Uruguay Round through the Doha Development Agenda*, Markle Foundation, 2004, p.77 citing GATS Council-Special Session, Report by the Chairman to the Trade Negotiations Committee, TN/S/9, June 2003.

⁵⁷ Terms of Reference, Telecommunications Trade Liberalisation and the WTO, World Bank 2003.

difficult as technology changes so rapidly, and so perhaps we need first to understand the *key dynamics* influencing the telecommunications industry, before beginning to define possible new trade agenda items. Key dynamics will include new technologies and data services, particularly technologies that will continue to lower international transmission costs, such as optical fibre quite often used for transmission within cities as well as national and international transmission, satellite channels, Digital Subscriber Loop (DSL) technology which can enhance the capacity of the local loop offering broadband-type functionality, the next generation Internet Protocol IPv6⁵⁸, and fixed wireless access. For developing countries, wireless access has been particularly important in reaching rural or mountainous areas difficult to serve with conventional fixed-line networks. As such, the reduction in the price of mobile network infrastructure and the success of operators in countries often considered to be too poor to offer commercial potential have influenced the priorities for negotiations under Doha and will do so in the future. It is anticipated that this will continue with the establishment of 3G technologies giving the potential to reduce the value of wire-based access in countries that do not already have viable wireline access infrastructure.

Besides the new technologies, there will be new industry *commercial structures*, for example multinational corporation consolidation, and the emergence of multi-technology operators and service providers through joint ventures, mergers or other technology transfer arrangements. Market structures have fundamentally changed away from legacy circuit-switched networks to packet-switched networks, giving rise to new categories of operator, such as internet backbone operators, transit operators, and application service providers. Together with the new operators have come changes in the way in which such operators interconnect to exchange traffic, often based on an exchange of leased-line capacity on a settlement-free basis (peering) and

⁵⁸ See for example http://www.ripe.net/ripe/meetings/archive/ripe-38/presentations/RIPE_Jan_01_%20IPv4_Address_Exhaust_draftB/sld001.html, accessed December 2005. Note that the Universal Mobile Telecommunications System (UMTS) industry is actively working for a move to IPv6. If successful, UMTS will need many addresses. It is a new service, potentially supported on new network infrastructures. Early adopters of IPv6 will face the additional cost in interfacing with IPv4 (where by far most content is), in finding software that uses IPv6 without reducing performance, and in obtaining bandwidth to carry bigger v6 headers. In all probability, the two versions will co-exist and interwork indefinitely, but developing countries in particular will need to consider carefully the costs involved in a move to IPv6, as the incumbent will be required to compete with new entrants (often heavily resourced by foreign shareholders) while simultaneously foregoing monopoly rents.

moving to sophisticated methods of negotiating transit on a payment basis (see Chapter 4). Regulators have mostly exercised forbearance in regulating such agreements between Internet service providers, but have been slowly moving in this direction as greater volumes of Internet traffic are originated and terminated. Other key dynamics would include the effect of huge sunk investments by operators and service providers, explaining their waning interest in entering new, developing and higher risk markets, and finally, the effect of new regulatory mechanisms, such as auctions (e.g. for UMTS), and the large investment in new licenses.

These industry dynamics will shape the emerging new trade issues, for example bilateral trade and investment agreements. The emergence of bilateral and multilateral trading blocs through free-trade area agreements and customs unions will have a significant impact on future trade policy in telecommunications. At the bilateral level, the number of bilateral investment treaties (BITs) covering FDI in services reached 2, 265 by the end of 2003, and involving 175 countries⁵⁹. There is a risk of multiple standards emerging when agreements are signed outside of the global multilateral trade institutions, which may reduce WTO negotiations to a 'lowest-common denominator'. However, regional initiatives can also assist WTO accession, through technical assistance programmes implemented at a regional level, or through the aggregation of regional demand (particularly where investors may be wary of investment in smaller countries, e.g. island states), for instance through customs unions or other regional regimes. The UNCTAD World Investment Report 2004, highlighted the shift to services, and the greater reliance placed on bilateral and regional trade agreements. At the time of writing, the World Investment Report 2005 indicates that during 2004, 73 new bilateral investment treaties were concluded, bringing the total number to 2, 392⁶⁰. According to UNCTAD, the largest number of the new BITs signed during 2004 was between developing countries. This has been reflected in increased investment. UNCTAD's *World Investment Report 2008* records:

After four consecutive years of growth, global FDI inflows rose in 2007 by 30% to reach \$1,833 billion, well above the previous all-time high

⁵⁹ UNCTAD *World Investment Report* 2004, p. 221.

⁶⁰ UNCTAD *World Investment Report* 2005, p.24.

set in 2000. Despite the financial and credit crises, which began in the second half of 2007, all the three major economic groupings – developed countries, developing countries and the transition economies of South-East Europe and the Commonwealth of Independent States (CIS) – saw continued growth in their inflows.⁶¹

The report indicates that increased investment in infrastructure is needed, particularly in developing countries as investment is anticipated to decline in 2008 as the credit crunch bites. Fortunately the 2008 report indicates that, “telecommunications is the only infrastructure industry in which FDI has been the dominant form of TNC entry in developing and transition economies.”⁶² As mentioned above, internet networks have transformed the production function of telecommunications. For this reason, it will be necessary to consider the potential impact of the ITU’s Recommendation D.50 on international internet interconnection agreed at the WTSA in October 2000. This recommends that “administrations [i.e. telecommunications operators] involved in the provision of international Internet connections negotiate and agree to bilateral commercial arrangements enabling direct international Internet connections that take into account the possible need for compensation between them for the value of elements such as traffic flow, number of routes, geographical coverage and cost of international transmission amongst others.” The implications of Recommendation D.50 are hard to gauge at this stage, but it could have far reaching ramifications on the international trade of Internet traffic between operators, and therefore indirectly affect consumer welfare⁶³. New trade issues will also include, on the part of developed countries, the strengthening of competition principles, either at the WTO level or through some form of amendment to the Reference Paper⁶⁴, through reforms required as a condition of World Bank funding of infrastructure or new legislative programs, or perhaps through a separate plurilateral agreement. The extent to which existing commitments under the GATS, and the Services Sectoral Classification List cover new service delivery sectors, such as services delivered over Transmission Control

⁶¹ UNCTAD, World Investment Report 2008, p. 8.

⁶² Ibid p.21.

⁶³ Internet interconnection is discussed in more detail in Chapter 4.

⁶⁴ The recent Mexico-Telmex case discussed in section 3.4.2 *The Reference Paper in light of Mexico-Telmex* below highlights how the competition provisions of the regulatory Reference Paper for example have now been interpreted and further strengthened by the panel’s ruling.

Protocol/Internet Protocol (TCP/IP) ("internet networks,") for example electronic commerce services will also be included. In conjunction with this, the likelihood of "bundled" sectoral commitments in complimentary service sectors, such as computer, audiovisual, distribution, advertising, and financial sectors that seek to facilitate "network-based transactions" in these sectors will also be a target, particularly for countries, such as the United States who has actively pursued a "Digital Trade Agenda" as part of its negotiations for bilateral and Free Trade Agreements with a range of countries including Singapore, Jordan, Australia, and Thailand⁶⁵. Finally, new trade issues in telecommunications post Doha could also include new commitments on technical cooperation and capacity building made by member governments in the Doha Declaration.

3.3.1 Classification of Telecommunications Issues

As mentioned earlier, the classification of telecommunication services is important given that telecommunication services serve as valuable input in the production and distribution of other services. The classification of telecommunication services must be distinguished however from the classification of electronic intangibles discussed in Chapter 9 (The Classification of Electronic Intangibles in the WTO). The two are related but very distinct. In this sub-section (3.3.1), we discuss the classification of telecommunication infrastructure and services by which electronic intangibles are delivered to final customers, and not the electronic content that is carried over such infrastructure. Given the rapid rate of convergence in this sector (broadcasting, information technology and telecommunications networks coming together) made possible through digital technology, the need to accurately classify relevant telecommunication services into their distinct service schedules is necessary for the trade negotiators to enter into request and offer negotiations as part of the trade round (often bilateral as offers are targeted at particular WTO members or groups of members). Classification of electronic intangibles is briefly mentioned in sub-section 3.3.3 for the sake of completeness. A more complete analysis is set out in Chapter 9.

⁶⁵ Wunsch-Vincent S., *The Digital Trade Agenda of the US: Parallel Tracks of Bilateral, Regional and Multilateral Liberalization*, Aussenwirtschaft, Vol 58, Vol.1, March 2003.

The current classification system used by trade negotiators in telecommunications broadly splits telecommunication services into eleven basic categories, the most important of which include: fixed, wireless, national, international, satellite, and data services. Many of these service offerings have now become blurred with the take-up of digital technology. For example, there is now a distinction to be made between geographic (identified by location) and non-geographic services (independent of location), conditional access systems (pay-per-view broadcasting systems) and video-on-demand. Currently, the WTO Agreements make use of two classification systems: the harmonised commodity description and coding system (HS), which applies to goods under the GATT, originally created under the auspices of the World Customs Organisation (WCO), and the classification list (W/120)⁶⁶, which is based to a great extent on the United Nations' *central product classification* (UNCPC), and applying mainly to services under the GATS. Although both the HS and the UNCPC were originally developed for statistical purposes most scheduled commitments of WTO members are based on these classification systems. The HS provides a system for the identification of products (product lines) that help Members identify the customs duties payable, and the collection and comparison of trade statistics. The HS is made up of a number of chapters that separate products, by their physical characteristics rather than their end-use criteria. The chapters are further divided by headings, subheadings, and finally, the six-digit HS code number. The HS nomenclature is used to classify anything that qualifies as a good and in accordance with its *physical characteristics*.

To add another layer of complexity, the United Nations also defines services as comprising all economic activities included under the "tertiary sector" in the United Nations International Standard Industrial Classification (ISIC)(Rev. 3.1).

Telecommunications and Posts is just one category that falls under the ISIC. Also included are financial services, business services, television broadcasting and entertainment. At the time of writing, the United Nations Statistical Classifications Section has now started its fourth revision of the ISIC for use from 2007, to take account of changes in technology as well as deregulation, liberalization and

⁶⁶ MTN.GNS/W/120 of 10th July 1991.

privatization of previously state controlled operations⁶⁷. A new information and communication category is planned with second-tier groupings for telecommunications, broadcasting and internet providers (currently grouped under a sub-set of “transport, storage and communications”). The UN CPC mentioned above provides a greater level of disaggregation than the ISIC in that it specifies individual product categories (more than 600) as opposed to the ISIC’s general service descriptions⁶⁸.

Leading up to the negotiations on the BTA, the WTO Secretariat prepared an informal note on the full list of telecommunication services sub-sectors from the W/120 Classification List to help participants to the Negotiating Group on Basic Telecommunications in drafting their Schedules of Specific Commitments under the GATS⁶⁹. The informal note and Notes for Scheduling of Specific Commitments under the GATS⁷⁰ were later incorporated into a final version of the Guidelines for the Scheduling of Specific Commitments under the GATS in 2001⁷¹.

Most WTO members have made commitments using the W/120 classification list⁷², but some have used their own method of classification, and some a combination of the two⁷³. The W/120 classification list basically divides telecommunications services

⁶⁷ *World Investment Report* 2004, UNCTAD, p. 145.

⁶⁸ *Ibid*, p. 146.

⁶⁹ Draft model Schedule of Commitments on Basic Telecommunications, Job 1311, WTO, April 1995.

⁷⁰ Note by the Chairman of Group on Basic Telecommunications, S/GBT/W/2/Rev.1, WTO, January 1997.

⁷¹ S/L/92, WTO, March 2001.

⁷² It is also important to note that Schedules of commitments in the telecoms sector have been made on the basis of two “guidance notes”: (i) *Note for Scheduling Basic Telecom Services Commitments* (S/GBT/W/2/Rev.1); and (ii) *Market Access Limitations on Spectrum Availability* (S/GBT/W/3). The first note states that any services committed can be supplied for local, long-distance, and international transmission on a public or non-public basis, on a facilities-basis or on a resale-basis and with *any technology* (my emphasis) whether the user is mobile or not. This could mean that existing commitments would cover new and previously unexpected technologies, although some members would argue against this. The second note allows for Members to impose restrictions on the number of wireless operators without such a restriction being classed as a “market access” restriction. All commitments made under the BTA have to be read in conjunction with these guidance notes. The notes have also been included in Members WTO Scheduling Guidelines (S/L/91). The Scheduling Guidelines were further updated in March 2001, when the members of the Council of Trade in Services adopted “Guidelines for the Scheduling of Specific Commitments under the General Agreement on Trade in Services (GATS)(S/L/92). It is important to remember however that if there were deficiencies in the original classification, then the notes would not cover those deficiencies, and will only apply to those sectors actually committed.

⁷³ Gambia has based its commitments on the CPC, Argentina used partly the CPC and an own list of services, whilst some members used their own lists for all scheduled telecom service commitments (Brunei, Colombia, Malaysia, Singapore, Sri Lanka, and Uganda).

into two broad categories: (a) *Basic* telecommunications services which include all telecommunication services, both public and private that involve end-to-end transmission of customer supplier information⁷⁴; and (b) *Value-Added* telecommunication services which include services for which suppliers “add value” to the customer’s information by enhancing its form or content or by providing for its storage and retrieval. As of March 2004, forty-one WTO members still used the W/120 classification list to submit their initial offers in the telecommunications services sector as part of the Doha Round. There are however on-going problems with the continued use of W/120, which include the fact that many sub-sectors set out in W/120 are not technologically neutral which will inevitably lead to redundant classifications as technology changes, that a number of service sub-sectors do not correspond with modern trade in telecommunications (telegraph and telex services⁷⁵), that categories of services potentially overlap particularly in light of converged digital services, that the link with the UNCPC creates confusion in that the UNCPC is itself not up-to-date, and that a number of telecommunication services now overlap with that of the computer related services sector. Taiwan for example has proposed that convergence services such as internet-based telecom services and the delivery of multimedia content should be covered solely by the telecom and audio-visual sectors and not computer services⁷⁶. In light of these difficulties, the European Commission in 2004 issued a non-paper setting out suggestions for revision of the W/120⁷⁷. The EC’s primary suggestion is to simplify the classifications based on the complex and out-of-date W/120 by defining telecommunication services as “any service consisting of the transmission and reception of signals by any electromagnetic means”. Commitments for all telecommunication services can then be made with that definition in mind⁷⁸, and where members do not wish to make a commitment for a specific service (for example for broadcasting transmission), they would simply

⁷⁴ Paragraph 1 of the Decision on negotiations on basic telecommunications services, which forms part of the Annexes of the Uruguay Round agreements, states that: “Negotiations shall be entered into on a voluntary basis with a view to the progressive liberalisation of trade in telecommunications transport networks services (hereinafter referred to as “basic telecommunications”) within the framework of the General Agreement on Trade in Services.”

⁷⁵ Although a small number of Least Developed Countries (LDCs) still use such services.

⁷⁶ GATS Council-Committee on Specific Commitments, Communication from the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu, Computer and Related Services, S/CSC/W/37, January 2003.

⁷⁷ European Communities non-paper on classification in the telecommunication sector under the WTO-GATS Framework, 10th May 2004.

⁷⁸ By inserting the EC’s suggested definition in the column identifying the sector.

inscribe under the market access and national treatment columns “none except for broadcasting transmission”⁷⁹.

The EC’s definition will likely remove the artificial construct now existing between basic and value-added telecommunication services and that is fast becoming increasingly redundant given the switch to transmission production based on the IP protocol. Furthermore, there is no doubt that the existing WTO member Schedules on market access and national treatment in telecommunications will not be able to deal with the evolution of technology in this sector. The question remains as to whether the EC’s suggested revision goes far enough to cover the new range of internet services or so called “complementary services” based on transmission production switching to TCP/IP?

3.3.2 Network-based transactions and Complementary Services

The United States has for some time discussed the need for other WTO Members to schedule commitments in basic and value-added telecommunications services but also in “complementary services”, such as distribution, express delivery, computer, advertising, and certain financial services that can be integrated into network-based transactions⁸⁰. The US argues that increased market access, particularly in GATS modes 1 (cross-border supply) and 3 (commercial presence), is a necessary step for a WTO member to create an environment attractive to increased foreign investment. Increasing market access commitments for services enhanced through the use of networks, encourages both growth of the underlying network and the services that ride over them. Such new services could include banking, accounting, legal, market research, medical and dental, adult education, R&D services (natural science), news agency services, and audiovisual. For DCs and LDCs, many of these services can directly and indirectly impact on the UN’s Millennium Development Goals such as reducing poverty, improving literacy and healthcare. Given the US position of dominance as regards electronic commerce services, arguing for increased market

⁷⁹ Supra note 77, paragraph iii (flexibility).

⁸⁰ See US paper on *Market Access in Telecommunications and Complementary Services: The WTO’s role in accelerating the development of a globally networked economy* available from the WTO website database at: www.wto.org, accessed December 2005.

access in complementary services makes sense. But such an argument could also apply to other WTO members active in developing their technology service *exports*. This would also depend crucially on whether technology service exports (electronic intangibles) were classed as goods under the GATT and therefore potentially liable to tariffs or services under the GATS and liable to governmental measures (discussed in the next section). Putting the problem of classification to one side, increased market access commitments in complementary services could not only benefit the US but also a number of developing countries, which have successfully grown their in-house software and hardware industries, such as Singapore, Chinese Taipei, Chinese Hong Kong, Korea, and India as selected examples. All of these countries have benefited from MNCs mainly in the developed world outsourcing back office and front office functions (business process outsourcing)(see Chapter 8 on technology transfer). The continued success of such outsourcing will also depend to some extent on potential protectionist measures imposed in the West to protect home market jobs⁸¹.

Under Article 5(b)(3) of the Annex on Telecommunications service suppliers are guaranteed that they can employ the *protocol* of their choice in delivering any service over a telecommunications network that has been scheduled by the WTO member concerned as a specific commitment. This is an extremely important provision and could cover the cross-border delivery of internet services, although not all members would agree with such an interpretation. The Annex on Telecommunications of course, unlike the Reference Paper applies to value-added services. The OECD has also undertaken research on considering various services as necessary “inputs” for the facilitation of electronic commerce⁸². The OECD argues that the “rationale for a cluster approach in services negotiations is to allow an appropriate recognition of the commercial linkages between selected service sectors, without disturbing the Services Sectoral Classification List, on which existing schedules of specific commitments are based.”⁸³ The OECD argues that a basic cluster of services necessary for internet-based commercial transactions would include: telecommunications services, banking services, computer and related services, and delivery services (postal and courier). A

⁸¹ See report by Wunsch-Vincent S. and McIntosh J., *WTO, E-Commerce, and Information Technologies: From the Uruguay Round through the Doha Development Agenda*, Markle Foundation, 2004, p. 132 which cites several studies and news reports on the problem of increased protectionism, particularly in the United States.

⁸² TD/TC/WP(2000)9/FINAL.

⁸³ TD/TC/WP(2000)33/FINAL, para 24.

more extended cluster could also be envisaged as including: advertising, legal, market research, photographic, web-site design, and distribution⁸⁴. However for DCs and LDCs keen to facilitate growth of IT goods and services exports, none of these provisions will mean much unless the Quad countries for example go some way in eliminating other trade barriers, such as excessive requirements for temporary entry and exit of specialised technical personnel, discriminatory tax treatment for foreigners and excessive capital transfer and/or repatriation taxes, all of which could act as barriers to their exports. Other concerns include qualification requirements and procedures, licensing and local authentication requirements, and technical standards that act as non-tariff barriers⁸⁵.

3.3.3 Electronic Intangibles

The previous section discussed complementary services, services that can be delivered as network-based transactions and the clusters of commitments required to be scheduled in order for such services to be provided through any of the modes of supply under the GATS. No doubt, such commitments if scheduled would advantage any member who is in a position to exploit the new market access opportunities, presently the developed countries, and in particular, the United States, but also an increasing number of DCs and LDCs as mentioned above.

The whole approach to network-based transactions and seeking commitments from WTO members that will allow for complementary services that could run over a telecommunication network is simply a stepping-stone to generating increased trade in electronic commerce. As mentioned, at present, the United States will be an obvious winner of increased commitments, reflecting clusters of services and complementary network based transactions, given its strength in exporting electronic products, in this chapter referred to as electronic intangibles⁸⁶. As trade in electronic intangibles increases, there will however be another problem that will need to be

⁸⁴ Ibid, para 27.

⁸⁵ GATS Council-Special Session, Communication from Costa Rica, Computer and Related Services, S/CSS/W/129, November 2001.

⁸⁶ A generic term, sometimes referred to as e-products or digital goods and services, ranging from MP3 files, pay-per-view/video-on-demand movies to customized software in sectors as diverse as audiovisual to health and education. Such products, often a digital combination of binary code, are referred to in this chapter as “electronic intangibles”.

resolved in the course of time, again linked to the problem of classification. Just as the WTO is facing the issue of how to refine and redefine the W/120 classification system for telecommunication services under the GATS, so too is it facing difficulty in defining whether electronic intangibles should be classed as goods under the GATT or as services under the GATS or as some form of hybrid product. *US-Gambling* has set an important precedent in this area, particularly as regards the applicability of the GATS to the trade in cross-border electronic services. This important issue is discussed at length in Chapter 9 (Section 9. 6)⁸⁷.

3.4 Developments in Multilateral Telecommunication Measures

The aim of this section is to discuss the most interesting new developments emerging in the regulation of international telecommunications. It examines the current weakness of the Reference Paper in light of recent case law and the need for the Reference Paper to be amended as IP networks begin to dominate. The section begins with a discussion of the two most important WTO instruments affecting *trade* in international telecommunications, besides the schedules of specific commitments of the WTO members themselves (both the 1994 and 1997 commitments). Section 3.4.1 below discusses the Annex and Reference Paper, and section 3.4.2 discusses the weaknesses of the Reference Paper in light of the recent *Mexico-Telmex* case heard by the WTO's DSB⁸⁸ in 2004.

3.4.1 Annex on Telecommunications and Reference Paper

*Annexe on Telecommunications*_The Annex on Telecommunications is a separate Annex to the GATS and negotiated at the time of the Uruguay Round. The Annex applies to measures of a member that effect access to and use of public telecommunications transport networks and services by basic telecommunication

⁸⁷ Chapter 9 (The Classification of Electronic Intangibles in the WTO).

⁸⁸ *Mexico_Measures affecting telecommunications services*, WT/DS204/R, 2nd April 2004.

suppliers of any other member⁸⁹. The Annex does not apply to measures affecting cable or broadcast distribution of radio or television programming⁹⁰. Furthermore the obligations contained in the Annex are aimed at facilitating the exploitation of scheduled commitments only, and do not create a right to supply a service where no scheduled commitment for that service exists⁹¹. The Annex is basically an instrument that provides a certain level of security for those investors investing in ancillary service markets, such as banking and insurance, where market access commitments have been scheduled, and which require access to the local Public Switched Telephony Network (PSTN) to provide such services. Importantly, the Annex at paragraph 5(e) provides for service suppliers to be able to interconnect with the incumbent's network using any *interface protocol* to do so. The question arises then as to whether the Annex provides for access to internet networks and also for the interconnection of an internet network with the local Public Switched Telephony Network (PSTN)? The issue is still under debate within the Council for Trade in Services, with many developing countries arguing that no such access was scheduled for in many members' commitments. However within the GATS Council, Members have suggested that the AT will apply to access to and use of an internet network, where that network is defined within domestic law as a public telecommunications transport service and/or network i.e. a public network⁹². In the UK, an early starter for developing pro-competitive regulatory regimes in telecoms, the national telecommunications regulator OFTEL (now OFCOM) considered that an internet network could be a public network if addresses on that network (IP addresses for example) were available through a national numbering plan⁹³.

*Reference Paper*_Whereas the Annex applies to value-added services, the Reference Paper applies to basic telecommunication services⁹⁴. The regulatory Reference Paper

⁸⁹ Paragraph 7.288 Report of the Panel on *Mexico Measures affecting Telecommunications Services*, April 2004.

⁹⁰ Paragraph 1, WTO Annex on Telecommunications.

⁹¹ Paragraph 7.293 Report of the Panel on *Mexico Measures affecting Telecommunications Services*, April 2004

⁹² GATS Council, Progress Report to the General Council, Work Programme on Electronic Commerce, S/L/74, July 1999, para 19.

⁹³ Kariyawasam R. in *Telecommunications Law* (editors Waldon I. and Angel J.), Blackstone Press, 2001, pp. 185-203.

⁹⁴ Defined as "the real-time transmission of customer supplier information between two or more points without end-to-end change in the form or content of the customer's information." Section 3(b) GATS Annex on Telecommunications. See also paragraph 7.32 WT/DS204/R (Mexico-Telmex case).

to the BTA takes the form of an additional commitment to a member's schedule. As of March 2004, thirty-five WTO members have taken out an additional commitment in the form of the Reference Paper in its entirety or with modifications and extensions. The Reference Paper ("RP") is a deceptively simple instrument and yet its effect, particularly on the domestic telecommunications policy of any one member is potentially very far reaching ushering in competition-type provisions to check abuse of monopoly power and interconnection safeguards to guarantee interconnection to the local incumbent's (publicly available) telecommunications network⁹⁵. The RP sets out rules for governments on regulating "major suppliers" of basic telecommunications services, major suppliers being defined as:

"a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunication services as a result of:

- (a) control over essential facilities; or
- (b) use of its position on the market."

Essential facilities in turn being defined by the RP as:

"...facilities of a public telecommunications transport network or service that

- (a) are exclusively or predominantly provided by a single or limited number of suppliers; and
- (b) cannot feasibly be economically or technically substituted in order to provide a service."

These terms seek to import an essential facilities doctrine at the multilateral level in terms of regulating telecommunications. The essential facilities doctrine concerns mandated access to an incumbent's network, where the incumbent has refused to grant access, and for no objective reason, or has withdrawn supply, or is applying

⁹⁵ In other words, networks and services that are made available to the general public through a national numbering plan. Corporate private networks are therefore excluded, although Closed User Groups may or may not be included depending on whether the member in question has excluded such a provision or not in its own Reference Paper.

some form of discriminatory policy in granting access (for example treating its own subsidiaries more favourably). In Europe, a string of cases including *Stena Sealink*⁹⁶, *Magill*⁹⁷, and *European Night Services*⁹⁸ sought to introduce the essential facilities doctrine into European law, but was eventually made more difficult to apply pursuant to the test adopted in the case of *Oscar Bronner v. Mediaprint*⁹⁹. The Bronner judgement effectively heralded the end of the practical use of the doctrine in Europe unless the limbs of the Bronner test could be satisfied¹⁰⁰.

Instead of using a term such as “major supplier” to describe dominance, under its new regulatory framework for electronic networks and services, the European Commission has instead decided to opt for a definition of *Significant Market Power* as being equivalent to dominance and defined under Article 14(2) Framework Directive¹⁰¹:

An undertaking shall be deemed to have Significant Market Power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.¹⁰²

The European Commission’s new regulatory policy for electronic networks and services is discussed in more detail in Chapter 5. Unlike the definition of SMP used by the EC, the WTO’s reference to major supplier does not appear to cover a situation of joint monopoly or a potential oligopoly, where none of the operators alone in the market would appear to enjoy dominance, but collectively either actively or passively,

⁹⁶ *Sea Containers v. Stena Sealink* Commission decision OJ 1994 L 15/18.

⁹⁷ Joined cases C-241/91P and C-242/91P [1995] ECR I-743 [1995] 4 CMLR 718.

⁹⁸ 94-663, [1994] OJ L 259/20.

⁹⁹ C-7/97 [1998] ECR I-7791.

¹⁰⁰ (i) on the basis of a relevant market analysis, lack of access to a facility such as the alleged essential facility must have an effect on competition on the relevant market; and (ii) it must not be economically viable for an “objective competitor” comparable in size to the holder of the alleged essential facility to replicate or duplicate the actual facility in question. If both prongs satisfied, then breach of Art 82 will occur if no objective justification given for refusal of access to facility.

¹⁰¹ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, 7.03.2002.

¹⁰² This reflects the judgement of the ECJ in Case 27/76 *United Brands vs Commission* ECR (1978). The EC refers to this concept of dominance in its interpretation of Significant Market Power as set out in Article 14 Framework Directive, mentioned above.

they could enjoy dominance. In this respect, the EC's definition of market power is more far reaching.

The RP also requires governments to take measures ensuring that major suppliers do not engage in anti-competitive practices such as cross-subsidisation¹⁰³, using confidential information (for example on interconnection) in an inappropriate way, or unnecessarily withholding technical information (for example on standards) from competitors. Also covered are requirements for cost-orientated interconnection (which is not defined under the instrument), mandated interconnection with major suppliers networks for the provision of basic telecommunications services, and unbundled services so that users are not paying for network components or facilities that they do not actually require¹⁰⁴. Provisions also exist for maintaining policy measures to achieve universal service (left to the discretion of the member), the creation of separate regulatory bodies from incumbent operators to allow for arms-length regulation of the operator, and the use of transparent and non-discriminatory procedures for allocation and use of scarce resources (such as spectrum and numbering)¹⁰⁵. Probably most importantly, the RP provides for dispute settlement on interconnection at Article 2.5. Although the RP refers to the dispute settlement body as being the independent regulator envisaged by Article 5 RP, in fact, the settlement body could be any independent domestic body, or if the dispute is between governments as opposed to private entities, perhaps the Dispute Settlement Body of the WTO itself. Within the WTO membership, it is widely recognised that most disputes do not end up before a panel, having being settled by the respective governments as part of the procedure envisioned by the Dispute Settlement Understanding¹⁰⁶. The combination of political pressure and threat of litigation before a WTO panel often strengthens the position of the regulatory authority that favours increased competition (Cowhey and Kilmenko). This is exactly what happened in the Mexico-Telmex case discussed in the next section.

¹⁰³ Article 1.1 Reference Paper. Internet interconnection is discussed in more detail in section 3.4.1

¹⁰⁴ Article 2 Reference Paper.

¹⁰⁵ Articles 3-6 Reference Paper.

¹⁰⁶ Cowhey P. and Kilmenko M., Implementing Telecommunications Liberalization in Developing Countries after the WTO Agreement on Basic Telecommunications Services, in *Services in the International Economy*, 2001, p. 359.

3.4.2 The Reference Paper in light of *Mexico-Telmex*¹⁰⁷

Mexico-Telmex is a landmark WTO case, the first heard by the WTO's DSB in the telecommunications sector. The panel's report stretching to over 238 pages has already produced intense discussion on its possible future implications for WTO members, particularly those who still rely on high international accounting rate settlements to fund their domestic infrastructure. Effectively, the case leads the way for a cost-based interconnection framework for the termination of international calls and for the interpretation of the term "anti-competitive practice" as found in the Reference Paper. The case also demonstrates how WTO law can impact private undertakings and state monopolies. The Author's intention in this section is to discuss some of the main issues arising from the panel's ruling rather than to describe the detail of the historical relationship between the United States and Mexico and that led to the dispute¹⁰⁸.

In *Mexico-Telmex*, the United States presented three main claims: (1) that Mexico had failed to ensure that its major telecommunications supplier provided interconnection on "terms, conditions...and cost orientated rates that are...reasonable" in accordance with section 2 of its Reference Paper commitments; (2) that Mexico had not maintained appropriate measures to prevent Telmex, a major supplier, from engaging in "anti-competitive practices" in accordance with section 1 of its Reference Paper commitments; and (3) that Mexico failed to ensure "access to and use of" its public telecommunications transport networks and services, including private leased circuits, on "reasonable and non-discriminatory terms and conditions", in accordance with its obligations under section 5 of the GATS Annex on Telecommunications¹⁰⁹. In brief, the panel accepted claims (1) and (2) of the US claim. However on claim (3), the panel argued that a specific provision in Mexico's GATS schedule allowed Mexico to prohibit the supply of cross-border services using leased-line capacity in Mexico.

¹⁰⁷ *Mexico Measures Affecting Telecommunication Services*, WT/DS204/R, April 2004.

¹⁰⁸ For a detailed discussion of the history of the case see the previous WTO working documents on *Mexico Measures* concerning telecommunication services available on the WTO database at www.wto.org.

¹⁰⁹ *Supra* note 107, Para 7.1 Section VII Findings.

An important element of the case focuses on *cross-border* interconnection rights. The US argued that the existence of an international accounting rate regime that may apply in certain cases to cross-border interconnection did not mean that cross-border interconnection is excluded from the scope of the Reference Paper¹¹⁰. In contrast, Mexico argued that the provisions of the Reference Paper on interconnection do not apply to the cross-border supply of a service. It argued that the Reference Paper commitments were additional commitments undertaken under Article XVIII GATS, and could not therefore apply to cross-border interconnection, a market access issue covered under Article XVI. The panel however accepted the US position that the term interconnection “does not distinguish between domestic and international interconnection, including through accounting rate regimes” and that “term interconnection within Mexico’s Reference Paper does not justify a restricted interpretation of interconnection...which would exclude international interconnection, including accounting rate regimes, from the scope of Section 2 Reference Paper.”¹¹¹

Another important ruling that the panel made which will affect international telecommunications is its decision on qualifying the Understanding on Accounting Rates on whether or not Members’ accounting rate settlement regimes will be shielded from dispute settlement, which the Understanding provides for¹¹². The panel argued that the accounting rates described in the Understanding should be “understood to be limited to: (a) traditional accounting rate that is not cost-oriented; (b) that can be interpreted as a measure of a Member, or that triggers a Member’s obligations under Article VIII on monopolies; and (c) that applies discriminatory rates on the basis of the national origin of the cross-border traffic, and thus may be inconsistent with the MFN principle in Article II.”¹¹³ The crucial upshot of this is that first, not all international interconnection pricing is *excluded* from dispute settlement by the Understanding, only traditional accounting rate regimes with “differential rates”, and second, that the exclusion applies solely to dispute settlement not from the substantive obligations of the GATS, including the schedules of specific commitments. In effect the panel argued that the Understanding does not allow for all

¹¹⁰ *Mexico Measures Affecting Telecommunication Services*, WT/DS204/R, April 2004, para 7.97.

¹¹¹ *Ibid*, para 7.117.

¹¹² *Supra* footnote 138, where the Understanding on Accounting Rates is set out in full.

¹¹³ *Supra* note 220, para 7.136

forms of cross-border interconnection to be *shielded* from dispute settlement¹¹⁴. This ruling in discussing the provisions of the Understanding, which although not a legally binding instrument was long held to be a form of a gentleman's agreement, now effectively dilutes it.

The panel then went onto to determine whether Telmex was a major supplier under the terms of the Reference Paper and also accepted that it had to define the "relevant market" and whether Telmex had "the ability to materially affect the terms of participation...in that market," and decide whether that ability resulted either from "control over essential facilities" or "from use of its position in the market".

Accordingly, the panel found the "relevant market" to be the termination in Mexico of international calls from the US.¹¹⁵ The panel also determined that Telmex was a major supplier with respect to call termination in that it had the ability to materially affect the price of termination of calls from the United States into Mexico, as a result of its special position in the market, which allows it to set a uniform price applying to all its competitors on terminating calls from the United States¹¹⁶. Furthermore, the panel determined that the price Mexico was charging for terminating incoming international calls¹¹⁷, was not in accordance with the principles of cost-orientation as set out in Section 2.2 Mexico's Reference Paper¹¹⁸. The panel's extensive discussion on the meaning of the term *cost-orientation*, running to several pages of its decision (and based mainly on US supplied methodologies which was for some reason not refuted by Mexico), will almost certainly be used in further DSB proceedings on interconnection in future years. This is an important precedent in international telecommunications, in that the term "cost-orientation" was never defined in the Reference Paper.

The final significant element of the panel's ruling concerned the interpretation of "anti-competitive practice" and is probably the one section of the ruling that has been

¹¹⁴ Ibid, para 7.138.

¹¹⁵ Ibid, paras 7.149-7.152.

¹¹⁶ Ibid para 7.159.

¹¹⁷ Ibid para 7.230.

¹¹⁸ Ibid, para 7.216.

the subject of criticism in terms of legal reasoning and methodology¹¹⁹. The panel found that Mexico had a special obligation to control Telmex as a “major supplier” to ensure that it did not engage in “anticompetitive practices”. Anticompetitive practices are not defined as a term in Section 1 of Mexico’s Reference Paper. The panel instead turned to the *Shorter Oxford Dictionary* and the *Merriam Webster* dictionary references to define terms such as *competition* (“rivalry in the market, striving for custom between those who have the same commodities to dispose of”) and *anti-competitive* (“tending to reduce or discourage competition”).¹²⁰ The panel also found that the meaning of “anticompetitive practices” was informed by related provisions of some international instruments that address competition policy, for example, Article 46 of the 1948 *Havana Charter* for an International Trade Organisation already recognised that restrictive business practices, such as price-fixing and allocation of markets and customers, could adversely affect international trade by restraining competition and limiting market access¹²¹. The panel also argued that “the importance of ensuring that firms refrain from engaging in horizontal price-fixing agreements, market or customer allocation arrangements and other forms of collusion is likewise emphasised in the United Nations *Set of Multilaterally Agreed Equitable Principles and Rules for the Control of Restrictive Business Practices*”¹²². The panel felt that it was also worth pointing out that both Mexico and the US are members of the OECD, and that the OECD has adopted a Recommendation calling for a strict prohibition of cartels¹²³. It is interesting to note however that in negotiations for the Reference Paper, none of these treaties were discussed or referred to in a similar way. In short that the panel’s interpretation of the competition provisions as set out in the Reference Paper were not envisaged by the WTO membership at the time of its negotiation¹²⁴.

In conclusion at paragraph 7.238 of its ruling, the panel found that “the term “anticompetitive practices” in Section 1 of Mexico’s Reference Paper includes practices in addition to those listed in Section 1.2, in particular *horizontal* practices

¹¹⁹ For a good critical discussion of the panel’s ruling on the competition issues raised by the Mexico-Telmex case, see Marsden P., *WTO decides its first competition case, with disappointing results*, Competition Law Insight, May 2004.

¹²⁰ Mexico-Telmex, para 7.230

¹²¹ *Ibid*, para 7.236.

¹²² *Ibid*.

¹²³ *Ibid*.

¹²⁴ See Marsden’s analysis, *supra* note 119.

related to price-fixing and market sharing arrangements.” This is perhaps one of the most contentious issues in the panel’s ruling as it effectively sets aside Mexican law (state action doctrine) on the application of uniform rates for call termination. Mexico had argued that practices required by regulation could not be “anticompetitive” as they were mandated by “ILD rules that are part of the regulatory framework of laws intended to increase competition” by preventing predatory pricing by foreign entrants¹²⁵. The European Communities, as a third party to the proceedings, agreed with Mexico on this point arguing that: “the fixing of a uniform price cannot be an anti-competitive practice since uniform prices are required by law.”¹²⁶ The panel agreed that pursuant to doctrines applicable under the competition laws of some members, a firm complying with a “specific legislative requirement of such a member (eg a trade law authorising private market sharing agreements) may be immunized from being found in violation of the general domestic competition law”, however the panel also argued that international commitments made under the GATS “for the purpose of preventing suppliers...” from engaging in or continuing anti-competitive practices” are however designed to limit the regulatory powers of WTO members¹²⁷. This is a remarkable finding in that the panel is using principles of international economic law (WTO law) to subvert national state doctrines. It must be said however that the European Commission has also found ways to circumvent the application of the state doctrine in DGIV Competition cases, for example in the *Deutsche Telekom* (DT) decision¹²⁸. In the DT case, which concerns margin squeezing by the dominant incumbent Deutsche Telekom for wholesale prices offered for unbundled access to Deutsche Telekom’s local loop network, although it was accepted that an undertaking could not be held responsible for breach of the antitrust rules if such a breach occurs because of the State having imposed on the undertaking a specific course of action (in this case the imposition of a price cap for local loop prices by the German regulator, *RegTP*), the Commission was still able to show that within the State mandated action, the undertaking could have avoided the margin squeeze and subsequent infringement of Article 82 Treaty of Rome (abuse of a dominant position)¹²⁹. Clearly the European

¹²⁵ Ibid, para 7.241.

¹²⁶ Ibid.

¹²⁷ Ibid, para 7.244.

¹²⁸ See Commission Press Release IP/03/717, 21st May 2003.

¹²⁹ See Keynote Address by Eric Van Ginderachter, European Commission Competition directorate General, *Communications and EC competition law*, Brussels, October 2004 at http://ec.europa.eu/comm/competition/speeches/text/sp2004_015_en.pdf, accessed June 2006.

Commission's circumvention of the state action doctrine in *Deutsche Telekom* is not as direct as the panel's ruling in *Mexico-Telmex*, however, the Author submits that the panel in *Mexico-Telmex* perhaps went a little too far in its interpretation of the term "anti-competitive practice". For example in finding as an example the use of price-fixing cartels as an anti-competitive practice, the panel read into the interpretation of the Reference Paper an example of an anti-competitive practice (price-fixing cartel) that has never been agreed by WTO members in their schedules of additional commitments or in any WTO covered agreement. This aspect of the panel's ruling is perhaps a worrying precedent for future WTO cases in the telecommunications sector.

Further to an agreement between the governments of Mexico and the United States, Mexico has decided not to appeal the case and will comply with the panel's recommendations. However it did add that: "the flaws in some of the panel's reasoning and findings were particularly important in the light of the ongoing service negotiations."¹³⁰

3.4 Conclusion

This Chapter has reviewed the international regulatory environment for telecommunications, in particular looking at WTO provisions covering the sector. We have seen that the WTO's Basic Agreement on telecommunications has created important changes in the industry, with the provisions on interconnection in the regulatory reference paper creating a shift from accounting rate settlements to cost-oriented interconnection. The case of *Mexico-Telmex* confirmed this shift. We have also seen that changes in technology, particularly with the internet and use of digital protocols for the transmission of information, such as TCP/IP. The introduction of new digital services, such as VoIP will have (and are having) major implications for the design and rollout of telecommunication networks and the services that flow over them. The Digital Divide is very much about having access to the necessary technology (a subject we will address in Chapter 9 on technology transfer), but it is also as we have seen in Chapter 2, about building efficient telecommunications

¹³⁰ WTO News: Dispute Settlement body 1st June 2004, *DSB adopts panel report on Mexican measures affecting telecommunications services from the United States*.

infrastructure and gaining access to international digital networks. This Chapter has reviewed the ‘international rules of the game’ as associated with telecommunications. Many of the legal provisions covered however as associated with the regulation of ‘circuit switched’ networks, that is networks that use analogue (as opposed to digital) technology to convey most voice. The future is with digital technology and particularly with internet interconnection as we will see in the next chapter.

The law and cases reviewed in this chapter still have relevance as they regulate telecommunications as a sector, but we also need to look at how ‘digital’ communications are regulated. Digital communications has already replaced many analogue networks worldwide (viz the rapid expansion of the Internet). Up until very recently, digital communications was regulated mainly by private contract. New regulatory frameworks, such as the EC’s New Regulatory framework for electronic communications networks and services, was introduced to deal with the converged sectors of telecommunications, broadcasting and information technology. This new framework was only touched on in this Chapter. It will be more fully discussed in Chapter 5. The next Chapter 4 on *Internet Interconnection* is focused on the private regulation of digital networks and the problem of gaining equitable access to international NGN (internet) networks. At present a few large international backbone operators control the market for international digital networks and services. Access to these networks is governed by what is known as peering and/or transit agreements as we touched on in Chapter 1. Chapter 4 covers internet interconnection in detail, reviewing possible anticompetitive practices and the problems that smaller Internet Service Providers (such as in DCs and LDCs) have in gaining equitable access. Chapter 5 then discusses the EU and US law underpinning the *Layering Theory*, which as mentioned in the introduction to this thesis, seeks to enhance effective competition in the market for international digital networks and services. The Layering Theory is discussed in full in Chapter 6.

CHAPTER 4

INTERNET INTERCONNECTION¹

4.1 Introduction

The previous chapter to this thesis discussed the international regulatory environment under WTO rules for cross-border interconnection of circuit-switched (voice) networks. As mentioned in Chapter 2, voice networks are now being upgraded to NGNs which use the internet protocol (IP) as the core transmission standard allowing for voice, data and video to be integrated and for different transmission technologies to be consolidated into one layered network model. As mentioned in Chapter 2, the fundamental difference with existing legacy networks is the use of the IP protocol as the basic transmission standard for NGNs. The IP protocol allows for different types of network, whether cable or telecommunication to provide a wide array of broadband services seamlessly. For vertically integrated operators, this would then allow for complete control of all the layers of the NGN from the lower physical infrastructure layers to the upper messaging and content layers.

This transition to NGN creates two main issues for regulators. The *first issue* is whether NGN operators, and specifically those who control international backbone networks, IBPs, can leverage their dominance from wholesale into retail internet markets, or who can degrade the quality of interconnection and access. There is no doubt that IBPs do have incentives to interconnect and access, or more specifically in the internet sector, to provide peering and transit services to other ISPs. One incentive is to extend the reach of their own networks through peering and transit services. The other is to gain extra revenue from transit. IBPs will bundle a range of services and will discriminate as to price. As this chapter notes in the sub-section below on Settlements (see section 4.4.1) both bundling and price discrimination can be **pro competitive**. For example, when competition takes the form of *bundle v. bundle*,

¹ Although much of this chapter is new and has been written specifically for this thesis, the chapter also makes use of some material written by Kariyawasam and published on-line as part of a study commissioned by DFID in 2001 (through Antelope Consulting) on *Reducing the costs of internet access in developing countries* at: http://www.antelope.org.uk/telecommunications_development/AppG_v4_Reg.pdf, accessed October 2010.

bundling will only be abusive if the price of the entire bundle is predatory. However, problems often arise with transit agreements in that IBPs have incentives to migrate smaller ISPs from settlement free peering relationships to more costly transit services. Also, where IBPs have contractual relationships with state controlled incumbents in DCs/LDCs, the absence of international WTO rules on internet interconnection can result in terms for peering and transit with smaller ISPs being negotiated on discriminatory, non-transparent and non cost-orientated rates which can result in higher end-user costs, exacerbating the digital divide. Often, because of the absence of a regulatory framework for internet interconnection, peering and transit agreements are the subject of non-disclosure agreements and are therefore not submitted to the national regulator for scrutiny.

The *second issue* is whether regulators faced with a complex array of new services can unpick services from a layered NGN structure to define accurately enough a relevant product market for the purposes of a competition investigation.

The first issue is discussed in this Chapter 4. The second issue is discussed in Chapter 6.

The purpose of Chapter 4 is fourfold: (a) to provide an overview of the interconnection of digital networks through peering and transit in the internet industry; (b) to describe the structural breakdown of a typical international backbone operator; (c) to summarise the major current policy/regulatory issues relating to internet interconnection at the level of the WTO, which includes three main areas of regulatory concern;

- Traffic exchanged by operators with market power
- Competition issues arising from vertical integration of backbone and service providers; and
- Increased pressure for arrangements for sharing the costs of connectivity between facilities-based international backbones (IBPs);

and finally; (d) to highlight issues arising from (a)-(c) that impact on ISPs in the developing world so that these issues can be more fully discussed in Chapter 7 (Developing Countries and Telecommunications).

Chapter 4 describes the problems associated with internet interconnection, demonstrating how a few large international backbone operators control the international market for connectivity to the internet. Also, this chapter demonstrates that incumbent telecommunication operators and IBPs have the power to leverage their dominance from the network infrastructure market to the retail market, where local end-users will wish to gain access to the internet. With the upgrading of legacy networks to NGNs by IBPs, there is a fear by content providers, such as *Google*, *Skype* and *Microsoft* that ‘differentiated charging’ (discussed in section 4.4.1) could lead to a ‘two-tier’ internet to which content providers have responded with a call for ‘net neutrality’, treating all traffic as equal regardless of the protocol of transmission.² The chapter argues that the potential for a concentration of Tier 1 IBP operators (particularly with a potential shakeup of the communications sector anticipated in the fall-out to the credit crunch crisis arising from the sub-prime mortgage debacle in the United States) could give rise to a number of anticompetitive practices, and that these together with differentiated charging could spell difficulties for DC and LDC ISPs. The chapter concludes that unless there is effective competition at all levels of the network, then digital divide issues will arise. Chapter 4 therefore sets out the issues that the Layering Theory, discussed in Chapter 6, intends to address.

4.2 Overview of internet peering and transit

Internet Protocol (IP) networks can transport huge volumes of traffic more efficiently and at much lower cost than traditional networks. The Public Switched Telephone

² Although a regulatory requirement for net neutrality has been dismissed by *WIK Consult* in 2008 in a report to the European Commission on the future of IP interconnect (also discussed in section 4.4.1). Importantly, this recent report left out an investigation of *access* by ISPs operators and content providers to IBP networks, covering interconnection (peering and transit) obligations only. Nevertheless, the EC refers to the neutrality of the internet in recital 34 Citizens Rights Directive 2009/136/EC. In the Better Regulation Directive 2009/140/EC, the EC includes a specific declaration on net neutrality which starts: “*The Commission attaches high importance to preserving the open and neutral character of the Internet, taking full account of the will of the co-legislators now to enshrine net neutrality as a policy objective and regulatory principle to be promoted by national regulatory authorities...*”

Network (PSTN) is a circuit switched network, a design that has not changed for a century. Circuit switched technology dedicates a fixed amount of capacity for the duration of a call, thereby tying up an entire circuit or portion of the network for its duration. Internet Protocol (IP) based packet switching technology splits the information into discrete packets, sends them across the network using the most cost-effective route³ and using far cheaper routers⁴, and then reassembles them at the other end. IP technology thus makes much more efficient use of the transmission pipe, and consequently, the cost of moving information through an IP network can be much lower than through a traditional circuit switched network.

Peering and transit agreements allow smaller ISPs to extend their reach into regions where they would otherwise lack infrastructure, and keep traffic on Internet Protocol (IP) networks longer before it reaches a gateway to the pricey Public Switched Telephone Network (PSTN/PSN), where the call is completed.⁵ Such interconnections are vital for smaller ISPs since only by interconnecting can the IP traffic travel furthest and the cost benefit of using the net be maximised⁶. For developing country ISPs this is even more critical where access to the incumbent's network might be restricted through high tariffs for interconnection and where access to a local internet exchange providing interconnection to an international backbone's network may be the only way to bypass the incumbent.

Most ISPs maintain both peering and transit agreements with local ISPs via the various public internet exchanges, as well as peering/transit with one or more service providers or clearing houses in the US through international private leased circuits or *Indefeasible Rights of Use* (IRUs) in submarine cables, or satellite links. Many of the smaller ISPs in developing economies (and even developed economies) rolling out a service will therefore need to consider what *network architecture* they wish to adopt

³ A process called least-cost routing.

⁴ A router is simply a computer. Routers should be contrasted with Public Branch Exchanges (PBXs) which are more expensive and are used to switch voice calls on circuit-switched networks.

⁵ See Report on OECD workshop "Internet Traffic Exchange", Federal Ministry of Economics and Technology (BMWi), Berlin, Germany, 7th June 2001, p. 1.

⁶ Note that Peering Agreements may not be necessary if carriage and other value added internet services are acquired from an international private leased circuit provider or another ISP (acting as a Reseller).

and to what extent interconnection with these various exchanges will be sufficient to provide a narrow band service initially.

The ISP will also need to consider whether it should be party to a multilateral Peering Agreement at public internet exchanges or whether it should make its own bilateral arrangements with other ISPs at private peering points. The latter often has the advantage of coming with guaranteed levels of service through a Service Level Agreement (SLA) with the TSP or IBP, with the caveat that the terms to be included within the SLA are often set by the more dominant player.

Service providers interconnect with one another through what is called a peering agreement. Peering is defined as:

An interconnection of two public networks that provide connectivity to hosts whose routes are advertised on the global internet, on a settlement free basis that allows customers of one network to exchange traffic to customers directly on the second ISP's network.⁷

In a peering arrangement, two service providers agree to exchange traffic that originates from an end user connected to one provider and terminates with an end user connected to another. The Australian Competition and Consumer Commission's (ACCC) consultation paper on internet interconnection defines peering more simply as 'the establishment of a connection between computers and/or networks.'⁸ It leaves out the basis of peering as being settlement free.

The ACCC in its detailed examination of the Australian internet industry believes that peering has moved on from a straightforward settlement-free basis and considers that the financial and other administrative arrangements governing peering should be

⁷ See the report by Dr. Sam Paltridge of the OECD's Directorate for Science, Technology and Industry entitled *Internet Traffic Exchange: Developments and Policy*(1998). See also the reference to peering in the article by Kenneth Neil Cukier Peering and Fearing: ISP interconnection and regulatory issues at <http://ksgwww.harvard.edu/iip/iicompol/Papers/Cukier.html>

⁸ *Internet Interconnection: Factors affecting commercial arrangements between network operators in Australia* (ACCC paper), Sydney: ACCC, 2000, <http://www.accc.gov.au/media/mediar.htm>.

referred to separately as 'settlement arrangements'.⁹ This is probably the correct approach, although in this thesis, and for the sake of simplicity, peering is described as an arrangement that has two main characteristics.

- First, in general, peering is settlement free i.e. the service providers do not charge each other for terminating traffic. This will normally be the case where the two networks are of roughly the same size, size being defined by the number of customers that each provider has on their respective networks, backbone capacity, and traffic volume.
- Second, one peer will not allow traffic from another peer to *transit* its network to a third IBP.

The alternative to peering is a *paying transit* relationship. A transit arrangement differs from peering in two respects:

- First, in contrast to peering in which service providers generally exchange traffic without charge, in a transit arrangement one provider pays the other to carry its traffic. The amount of this charge generally depends upon the *capacity* of the connection or the *volume* of traffic flowing across the POI.
- Second, in contrast to peering in which service providers only terminate each other's traffic, in a transit arrangement a provider agrees to deliver all Internet traffic that originates or terminates on the paying provider regardless of the *destination* or *source* of that traffic¹⁰.

Negotiations for peering do not just occur horizontally between ISPs but also vertically between 'small local ISPs' and 'large national TSPs or IBPs'. In the latter case, the large national IBPs have a stronger bargaining position because they not only provide access to their customer and content base, but also act as a gateway to

⁹ See *ibid* at p.33 of the ACCC paper.

¹⁰ It is important to appreciate that with packet-switched networks, traffic could be coming onto the paying provider's network from anywhere in the world (*regardless of source*). Likewise traffic could be leaving the network for onward transmission to any point (*regardless of destination*). In other words, to avoid traffic congestion and also put in place a framework for revenue generation, peering agreements permit deliver of packets only to the address space *controlled* by the network concerned, whereas transit agreements generally *guarantee* delivery not only to this address space but *also* to the remainder of the global internet address space.

the rest of the Internet. This inequality of bargaining power can result in anti-competitive practices emerging in peering/transit negotiations, particularly in the negotiation of the terms in the agreement itself (see sections 6 and 7 below). The *Layering Theory*, if implemented into national law could provide a means of legal redress if the incumbent is found to be dominant in the relevant market for wholesale interconnect.

4.3 Overview of the players in the internet market and structural breakdown of a typical international backbone operator

The internet is the interconnection of a range of packet switched networks, some of which are virtual, most of which are in the public domain, and some of which are private. There are three basic classes of participant in the internet:

- End users;¹¹
- Internet Service Providers (ISPs), Internet Portals, and Internet Commerce Companies¹²;
- Transit Service Providers (TSPs) and Internet Backbone Providers (IBPs).¹³

End users send and receive information. ISPs allow end users to access TSPs and Backbone networks. IBPs route traffic between ISPs and TSPs, and interconnect with other IBPs. In general, the global market can be very *roughly* divided into 60+ backbone operators, the majority of whom will have entered into private peering/transit agreements with each other (very concentrated), +/-6000 ISPs, and millions of content providers/end-users.¹⁴

¹¹ This category will include residential and small business end-users (SMEs) and the large corporate end-user, all of whom will be contracting with the ISP on a retail basis.

¹² Grouped together as often ISPs will also function as portals and commerce outlets involved in the provision of retail internet services to subscribers as opposed to the infrastructure and carriage providers (TSPs and IBPs) who tend to offer wholesale services only, but will also have separate subsidiary ISPs offering retail (eg MCI/WorldCom, C&W).

¹³ This category will include the carriage service providers and the equipment vendors.

¹⁴ According to the WIK Consult report at footnote 75 of the report: "More than 46,000 Autonomous System numbers have been assigned to ISPs, to multi-homed organisational users, or to the Regional

IPCs, by contrast, are providers of content, often not charging subscription fees, and either functioning as search engines for ISPs and/or providing a ‘click through’ service on their websites to other search engines. Examples include *Lycos*, *Yahoo*, and *Alta Vista*. IPCs derive much of their revenue from contracts with advertisers or other content providers, guaranteeing a certain number of image impressions or ‘hits’ on the website of the advertiser's banner. Closely connected with IPCs are the ICCs, which are companies that conduct business solely through the internet. Examples include *Amazon.com*. IPCs also include the increasingly successful business-to-business companies (B2B) and B2B internet exchanges, such as *Covisint*, a consortium formed by General Motors, Ford and Daimler Chrysler to connect the world's top automakers and their suppliers. B2B exchanges have come under the closer scrutiny of the anti-trust authorities.¹⁵

The role of the TSP is more difficult to define. The use of the backbone network to aggregate the traffic of smaller, geographically-remote networks introduced the concept of *transit*. Transit across one or more networks is necessary when a user on a smaller ISP wishes to send an e-mail or a file to a user on a remote network. If the two networks do not have a direct connection, communication can occur only through a third or more network(s). In this sense transit networks perform a *wholesale* function, and, at some point, a transit network will be indistinguishable from a backbone network. Generally what will separate a TSP from a IBP is that the latter will have invested a great deal in international infrastructure either in the form of leasing international private leased circuits (IPLCs) or having ownership of capacity of submarine cables through an *Indefeasible Right of Use* (IRU) or on satellite links.

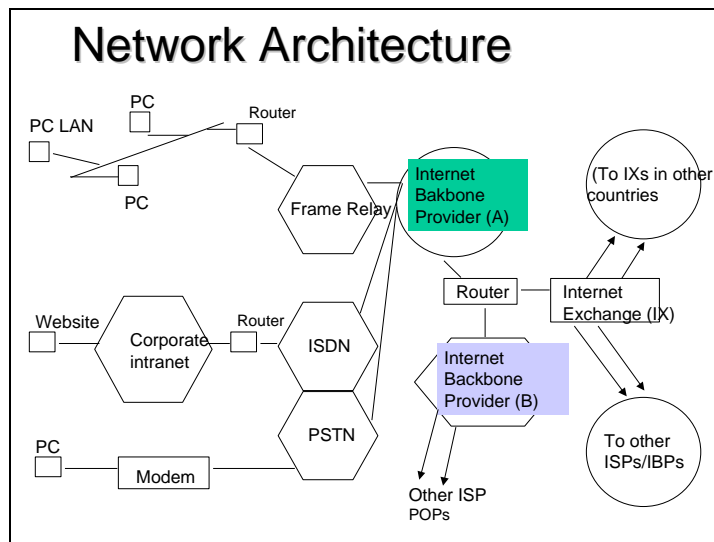
Before going on to consider internet interconnection in greater detail, it would be useful to see how a backbone is structured and how it interacts with end-users, ISPs,

Internet Registries (RIRs) for assignment. This number represents a very coarse upper bound on the number of independent IP networks, but it also shows that the upper bound is large.” Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, January 2008, p.47.

¹⁵ For example Covisint has been the subject of an investigation by the Federal Trade Commission in the U.S., and MyAircraft.com by the European Commission.

and other backbones. *Figure 1* below illustrates both the customer and network interfaces of a typical IBP.

Figure 1: Internet network architecture



The top part of the figure illustrates a corporate network linking a number of personal computers (PCs) by way of a Local Area Network (LAN). The LAN is connected by way of a router¹⁶ and Frame Relay connection to IBP A. Corporate data networks tend to generate a lot of bursty traffic. Frame relay is often considered here for connecting to IBP A as frame relay cells are of variable size and can handle such variable traffic flow.¹⁷ But frame relay is not good for time-sensitive applications, such as voice and video.

The middle section of Figure 1 illustrates another corporate network but utilising an intranet. An intranet is a private network that uses the internet protocols (TCP/IP) and net applications such as e-mail, file transfer, and the web. Connection to the IBP may be by dedicated E1 lines in Europe, T1 lines in the US, and general leased lines or private circuits in other parts of the world.

¹⁶ A Router is a device, which connects two separate Local Area Networks (LANs) using the same protocols.

¹⁷ The superior (and more expensive) option is to use a technology called Asynchronous Transfer Mode (ATM).

An intranet is often a combination of private facilities and public presence. Although an intranet is a network of private-leased circuits, it can also be built using the internet (a public network) as its connectivity. Because of this, intranets must have authentication, security and encryption. Extranets, by contrast, are virtual networks formed by the partial interconnection of several different companies' intranets. Again security is required in the form of firewalls.¹⁸ The bottom part of Figure 1 shows the dial-up user accessing the internet by way of a modem and the PSTN. In the developed world, dial-up access will transform with the take-up of xDSL and cable modem technologies offering "permanently-on" connections as the local loop of the incumbent is unbundled. There is also evidence from some developing countries, such as India, that cable and xDSL markets will grow to a lesser extent.¹⁹

To the right of the figure, we see the various interconnects between IBP A and other backbone networks (or even transit networks) at the network interface. What is not shown in the figure for reasons of simplicity is the *internal structure* of the IBP itself. The IBP's internal structure will consist of three principle sections; the *access server*, the *application servers*, and the *internal network*. The IBP's access server will consist of a customer interface, effectively a modem pool for dial-up users, and for permanently connected customers (such as the large corporates), and an access router, which at a minimum could have eight ports supporting 30 ISDN channels.

The application server will consist of a series of partitioned servers or separate servers dedicated to each application being offered by the IBP, such as e-mail, web hosting, newsfeeds, interactive relay chat and games. Some IBPs also offer a managed access service for corporate clients, also known as virtual hosting.²⁰ The IBP's internal network will depend on the number of Points of Presence (PoPs) it has. Customers like to connect to a PoP in a local call zone so that timed charges for long distance

¹⁸ A Firewall will use hardware but, more often than not, software to protect a networked system from damage by outsiders (hackers), while maintaining connectivity. The Firewall will generally sit between the LAN of the customer and the telecommunications link to the internet server of the IBP.

¹⁹ See India case summary in *Reducing the costs of internet access in developing countries*. Overview Report produced for DFID, Antelope Consulting 2001 at: http://www.antelope.org.uk/telecommunications_development/DC_overview.pdf, accessed October 2010.

²⁰ This service involves setting up a router and leased line to the customer's premises and management of the firewall between the customer and the internet.

tariffs can be avoided. For this reason, to offer a uniform service quality and to take advantage of economies of scale, the IBP may need to have a number of PoPs, each permanently connected by a Permanent Virtual Circuit (PVC) leased from carriers.²¹

The interconnect arrangements on the network side of the IBP will generally be at a wholesale level²² and interconnect may be by way of private bilateral or multilateral peering or transit agreements, or by peering at public network access points, such as the London Internet Exchange (LINX) situated at London Telehouse in the UK, or Major Internet Exchange US West Coast (MAE-WEST) and MAEAST in the U.S., the Hong Kong Internet Exchange, or the Japan Internet Exchange (JPIX) for example.

4.4 Anticompetitive effects of internet interconnection

Now that we have an understanding of some of the structural issues relating to internet interconnection we can turn to the policy issues, and particularly areas where the potential abuse of dominance by large backbones and telecommunication incumbents can restrict effective competition. The internet industry has witnessed in recent years a certain amount of *laissez faire* on regulatory intervention by regulators as regards internet interconnection and wholesale traffic carriage. This is down to three main factors:

- the degree of competition in the market for internet traffic carriage has been reasonably significant alleviating to some extent concerns about bottlenecks;
- the supply of bandwidth for internet traffic has generally outstripped demand leading to reduced prices for bandwidth;
- regulators have learned well from the general telecoms industry, particularly the cable industry, that to encourage investment in infrastructure, it is better to leave well enough alone.

²¹ In the UK, the need for an ISP to have a series of PoPs is minimised through use of BT as an originating carrier and the purchase of Number Translation Services (NTS) services to route the customer's call to the relevant ISP.

²² As opposed to interconnection at a retail level which would describe the access by the corporate or dial-up customer to the ISP's modem pool.

These circumstances are now changing however. Some argue that as bandwidth hungry applications become more popular, existing capacity will become scarce, and that in such a climate, increased concentration in the market for example through mergers will raise competition concerns. Market power issues in the internet sector have already been evidenced in merger reviews such as *MCI/WorldCom/Sprint*²³, *Bell Atlantic/GTE*²⁴, and *AT&T/TCI*²⁵. As the recent report produced by WIK Consult for the European Commission in January 2008 makes clear:

IP-based traffic continues to grow dramatically, but the rate of growth (contrary to what many have assumed) is gradually slowing in percentage terms over time, with a current global average of 50-60% growth per year and a European average perhaps slightly higher. Video over the Internet is likely to represent a major driver of future traffic growth. Peer-to-peer traffic will continue to grow, but will decline somewhat as a fraction of all Internet traffic. Voice over IP (VoIP) usage will continue to grow, but will never represent a large fraction of total Internet traffic.²⁶

Besides this growth in traffic (and particularly video), there are three further issues that could warrant regulatory intervention from regulators particularly in the US, Japan, and the EU:

- Whether regulation is required to prevent dominant backbone operators from abusing market power individually or collectively by colluding in structuring peering and transit agreements to either limit new entry at a regional level or to push up transit charges;
- Whether regulation is required to ensure that large vertically integrated operators are not acting anti-competitively by unduly favouring affiliated ISPs
- Whether regulation is needed on certain international routes dominated by a few large IBPs, where the cost of international leased-line connectivity remains high.

²³ Case No COMP/M.1741 - MCI WorldCom / Sprint, June 2000.

²⁴ Case No. 1:99CV01119, Department of Justice, May 1999.

²⁵ Case No. 1: 98CV03170, Columbia District Court, 1998. See also EC Case No IV/M.1252-AT&T/TCI, December 1998.

²⁶ Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, a study for the European Commission, January 2008, p.9.

The first two bullet points are discussed in greater detail below in sections 4.4.1-4.4.2. The last bullet however is worth a mention here as it is particularly relevant to *US connectivity* issues, where there is continued pressure on US regulators to address the issue of cost recovery for facilities connecting non-US ISPs (such as from DCs/LDCs) with US backbone providers. Non-US ISPs must generally pay for the full cost of the international transmission of internet traffic to and from the US. They also have to pay for the domestic *tail lease* and *port charges* to connect the dedicated international leased line capacity from the terminal end of the international carrier to the internet access point as well.²⁷

As non-US markets are now beginning to develop large customer bases of their own and developing valuable content, non-US ISPs argue that US ISPs are free-riding. To counter this, US ISPs argue that:

- content is still mainly US sourced. As such, non-US ISPs should pay disproportionately more for transport;
- to avoid international costs for transmission, non-US ISPs should encourage greater production of local content or make better use of caching facilities, proxy servers, or mirrored sites for localising content;
- the US still remains the global hub, and therefore US ISPs continue to bear infrastructure development costs for transiting traffic from non-US ISPs; and
- greater liberalisation and competition in foreign markets will bring down the costs of regional transmission, fostering lower regional connectivity prices which will encourage regional links, eventually leading to reduced US hubbing.²⁸

These arguments are (potentially) persuasive, for all backbones fear regulatory intervention. For most backbones, revenue streams from IP traffic exchange, IP access and connectivity (in the near future VoIP, virtual call centres and IP call centers), not to mention web hosting and e-commerce solutions, could account for up to 40% of backbone revenues with the remaining 60% coming from voice.²⁹

²⁷ See DFID Internet Costs report, Annex G (Rohan Kariyawasam), *ibid* footnote 1, pp 14-16.

²⁸ *Ibid.*

²⁹ *Ibid.*

Most backbones will want to minimise regulatory intervention. This is despite the fact that some backbones will have peering partners or even affiliates or subsidiaries in other parts of the world, where these affiliates and subsidiaries are *also* paying high costs for international transmission to connect with their parents or partners back in the US. But the advantage the backbones possess is that as they continue to develop and roll out their own backbone infrastructures, creating nodes in say Latin America, Asia or Africa, they will be able to *internalise* these costs *groupwide* as the global network develops, but still continue to charge higher prices for peering, and particularly transit, to non affiliated ISPs.

This will be the case unless there is adequate regulatory oversight and potentially, intervention. Regulatory intervention could result in reduced wholesale revenues as a consequence of peering (and particularly transit) terms being made more transparent, reduced competitiveness as competitors are able to gain access to IBP networks either for free or at reduced rates, and for backbones interconnecting with non-US ISPs, increased costs for facilities as a result of international infrastructure cost sharing (for example through the enforcement of the ITU's Recommendation D.50, discussed below in Section 4.6).

4.4.1. Further Anti-competitive practices

Over the last few years, there have been fundamental trends that have shaped the development of the internet industry and which have brought about calls for regulating internet interconnection. These trends can be summarised as follows:

- Internet Backbone Providers (IBPs) are shrinking due to consolidation (viz BT/AT&T, GTE/Bell Atlantic, MCI/WorldCom, and the failed WorldCom/Sprint mergers);
- The differences between IBPs and ISPs are growing wider;
- There is a trend by IBPs and Transit Service Providers (TSPs) to peer less with smaller ISPs;

- Often the terms for peering by IBPs are generally kept private, and when ISPs do peer with IBPs they are often forced to sign *non-disclosure* agreements;
- The termination of a peering agreement by IBPs can require very little notice in advance; and finally
- The technical dialogue that takes place between IBPs between themselves and between IBPs and larger telecommunication networks can be regular and private, often to the exclusion of smaller ISPs.

There is also potential with the rollout of New Generation Networks (NGNs) by IBPs for these potential practices to continue. The WIK Consult report completed in 2008 looks at the potential for operators rolling out NGNs based on an IP network core to potentially abuse their positions of dominance (SMP—discussed in more detail in Chapter 6 when looking at dominance and the Layering Theory):

It is worth noting that literal barriers to interconnection at the IP and the service level do not represent the only potential threats to competition as networks evolve in the direction of NGN. The Commission’s 2003 study and also Ofcom’s consultations, have explored the possibility that emerging IP-based networks might introduce new “choke points”, new threats to competition. The 2003 study saw location information, as well as customer identity systems, as particularly relevant. As the 2003 study observed, “Essentially, NGN has the potential of providing a more open and competitive service environment. Paradoxically, this potential may also lead to additional sources of market power. Whereas traditionally, all elements of service creation were controlled by a single operator, the NGN environment enables many of these elements to be provided competitively. Where such elements have to be chained together in order to create an end-user service, it follows that control over any single element in the chain would provide control over the whole chain. ... the battle for market power will be fought on many different fronts.”³⁰

³⁰ European Commission, Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, January 2008, p. 124. The authors were referring to a study

The authors when commenting on these ‘choke points’ are not just referring to the European market for NGN services and networks, but worldwide. The recent credit crunch crisis spurred by the sub-prime mortgage debacle in the United States will make more difficult access to capital to fund network rollout. Increased consolidation is likely both at a horizontal level in terms of service delivery and also vertically with wholesale and retail network provision. Increased consolidation, although likely to rationalize costs could also have the effect of diluting effective competition in the international backbone market as operators leverage their market dominance from wholesale into retail markets. How backbones can do this is clarified in the next section.

4.4.2 Abuse of market position

The larger the market share of the IBP or TSP, the more important it will be for the smaller ISP to interconnect with the IBP/TSP so as to reach the larger operator’s customers. Due to network externalities, IBP/TSPs can therefore have the potential to hold a dominant position in the relevant market for backbone connectivity (and as mentioned above, have the potential to leverage this dominance into downstream retail markets in high-end service provision at different layers both for content and the underlying physical network infrastructure that transports this content—this concept of ‘layering’ is discussed in more detail in Chapter 6). In DCs and LDCs, the problem is more complex as often the telecommunications incumbent is also the owner of the data TCP/IP network and is often opposed to the creation of an IXP exchange where bilateral and multilateral peering can take place. For example, a recent Internet Governance Forum report states:

...that mandatory multilateral peering policies may not be successful in more mature markets, as large operators can perceive it as a requirement to enter into an open ended contract with unknown signatories...in Latin America, mandatory multilateral peering has discouraged some large carriers and

completed for the European Commission by Cullen International: Cullen International/ Devoteam (2003): Regulatory Implications of the Introduction of Next Generation Networks and other New Developments in Electronic Communications, Report for the European Commission, Brussels, 2003.

content providers from connecting to an IXP....that government policies that encourage competitive access to leased lines and wireless connections help lower the costs associated with connecting to an IXP....governments can play a positive role by restraining anti-competitive behaviour of incumbents, including attempts by large carriers to block the development of IXPs.³¹

In more developed markets, the fear that a large IBP or a number of IBPs could eventually emerge to abuse their dominance in the market for backbone services proved to be effective in helping block the *WorldCom/Sprint* merger. Furthermore, smaller ISPs argue that the industry is fast moving to an environment where smaller ISPs are becoming *downstream paying transit customers* of the larger backbone and transit operators.³² They argue that there is an increased need for greater *transparency* and guidelines on interconnection in the industry. This is primarily because of the potential for monopolistic pricing and anti-competitive behaviour i.e. the ability of one competitor to raise the costs of others for a service element needed by all competitors and supplied by one or few operators, or by using various techniques for *degrading* the quality of interconnect. The *WIK Consult* report of 2008 for the European Commission argues that:

It may be necessary for NRAs to take action from time to time (possibly ex post) to ensure that operators subject to an SMP remedy do not take actions that would render the IP-based voice service interconnection ineffective or unusable. This is not to suggest that a new remedy is needed; rather, it means that NRAs must be empowered to ensure that standard interconnection remedies (updated to deal with new technology) are not subverted. It might be insufficient to require that the overall quality of IP-based voice interconnection that an SMP voice operator provides to competitors cannot be unjustifiably inferior to that which it supplies to itself (a condition more akin to equivalence of input than to non-discrimination).³³

³¹ Internet Governance Forum 2007: Best Practice Session Report, IXP Exchanges at: <http://www.isoc.org/educpillar/resources/docs/igf-ixp-report-2007.pdf>, accessed October 2008.

³² See executive summary, DFID Internet Costs report, supra note 20.

³³ Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, a study for the European Commission, January 2008, p. XIV.

The report's authors also argue that interconnection fees should be much lower than they are today, preferably zero, and that the huge disparity between mobile termination rates and fixed should be much lower.

There is no doubt that in time to come, the larger TSPs and IBPs with SMP will increasingly want to interconnect at private peering points rather than continue to peer at the larger public Network Access Points (NAPs) on a settlement-free basis with other service providers, particularly the smaller ISPs and TSPs.³⁴ This has led to the policy of differentiated charging in the United States, where operators have been allowed to charge in accordance with differing quality of service standard and service level agreements. Differentiated charging has also led to conflict with content providers and smaller ISPs fearful of the creation of a two-tier internet (discussed below). A move to private peering is due to the increased flow of traffic over TCP/IP networks as PC internet penetration increases worldwide and the increased revenues that the larger TSPs and IBPs can earn from increasingly sophisticated settlement mechanisms at private peering points rather than having to peer on a settlement free basis at public exchanges. Settlement mechanisms are discussed in the next section below.

This trend by the backbones to switch to private peering/transit is particularly disadvantageous for developing nations, as unless the market for international private leased circuits becomes more competitive driving down prices, or the larger (mainly US) backbones build out their networks to Asia and Africa to include Network Access Points at either public exchanges (unlikely) or at private exchanges (likely), the costs for interconnect for developing nation ISPs will remain high. Also, there are risks that operators who control the infrastructure at either end of a private leased circuit could raise the costs for access to that circuit (so called 'IPLC price-lifting') thus driving up the costs for interconnecting ISPs at either end that might be forced then to pass these increased costs onto their end-users. Price lifting would mean the operator at either end of the IPLC (whether developing country or developed if the IPLC is on an international circuit linking two countries for example) raising their IPLC prices by

³⁴ See for example the Report on OECD Workshop 'Internet Traffic Exchange', Federal Ministry of Economics and Technology, Berlin, Germany, June 2001 at: <http://www.oecd.org/dataoecd/43/55/1894684.pdf>, accessed October 2008.

more than a reasonable margin above cost on smaller and less competitive routes. In economic terms, price lifting would be an attempt by the operator to increase its share of the joint monopoly profits being made on the route.

This will of course work to enhance the Digital Divide rather than address it given higher levels of poverty in most DCs/LDCs as compared with developed nations. The opportunity of IPLC price-lifting is particularly problematic in developing countries, where telecommunication incumbents hold dominance over network infrastructure and where regulatory oversight might be weak. The Layering Theory is meant to enhance effective competition both in infrastructure and content markets by providing regulators with a more accurate definition for a relevant product market and therefore a better measure of dominance by an undertaking on that market.

In Asia, the APEC ICAIS report (Internet Charging Arrangements for Internet Services) did identify several practices that could work to the disadvantage of smaller ISPs³⁵. Potential anti-competitive practices include a ‘refusal to deal’, which is an attempt to drive a competitor out of business or to raise the costs of doing business with the impact of reducing its marketplace attractiveness. Another would be to apply a *price squeeze*, i.e. an attempt to raise competitors' costs and lower their marketplace attractiveness by increasing the cost of an essential facility, bottleneck or service element needed by the smaller ISP to provide a complete end-to-end service.³⁶ Anti-competitive behaviour could also include predatory pricing and/or using deliberate below cost rates. The IBP could also leverage its market power in more specific ways by:

- extracting from smaller ISPs agreements not to compete in certain service or geographical markets;
- setting a price floor on the service offered by the smaller ISP;

³⁵ It must be stressed however that the ICAIS consultants did not find evidence of such practices in interconnection arrangements in Asia. See ICAIS report at: http://www.tmdenton.com/pub/reports/icaiss_mod1_ch1.pdf, accessed October 2008.

³⁶ A margin squeeze was a concern of the UK regulator OFTEL in its determination of an internet interconnection dispute between BT and WorldCom on unmetered internet access in the UK.

- linking the smaller ISP's access to a desired service; e.g., long-haul backbone trunks; or
- forcing a commitment to buy or lease less desirable and/or less competitively provisioned services.

In 2007, the ITU in a symposium on international internet interconnection discussed the lack of transparency in internet interconnection with new generation networks (NGNs) and the rise in ‘differentiated charging’ (the process by which operators charge in accordance with the type of network protocol being used—see Chapter 6 where in discussion of the Layering Theory, the author discusses charging by protocol), and that increasingly in order to recover costs, Tier 1 operators (IBPs) are looking for differentiated charging and to enter the downstream service provision market themselves.³⁷

This concept of differentiated charging, pushed by the large backbone operators has led to a counterargument for the need for ‘net neutrality’, that is, arguing that all network application needs should be met equitably i.e. any particular internet host, protocol or application should not receive preferential treatment. In other words that operators might degrade the quality of interconnect or access to favour their own affiliates or business partners. In the United States, where differentiated charging is most common, there has been strong opposition to differentiated charging by service and content providers such as *Google*, *Microsoft*, and *Skype*, who do not own their own network infrastructures and who fear the higher costs for access that might result.³⁸ If content providers as large as these are fearful of the implications for differentiated charging, what chance do content providers in the developing world have when negotiating with powerful IBPs? The fear of the content providers arises because there is a difference between interconnection and access (this is discussed in detail in Chapter 5). Generally speaking one can argue that interconnection is a specific subset of access. In Europe, NRAs have been faced with equally contentious access problems as well as interconnect. The authors of the *WIK Consult* report on the

³⁷ Lie E., *International Internet Interconnection, Next Generation Networks and Development*, Global Symposium for Regulators, Dubai, 2007, discussion paper available at: http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/discussion_papers/Eric_lie_international_interconnection.pdf, accessed October 2008, p. 8.

³⁸ *Ibid*, para 2.2.1.3.

future of IP interconnect argue however that net neutrality has been more an issue in the United States than Europe where competition in broadband markets has been hampered by: (1) the FCC eliminating obligations of non-discrimination toward content for providers of broadband access to the Internet; (2) the wholesale ADSL market segment in the U.S. collapsing; and (3) the U.S. telecommunications industry undergoing significant consolidation, where two of the largest Internet backbones were acquired by dominant local incumbents.³⁹ The authors go on to argue that:

Network Neutrality is a many-faceted problem. A common concern has been that a network operator might either block or degrade access to disfavoured content in order to favour its own content or affiliated content. For now, we do not see a need for comprehensive new regulation to address Network Neutrality challenges. European underlying markets are either competitive or well regulated, and the European regulatory framework provides adequate tools to address problems should they emerge.⁴⁰

However, in the report produced for the ITU symposium on internet interconnection in 2007, Lie states that:

In the absence of countervailing influences, the international internet market risks a return to the questionable competitive environment of the late 1990s where market concentration in the hands of a Tier-1 ISPs led to high prices for international internet connectivity.⁴¹

The ITU has generally been considered as a better forum for DCs and LDCs to express their concerns rather than the World Bank or WTO. Lie argues that to offset the potential for ‘unconsidered de facto determination of international NGN interconnection norms’ by the larger backbones, that stakeholders need to engage as a matter of priority in policy development on internet interconnection. In the United States however, the Justice Department seems (at this point) to be favouring the infrastructure providers and large IBPs (to the consternation of content providers,

³⁹ Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, a study for the European Commission, January 2008, p. 93.

⁴⁰ Ibid, p.94.

⁴¹ Supra footnote 34, p.9.

such as Microsoft and Google) by accepting the argument for differentiated charging and against the principle of net neutrality. In September 2007, in a BBC report on two-tier charging, the US Justice Department was quoted as saying: “It was opposed to ‘network neutrality’, the idea that all data on the net is treated equally.”⁴²

4.4.3 Settlements

We have touched on ‘differentiated charging’ above. ISP interconnection increasingly requires complex settlement mechanisms to compensate both parties for transporting traffic. Many ISPs in the developed economies are now offering a wide range of high-speed digital applications such as IP telephony, on-line video games and web hosting.

Further, ISPs who are also infrastructure providers (backbone operators) may offer switched co-location for internet access, private line services (dedicated telephony and voice), Virtual Private Networks (VPNs) and non-switched IP telephony. Some of these applications will not necessarily be suitable for developing economies in the early stages of IP infrastructure rollout and so the settlement mechanisms will need to be commensurate with the services offered with particular care taken to agree the appropriate form of settlement to avoid anti-competitive practices, such as margin squeezing and bundling. For example with margin squeezing, the European Commission has also distinguished between broadband and narrowband internet access over DSL and cable networks,⁴³ and more recently wholesale and retail internet services in allegations of margin squeezing in *Deutsche Telekom v. European Commission*⁴⁴, and *Wanadoo Espana v. Telefonica*.⁴⁵

As regards bundling, it should be noted however that **pro competitive** and aggressive bundling could also be of benefit to consumers. For example, when competition takes the form of *bundle v. bundle*, bundling will only be abusive if the price of the entire

⁴² See BBC press release, *US backing for two-tier internet* at: <http://news.bbc.co.uk/1/hi/technology/6983375.stm>, accessed January 2011.

⁴³ See EC cases *AOL/Time Warner*, Case COMP/M.1845, OJ 2001 L268/28 and *UGC / Liberty Media*, Case No COMP/M.2222, 24.04.2001 Notification of 16 March 2001 pursuant to Article 4 of Council Regulation No 4064/891.

⁴⁴ Case 271/03.

⁴⁵ COMP/38.784.

bundle is predatory.⁴⁶ In 2005, the European Commission released a discussion paper⁴⁷ on Article 82 following the CFI's judgement in *GE/Honeywell*⁴⁸. In that discussion paper, the Commission set out a test where four conditions needed to be satisfied for exclusionary bundling to be proved: (1) there is pre-existing dominance; (2) the two (or more) products that are tied or bundled are distinct; (3) the practice is likely to have a foreclosure effect; and (4) there is no efficiency or objective justification for the practice. It is clear that following this test, there will be many examples of bundling which will *not* fall foul of Article 82 and which can be pro competitive. The same would apply to **price discrimination** where discrimination *per se* is not anticompetitive. In fact price discrimination can be explained and justified by differences in underlying costs, due for example to purchases of larger volumes and/or higher marketing costs. However, under EU law, the practice of applying different prices for equivalent transactions can fall foul of Article 82(c) EU Treaty (now Article 102 Treaty of the Functioning of the European Union, 'TFEU'). This has relevance also to DCs/LDCs given that both China⁴⁹ and India⁵⁰ often seen as leaders in WTO negotiations of the group of developing countries (G90), have adopted similar concepts of dominance to the test established in *United Brands*.⁵¹

Settlements for *circuit-switched* interconnect are commonplace and through the years many forms of interconnect pricing have emerged with most operators settling on a form of *Long Run Incremental Cost* as the basis for pricing interconnect services. Settlements between *circuit-switched* networks are determined mainly on the basis of the volume of traffic flowing across the Point of Interconnect (POI) with the traffic being measured through the use of servers at the POI and the basis of billing dependent on the processing of Call Detail Records (CDRs). Customers are identified for billing purposes through the exchange of *Calling Line Identification* (CLI) numbers and provisions are agreed for bad debts.

⁴⁶ Papandropolous P., Tying and Bundling, *Competition Law Insight*, June 2006, p.4

⁴⁷ DG Discussion paper of the application of Article 82 to exclusionary abuses at: <http://ec.europa.eu/competition/antitrust/art82/discpaper2005.pdf>, accessed January 2011.

⁴⁸ Case COMP/M.2220, 3rd July 2001. Official Journal L 048 , 18/02/2004 P. 0001 - 0085

⁴⁹ See Chapter 3 (Article 17) *Anti Monopoly Law of the People's Republic of China* 2008.

⁵⁰ See Chapter 2 (Section 4) *Indian Competition Act 2002* (as amended 2007, 2009).

⁵¹ *United Brands Company and United Brands Continental BV v. Commission of the European Communities* [1978] ECR 207 paragraph 38.

In the TCP/IP world, however, there are no similar arrangements although some commentators have argued for some form of standardised *record of usage* similar to the CDR to help with interconnection payments and to help as a reference model for billing systems as TCP/IP networks and the applications that run over them proliferate⁵². Such a move will no doubt help the position of certain APEC countries who backed Recommendation D.50 in its original form.

Settlements for specialised or general internet traffic would radically alter the Net's current economic model: at present it is generally settlement-free between *backbone* networks, which generally sell connectivity based on *leased-line* capacity rather than *actual usage*, although other models for payment also exist. Variations on forms of settlement, of which some more than others can lead to anti-competitive effects (eg margin squeezing, bundling), include;

- supplier-customer model;
- sender keeps all;
- bilateral settlement;
- multilateral settlement; and
- discounted settlement.

Each of the large global backbones will have their individual peering and transit policies setting out their settlement arrangements. Peering policies for public internet exchanges will usually be made available in the public domain, but private peering and transit agreements will often be subject to non-disclosure provisions. However, most peering and transit agreements share a group of common principles. For example, in a competitive and unregulated market, peering between a global backbone and a smaller backbone, TSP or ISP will generally take place if and only if:

- peering is *cost effective*, which means that the peering policy will contain terms on minimum network-to-port speed, minimum-at-port speeds, minimum

⁵² Lucas M., The IP Detail Record Initiative, , *Billing World*, July/August 1999 pg 30-32.

traffic flow between peers, and a minimum number of route announcements advertised for significant hosts;

- peering distributes both the *costs and benefits* equitably within the geographic coverage of the peering agreement, which means that peers must demonstrate a presence of substantial traffic sources near all points of interconnection, and minimum outbound to inbound ratios of traffic;
- peering provides each of the partners with similar *network infrastructure* with respect to both geographical coverage and network quality, which means that the peers must agree on a minimum aggregate network capacity between interconnect points, a number of diverse interconnects (different cities or different countries or at a minimum agreed essential points of presence), and a manned network operating center that can handle faults reliably;
- peering partners agree on *symmetrical technical rules*, which means the use of similar protocols, filters for non pre-registered routes, do default routes of last resort, and a requirement to only announce their own customer routes
- peering agreements will contain *flexibility* to change peering points when reasonable notice is given, and also violation procedures and corrective measures.⁵³

Given the above, it is easy to see that there are a number of reasons as to why a large backbone operator might impose a *paying transit* agreement on a smaller backbone or TSP or ISP, particularly from a DC or LDC which has little choice in terms of IBPs with whom it can negotiate. The problem is the lack of transparency in peering/transit negotiations given that operators are not required to submit these agreements to NRAs as part of a process of disclosure for regulated interconnection. As stated above, a number of the larger backbones quite often require that peering partners be willing and able to interconnect at a number of geographically diverse locations. If smaller operators fail to meet this peering criteria, a paying transit agreement may be the only option.

Furthermore, backbones may refuse to peer with other ISPs/TSPs/IBPs hosting a high proportion of *content providers* on the grounds that they are bearing the

⁵³ Annexe G (Kariyawasam), DFID Interconnect Costs Report ibid footnote 1.

expense for more capacity than the backbone that is actually hosting the content that utilizes this capacity. Again in these cases a paying transit agreement may be the only option. But are there problems with paying transit? For example, can the imposition of a paying transit arrangement raise any specific anti-competitive concerns or is such an arrangement just simple commercial reality? Having denied peering to smaller backbones, TSPs or ISPs, could global backbones either refuse to provide transit to smaller backbones or *simply increase the cost of transit in order to squeeze out the smaller rivals.*

There are two reasons that this would be unlikely in a competitive backbone market; (a) backbones will often compete with each other to win transit customers, and (b) backbones will compete for the transit business of smaller backbones in order to increase their revenues, *which will keep transit prices down.* Although backbones are unlikely to do themselves out of business by squeezing transit customers out of the industry, that does not mean that cartel type arrangements could not arise between backbones to artificially keep transit prices high.

For example, with conventional voice traffic in telecommunications, it is well understood in the industry that the transit market for traffic does lead to anti-competitive pricing and "cartel" type practices between the large incumbents. There is no reason to suppose, that as the transit market for TCP/IP traffic matures as more and more smaller developing country ISPs and backbones come on-line, that the business practices that we see now in the voice world should not be adopted in the packet-switched world. To quote from an ITU report, which highlights some of the anti-competitive business practices in the market for voice transit:

The lack of transparency in transit traffic is not a sign, as some optimistically claim, of a competitive market working under conditions of confidentiality, but rather of a small number of large players dividing up the market in an oligopolistic manner. Operators in land-locked or remote countries, which rely on transit traffic are unwittingly drawn into a web of silence and deceit in the mistaken belief that they are actually benefiting from secret reductions. But

the real victims are the citizens of these countries, who for too long, have been charged rates which are too high for telephone calls as a result of the operation of the transit cartel.⁵⁴

Taking these points on board, to avoid a transit cartel developing in the TCP/IP world, in a competitive backbone market, transit prices should reflect costs, and should not put entering backbones at a competitive disadvantage. It is this issue of costs, which can cause the greatest problems in terms of anti-competitive concerns for smaller IBPs, TSPs and ISPs, particularly in the developing world, and which is something that regulators must begin to understand.

As such, it is essential that regulators begin to look at the *actual costs* for peering and transit incurred by global backbones and verify whether they reflect the cost issues associated with the technical aspects of peering. The cost base of the backbone will include:

- the cost of routers
- nodes
- cost of customer backhaul (dependant on the number of customers)
- cost for total number of customer facing ports (higher capacity ports have higher costs); and
- the cost of provisioning capacity on network rings (as transit traffic quite often fills up the core network, there is a need to determine the cost for that core network).
- joint and common costs.

The method of cost analysis should also be determined. The current trend by most regulators in telecommunications is to look at the *long run incremental costs* of each of the elements as opposed to taking the historical cost. Therefore, even if there was a specific transparency requirement that operated globally (eg through WTO mechanisms or regionally at the level of the EU, NAFTA and APEC) for example to require global backbones to submit their peering and transit agreements for inspection

⁵⁴ Chapter 6, *Direction of Traffic Report*, ITU, 1999 at: <http://www.itu.int/ITU-D/ict/publications/dot/1999/index.html>, accessed October 2008.

by local NRAs, only by first understanding the costs of the backbones, will the regulators be able to fully appreciate the contractual terms that they find in the agreements.

As backbones begin to evaluate the costs of their actual core networks, they will transpose such costs into their commercial decisions on pricing, as the core network is the future of the backbones' business. In conclusion therefore, if a *transparency requirement* allowed regulators to view backbones' peering and transit agreements, there must also be equivalent *cost accounting and accounting separation requirements* that would allow regulators' access to the cost base of the backbones' network. The IBPs will resist such a move arguing excessive regulatory burden and increased costs for compliance. The WIK Consult Report of 2008 for example does not recommend such obligations. Nevertheless, these provisions look for greater transparency for infrastructure arrangements. It may well be that certain backbones have dominance for the routes where they provide peering and transit, particularly to DCs and LDCs where the number of Internet Exchanges (IXPs) are small (for example only 17 in the whole of the African continent—see Chapter 7), and therefore have the potential to abuse their dominance. For example, for routing arrangements, the terms found in peering and transit agreements can be complex. Each ISP network advertising its routes is assigned an Autonomous System (AS) number. The AS number is included in all IP packet headers, and so is relatively easy to track. IP headers also contain source and destination addresses, allowing tracking of which domains are sending/receiving traffic. For example ASxxxx might refer to the link of A's network between New York and Hong Kong. If A suggests that it intends to peer on this route on a settlement free basis with B, then B may check the traffic patterns on this route and determine that the traffic flowing across the route is so negligible that it does not warrant peering on a settlement free basis. In this case, B may demand to peer on the complete A network, including all of A's more profitable routes and not just the ASxxxx route that A had originally selected. The smaller player A may have no choice in the matter. Therefore A must have a good idea of the traffic flowing across its different peering routes (sometimes called "strings") before entering into negotiations with B, and decide on a bottom-line position on peering routes sought and offered.

There may also be prohibitions on transit traffic. Definitions of transit traffic (sometimes called third party traffic) vary by agreement, but generally transit traffic is defined as *traffic between destinations*, where neither of the destinations is a subscriber (or the customer of a subscriber) of the other party. Limiting transit traffic is important, as excessive traffic will lead to congestion on the network, which in turn will effect the quality of service to existing customers. The only way of limiting transit traffic is to define carefully the class of end-users and customers belonging to each of the negotiating parties to the agreement. However, some backbones may attempt to restrict an ISP's dealings with third party operators in order to either restrict the territorial coverage of that ISP's operations or to prevent competitors from contracting with the ISP. In other words using a transit traffic clause to create an *exclusive dealing* arrangement or a *restrictive trade* practice, both of which could fall foul of conventional competition law principles. But of course without a requirement to lodge the peering or transit agreement with a regulator, such practices remain unregulated.

In a study of internet interconnection, Roseman cites a report produced by China submitted to the ITU Study Group 3 on charging arrangements for internet interconnection:

As China puts it, “ISPs and Internet users outside North America are significantly subsidizing US ISPs and their customers...China calls for .diversification in the settlement system, [in particular] a special policy for the world.s least developed countries in order to prevent global internet development appearing polarized..” This polarization of rich and poor is another expression for the Digital Divide.⁵⁵

In the same paper, Roseman cites a report by the Australian Government:

Tier-1 [IBPs] operating together are in a strong market position, both because of their high number of subscribers in the market and their

⁵⁵ Roseman D., *The Digital Divide and the competitive behaviour of internet backbone providers-a way forward*, 2003, para 39 citing China's report to the ITU: Proposed Changes to ITU-T Recommendation D.50 on New Settlement Principles and Systems for the Internet., ITU Study Group 3, Contribution 16, COM3-16-E, People's Republic of China, April 2002.

ownership of the infrastructure. It is possible that they could be classified jointly as a major supplier.⁵⁶

In a more recent report for the European Commission on the future of IP interconnection in 2008, the WIK Consult Group (in discussing the migration of IBP networks to NGNs) states:

As long as European regulators maintain competition in underlying markets, notably including the consumer broadband market such that most European end-users are able to choose among three or more providers, there is a good likelihood that Network Neutrality will not turn into a noteworthy problem in Europe. Moreover, an overly stringent obligation of non-discrimination obligations could do more harm than good, preventing the evolution of positive service differentiation. Nonetheless, regulators may need to have the authority to intervene for certain kinds of violation of neutrality. The violations that are most worrisome are those that imply economic foreclosure: For example, a network operator blocks or degrades the quality of access to some website that competes with a website affiliated with the network, or blocks access to an independent VoIP service provider who competes with the network operator's own voice services... The one area that we have identified where possible new obligations might prove necessary is in the IP data interconnection used to support voice interconnection, especially at such time as existing switched voice interconnection is withdrawn...⁵⁷

It is important to stress that the WIK authors do not recommend any *mandated* IP interconnection obligation, but they do recommend that NRAs have adequate powers to deal with potential abuse of dominance by SMP operators. We will return to some of the WIK recommendations in Chapter 6 when discussing the Layering Theory. Moving now from specific examples of potential anticompetitive practices that might apply both within a country and regionally between countries, we shall see in the next

⁵⁶ Ibid, para 72 citing *E-Commerce under the GATS: Implications for International Internet Charging, non-paper, Geneva, 2002. Internet Traffic Exchange and the Development of End-to-End International Telecommunications Competition* . Comments on the OECD Research Paper., ITU Study Group 3, Delayed Contribution 22, COM 3-D 22-E, May 2002.

⁵⁷ European Commission, Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, January 2008, p.135.

section, that current regulation at the (multilateral) level of the WTO is presently inadequate to address the market dominance of the global backbones.

4.5 Internet Interconnection under the WTO

Given the panel's potentially wide and far-reaching ruling in *Mexico-Telmex* discussed in Chapter 3, the panel nevertheless did not have to rule on issues in relation to *internet* traffic. The relevant market considered in the case was the termination of international voice calls in Mexico, calls that had originated in the US. These calls were conventional voice calls transmitted over circuit-switched networks. The position might have been very different if the nature of the calls were internet calls or calls transmitted across packet-switched networks. Given the move by telecommunication operators to the transmission production of voice and data calls based on the IP protocol, future cases before the WTO's DSB might very well involve internet calls. In which case, we need to pose the question: what is the relevance to the international trade in telecommunications of the interconnection model under the BTA's Reference Paper to internet networks? For example, what effect would a move to include VoIP as either a voice or a packet-switched data service have on the Specific Commitments of two of the most powerful actors in international telecommunications, either the US or EU to the WTO?⁵⁸ As part of a legal framework for liberalisation, the Reference Paper details additional commitments on regulatory principles, including specific rules on interconnection. Section 2.2, Reference Paper sets out obligations on major suppliers for interconnection.⁵⁹

The coverage of some internet related services, for example internet access services, by the BTA requires clarification. Some members have explicitly scheduled these services, whereas others regard internet access as being covered either by basic or value-added telecommunications commitments. Furthermore when an internet network is defined as a public telecommunications transport service and/or network by a member, the Annex on Telecommunications will apply to access and use of the

⁵⁸ In a statement by the then Director of the WTO's trade in services division, David Hartridge, he stated the urgent need for WTO Member States to clarify their existing WTO agreements, making it clear which sections apply to e-commerce [and the Internet]. See Total Telecom: WTO Director slams dangerous e-commerce ideas (14th July 2000).

⁵⁹ A Major Supplier is defined in the Reference Paper as one who has market power because of: (a) its control over an essential facility; or (b) its position in the market.

network, guaranteeing access and use of the network for any service scheduled as a specific commitment. It is not entirely clear however to what extent this position is accepted by the majority of the WTO membership and whether the Annex ensures access to internet networks and services for service suppliers⁶⁰.

The point of interest is that for the supply of voice or packet-switched data transmission services (i.e. TCP/IP services) for all modes of supply covered under both the US and the EU's Specific Commitments made as part of the BTA negotiations, i.e.: (1) cross-border supply (2) consumption abroad (3) commercial presence and (4) movement of natural persons, both the US and EU Member States (for existing commitments) have placed no restrictions on market access or national treatment.⁶¹ This would mean that if VoIP was classed as either a voice or packet-switched data service, then the interconnection obligations that both the US and EU have decided to accept as an Additional Commitment under their Schedule of Specific Commitments (i.e. the Reference Paper) would apply to all major suppliers of such services in both the US and EU⁶². This in turn would place an obligation on the major suppliers to interconnect with ISPs (including ISPs in developing countries who are member states of the WTO) in accordance with WTO guidelines in the following way:

- At any technically feasible point in the network;
- On non-discriminatory terms, rates and of a quality no less favourable than
- for the incumbent's own supply;

⁶⁰ S/L/74, July 1999.

⁶¹ With certain exceptions however reserved for Luxembourg, Greece, Spain, Ireland and Portugal. See the WTO's Trade in Services paper GATS/SC/31/Suppl.3 11th April 1997.

⁶² But this would depend on whether VoIP (over private networks) or Voice over Internet (over the PSTN) could be classed as a Basic Telecommunications Service or an Enhanced Service. In its latest offer, the US would appear to class VoIP as an information service (see later commentary). The interconnection obligations of the Reference Paper apply only to major suppliers of Basic Telecommunication Services. At present, a debate is raging within the WTO as to whether Internet TCP/IP applications can be rightfully covered by the Reference Paper to the Fourth Protocol (and in effect any of the WTO agreements). The US claims that Internet services are covered by WTO agreements, particularly the Annex on Telecommunications, as they would like to see other services, such as distribution and financial services, that can be integrated into telecommunications network transactions included in the offers of other Member States as part of the Doha negotiations. Certainly under the EU's Schedule of Specific Commitments to the WTO, the Reference Paper does cover packet-switched data services, which would include TCP/IP services.

- In a timely fashion and on terms that are transparent and reasonable;
- At cost-orientated rates; and
- On an unbundled basis so that a buyer does not pay for unnecessary services.

This obligation to interconnect by a major supplier would benefit any Internet Service Provider (ISP) providing public telecommunications transport networks or services. The transparency obligation in particular when applied to negotiations between large global Internet Backbone Providers (IBPs) and smaller ISPs, where the larger IBP is found to be a major supplier, would undermine the current industry practice of the IBP requiring negotiations to be governed by a non-disclosure agreement.

In other words, IBPs who are classed as major suppliers could be required to ‘come clean’ with their terms on peering and transit (interconnection agreements used for packet-switched networks). In addition, an ISP with third-country stakeholders could threaten to complain to the WTO if the IBP refuses to structure its peering arrangements on non-discriminatory terms with all its downstream customers, regardless of whether or not those customers are the IBP's own affiliates. The upshot of this would be that an IBP would no longer be able to give preferential terms for peering to its own downstream affiliates. Such a position could have major implications for US IBPs' revenue streams.

Interestingly however, in the offer it made to the Doha negotiations⁶³, the United States classified packet-switched services as *information services* (packet-switched information services) without any reference to the UNCPC coding system discussed earlier. Under the US Telecommunication Act 1996, information services are *not* classed as telecommunication services and can therefore not be regulated as basic telecommunication services. Furthermore, VoIP services under US law are also currently classed as information services⁶⁴. The Reference Paper only applies to basic telecommunication services. It would appear therefore that the US in classifying packet-switched services as information services has moved the regulation of these services away from regulatory capture by the Reference Paper (with its strict

⁶³ TN/S/O/USA, April 2003.

⁶⁴ See section on *VoIP* in Chapter 3.

interconnection obligations) and under the capture of the Annexe on Telecommunications (which catches only those services that have been scheduled as specific commitments).

The obligation to interconnect on non-discriminatory and transparent terms would only appear to cover all major suppliers under the Reference Paper. The term 'major supplier' is of course defined in the Reference Paper as one who has control of an essential facility and is able to use its position in the market to influence competition and price. This definition follows competition law principles, but there is an important difference between the WTO's definition of "major supplier" and the term 'dominance' used by the European Commission as its new threshold for Significant Market Power (SMP) under the EC's Framework Directive⁶⁵ (discussed in Chapter 5).

It is quite clear that the WTO's major supplier term refers to the concept of ownership of an essential facility, which would seem to cover only those operators who were 'super-dominant'⁶⁶, whereas the term for 'dominance' used by the Commission in the Framework Directive is based on an economic analysis test,⁶⁷ where dominance could include any operator who could consistently keep prices high independently of competitors regardless of whether or not that operator owned an essential facility.⁶⁸

Also, the WTO's definition of major supplier refers to an operator's "position on the market". This is fairly vague wording and it is not entirely clear whether such a definition would in competition law terms fall squarely within the definition for SMP (dominance) as used by the Commission. It may be that this distinction between 'major supplier' under the WTO Reference Paper, and "dominance" under the EC's New Regulatory Framework (discussed in Chapter 5), will become crucially

⁶⁵ Directive 2002/21/EC.

⁶⁶ This would be particularly relevant given the high threshold test for the interpretation of an 'essential facility' given by the European Court of Justice in the case of *Oscar Bronner v. Mediaprint* Case C-7/97 (1998).

⁶⁷ The definition for dominance under Community case law was originally seen in Case 27/76 *United Brands vs Commission* ECR (1978).

⁶⁸ However in the earlier version of the draft Framework Directive, the Working Paper on a new regulatory framework published by the Commission in April 2000, the term for dominance included a reference to an essential facility. Following criticisms that the Commission was trying to create a new level of 'super-dominance' that would catch only those operators who would have enjoyed special or exclusive rights before the European 1998 telecommunications liberalisation watershed (Full market liberalization: Council Resolution 1994 OJ C 379/4 sets target date for 1st January 1998 for removal of special and exclusive rights of European telecommunications operators).

important as regulators become more experienced with anti-competitive practices arising in the new TCI/IP markets.

4.6 ITU Recommendation D.50 and the APEC Principles

Effective Internet interconnection is heavily dependant on gaining access to the bare infrastructure in the first place. The bare infrastructure will consist mainly of access to international leased lines (IPLCs). There has in recent years been fierce debate as to which operators should bear the cost of the international leased line to and from third countries to the United States, where the third country hosts a substantial amount of content in the US or hubs a substantial amount of data traffic through US servers. Following the APEC Cancun Ministerial Statement in the spring of 2000, there has been extensive international debate of the principle of “appropriate mutual compensation” for the use of internet resources. Relevant work continues in various public industry fora, and in closed commercial circles. The most vocal proponents of mandated cost-sharing have been the relatively developed Asian economies, plus Australia. The major telecommunications carriers in these countries, such as Singapore Telecom and VNSL in India are all vying to become major internet traffic hubs. They see sharing the costs of international connections as a necessary step towards putting their cost bases on a more even footing with those of the USA⁶⁹. The less developed Asian economies recognise that they would not have much to gain from traffic-based cost-sharing in the short term, because the direction of traffic is strongly asymmetric towards them⁷⁰. VoIP could change this picture in that traffic flow will be bi-directional as opposed to traffic generated from requests to access websites, which is more unidirectional. This would mean a lot more traffic being carried by Asian operators out to US hubs reinforcing the argument for a more balanced division of infrastructure costs between Asian ISPs and US backbone operators (currently titled in favour of the US market players).

Activities surrounding this issue seem to have shifted from debate towards practical implementation with the increasing role of commercial negotiators advancing internet

⁶⁹ See the research report produced for the UK’s Department for International Development and co-authored by the Author on *Reducing the costs for internet access for developing countries* 2001, at: <http://www.wesra.com/cost1.htm>.

⁷⁰ As the biggest part of the traffic is Web pages downloaded from the USA to the developing country.

interconnection arrangements. The proposed role of central authorities seems to have shrunk to one of possible competition law enforcement, should infringements be found.

Traffic-based interconnect has already been introduced between major operators for certain services for commercial reasons (for example, global mobile roaming and VoIP). This is not a trivial step, as it entails measuring traffic and assessing its type, source, and/or destination. Once implemented, these techniques may also be applicable to general internet traffic exchange.

The ITU debated this issue at the World Telecommunication Standardization Assembly 2000 (WTSA 2000). At the assembly, the United States voiced strong objections over the purpose of mutual charging arrangements, warning that it could have an adverse effect on the successful development of the internet. In the WTO, Australia and Chinese Taipei have proposed that where there are dominant players or de facto monopolies, members must play a role in promoting fair competition⁷¹. Colombia has called for the elimination of barriers to access specifically the high interconnection tariffs that backbone ISPs charge for connection to international backbone networks⁷². Mexico has called for internet interconnection principles to encourage the use of the internet for economic development⁷³. *Internet charging arrangements* between providers of network services should be commercially negotiated and, among other issues, reflect:

- (a) The contribution of each network to the communication;
- (b) the use by each party of the interconnected network resources; and
- (c) the end-to-end costs of international transport link capacity.

APEC eventually adopted these provisions at Cancun. The ITU in *Recommendation D.50* adopted a more diluted approach at Montreal in October 2000:

⁷¹ S/CSS/W/17, December 2000.

⁷² GATS Council-Special Session, Communication from Colombia, Telecommunications Services, S/CSS/W/119, November 2001.

⁷³ GATS Council-Special Session, Communication from Mexico, Telecommunications Services, S/CSS/W/101, July 2001.

That administrations involved in the provision of international internet connections negotiate and agree to bilateral commercial arrangements enabling direct international internet interconnections that take into account the possible need for compensation between them for the value of the elements such as traffic flow, number of routes, geographical coverage and cost of international transmission amongst others.⁷⁴

In December 2000, a decision was reached in an ITU-T study subgroup to implement Recommendation D.50 on a global basis.

4.7 Conclusion

It is still too early to determine the effect of the APEC provisions or the ITU's Recommendation D.50 on international internet communications. An ITU Study Group (Study Group 3) followed up the recommendation with research on internet interconnection eventually producing a set of guidelines to go with the Recommendation D.50 and which were adopted by the ITU in June 2004. The guidelines include supporting the need for traffic aggregation at local and regional exchanges to reduce the volume of internet traffic being hubbed abroad (usually in the US). The World Summit on the Information Society (WSIS) discussed in Chapter 7 (Developing Countries) has also reviewed the position of DCs and LDCs and internet interconnection costs and has called for funding to enhance connectivity and the creation of internet exchanges. This kind of infrastructure development may be well suited to private sector initiatives as part of the WTO/World Bank's *Aid For Trade* (AfT) program. At this stage, implementation will be at the commercial rather than regulatory level, and if commercial, then will depend entirely on the bargaining positions of the parties concerned. The position of developing countries under the APEC rules and ITU Recommendation D.50 is discussed more fully in Chapter 7 (Developing Countries and Telecommunications).

⁷⁴ ITU Recommendation D.50 available on the ITU website at www.itu.org.

This chapter has demonstrated the potential for anticompetitive practices by large backbones when negotiating peering and transit agreements with smaller ISPs. Whether the backbone is an international gateway provider providing for international connectivity between countries or whether the backbone exists within a country providing connectivity between regions, there is clear potential as we have seen for the backbone to abuse its dominant position. In DCs/LDCs, IBPs do have incentives to peer with the equally large internet subsidiaries of state controlled telecommunication incumbents, but equally as this chapter makes, such IBPs also have incentives not to peer with smaller downstream DC/LDC ISPs and to require transit terms that are not negotiated on a transparent, non-discriminatory and cost-oriented basis. The lack of IXP exchanges in Africa for example only consolidates the problem.

Also, we have seen the emergence of differentiated pricing in the United States and the response to this by content providers, such as *Google*, *Microsoft* and *Skype* for a 'net neutrality' model. The content providers fear a two-tier internet developing with higher costs for interconnection, and particularly access, resulting. The most recent report on internet interconnection by WIK Consult for the European Commission in 2008 has argued that no mandated interconnection obligation for IP is necessary (at least by the European Commission), and neither is there a need for specific regulations to ensure net neutrality. Nevertheless the WIK Consult authors do recommend that NRAs are vigilant in checking for potential foreclosure of competition by operators with SMP. The problem is to determine SMP in new and sophisticated NGN markets. It is this very problem of defining SMP that the Layering Theory set out in Chapter 6 is concerned.

Also it is important to note that the WIK authors excluded a discussion of access in their report. The rise of differentiated charging, the lack of IXP exchanges in DCs and LDCs together with a concentration of a limited number of IBPs on international routes spells continuing problems for DCs and LDCs. For example in Kenya, a recent OECD report states:

...that the primary role of an IXP is to keep local traffic local and reduce costs associated with traffic exchange between Internet Service Providers (ISPs). In

many developing countries, poor connectivity between ISPs often results in the routing of local traffic over expensive international links simply to reach destinations within the country of origin. In some countries, government regulations require that independently operated ISPs transit their traffic through the incumbent telecommunications operator. Both of these scenarios can place additional costs on ISPs. Mr. Mwangi explained, for example, that prior to the establishment of the Kenyan Internet exchange point (KIXP), ISPs were required to connect through the incumbent operator which bundled transit prices for both local and international traffic. As a result, local traffic was billed to the originating ISP at the same expensive international transit rates.⁷⁵

The problem of IXP exchanges in Africa is discussed more in Chapter 7. The Layering Theory, if implemented through OSI Layer 5-7 packet filtering technology being put in place at each IXP exchange with the corresponding data being made available to a locally trained NRA (both through an effective program of technology transfer—discussed in Chapter 8) could help address the market distortions described in the citation above. The Layering Theory is based on aspects of the EU’s new regulatory framework (discussed in the next Chapter 5), an understanding of which is first required before discussing the theory in full in Chapter 6. The author argues in Chapter 6 that the EU law-based theory could form a useful precedent for DCs and LDCs for future regulation of NGNs. The practical relevance for the Layering Theory to DCs and LDCs is then set out more fully in Chapter 7.

⁷⁵ Internet Exchange Points: Lowering costs and promoting internet development, African realities and the Kenyan experience at: <http://www.oecd.org/dataoecd/32/15/43759912.pdf>, accessed April 2012.

CHAPTER 5

OVERVIEW OF THE EUROPEAN REGULATORY FRAMEWORK FOR ELECTRONIC COMMUNICATIONS MARKETS¹

5.1 Introduction

It is very clear that the advent of digital networks and the increasing power and capacity of microchip technology has given rise to a vast new range of electronic services: And with the rise of such services, the emergence of new corporate relationships between operators at different levels of the delivery chain. Recently, Nokia, the mobile telephone manufacturer signed an agreement with the software giant Microsoft, and the US music download service provider, Loudeye, that will allow users to download music and ringtones to Nokia handsets equipped with Microsoft's digital music playing software². The company has also announced a range of handsets that will compete both with the digital camera market and Apple's *iPod* MP3 player³. Regulators are always playing catch-up with technology, and although the European Commission has put in place an excellent and far-reaching regulatory framework for regulating electronic communications networks and services, which seeks to separate the regulation of digital content from the digital networks that carry the content, and applying the principles of technological neutrality that seek to embrace both elements of competition law and sector-specific regulation⁴, the question remains as to whether this new framework will remain adequate to deal with the complex range of protocols, layers, and applications that constitute such new services. Regulators are used to dealing with *single-application* networks, but increasingly face the challenge of *multi-application* networks. For example, one of the main problems that judges had in the *Microsoft* case, where the major concern was the leveraging of monopoly power from the Intel-compatible PC operating system market

¹ A version of this chapter has been published in the monograph by Kariyawasam R., *International Economic Law and the Digital Divide: A New Silk Road?* Edward Elgar, 2007.

² See BBC news release: Nokia announces Microsoft tie-up (February 2005) at <http://news.bbc.co.uk/1/hi/business/4264161.stm>, accessed April 2005.

³ See BBC news release: Nokia offers new range of phones (April 2005) at <http://news.bbc.co.uk/1/hi/technology/4489485.stm>, accessed April 2005.

⁴ Which would draw on jurisprudence from the European Court of First Instance and European Court of Justice, together with cases decided by the European Commission itself.

into the internet browser market, was *first* being able to determine the relevant market, and *then* being able to measure market power within that market⁵. Also in a different case involving Sun Microsystems and Microsoft, where Sun sued Microsoft in an attempt to prevent the capturing of the open standard of *Java*, and turning it into a closed standard, Sun failed to establish any antitrust claim because the Court of Appeals in applying standard competition analysis found that there could be no market distortion in the absence of a strict market definition, as a prerequisite to identifying any market distortion is a clear definition of the relevant market⁶. By contrast, the Federal Communications Commission (FCC) in the United States has laboured with the distinction between an *information service* and a *telecommunication service* that has created disparities in regulating different communication sub-sectors, such as the cable and Digital Subscriber Line (DSL) networks, resulting in costly litigation and regulatory uncertainty.

This chapter looks briefly at the EU regulatory framework for telecommunications. By doing so, the Author attempts to put in place the basic principles required to understand the more detailed *Layering Theory* that the Author discusses in Chapter 6. Chapter 6 looks briefly at US regulatory principles and also reviews a growing body of academic thought that seeks to apply a *Layered Policy Model* for regulating a new generation of packet-switched networks that draws its origins from computer science theory. Chapter 6 then discusses how the Layered Policy Model might be adapted in the form of a new Layering Theory that could be applied to multilateral instruments, such as the WTO's Annex on Telecommunications and particularly the regulatory Reference Paper. The advantages of adopting a layered approach to regulation at the multilateral level for DCs and LDCs are more fully explored in Chapter 7. In this chapter (Chapter 5), the Author starts with a brief review of the EC's consultation with industry and regulators in Europe, which led to the introduction of a new regulatory framework for electronic networks and services that came into force in July 2003. The chapter discusses the main objectives of the new regulatory framework, the instruments in the form of the directives that the European Commission used to bring

⁵ *United States of America v. Microsoft Corporation* (364 U.S. App D.C. 330), and also the *Microsoft Case* COMP/C-3/37.792, 2001/462/EC, ECSC, OJ L162, 19.06.200. Under US law, the question of market definition arises in US antitrust actions under Section 2 of the Sherman Act and section 7 of the amended Clayton Act involving mergers.

⁶ See section 4.3.1 below.

the new framework into force, the basic structure of the framework, and key issues, including for example a new test of significant market power in the form of dominance.

5.2 The European Commission's (EC's) new regulatory framework for electronic networks and services ("New Framework")

The New Framework built on earlier consultations with European industry and regulators as part of the 1999 Communications Review: the New Framework was the genesis of this earlier work. The Communications Review highlighted the plethora of directives, recommendations, notices that existed in the communications sector and which provided regulatory overload.

5.2.1 Objectives

The main objective of the New Framework was to streamline European policy instruments into five basic directives that would cover both the wholesale and retail sector (universal service and privacy). At the heart of the New Framework would be an engine working on both competition and *ex-ante* (sector specific) drivers that would lift the regulatory burden on operators, leaving them free to operate in markets where effective competition was proven to be in place. In line with the EC's previous regulatory policy, the regulation of content was strictly separated from the regulation of infrastructure, although the New Framework was to cover the emerging broadband networks based on the Transmission Control Protocol/Internet Protocol (TCP/IP)⁷, including wireless, conditional access, and broadcasting systems.

5.2.2 Instruments

With the objectives discussed above in mind, a new regulatory package including one Framework Directive⁸ and three directives on access, authorisations, and universal service respectively was adopted by the Commission in July 2002⁹. A few months

⁷ Defined in Chapter 2.

⁸ Directive 2002/21/EC "on a common regulatory framework for electronic communications networks and services", Framework Directive, OJ L 108/33, 24.4.2002.

⁹ Directive 2002/19/EC "on access to, and interconnection of, electronic communication networks and associated facilities", Access Directive, OJ L108/7, 24.4.2002; Directive 2002/20/EC "on the

later, directives on privacy¹⁰ and competition¹¹ were adopted. All new directives came into force in July 2003. The directives are meant to be technologically neutral in that no distinction is to be made between an internet and any other type of network. The new framework now refers to “electronic communications” and not “telecommunications”, and the same principles apply regardless of which kind of technology is used. So for instance, an “electronic communications network” is defined at Article 2 Framework Directive as:

transmission systems, and where applicable, switching or routing equipment and other resources which permit the conveyance of signals by wire, by radio, by optical or by other electromagnetic means, including satellite networks, fixed (circuit-and packet-switched, including Internet) and mobile terrestrial networks, electricity cable systems, to the extent that they are used for the purpose of transmitting signals, networks used for radio and television broadcasting, and cable television networks, irrespective of the type of information conveyed.

Similarly, an electronic communications service is defined under the same Article as:

a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, including telecommunication services and transmission services in networks used for broadcasting, but exclude services providing, or exercising editorial control over, content transmitted using electronic communications networks and services; it does not include information society services, as defined in Article 1 of Directive 98/34/EC¹², which do not consist wholly or mainly in the conveyance of signals on electronic communications networks.

The Framework Directive makes a distinction between an *electronic communication* service and an *information society* service. Recital 10 of the Framework Directive makes clear that electronic mail conveyance and voice telephony are in the scope of

authorisation of electronic communications networks and services”, Authorisation Directive, OJ L108/21, 24.4.2002; Directive 2002/22/EC “on universal service and users’ rights relating to electronic communications networks and services”, Universal Service Directive, OJ L108/51, 24.4.2002.

¹⁰ Directive 2002/58/EC “concerning the processing of personal data and the protection of privacy in the electronic communications sector”, OJ L201/37, 31.7.2002.

¹¹ Directive 2002/77/EC “on competition in the markets for electronic communications networks and services”, OJ L249/21, 17.9.2002.

¹² Directive 98/34/EC “laying down a procedure for the provision of information in the field of technical standards and regulations” OJ L204/37, 21.7.1998 as amended by Directive 98/48/EC.

the definition of an electronic communications service, but the hosting of web-based content for example, is not. Nevertheless, it is not entirely clear from Recital 10 exactly which information society services are to be excluded from the definition of an electronic communications service. In this way, the New Framework also suffers from a lack of a clear distinction found in the US Telecommunications Act 1996, when distinguishing between an information service and a telecommunications service (discussed in Chapter 6).

5.2.3 Significant Market Power

Another important aspect of the EC's New Framework is the new definition of *Significant Market Power* (SMP), akin to a position of dominance as defined by EC competition jurisprudence¹³, and adopted by the Commission at Article 14(2) Framework Directive. This provision was introduced earlier in Chapter 3. The importance of an operator being designated as having SMP by a regulator (and following the procedures for conducting a market analysis set out under Articles 15 and 16 Framework Directive) is twofold: (a) the finding of an undertaking with SMP on a relevant market indicates (according to the Framework Directive), that *effective competition* does not exist in that market; and (b) *ex-ante* obligations, such as pricing obligations, might be imposed on an undertaking found to have SMP¹⁴. In this way, the Commission quite effectively merges both the use of conventional competition type procedures (defining a relevant market) with *ex-ante* (sector-specific) measures. To assist in the definition of markets, the Commission has also published a set of guidelines¹⁵ on SMP together with a revised Recommendation on relevant products and service markets within the electronic communications sector adopted in 2007¹⁶.

¹³ Specifically *United Brands Co. v. Commission*, Case 27/76, [1978] ECR 207.

¹⁴ Except for the special cases listed in Article 8(3) Access Directive.

¹⁵ Guidelines of the Commission "on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services", OJ C 165/6, 11.7.2002.

¹⁶ Commission Recommendation "on relevant product and service markets within the electronic communications sector susceptible to ex-ante regulation accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services", OJ L114/45, 8.5.2003. This Recommendation was revised in 2007, C(2007) 5406 rev 1. See Chapter 6, section 6.4 (*The Layering Theory and SMP Reinterpreted*) below for a discussion of the revised Recommendation.

Another important aspect of the New Framework is the Commission's thinking on access. There has long been a subtle distinction between the right to *interconnect* and the right of *access* in European telecommunications policy. The precursor to the Access Directive was the Interconnection Directive 97/33 (ICD)(now annulled), one of the Directives that fell under the Commission's Open Network Provision (ONP)¹⁷. Under the ICD, the Commission set out a mandatory right to interconnect to a providing operator's network for those requesting operators who fell into Annex II of the Directive¹⁸, where the providing operator had SMP¹⁹. However SMP operators were only required to meet all reasonable requests for access²⁰.

The Commission soon discovered however through its consultation with industry and regulators as part of the 1999 Communications Review, that access was proving to be the subject of many complaints to national regulators under both domestic telecommunications and competition law. Access, of course, is in many respects as important as interconnection in that it provides access to infrastructure for those service providers who do not own infrastructure of their own, but also because of the *network effects* generated by the access granted²¹. In the Communication Review, the Commission also recognised the difference between interconnection and access: while access to a network or facility is required to establish a commercial relation with the other network's customer, in interconnection there is no direct commercial

¹⁷ Other directives included the Leased Lines Directive 92/44, the Licensing Directive 97/13, and the Revised Voice Telephony Directive 98/10. All these directives have now been replaced with the New Framework of directives.

¹⁸ Article 4(1) Interconnection Directive 97/33 (now repealed). Basically any operator who was licensed and controlled the means of access to one or more network termination points identified by unique numbers in the national numbering plan. There was uncertainty at the time whether this definition included Internet Service Providers, and therefore whether ISPs could claim interconnection rights, as ISPs controlled IP addresses and not numbers in the national numbering plan. However, ISPs argued that they were controlling access by having IP addresses allocated in accordance with a global addressing scheme. As such, some European Member States, including the UK and Germany allowed certain ISPs to fall into Annex II and claim interconnection rights.

¹⁹ Defined differently to the concept of SMP under the New Framework. The Interconnection Directive at Article 4(3) defined SMP if an undertaking had a market share in excess of 25% in the markets defined in an Annex to the Directive (in summary, markets for fixed and mobile public network services, interconnection services, and leased lines). The SMP test has now been replaced with a new concept of SMP akin to dominance (40%) as defined in Article 14(2) Framework Directive.

²⁰ Article 4(2) Interconnection Directive imposed on SMP operators to meet all reasonable access requests in accordance with the principles of (non-discrimination, transparency, cost-orientation, unbundled charges, reference interconnection offer) set out in Articles 6 and 7 Interconnection Directive.

²¹ Koenig C. and Loetz S., "Framework for Network Access and Interconnection", in Koenig C, Bartosch A., and Braun J.D (eds) *EC Competition and Telecommunications Law*, Kluwer Law International 2002, p.365.

relationship between the called customer and the provider requesting interconnection²². The Commission defines Access at Article 2 Access Directive as:

access means the making available of facilities and/or services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis for the purpose of providing electronic communications services.

Interconnection is defined at Article 2 Access Directive as:

the physical and logical linking of public communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access services provided by another undertaking. Services may be provided by the parties involved or other parties who have access to the network. Interconnection is a specific type of access implemented between public network operators.

Given the increased significance of access by third party operators to an incumbent's network, particularly access to digital networks based on the TCP/IP protocol, the Commission also included at Article 12 Access Directive a much more powerful provision on access which would give regulators greater discretion to intervene on access disputes, and if necessary, impose access controls on undertakings, even in the absence of Significant Market Power. The first paragraph of Article 12 sets out that National Regulatory Authorities may require operators "to meet reasonable requests for access to and, use of specific network elements and associated facilities". Article 12(1) Access Directive then sets out a list of possible obligations including:

- providing access to networks and facilities;
- unbundled access to the local loop;
- not withdrawing any existing supply of access;

²² *Towards a New Framework for Electronic Communications Infrastructure and Associated Services: The 1999 Communications Review*, COM(1999)539, p.25-26.

- providing open access to technical interfaces, middleware, protocols or other key technologies that are indispensable for the interoperability of services or virtual network services; and
- sharing physical facilities and providing co-location.

Article 12 clearly recognises the significance of the new TCP/IP protocol as the basic transmission production standard of all modern packet-switched networks and attempts to put in place an access regime that can deal with the many services and applications that could run over such networks. The Article recognises that software just as much as hardware can function as an access bottleneck, and gives the regulator wide powers to deal with distortions on competition arising from such bottlenecks. However, it can be argued that even the far reaching provisions on access defined at Article 12 Access Directive may not be sufficient in dealing with the range of access issues that can arise with IP-based networks, particularly where a service consists of different Component Parts, with each component operating at a different level of the TCP/IP Protocol Stack.

5.3 Conclusion

As digital services become more complex with an intricate mix of protocols operating at different service and infrastructure layers (some through software and some through hardware), and with differentiated charging being introduced by network operators (in conflict with then ‘net neutrality’ principle discussed in Chapter 4), being able to define the relevant market for a particular service will become increasingly complex. Regulators risk facing an uphill struggle, and as Denton aptly states: “Telecommunications policy makers are thus experts at regulating *single application networks*. Since the advent of packet-networks, the job of the regulator has become much more complicated as networks are no longer limited to one application.”²³ The internet has made the new environment for the trade in digital services much more complex, as protocols are stacked one on top of the other. As such, regulators need to take account of the arrangements of telecommunication operators with their competitors at Layers above that of the physical connection of

²³ Denton T., *Protocol interfaces are the new bottlenecks: What the Internet means for telecom regulation* at www.tmdenton.com, date accessed November 2004, p. 10.

devices and examine the competition implications of the software by which the applications that run over telecommunication networks operate.

In January 2008, WIK Consult produced a report for the European Commission on the future of IP (internet protocol) interconnection. The Authors to that report said:

A number of technological and market developments pose challenges to IP-based interconnection, and to traditional interconnection in the fixed (PSTN) and mobile (PLMN) networks as well. Notably, these networks are physically and logically converging to IP-based Next Generation Networks (NGNs). Interconnection arrangements for switched PSTN/PLMN networks have been markedly different than those for IP networks, not only at a technical level, but also in terms of associated regulatory obligations. The convergence of these networks raises difficult questions as to how interconnection should be regulated going forward.²⁴

The report's authors argue that those operators who offer IP interconnect services with SMP might be in a position to degrade the quality of service or interconnection standard in order to thwart competition. They suggest that existing remedies under EU law should be sufficient, although state that, 'We do not advocate an interconnection obligation as regards IP data traffic in general, and we do not see a need to mandate any-to-any peering; however NRAs must be able to intervene if interconnection breaks down, especially where this is a manifestation of some form of market power.'²⁵

The report is restricted to IP interconnection only and does not discuss the problem of access to IP networks (interconnection being a specific example of the much broader right to access—discussed in Chapter 5). But it is this problem of access that is important. In the *1999 Communications Review* completed by the European Commission²⁶, the Commission found just as many problems with access issues as

²⁴ Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, a study for the European Commission, January 2008, p.9.

²⁵ Ibid.

²⁶ *Towards a New Framework for Electronic Communications Infrastructure and Associated Services: The 1999 Communications Review*, COM(1999)539, p.25-26.

with interconnection (albeit in the circuit-switched world). For this reason, the Commission put in place Article 12 of the Access & Interconnection Directive discussed above.²⁷ Article 12 clearly recognises the significance of the new TCP/IP protocol as the basic transmission production standard of all modern packet-switched networks. However, even Article 12 Access Directive may not be sufficient in dealing with the range of access issues that can arise with IP-based networks.

In this regard, the Author explores a new way of looking at regulating complex digital networks that seeks to apply a layered approach to regulation, and proposing a new Layering Theory for increasing transparency and accurately assessing market power, which is discussed in the next chapter (Chapter 6).

²⁷ Directive 2002/19/EC “on access to, and interconnection of, electronic communication networks and associated facilities”, Access Directive, OJ L108/7, 24.4.2002.

CHAPTER 6¹

A NEW LAYERING THEORY FOR REGULATING COMMUNICATIONS NETWORKS AND SERVICES?

6.1 Introduction

Chapter 4 reviewed the potential for IBPs with dominance to abuse their positions of dominance. By nature of the structure of the internet, and a lack of effective competition and availability of internet infrastructure in their own markets, DC and LDC ISPs are often forced to obtain routes and interconnect at IXP exchanges in the developed world. The implications for DCs and LDCs were clear in that smaller ISPs in these developing countries could face potential anticompetitive practices both at network access points in the developing *and* developed worlds unless NRAs are in a position to intervene, if necessary. Also we saw in Chapter 4 that even in developed markets, such as the European Market, the authors of the most recent report to the European Commission on IP interconnection in 2008, WIK Consult, warned of the dangers of NGN operators with SMP potentially foreclosing competition on interconnection with their networks. Although the WIK Consult authors have not called for mandatory IP interconnection obligations, they have called for NRAs to be vigilant in checking for abuse of operators with SMP. The problem is off course, that in a new era of NGNs and services, and with IPv6 replacing IPv4 in 2010/2011 (discussed later in this chapter) and a plethora of new TCP/IP services and NGNs becoming available worldwide, are NRAs in a position to define relevant markets accurately enough to measure for dominance? The Author argues at Section 6.3.3 that current assessment of market definition by the EC in internet cases is flawed and that market definition in NGN markets will become even more problematical. The Author argues that the Layering Theory, discussed in this chapter, will address the problem of market definition in the NGN sector. Further, that the theory could be of great benefit to DCs and LDCs not only in improving effective competition in their own markets

¹ A version of this chapter has been published in the monograph by Kariyawasam R., *International Economic Law and the Digital Divide: A New Silk Road?* Edward Elgar, 2007.

(by helping local ISPs take on the large dominant monopolists in their own regions and subject to the Layering Theory being implemented into local laws and then *enforced*), but also by ensuring that NRAs in developed countries are in a position to guarantee developing country ISPs non-discriminatory access should DC/LDC ISPs complain of IBPs at IXP exchanges in the developed world not granting non-discriminatory access and interconnection.

Most DCs and LDCs look either to the US or EU systems of law for guidance on the regulation of telecommunications (and increasingly internet) networks and services. Many DCs and LDCs view the European regulatory framework for electronic networks and services positively given the problems that the US market has had with the collapse of its DSL sector, the conflict with cable, and with regulatory uncertainty over internet services (discussed in Chapter 4). There are problems with US law, particularly its asymmetrical and ‘silo’ structure on defining telecommunications and internet services. It is for this reason and to show how the Layering Theory moves away from this ‘silo’ structure that US law is briefly discussed. By contrast, the European model is highly attractive. For example, one of the largest markets for telecommunications in the world, China, is currently reviewing its own regulatory framework with the European model in mind. Furthermore, with financial assistance for the amendment of local laws in developing country states by the World Bank, WTO or UNCTAD, it might be possible to envisage the European test of SMP being adopted as a precedent for operators with market power in the regulatory frameworks for NGNs and services in DC and LDC markets in time to come.

In summary, this chapter argues that the Layering Theory can help address the Digital Divide in two main ways by: (a) enhancing effective competition in NGNs and services in Europe by ensuring non-discriminatory access by DC and LDC ISPs to IXP exchanges in Europe (achieved through implementing the Layering Theory in EC law); and (b) enhancing effective competition in world markets for NGNs and services so that DC and LDC ISPs can gain access to *any* IXP exchange in *any* OECD member market (subject to scheduled member GATS commitments) through effective enforcement of interconnection obligations of the WTO’s Reference Paper (achieved through implementing the Layering Theory as an additional commitment in the form of a revised Reference Paper at the WTO).

There is a third way, connected to the discussion of the Layering Theory in this chapter, but more fully elaborated in Chapters 7 and 8 that follow. These chapters show how effective competition can be enhanced in local domestic DC and LDC markets by ensuring ISP non-discriminatory access and interconnection (by way of the Layering Theory) to IBP and local monopolist networks at IXP exchanges in developing country markets (Chapter 7), which in turn can be achieved through implementing the Layering Theory as part of a program of technology transfer and technical assistance through enforcement of developed country obligations under Article 66 TRIPS (Chapter 8).

6.2 The Layered Policy Model

The idea of a Layered policy approach to regulating telecommunications has been discussed by several US authors in different ways, for example, Werbach², Denton³, and Frieden⁴, but further developed by Sicker and Mindel⁵. The Author builds on the work of these Authors by putting forward a new Layering Theory for the regulation of complex digital networks, which seeks to more accurately identify those operators having actual market power. In doing so, the Author argues, National Regulatory Authorities (NRAs) and/or National Competition Authorities (NCAs) acting under principles of concurrency will be able to accurately impose either sector-specific measures or competition measures to adequately regulate for effective competition. The Author argues that one important by-product of that process for DCs and LDCs interested in exporting electronic services and network products to developed countries by way of digital networks, would be greater transparency and non-discrimination in third country operator access to the international backbone networks that can then provide the infrastructure to deliver electronic goods and services to developed (mainly OECD) country markets (discussed in Chapter 7). Also this

² Werbach K., *A Layered Model for Internet Policy, The Regulation of Information Platforms*, J.Telecomm & High Tech. Law, 2002.

³ Denton T., *Protocol interfaces are the new bottlenecks: What the Internet means for telecom regulation* at www.tmdenton.com, date accessed November 2004.

⁴ Frieden R., *Adjusting the Horizontal and Vertical in Telecommunications Regulation: A Comparison of the Traditional and a New Layered Approach*, Penn State University, 2002.

⁵ Sicker C.D., *Further Defining a Layered Model for Telecommunications Policy*, Paper of the Department of Interdisciplinary Telecommunications, Department of Computer Science, University of Colorado at Boulder, January 2001.

enhanced access works both ways, enabling operators and content providers in developed economies to provide more efficient services into DC/LDC markets. In developing the argument, the Author starts with the framework for telecommunications regulation in the United States, but with its inherent problems of asymmetry, moves quickly to the European Commission's model as the basis for the Layering Theory.

6.2.1 The United States

In the United States, under the Telecommunications Act 1996 (the "Act"), the "silo model" for regulation of telecommunications applies in that each title of the Act imposes regulatory conditions based on the type of infrastructure on which a telecommunications service is offered. So for example, Title II Act regulates wireline telephone networks as common carriers, Title III regulates wireless networks, and Title IV regulates cable networks. However because of the move to the IP protocol as the basic transmission production standard for packet-switched networks, voice, audio, and video as packetized service can now travel over any digital network. The effect of this (in the United States) has been to cause asymmetry of regulation over the different modes of transport, for example broadband services for residential and for small businesses provided by Digital Subscriber Loop (DSL) technologies over the PSTN are required to be unbundled, whereas broadband services provided by cable modems over HFC cable networks operated primarily by pay TV operators are not⁶. Frieden discusses this asymmetrical approach very coherently arguing that:

[The Federal Communications] Commission deems telephone company provided broadband access a telecommunications service, but it has strongly indicated the desire to convert the classification of these offerings into the information services category. Such a flip in vertical food chains evidences how inflexible and unworkable the definitions have become, particularly

⁶ Hausman J., *Competition and Regulation for Internet-related Services: Results of Asymmetric Regulation*, MIT, August 2001.

because a competing technology, cable modem access, already qualifies for the unregulated information service classification.⁷

In addition in the US, following the *Computer Inquiries*⁸, a different set of rules emerged for the regulation of services that travelled over a telecommunication network, and the regulation of the network itself. Two classifications emerged, basic and enhanced. Basic services are classed as common carrier services and are regulated, whereas enhanced services are not. The Computer Inquiries effectively separated the basic transport network from that of the services that travelled over them, defining the original version of the Layered model. The Act continued the separation of basic and enhanced services providing for telecommunication services (regulated) and information services (not regulated). Under the Act, a *telecommunication service*:

means the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used⁹

Telecommunications:

means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.¹⁰

An *information service* under the Act is defined as:

the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via

⁷ Frieden R., *Adjusting the Horizontal and Vertical in Telecommunications Regulation: A Comparison of the Traditional and a New Layered Approach*, 2002, p. 23.

⁸ Amendment of Section 64.702 of the Federal Communications Commission's Rules and Regulations (Second Computer Inquiry) CC docket No. 20828 (note that this has been considered and further reconsidered in several further FCC hearings); Amendment of Section 64.702 of the Federal Communications Commission's Rules and Regulations (Third Computer Inquiry) CC Docket No. 85-229 (as with the Second Computer Inquiry, the Third Computer Inquiry has also been considered and further reconsidered in several subsequent FCC hearings and cases). For more details see FCC website.

⁹ 47 U.S.C. § 153(51).

¹⁰ 47 U.S.C. § 153(48).

telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.¹¹

The Layered Policy Model suggested by Sicker *et al*, moves away from the vertical “silo” concept adopted by the Act to a more horizontal approach, which borrows its structure from that used to describe the TCP/IP protocol stack¹². In the Layered Policy Model (as suggested by Sicker) the following structure applies:

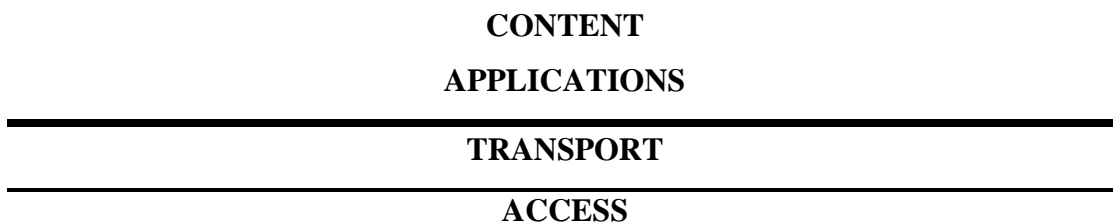


Figure 1 (Source: Sicker)

Sicker argues that interconnection “will be at the heart of this model”¹³ and that providers of access, transport, and applications may be subject to interconnection obligations on terms defined by their market power. He uses the concept of significant market power, but does not make clear in his paper what this means. However, for players who do have significant market power, a pricing condition could be invoked. Sicker states that: “This condition will vary depending on power exerted: whether the player controls multiple Layers or significantly controls a particular Layer. For

¹¹ 47 U.S.C. § 153(41).

¹² Sicker in his paper stresses that while there is a correspondence with the TCP/IP protocol stack, the policy Layers of the new model represent the providers of services at each of these Layers and not the protocols or the implementation of these protocols. It should also be stressed that the TCP/IP protocol stack actually consists of seven Layers: (i) Physical: hardware medium for signals such as cable, satellite; (ii) Data link: splits data into packets; (iii) Network: sends packets to addresses; (iv) Transport: ensures that packets arrive, are error-free and are in the current order; (v) Session: establishes and coordinates connection between computers; (vi) Presentation: allows transfer of files between different formats; and (vii) Application: e-mail, file requests, file transfers etc. (See Denton, supra footnote 3 at p. 11). The TCP/IP Protocol stack roughly follows the Open Systems Interconnection Model (OSI Model). The goals of the OSI model are to expedite communication built by different manufacturers and to make applications independent of the hardware on which they operate. However the OSI Model was not fully followed by the designers of the internet: the session, presentation, and application Layers of the OSI Model are compacted into one: See Kessler G., *ISDN*, McGraw-Hill, 1990.

¹³ Sicker C.D., “*Further Defining a Layered Model for Telecommunications Policy*”, Draft Paper of the Department of Interdisciplinary Telecommunications, Department of Computer Science, University of Colorado at Boulder, January 2001, p.14.

example, many cable and LECS [local exchange carriers] would be viewed as significantly controlling the access Layer. Other players, such as AOL/TW, would be viewed as operating in multiple Layers.” Fransman, in an earlier work, had arrived at a very similar structure, although stopped short of proposing a Layered model as a model for a new regulatory structure. Unlike Sicker and Mindel, who push for four Layers, Fransman in his *Infocommunications* model suggests six:

- First (bottom) Layer: *Equipment & Software Layer*, describing for example switches, transmission equipment, routers, servers, customer premises equipment, and billing software. Vendors such as Nortel, Lucent, Cisco and Nokia would operate at this Layer.
- Second Layer: *Network Layer*, describing optical fibre networks, DSL, local networks, radio access networks, ethernet and frame relay, ISDN and ATM networks. At this Layer, vendors such as AT&T, BT, NTT, Quest, and Colt operate.
- Third Layer: *Connectivity Layer*, describing internet access and web hosting, the IP interface, where operators such as Internet Application Providers and Internet Service Providers function.
- Fourth Layer: *Navigation & Middleware Layer*, describing browsers, portals, search engines, directory assistance, security, electronic payment, where companies such as Yahoo and Microsoft operate.
- Fifth Layer: *Applications Layer, including contents-packaging*, describing web-design, on-line information services, broadcasting services, where Bloomberg, Reuters, AOL-Time Warner, MSN, and Newscorp all operate.
- Sixth Layer: *Customer Layer*, where finally the market for customers is defined.¹⁴

Werbach has gone on to suggest five layers; physical, logical, application, interface, and content layers¹⁵. Whichever model is preferred all models suggest a horizontal approach to the treatment of the different Layers that apply in IP-based transmission

¹⁴ Fransman M., *Telecoms in the Internet Age From Boom to Bust to?*, OUP, 2002, p. 66.

¹⁵ Werbach K., *Breaking the Ice: rethinking telecommunications law for the digital age*, draft December 2004, available at: http://werbach.com/docs/breaking_the_ice.pdf, accessed July 2005, p. 14.

systems. Sicker (as well as Werbach) go further than Fransman in suggesting the Layered structure as a new model for *regulation*. In the next section, the Author builds on this Layered Policy Model to suggest a new Layering Theory for regulating complex TCP/IP-based networks.

6.3 A new regulatory framework for TCP/IP networks?

In this section, the Author takes the Layered Policy Model and goes further in defining an electronic communications service by reference to a new term, its *Component Parts*, where each Component Part would fit into any one of the Layers that Sicker describes. It is important to note that Sicker does not suggest this. Instead he suggests that the Layers operate as *policy* Layers “which represent the providers of the services, not the protocols or the implementation of these protocols....Therefore we should not confuse the technical implementation of the Internet with the policy goals of a Layered model.”¹⁶

It seems sensible not to confuse the Layered Policy Model with the TCP/IP Protocol Stack. However rather than describing each of the Layers as representing the providers of the services as Sicker suggests, this Author argues that an electronic communications service could either fall in its entirety into one of the access, transport, application, or content Layers, or will have Component Parts that will fit into any one or several of the Layers simultaneously. We can therefore define an electronic communications service by reference to the Layers. In this way, *any* electronic communications service that exists now or is yet to be invented can be defined by reference to the Layers.

This can only be achieved if it is possible to take any service delivered over an IP network and be able to *separate* the Component Parts of that service and then *allocate* each Component Part to a specific Layer, and then *price* the relevant Component Part. With modern packet filtering technology (*deep packet inspection, DPI*)¹⁷ it is now possible to perform content filtering based on the type of data being sent. These devices work by inspecting the payload of an IP packet and detecting the protocol in use. The detection works by matching a sequence of data with a

¹⁶ Supra footnote 13, pages 8-9.

¹⁷ Such as OSI 5-7 Layer filtering technology.

predefined signature, although in practice the processing power needed to perform this sequence matching can be substantial. For example, a request for a web page from a web server is sent via the Hypertext Transfer Protocol (HTTP) protocol over a TCP connection. The first part of an HTTP request to retrieve a web page is usually a GET request¹⁸, a content filter works by matching the first part of the data portion of the IP payload with an internal signature file. From this, the protocol *in use* can be derived. Because this filtering of the data portion of the IP packet is at a higher level in the OSI 7 layer model, the decision on whether to allow, disallow or record this traffic does not necessarily rely on the TCP/IP ports being used to transfer the data. DPI can be defined as a packet filtering technique used by Internet service providers (ISPs) to intercept and examine all unencrypted content exchanged over networks.¹⁹ Although such measurements are not 100% perfect given that encryption techniques make it possible to ‘hide’ component parts, modern techniques for DPI, which operators are currently using and which are in common use, allows for even encrypted components to be detected. DPI is commonly used to shape traffic and to block unauthorised file sharing on peer-to-peer networks (P2P). For example, in the United Kingdom, several ISPs have used a new DPI-like technology, known as *Phorm*, in order to establish targeted advertising²⁰.

The ability to detect specific types of TCP traffic means that decisions can be made about which services are allowed or denied. The layer 5-7 devices allow *enforcement* of services. However once an operator has the ability to detect and measure which TCP services are in use, it can then *charge* for the use of such services. Deep packet inspection can lead to a process of differential charging based on the protocol in use. Traditionally, costing has been based around *network usage*; the amount of data transferred is usually multiplied by a cost (usually per megabyte). However, and as described above, now that the ability to detect and measure the usage of a TCP service is technically possible, it is feasible to create a charging structure based around protocol usage. It is around this concept of charging by protocol where the system of differentiated charging arises. Differentiated charging by ISPs is highly controversial and has been seen as an attack on the net’s neutrality (discussed below).

¹⁸ There are other types of HTTP request but for the sake of simplicity we are only considering this one.

¹⁹ EPIC, ‘Deep Packet Inspection and Privacy’ at: <http://epic.org/privacy/dpi/>, accessed November 2010.

²⁰ <http://www.phorm.com/>, accessed November 2010.

It follows then that that an operator will be able to charge a premium per megabyte of high value content traffic (such as MP3 files transferred using the *Kazaa* protocol for example²¹-discussed further below), whereas HTTP protocol-based traffic may be priced at a cheaper rate.

This ability of an operator/undertaking to charge in accordance with protocol usage will lead to an increased complexity of charging structures. Content providers, such as Google and Skype, are concerned that this will lead to increased interconnection costs as well as anticompetitive behaviour, such as discriminatory practices when network providers enter into competing downstream service markets.²²

With the transition of legacy internet networks to NGNs worldwide, there are moves now by the large internet infrastructure owners to shift to a position of differentiated charging, charging according to the type of information being sent over the network: This is linked not just to interconnection of networks as between two different infrastructure owners, but also to the problem of access to networks by content providers. Microsoft, Google, and Skype are strongly resistant to differentiated charging, preferring instead a 'net neutrality' model, where all data is treated the same regardless of the protocol being used for transmission. Content providers fear that the costs to end-users will rise if infrastructure providers succeed with their model of differentiated charging. Already, in the United States, the Justice Department has indicated its support for differentiated charging. The implications for Developing Country (DC) and Least Developing Country (LDC) Internet Service Providers (ISPs) and content providers--heavily reliant on access to developed country operator international circuits and content--are onerous.

There are many different types of services that are available over the Internet, and there are new protocols being developed yearly. However not all protocols are easy to decode and measure. This is due to the immaturity of detection methods. Furthermore, there is no guarantee that these detection methods will improve for all

²¹ The *Kazaa* protocol, owned by Sharman Networks was the subject of litigation by Metro Goldwyn Mayor film studios in 2006, which resulted in a substantial settlement payment. See http://www.jenner.com/news/news_item.asp?id=13608724, accessed July 2010. Other operators have now since replaced Kazaa using similar protocols for P2P file swapping such as Limewire, e-Mule and BitTorrent. See Christina J. "Angelopoulos, Modern Intellectual property legislation: warm for reform" *Ent.L.R.* 2008, 19(2) 35 at 36, for other examples of copyright infringement via P2P networks.

²² Lie E., *International Internet Interconnection, Next Generation Networks and Development*, Global Symposium for Regulators, Dubai, 2007, discussion paper available at: http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/discussion_papers/Eric_lie_international_interconnection.pdf, accessed November 2010, p. 9.

protocols in the future as much will depend on the complexity of the protocol being used. Also, if one protocol is encapsulated in another protocol, problems with detection are heightened, for example, if the HTTP protocol is encapsulated in a Virtual Private Network (VPN) tunnel, should the traffic be charged at the HTTP rate, or at the VPN rate?

This raises another more fundamental question: what if the protocol cannot be detected at all? Encrypted traffic, such as HTTPS, encapsulates traffic in a way that an intermediary (such as a layer 5-7 device) cannot intercept/detect. So it would be possible for an operator/individual to circumvent the charging by encapsulating expensive service protocols over a cheaper services protocol, which is encrypted. In this situation, there may be a need to fall back to the customary usage charging method of “per megabyte” charges. It should be noted however that operators are now using more sophisticated forms of Deep Packet Inspection (DPI) that can overcome the problems given above. For example, ISPs, such as Comcast and Bell Canada, have used DPI technology to either disrupt peer-to-peer file sharing programs²³ or to shape traffic.²⁴ As mentioned above, several ISPs in the UK have used a new DPI-like technology, known as *Phorm*, in order to establish targeted advertising.

At this stage in the discussion it might now be useful to look at a specific example of an electronic service and its constituent component parts to see how the Layering Theory might work in practice. As the Kazaa protocol has already been mentioned above it might now be useful to consider the different protocols used when transferring MP3 music files over the Internet using Kazaa software. The online music market has already attracted a great deal of attention with discussion of digital rights management technology and legislative provisions on anti-circumvention²⁵. Kazaa software was originally developed to allow users to transfer files via distributed network architecture. While the underlying Kazaa technology will transfer any type of file, the name Kazaa has become synonymous with swapping MP3 files over the

²³ DeepPacketInspection.ca, ‘American and Canadian Politics Surrounding Deep Packet Inspection’ <<http://www.deeppacketinspection.ca/background-to-north-american-politics-of-deep-packet-inspection/40>, accessed November 2010.

²⁴ EPIC, ‘Deep Packet Inspection and Privacy’ <<http://epic.org/privacy/dpi/>, accessed November 2010

²⁵ A discussion of online music infringement is outside the scope of this paper. For more details see the range of court cases listed by the Recording Industry Association of America (“RIAA”) in the US concerning online music at: www.riaa.com/news/filings/default.asp, accessed November 2010.

public internet²⁶. For convenience, we can call this service **S**. If we now imagine the originating user connecting to the internet using, for example, an Asynchronous Digital Subscriber Loop (ADSL) connection provided by the ISP (through a contract with the underlying network operator), then at the *Access Layer*, the ISP will use a least cost routing function to find the cheapest way of transferring that file between the two points on the internet (originating and terminating). The least cost routing function will then be that part of Service S that can be allocated to the Access Layer. Similarly, to transport the file, the ISP uses the same ADSL connection²⁷ to transport the file between the originator and the ISP's servers and then to send them on over various peering and transit points to the ISP that will terminate the traffic at the receiver's machine. This process will include all the error-correcting features of both the TCP and IP protocols to ensure that the data arrives as a complete package. Again, the costs for transport will be covered by the charging arrangements of the ISPs for peering and transit, together with any subscription charges paid by the transmitter for using the originating ISP's network. All these costs can be allocated to the *Transport Layer*. At the *Application Layer*, the ISP will use a protocol that conforms with the Kazaa software and that allows the originator and receiver to communicate with each other. The ISP will charge for the use of that protocol and will know how much of the protocol is being used, following for example, the methodology described above²⁸. As such, the use of the protocol will be that part of service S that can be allocated to the Application Layer. Finally, we have the MP3 file itself which will sit in the *Content Layer*: the use of the sound file will be governed by a copyright license and that use will be the part of Service S which can be allocated to the Content Layer. In this way, each *Component Part* of Service S can be allocated to a specific Layer and can be priced²⁹.

²⁶ Kazaa, Morpheus and other file-swapping programs are based on the technology of Gnutella, which is a decentralized file-swapping program. As mentioned in footnote 22, the Kazaa program has now been closed down following an out of court settlement. The program enabled users to search for files on the internet without recording any information on the servers of the company that distributed the software, with no files being copied onto the company's server (*Metro-Goldwyn-Mayer Studios*, 259 F. Supp. 2d 1029). Since the court settlement, the Kazaa network now operates as a subscription only site allowing for music downloads.

²⁷ The ISP could also use alternative transport technologies, such as DSL, cable, fibre-optic, satellite etc.

²⁸ As mentioned earlier, this can be checked using complex (and expensive) OSI Layer 5-7 filtering technology, which will unpack the payload of the IP packet and inspect that payload.

²⁹ With the *price cost margin* defined (the gap between the price and the marginal cost of each Component Part). However, defining these costs terms is a complex business. The marginal cost can

Using the Layered Policy Model, and adapting it, we can now define any service that is required, simply by looking at which of the Layers that particular service's Component Parts fall into. A service may be made-up of multiple Component Parts or only one Component Part. It follows that we should then be able to determine how many times a particular operator provides a particular electronic communications service (through use of an efficient system of cost accounting), and therefore the number of times a Component Part may or may not be used over a defined period of time within each Layer.

This layered approach of looking at services is a natural complement to the European Commission's model for Significant Market Power (SMP), which is flexible and operates without distinction to the type of service being offered or the network over which the service is delivered. The definition for SMP under the European framework is given by Article 14 (2) Framework Directive:

An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.³⁰

Also, the Framework Directive at Article 14(3) makes a specific reference to the leveraging of market power between two closely related markets:

Where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking.

rarely be known with any precision and, although estimates of demand elasticity can be made, they are not readily available and in the context of an antitrust case are likely to be seriously disputed.

³⁰ Directive 2002/21/EC "on a common regulatory framework for electronic communications networks and services", Framework Directive, OJ L 108/33, 24.4.2002. This is the test established in the case of *United Brands Company and United Brands Continental BV v. Commission of the European Communities* [1978] ECR 207 at paragraph 38.

Under current definitions for relevant product/geographic markets in internet cases whether this provision will be able to catch potential dominant operators supplying complex TCP/IP services over NGNs remains to be seen. A market analysis for the purpose of the Framework Directive will depend on an overall forward-looking assessment of the structure and the functioning of the relevant market.³¹ Market definition is discussed next.

6.3.1 How does the Commission define markets?

Market definition is often used as a tool to identify and define the boundaries of competition between undertakings³². In the US and Europe, the SSNIP test is used (“Small, but Significant, Non-transitory Increase in Price”) to help define the relevant market.³³ There are limits to SSNIP, for example in its reliance on the assumption that the initial price for the relevant product is set at a competitive level, and which also requires the collection of relatively accurate data over a substantial period of time (which is not always possible). Bird & Bird’s detailed study on market definition in the media sector points out a further problem with SSNIP in its emphasis on a quantitative approach to substitutability:

“[SSNIP tests] the reaction of consumers to a variation in price. Consequently [the SSNIP] test takes little if no account of qualitative criteria such as strategic competition and innovative decisions, on the grounds of which a company may decide to compete not only on prices but also on services.”³⁴

³¹ ERG, ‘Report on Transition from sector-specific regulation to competition law’ (40) 2009, p 6 at http://www.erg.eu.int/doc/publications/2009/erg_09_40_erg_report_on_the_transition_to_competition_law_final.pdf, accessed July 2010.

³² Notice on the definition of the relevant market for the purposes of Community competition law, 1997 OJ C 372/5, 9th December 1997.

³³ The SSNIP test was first used in the US Department of Justice Merger Guidelines 1982, and later adopted by the European Commission in its Notice “on the definition of relevant market for the purposes of Community competition law” OJ C 372, 9.12.1997. It is important to note that the SSNIP test is only one of a possible number of tests for market definition.

³⁴ Bird & Bird *Market Definition in the media sector: a comparative analysis*, Executive Summary, para 26, December 2002 available at: http://europa.eu.int/comm/competition/publications/studies/legal_analysis.pdf, accessed July 2010.

In the relevant market for Component Parts in TCP/IP services and applications, competition will be based just as much on innovative service delivery as on prices. The European Commission has used SSNIP extensively in competition cases, but it is not the authoritative *legal* test: for that, the judgements of the European Community courts need to be examined.³⁵ Like SSNIP, the European courts' traditional test is also based on the concept of substitution of products, or interchangeability of products. The European courts use the economic test of *cross-elasticity* of demand, where high cross-elasticity will mean that any increase in price will result in significant shifts by consumers to other products.³⁶ When determining the relevant market, the Courts will also look at the physical characteristics of the product, the price, and its intended use. The Courts will also consider *supply-side* substitutability: if other suppliers, currently manufacturing other products, can switch production to the relevant products and market them in the short term without incurring significant additional costs.³⁷

The Courts will also consider the *geographic market* for the product. For complex electronic networks and services, the definition of the geographic market can be as equally difficult to define as the product market. In several EU competition cases involving the media sector for example, the geographic market has generally been limited by factors such (i) language; (ii) cultural preferences; (iii) regulatory barriers; (iv) content; and (v) price differentiation among different member states³⁸. As regards complex internet networks and TCP/IP services, some of these factors would be irrelevant, and more important might be a test of network externalities, for example issues such as the interconnection of networks allowing a Component Part to have a wider geographic reach, such as a *roaming* application in voice telephony which allows (for example) a 3G mobile telephony service to achieve wider geographic

³⁵ Rodger B., and MacCulloch A., *Competition Law and Policy in the EC and UK*, Cavendish Publishing, Third Edition, 2004, p. 87.

³⁶ *Ibid.*

³⁷ See paragraph 39 of the Commission Guidelines on "market analysis and the assessment of significant market power under the Community regulatory framework for electronic communication networks and services" (2002/C 165/03), July 2002. It is important to note that these Guidelines are based on earlier Commission "soft law" in the form of the Commission Notice on "Market Definition" OJ 1977, C372/5, and Notice "on the application of the competition rules to access agreements in the telecommunications sector" OJ C 265, 22.8.1998.

³⁸ See *MSG Media Services* M.469, 6.06.1994, paragraph 46. See also cases such as *Bertelsmann/News International/Vox* IV/M.489, 6.09.1994, and *BIB/Open* IV/36.539, 15.09.1999.

coverage other than the national home market for the service operator or end-user³⁹. However to extend the geographic market in this way (as regards a supplier of a relevant Component Part) would depend entirely on whether the supplier is able to fulfil the same *customer requirements* in different geographic markets. If it can, then the geographic market can be extended. Usually, however, as regards conventional voice telephony services, suppliers are to some extent restricted by regulatory controls, such as the need to obtain a license or class permit to operate in the country in question, which failing that would naturally restrict the relevant geographic market. For telecommunications, the European Commission's approach to classifying relevant product and geographic markets was initially summarised in the *Olivetti/Mannesmann/Infostrada* case⁴⁰, where the Commission established basic practice for telecommunications as categorising relevant product markets as domestic and international voice and data telecommunication services, and geographic markets as the extent and coverage of the network and the customers that can be economically reached and whose demands could be met (*network reach*-first limb)⁴¹, and the legal and regulatory system in place (*regulatory constraints*-second limb)⁴². In more recent cases, the Commission has tended to follow regulatory constraints as being the more decisive factor in determining the relevant geographic market⁴³. However, with the advent of the Commission's New Framework, and the move to a class based system of licensing requiring notification only for undertakings providing electronic communication services, the regulatory constraint factor as the sole element in classifying the relevant geographic market might become less relevant: the rapid increase of TCP/IP services as the core transmission standard for undertakings providing electronic services might mean (instead) that the "network reach" factor will become more significant.

³⁹ See the case of *Omnitel*, Case IV/M.538, 27.03.1995, where the Commission had to consider the effect of a number of roaming agreements, concluding that such agreements should be taken into account when considering mobile services. As such, the coverage for such services was held to be EU wide.

⁴⁰ Case IV/M.1025, 15.01.1998.

⁴¹ See also cases such as *International Private Satellite Partners* Decision 94/895, 15.12.1994, and *GTS-Hermes Inc./Hit Rail* Case IV/M.683, 5.03.1996, which seem to confirm network reach as the basis of the geographic market test.

⁴² For a very good and detailed discussion of European Commission practice in defining relevant product and geographic markets in telecommunications see the book by Pierre Larouche, *Competition Law and Regulation in European Telecommunications*, Hart Publishing, London, 2000.

⁴³ See for example cases IV/M.853 *Bell CableMedia/Cable & Wireless/Videotron*, 11.12.1996, and IV/M.865 *Cable & Wireless/Nynex/Bell Canada*, 11.12.1996. See also *MetroHoldings Limited* [1999] OJ C 19/18, 23.01.1999.

Continuing the discussion of market definition, in applying the SSNIP test to the Layered Policy Model (as adapted), we would start with the smallest possible market, which would be the relevant market for a Component Part in Layer α where α can range from 1 to 4, corresponding to each of the Layers in the Layered Policy Model (as seen in *Figure 1* above). We would then ask the question if a 5 to 10% increase in price for the Component Part is profitable for the ISP. If not, then the ISP does not have sufficient market power to raise the price for that Component Part. In other words, if there is evidence that customers would switch to purchasing other Component Parts from other ISPs when faced with a price increase, the original Component Part and substitute Component Part are considered to be in the same market. The procedure is then repeated until the point is reached where a hypothetical monopolist could profitably impose a 5 to 10% price increase. The relevant market for that Component Part in that Layer is then defined. Once the relevant market has been determined, SMP can then be assessed, and if present, then appropriate regulatory obligations can be applied to the undertaking that is found to have SMP in the relevant Layer.⁴⁴

The type of relevant market definition set out above is quite a departure from the European Commission's general practice. Traditionally, the Commission has used two broad market definition categories in internet cases: internet access services and internet content services. Internet content services can be further divided into internet content, internet advertising, website production and internet portals.⁴⁵ This is discussed further in Section 6.3.3 below, but first we will look at how market share is assessed before turning specifically to Internet-related cases.

6.3.2 Market Share

⁴⁴ For example, once an undertaking has been found to have SMP under the New Framework, the National Regulatory Authority can then determine whether to impose, maintain, amend or withdraw obligations on undertakings under Articles 16, 17, 18 or 19 of Directive 2002/22/EC (Universal Service Directive), or Articles 7 or 8 of Directive 2002/19/EC (Access Directive). Obligations can be applied to both wholesale and retail markets.

⁴⁵ See Bird & Bird report "*Market Definition in the Media Sector-Comparative Legal Analysis*" Report for the European Commission, December 2002, p.108-110 at: http://europa.eu.int/comm/competition/publications/studies/legal_analysis.pdf.

In assessing SMP, once the relevant market has been defined⁴⁶, the next step is to measure the ISPs actual *market share* in the relevant market for Component Parts. According to European Commission guidelines, market shares are often used as a *proxy* for market power, although a high market share alone does not necessarily establish a position of dominance⁴⁷, as a dominant position can arise from other factors, such as an absence of potential competition, barriers to expansion, and the overall size of the undertaking⁴⁸. In the context of IP-networks, as regards the methods for measuring market size and market share, both *volume* sales of the relevant Component Part and *value* sales could be used⁴⁹. The criteria to be used to measure the market share of the ISP will depend on the characteristics of the relevant market for that Component Part. Under the EC's New Framework for example, the National Regulatory Authority (NRA) will need to decide which criteria to apply in measuring market presence. For instance, Component Part revenues or the numbers of Component Parts sold in a particular Layer are possible criteria. As mentioned, this will depend on the Layer involved. For example at the Transport Layer, the revenues accrued for each Component Part may be the appropriate measurement because the use of revenues (rather than the volume of Component Parts sold) takes account of the fact that that different transport technologies (ADSL, cable, satellite etc) are priced differently and provides a measure of market presence that reflects both the number of customers and network coverage⁵⁰.

6.3.2.1 Collective Dominance/Interdependent Markets

A further issue to consider, when considering IP networks, is whether *collective* dominance is relevant, particularly with network externalities⁵¹, and the evolution of

⁴⁶ A full analysis would also include assessing the relevant barriers to entry together with measuring any potential competition in the relevant market.

⁴⁷ Commission "Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services", 2002/C 165/03, 11.7.2002., paragraph 75.

⁴⁸ Ibid, paragraph 78. See also footnote 68 below for network externalities.

⁴⁹ Generally, value sales are used for differentiated and/or branded products and volume sales for bulk sales. Much will depend on the *commoditisation* of specific TCP/IP services. See Article 76, *ibid*.

⁵⁰ Ibid Paragraphs 76-77.

⁵¹ Elkin-Koren N., and Salzberger M. E., *Law, Economics and Cyberspace: The effects of Cyberspace on the Economic Analysis of Law*, Edward Elgar, 2004, p.44.

vertically integrated markets in the communications sector⁵². Annex II of the EC's Framework Directive sets out a number of criteria to ascertain collective dominance including low elasticity of demand, similar market shares and similar cost structures amongst others⁵³. Furthermore, in the case of *Irish Sugar*, the Court of First Instance also considered collective dominance to be either joint (collective) dominance between competitors or undertakings in a vertical relationship⁵⁴. Collective dominance and the concept of secondary/interdependent markets are likely to increasingly feature in cases involving packet-switched (IP) services. As regards secondary markets, the NRA will need to look carefully both upstream and downstream from the access market itself, and the (relative) dependence of retail services on wholesale access/transmission services. The Framework Directive at Article 14(3) makes a specific reference to the leveraging of market power between two closely related markets:

“Where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking.”

6.3.3 Weaknesses in current tests of market definition in Internet cases

As regards cases involving the Internet, as mentioned above, traditionally, the European Commission has used two broad market definition categories: internet *access* services and internet *content* services. Internet content services can be further divided into internet content, internet advertising, website production and internet portals.⁵⁵ On the internet access side, the Commission has also found separate markets

⁵² See De Streef, A., “*The new concept of Significant Market Power in Electronic Communications: the Hybridisation of the Sectoral Regulation by Competition Law*”, (2003) 24(10) ECLR 540 for a further discussion of the concept of collective dominance.

⁵³ Directive 2002/21/EC on a Common Regulatory Framework for electronic communications networks and services, March 2002.

⁵⁴ Case T-228/97, *Irish Sugar plc v. Commission* [1999] 5 CMLR 1300.

⁵⁵ See Bird & Bird report “*Market Definition in the Media Sector-Comparative Legal Analysis*” Report for the European Commission, December 2002, p.108-110 at: http://europa.eu.int/comm/competition/publications/studies/legal_analysis.pdf, accessed November 2010.

for dial-up internet access and dedicated internet access for residential users and small businesses, and corporate customers.⁵⁶ The Commission has also distinguished between broadband and narrowband internet access over DSL and cable networks,⁵⁷ and more recently wholesale and retail internet services in allegations of margin squeezing, for example in *Wanadoo Espana v. Telefonica*⁵⁸ and in *Deutsche Telekom v. European Commission*⁵⁹ where in October 2010 the European Court of Justice upheld a finding against Deutsche Telekom for margin squeezing.⁶⁰

In most of these cases however, the nature of the digital service offered to customers was relatively straightforward. However as digital services continue to gain in complexity with ever increasing *network externalities*, market definition will become equally complex.⁶¹ As mentioned earlier, one of the main problems that judges had in the *Microsoft* case, where the major concern was the leveraging of monopoly power from the Intel-compatible PC operating system market into the internet browser market, was *first* being able to determine the relevant market, and *then* being able to measure market power within the market.⁶² Identifying the relevant market is crucial in any antitrust analysis because it is central to the assessment of market power.⁶³ However, in dynamic, innovative markets, such as NGNs, the identification of market power is much more sophisticated, where rivalry in

⁵⁶ See European Commission cases *BT/Esat* COMP/M.1838, 27.3.2000, *Telia/Telenor* COMP/M.1439 13.10.1999 and *Telia/Telenor/Schibsted* Case NoIV/JV, 1 27.05.1998.

⁵⁷ See EC cases *AOL/Time Warner*, Case COMP/M.1845, OJ 2001 L268/28 and *UGC / Liberty Media*, Case No COMP/M.2222, 24.04.2001 Notification of 16 March 2001 pursuant to Article 4 of Council Regulation No 4064/891.

⁵⁸ COMP/38.784.

⁵⁹ Case 271/03. OJC 128 of 24.05.2008.

⁶⁰ *Deutsche Telekom AG v Commission*, Case C-280/08 P, EU Press Release 104/10 at: <http://curia.europa.eu/jcms/upload/docs/application/pdf/2010-10/cp100104en.pdf>, accessed December 2010.

⁶¹ *Network externalities* emerge when the use of one product is more beneficial to a user when more people use it. Network externalities are present in a network environment, such as the internet, which is a network of networks, since it is based on connectivity and protocol compatibility. In an on-line environment, services have to be interoperable to achieve connectivity, and therefore network externalities can limit competition by increasing the costs of entry, providing a significant advantage to first comers who can establish services as the standard for future services. See Elkin-Koren N., and Salzberger M. E., Law, *Economics and Cyberspace: The effects of Cyberspace on the Economic Analysis of Law*, Edward Elgar, 2004, p.44.

⁶² *United States of America v. Microsoft Corporation* (364 U.S. App D.C. 330) and also the European Commission Case COMP/C-3/37.792. Under US law, the question of market definition arises in US antitrust actions under Section 2 of the Sherman Act and section 7 of the amended Clayton Act involving mergers.

⁶³ A. D'Ignazio and E. Giovannetti, "Antitrust Analysis for the Internet Upstream Market: A Border Gateway Protocol Approach". 1 JCLE 27, 2008.

competition may be *Schumpeterian*.⁶⁴ Also, in complex digital markets with services being run over several layers of the OSI (Open Systems Interconnection) stack, market structures are successively redefined. In dynamic markets, the standard approaches to application of competition “runs the risk of rapidly becoming irrelevant”.⁶⁵

In *Microsoft*, the Commission stated that Microsoft had a dominant position both in the client PC operating market and the work-group server operating system market⁶⁶. In the more recent 2009 judgement on Microsoft’s claim for annulment of the Commission’s compensation order, the CFI argued:

8. The Commission found that both of these relevant product markets were of worldwide dimension (recital 427 to the 2004 Decision). It further considered that Microsoft held a dominant position on both of these markets, namely that for client PC operating systems (recitals 429– 472 to the 2004 Decision) and that for work group server operating systems (recitals 473– 541 to the 2004 Decision).

9. The Commission took the view that Microsoft had violated art.82 EC by committing two abuses of its dominant position on the market for PC operating systems, one of which is relevant to the present case. Microsoft was held to have abused its dominant position by refusing to supply competitors with certain interoperability information (“ interoperability information”) and to allow them to use it for the purpose of developing and distributing competing products on the market for work group server operating systems, from October 1998 onwards (recitals 546– 791 and art.2(a) of the 2004 Decision).⁶⁷

⁶⁴ “In network markets subject to technological progress, competition may take the form of a succession of “temporary monopolists” who displace one another through innovation. Such competition is often called Schumpeterian rivalry”. See J. Farrell and M. Katz, *Competition or Predation? Schumpeterian Rivalry in Network Markets*, University California Berkley Discussion Paper, 2001 at: <http://elsa.berkeley.edu/~farrell/ftp/predation.pdf>, accessed August 2010.

⁶⁵ Tambiana M., “Innovation and Market Definition under the EU Regulatory Framework for Electronic Communications” 29(1) *World Competition* (2006) 3.

⁶⁶ Case T-201/04 *Microsoft Corp. v Commission of the European Communities* [2004] 5 C.M.L.R. 21. See also Case COMP/C-3/37.792.

⁶⁷ *Microsoft Corporation v. Commission of the European Communities* [2009] 4 C.M.L.R. 16

The judgment of the CFI has been much criticized by various scholars on focusing too much on the structural issues of competition as opposed to whether actual harm had been caused to consumers⁶⁸. The judgement concludes harm to consumers and harm to innovation by harm (or even likely harm) to competitors. Such a conclusion, says Marsden, is “obvious (...) just difficult to prove – and the Commission doesn't propose to try”, and that the General Court went onto confirm that it did not have to.⁶⁹ A *likelihood* of harm is not enough to find an abuse, as any dominant undertaking can exploit and exclude, but dominance *per se* is not prohibited.⁷⁰ The Commission fined Microsoft an amount of €497,196,304, the highest fine issued to date.⁷¹ Also in a different case involving Sun Microsystems and Microsoft, where Sun sued Microsoft in an attempt to prevent the capturing of the open standard of *Java*, and turning it into a closed standard, Sun failed to establish any antitrust claim because the Court of Appeals in applying standard competition analysis found that there could be no market distortion in the absence of a strict market definition, as a prerequisite to identifying any market distortion is a clear definition of the relevant market.⁷²

Also, high technology markets are known for wide product differentiation where market assessment can be difficult and sometimes misleading. As Padilla argues:

...high-tech products are highly differentiated, revealing considerable price and performance variations. For example, firms offer different versions of the same underlying product, each of which is customized for a specific group of users. Different versions have different prices and also different

⁶⁸ See for example: A. Witt, 'The Commission's guidance paper on abusive exclusionary conduct - more radical than it appears?' E.L. Rev. 2010, 35(2), 214-235; B. Vesterdorf, 'Article 82 EC: Where do we stand after the Microsoft judgement?' Global Antitrust Review (2008); H. Schmidt, 'Article 82: is technological integration checkmated?' J.B.L. 2009, 4; J. Robinson, 'The Microsoft Browser case: why the Commission's decision fails to convince', J.E.C.L. & Pract. 2010, 1(4), 317-319; S. Subramanian, 'The Microsoft decision: a setback to IP rights in Europe?' J.I.P.L.P. 2010, 5(4), 245-259; A. Toth, 'Protection of investments in European abuse of dominance cases' E.C.L.R. 2008, 29(12), 710-716; A. Andreangeli, 'Interoperability as an "essential facility" in the Microsoft case - encouraging competition or stifling innovation?' E.L. Rev. 2009, 34(4), 584-611.

⁶⁹ P. Marsden, 'Chapter 3: Some outstanding issues from the European Commission's Guidance on Article 102: Not-so-faint echoes of Ordoliberalism' in Competition Law and the enforcement of Article 102 (Eds F.Etro and I. Kokkoris), OUP, 2010, p.2.

⁷⁰ P. Akman, 'Consumer Welfare and Article 82 EC : Practice and Rhetoric' (2009) 32 1 World Competition 79, p.23.

⁷¹ *Microsoft Corp (The Computing Technology Industry Association Inc and Others Intervening) v Commission of the European Communities (Software & Information Industry Association and Others, Intervening)*, Case T-201/04, [2007] 5CMLR 11, 17 September 2007.

⁷² Elkin-Koren N., and Salzberger M. E., *Law, Economics and Cyberspace: The effects of Cyberspace on the Economic Analysis of Law*, Edward Elgar, 2004, p. 44 (citing the case of Sun Microsystems Inc, 333 F. 3d 517, p.532.)

functionalities. This heterogeneity makes it difficult, if not practically impossible, to define an appropriate benchmark.⁷³

Also *temporal* advances (for example, a seasonal distribution of goods, fluctuation with offer/demand) are capable of affecting the relevant market and market positions. The size of market shares of undertakings offering NGN services may change quickly with time.⁷⁴

With the Layered Policy Model (as adapted), defining the relevant market becomes easier. The main question with the Layered Policy Model is to determine the *Component Parts* of a service and then allocate these Component Parts to a particular Layer.⁷⁵ Once this is achieved, close substitutes and chain substitution to the Component Parts for that Layer can then be found, and the relevant market for Component Parts for that Layer defined. In this way, it is possible to create very complex IP-based services involving multiple Component Parts, but still come to a determination of actual market power that is both accurate and relevant in defining the access bottleneck.

The power of the Layering Theory is that it addresses SMP *within* an IP network context, at the appropriate Layer, and so enables effective competition within that Layer. It offers a solution for the future regulation of complex NGNs and for the enforcement of any non-discrimination and transparency obligations that could guarantee net neutrality. It has no relevance to conventional services offered over circuit-switched networks, but helps define the relevant market for the supply of services running over complex TCP/IP networks by examining the Component Parts of a service in any one Layer.

The main issue for an ISP is whether selling a smaller quantity of the Component Part at a higher price would be more profitable than selling a larger quantity at a lower price. This in turn will depend on how sensitive demand is to

⁷³ Padilla J., *The Role of Supply-Side Substitution in the Definition of the Relevant Market in Merger Control*, A Report for DG Enterprise A/4, Madrid, June 2001, at p. 68. See also, Pleatsikas C., and Teece D., "The Analysis of Market Definition and Market Power in the Context of Rapid Innovation" [2001] 19(5) *International Journal of Industrial Organization*, pp. 665-693.

⁷⁴ *Tetra Pak International SA v. Commission (Tetra Pak II)*, Commission Decision 62/163/EEC, [1992] OJ L72/1.

⁷⁵ With modern systems of cost accounting currently being used in the telecommunications sector, cost accountants are already able to split a service into its Component Parts, pricing each part accordingly for the purposes of interconnection, and for the purposes of determining joint, marginal, and total costs for a particular service.

changes in price (the “elasticity of demand”⁷⁶). The Author contends that with modern pricing methodologies currently available for packet-switched networks, data is now becoming available for National Regulatory Authorities (or Competition Authorities operating under the principle of concurrency) in the advanced developed countries to calculate the elasticity of demand for relevant Component Parts for IP-based networks for each of the Layers of the Layered Policy Model (as adapted).

The Author argues that (and depending on the accuracy of allocating the Component Parts of any one service to its appropriate Layer), it should be possible to measure SMP both at the level of the relevant *Layer* and at the level of the *service*. Therefore, if we were to now adopt the European Commission’s model for SMP⁷⁷, and adapt it to take account of the Layered Policy Model, then SMP (dominance) can be *interpreted* as:

An undertaking shall be deemed to have SMP if either individually or jointly with others, it enjoys a position equivalent to dominance **for the relevant Component Part in a particular Layer (as set out in Schedule 1) in the supplier’s relevant geographic market**, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.

Figure 1 above illustrates the relevant layers. In a similar way, new definitions can be found for other headings. These definitions include:

- *Electronic Communications Networks* means “transmission systems, and where applicable, switching or routing equipment and other resources which

⁷⁶ The critical elasticity of demand is the value of elasticity of demand necessary to leave profits unchanged following a price increase. It should also be noted at this stage that in fast changing IP-based technology network markets, there would also be a need to use “competitive” rather than “prevailing” prices for Component Parts to avoid the “Cellophane Trap”. The Cellophane trap relates to the US case of *United States v. El du Pont de Nemours & Co* 118 F Supp 41 (D Del 1953) aff’d 351 US 377 (US Sup Ct 1956), where a dominant undertaking has already been able to increase prices to a monopolistic level, effectively creating a situation where those prices are artificially high. Any use of these prices by the SSNIP test might then yield erroneous results. See Rodger B., and MacCulloch A., *Competition Law and Policy in the EC and UK*, Cavendish Publishing, Third Edition, 2004, pages 86-87 for a more complete analysis of the Cellophane Trap. See also Graham C., *EU and UK Competition Law*, Longman, 2010, pp. 534-535.

⁷⁷ One advantage of doing this is that the Commission has developed a substantial body of jurisprudence on dominance over several decades.

permit the conveyance of signals over any of the Layers as defined in Schedule I irrespective of the type of information conveyed.”

- *Electronic Communications Service* means “a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, and whose Component Part(s) fall into any of the Layers as defined in Schedule I, but excluding services providing, or exercising editorial control over, content transmitted using electronic communications networks and services.”
- *Component Part* means “a part of an Electronic Communications Service defined as either hardware or software and which falls into one of the Layers as defined in Figure 1. An Electronic Communications Service may consist of one or several component parts.”

With these definitions in hand, we can now incorporate them into a new regulatory Reference Paper. The form of this new RP, which includes the layers that constitute the Layering Theory (Figure 1), is set out at Annex 1 to this thesis. Annex 1 is based on the existing form of the RP, but amended to take account of the new definitions given above. It is important to note that the existing RP does not refer (at all) to electronic networks or services.

Also, it is equally important to stress that the Author is not suggesting a new definition for SMP, but suggesting instead a new way of *interpreting* SMP specifically for the communications sector. The Layering Theory would act as guidance for regulators when seeking to define relevant product markets for complex digital applications and networks. The Commission has already issued a Recommendation on relevant products and markets for the electronic communications sector (the “Recommendation”)⁷⁸, which is intended to guide NRAs in their approach

⁷⁸ Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services C(2003)497, February 2003. The Commission issued a public consultation on a revised version of this Recommendation {SEC(2006) 837, 2nd Edition June 2006} which closed in October 2006. The need for revision is in line with Article 15(1) *Framework Directive* (OJ L 108, 24.4.2002), which requires that the Commission regularly reviews the Recommendation in line with changing products and services, and corresponding changes in demand and supply side substitution. The Commission adopted a **new** Recommendation on relevant product and service markets in 2007, Recommendation C(2007) 5406 rev 1.

to defining markets. In its Recommendation, the Commission sets out the “three criteria” test in helping Member States define the product and service markets to review: (i) the presence of high and non-transitory barriers to entry; (ii) the absence of dynamic market conditions tending towards effective competition; and (iii) the insufficiency of competition law alone to address adequately any related market failure. The original (2003) Recommendation set out the test in Recitals 9 to 16 of the Recommendation. The revised *Recommendation 2007* moved the test into the main body of the Recommendation at Article 2 and reduced the number of relevant markets to seven including one retail level and six wholesale level markets.⁷⁹ The revised Recommendation will still serve as guidance and although NRAs must regard it with the utmost importance, NRAs can deviate from the Recommendation subject to the notification procedure set out in Article 7 Framework Directive.

Further, the Commission released in 2010 a new *Recommendation on Regulated Access to Next Generation Access Networks* (‘NGN Recommendation’),⁸⁰ which sets out requirements for increased transparency and access obligations to SMP operators of NGN networks, and requirements to share collocation and duct capacity for fibre optic networks. The NGN Recommendation reflects the seriousness to which the EC regards NGNs as crucial for the future delivery of broadband services in the EU. The NGN Recommendation is focused on network infrastructure operating at the **lower levels** of the OSI stack, rather than the upper messaging layers, for example. This is a weakness as a significant component of innovation and competition in broadband services in the NGN market will be focused in the upper messaging layers where most of the code for ‘content’ is based. Also, for wholesale broadband access, the earlier draft (2008) NGN Recommendation stated at Article 23: “Unless there are clear indications of a break in the chain of substitution as compared to current product markets, services provided over NGA networks should be considered as incremental upgrades and therefore not treated as new markets.”⁸¹ The potential impact of this was unclear, but it indicated that the Commission viewed existing jurisprudence on internet networks as satisfactory, a point which is questionable given the concerns

⁷⁹ C(2007) 5406 rev 1.

⁸⁰ Commission recommendation on regulated access to Next Generation Access Networks, 2010/572/EU, 20th September 2010.

⁸¹ C(2008) Draft commission recommendation on regulated access to Next Generation Access Networks.

over discrimination and net neutrality voiced above. Interestingly, this provision was deleted in the final recommendation published in 2010.

Also, it remains to be seen how the formation of the new Body of European Regulators for Electronic Communications (BEREC) under the EC's Regulation of 2009 establishing BEREC will deal with market definition.⁸² BEREC will have the authority to deliver opinions on draft measures by National Regulatory Authorities (NRAs) concerning market definition or the designation of undertakings with SMP.⁸³

The Author has used the European Commission's approach, as set out in its New Framework for regulating electronic communications networks and services, in adapting the Layered Policy Model. This is because the flexibility of the Commission's approach (the Author contends) makes it highly suitable as a foundation for regulating TCP/IP-based networks. Furthermore, because of the rapid change and proliferation of the applications that will run over such networks (multi-application networks), the New Framework will in anycase at some future stage need to be modified to allow for a more accurate interpretation of Dominance (Significant Market Power). To some extent, IP traffic already exceeds conventional voice traffic in terms of volume, and most of the developed world will also soon be moving away from the use of IPv4 to IPv6, which will allow for a greater number of available IP addresses and enhanced product and service functionality, but at the same time an exhaustion of existing IP4 addresses by 2011/2012.⁸⁴ Further change is coming. In Europe for example, there is increased diversity with the accession of ten new Member States to the European Union. As their telecommunication incumbents roll out NGNs based on IP in network cores, national circumstances will diverge and the NRAs in these countries may well have to adopt market definitions different to that envisaged in the revised Commission Recommendation 2007 on relevant product and service markets.

The WIK Consult report of 2008 argues that the Commission does have sufficient regulatory remedies in place should the potential for anticompetitive practices arise with NGNs. The report's authors argue that:

⁸² Regulation (EC) No 1211/2009 of the European parliament and of the council of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office, L337/1.

⁸³ Article 3(1)(a) *ibid.*

⁸⁴ European Commission, Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, January 2008, p. 138.

The one conspicuous challenge that might emerge going forward is the possibility that an ECN (Electronic Communications Network [Operators]) or ECS (Electronic Communications Service [Operators]) might have market power by virtue of network externalities rather than according to standard tests of market power in one of the markets susceptible to ex ante regulation, and might be disinclined to offer fully effective interconnection in order to exploit its market power. The European regulatory framework does not provide a comprehensive solution to interconnection problems in the absence of conventional SMP; however, Article 5(1) of the Access and Interconnection Directive provides NRAs with a sufficient tool to take appropriate measures should this still somewhat hypothetical scenario emerge.⁸⁵

However, this assumes that the Commission will be in a position to accurately define the relevant market for the particular service in question, which as this chapter illustrates may be difficult given current TCP/IP services, and potentially more difficult, as current IP networks migrate to NGN networks. Furthermore, at a footnote to the WIK Consult report, the authors themselves query the regulatory clarity of Article 5 of the Access & Interconnection Directive (2002/19/EC):

The NRA should bear in mind, however, that Article 5 needs to be used with caution and restraint, inasmuch as it is not linked to a finding of SMP. Further, it is not altogether clear what specific powers Article 5 confers on the NRA.⁸⁶

So first there is the problem of defining SMP and then there is the lack of clarity as to what powers Article 5 provides? Article 5 Access & Interconnection Directive provides for NRAs within the EU to impose interconnection obligations on providers of end-to-end services as well as access obligations on providers of Electronic Program Guides and Application Program Interfaces to ensure delivery of digital radio and television services to end-users.⁸⁷ Given these powers, the WIK Consult Report authors argue that at present there is no requirement to impose a mandated interconnect obligation for IP voice traffic:

⁸⁵ Ibid, p. 140.

⁸⁶ Ibid, p. 146, footnote 230 (to the report).

⁸⁷ Articles 5(1)(a) and 5(1)(b) Directive 2002/19/EC “on access to, and interconnection of, electronic communication networks and associated facilities”, Access Directive, OJ L108/7, 24.4.2002.

In terms of a policy response, we do not see the need for a new remedy for IP interconnection in support of voice. Rather, we see the need to ensure that NRAs have any necessary authority to ensure that voice interconnection remains effective as networks migrate to an IP basis. This might take the form of requiring ex ante that SMP operators not provide IP-based access to their voice services under quality, terms or conditions substantially inferior to those which the SMP operator provides to itself; alternatively, the NRA (or NCA) might take action ex post if an SMP operator were to fail to do so.⁸⁸

This is reasonable and the author would agree that a mandated regulatory obligation on NGN operators would increase their regulatory burden and costs. However, the Layering Theory does not call for mandated interconnection or access (importantly the WIK Consult Report excludes a meaningful discussion of access in their report). Although (this) author agrees with WIK Consult on the point of minimising regulatory intervention, it is submitted that NRAs need better regulatory tools to cope with possible abuse of dominance in NGN markets, particularly as regard access problems where for example with NGN networks most of the anti-competitive problems likely to arise will be in the more content rich ‘messaging layers’. It is important to get this right as an accurate test for SMP in the NGN environment will be crucial given its significance in EU law. For example, the WIK Consult Authors recognise the dangers of NGN operators with SMP:

The presence or absence of SMP is a central theme in European regulation, and this is likely to continue to be the case as networks evolve to NGNs. The evolution may change the character of market power, but is unlikely to eliminate concerns with SMP. Last mile bottlenecks are likely to remain for some time, as will the call termination monopoly; moreover, new bottlenecks might emerge in the upper layers of the network, even as other SMP manifestations may be ameliorated by new forms of competition. SMP shapes the migration path, and also conditions the corresponding regulatory response.

⁸⁸ European Commission, Marcus J., Elixmann D., *The Future of IP Interconnect: Technical, Economic and Public Policy Aspects*, January 2008, p. 134.

SMP thus represents a common thread through our assessment of regulatory needs during the transition to NGN.⁸⁹

As discussed in this chapter, an accurate definition of a relevant market is crucial to an investigation of SMP. It is this problem with defining a relevant market that the Layering Theory is concerned. As the Layering Theory operates across several different layers from infrastructure to messaging, the theory is uniquely positioned to deal with problems of access. With both products and services continuing to rapidly change and becoming more interdependent and complex, there is a certain inevitability that the Commission's guidance to NRAs on future markets to review will result in a series of revised "Recommendations" in time to come. Although the European Commission has planned for this in its cycle of reviews envisaged under Article 15(2) Framework Directive, the Author argues that the Layering Theory might provide the basis for *one* overarching framework for defining new product and service markets in the electronic communications sector. If such a framework was acceptable to the European Commission it could provide a very useful precedent for regulation elsewhere, for example in the US, and major developing countries, such as China⁹⁰ and India⁹¹, where China and India in particular have adopted similar concepts of dominance to the test established in *United Brands*⁹², and where therefore, there is regulatory convergence in competition law jurisprudence.

This discussion of SMP has centred on European regulatory policy, upon which the Layering Theory is based. NGNs however are being rolled out worldwide and not just in Europe. In the next section, the Author shows how the Layering Theory might apply to increase effective competition in electronic communication markets at the multilateral level.

6.4. Applying the Layering Theory at the Multilateral Level

With the Layering Theory incorporated into the definitions given above, it then becomes possible to conceive of an amended version of the existing Reference Paper

⁸⁹ Ibid, p. 126.

⁹⁰ See Chapter 3 (Article 17) *Anti Monopoly Law of the People's Republic of China* 2008.

⁹¹ See Chapter 2 (Section 4) *Indian Competition Act 2002* (as amended 2007, 2009).

⁹² *United Brands Company and United Brands Continental BV v. Commission of the European Communities* [1978] ECR 207 paragraph 38.

(reviewed in Chapter 3) that could apply to modern IP cross-border networks. The Author has outlined the draft of such a version in *Annexe I* to the thesis. As mentioned, this draft follows the format of the existing Reference Paper to the WTO's BTA, but with crucial modifications, for example adding a new definition for "major supplier" and moving away from an essential facilities-type doctrine, inserting instead definitions for an "electronic communications network operator" and "electronic communication network service provider", and also new provisions for interconnection and access. The Author has used the European Commission's approach, as set out in its New Regulatory Framework for regulating converged networks in revising the Reference Paper. It is interesting to note that the original deliberations of the Negotiating Group on Basic Telecommunications drew heavily on previous EC and US policy in telecommunications, which is why the current RP makes references to the concept of an 'essential facilities' doctrine for example. The interconnection and anti-competitive provisions of the RP discussed in Chapter 3 are good examples of EU/US telecommunications practice. DCs and LDCs might therefore be naturally hostile to the adoption of a revised RP that also draws on EU/US jurisprudence, but the Author contends that there are numerous advantages in DCs and LDCs taking this approach. These advantages are more fully discussed in Chapter 7.

The Author contends that the flexibility of the Commission's approach in its new regulatory framework makes it highly suitable as the basis for a new Layered Approach to regulating IP-based networks, which are changing rapidly. The aim of the revised Reference Paper, set out in Annex I, is to address this new world of packet-switched technology. As discussed in Chapters 3 and 4, the RP as it currently stands does *not* regulate interconnection on internet networks. This is a significant weakness in WTO policy for the telecommunications sector.

IP traffic already exceeds conventional voice traffic in terms of volume⁹³. As mentioned above, most of the developed world will also soon be moving away from

⁹³ Voice traffic grows at roughly the rate of the gross domestic product (GDP), which in good years means a ten to twelve percent growth rate. Data, on the other hand, has been growing at an annual percentage rate in the triple digits since the early 1990s. At the same time, the cost of transporting a megabyte has declined. See Insight Research Corporation report: IP telephony v. Circuit-Switching at <http://www.insight-corp.com/reports/iptele.asp>, data accessed November 2008.

the use of IPv4 to IPv6, which will allow for a greater number of available IP addresses and enhanced service functionality. At some point in the future, if WTO law is to keep pace with changing technology, the Reference Paper (RP) will also have to change. By amending the rules on interconnection at section 2 of the RP to make it applicable to NGNs, ISPs in DCs and LDCs will be in a much better position to command non-discriminatory interconnection at IXP exchanges both in the developed world and with each other in the developing world. Annex 1 to this thesis shows how Section 2 RP has been modified by incorporating the definitions for ‘electronic communications network’ and ‘electronic communications service’ into the current wording for Section 2. For example, the current wording on Section 2 RP reads as follows:

2.1 This section applies to linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.

Annex 1 to this thesis, sets out the new wording as follows:

2.1 This section applies to linking with suppliers providing *public electronic communications* [my emphasis] networks and services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.

As can be seen, the amendment is subtle making a reference to a ‘public electronic communications’ network as opposed to a ‘public telecommunications transport’ network. However, the amendment is dramatic as the change incorporates the new definitions for public electronic communications networks and services given above. For example ‘major supplier’ is defined in the existing RP as:

A major supplier is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of:

- (a) control over essential facilities; or
- (b) use of its position in the market.

The new definition of major supplier set out in Annex 1 to this thesis is:

Major Supplier means “a supplier who either individually or jointly with others, enjoys a position equivalent to dominance for the relevant Component Part in a particular Layer (as set out in Schedule 1) in the supplier’s relevant geographic market, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.”

We can see from this definition that the term ‘major supplier’ now incorporates the concept of dominance (SMP) as reinterpreted through the Layering Theory. Gone is the reference to ‘essential facilities’ (effectively an argument for superdominance) and control over a market. By substituting with the term ‘dominance’ and interpreting dominance in line with the Layering Theory, the ‘major supplier’ definition in the RP now reflects the EU position on dominance (and as mentioned above followed by the major trade blocks of China and India), and captures internet interconnection, and therefore makes the revised RP applicable to broadband NGNs . With this definition in hand, it then becomes possible to read the existing obligation to interconnect as established in the RP as follows:

2.2 Interconnection to be ensured

Interconnection with a major supplier will be ensured at any technically feasible point in the network. Such interconnection is provided:...

but that now the term ‘major supplier’ in 2.2 is to be interpreted in accordance with ‘dominance’ as interpreted by the Layering Theory.

Annex 1 shows the full revised form of the RP. For example, the layers that have been incorporated into the RP at Annex 1 are those as displayed in *Figure 1* to this Chapter. Also, as mentioned in Chapter 1 (Introduction), the procedure by how a revised RP might be introduced into WTO law is beyond the scope of this thesis, but if we consider however how the RP came into being, it could be argued that a very similar plurilateral negotiating process might be used to revise the RP in line with modern technology, and that a revised RP could also be taken in the form of a GATS Additional Commitment in future WTO rounds. Alternatively, a revised RP might be elevated in status taking on the form of an Annex, if agreed by the majority of the WTO membership and similar in status to the Annex on Telecommunications, currently a mandatory part of the GATS. This latter approach is unlikely however given the need for consent by the majority of the WTO membership. Also current adoption of the RP by DCs and LDCs has been relatively mixed, and future adoption of an amended RP that would apply specifically to internet networks is likely to be met with scepticism, unless DCs and LDCs can directly see the commercial advantages in doing so (discussed more fully in Chapter 7).

6.5 Conclusion

As we have seen in this chapter, the Layering Theory very much applies to the regulation of both electronic networks and services in terms of ensuring effective competition to ensure principles of non-discrimination, any-to-any connectivity, interconnection and equal access, the fundamental principles of good regulation, and which were discussed in Chapter 3. The Layering Theory is not so much concerned with *content*, i.e. the electronic content that flows over the infrastructure. The theory is linked to content only in so much as to determine the relevant Layer that the content falls into (more likely the Application or Content Layers) for the purpose of determining SMP in the that Layer, and whether effective competition exists. The Layering Theory is an example of a combined sector-specific/competition law approach.

The Author has suggested that the Layering Theory be incorporated into the WTO framework agreements, possibly as a form of an additional commitment (for example through a revised Reference Paper) at the multilateral level. In this way, effective

competition will be maintained both at the infrastructure and the content lawyers for all providers of electronic networks and services in all modes of supply under the GATS (a more detailed discussion of modes of supply and particularly as regards the delivery of content is provided in Chapter 9 and in the discussion of the *US-Gambling* case).

Even as far back as 1998, in a background note to negotiations on telecommunication services produced by the WTO's secretariat, the WTO was warning of the potential need for regulatory action as regards IBPs:

Also, as the Internet matures, larger internet access providers are buying smaller ones and large incumbent telecom operators are acquiring internet access providers to supply these services. There is a prospect that the largest Internet access providers may dispense with the mutual fee-less peering arrangements devised when Internet was more a non-profit endeavour rather than a commercial activity. In this, there is a risk that that large access providers could gain a market position permitting them to dictate terms, conditions and prices of access by smaller providers. Finally, as more telecom providers become global companies, it is increasingly likely that some of their activities may fall outside the jurisdiction of any single national competition body or other relevant government authority. In such situations, enhanced bilateral and multilateral cooperation on competition policy may have an important role to play.⁹⁴

In the next chapter, Chapter 7, we discuss how DCs and LDCs can use telecommunications law and the Layering Theory to enhance effective competition in their own markets as well as gain access to markets overseas.

⁹⁴ S/C/W/74, para 30.

CHAPTER 7

DEVELOPING COUNTRIES AND TELECOMMUNICATIONS¹

7.1 Introduction

Previous chapters have focused on the international regulation of telecommunications, and on US and EU markets in particular, where competition was introduced early, and liberalisation pushed (particularly by the European Commission in the EU) to encourage greater competition and end-user choice. As mentioned in Chapter 1, the aim of the earlier chapters was to set out the “international rules of the game”, the rules of IEL that apply to the technology sector as regards the trade in telecommunication network capacity and services. We have seen how internet interconnection of packet-switched networks has surpassed interconnection of circuit switched or voice networks, and how a select number of international backbone operators control access to these networks. To truly address the Digital Divide between developed and developing nations, ISPs in DC countries will need to gain access to these networks at equitable rates. This applies as much to access to electronic networks and services in developed countries as it does in developing. In Europe, the European Commission has bought in the new regulatory framework to deliver effective competition. In Chapters 5-6, the author argued that the Commission should go a step further in introducing the Layering Theory. The author also called in Chapter 6 for incorporating the Layering Theory into a revised Reference Paper on basic telecommunication services at the WTO as a form of additional commitment for members in future trade rounds. This latter point will be explored in more detail in this Chapter. With some of the international rules now in hand we can now turn our attention to see how these rules might affect DCs and LDCs.

¹ A version of this chapter was published in *International Economic Law and the Digital Divide: A New Silk Road?* Edward Elgar, 2007.

This chapter discusses the implications of cost-oriented interconnection rates and a framework for call termination introduced by the Basic Agreement on Telecommunications (BTA) (or Fourth Protocol) to developing countries. In Chapter 3, we saw how developed countries are using the *New Modes of Operation* to effectively bypass the international accounting rate regime and thereby escape having to pay high international accounting rate settlements mainly to DCs and LDCs. In this chapter, we will see how DCs and LDCs can use the New Modes of Operation *in reverse*, clawing back some of the disadvantages that they would otherwise face. We also saw how adoption of the RP effectively means a move away from international accounting rates to a cost-based interconnection regime. We will see in this chapter that there are both advantages and disadvantages to this approach.

Chapter 4 also introduced the concept of the ITU's *Recommendation D.50*, which deals with the cost implications of internet traffic flows. In Chapter 7, we will look at the implications of Recommendation D.50 for DCs and LDCs. Will the Recommendation lead to more transparent and fairer sharing of costs for conveying data traffic between developed and developing countries and vice-versa? Also, although a number of G-90 countries did not even take out the additional commitment of the regulatory Reference Paper in its current form, this chapter argues that there might be reasons for some G-90 countries in adopting a revised Reference Paper for IP-based networks based on the Layering Theory, which will allow for increased transparency and non-discrimination by DC ISPs not only when negotiating access and interconnection for electronic networks and services with operators within Europe, but also with third country operators, and ensuring effective competition by more clearly identifying those operators with SMP in the kind of relevant markets that DCs and LDCs operators are likely to supply.² In this Chapter, the Author clarifies how the Layering Theory can benefit DCs and LDCs wishing to gain access to OECD country markets in order to export electronic intangibles into such markets. Finally, the *World Summit on the Information Society* is discussed: the first phase of the summit having already being held in Geneva in 2003, with the second phase in

² Off-shore value-added services, front and back-end office functions, medical, educational, financial, architectural, computer design etc., that could be performed remotely, and other kinds of electronic service provision including the supply of electronic fast moving consumer goods.

Tunisia in 2005. The aim of the summit was to set out a long-term policy framework to assist DCs and LDCs in addressing the Digital Divide.

7.1.1 Background

In the area of telecommunications and over the period of the 1990s, the West saw unrivalled privatisation of their national telecommunication incumbents, which has led to lower prices and also expanded service functionality. In Europe for example, the European Commission was eager to break the power that individual European Member States had over their respective national telecommunication networks, and where there was too close a relationship between government and the main incumbent telecommunications operator. This was partly achieved through regulation (a series of liberalisation and harmonization directives under Articles 86 and 95 of the EC Treaty (then Articles 95 and 100) and partly by exploiting the commercial interests of some of the large operators that wished to merge or form joint ventures, such as Deutsche Telekom and France Telecom³. The Commission allowed the joint ventures but only on condition of their Member State governments passing national measures to introduce greater competition, for example in the area of interconnection (discussed in Chapter 3). Deregulation in Europe eventually led the way to a greater arms length relationship between national regulator and incumbent operator, which in turn led to increased competition and lower end-user prices.

However many DCs and LDCs have been reluctant to liberalise their telecommunications markets and accept the regulatory Reference Paper. This is despite evidence available in the public domain that liberalising telecommunications can help address the Digital Divide (discussed in Chapter 2). There are various reasons for this including political, economic and social. In many DCs and LDCs liberalisation of international leased lines, domestic leased lines and long distance telephony would also lead to the withdrawal of cross subsidies to traditional loss-making markets of local access and calls, with consequent price rises in local

³ See for example *Atlas*-Case No IV/35.337 [1996] L239/23 and *Phoenix/Global One*-Case No IV/35.617 [1995] JO C 337.

telephony markets⁴. For DC and LDC governments such a move could lead to political tension and destabilization. Another adverse economic effect could be increased unemployment as privatisation leads to a loss of jobs in the incumbent and loss of government revenue (if the monopoly operator was previously publicly owned). Liberalisation carried out in compliance with WTO or World Bank funding can also lead to expensive and counterproductive disputes between the Government and operators in the newly liberalised market segments and can be the reason for external entities exerting influence over the domestic telecommunications liberalisation agenda. Particularly important to DCs and LDCs are the international funding organisations in respect of ICT use, and the ways in which multilateral donor organisations, such as the World Bank, UNCTAD, and developed-country specific donor organisations, such as the UK's DFID, work together to meet international development goals, such as the *Millennium Development Goals* (MDGs). Nevertheless the greatest problem for end-users and ISPs in DCs and LDCs, and therefore an impediment to addressing the Digital Divide, is for these end-users and ISPs negotiating cost-oriented access and interconnection agreements with their own incumbents who maintain monopolies over telecommunication and internet infrastructures, and peering/transit agreements with the IBPs who control international internet routes.⁵

Furthermore, the extent of increased telecommunications liberalisation reflected in any one country's Schedule of Specific Commitments under the GATS will indirectly impact on the levels of ICT penetration and access in urban and rural areas. As we saw in Chapter 2, greater liberalisation and policies that encourage further competition in the domestic market, have a positive effect on reducing the Digital Divide. This approach of increased liberalisation and further deregulation goes hand in hand with greater commitments under the WTO Information Technology Agreement (a GATT agreement) which seeks to lower the tariffs paid on the import of information technology products (mainly hardware) into a member country. By

⁴ DFID report by Kariyawasam R, Collins H., Dixon M., Garthwaite N., Gillwald A., Groves T., Hunter J., Jensen M., Lucas W., Milne C., Unadkat C., and Wirzenius A., *Reducing the costs for internet access in developing countries*. Report produced for Department for International Development, UK Government (2001), Antelope Consulting, 2001, published on the internet at: http://www.antelope.org.uk/telecommunications_development/DC_overview.pdf, accessed October 2008.

⁵ Ibid at section 3.3 overview client report.

simultaneously reducing the cost of IT equipment, end-user choice is enhanced and IT penetration increases. This in turn has a positive effect on the Digital Divide as evidenced by some of the studies reviewed in Chapter 2. Also the extent to which ICTs are considered in domestic policy making (e.g. in respect of the delivery of services such as in employment, social services, social welfare benefits, and education) will have a knock-on effect on the use of ICTs for economic and social development and governance, and on the level of expertise and availability of resources in the countries concerned.

In the telecommunications sector, priorities for negotiations under Doha were greatly influenced by the reduction in the price of mobile network infrastructure and the success of operators in countries previously considered too small or poor to offer commercial opportunities. For example, VoIP (Chapter 3) and other internet-based services have had a significant effect and the rise of third generation mobile technologies (3G) is already reducing the value of fixed-line access in countries that do not already have established fixed-line access infrastructure. At the regional level, the rise of bilateral and multilateral trading blocs through free-trade agreements and customs unions that have schedules on services will have an impact on future trade rounds given the recent collapse of talks at Doha with the risk of multiple standards emerging when agreements are signed outside of the framework of the WTO.

7.2 Developing Countries, the Reference Paper and the Layering Theory

As seen Chapter 6, the Layering Theory is a regulatory tool that will allow NRAs greater power to accurately determine market power in the communications sector. The Author argues that this theory should be adopted into the regulatory frameworks of both developed and developing countries. It should also form part of a revised reference paper at the next multilateral trade round, or failing that, be incorporated into the services schedules of new preferential trade, regional trade and bilateral trade agreements of the Quad countries (US, Canada, European Communities and Japan), given that the rise in PTAs/RTAs is likely to continue to circumvent the multilateral trading process over the next five to ten years. For example, as at July 2007 the WTO have on record 380 PTAs – 205 of which are adopted. The majority (over 90%) are Free Trade Agreements, with less than 10% being Custom Union Agreements. By the

year 2010, the WTO anticipates circa 400 PTAs being in force.⁶ The Author contends that as more traffic is switched over TCP/IP networks, it will become increasingly important for regulators to accurately determine where the access bottlenecks are so as to regulate for effective competition. For example in the EU, the provisions of Article 12 Access & Interconnection Directive will become crucial in helping service providers gain access to incumbent networks in order to deliver electronic services to customers connected to these networks. The EC's new regulatory framework for electronic networks and services (discussed in Chapter 5) has now simplified the licensing procedures for service providers wishing to offer electronic services in the EU, creating a simple "notification of services" system to NRAs replacing the older "individual" and "class" licensing systems. Subject to adequate network security issues, it has never been easier for DC and LDC third country operators to notify and provide electronic services within the EU. And by satisfying notification requirements in one EU Member State for example, because of the free movement of goods and services provisions of the EC Treaty (Articles 49-51), such operators will be able to offer pan-European services. The function of the Layering Theory is to increase *effective competition* both within the EU, and if reflected in a revised RP, at the multilateral level. The Theory allows for operators that would otherwise not be caught by current competition jurisprudence (for example due to the difficulty of defining an appropriate relevant market) to be caught and in appropriate cases, access mandated. Such a power is particularly important in markets where electronic applications are driven by software just as much as hardware (e.g. electronic program guides, the production/manufacture for which could be outsourced in a third country). Furthermore, by applying the theory at the multilateral level by amending WTO measures such as the RP (as suggested at Annexe 1 to this thesis), the Author is advocating for increased effective competition at the multilateral level for cross border electronic services under mode 1 or consumption abroad of electronic services under mode 2 GATS. Subject to the (separate) classification issue of electronic *intangibles* (as to whether electronic intangibles should fall to be regulated under the GATS, GATT or TRIPS for example--discussed in Chapter 9), the Layering Theory will allow for increased market access and national treatment for any operator (whether from a developed or developing country) to deliver electronic intangibles

⁶ WTO, 'Regional Trade Agreements' available at <http://www.wto.org/english/tratop_e/region_e/region_e.htm> accessed September 2008.

into the target WTO member state, more likely OECD countries that are dependent on access to lower cost high technology services. Naturally, adoption of a revised RP in light of the Layering Theory works both ways; DC and LDC markets will be just as open to competition by aggressive and efficient foreign operators as developed country markets by DC and LDC operators who are able to undercut on costs for innovation and service delivery due to access to a cheaper workforce. How DCs and LDCs can protect their national markets to some extent (and developed countries cannot, due to the pace of regulatory change and existing measures in the communications sector in these countries) is discussed below.

Many developing countries failed to take out the additional commitment in the form of the regulatory Reference Paper, or if they did make a commitment, made only a partial commitment⁷. A number of developing countries objected to the requirements to liberalise domestic national telecommunications as a consequence of adopting certain provisions in the Reference Paper, particularly provisions on interconnection. For example, a number of African and Caribbean countries in particular Nigeria, Tanzania, and Trinidad & Tobago respectively have argued that developing countries should be left free to liberalise in accordance with their own national policy objectives and under Article VI GATS, be left free to develop domestic regulation⁸.

The significance of maintaining flexibility for determining national policy has been adopted as a policy objective at the recent UNCTAD XI Conference in Sao Paulo (June 2004)(the *Sao Paulo Consensus*) which states at paragraph 8 that:

The increasing interdependence of national economies in a globalizing world and the emergence of rule-based regimes for international economic relations have meant that the space for national economic policy, i.e. the scope for domestic policies, especially in the areas of trade, investment and industrial development, is now often framed by international disciplines, commitments and global market considerations. It is for each Government to evaluate the trade-off between the benefits of accepting international rules and

⁷ See the telecommunications services section of the WTO website at www.wto.org. The WTO database holds a list of the telecommunications commitments of each of the WTO member states, which can be accessed from the WTO (GATS) services site.

⁸ *Elements of a G-90 Platform on the Doha Work Programme* WT/L/577, July 2004.

commitments and the constraints posed by the loss of policy space. It is particularly important for developing countries, bearing in mind development goals and objectives, that all countries take into account the need for appropriate balance between national policy space and international disciplines and commitments.⁹

Given that many DCs and LDCs did not take out the additional commitment of the existing Reference Paper, it is hard then to imagine why many of these WTO members would be interested in the amended version of the Reference Paper in light of the Layering Theory and suggested by the Author and included in this thesis at *Annexe I*. This is particularly the case where members have not scheduled internet (or internet access) services as part of their schedules of specific commitments. In fact, in future rounds a number of G-90 countries will seek diplomatic understanding on the decline of international accounting rates before agreeing to any new measures on electronic commerce or the internet, which they perceive as favouring the developed countries, particularly the *Quad* Countries. International Accounting Rates have already been discussed in Chapter 3. The ITU's International Telecommunications Regulations (ITRs) sets the framework for international accounting rates. By contrast, many developed countries, who make net accounting rate settlements to DCs and LDCs in light of increased traffic being terminated in the developing countries (i.e. more outgoing calls from developed to developing countries¹⁰), see the ITRs as having been superseded by the WTO's Fourth Protocol and Reference Paper, which introduces a cost-based approach to the conveyance of international telephony traffic, although the precise terms of these WTO measures remain vague. As mentioned in Chapter 3, a cost-based regime dramatically reduces the cost of terminating international traffic (to cost). Furthermore, the *Mexico-Telmex* case (discussed in Chapter 3) has set an important precedent as to how the WTO measures could be interpreted both now and in the future, and mainly in line with a cost-based interconnection regime, effectively "sidelining" the gentleman's agreement on accounting rates agreed in the early negotiating stages of the Fourth Protocol at the

⁹ UNCTAD, TDL/L.30, June 2004.

¹⁰ This is unlikely to change even with internet traffic, where traffic patterns are *asymmetric*. With most websites being hosted in the US, requests for webpages from these sites generates increased traffic flow in the direction of the subscribers requesting the content (generally in the developing countries). See Section 2.3 of the DFID Internet Costs Study.

WTO¹¹. This is not good news for the DCs and LDCs that still retain monopoly domestic markets in telecommunications, and who would like to see the ITU's ITRs amended and revived¹². As mentioned in Chapter 3, at the time of writing the position has yet to be confirmed.

G-90 countries could also seek a phased implementation for any revised Reference Paper in light of the Layering Theory applying to packet-switched networks. Many of the LDCs have not made the switch from legacy circuit-switched networks to packet-switched technology for obvious costs reasons and therefore would have little interest in any revision of the Reference Paper as it stands. However as UNCTAD's *World Investment Report 2004* has shown, a number of DCs, such as China, India, and Korea are not just magnets for inward foreign direct investment (FDI), but also are becoming *suppliers* of foreign direct investment themselves, and usually through technology orientated companies, such as Singapore Telecom and the Hong Kong-based Hutchinson Telecom. This trend has continued. The *World Investment Report 2005* lists Hutchinson Whampoa (Hong Kong, China), Singtel (Singapore), Petronas (Malaysia), Samsung (Republic of Korea), and Cemex (Mexico) as the top five developing country TNCs¹³. The 2008 World Investment Report indicates a similar pattern. Countries, such as India have also proven that a successful outsourcing operation can be developed with appropriate human resources and technological capability at home. Furthermore, this chapter discusses below how DCs can use the New Modes of Operation *in reverse*, aggregating traffic for termination in developed countries. In the next trade round or more likely in subsequent rounds, if G-90 countries were to seek from the Quad countries GATS specific commitments in network-based transactions and complementary services (services ancillary to telecommunication services, such as financial, distribution, computer, audiovisual etc), DCs and LDCs who are able to attract sufficient FDI into their home markets and who can utilise beneficial technology transfer to innovate themselves based on a well trained resource of human capital, will be able to make use of such commitments to generate an export portfolio of advanced network electronic services and goods into markets in the developed world. Imagine a situation where a number of developing

¹¹ See Section 3.2.2 above.

¹² Sections 3.1-3.2, Chapter 3.

¹³ UNCTAD World Investment Report 2005, p. 17.

countries are now able to develop complex TCP/IP-based services in-house and at much cheaper production costs than available in the United States, Canada, Japan or the EU? The incentive would be to export these services over modern IP networks back into domestic developed country (mainly OECD) markets for use as electronic communications services by developed country consumers in both front-end and back-end functions¹⁴. All of these business practices however require appropriate market access commitments and also regulatory frameworks that can deal with IP-based networks. For these reasons, some members of the G-90 should look carefully at the Reference Paper for bits and bytes revised in the light of the Layering Theory and set out in Annexe 1 to this thesis. In conjunction with a revised RP, DCs and LDCs will also need to lobby hard to enforce the provisions of the ITU *Recommendation D.50* (discussed below in section 7.4) that seeks to generate more equitable payments by DC and LDC ISPs in interconnecting with the mainly (developed country) international internet backbone networks.

It is important to stress that DCs and LDCs in acceding to greater liberalisation commitments, as set out in the revised RP should only accept such commitments in line with their domestic liberalisation agendas. There is no reason why DCs and LDCs should adopt any revised RP as a consequence of WTO procedure. If not restricted by onerous provisions on trade in telecommunications in bilateral/FTA agreements with other countries, DCs and LDCs will be free to adopt into their own domestic law as a matter of their own domestic policy choice only those provisions that seem appropriate. The fear of developing country administrations is an attack on the monopoly operation of LDC and DC incumbent telco operations and the consequent loss of monopoly rents. However, commitments to a revised RP can still be made so long as adequate measures to protect domestic incumbent telcos have been implemented into national law prior to such a commitment being made. For example, DC and LDC governments can choose to introduce legislation that will protect any incumbent telco from new competition measures (brought in for example by adoption of a revised RP) that is responsible for *services of a general economic interest* (SGEI), for example universal service/universal access and public broadcasting

¹⁴ Front-end functions apply to the group of services either hardware or software that directly interact with the customer (Electronic Program Guides for set-top boxes for example). Back-end functions relate to the range of services that are required to support the front-end functions (billing, network security, data collection and retrieval etc).

functions. The European Commission was successful in protecting its Member States' national telco incumbents in just this way through the operation of Articles 86(2) and 86(3) of the EC Treaty for example, which sets out the framework for SGEI in Europe. Article 86(1) effectively protected operators that had been granted *special* (available only to a limited class of operators-eg. sale of leased-lines) and *exclusive* (available only to one or two operators-eg., basic voice services) rights by NRAs. With the gradual withdrawal of special and exclusive rights over time, particularly in telecommunications, the relevance of Article 86 to this sector has gradually diminished, although it remains necessary in the area of public service broadcasting, where exclusive licensing rights still exist to some extent. DCs and LDCs could learn from the EC's experience however and retain in their regulatory frameworks a position for special and exclusive rights in certain telecommunication sub-sectors (for example international cable landing stations or basic electronic voice telephony services offered to the public)¹⁵. The important point to note however is that within the EC, special and exclusive rights have been mainly removed, which allows third country operators who have notified to provide electronic services in the EU (conforming to the principles of the EC's Authorisation Directive 2002/20/EC for example) the chance to compete with national incumbent telcos¹⁶.

The other argument that needs to be made in favour of developing countries is that as a number of these countries develop their ICT industries, invest in IP-based infrastructure, develop the necessary human resource skills in areas of protocol design, coding, hardware and software development, and begin to identify technology service products that are suitable for export over network-based technologies ("complementary services"), such countries will then need to enforce the provisions of Article IV GATS which deals with increasing the participation of developing

¹⁵ The NAFTA tribunal case *United Parcel Services (UPS) v. Government of Canada* is an important precedent here. The case concerned whether the right of a State to maintain state monopolies in certain sectors of business could be challenged. UPS claimed damages under the NAFTA agreement alleging that *Canada Post* was benefiting from undue privileges as a government-owned corporation. In a decision by a NAFTA Tribunal in June 2007, UPS's claims were dismissed. The decision effectively strengthens the argument for state monopolies to protect certain business sectors from private competition. See case notes at: http://www.international.gc.ca/trade-agreements-accords-commerciaux/disp-diff/parcel_archive.aspx?lang=en, accessed October 2008.

¹⁶ Note that most electronic services fall under the enhanced service category in US and EU markets (data services) and which were deregulated in anycase. However with the advance of technology, VoIP services are now just as effective as basic voice telephony services, and until VoIP is regulated in the same way as voice (being considered), third country operators could provide such services within the EU (if registered in accordance with the Authorisation Directive).

countries in international trade in services¹⁷. The positive list approach of the GATS and Article IV could allow for increased participation of developing countries in services technology trade, but Article IV dealing with the Special & Differential Treatment of developing countries needs to be enforced by the WTO membership as a collective¹⁸, 90% of which consists of developing country members. For example paragraph 5 Article IV discusses the desire “to facilitate the increased participation of developing countries in trade in services and the expansion of their service exports including *inter alia*, through the strengthening of their domestic services capacity and its efficiency and competitiveness”. Furthermore subparagraph 1(c) of Article IV mentions better market access for developing country services exports through liberalisation in sectors and modes of supply of *export interest* to them. Subparagraph 1(b) goes on to discuss access to developed country distribution channels and information networks. Neither distribution channels or information networks is defined in Article IV, but it would be reasonable to argue that such networks and channels would include developed country telecommunication networks, including IP-based networks. In future trade rounds, it is in such areas where the thrust of negotiating resource should apply, at least in the technology sectors. It may well be that the terms of Article IV will come to be interpreted through a future dispute settlement case in a way similar to the terms of the RP were discussed in the *Mexico-Telmex* or *US-Gambling* cases.

As well as developed countries having an obligation to consider modes of supply and sectors of interest to developing countries, developing countries also are afforded protection under the GATS to open markets *selectively*. For example, Article XIX GATS that mandates successive rounds of negotiations and which provided the legal basis for the now defunct Doha Round is also linked to the provisions of Article IV GATS. Paragraph 2 Article XIX provides for some practical examples of implementing the objectives of Article IV by mandating that (1) the process of

¹⁷ For an excellent discussion of the need to implement Article IV GATS, see the Communication from Cuba, Pakistan, Senegal, Sri Lanka, Tanzania, Uganda, Zambia, and Zimbabwe on Increasing Participation of Developing Countries in International Trade in Services: Effective Implementation of Article IV GATS, S/CSS/W/131, December 2001.

¹⁸ Virtually all WTO agreements have special provisions with respect to developing country members, known as *Special and Differential Treatment* terms. See the WTO report, *Implementation of Special and Differential Treatment Provisions in WTO Agreements and Decisions*, WT/COMTD/W/77.

liberalisation shall take place with due respect for national policy objectives and levels of development of Members; and (2) there shall be appropriate flexibility for developing countries to open fewer sectors, to liberalise fewer types of transactions, to extend market access in line with their development situation and to attach conditions to this access.

With the failure of the discussions at Doha, there should perhaps be further movement here. For example, in a Decision (*General Cancun Decision*) adopted by the WTO's General Council in August 2004, the Council instructed the Committee on Trade and Development to "expeditiously complete the review of all the outstanding Agreement-specific proposals [on special and differential treatment] and report to the General Council, with clear recommendations for a decision..."¹⁹ At the time of writing, the Doha Ministerial Declaration at the Sixth Session of the WTO Ministerial Conference in Hong Kong in December 2005²⁰ agreed a number of S&D rights for LDCs (as opposed to DCs as a whole group-see the distinction in the UN's definition in the introduction to this thesis) including:

- Providing duty-free and quota-free market access on a lasting basis, for all products (97% of products for countries unable to provide 100%) originating from all LDCs by 2008;
- Ensuring that preferential rules of origin applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access.

The collapse of the Doha talks has now put such provisions in jeopardy. We will, however, have to wait and see to determine whether the review mentioned above will have any meaningful outcome for DCs and LDCs²¹.

¹⁹ Clause 1(d), WT/L/579.

²⁰ WT/MIN(05)/DEC, 22nd December 2005.

²¹ In October 2004, the WTO Committee on Trade and Development did produce a report listing all the special and differential treatment provisions to be found in the WTO covered agreements for LDCs. See WT/COMTD/W/135, October 2004. The report simply lists the provisions, but makes no recommendations going forward. In December 2007, however, the United States did set out in a paper to the WTO new provisions for tax exemptions or tax liability reductions to private institutions and foundations engaged in international development work: IP/C/W/497/Add.5, (3 December 2007).

7.3 Using the new modes of operation in “reverse”

The Author mentioned above, the possibility for DCs and LDCs to use the new modes of operation in *reverse*. These new modes of operation work outside the conventional accounting settlement regime, bypassing international accounting rates, and increasing the pressure on such rates to fall. To most DCs and LDCs, which are dependent on international accounting rate settlements to earn foreign currency and invest in local network infrastructure, the new modes introduced by way of the BTA of the GATS are a serious threat to revenue. How then can these modes benefit developing countries? In a paper looking at transforming economic relationships in international telecommunications²², the ITU argues that developing country telecommunication operators need to find ways of *aggregating* their traffic to achieve economies of scale, and then terminating that traffic at cost-based rates in net-paying developed country markets, such as the United States: This could be achieved by petitioning the FCC to grant full interconnection rights and for an extension of the developing country operator’s network into the United States (via Points of Presence in the US owned by developing country operators)²³. Operators, such as Singapore Telecom, have already been very successful in acting as a regional hub for other Asian operators, and VNSL in India is also playing a similar role. For such operators, terminating aggregated traffic via Points of Presence in developed country markets would be one example of using the new modes in reverse. Another approach is to use “turnaround arrangements” in developed country markets through the use of calling card or country –direct services. Developing countries would also need to negotiate asymmetrical interconnection or termination charges with their developed country counterparts. Here the overall level of the charge is reduced, but the legitimate cost-based case, setting higher rates in developing countries than in developed countries to take account of higher transmission costs and reduced efficiencies, is recognised²⁴.

In addressing the Digital Divide, DCs and LDCs will also need to liberalise their home markets. The DFID report on reducing the costs of access to the internet in

²² International Telecommunications Union *Transforming Economic Relationships in International Telecommunications*, Chairman’s Report of the Seventh Regulatory Colloquium, Geneva, December 1997.

²³ *Ibid*, p. 51.

²⁴ *Ibid*, p.53.

developing countries referred to in Chapter 4 discusses a number of possible sectors to liberalise to quickly bring down the cost of accessing the internet in the hope that internet penetration would then spread thus addressing the divide²⁵. The sectors to target include: international leased lines; domestic leased lines; long distance telephony; Very Small Aperture Terminals (VSAT) connections (ISPs in Africa for example use satellite based channels for incoming data, often for cost reasons aggregating outgoing data on shared International Private Leased Circuits); and Internet telephony.²⁶

The DFID Internet Costs report makes clear however that liberalisation of the first three (traditionally profitable) markets often means the withdrawal of cross-subsidies to the traditionally loss-making markets of local access and calls, with consequent price rises. This has serious political overtones for local government as raising the cost of local calls would be an unpopular step for voters. In recent years internet use has reduced the need for such “rebalancing” (as lost revenues are recouped from additional internet use, up to the limits permitted by network capacity). However, the DFID report recommends that moderate local price rises are usually worth paying for the benefits of liberalisation²⁷, and that Permitting private VSAT connections with both-way transmission could allow major cost reductions for leased line customers (usually the small ISPs in Africa or Asia dependent on the large incumbent telcos), especially as new lower-cost satellite offerings become available. Also, the DFID report suggests that liberalising internet telephony could be particularly beneficial for both ISPs and users²⁸, though often initially unwelcome to incumbents. Internet telephony could provide extra traffic to ISPs who choose to offer telephony, enabling economies of scale and eventually lower internet access costs to be achieved, as well as cheaper phone calls for end users²⁹. The DFID report argues that liberalisation of internet telephony could generate sufficient additional traffic to compensate the incumbent telco for any lost revenues.

²⁵ See section 5 of the DFID Internet Costs Report.

²⁶ Ibid, p.47.

²⁷ The DFID report argues that some countries may want to consider special price plans for low users, who suffer the highest price rises through rebalancing.

²⁸ The DFID report uses the term to mean a phone-to-phone service accessed by dialling a prefix and carried over the internet.

²⁹ Ibid., p.47

In surveying the case study countries in Africa and Asia, the DFID report also finds that complaints are common that the ISP run by the main incumbent telco has unfair advantages over all other ISPs³⁰. For example, the incumbent telco is in a position to apply a margin squeeze on the inputs of other competing ISPs and yet possibly (and illegally if the law is in place) allows the incumbent to cross-subsidise its own ISP downstream subsidiary (from say revenues generated through its monopoly voice business). To prevent this, accounting separation (and structural measures) introduced by NRAs may be required in enforcing the strict separation of ISPs from incumbent telco operations. Structural separation may well be the better course. There is a further distinction to be made between the competitive environments in DCs to that of LDCs. Telecommunication markets in LDCs tend to be controlled by the dominant incumbent operator with a majority shareholding of the incumbent itself being held by the LDC's respective government. LDC markets therefore need a higher level of ex-ante or sector specific regulation as opposed to ex-post or market competition regulation. For example, telecommunication markets in India, a pro competitive DC are quite different to the markets of a number of sub-Saharan African LDCs, such as Sudan, Ethiopia or Mali. And within the grouping of Sub-Saharan African countries there are also great differences in terms of telecommunications development within South Africa, Ghana and Nigeria demonstrating with greater telephone line density rates than Republic of Congo, Malawi, and Angola for example.

Another important change would be to allow ISPs in both DCs and LDCs to aggregate their TCP/IP traffic through internet exchanges (IXPs) where capacity on networks can be traded at cost prices. The creation of national or regional IXPs that could aggregate traffic would also make interconnection between these IXPs and international backbone providers more attractive. Without ISPs in developing countries being able to gain access and to interconnect on non-discriminatory and transparent terms with the international backbone operators, who control the internet (and also the national monopolists who control access to international gateways, such as international cable landing stations and satellite uplinking facilities), the Digital Divide cannot be addressed.

³⁰ Ibid.

Unfortunately, monopoly telcos often oppose the creation of IXPs³¹. As the OECD states:

The barriers to developing countries taking advantage of the new environment are their monopolies. The creation of IXPs, for example, would create places where traffic aggregations would make it more attractive for global backbone networks to connect their infrastructure. This would increase the opportunities for peering and make the transit market more competitive. . an even more fundamental step than establishing IXPs is to create conditions in which ISPs can develop and grow the overall market. These ISPs will then look for the best commercial arrangements for themselves and their customers.³²

In this regard, the Layering Theory if implemented at a national or regional level will help deal with abuse of dominant positions by incumbents, subject to suitable competition law being in place. Furthermore, the Layering Theory is dependant on OSI Layer 5-7 filtering technology and cost accounting software being available to the regulator. For most DCs/LDCs such technology may be beyond their reach unless made available through technology transfer and technical assistance from the developed world, for example through the technical assistance program of the World Bank (see Chapter 8). The lack of IXP exchanges in Africa is a real impediment to lowering the costs for internet access to end-users and thereby reducing the Digital Divide. As we saw in Chapter 4, there are around 17 IXP exchanges in Africa. Countries such as South Africa and Botswana, which have more developed telecommunication infrastructures and regulatory regimes might be in a position to amend national laws to incorporate the Layering Theory and put in place server technology at each of the IXP exchanges in its territory to monitor internet traffic and thereby enforce the Layering Theory. By enforcing the theory in this way, NRAs will be able to guarantee non-discriminatory access to the networks of IBPs and also local monopolists upgrading their networks to NGN. At 4%, South Africa has the highest internet per capita penetration in Africa. The South African internet market comprises some 70 to 80 ISPs, with about 750,000 dialup subscribers and an estimated 1.8

³¹ UNCTAD *Information Economy Report* 2005, p. xix.

³² OECD, *Internet Traffic Exchange and the Development of End-to-End International Telecommunication Competition.*, DSTI/ICCP/TISP(2001)5/final, 13 March 2002, p.11.

million users.³³ Adoption of the Layering Theory in these countries could serve as an invaluable precedent to the rest of Africa.

7.4 ITU Recommendation D.50 and Packet-Switched Networks

Chapter 4 introduced the ITU's Recommendation D.50 and the APEC pricing principles agreed at Cancun in Spring 2000. This section now looks at the application of these principles and Recommendation D. 50 to DCs and LDCs. As mentioned in the section above we are witnessing a major shift in the movement of traffic from legacy circuit-switched networks to packet-switched networks based on the TCP/IP transmission protocol set. Internet traffic therefore will be crucially important to DCs and LDCs in the decade ahead, if not immediately to selected DCs, such as Indonesia, Korea, China, India, South Africa and the North African states. The underlying concept of directional internet traffic-based cost-sharing is that each party should bear those costs for which they are responsible. As the DFID report makes clear, this would be a valid model between parts of the world with similar levels of internet development, for example between the USA and Australia or Europe. However developing country ISPs host much of their content in North America³⁴, and route much of their domestic or regional traffic via North America (although this is changing). A high proportion of the traffic in both directions is therefore instigated by, and is for the benefit of, the developing country. The high prices of international private leased circuits (IPLCs) in many countries are at the heart of the problem. As the DFID report points out: "If both half-circuits were priced at similar levels, it might seem more reasonable to request cost-sharing – but the need for it would also be less"³⁵. Several commentators in the report suggest that reductions in the cost of links to the USA without at least corresponding reductions elsewhere would further reinforce

³³ DFID Internet Costs report, p. 74.

³⁴ See Section 2.3 DFID report. Often hosting skills are in North America, and hosting services there are well priced, if not free, which contrasts with high local prices and scarcity of regional links in parts of Africa and Asia. In addition, expatriates living abroad form a substantial proportion of requests for web content from servers located in the US, but hosting content uplinked by webmasters (those who control the websites) in Asia and Africa for example. Interestingly remittances from expatriates living abroad to the developing world are a key source of finance for developing countries, and globally have risen from US\$20 billion to nearly \$100 billion between 1983-2003. According to the UK's Commission for Africa report "Our Common Interest", remittances are now the second largest source of development finance, after FDI. See page 295 Africa Report.

³⁵ Section 2.3 DFID Internet Costs report.

the position of the United States as the global internet hub³⁶. Other ISPs in Australia or Asia for example view US ISPs bearing their share of international infrastructure costs as important to their own economies' chances of competitiveness, whether competition takes place in local or global markets (bearing in mind that often traffic sent between two ISPs in the same city might be redirected to a hubbing point in the US).

The Kenyan Internet Exchange (KIXP) as an example of a new regional hubbing point in Africa demonstrates the value in ensuring that traffic is exchanged as close to the source of content as possible (rather than being hubbed in the US). Michuki Mwangi argues that prior to the KIXP locally hosted sites were 1.2s away (dual satellite hop), which introduces a high latency (delay) value for Internet data disrupting real-time applications, such as video and voice calling over TCP/IP networks (viz Skype calls).³⁷ Mwangi argues that post KIXP, most locally hosted sites are now less than 100ms away which has significantly improved the access of locally hosted content in Kenya, and regional sub-Saharan African countries. More regional IXPs in Africa will lead to greater local creation and local hosting. Also, Mwangi argues that the regional Kenyan exchange has led to considerable 'ripple effects' such as:

- “Reduced dependence on International Links
- Outages on International links (Satellite and Fiber) does not affect local traffic flow
- Reduced capital flight resulting from savings made on peered traffic
- Only transit traffic capacity is bought from upstream providers
- Skilled technical capacity resulting from exposure to technology
- Interconnection techniques
- Competitive pricing for local links It costs about \$75 per Mb in Kenya for a local loop link on Fiber.”

³⁶ Ibid.

³⁷ Internet Exchange Points: Lowering costs and promoting internet development, African realities and the Kenyan experience, Michuki Mwangi at: <http://www.oecd.org/dataoecd/32/15/43759912.pdf>, accessed April 2012.

There is no doubt that similar exchanges in other parts of Africa, particularly sub-Saharan Africa could yield considerable benefits to both smaller ISPS and end-users in the region. In short, it seems that the APEC proposals were neither primarily designed to benefit developing countries, nor likely soon to have been very beneficial to them. The principles have however raised the political profile of the mutual compensation issue, which is now likely to be taken forward on a commercial rather than a mandated basis³⁸. Therefore, for developing country ISPs, nothing much will change, unless these ISPs are able to aggregate traffic at a regional level (for example through local and regional IXPs) and therefore gain the necessary bargaining power to demand commercial arrangements that take into account compensation for traffic flow. The other avenue that could be explored is the WTO's Dispute Settlement Body (DSB). A conflict over charging arrangements could be referred to the WTO's DSB provided that internet services that are the subject of the dispute can be captured by the Reference Paper. This will depend to what extent in future trade rounds members are willing to consider internet services as falling under their existing commitments or are willing to make new commitments incorporating internet services. It will also depend on whether certain publicly available internet services can fall under the regulatory capture of the Reference Paper, as discussed in Chapter 3. Perhaps this will be an issue that will come to determined by some future WTO DSB panel? As we saw in *Mexico-Telmex*, the panel in that case came to some surprising results³⁹.

The fact remains however that most developing country governments lack the necessary resources and technical skills to frame a complaint through the WTO⁴⁰. In

³⁸ Ibid.

³⁹ See section 3.4.2 (Chapter 3).

⁴⁰ They could however frame a complaint as a *collective*, possibly with a regional regulator or regulatory institution, such as in Africa through the Telecommunications Regulators' Association of Southern Africa (TRASA). A collective action in telecommunications would be ground breaking as far as WTO case law is concerned given that the first WTO case in telecommunications between the US and Mexico is so recent. As the Fourth Protocol is effectively a diplomatic agreement between nation states (and not private companies), the first port of call for an aggrieved developing nation ISP or backbone would be to their own governmental trade representative's office. Under the Dispute Resolution Understanding of the WTO, diplomatic negotiations would then begin (in the event of a dispute with the US) between the USTR and the developing nation state's trade office. In the event of a dispute with the United States for example, a collective complaint could also be framed against the USTR. WTO case law precedent does exist for collective actions, for example in the collective action brought against the EU by the US and various Latin American states in the *Bananas* case. In the light of a number of bilateral and Free Trade Agreements however signed by the US and the European

fact most recent WTO complaints in the communications sector have been by the United States! For example, in the telecoms industry in general, there has been more widespread take up of potential referrals to the WTO's Dispute Resolution Body (DSB) by the US in recent years⁴¹. A decision to go to the WTO's DSB would depend to a large extent on the value of the Internet interconnection agreements in dispute, which if following current market research, is likely to rapidly increase.⁴² Another important factor would be the willingness of the DSB to involve itself in areas that, some would argue, might be better handled by national regulatory authorities. However history has proved, as in *Mexico-Telmex*, that the WTO's DSB is very happy to fill in the gaps created by instruments such as the Reference Paper. If necessary, it will even create policy that has not been agreed at the WTO's General Council, for example in the finding of cartels by the WTO's panel in *Mexico-Telmex* as being an example of an "anti-competitive practice" listed in the RP.⁴³

7.5 Classification of telecommunications services in the next trade round

As mentioned in Chapter 3, in a recent offer to the Doha negotiations, the United States has classified packet-switched services as *information services* (packet-switched information services) without any reference to the UNCPC coding system discussed earlier⁴⁴. Under the US Telecommunication Act 1996, information services are *not* classed as telecommunication services and can therefore not be regulated as basic telecommunication services. Furthermore, VoIP services under US law are also currently classed as information services⁴⁵. The Reference Paper only applies to basic

Communities with various DCs and LDCs, the chance of a collective action as described above remains remote.

⁴¹ See, e.g., the entries in Total Telecom at <http://www.totaltele.com/results.asp>: 'US slams BT over DSL access' (17th April 2000); 'US threatens to take Mexico to WTO' (4th April 2000), U.S. threatens South Africa's Telkom? with WTO complaint (3rd April 2000), US threatens Japan with WTO action (30th March 2000). Issues at local access level have even proved worthy of potential referral to the WTO. In March 2001, the EU "sounded" possible action against Japan to the WTO over failure by the Japanese government to introduce greater competition in its telecoms market, the second largest in the world (CWI 13th March 2001). A month later, the US said that it was seeking action by Colombia, Mexico, South Africa, and Taiwan to improve compliance with trade agreements on telecommunication services or potentially face cases before the WTO (CWI, 3rd April 2001).

⁴² The Internet hardware provider, Networks, estimates that more than 25% of the world-wide voice traffic will be voice over IP by 2010. See Klaus-Jurgen Kraatz, Voice over IP - a Challenge to Regulation, *International Business Lawyer* (May 2000).

⁴³ See Marsden P., *WTO decides its first competition case, with disappointing results*, *Competition Law Insight*, May 2004, p.8.

⁴⁴ TN/S/O/USA, April 2003.

⁴⁵ See Section 3.3.1 on classification of telecommunication services in Chapter 3.

telecommunication services. It would appear therefore that the US in classifying packet-switched services as information services has moved the regulation of these services away from regulatory capture by the Reference Paper (with its strict interconnection obligations) and under the capture of the Annex on Telecommunications (which catches only those services that have been scheduled as specific commitments). For many DCs and LDCs currently considering future trade rounds and schedules of commitments, they would be wise to consider carefully the US domestic legislative position on information services and consider whether domestic legislative changes are required to create distinctions in law between advanced and basic services in their own domestic markets, and also a new category of service, the information service. The European Commission also has separate definitions for an electronic communications service and an information service⁴⁶.

The Significance of classification of electronic intangibles and network-based transactions to developing countries

DC and LDC Governments will also need to consider very carefully the extent (if any) of commitments for market access and national treatment given under the GATS in the Doha round. As noted above, commitments on market access and national treatment made within any of the telecommunications sub-sectors defined in the Services Sectoral Classification List (MTN.GNS/W/120) will be binding and required to be transposed into domestic law. Particularly where the incumbent is still state-owned, increased competition resulting from liberalisation will have an immediate impact on the government's monopoly rents. At the same time, these governments will need to consider the potential for ICTs in their home markets and determine whether specific technology markets in developed countries should be targeted. This concept has already been mentioned above and in Chapter 3.3.2 when discussing Business Process Outsourcing (BPO). Developing countries such as India and Costa Rica with established BPO operations submitted specific commitments for BPO within the Doha Round⁴⁷. Countries such as China, Vietnam and Poland, Hungary and Russia are sure to follow in future rounds. In Africa, the take-up of BPO has been

⁴⁶ See Chapter 5.

⁴⁷ Wunsch-Vincent S. and McIntosh J., *WTO, E-Commerce, and Information Technologies: From the Uruguay Round through the Doha Development Agenda*, Markle Foundation, 2004, p. 133.

slower. However, in Uganda for example, a BPO operation working via the Ugandan Outsourcing Association between a local Ugandan outsourcing company, Cayman, and a large accountancy practice in Canada has led to real developments in local Ugandan telecommunications law. According to Cayman, “the major obstacle was the slowness and high cost of Internet lines - US\$ 700 per month in Uganda, compared to US\$ 50 in Canada. There were also confidentiality issues. Several of [the Canadian] Wall & Associates' clients were reluctant to share information online. In addition, until recently, Internet policy in Uganda did not allow for Voice Over Internet Protocol, which was part of Wall & Associates' system.”⁴⁸ Further to consultations with the Ugandan government, the outsourcing association was able to persuade the local Ugandan government of the advantages of the new export market potential for outsourcing for Uganda which led to changes in the law. According to the Ugandan Outsourcing Association, ‘Today, connectivity costs in Uganda have been slashed by half because the Government understood the predicament of small providers and allowed other telecommunication companies to build the necessary infrastructure and offer access at a cheaper rate.’

To develop effective services, telecommunications policy as reflected in the Ugandan example above needs to be adequate to allow for the clustering of electronic services. As discussed earlier, this could be a significant problem for LDCs. However, there may be advantages in regional DCs/LDCs ‘pooling’ resources. Hoekman and Matoo argue, “For smaller countries, regulatory cooperation may allow the substantial fixed costs associated with regulatory bodies to be shared. For example, in basic telecommunications, apart from spectrum monitoring equipment, computers and programs, there is the cost of professional assistance for activities such as interconnection, cost estimation and spectrum management. An example is the Eastern Caribbean Telecommunications Authority (ECTEL), the first regional telecommunications authority in the world. Although the member countries retain their sovereign power over licensing and regulation, ECTEL provides technical expertise, advice and support for national regulations. Apart from the economies of scale in establishing a common regulator, there are at least three other advantages. It

⁴⁸ International Trade Forum Magazine, ‘From Canada to Uganda, Business Process Outsourcing’ at: [http://www.intracen.org/layouts/TradeForum-three-column.aspx?pageid=10505&id=14551&terms=\(+%40contenttype+%3d+1+or+%40contenttype+%3d+2+or+%40contenttype+%3d+101+\)+AND+business+process+outsourcing](http://www.intracen.org/layouts/TradeForum-three-column.aspx?pageid=10505&id=14551&terms=(+%40contenttype+%3d+1+or+%40contenttype+%3d+2+or+%40contenttype+%3d+101+)+AND+business+process+outsourcing), accessed April 2012.

will promote the development of harmonized and transparent regulation in the region, allow for a greater degree of independence (and hence credibility) in regulatory advice, and enhance bargaining power in negotiations with incumbents and potential entrants.”⁴⁹

Clusters of complementary services in the area of network-based transactions or increased commitments under CPC classification headings, such as for “Business Services” (CPC 87) might be a way forward not only for DCs and LDCs to gain access to overseas technology markets, but also to liberalise service delivery within their own markets where ICTs could play an important role, for example in health services, educational services, company registration, local and national government intranets, tax, land, customs, and banking systems. By making these areas more efficiently through effective use of linked databases and front-office and back-office functionality, DC and LDC governments may be in a position to attract increased FDI. Furthermore, the effect of the *US-Gambling* case (discussed in Chapter 9) is to make any restriction of mode 1 cross-border trade in electronic services a potential violation of GATS Article XVI on market access. *US-Gambling* establishes a distinction between regulation impacting foreign suppliers of electronic services and the *consumption* of such services by consumers in the importing state. Restrictions in the former could be seen as a restriction on trade, whereas restrictions on the latter viewed as being in compliance with Article XIV GATS on measures to protect public morality and to maintain public order. *US-Gambling* for example concerned cross-border trade in electronic gambling and betting services from Antigua into the United States. Nevertheless for DCs and LDCs who export electronic services, such as outsourcing services from India and China, *US-Gambling* provides a powerful market access precedent.

7.6 World Summit on the Information Society

⁴⁹ Hoekman B and Matoo A., Regulatory Cooperation, Aid for Trade, and the General Agreement on Trade in Services, WorldBank, 2007 at: http://www-wds.worldbank.org/servlet/WDSCContentServer/WDSP/IB/2007/12/18/000158349_20071218091355/Rendered/PDF/wps4451.pdf, p. 20, accessed April 2012.

In the first phase of the *World Summit on the Information Society* held in Geneva in 2003, one of the principle aims of which is to reduce the digital divide between the developed and developing worlds, various Member States of the United Nations⁵⁰, including the European Communities, the US, Japan, and many other developed and developing nations committed to a *Declaration of Principles* which contained three main Articles on technology transfer⁵¹:

33. To achieve a sustainable development of the Information Society, national capability in ICT research and development should be enhanced. Furthermore, partnerships, in particular between and among developed and developing countries, including countries with economies in transition, in research and development, technology transfer, manufacturing and utilization of ICT products and services are crucial for promoting capacity building and global participation in the Information Society. The manufacture of ICTs presents a significant opportunity for creation of wealth.

40. A dynamic and enabling international environment, supportive of foreign direct investment, transfer of technology, and international cooperation, particularly in the areas of finance, debt and trade, as well as full and effective participation of developing countries in global decision-making, are vital complements to national development efforts related to ICTs. Improving global affordable connectivity would contribute significantly to the effectiveness of these development efforts.

63. We resolve to assist developing countries, LDCs and countries with economies in transition through the mobilization from all sources of

⁵⁰The Declaration also refers to other important development goals including the development goals of the *Millennium Declaration*, namely the eradication of extreme poverty and hunger; achievement of universal primary education; promotion of gender equality and empowerment of women; reduction of child mortality; improvement of maternal health; to combat HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and the development of global partnerships for the attainment of a more peaceful, just and prosperous world. The Declaration also refers to the sustainable development goals contained in the *Johannesburg Declaration and Plan of Implementation* and the *Monterrey Consensus*. See the World Summit on Information Society, Document WSIS-03/GENEVA/DOC/4-E, December 2003, Article 1.

⁵¹. Ibid.

financing, the provision of financial and technical assistance and by creating an environment conducive to technology transfer, consistent with the purposes of this Declaration and the Plan of Action.

One of the main objectives of the WSIS is to achieve by 2015, the following targets as set out in Article 6 *WSIS Action Plan*⁵²:

- a) to connect villages with ICTs and establish community access points;
- b) to connect universities, colleges, secondary schools and primary schools with ICTs;
- c) to connect scientific and research centres with ICTs;
- d) to connect public libraries, cultural centres, museums, post offices and archives with ICTs;
- e) to connect health centres and hospitals with ICTs;
- f) to connect all local and central government departments and establish websites and email addresses;
- g) to adapt all primary and secondary school curricula to meet the challenges of the Information Society, taking into account national circumstances;
- h) to ensure that all of the world's population have access to television and radio services;
- i) to encourage the development of content and to put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet;
- j) to ensure that more than half the world's inhabitants have access to ICTs within their reach.

⁵² *World Summit on Information Society*, Document WSIS-03/GENEVA/DOC/5-E, December 2003.

The second phase of the WSIS took place in Tunis in November 2005. The Tunis Summit reviewed the implementation of the Geneva Action Plan and set new and more detailed goals over the period 2005-2015. The Tunis Summit was to some extent overshadowed by discussion on the future governance of the internet, the current international domain name system, internet protocol addresses, and the root server system currently being managed by ICANN, with country specific domain names being managed through a network of worldwide internet registries also licensed by ICANN. Established in 1998 by the US government, ICANN's authority for internet governance faced challenges by the EU and a number of developing countries in the months preceding the Tunis Summit for other bodies, such as the ITU to have a greater say in internet governance. The EU in particular called for a "new cooperation model" for internet governance⁵³. In the end, the WSIS agreed to maintain the status-quo with ICANN continuing in its present role as mantle holder. However the stage is now set for future change and it is likely that the US will have to relinquish some form of sovereignty over management of internet governance through ICANN. The WSIS agreed that:

- All governments should play an equal role and have equal responsibility for Internet governance while ensuring its continuing stability, security and continuity;
- Nations should not be involved in decisions regarding another nation's country code top level domain (ccTLD);
- There is a need for strengthened co-operation among stakeholder for public policies for generic top-level domain names (gTLDs).⁵⁴

⁵³ In a combined note from the UK/EU to a preparatory meeting of the WSIS on the 28th September, the EU set out a new cooperation model. An extract of that model is reproduced here and asked for: "...The new cooperation model should include the development and application of globally applicable public policy principles and provide an international government involvement at the level of principles over the following naming, numbering and addressing-related matters:

- a. Provision for a global allocation system of IP number blocks, which is equitable and efficient;
- b. Procedures for changing the root zone file, specifically for the insertion of new top level domains in the root system and changes of ccTLD managers;
- c. Establishment of contingency plans to ensure the continuity of crucial DNS functions;
- d. Establishment of an arbitration and dispute resolution mechanism based on international law in case of disputes;
- e. Rules applicable to DNS system."

⁵⁴ World Summit on the Information Society hailed as a resounding success (WSIS press release) at: http://www.itu.int/wsisis/newsroom/press_releases/wsisis/2005/18nov.html, 18th November 2005.

In its *Tunis Agenda for the Information Society*⁵⁵, the Summit specifically defined the concept of internet governance as:

“34. A working definition of Internet governance is *the development and application by governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet.*”

The Tunis Summit also agreed the creation of a new Internet Governance Forum (IGF) to be convened by the UN Secretary General that will have no oversight function on technical issues, domain name allocation or IP addressing, but is to provide a platform for discussion of public policy issues related to net governance. The IGF is expected to work closely with the ITU, often seen as being more sympathetic to developing country concerns. Another Tunis Summit development is the creation of a voluntary *Digital Solidarity Fund* (DSF), which to some extent was rebuffed at the Geneva Summit, but finally agreed as a voluntary arrangement at Tunis. Developed countries were keen that such a fund should be sourced from existing mechanisms. The DSF will rely on donations from civil society, private sector, local authorities and international institutions.

We saw in Chapter 4 and sections 7.3 and 7.4 above, the issue of internet interconnectivity. So for example in section 7.3, the discussion centred on how DCs and LDCs can make use of the New Modes of Operation *in reverse* to aggregate traffic to terminate in developed country markets, and in section 7.4, how the ITU's Recommendation D.50 might realise a more equitable cost sharing arrangement for interconnecting TCP/IP networks between developed and developing nations (undersea fibre optic cable, satellite and microwave links for example). In the Tunis Agenda, the WSIS clearly recognised the problem of internet interconnectivity and the high costs paid by DC and LDC incumbent to interconnect with the international backbone operators. So at section 50 Tunis Agenda, the President of the PrepCom of the Tunis Phase states that:

⁵⁵ WSIS-05/TUNIS/DOC/6(Rev.1)-E, 18th November 2005 at section 34.

50. We acknowledge that there are concerns, particularly amongst developing countries, that the charges for international Internet connectivity should be better balanced to enhance access. **We therefore call for** the development of strategies for increasing affordable global connectivity, thereby facilitating improved and equitable access for all, by:

- a) Promoting Internet transit and interconnection costs that are commercially-negotiated in a competitive environment and that should be oriented towards objective, transparent and non-discriminatory parameters, taking into account ongoing work on this subject;
- b) Setting up regional high-speed Internet backbone networks and the creation of national, sub-regional and regional Internet Exchange Points (IXPs);
- c) Recommending donor programmes and developmental financing mechanisms to consider the need to provide funding for initiatives that advance connectivity, IXPs and local content for developing countries;
- d) Encouraging ITU to continue the study of the question of the International Internet Connectivity (IIC) as a matter of urgency, and to periodically provide output for consideration and possible implementation. We also encourage other relevant institutions to address this issue;
- e) Promoting the development and growth of low-cost terminal equipment, such as individual and collective user devices, especially for use in developing countries;
- f) Encouraging Internet Service Providers (ISPs) and other parties in the commercial negotiations to adopt practices towards attainment of fair and balanced interconnectivity costs.
- g) Encouraging relevant parties to commercially negotiate reduced interconnection costs for Least Developed Countries (LDCs), taking into account the special constraints of LDCs.⁵⁶

It is interesting to note the absence of any reference to the ITU's *Recommendation D.50* within the rubric of the text. This is disappointing given that the ITU had a

⁵⁶ WSIS-05/TUNIS/DOC/6(Rev.1)-E, 18th November 2005, section 50.

major role in organising the WSIS, but perhaps indicates the differing negotiating positions between the United States for example and a number of developing countries (but also including Australia) on the thorny issue of sharing international connectivity costs (discussed in section 7.4 above). If the Digital Divide is to be effectively addressed, and particularly as regards the African subcontinent, then the costs for peering and transit between internet networks will need to be carefully monitored and assessed. There is a role for the ITU in this regard. Chapters 3 and 4 of this thesis argues that international peering and transit agreements could come under the regulatory capture of the WTO's interconnection provisions of the Reference Paper if such services could be defined as services that are made available to the public. Section 2 RP requires cost-based interconnect. The RP currently applies to basic telecommunications services, but could apply to packet-switched data services, if such services are classed as basic services (public telecommunications services). This will depend to some extent on the scheduled commitments of the relevant WTO member.

In terms of technology transfer, the Tunis Summit also agreed the following provisions:

9. We call upon the international community to promote the transfer of technology on mutually-agreed terms, including ICTs, to adopt policies and programmes with a view to assisting developing countries to take advantage of technology in their pursuit of development through, *inter alia*, technical cooperation and the building of scientific and technological capacity in our efforts to bridge the digital and development divides.

54. We recognise that an enabling environment, at national and international levels, supportive of foreign direct investment, transfer of technology, and international cooperation, particularly in the areas of finance, debt and trade, is essential for the development of the Information Society, including for the development and diffusion of the Internet and its optimal use. In particular, the roles of the private sector and civil society as the drivers of innovation and private investment in the development of the Internet are critical. Value is added at the

edges of the network in both developed and developing countries when the international and domestic policy environment encourages investment and innovation.⁵⁷

How will these targets be achieved without adequate access to technology? Clearly to achieve the targets, LDCs and DCs will require, not only access to the technology of ICTs, but also the ability to *innovate* around these technologies as well. To achieve these goals, LDCs and DCs will require access to information technology products, semiconductor technology, infrastructure for telecommunications networks and services, and the software to be embedded in such applications. There needs to be a commitment by developed countries to honour the commitments made under Article 66.2 TRIPS if DCs and LDCs are to receive the know-how required through appropriate technology transfer and achieve the goals set out above in the Tunis Summit by 2015. Article 66.2 TRIPS and other technology transfer measures under IEL are discussed further in the next chapter (Chapter 8).

In the build up to the November 2005 WSIS (2nd Tunis meeting), there was heated discussion on how the governance of the Internet should be managed. The main issue for many DCs/LDCs (particularly China and India, and countries within the G90, but also some developed countries) was the continuing dominance of the US in the global management of the Internet. To address these issues, four models for future governance were proposed by the WSIS Working Group on Internet Governance to stakeholders in July 2005. These four models included⁵⁸:

1. To create a Global Internet Council (GIC) of governments and involved stakeholders to take over from ICANN;
2. To strengthen ICANN's existing Governmental Advisory Committee as the official forum for debate on internet governance and allow for greater governmental involvement;

⁵⁷ WSIS-05/TUNIS/DOC/6(Rev.1)-E, 18th November 2005 at sections 9 and 54.

⁵⁸ See Wikipedia's entry on the Working Group for Internet Governance at: http://en.wikipedia.org/wiki/Working_Group_on_Internet_Governance, accessed April 2012.

3. Remove the U.S. oversight of ICANN and restrict it to the narrow technical role, forming the International Internet Council (IIC) to manage most aspects of the Internet administration.
4. Create three new bodies:
 - The Global Internet Policy Council (GIPC) to manage "internet-related public policy issues"
 - The World Internet Corporation for Assigned Names and Numbers (WICANN) to take over from ICANN
 - The Global Internet Governance Forum (GIGF), a central debating forum for governments.

The final agreement reached in Tunis at the WSIS (November 2005) saw the creation of the *Internet Governance Forum* (IGF), but no clear agreement was reached on the replacement of ICANN by an organisation with political leadership from countries around the world (although ICANN itself has since delegated more of its technical function to country level root domain name root registries but still maintaining control of internet security as regards global root servers). The IGF is mainly a discussion forum to bring together various stakeholders in the Internet including governments, civil society, business and the academic community. It does not hold any decision-making powers. At a recent plenary meeting of the UN General Assembly (December 2010), it was decided by resolution that the IGF should continue for a further five years (2011-2015), following its first five year term.⁵⁹

In the aftermath of WSIS 2005, the WSIS has continued its work through a cluster of WSIS-related events that were held on an annual basis, and from 2009, the cluster of WSIS-related events (usually May in each year) was rebranded as the *WSIS Forum*. The current 2012 WSIS Forum for example, which at the time of writing will be hosted by the ITU in Geneva, will continue to look at issues of internet governance, security, the use of ICTs in the eradication of poverty, and open spectrum for development amongst other ICT issues.⁶⁰ As regards WSIS follow-up, the ITU has

⁵⁹ See Paragraph 17 of UN General Assembly Resolution 65/141, Information and communications technologies for development http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/65/141, accessed April 2012.

⁶⁰ See draft Agenda for WSIS Forum 2012 at: <http://groups.itu.int/LinkClick.aspx?fileticket=uQbb5ZVur0Y%3d&tabid=1948>, accessed April 2012.

maintained a position of leadership with regard to many of the technical aspects of internet connectivity and development.

In the IT sector the WTO has worked hard to reduce both tariff and non-tariff barriers on the importation of IT products: The *Ministerial Declaration on Trade in Information Technology Products* (ITA) was concluded by 29 participants at the Singapore Ministerial Conference in December 1996. The ITA provided for participants to completely eliminate duties on IT products covered by the Agreement by 1 January 2000. Developing country participants were granted extended periods for some products. At the time of writing, there were 63 participants to the ITA, including a number of developing countries⁶¹. In research by Wunsch-Vincent for the UN ICT Task Force⁶², Wunsch-Vincent cites three reasons why developing countries are reluctant to lower tariffs on IT products: (1) low volumes of trade on IT are not perceived to lead to any quantifiable advantages; (2) by entering into WTO ITA negotiations that has as its aim the reduction of tariffs on IT imports, developing countries fear a loss of revenue on such imports; and (3) if developing countries themselves are producers of IT products, such countries may want to use import tariffs to protect their own emerging IT industries from exporters elsewhere⁶³. In response to such fears, Wunsch-Vincent citing an OECD study argues that production fragmentation, the process by which MNCs outsource aspects of a production process across several geographically dispersed sites is built on the frequent and cheap exchange of intermediary and final products. Without the lowering of IT tariffs on imports, foreign investment for outsourcing in a DC or LDC might be discouraged⁶⁴. Another issue is the scope of coverage of the ITA. At the time of writing, the ITA covers products scheduled at the six-digit level of the Harmonized System for tariff classification (discussed in Chapter 9), as opposed to the wider four-digit level that

⁶¹ For a complete list of countries who are signatories to the ITA see the WTO's website at: http://www.wto.org/english/tratop_e/inftec_e/itapart_e.htm (date accessed 15th October 2004). The EC has also stated in May 2004, that the ten new EC member states of Cyprus, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia, and Slovenia are automatically signed to the EC's ITA commitments. According to the WTO, the ITA currently covers about 97% of world trade in IT products. See WTO News Items 4th June 2004: *ITA membership expands with enlarged EC*.

⁶² The United Nations Information and Communication Technologies (UN ICT) Task Force was formally launched on 20 November 2001 by Secretary General Kofi Annan, with the mandate of promoting awareness, inclusive policies and innovative technological and business models, while also building public-private-civil society partnerships that would contribute to the realization of development goals through the application of ICT.

⁶³ Wunsch-Vincent S. and McIntosh J., *WTO, E-Commerce, and Information Technologies: From the Uruguay Round through the Doha Development Agenda*, Markle Foundation, 2004, pp. 42-43

⁶⁴ *Ibid.*, p. 43, citing OECD Study: *Information Technology Outlook 2004*, Paris, 2004.

would cover more recent innovations in product technology for the internet⁶⁵. The ITA-II discussions were meant to address this issue by widening the scope of product coverage to include IT products important for e-commerce and TCP/IP networks and also to address issues of non-tariff barriers to trade such as certification and standardisation requirements (the subject of a separate study by the WTO's ITA Committee). India for example has complained about the lack of acceptance of Indian IT standards, the lack of accreditation of Indian centres that certify conformity of IT products, and restrictive visa regimes on the movement (export) of software professionals⁶⁶. In the area of non-tariff barriers, the ITA Committee is however progressing with a study on electromagnetic compatibility and electromagnetic interference as examples of two standards issues that potentially restrict imports of IT⁶⁷. In December 2005, the Doha Work Programme at the Sixth Ministerial Conference in Hong Kong produced a ministerial declaration agreeing to the adoption of a "Swiss Formula" setting out the coefficients to be used for the reduction of tariffs pursuant to negotiations on non-agricultural market access (NAMA)⁶⁸. The convergence on a Swiss Formula for industrial products followed earlier submissions by both the US and Japan calling for different approaches on elimination or reduction of tariffs on IT products⁶⁹. The Swiss Formula is non-linear and although final agreement on its form has not yet been reached (and might never be reached with the collapse of the Doha talks), two variants include, either a limited number of negotiated coefficients, or the value of each country's coefficient being based on the tariff average of bound rates of that Member⁷⁰. This latter approach would result in multiple coefficients. Given the contentious nature of NAMA negotiations and their potential application to a quickly growing IT industry, particularly for South-South trade as indicated in the recent UNCTAD World Investment Report 2005, the form of the formula is likely to change further in a future round. Several DCs (India, Argentina and Brazil) were opposed to the Swiss formula on grounds that it could lead to more

⁶⁵ Ibid.

⁶⁶ Ibid, p.46.

⁶⁷ Ibid.

⁶⁸ WT/MIN(05)/DEC, Doha Ministerial Declaration, Sixth Session, Hong Kong, December 2005, para 14.

⁶⁹ Ibid, p. 52.

⁷⁰ WT/MIN(05)/DEC, Doha Ministerial Declaration, Sixth Session, Hong Kong, December 2005, Annex B, para 6.

drastic tariff cuts for DC tariff lines that were generally higher than developed country tariff lines.⁷¹

Facilitating access to ICT technologies will lead directly to improved telecommunications infrastructure and therefore indirectly to developing countries developing the necessary skills and know-how to (eventually) increase international trade in telecommunication services and electronic intangibles. This in turn will lead to increased efficiencies at the domestic level. If the goals of the *World Summit on the Information Society* are to be met, LDCs and DCs will need to take a greater role in participating in the technical standard-setting activities of the developed countries, particularly in relation to information technology⁷². Countries, such as Singapore, Korea, Taiwan, and increasingly China and India, should be in a position to take such a role⁷³. Standards can be used to foreclose competition as a proprietary standard can give a foreign operator market power that could then foreclose competition in downstream markets. The United States, Europe and Japan have all been markets where standards of particular operators, buttressed by strong IPR protection, for example Microsoft have proliferated leading to market leadership. There is nothing wrong with a company gaining a strong market position through innovation and use of IPRs, but the concern for competition authorities is whether that same company is also foreclosing competition in downstream markets as a result of a proprietary standard⁷⁴.

Also the WTO's *Technical Barriers to Trade Agreement* ("TBT Agreement"), sets out provisions at Article 11 to help LDCs gain technical assistance with standards⁷⁵, but

⁷¹ See Third World Network (TWN) briefing note at: <http://www.twinside.org.sg/title2/twninfo224.htm>, accessed October 2008.

⁷² In the WSIS Tunis Agenda, the UN Secretary General is mandated to establish a UN Group on the Information Society to facilitate the implementation of WSIS outcomes. The plan for the creation of the Group will be presented to the Chief Executive Board of the UN consisting of the heads of the major UN agencies in April 2006. We will have to wait and see the outcome of that meeting and also the outcome of the ITU's Plenipotentiary meeting in November 2006 to see if any progress has been made on the work at WSIS Geneva and Tunis.

⁷³ For example in the area of software development, there should be no reason why software innovations should not come increasingly from developing countries. See for example the take-up of the Free and Open-Source Software Movement (FOSS) in Africa cited in UNCTAD's *E-Commerce and Development Report 2003*, p.95.

⁷⁴ See the *Competition/IP Interface*, (ed. Steven Anderman), Chapter 1, Cambridge University Press, 2007.

⁷⁵ For example, Article 11.2 TBT Agreement says that: "Members shall, if requested, advise other Members, especially the developing country Members, and shall grant them technical assistance on

many developing countries complain that such assistance has not been forthcoming⁷⁶. As such, some developing countries are calling on the WTO to implement an “early warning system” with regard to standards, and a mechanism to facilitate adjustment by developing countries to meet new standards⁷⁷. Clearly the WTO Secretariat needs to meet this challenge if LDCs and DCs are to increase their contribution to world trade. The solution is essentially a political one.

7.7 Conclusion

This chapter has attempted to take some of the international rules of the game, as set out in Chapters 2-6, and apply them to the advantage of DCs and LDCs. So for example in telecommunications we have provisions on reverse charging, network access points and points of interconnection that could all apply in reverse allowing for operators in the developing world to aggregate traffic and increase their negotiating positions in peering and transit agreements with developed country operators. We have also seen how the Layering Theory could work to the advantage of DC and LDCs operators by helping to increase transparency and effective competition on international backbone routes. This could only work if (a) regulators responsible for the regulation of the communications sector in DC and LDC countries were to first adopt the Layering Theory into national telecommunications law and put in place OSI 5-7 layer packet filtering technology at local IXP exchanges where international backbones interconnect with the networks of local ISPs and local incumbent carriers; and (b) where developed countries with already sophisticated communications laws (for example in Europe with the New Regulatory Framework) amend the concept of SMP to include the Layering Theory and also put in place deep packet filtering technology so that operators terminating leased-line full or half circuits into IXP exchanges in Europe would be able to take advantage of enhanced competition on all internet routes. Such a move would ensure effective competition at both ends of a circuit where routes originate and terminate in DC, LDC, and European countries

mutually agreed terms and conditions regarding the establishment of national standardizing bodies, and participation in the international standardizing bodies, and shall encourage their national standardizing bodies to do likewise.”

⁷⁶ WT/WGTTT/W/6, p. 3.

⁷⁷ Ibid, para (v) p.3.

respectively. To ensure effective competition on all international routes, including the OECD sector, then implementation of the Layering Theory will be required at the multilateral level (through the form of a revised Reference Paper as an additional commitment by Member States of the WTO at a future trade round), or failing this, then on a piecemeal basis through a new generation of PTA/RTA and bilateral trade agreements between the Quad countries and DCs/LDCs. Once there is effective competition on all international backbone routes (or as chapter 4 highlights, ‘strings’), then the costs for access to international backbone networks by DC/LDC operators will come down followed by greater transparency of peering and transit. By enhancing effective competition in this way, we will begin to address the Digital Divide.

This chapter has also called for technology to be transferred to DCs and LDCs (for example with OSI Layer 5-7 technology mentioned above to be implemented at IXP exchanges in Africa). Clearly without adequate access to infrastructure, services, and know-how, DCs and LDCs will not be in a position to address the Digital Divide. Technology Transfer is covered in the next Chapter.

CHAPTER 8¹

TECHNOLOGY TRANSFER

8.1 Introduction

In the previous chapter, the Author highlighted the ways in which developing and least developed countries could use economic law to achieve better access to telecommunication markets in the developed world and help close the Digital Divide. However to gain access to such markets, many of these DCs and LDCs will need to improve access to technological resources at home to facilitate innovation and the development of technological products that would be suitable for markets for export. To do this, gaining access to the relevant technology through effective technology transfer agreements is a crucial first step. We saw in Chapters 6 and 7 the significance that the Layering Theory could have to enhance interconnection of DC and LDC ISP networks at IXP exchanges in both the developed and developing world. Not only would this provide for access to the lower infrastructure layers of TCP/IP networks, but also allow for more advanced forms of access at the higher service layers to allow for transmission of electronic goods and services (electronic intangibles), the subject of Chapter 9. Therefore enforcement of the Layering Theory through implementation of OSI 5-7 Layer Filtering technology and server technology for all IXP exchanges in the developing world would be significant step to addressing the Digital Divide. In this chapter, the author argues that such technology could be transferred by developing countries as part of their enforcement of Article 66 TRIPS on technology transfer. However, we will see in this chapter that several problems exist both in the international regulatory framework for transfer of technology and also with *absorption* and *spillover* over of technology in the local market once transferred.

¹ A version of this chapter was published by Kariyawasam in *International Economic Law and the Digital Divide: A New Silk Road?* Edward Elgar, 2007.

There is no doubt that since World War II, licenses and other forms of technology transfer agreements have fulfilled technological needs that could not be met by local technical and scientific capabilities. The aim of this chapter is to look at the competition implications faced by producers in developing and newly developed economies in licensing-in technology or through some form of Foreign Direct Investment (FDI) from the developed world or other parts of the global economy with the aim of stimulating domestic production or with the aim of using as inputs into local manufacturing process and creating new outputs for export. FDI is moving into services, but its relationship with technology transfer, particularly in developing countries, has always been complex². As a recent UNCTAD report stresses:

As commercial enterprises, TNCs³ in principle do not have an interest in transferring knowledge to and supporting innovation in foreign affiliates beyond what is needed for the production process or product in questions. Developing countries therefore cannot expect that, by simply opening their doors to FDI, TNCs will transform their technological base.⁴

This chapter will discuss FDI and technology transfer, but its main thrust will be to consider the available regulatory mechanisms that can increase the *bargaining power* of local producers when negotiating for technology transfer as well as discussing in outline some provisions on technology transfer that can be found in International Investment Agreements/Bilateral Trade Agreements and in WTO covered agreements, particularly TRIPS. The concept underlying the thematic discussion is that the market for technology is imperfect, and that the Small Medium Size Enterprises (SMEs) in developing countries are in a disadvantageous position vis-à-vis suppliers often located in the developed world, although this position is fast changing as regards some countries, such as China (including Hong Kong), and India,

² For example, the OECD-sponsored *Multilateral Agreement on Investment* (MAI), which at its heart placed significance on protection of foreign investment and market access as incentives to stimulate the free flow of FDI into developing countries (by removing all impediments to FDI), was rejected by many developing countries. For a further discussion, see Chapter 13 *Competition Policy and the WTO* by V.N. Balasubramanyam and C. Elliott in *The WTO and Developing Countries*, edited by Homi Katrak and Roger Strange, Palgrave Macmillan, 2004.

³ Transnational Companies, in this chapter referred to throughout as Multinational Corporations (MNCs).

⁴ UNCTAD, *Transfer of Technology*, UNCTAD/ITE/IIT/28, 2001, p.92.

as described in UNCTAD *World Investment Report*⁵. The position however for many DCs and LDCs remains the same.

Much discussion on technology transfer has tended to focus on the transfer process itself, but not so much on the host policy environment to facilitate absorption and *spillover* of technology⁶, once the technology has been transferred. For such countries, how then can the technology transfer package be drafted to improve the recipients' position and therefore the conditions under which technology is to be transferred? What relevance do movements, such as *Free and Open-Source Software* movement have for developing countries as regards technology transfer? Also, what relevance do the recent talks at the *World Summit on the Information Society* (WSIS) mentioned in the previous chapter have for technology transfer to developing countries? This Chapter discusses these issues and concludes with some recommendations going forward.

8.2 The position of developing countries

“Technology transfer has been, and will continue to be, one of the main mechanisms through which developing countries may advance in their industrialization processes”⁷. Correa’s point is well understood and documented in various forms in a large body of existing literature on technology transfer and developing countries⁸. In many ways, technology encapsulates both theoretical and empirical techniques. Although technology can be envisaged as a material good in the form of machines and products in tangible form, the concept also covers intangibles in the form of services and know-how. As Muchlinksy argues:

The first assumption underlying the market for commercial technology is that such technology should be treated as the private property of its owner and not

⁵ UNCTAD *World Investment Report*, Section Chapter 1), 2005.

⁶ Discussed later in this Chapter at sub-section 8.4, entitled “*Spillover*”.

⁷ Carlos M. Correa, p. 31, *Intellectual Property Rights, the WTO and Developing Countries*, Zed Books 2000.

⁸ See for example the extensive literature survey compiled by Kamal Saggi, *Trade, Foreign Direct Investment, and International Technology Transfer: A Survey*, World Bank, 2000.

as a public good capable of general use commoditized through the application of intellectual property rights, which give the owner a legally determined monopoly over the use and disposal of that right, or by way of protected and restrictive contractual transfer as in the case of non-patentable know-how that is secret.⁹

More than anything in the conventional package associated with technology transfer¹⁰, it is the intangible component referred to as “know-how” by Muchlinski that is crucial for the creation of a technological base. However, what does technology transfer actually mean in a legal sense?

The now defunct UNCTAD draft *International Code on the Transfer of Technology* (the draft ToT Code) in its definition of “technology transfer”, described technology as “systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service, which does not extend to the transactions involving the mere sale or mere lease of goods.”¹¹ The definition therefore excludes goods for hire or sale, but seems to refer specifically to the knowledge that goes into the creation and provision of a product or service (and not the finished product or service)¹². The United Nations’ own definition of the different components that constitute technology transfer can be summarised as four key aspects: *technoware*, or the physical objects or equipment; *humanware*, which includes skills and human aspects of technology management and learning; *infoware*, including designs, blueprints which constitute the document-embodied knowledge on information and technology; and *orgaware*, which covers production arrangement linkages within

⁹ Muchlinski P., *Multinational Enterprises and the law*, Blackwell Publishers, 1999, p. 427.

¹⁰ For example, licenses for patents and trademarks, supply of industrial technology, technical-industrial corporation, specialised technical services, and marketing rights etc.

¹¹ The draft ToT Code was abandoned due to disagreement between developing and developed nations as to the emphasis placed on various clauses within the code, for example on choice of applicable law and settlement of disputes. Many DCs and LDCs wanted a restrictive regime on choice of law in technology transfer agreements, for example in choosing the host country’s local law as opposed to the investing country’s law. By contrast, many developed countries wanted to preserve the parties freedom to choose. Developing countries were also against arbitration for settlement of disputes preferring instead settlement based on the rules of the technology importing state. In short, developing countries were looking for clauses that would deal effectively with economic regulation and development, whereas developed countries were more interested in clauses that would promote effective competition. See UNCTAD, chapter 1, para 1.2, 1985. See also Muchlinski P., *Multinational Enterprises and the law*, Blackwell Publishers, 1999, p. 445.

¹² UNCTAD, *Transfer of Technology Report*, UNCTAD/ITE/IIT/28, 2001, p.6.

which the technology is operated.¹³ The UN definition may appear imprecise for the purposes of defining technology transfer within legal documentation, but it nevertheless gives a good snapshot as to what technology transfer should encapsulate¹⁴. Developing countries are also concerned that too narrow a definition of technology transfer would exclude the relevant factors and processes that hinder their access to technology and that any definition should be “inclusive and *inter alia* comprise the processes and factors relating to the access and use of technology”.¹⁵ For example, access to information communications technology will be crucial in implementing the goals set out in the Declaration and Action Plan agreed at WSIS in Geneva 2003, discussed later in this chapter¹⁶.

UNCTAD’s World Investment Report 2004 has highlighted the shift in FDI towards the services sector¹⁷. The World Investment Report 2005 indicates the growing power of TNCs and the internationalization of R&D. Trade in services, particularly through FDI (commercial presence) can serve as a means of affecting technology transfer for example in creating a subsidiary or joint venture in the host country to provide a service either in relation to own production or to introduce a new service or compete with existing services in the local market, and/or linked to a licensing contract¹⁸. MNCs in the services sector can bring both hard technology (plant, equipment, industrial processes), and soft technology (knowledge information, expertise, skills in organisation, management, and marketing)¹⁹. The most recent UNCTAD World Investment Report in 2008 focuses on investment in infrastructure

¹³ UN ESCAP, 1989. Cited by Ajay Mathur, Preety M. Bhandari and Sharmila B. Srikanth in “*Effective technology transfer: issues and options*” in *Positive measures for technology transfer under the climate change convention*, Tim Forsyth (ed), The Royal Institute of International Affairs, 1997.

¹⁴ The UNCTAD draft ToT Code provides a more detailed list of the elements of technology transfer: “(a) The assignment, sale and licensing of all forms of industrial property, except for trade marks, service marks and trade names when they are not part of transfer of technology transactions; (b) The provision of know-how and technical expertise in the form of feasibility studies, plans, diagrams, models, instructions, guides, formulae, basic or detailed engineering designs, specifications and equipment for training, services personnel training; (c) The provision of technological knowledge necessary for the installation, operation and functioning of plant and equipment, and turnkey projects; (d) The provision of technological knowledge necessary to acquire, install and use machinery, equipment, intermediate goods and/or raw materials which have been acquired by purchase, lease or other means; (e) The provision of technological contents of industrial and technical co-operation arrangements”, UNCTAD, 1996a, Vol. I, p. 183.

¹⁵ WT/WGTTT/5, para 19.

¹⁶ “Technology Transfer at the Multilateral Level”.

¹⁷ UNCTAD, *World Investment Report* 2004, p. xx

¹⁸ IP/IC/W/398, para 30.

¹⁹ UNCTAD World Investment Report 2004, p. xxiii.

stressing that, “for the effective diffusion of technology from infrastructure TNCs, the existence of capable domestic enterprises is essential.”²⁰ Telecommunications in particular is cited as a more positive example of a sector benefiting from transfer of technology with increased efficiencies and lower costs to end-users.

Besides importation, *business partnerships* are also a major source of technology transfer including, FDI, Build Operate Transfer (BOT) agreements, subcontracting, licensing and franchising. There has been much discussion of FDI in recent years. For example, UNCTAD’s *World Investment Report* (2004) focuses on the shift to services in world trade and the role that FDI will play in that shift. According to the 2004 report, although global inflows of FDI declined in 2003 for the third year in a row, the prospects for FDI look to improve, particularly in Asia, and to developing countries, which experienced a growth of 9% in 2003 rising to \$172 billion overall²¹. In terms of law, there were 244 changes in laws and regulations affecting FDI in 2003, 220 of which further liberalisation²². The *World Investment Report 2005* shows increased levels of FDI to developing countries, which rose by 40% in 2004²³. As such, developing countries’ share of FDI inflows reached 36%, according to UNCTAD, the highest since 1997. The Investment report for 2007 indicates that in 2006, developing countries attracted \$380 billion in foreign direct investment — more than ever before. While two thirds of these flows went to rapidly growing markets in Asia, virtually all developing regions participated in the increase.²⁴ The *World Investment Report 2008* continues to chart the growth of FDI into developing countries, but also forecasts a stalling of growth due to the world credit crisis. According to the 2008 report, in developing countries, FDI inflows peaked at \$500 billion, their highest ever – a 21% increase over 2006. The least developed countries (LDCs) attracted \$13 billion worth of FDI in 2007 – according to UNCTAD also a record high.²⁵ Among developing and transitional economies, the 2008 report lists China, Hong Kong (China), and Russia as the three largest recipients. FDI is discussed in more detail in the next section.

²⁰ UNCTAD World Investment Report 2008, p.19.

²¹ *World Investment Report*, UNCTAD, 2004.

²² *Ibid*, overview section.

²³ *World Investment Report*, UNCTAD, 2005, p. 7.

²⁴ *World Investment Report 2007*, p. iii.

²⁵ *World Investment Report 2008*, p. 1.

8.3 Foreign Direct Investment

FDI can be defined as the act of establishing or acquiring a foreign subsidiary (foreign affiliate) over which the investing firm (parent) has substantial management control²⁶. FDI is generally financed through various measures including intra-company loans, equity capital or through reinvested earnings²⁷. Firms that engage in FDI operate in more than one country and are MNCs. Although UNCTAD's 2004 and 2005 reports paint a favourable picture as regards FDI in-flow into developing countries, only a select group of DCs are actually receiving this investment: The majority loose out. In the last ten years, although global FDI figures have increased by almost a factor of five, only 0.5% of global FDI flows have been invested in 49 LDCs²⁸. In terms of global R&D expenditure, the share of developing countries is estimated to have fallen from nearly 6% in 1980 to nearly 4% in the early 1990s²⁹, notwithstanding substantial increases in R&D expenditure in Korea and Chinese Taipei³⁰. UNIDO's World Industrial Development Report (UNIDO 2002/2003), also highlights that upper-middle-income DCs accounted for almost 90% of total enterprise financed R&D expenditures by developing countries in 1998: Korea accounted for 53%, Chinese Taipei 14%, Brazil 12%, and China 6%³¹. In the lowest ranked 30 developing countries, no such expenditure was registered³². Furthermore, R&D expenditure by foreign affiliates in developing countries is focused on countries such as Brazil, Mexico, and Chinese Taipei.³³ It is anticipated that the decentralization of R&D activity by MNCs will likely continue to be focused on a small number of DCs. For example, in 2003, the top ten recipients for FDI in Asia were headed by China, Hong Kong (China), Singapore, India and the Republic of Korea, in that order³⁴. In 2004,

²⁶ Maskus K., *The role of intellectual property rights in encouraging foreign direct investment and technology transfer*, 9 Duke J. Comp and Int'l L.109, 1998, p.7.

²⁷ *World Investment Report 2005*, UNCTAD, p. 10.

²⁸ IP/C/W/398 at page 4.

²⁹ According to UNIDO's *World Industrial Development Report 2002/2003* (p.36), the share of developing countries in world R&D expenditure financed by productive enterprises was 5% in 1998.

³⁰ Kumar, N., *Technology Generation and Technology Transfers in the World Economy: Recent Trends and Implications for Developing Countries*, Institute for New Technologies Discussion Paper: 2, Maastricht: United Nations University, 1997, pp 10-11.

³¹ China became the world's largest FDI recipient in 2003, overtaking the US, traditionally the largest recipient. In 2003, FDI flows to South-East Asia rose by 27% to \$19 billion (UNCTAD *World Investment Report 2004*, p.xix).

³² Id footnote 11, page 6.

³³ *World Investment Report*, 1999, UNCTAD p. 218.

³⁴ *Ibid*, p.50.

the position is similar with both China and India accounting for nearly half of the total number of FDI projects in developing countries³⁵. As mentioned earlier, this trend has continued, particularly with China: both the 2007 and 2008 UNCTAD World Investment Reports report China as being the largest of the developing countries for inward FDI.³⁶

8.3.1 FDI-Internalised/Externalised Transfers

When examining MNC involvement in technology transfer in DCs/LDCs, there is also a need to distinguish between *internalised* and *externalised* transfers³⁷. An internalised transfer takes place between a parent and its subsidiary, whereby the parent has a controlling share of the subsidiary in terms of share ownership. By contrast, an external transfer takes place between legal entities where the relationship is dictated by contract including joint venture, licensing, technical cooperation agreements etc. In choosing between internalised and externalised transfers, the MNC will often balance issues that apply to rent-extracting potential and the transaction costs of the transfer with host country characteristics and regulatory policies³⁸.

Internalised modes of transfer of technology tend to dominate with relatively novel technologies that are subject to quick change, such as information communications technologies (ICTs), whereas externalised modes of transfer are preferred in the case of more mature, standardised technologies³⁹. The *absorption factor* of a host country to absorb the transfer of technology is also a determining issue in choosing between an external and internal transfer. So where there is a limitation on technological capability, an internalised transfer will often be preferred. Also host country regulatory policies, particularly, the IPR regime will have a direct bearing on mode of transfer. Thus, while Singapore has traditionally been mentioned as an example of an “internalisation-oriented” approach that tends to rely on the acquisition of foreign technology through FDI, Korea’s approach has been through licensing and the import

³⁵ *World Investment Report 2005*, UNCTAD, p. 10.

³⁶ *Ibid* notes 22 and 23 above.

³⁷ Chen E.K.Y. *Introduction: Transnational Corporations and Technology Transfer to Developing Countries*, The United Nations Library on Transactional Corporations, Vol 18 (London, Routledge, 1994), p.10

³⁸ *Ibid*, pg 11.

³⁹ UNCTAD, *World Investment Report*, 1999, p. 204.

of capital goods in order to facilitate the development of domestic technological capability and to minimize foreign ownership of domestic assets⁴⁰. Likewise, Japan is often cited as an example of a country that has been able to restrict foreign investment but still obtain the technology required for industrialisation through a predetermined policy of licensing⁴¹. Japan was able to *unbundle* the technology transfer package, extracting the rights that were most suitable⁴².

The neighbouring country of Singapore also has a fast developing regulatory regime and the soon to be introduced amendments to IPR, competition, and copyright legislation could continue to encourage more internal transfers into Singaporean foreign affiliates, as MNCs use Singapore as a hub for the re-export of technology into the Asia-Pacific region. For example, UNCTAD's *World Investment Report* (2004) lists Singapore as top of the table in terms of FDI *outflow* as a percentage of gross-fixed capital formation⁴³. This perhaps continues a general trend that internalised transfers of technology by MNCs have recently gained in significance relative to externalised transfers⁴⁴. Since the mid-1980s royalties and technology fees received by MNCs in the US, Germany and the UK from their foreign affiliates represent an increasing share of the total technology payments received by MNCs⁴⁵.

The internalisation approach through FDI, may however, be limiting in terms of *diffusion* of know-how into the local domestic market. In a recent WTO paper, the WTO *Working Group on Trade and Investment* (WGTI) argue:

⁴⁰ UNIDO, World Industrial Development Report 2002/2003, p.139. Further discussion of technology transfer policies in South-East Asia can be found in "Technology strategies for economic development" by L. Westphal in *Economics of Innovation and New Technology*, Vol 11, No 4-5, August-October 2002, pp 275-320.

⁴¹ Welch S. L., The technology transfer process in foreign licensing arrangements, Chapter 17, *The Economics of Communication and Information*, 1996, p. 156.

⁴² Unbundling is discussed in more detail later in this chapter in Section 8.4.

⁴³ See table 1.10 UNCTAD World Investment Report 2004, p.19.

⁴⁴ Correa C. "Emerging Trends: New Patterns of Technology Transfer", in Patel S., Roffe P, and Yusuf A. (editors): *The international transfer of technology: The origins and aftermath of the United Nations negotiations on a Draft Code of Conduct*, Kluwer Law International, The Hague 2000 (hereafter "Correa 2000")

⁴⁵ Kumar, N. *Technology Generation and Technology Transfers in the World Economy: Recent Trends and Implications for Developing Countries*, Institute for New Technologies Discussion Paper: 2, Maastricht: United Nations University, 1997, pp 26-27.

While FDI may be efficient in respect of the transfer of operational technology, its contribution to a process of deepening of local innovative capabilities tends to be limited⁴⁶.

Maskus also makes the point that if the links to other economic sectors are weak, FDI may operate in enclaves with limited *spillovers*⁴⁷ into technologies adopted and wages earned by local firms and workers⁴⁸. In an enclave situation where neither products nor technologies have much in common with local firms, there may be little scope for learning and spillovers may not materialise⁴⁹. From this perspective, the disadvantage of internalised transfers of technology reside in the fact that the transfer of operational “know-how” often is not accompanied by a transfer of “know-why” and that the transferred technology may be suited to a country’s static endowments but not to its dynamic endowments.⁵⁰ The WGTI goes on to argue that externalised transfer of technology may provide for greater scope in upgrading local technological capability on condition that the local market is able to absorb such know-how, for example in having the requisite domestic skills and a competitive environment that facilitates technological learning⁵¹. Furthermore, local markets that have the technological capability of using foreign technology but find that they are unable to “unbundle” the package of assets transferred by way of internal transfer, will incur greater costs in acquiring technology than by way of externalised transfer⁵².

By contrast, Moran argues that FDI involving internalised transfers *is* the best way forward, arguing that domestic content, joint venture, and technology-sharing requirements often slow growth and impact negatively on host country welfare (especially if they are backed by trade protection or other kinds of market exclusivity).⁵³ MNCs often prefer FDI by way of direct investment and internal transfers to licensing. The preference for FDI is increased when the newest and most

⁴⁶ WT/WGTI/W/65.

⁴⁷ This concept is discussed in more detail later in this chapter in the section 8.4 on Spillovers.

⁴⁸ Maskus K., *The role of intellectual property rights in encouraging foreign direct investment and technology transfer*, 9 Duke J. Comp and Int’l L.109, 1998, p.20.

⁴⁹ WT/WGTI/W/65, para 64.

⁵⁰ WT/WGTI/W/136, para 20.

⁵¹ Ibid.

⁵² Ibid.

⁵³ Moran., H. T., *Parental Supervision: The new paradigm for Foreign Direct Investment and Development*, no. 64 Policy Analyses in International Economics, Institute for International Economics, August 2001, p.63.

profitable technologies (or closest to the MNC's actual line of business) are to be exploited.

8.3.2 FDI-horizontal/vertical

Two types of FDI generally apply, *horizontal* and *vertical*. Horizontal FDI involves the subsidiary producing products or services similar to those produced at home by the parent, whereas vertical FDI involves the subsidiary producing inputs or assembling from components⁵⁴. For example, the construction of vertically integrated networks, sometimes known as “production fragmentation”, “delocalisation”, or “outsourcing” is the most significant recent trend in vertical FDI (Maskus 1998).

If the technology is transferred by way of FDI (whether horizontal or vertical), it is unlikely to be licensed to domestic competitors in the host market, which will often mean that the only way that local competitors will be able to gain access to the technology (particularly IT) will be in *reverse engineering* (and this will depend on the skills available: with software, decompilation and disassembly, the technical procedures for reverse engineering, is a timely and expensive business⁵⁵) or by hiring MNC employees with specialist skills or by some other form of spillover (see below). In high technology markets where database and object/source code acts as the technological platform, a provision for reverse engineering built into the regulatory framework is crucial for both competition and innovation. Although such a provision has been the subject of heated debate, several jurisdictions allow for it: in the US for example, in *NEC Corp. v. Intel Corp.*, the court did not condemn the disassembling of an Intel microcode for the purpose of researching and developing a competitive microcode program⁵⁶. The European Council Directive 91/250 on the *Legal*

⁵⁴ For a more thorough analysis of vertical and horizontal FDI, see Maskus K., *The role of intellectual property rights in encouraging foreign direct investment and technology transfer*, 9 Duke J. Comp and Int'l L.109, 1998, p.20.

⁵⁵ Correa (Correa 2000, p.154)), makes the point that rather than reverse engineering large and complex programs, which is time intensive and costly, a better approach might be to gain access to the *user interface* (the “look and feel”) of existing applications. In this way, competitors could develop alternative applications using the same command-type sets of existing applications. However, in the US case of *Lotus v. Paperback* (June 28, 1990 740 F.Supp. 37). Judge Keeton J., in the District Court of Massachusetts recognised Lotus' rights to the protection of menu command structures.

⁵⁶ *NEC Corporation v. Intel Corporation* 67.434 ND. Cal. February 6th 1989.

Protection of Computer Programs allows for reverse engineering if it is intended to achieve “interoperability” with the evaluated program⁵⁷. The US Digital Millennium Copyright Act (DMCA) allows for a similar provision⁵⁸. In Singapore, the government there completed a public consultation on a Copyright (Amendment) Bill 2004⁵⁹ with the aim of adopting new measures on anti-circumvention that would attract both civil and criminal liability if breached. The Bill also provided for new exceptions relating to decompilation, restricted for purposes of research into interoperability, observing, studying and the testing of computer programs⁶⁰. The reason for amending Singapore’s Copyright Act arose mainly from copyright obligations arising from the United States-Singapore Free Trade Agreement (USSFTA). Singapore’s Copyright Act was revised first through the Intellectual Property (Miscellaneous Amendments) Act 2004 in July 2004, and again through the Copyright (Amendment) Act 2004 (following adoption of the Bill mentioned above) in January 2005.

In the field of high technology, communications or similar network-based industries characterised by vertical integration, industry characteristics that will signal high barriers to entry, high concentration, and possible inefficiency that follows from low levels of local competition will include scale economies, high initial capital requirements, intensive advertising, and advanced technology, the kind of market characteristics that suit MNCs. By contrast, entry by domestic firms in potential host countries into markets characterised by such indicators is likely to be difficult. The entry of MNCs by way of FDI (internalised transfers through foreign affiliates) into local markets characterised in this way (eg monopolistic or oligopolistic markets) can result in two outcomes: (a) either increase the level of competition forcing local firms to become more efficient, or (b) force the least efficient firms out of business. The fear is that MNCs could outcompete all local firms and establish positions of market

⁵⁷ Article 6, EC 91/250.

⁵⁸ A decompilation provision is provided by s.1201(f) of the *Digital Millennium Copyright Act* (DMCA) 1998. The provision allows a person to circumvent access control measures around a copyrighted work, if the motive is to assist in the production of a separate program meant to be interoperable with the copyrighted work, or other programs that depend on the copyrighted work.

⁵⁹ Introduction to the *Copyright (Amendment) Bill 2004* at: http://www.newiplaws.org.sg/pdf/Intro_Copyright.pdf, accessed September 2005.

⁶⁰ *Ibid*, p.11: Defined in the public consultation document as “The act of translating machine-readable computer language into a humanly-readable form”.

influence or dominance greater than the historical position of the local firms, and go onto repatriate profits and avoid taxation through transfer pricing⁶¹. As Gurak argues:

...foreign investors enjoy monopolistic/oligopolistic advantages in the host country over the quantity/quality of production, distribution, source of inputs and finance, prices, quantity/type of exports, and the method of production. These monopolistic/oligopolistic advantages may cause serious adverse effects on the economy of recipient countries, such as imbalance of payments, “non-transfer” of technology, deterioration of income distribution or the introduction of inappropriate (luxury) products.⁶²

Lall argues that MNCs could escalate the natural concentration process in DCs, or that the weakness of local competitors will allow MNCs to achieve a higher degree of market dominance than in developed countries⁶³. MNCs may buy out local firms or force them out of business, thus increasing the barriers to entry to markets. Although Lall’s research reflected a very different period in the late 1970s, the position on MNCs (or TNCs) continues to create cause for concern. For example in a more recent WTO paper, the WGTI refers to Lall’s study of the effect of MNEs⁶⁴ on concentrations in 46 Malaysian industries. In its paper, the WGTI cites Lall’s conclusions that the presence of foreign firms on balance increases concentration, and that this was brought about by “the MNEs impact on general industry characteristics- such as higher initial capital requirements, capital intensity, and advertising intensity- and by some apparently independent effect of foreign presence, perhaps related to “predatory” conduct, changes in technology and marketing practices, or gains of policy concessions from the government.”⁶⁵ In effect FDI has the tendency to increase concentration in most host countries with the added risk that MNCs could *crowd out* local firms in developing countries than developed because of their technological advantages⁶⁶. UNCTAD’s *World Investment Report* 2004, also raises

⁶¹ WT/WGTI/W/65, paras 15 and 16.

⁶² Hasan G. *Hidden Costs of technology transfer*, YK-Economic Review, June 2003, p.10.

⁶³ Lall S. “*Transnationals, Domestic Enterprises and Industrial Structure in LDCs: A Survey*”, Oxford Economic Papers, Vol 30, 217-248, 1978.

⁶⁴ Multinational Enterprises, in this chapter referred to as MNCs.

⁶⁵ WT/WGTI/W/65 para 49. Sadly, Professor Sanjaya Lall, a development economist, passed away in Oxford in June 2005.

⁶⁶ *Ibid.*

the issue of local firms being crowded out by MNCs⁶⁷, although the 2005 report indicates a more optimistic view. The most recent UNCTAD *World Investment Report 2011*, however, continues to make reference to the problem of crowding out, but only marginally, for example when discussing the impact of Non-Equity Modes (NEMs) of financing on local manufacturers in DCs/LDCs. The main focus of the 2011 report is on NEMs of TNC international production (NEMs), which UNCTAD defines as “alternative forms of governance of TNC-controlled global value chains. NEMs include, for example, contract manufacturing, services outsourcing, contract farming, franchising and licensing, as well as other types of contractual relationship through which TNCs coordinate and control the activities of partner firms in host countries.”⁶⁸ UNCTAD states that there can be “indirect impacts on capital formation with regard to NEMs”.⁶⁹ In a footnote to its Chapter IV (Non-Equity Modes of Production and Distribution), UNCTAD states, “This can occur through “crowding out” (where NEMs out-compete local firms which do not enjoy the advantages of transfers of knowledge and skills from TNCs), or its obverse, “crowding in”.⁷⁰

In Europe, the European Commission (EC) together with the European Court of Justice has developed a body of jurisprudence that deals with the effect of concentrations, whether concentrative joint ventures or by way of merger⁷¹. The EC has also recently introduced the revised Technology Transfer Block Exemption (TTBE) and the Guidelines to assist with its interpretation⁷². In the United States, there is the Sherman and Clayton Acts. At the multilateral level, Articles 31 and 40 TRIPS Agreement also deal with the issue of unfair competition⁷³.

⁶⁷ In the banking and retail sectors for example, the UNCTAD report highlights how local firms have been crowded out of host country markets. In banking this has been due mainly to local banks lack of geographical diversification and experience, limited financing capacity, and higher costs of new product implementation. In retailing, the problems have been due to new ways of doing business, new pricing structures, improved information management processes and new marketing and merchandising methods. UNCTAD *World Investment Report 2004*, p.xxiii.

⁶⁸ UNCTAD *World Investment Report 2011*, p. 124

⁶⁹ *Ibid*, p.163.

⁷⁰ *Ibid*, footnote 55, p. 176.

⁷¹ Articles 81, 82 Treaty of Rome, the EC Merger Regulation (EC) No. 139/2004 [See also Commission Regulation (EC) No.802/2004 April 2004 implementing the Merger Regulation and annexes (Form CO, Short Form CO and Form RS)], and the jurisprudence of the EU Court of First Instance, and the European Court of Justice.

⁷² Commission Regulation 772/2004 (April 2004) and Commission Notice 2004/C 101/02 (April 2004) respectively.

⁷³ Discussed in more detail later in this chapter at section 8.5.

On the point of transfer pricing, Gurak goes on to argue that a transfer pricing mechanism can sometimes be used as a clandestine transfer of company revenues (invisible profits) from the subsidiary to the parent firm⁷⁴. Often a transfer pricing mechanism accompanied by restrictive clauses in the technology transfer agreement, obliges the foreign affiliate (subsidiary) to “(1) buy the necessary capital goods and other inputs of production from the sources, and at the prices, determined by the technology supplier (over-pricing); and /or (2) to sell the subsidiary’s output to customers, and at prices, determined by the technology supplier (under-pricing).”⁷⁵ The MNC will favour such an approach for a number reasons: avoiding any double taxation provisions or host country taxation provisions that may exist; maximising profits in pre-determined profit centres, for example where the MNC has set up a profit centre located within its regional headquarters; and overcoming host country controls and regulations on remittances (payment of royalties for example).

8.4 Spillover

As mentioned above, the actual diffusion of technology into the local market is as important as the technology transfer itself. Diffusion will take place by way of various types of knowledge spillover on other firms in the local market. There is also the related issue of *absorption*. Absorption can be defined as the ability of local firms to make use of knowledge spillovers from external actors.⁷⁶ Spillover has been defined in various ways by economists and lawyers alike⁷⁷, but in the context of the WTO, generally spillovers occur “when the entry or presence of MNC affiliates leads to productivity or efficiency benefits for the host country’s local firms, and the MNCs are not able to internalise the full value of these benefits”.⁷⁸ It is one thing to create policy incentives to encourage MNCs in generating spillover, but quite another for developing country producers to use bare, documented technological information,

⁷⁴ Hasan G. *Hidden Costs of technology transfer*, YK-Economic Review, June 2003, p. 12.

⁷⁵ Ibid, p.13.

⁷⁶ Alvarez I, Molero J, *Technology and the Generation of International Knowledge Spillovers* at <http://dialnet.unirioja.es/servlet/dcart?info=link&codigo=1111693&orden=33800>., accessed October 2008.

⁷⁷ See for example Ramachandran V, *Technology Transfer, Firm Ownership, and Investment in Human Capital*, *Review of Economics and Statistics*, Vol 75, 1993, pp 664-670.

⁷⁸ WT/WGTI/W/65 para 11.

which is dependant on the absorption capacity of the producers. DCs and LDCs with limited absorption ability are much more likely to place greater reliance on unpatented know-how to assure effective transfer. Welch in citing studies by F. Contractor indicates that: “less developed countries place greater emphasis on organisational and production management assistance in licensing arrangements than do advanced countries”⁷⁹. Some commentators argue that spillover effects are far more important for diffusion than the formal transfer of the technology itself⁸⁰.

Spillover in the host country is achieved in various ways including: (a) demonstration effects; (b) the establishment of vertical linkages between foreign investors and customers and suppliers which can transfer knowledge about quality standards, process improvements or techniques of management; (c) the movement of labour which enables employees to transfer the experience they have acquired in a foreign firm to a local firm; and (d) the impact of FDI on competition⁸¹. FDI is dealt with under the WTO Agreement on *Trade Related Investment Measures* (TRIMS), although in its current form, the TRIMS offers little attention to the quality of the FDI or its relevance to technology transfer⁸².

Mytelka is sceptical as to the benefits of FDI in generating spillover⁸³. The United Nations University Institute for New Technologies have carried out a number of studies on spillover in the developing world⁸⁴. Mytelka argues that studies of technology spillover in selected developing countries show very mixed results and that the actual measurement of spillover is problematical in itself. She argues:

...many studies of technology spillover measure this as increases in productivity, that is in output per person/hour worked. But increased

⁷⁹ Welch S. L., The technology transfer process in foreign licensing arrangements, Chapter 17, *The Economics of Communication and Information*, 1996, p.159 citing Contractor F., The composition of licensing fees and arrangements as a function of economic development of technology recipient nations, *Journal Of International Business Studies*, 1980.

⁸⁰ WT/WGTI/W/65, para 10.

⁸¹ WT/WGTI/W/136, para 23.

⁸² Furthermore, the TRIMS does not apply to services (Article 1 TRIMS), although it can apply to measures *regulating* services FDI, for example when performance requirements applied to service investors affect trade in goods (see the Annex to the TRIMS).

⁸³ Mytelka L., Director INTECH (now MERIT-UNU), speech to the first session of the WTO Working Group on Trade and Transfer of Technology, April 2002, WT/WGTTT/M/1, para 51.

⁸⁴ See for example the MERIT-UNU website at: <http://www.merit.unu.edu/publications/wp.php>, date accessed October 2008.

productivity may merely reflect a situation in which smaller local firms are driven out of the market by larger foreign firms in industries where scale economies are important. Unless we know more about the ability of smaller local firms to acquire the financing needed for expansion, we cannot attribute the change in productivity to a technology spillover but merely to the replacement of existing capacity by more capital-intensive foreign firms. Productivity increases, moreover, are not necessarily accompanied by growing competitiveness as measured by market shares in the domestic or export markets. Measuring technology spillover is thus a problem.⁸⁵

8.5 Technology Transfer at the Multilateral Level

In Chapter 7, the Author discussed the first phase of the *World Summit on the Information Society* (WSIS) held in Geneva in 2003, and the *WSIS Declaration of Principles*⁸⁶ that support three main Articles on technology transfer. Also discussed was the second Phase of the World Summit, which took place in Tunisia in 2005. It is hoped that a number of goals set out Article 6 *WSIS Action Plan*⁸⁷ will be achieved (see Chapter 7). In the context of the WSIS, the WTO's Information Technology Agreement (ITA) and ITA-II are also discussed at Chapter 7.6.

Many LDCs and DCs however still face the problem of innovating around the technology that they are importing, particularly in the area of semiconductor technology. Both the *Washington Treaty on Intellectual Property in Respect of Integrated Circuits* (1989), and the EU Directive 87/54/EEC on the *Legal Protection of Topographies of Semiconductor Products* (1986), create rights in the topological design of semiconductors⁸⁸. The protection offered by US and EU law together with provisions set out in the TRIPS Agreement⁸⁹, will make it increasingly difficult for

⁸⁵ Supra footnote 79.

⁸⁶ WSIS-03/GENEVA/DOC/4-E, Dec 2003.

⁸⁷ *World Summit on Information Society*, Document WSIS-03/GENEVA/DOC/5-E, December 2003.

⁸⁸ See Article 6(1) US Washington Integrated Circuits Treaty, and Article 3(7) EU Directive 87/54. See also the European Council Decision of 19 December 1994 *on the extension of the legal protection of topographies of semiconductor products to persons from certain territories* (94/828/EC), which extended the provisions of the earlier EU Directive 87/54, by extending protection to qualifying nationals of additional countries not covered by the earlier directive, and to comply with the TRIPS Agreement.

⁸⁹ Article 36 TRIPS Agreement sets out the scope of protection with regards to integrated circuits: "Members shall consider unlawful the following acts if performed without the authorization of the right

developing countries to get access to semiconductor technology despite the provisions of the ITA. Furthermore, TRIPS sets out at Article 38 that in respect of an integrated circuit incorporating an unlawfully reproduced layout-design or any article incorporating such an integrated circuit, the importer be required to pay a royalty as would be found in a typical freely negotiated license agreement had the technology been properly licensed. Such provisions put potentially onerous burdens on developing country producers to have the requisite knowledge that chip technology is non-infringing, and to compensate design title-holders in the event that it is. Furthermore, although the *sui generis* regime on integrated circuit designs allows for reverse engineering of protected layout designs, very few countries have the resources and skills necessary to undertake it⁹⁰. Also, given that less than a handful of companies in the world control substantial *patent pools* (blocks of patents) in relation to semiconductor technology, LDC and DCs have even less chance of gaining access to the technology for the purposes of innovation. This is particularly the case where leading developed country manufacturers are also involved in the setting of standards in relation to chip design⁹¹. If the WSIS goals are to be met, LDCs and DCs will need to take a greater role in participating in the technical standard-setting activities of the developed countries, particularly in relation to information technology. Countries, such as Singapore, Korea, Taiwan, and increasingly China and India, should be in a position to take a greater role⁹².

The WTO's Technical Barriers to Trade Agreement (mentioned earlier) sets out provisions at Article 11 to help LDCs gain technical assistance with standards⁹³, but

holder: importing, selling, or otherwise distributing for commercial purposes a protected layout-design, an integrated circuit in which a protected layout-design is incorporated, or an article incorporating such an integrated circuit only in so far as it continues to contain an unlawfully reproduced layout-design.”

⁹⁰ Correa 2000, p. 157.

⁹¹ See for example the cases of *Rambus v. Infineon Technologies AG*, No. Civ. A. 3:00CV524 (2001), and *Dell Computer* 121 FTC 616 (1996). Both cases involved anti-competitive conduct by chip manufacturers who had previously been involved in chip standard-setting processes, and who allegedly used patents to block innovation.

⁹² For example in the area of software development, there should be no reason why software innovations should not come increasingly from developing countries, particularly with the take-up of the Free and Open-Source Software Movement (FOSS), discussed in more detail in the Concluding section of this chapter: Recommendations going forward.

⁹³ For example, Article 11.2 TBT Agreement says that: “Members shall, if requested, advise other Members, especially the developing country Members, and shall grant them technical assistance on mutually agreed terms and conditions regarding the establishment of national standardizing bodies, and participation in the international standardizing bodies, and shall encourage their national standardizing bodies to do likewise.”

many developing countries complain that such assistance has not been forthcoming⁹⁴. As such, some developing countries are calling on the WTO to implement an “early warning system” with regard to standards, and a mechanism to facilitate adjustment by developing countries to meet new standards⁹⁵. Clearly the WTO Secretariat needs to meet this challenge if LDCs and DCs are to increase their contribution to world trade. The solution is essentially a political one which requires the WTO to enforce existing special and differential treatment provisions⁹⁶, for example, Article 66.2 TRIPS Agreement, which calls for Developed country Members to “provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base.” Paragraph 11.2 of the *Doha Decision on Implementation-Related Issues and Concerns* (the “Implementing Decision”) reaffirms that the provisions of Article 66.2 are mandatory, and that the TRIPS Council “puts in place a mechanism for ensuring the monitoring and full implementation of the obligations in question”.⁹⁷ On 19th February 2003, the TRIPS Council made a decision on implementing Article 66.2 in compliance with paragraph 11.2 Implementing Decision, requiring developed country Members to submit annual reports on actions taken or planned in pursuance of their commitments under Article 66.2⁹⁸. In December 2007, as a consequence of this decision, the United States produced a report to the TRIPS Council listing the specific provisions it had enacted to enforce Article 66.2.⁹⁹ It is clear that some of these provisions were continuing philanthropic programs by charities based in the US that were transferring technology and know-how to countries, particularly in sub-saharan Africa. What is interesting is that in this report, the US for the first time made reference to its tax incentives to assist technology transfer. These incentives took various forms:

⁹⁴ WT/WGTTT/W/6, p. 3.

⁹⁵ Ibid, para (v) p.3.

⁹⁶ Virtually all WTO agreements have special provisions with respect to developing country members, known as *Special and Differential Treatment* terms. See the WTO report, *Implementation of Special and Differential Treatment Provisions in WTO Agreements and Decisions*, WT/COMTD/W/77.

⁹⁷ WT/MIN(01)/17, Article 11.2. Around 100 implementation issues were raised in the lead-up to the Doha Ministerial Conference. The implementation decision, combined with paragraph 12 of the main Doha Declaration, provided a two-track solution for agreeing some of implementation issues prior to the Doha Round. According to the WTO, more than 40 items under 12 headings were settled at or before the Doha conference. See the WTO website at:

http://www.wto.org/english/tratop_e/dda_e/dda_e.htm#implementation, date accessed October 2008.

⁹⁸ IP/C/28.

⁹⁹ IP/C/W/497/Add.5, December 2007.

Under US tax law, institutions, such as charities, private foundations, religious institutions, and certain non-governmental organizations qualify for an exemption from federal income taxation by virtue of being organized and operated to carry out charitable work, including internationally. The US claims (according to OECD data) that non-governmental organizations based in the United States delivered US\$6.3 billion in grants to low-income developing countries in 2003.

The US also claims in its report to TRIPS that many foundations, NGOs and other institutions in the United States are engaged in activities directly relevant to promoting and encouraging technology transfer to least developed countries. It identified the foundation-led programmes relevant to the transfer of technology:

Enhancing health care management systems, with a focus on HIV/AIDS care.

Upgrading research laboratory and medical facilities.

PhD level training of crop breeders

Support for diffusion of new irrigation technologies.

In its report of 2007, the US in referring to these tax incentives states that this is the first time it has referred to such incentives in reports on the implementation of Article 66.2 to TRIPS and will continue to report on tax incentives provided in future reports.¹⁰⁰

The European Communities in their submission in 2007 list six specific objectives to implementing technology transfer:

Objective.1: promote projects such as direct investment, licensing, franchising, sub-contracting;

Objective.2: improve access to available techniques and industrial processes;

Objective.3: support joint research projects;

Objective.4: provide training in technology management and production methods; Objective.5: more indirectly, improve the absorption capacity to least-developed countries (capacity building);

¹⁰⁰ Ibid, Paragraph 5.

Objective.6: encourage trade in technological goods.¹⁰¹

The EC states that, ‘the acquisition by least-developed countries of a sound and viable technological base does not depend solely on the provision of physical objects or equipment, but also on the acquisition of know-how, on management and production skills, on improved access to knowledge sources as well as on adaptation to local economic , social and cultural conditions’¹⁰². This is good news for DCs and LDCs as these commitments, particularly objectives 1 (licensing of cost accounting software and OSI Layer 5-7 server hardware/software), 2 (access to engineers and IP routing specialists), 5 (the training of local NRA staff and local ISP legal teams), and 6 (ancillary IT equipment) could form a reasonable basis for a request for technical assistance to the EU to implement the Layering Theory.

With the failure of the discussions at Doha, there should perhaps be further movement here. For example, in a Decision (*General Cancun Decision*) adopted by the WTO’s General Council in August 2004, the Council has instructed the Committee on Trade and Development to “expeditiously complete the review of all the outstanding Agreement-specific proposals [on special and differential treatment] and report to the General Council, with clear recommendations for a decision.”¹⁰³ We will, however, have to wait and see to determine whether the review will have any meaningful outcome for DCs and LDCs¹⁰⁴.

In an ideal world, an effective IPR regime should not block innovation or effective competition. As mentioned earlier, Article 7 TRIPS Agreement sets out the objective that the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology. Furthermore, the TRIPS Agreement also contains a number of provisions that deal with anti-competitive conduct, including Articles 8 and 40. Article 8.2 allows for Members to adopt “appropriate measures” to prevent the abuse of

¹⁰¹ IP/C/W/497/Add.2, Para.8.

¹⁰² Ibid Para.4

¹⁰³ Clause 1(d), WT/L/579.

¹⁰⁴ In October 2004, the WTO Committee on Trade and Development did produce a report listing all the special and differential treatment provisions to be found in the WTO covered agreements for LDCs. See WT/COMTD/W/135, October 2004. The report simply lists the provisions, but makes no recommendations going forward.

intellectual property rights by right holders or the resort to practices which “unreasonably restrain trade or adversely affect the international transfer of technology”. For example, in the WTO *Working Group on the Interaction of Trade and Competition Policy*, the view was expressed that “one of the effects of international cartels could be to restrict the transfer of technology, particularly to developing countries.”¹⁰⁵ Again under Article 40.2 TRIPS, members may adopt appropriate measures to prevent or control anti-competitive practices, which may include for example “exclusive grantback conditions, conditions preventing challenges to validity and coercive package licensing.” Finally, in terms of gaining access to technology, LDCs and DCs could make use of the *compulsory licensing* provisions of the TRIPS Agreement. Article 31 TRIPS sets out the *conditions* for compulsory licensing¹⁰⁶. Correa argues that “the conditions that govern the granting of compulsory licenses will determine the extent of the system’s effectiveness in promoting local innovation and the transfer of technology”, and that “the existence of a statutory provision itself may persuade rights-holders of the need to act reasonably in cases of requests for voluntary licenses, while strengthening the bargaining position of potential licensees.”¹⁰⁷ But without access to the technical know-how to execute the invention, access to the patent itself will not be very fruitful. Nevertheless there have been some US cases where a transfer of know-how was required as part of the compulsory license or settlement¹⁰⁸. However, in order to implement such measures, LDCs and DCs are left with the task of putting in place effective legislation on

¹⁰⁵ WT/WGTTT/5, para 15.

¹⁰⁶ Selected conditions include: authorization to be based on individual merits, requirements for the rights holder to be already approached with a reasonable offer of licensing (unless a national emergency applies), in the case of semi-conductor technology use restricted only for public non-commercial use or to remedy a practice determined after judicial or administrative process to be anti-competitive, non-exclusive, predominantly for the domestic market, provisions for economic remuneration, possibility of revocation of the license.

¹⁰⁷ Correa 2000, p. 244. See also recent developments in the area of compulsory licenses with regard to public health. Given the proliferation of HIV/AIDS in the developing world, international institutions, such as the WTO have come under increased pressure to recognise the difficulties that WTO members with insufficient or no manufacturing capabilities in the pharmaceutical sector are facing with producing effective drugs for treatment and the need to obtain supplies quickly. As such the WTO has now granted a waiver of condition 31(f) TRIPS Agreement on manufacture for domestic markets only, allowing other WTO members to produce drugs cheaply for import by WTO Members who are *eligible*. See the Decision of the General Council August 2003, *Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and public health* (WT/L/540).

¹⁰⁸ Correa C., Can the TRIPS Agreement foster technology transfer to developing countries? in Maskus K. and Reichman J. (eds) *International Public Goods and Transfer of Technology: Under a Globalized Intellectual Property Regime*, CUP, 2005, pp 248 where Correa cites a Federal Trade Commission case involving Dow Chemicals, and also *FTC v. Xerox Corporation* 86 FTC 364 (1975) where through a consent decree Xerox was required to offer all of its office copier know-how royalty free to US patent licensees.

competition, which requires both trained personnel and resources¹⁰⁹. Many LDCs have not used their compulsory licensing provisions because of the high costs and delays involved¹¹⁰.

8.6 International Investment Agreements and Technology Transfer

At the bilateral level, the number of bilateral investment treaties (BITs) covering FDI in services reached 2, 265 by the end of 2003, and involving 175 countries¹¹¹. At the end of 2004, this had grown by a further 73 new BITs (World Investment Report 2005). Earlier in this chapter, the point was made that if the links to other economic sectors are weak, FDI may operate in enclaves with limited spillover into technologies adopted and wages earned by local firms and workers¹¹². One way of addressing this weakness of FDI is perhaps something that can be addressed in an International Investment Agreement (IIA) or BIT, where FDI is included in the services chapter of the treaty¹¹³. This is already happening to some extent. For example, the 2004 report on investment from UNCTAD, lists the move of FDI into the *services* market¹¹⁴. The reasons why such agreements are negotiated, include for the LDCs and DCs, increased options for attracting foreign investment for development on the one hand, and on the other, increased certainty for foreign investors that their investments will be secure as well as increasing market access and obtaining better conditions for national treatment for MNCs (than perhaps provided by LDC's or DC's special commitments under the GATS).

¹⁰⁹ In the *General Cancun Decision*, referred to above at footnote 95, the WTO's General Council states at para 1(d) on development that the: "Council affirms that such countries, and in particular least-developed countries, should be provided with enhanced TRTA [trade related technical assistance] and capacity building, to increase their effective participation in the negotiations, to facilitate their implementation of WTO rules, and to enable them to adjust and diversify their economies. In this context the Council welcomes and further encourages the improved coordination with other agencies, including under the Integrated Framework for TRTA for the LDCs (IF) and the Joint Integrated Technical Assistance Programme (JITAP)."

¹¹⁰ Muchlinski P., *Multinational Enterprises and the law*, Blackwell Publishers, 1999, p.439.

¹¹¹ UNCTAD *World Investment Report* 2004, p. 221.

¹¹² See sections 8.3.1-8.3.2

¹¹³ UNCTAD *World Investment Report* 2004, p. 221.

¹¹⁴ *Ibid.*

However, a number of BITs contain prohibitions on certain *performance requirements* with regard to technology transfer¹¹⁵. Restrictions on performance requirements are not necessarily advantageous for LDCs and DCs. This is particularly the case with NAFTA, which in the performance requirements sections, prohibits the imposition or enforcement by a Party of requirements “to transfer technology, a production process or other proprietary knowledge to a person in its territory” in connection with the admission or treatment of an investment of an investor of any Party or non-Party (unless required to do so by a competition authority)¹¹⁶. Similar technology transfer performance requirements can be found in other free-trade agreements¹¹⁷. The bilateral investment treaties of the United States also often include a prohibition of mandatory requirements “to carry out a particular type, level or percentage of research and development” in the territory of a party¹¹⁸. Although performance requirements that restrict only to control the competitive conditions of a market may be good for the general economic development of the host LDC or DC, more extensive requirements as to the generation, transfer and diffusion of technology, which go beyond competition-related issues, could also be prohibited under performance requirement restrictions¹¹⁹. Therefore LDCs and DCs interested in including development-oriented clauses in the IIA which touch on local personnel training requirements or the regulation of royalty payments by the developing country licensee would be restricted from doing so by the restrictions on performance in the IIA¹²⁰. However, as UNCTAD’s World Investment Report 2004 points out:

¹¹⁵ A performance requirement may be a condition that the host country imposes on the investing operator to fulfil (for example to recruit a certain quota of local people, or to contract to buy raw materials only from producers in the host state etc.)

¹¹⁶ Article 1106(1)(f) NAFTA. See also WT/WGTI/W/136, para 28.

¹¹⁷ See e.g. Art. G-06 of the Free Trade Agreement between Canada and Chile (1996); Art.15-05 of the Free Trade Agreement between Bolivia and Mexico (1994); Art. 9-07 of the Free Trade Agreement between Chile and Mexico (1998); and Art. 14-07 of the Free Trade Agreement between Mexico, El Salvador, Guatemala and Honduras (2000). These free-trade agreements also include a prohibition of requirements imposed on investments to act as exclusive suppliers of goods or services to a specific region or to the world market (*cited from WT/WGTI/W/136 at footnote 85*).

¹¹⁸ WT/WGTI/W/136, para 34, which cites Art. VI(f) of the bilateral investment treaty between the US and Bolivia (1998) as an example.

¹¹⁹ UNCTAD, *Transfer of Technology*, UNCTAD/ITE/IIT/28, 2001, p.96.

¹²⁰ There may be scope however to include performance requirements in the IIA, if the investor is to receive an “advantage” under the agreement, provided that the contracting state providing the technology has not prohibited performance requirements in any other IIA. *Id.*, p. 97. See also the *OECD’s Guidelines for Multinational Enterprises* that look to set requirements on MNCs to cooperate in the technology and science policy of the host country and prevent abusive practices (Sections VIII and IX respectively) at: <http://www.oecd.org/dataoecd/56/36/1922428.pdf>, date accessed October 2008.

IAs covering services FDI are proliferating at the bilateral, regional, and multilateral levels. The resulting network of international rules on FDI in services is multifaceted, multilayered and constantly evolving, with obligations differing in geographical scope and substantive coverage. These rules are increasingly setting the parameters for national policies in the services sector.¹²¹

Despite these concerns, agreements signed outside the multilateral framework continue to rise. The most recent *World Investment Report 2008* shows the number of international investment agreements (IIAs) rising to 5,600 at the end of 2007 with 2,608 bilateral investment treaties (BITs), 2,730 double taxation treaties (DTTs) and 254 free trade agreements (FTAs) and economic cooperation arrangements containing investment provisions.¹²² The report records the shift in treaty-making activity from BITs towards FTAs. Clearly LDCs and DCs, entering into such agreements to attract FDI are going to increasingly face the difficult challenge of striking a balance between using FTAs/BITs to attract FDI on the one hand, and maintaining sufficient flexibility to pursue national development plans in the services sector on the other¹²³.

8.7 Conclusion

The failure of the WTO Ministerial Conference held in Cancun in September 2003 meant that no decision was taken on any of the issues under negotiation or consideration in the Doha Work Programme, including deliberations of the Working Group on Trade and Transfer of Technology, which was set up by ministers at Doha to examine “the relationship between trade and transfer of technology, and of any

¹²¹ UNCTAD *World Investment Report 2004*, p. 235.

¹²² UNCTAD *World Investment Report 2008*, p. 8.

¹²³ The significance of maintaining flexibility for determining national policy has been adopted as a policy objective at the UNCTAD XI Conference in Sao Paulo (June 2004)(the *Sao Paulo Consensus*) UNCTAD, TDL/L.30, June 2004.

possible recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries. ”¹²⁴

The Doha Round has now failed, which is a shame as the Doha Ministerial Declaration introduced for the first time in the WTO, a binding mandate for WTO Members to examine the relationship between trade and technology transfer¹²⁵. As this chapter has discussed, there are a number of provisions within the WTO covered Agreements that can be enforced to ensure that the international process of technology transfer can be better achieved, for example Articles 7, 31, 40, 65 and 66 of the TRIPS Agreement. However as Roffe and Tesfachew have argued, there has perhaps been too much concentration of analysis on the imperfections of the international technology transfer process and not enough on the domestic absorptive and adaptation capacity of the host country¹²⁶. If DCs and LDCs are to truly benefit from technology transfer, more attention has to be paid to improving host country legislation on technology transfer in terms of making it more effective in attracting foreign investment, creating spillover, and also in dealing with potential abuses of market power by MNCs. As mentioned earlier, this is no easy task given that many DCs and LDCs do not have adequate resources to put such competition legislation into effect, even if the know-how was available.

What would be the objective of introducing better provisions on competition into host country legislation? Abbott argues that the “promotion of technology transfer through competition policy involves assuring that technical information appropriately enters the public domain (i.e., private appropriation of technology should not impose unreasonable social welfare costs), preventing and correcting market-related abuses, and assuring that granting of patents and other IPRs are accomplished in a measured

¹²⁴ WTO website on Working Group on Trade and Transfer of Technology at www.wto.org, date accessed October 2004. The first draft of the Cancun Ministerial text (Job(03)/150 of 18th July 2003) simply takes note of the progress made in the WGTTT and agrees that the Group’s work “shall continue to be based on the mandate contained in paragraph 37 of the Doha Declaration.” See Doha Round Briefing Series, International Centre for Trade and Sustainable Development, Vol 2 No 11 of 13, August 2003.

¹²⁵ Ibid.

¹²⁶ Roffe P., and Tesfachew T., *Revisiting the technology transfer debate: Lessons for the new WTO Working Group*, at <http://www.ictsd.org>, date accessed, October 2004

way.”¹²⁷ Simply copying the patent systems of the US and EU may not be the best step forward. Abbott cites a recent Federal Trade Commission (FTC) study of competition and patents in United States that focuses on the anticompetitive risks of overprotection, including through the grant of patents of suspect quality¹²⁸. He argues that the thrust of the FTC Report is that “the competition enforcement proceedings are a costly and inefficient mechanism for addressing the adverse impact of patent overprotection, as compared with reducing the grant of low quality patents and facilitating early challenges. Promoting greater vigilance over the granting of patents is characterized as “competition” policy.”¹²⁹ Muchlinsky argues:

...the true problem for LDCs is not so much that patents are taken out by foreign firms, but that the major producers of technology tend to possess considerable market power to which the protection of intellectual property is no more than a subsidiary form of protection. This suggests policy responses in other fields of law, especially competition law.¹³⁰

The challenge then for DCs and LDCs is to find a way to overcome the lack of resources to put in place the legislation and infrastructure required for effective competition authorities in the absence of funding, for example through the World Bank or WTO. Although external consultants can be funded to draft the necessary competition legislation, recruiting local skilled personnel to enforce the new legislation is another matter. Furthermore, often the external consultants funded by the external aid agencies will often draft laws that seek to promote competition, often to the advantage of foreign TNCs and developed economies, who are able to enter the market and with the necessary capital and technical experience to gain first mover advantages quickly in comparison to domestic companies (so called ‘crowding out’ discussed earlier). Perhaps what is required is a mix of both sector-specific (ex-ante technology transfer) measures that sets out basic rules on technology transfer in advance, for example in the setting of price controls and compulsory licensing by

¹²⁷ Abbott F., *The competition provisions in the TRIPS Agreement: implications for technology transfer*, Joint WIPO-WTO Workshop Intellectual Property Rights and Transfer of Technology, November 2003, p. 2.

¹²⁸ U.S. Federal Trade Commission, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*, October 2003.

¹²⁹ Ibid.

¹³⁰ Muchlinsky P., *Multinational Enterprises and the law*, Blackwell Publishers, 1999., p.441.

government, as well as general competition type (ex-post) provisions which deal with issues of discrimination, transparency, and unfair competition. We need however to distinguish between the two sets of laws, antitrust (competition) and technology transfer. As Muchlinksy argues:

...unlike antitrust laws, technology transfer laws seek to intervene in the operation of commercial markets in technology and regulate them in favour of the broader national economic interest in economic development. Although the use of antitrust laws as an instrument of national or regional industrial policy is often debated, its primary aim is to prevent anti-competitive practices in the market, not to control it.¹³¹

Bearing these points in mind, precedent does exist for a combined approach. For example, and as mentioned earlier, the European Commission has recently adopted a revised Technology Transfer Block Exemption Regulation¹³² as well as a series of new directives that adopt a mix of ex-ante and ex-post provisions for regulating electronic networks and services¹³³. Article 12 of the Access & Interconnection Directive¹³⁴ is a very good example of where the EC uses a combined ex-ante and ex-post approach in dealing with anti-competitive practices with regard to the granting of access to an electronic network or software protocol or interface:

“A national regulatory authority may, in accordance with the provisions of Article 8, impose obligations on operators to meet reasonable requests for access to, and use of, specific network elements and associated facilities, inter alia in situations where the national regulatory authority considers that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user's interest.”

¹³¹ Ibid., p.443.

¹³² Commission Regulation 772/2004 (April 2004).

¹³³ See for example the EC's Framework Directive 2002/21/EC and Access & Interconnection Directive 2002/19/EC as good examples of such combined ex-ante/ex-post instruments.

¹³⁴ Directive 2002/19/EC.

By doing this, the EC gives a great deal of discretion for National Regulatory Authorities (NRAs) to act and impose access conditions in agreements between operators so as to create effective competition: NRAs can impose access conditions even in the absence of any one operator having dominance in a particular market¹³⁵. In this instance, there may be no need for the NRA to conduct an extensive demand and supply-side substitutability test as regards the imposition of access obligations. In other words, access is seen as an area where immediate remedies may be required without the need for expensive and time-consuming market analysis.

However there are dangers of the enforcement by LDCs and DCs of measures of this type. Enforcement of host country competition provisions on MNCs for example could result in threats of trade and/or financial retaliation by developed country governments. To avoid the risk of this kind of retaliation, LDCs and DCs could make better use of regional trade or economic area agreements, where a common set of rules (both ex-ante and ex-post) for technology transfer could be adopted and integrated into the framework of the regional agreement¹³⁶. For example, to help maintain a level of consistency of regulatory treatment amongst European NRAs, the EC has included *harmonisation-type* clauses at Articles 6 and 7 Framework Directive, which require NRAs to consult with the EC in introducing measures which would have a significant effect on the European internal market¹³⁷. In a similar way, by harmonising competition provisions within the framework of a regional trade agreement, LDCs/DCs could have a better chance of enforcing such provisions against MNCs at a national level. Furthermore the competition schedule/chapter/section of a regional trade agreement could provide for the creation of a regional competition advisory body that could supply resources and skills to member governments, which all parties to the regional agreement could help fund, minimising the expense for a country in creating its own extensive infrastructure. Given the proliferation of regional trade agreements in recent years, consensus

¹³⁵ In the EC's new regulatory framework, dominance is equivalent to Significant Market Power as defined in Article 14 Framework Directive.

¹³⁶ Utilising for example sections of UNCTAD's draft Code on Transfer of Technology and also provisions on Science and Technology, and Competition from the OECD's Guidelines for MNCs. See also UNCTAD's excellent *Chapter of International Arrangements on Transfer of Technology: Selected Instruments*, UNCTAD/ITE/IPC/Misc.5, 2001, which contains a detailed analysis of a number of technology transfer clauses used in IIAs/BITs.

¹³⁷ Directive 2002/21/EC.

between regional trade partners with similar trade interests may be easier to achieve than creating a competition agreement or compact at the level of the WTO. As Balasubramanyam and Elliott argue:

The WTO is often dismissed as an inappropriate forum, simply because its mandate is restricted to trade and not investment, and whilst the organisation can parley with the governments of member countries on trade issues, it cannot negotiate with MNEs which are privately owned.¹³⁸

The *Mexico-Telmex* case reviewed in Chapter 3 does however prove (to some extent) that the WTO *can* scrutinize private undertakings. In that case, the Mexican telecommunications incumbent operator Telmex was found to be in breach of some of the anticompetitive provisions of the WTO's regulatory Reference Paper. What type of provisions could be included in a competition chapter of a regional trade agreement? A starting point could be greater cooperation between competition authorities in developing and developed countries, licensing rules to reduce the transaction costs of enforcement, and punitive damages (eg., triple damages) as a warning to prospective violators.¹³⁹ To this list can be added best practice recommendations from both the OECD's MNC Guidelines as well as sections on restrictive business practices from the (now defunct) UNCTAD's draft Code of ToT¹⁴⁰, discussed earlier. Regional measures might go hand-in-hand with changes in WTO procedure. For example, Abbot argues that the "WTO DSU might be expanded to include remedial measures directed at patent holders that initiate threats of trade sanctions by home government as 'abuse of dominant position' including, in

¹³⁸ Balasubramanyam N. V. and Elliott. C. Chapter 13 *Competition Policy and the WTO* in *The WTO and Developing Countries*, edited by Katrak H. and Strange R. Palgrave Macmillan 2004, p. 306. However, in the chapter the Authors generally conclude that the WTO may be an appropriate body to take responsibility for future multilateral competition policy developments, p. 311.

¹³⁹ Abbott F., *The competition provisions in the TRIPS Agreement: implications for technology transfer*, Joint WIPO-WTO Workshop Intellectual Property Rights and Transfer of Technology, November 2003, p. 4. See also examples of sanctions that can be applied in a personal capacity to directors for companies that infringe the UK's *Competition Act 1998*

¹⁴⁰ Major disagreement between the DCs and LDCs (Group of 77) and the developed countries (Group B) on the draft UNCTAD ToT Code seemed to focus on Chapter 4 (regulation of restrictive business practices) and Chapter 9 (applicable law and settlement of disputes). For a more detailed treatment, see Muchlinski P., *Multinational Enterprises and the law*, Blackwell Publishers, 1999, p.445, which also cites Blakeney M., *Legal Aspects of the transfer of Technology to Developing Countries* (ESC Publishing, 1989) at pp. 133-161.

egregious cases, recommendation of patent forfeiture,” as well as the desirability of increasing technology and information in the public domain.¹⁴¹ Although Balasubramanyam and Elliott generally conclude that the WTO might be an appropriate body to take responsibility for a future multilateral competition policy¹⁴², they also argue that the WTO’s Dispute Settlement Body is primarily interested in resolving disputes between competition authorities as opposed to disputes between individual firms¹⁴³.

The point made by Abbott on increasing access to information in the *public domain* has also been gaining considerable ground in academic thinking in recent years. Perhaps one of the most influential advocates of the public domain has been Lawrence Lessig of Stanford University. Lessig together with colleagues from Harvard’s *Berkman Center for Internet & Society* have pioneered the concept of the *Creative Commons*, which seeks to use *copyleft* licensing to encourage rights holders to place their work in the public domain¹⁴⁴. Clearly as more innovators in the developed world seek to use copyleft licensing and vehicles such as the Creative Commons, more producers in the LDCs and DCs stand to gain, subject of course to *their* continued use of the copyleft mantra in terms of derivative works produced. A very good example of this is the *Free and Open-Source Software* (FOSS) movement and GNU/Linux. FOSS is software that has made its source code public and allows users to change the source code and redistribute the derivative software. GNU/Linux

¹⁴¹ Abbott F., *The competition provisions in the TRIPS Agreement: implications for technology transfer*, Joint WIPO-WTO Workshop Intellectual Property Rights and Transfer of Technology, November 2003

¹⁴² Balasubramanyam N. V. and Elliott. C. Chapter 13 *Competition Policy and the WTO in The WTO and Developing Countries*, edited by Katrak H. and Strange R. Palgrave Macmillan 2004, p. 310.

¹⁴³ The recent WTO DSB case of a dispute on network interconnection payments between Mexico and the United States is a good example of this. See *Mexico-Measures Affecting Telecommunication Services*, Case DS204, June 2004.

¹⁴⁴ To see the *Creative Commons Deed* and for more information on copyleft licensing see the Creative Commons website at: <http://creativecommons.org/>, date accessed October 2004. The Free Software Foundation has developed a standard copyright agreement, the GNU General Public License (GPL) that is often called “copyleft” which seeks to replace traditional copyright. The GPL attempts to deter programmers from closing the source code of a FOSS computer programme and prevent the programme from being developed in a proprietary environment. The GPL needs to be distinguished from the licenses (based on the Open Source Definition) produced by the Open Source Initiative (OSI), another open-source movement founded in 1998. While the GPL *requires* any redistribution of GPL software to be released under a GPL license only (to stop the code being closed-off), licenses based on the OSI’s Open Source Definition allows redistribution under the same terms, but does not require it. In other words, programmers can take OSI software and go on to release modified software under new terms that include making it proprietary. As such OSI has become very attractive to industry giants such as IBM and Oracle. For a more detailed discussion of Open-source, see the excellent chapter in UNCTAD’s E-Commerce and Development Report 2003 (Chapter 3: Free and Open-Source software: implications for ICT policy and Development).

is an operating system developed, originally as a UNIX-like kernel by Linus Torvalds, on the open-source model and which has now become a serious competitor to proprietary Microsoft products. Allowing access to the source code allows for broad collaborative development in software production, better porting between different applications and programmes produced by independent developers, and the customisation of software to meet local needs¹⁴⁵. As a recent UNCTAD report states:

Its technological opposite, closed-source or proprietary software...requires a significant upfront investment in license fees for installation and upgrades: it is not always adaptable to local concerns; and its exclusive or even dominant use may not adequately support the local development of the expert knowledge and skills needed to fully embrace the information economy.¹⁴⁶

The UNCTAD report argues that a business or Government using FOSS could avoid becoming locked into using software manufactured by a controlling monopolist¹⁴⁷, and that “freeing the source code make software non-excludable as well, and as a result software acquires the characteristics of a public good.”¹⁴⁸ For developing countries¹⁴⁹, however, freeing-up the software would be of no use without the corresponding hardware and networks through which the software will flow: This is particularly important given that with the advent of digital networks, intelligence is moving closer to the end-user terminal, resulting in cheaper transmission costs and greater positive network externalities for those countries that have the resources to upgrade their legacy networks. There is no reason however why such digital networks that are proliferating in the developed world should expand geographically into the developing world, unless we have enlightened policy that will allow for it. This is one

¹⁴⁵ *E-Commerce and Development Report 2003*, UNCTAD, p. 95.

¹⁴⁶ *Ibid.*

¹⁴⁷ *Ibid.*, p. 100.

¹⁴⁸ *Ibid.*, p. 106.

¹⁴⁹ Developing country public sectors (e.g., South Africa, India, China) have already to begun to use FOSS and encourage it in the private sector for three basic reasons: (1) a desire for independence from being tied-into proprietary products (2) the need for security, given that to guarantee national security, governments should not have to rely on systems controlled at a distance; and (3) new IPR enforcement on proprietary systems where excessive copyrighting and patent hoarding diverts funds from R&D in the host country to patent acquisition and royalty payments. See p. 113, *E-Commerce and Development Report 2003*. Singapore, through its Economic Development Board is providing tax incentives for companies who use GNU/Linux as an operating system as opposed to proprietary applications. *Ibid.* at p. 116.

reason, why the objectives set in Tunis in 2005, as part of the second phase of the *World Summit on the Information Society*, must succeed in the long run¹⁵⁰. Maskus argues for the need to take the commons to the *multilateral* level. He argues for:

... a Multilateral Agreement on Access to Basic Science and Technology (ABST). An agreement at the WTO would be negotiated in which all signatories would place into the public domain, or find other means of sharing at modest cost, the results of publicly funded research. The idea is to preserve and enhance the global commons in science and technology, while setting out a public mechanism for increasing the international flow of technical information, especially to developing countries, without unduly restricting private rights in commercial technologies. The agreement could cover "input liberalization," which would permit researchers from other countries to participate in, or compete with, local research teams for grants and subsidies. This could be combined with increased opportunities for temporary migration of scientific personnel and additional student visas.¹⁵¹

The idea of getting consensus at the WTO between developed and developing Members *post Doha* on such a treaty would seem to be quite unlikely in the short term¹⁵². However given that Lessig has been successful in launching the Creative Commons in both the US and the UK, Maskus may not be so far out of the ballpark as one might imagine. Perhaps again, there is a need to focus first at the regional level: In Africa, a number of regions have already collaborated on FOSS, launching the Free and Open Source Software Foundation for Africa (FOSSFA), which seeks to promote the use of FOSS throughout the region¹⁵³. "FOSSFA anticipates that FOSS will provide opportunities to develop local programmes built by Africans for use in

¹⁵⁰ Discussed earlier at section 7.6.

¹⁵¹ Maskus K., *ICTSD-UNCTAD Dialogue, 2nd Bellagio Series on Development and Intellectual Property*, September 2003, p. 14. This proposal was first discussed by Barton J., in *Preserving the Global Scientific and Technological Commons*, Stanford University manuscript, 2003.

¹⁵² For example at the recent World Summit on the Information Society (WSIS) in December 2003, some of the poorest countries advocated the creation of a *Digital Solidarity Fund*, envisioned as a U.N.-administered fund to help technologically disadvantaged countries build telephone lines and other infrastructure in an effort to keep the digital and the wealth gap from widening further. No agreement on the fund could be reached in Geneva, and the idea was postponed to the second phase of talks in Tunis in 2005 where only voluntary agreement was reached.

¹⁵³ *E-Commerce and Development Report 2003*, UNCTAD, p. 116.

Africa”¹⁵⁴. Perhaps it is only through such regional organisations, such as FOSSFA, that funds can be mobilised and channelled and links made with educational institutions, whereby educators can be trained to help young people across the region to “learn, use, maintain, and modify software.”¹⁵⁵ As Theodore Roosevelt once said: “Great corporations exist only because they are created and safeguarded by our institutions; and it is our right and our duty to see that they work in harmony with these institutions. . . . The first requisite is knowledge, full and complete; knowledge which may be made public to the world.”¹⁵⁶ It would appear that his words have as much effect now as they did in 1901.

This chapter has reviewed technology transfer from the perspective of DCs and LDCs. As mentioned in Chapter 1, and also in Chapter 2, when linking the significance of technology transfer to addressing the Digital Divide, unless and until DCs and LDCs are able to improve their access to technology both for the purposes of innovation in their own domestic markets, but also for the purpose of exporting new products overseas, DCs and LDCs will not be able to effectively address the Digital Divide. One key aspect only as we have seen will be in enforcing the provisions of Article 66.2 TRIPS in terms of enforcing special and differential rights in technology transfer in favour of DCs and LDCs by developed nations. As mentioned in this chapter, the recent commitment by the European Communities in 2007 on technology transfer could form the basis of a request for help with implementing the Layering Theory at IXP exchanges in Africa for example (there are only 17 as we saw in Chapter 4, hardly a massive commitment).

DCs and LDCs however cannot depend on handouts. Furthermore, putting in place the hardware is one thing, but the law also needs to be put in place and the local NRA trained to enforce the law. If the EU law is taken as a precedent, particularly aspects of the EC’s new regulatory framework for electronic networks and services and the modified test of SMP (Layering Theory) that will apply to NGN networks, local laws will also have to be changed. This will require further technical assistance from the

¹⁵⁴ Ibid.

¹⁵⁵ Ibid. For a detailed case study on the use of ICT in development, see the case study on Jamaica written by the Author (“*Readiness for the Networked World: Jamaica Assessment*”) at: <http://cyber.law.harvard.edu/home/2002-01>, date accessed October 2008.

¹⁵⁶ See Roosevelt speech on trusts at: <http://www.sagehistory.net/progressive/Trtrust.htm>, date accessed October 2008.

EU, the ITU, World Bank and/or WTO. There needs to be the political will for funding to be forthcoming. Also, there will need to be focus on improving infrastructure at home in DC and LDC markets, a point recently emphasised by the *World Investment Report 2008*. According to the 2008 report, which focuses on economic infrastructure, including electricity, telecommunications, water and sewage, airports, roads, railways and seaports, “Telecommunications is the only infrastructure industry in which FDI has been the dominant form of TNC entry in developing and transition economies”.¹⁵⁷ This is good news for DCs and LDCs that need investment in outdated (analogue-circuit switched) infrastructure. But more investment is needed, particularly in Africa, as the 2008 report makes clear, and across a range of infrastructure sectors:

Despite significant levels of TNC investment in developing-country infrastructure, more of it is required to bridge the vast financing gap: there is need for substantial amounts of additional investment, irrespective of source. For instance, in Africa, total TNC investment commitments in infrastructure during the decade spanning 1996–2006 were \$45 billion – an amount (even if fully realized) that is barely equivalent to the region’s current annual infrastructure investment needs of \$40 billion.¹⁵⁸

As we saw in Chapter 2, investing in the infrastructure for communications will be crucial in addressing the Digital Divide. However as this chapter indicates there also needs to be a transfer of appropriate technology and policy measures to facilitate with the *absorption* of technology into the host market in order for producers in DCs and LDCs to be able to innovate and produce the kind of electronic intangibles suitable for export over newly developed infrastructure into developed country (mainly OECD) markets. But even if DCs and LDCs are in a position to grow local industries that manufacture electronic intangibles for use in both front-office and back-office functions, and available for export, their success in getting such products into developed country markets will depend on WTO rules regulating such electronic commerce, crucially whether electronic intangibles fall to be classified under the GATTs with its rules on tariffs, or the GATS with regulations on services, or even

¹⁵⁷ UNCTAD *World Investment Report 2008*, p. 14.

¹⁵⁸ *Ibid*, p. 17 (Overview).

TRIPS with laws on the protection and enforcement of IPRs. This issue of classification is the subject of the next Chapter 9.

CHAPTER 9¹

The classification of electronic intangibles in the WTO

9.1 Introduction

Chapters 4-6 of this thesis focused on how regulating effectively for SMP or dominance through use of the Layering Theory as regards advanced digital networks could lead to increased access possibilities for Other Licensed Operators (OLOs) that require access to the dominant operators delivery network so as to provide competitive electronic network and services in the dominant operator's home market. Such a provision could also lead to more transparent access for third country operators, for example, from DCs and LDCs needing to interconnect with the dominant operators network in the target country or through an IBP so as to deliver advanced electronic services from remote locations (cross-border services or Mode 1 services and consumption abroad or Mode 2 services under the WTO GATS). The precedent set in the *United States-Measures affecting the cross-border supply of gambling and betting services* (US-Gambling) case, discussed in this chapter, has made the delivery of cross-border services under Mode 1 GATS more transparent and less likely to market access restrictions. The previous chapters have focused on the delivery mechanism or the infrastructure required in order to convey such services (including recommendations on transfer of technology). This chapter now looks at the classification issue of electronic intangibles as they cross the virtual border. The classification of infrastructure: Telecommunication network and service offerings have already been examined in Chapter 3 and is subject to the UN HS and CPC classification systems. The classification of *electronic intangibles*², that is the content

¹ A version of this chapter has been published by Kariyawasam in *International Economic Law and the Digital Divide: A New Silk Road?* Edward Elgar, 2007.

² A generic term, sometimes referred to as e-products or digital goods and services, ranging from MP3 files, pay-per-view/video-on-demand movies to customized software in sectors as diverse as audiovisual to health and education. Such products, often a digital combination of binary code, are referred to in this chapter as "electronic intangibles".

that is to pass by way of the infrastructure still remains unresolved. For example, for physical goods passing through the customs point at a border crossing or at a shipping port, a tariff may be levied as an import tax together with any other customs duties applicable under the GATT. Similarly, for the delivery of a service, such as architectural or financial services cross-border, various local measures might apply to the regulation of these services in the target (importing) state. Even if the trade in electronic intangibles should be classed under GATS, which mode of the GATS should apply to such trade, Mode 1 or Mode 2 GATS? Classification under Mode 1 would mean that the buyer's jurisdiction will apply because the supplier is conducting business in the buyer's jurisdiction whereas under Mode 2, the supplier's jurisdiction will apply. For electronic intangibles the relevant applicable trade rules will depend on how such intangibles are classed under WTO law. This is a contentious issue and at the time of writing, the WTO is deliberating on resolving this legal issue that has divided its members since inception; how to resolve the issue of classification of electronic intangibles? *US-Gambling* has gone some way in looking at the classification issue, particularly in the context of "like services", but the overall issue of classification still remains to be agreed.

In the recent past we have seen significant determinations by WTO Panels and the Appellate Body, and requests for Panels on similarly diverse products from apples³, genetically modified crops⁴ to steel⁵. But the issue of electronic intangibles, "content rich" products that can be delivered directly to consumers by way of the internet is likely to become one of the most eagerly contested issues in the WTO as trade in electronic commerce continues to escalate. This chapter explores the issue of classification, whether as a good or as a service⁶, the different architectures of the GATT⁷ and GATS⁸ Agreements that will influence the process, and the almost diametrically opposing views of the European Communities and the United States on

³ *Japan-Measures affecting the importation of apples* (Case WT/DS245/AB/R), WTO, November 2003

⁴ *European Communities-Measures affecting the approval and marketing of biotech products* (Case WT/DS291/23), WTO, August 2003.

⁵ *United States-Definitive safeguard measures on imports of certain steel products* (WT/DS251/AB/R-WT/DS259/AB/R), WTO, November 2003.

⁶ Or even an Intellectual Property Right under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement).

⁷ General Agreement on Tariffs and Trade 1994 (incorporating GATT 1947).

⁸ General Agreement on Trade in Services (Annex 1(B) Marrakesh Agreement Establishing the World Trade Organisation).

classification which has to some extent polarised opinion within the WTO. Finally, the chapter looks at the *US-Gambling* case and its significance to the trade in electronic intangibles.

9.2 Why be concerned with Classification?

Given the significance of the trade in electronic intangibles, the differing underlying political intentions of some of the more powerful members of the WTO has made the issue of classification very contentious. This issue is one of the crosscutting issues (discussed in the various WTO councils) that the General Council itself has had to consider. To begin to understand why discussions on classification have been so contentious, both within the subsidiary trade councils and at the WTO's General Council, we first need to understand the political motivations among the lead actors in this area, namely the United States which prefers a GATT-based (goods) classification for electronic intangibles, and the European Communities which prefers a GATS-based (services) classification.

One important political consideration is that under current WTO rules, a classification for electronic intangibles under the GATS will allow countries to apply *content restrictions* based on rules of origin (a concept generally reserved for the GATT). The source of all content restrictions is directly related to the issue of protection of culture. This is an area of significant interest to the European Communities, particularly Member States, such as France and Germany. One example of such protection at work is the inclusion of audiovisual services under the GATS, which allows for a variety of protections under Articles XVI (market access), XVII (national treatment), and Article XIV (General Exceptions). US films have a dominant share of the market in Europe, and US "industrial cinema" a dominant share of the world market. As Carty comments citing various sources:

It has been argued that language has always been about power first, culture and learning second. Robert McCrum says in his Observer article that blue jeans and Hollywood played their part in the dominance of the English language, but it was Cruise missiles and Stealth bombers that became crucial

to its success. Eighty percent of home pages on the web are in English compared to 4.5 per cent in German and 3.1 percent in Japanese.⁹

Presently, a GATS listing allows restrictions on non-EU content being transmitted within the EU by way of national commitment restrictions in the European Communities Schedule of Specific Commitments (both 1994 and 1997)¹⁰. A GATS listing for electronic intangibles would therefore allow a similar range of protections in related “content rich” sectors, such as education, health, advertising, medical, legal, insurance etc., depending on the level of specific commitments inscribed by the European Communities in these fields. Furthermore given the European Union’s powers to negotiate future trade rounds under any potential new Constitution for Europe¹¹, inconsistencies between internal policy approaches to classification of electronic intangibles with EC external policy will create unwanted difficulties for the Union in the years ahead. A GATS classification could also lead to higher rates of tax in the form of VAT (value added tax) being imposed on imports of electronic intangibles¹². Some have argued that imposing such a tax could lead to discrimination between third country imports and EU suppliers of electronic services through the form of discriminatory taxes¹³. As the United States is seen as the leading exporter of electronic intangibles in the world, the imposition of such a tax could be seen as an attempt to curtail the US dominant position in e-commerce trade. The EU has been careful to stress, however, that such taxes are non-discriminatory, applying both to European Community service suppliers, as they do to third country service suppliers¹⁴. For DCs and LDCs, the other problem with services based taxes is how to

⁹ Carty A., Meta-Concept of International Economic Law, in *Perspectives in International Economic Law* (ed Asif Qureshi), Kluwer Law International, 2002, p.68.

¹⁰ In this example the relevant measure would be Council Directive 89/552/EEC (as amended by Council Directive 97/36/EC). Article 4 of the Directive requires that EU broadcasters reserve a majority of their transmission time for European works.

¹¹ The ratification of the Treaty establishing a constitution for Europe failed following Dutch and French rejections of the Treaty in referenda in 2005. The European Council called for a ‘period of reflection’ and following this in June 2007 began negotiations on a Reform Treaty as a replacement.

¹² For example, the European Commission, already levies VAT on electronic transmissions, originating both inside and outside the European Union under the Commission's sixth VAT directive (as amended).

¹³ Baker S., Lichtenbaum P., Shenk M., and Yeo M., *E-products and the WTO*, International Lawyer, 35Int'l Law.5, 2001.

¹⁴ The European Communities have also argued in submissions to the General Council that in some cases, EU suppliers have for a number of years faced discrimination in favour of suppliers from outside the EU and that the (VAT) sales tax would remedy the situation: “sales taxes were the bulk of the [the

collect them? Revenues from a GATT based taxation through import tariffs paid by LDC/DC importers to domestic customs agencies are much more likely to be enforceable by LDC and DC administrations than the collection of services based taxes from individual end-users. Other problems surrounding the classification issue are:

- Market access: There is a problem with classifying e-products under the GATT, as most market access commitments that have been made in the e-commerce sector (telecoms, audio visual, computer, express delivery services etc), have been made under the GATS;
- Technological neutrality: Some electronic intangibles are more like services than goods, for example video on demand, customised MP3 collections etc., and vice-versa (pay-per-view). If both goods and services can be delivered on-line, there will be constant and thorny questions regarding whether e-commerce activities (and which electronic intangibles) are subject to the GATT and which are subject to the GATS;
- Customs duties are the significant national measures for trade in goods. Worldwide, national customs systems are designed for trade in goods. Given the nature of distribution over the internet, it may be nearly impossible to reliably enforce customs duties on electronic intangibles, although the technology is now available for putting-in place micro-payment systems for electronic deliverables, spearheaded by the music and film industries' use of digital rights management technologies¹⁵. However for many developing nations (and some developed), the cost of introducing such systems, or requiring their respective Small Medium Sized Enterprise (SME) sectors through domestic regulation to do so, could be prohibitive even though anti-circumvention measures are already been introduced in law through TRIPS-plus provisions as found in the WIPO Internet treaties, some of the provisions of which have already been incorporated into selected US bilateral and Free Trade Agreements¹⁶. There is also the fact that besides the tariffs applied by states on physical goods imported into a country at the country's border, many states also levy additional duties on imports, such as customs

European Communities] fiscal revenues, and foregoing them on e-commerce could mean a substantial loss of revenue" [Page 4, WT/GC/W/492, WTO, April 2003].

¹⁵ <http://www.pico-pay.com/download/musicpaper.pdf> . Accessed October 2008.

¹⁶ See chapter 8.

charges (imports only) and internal taxes (levied on imported as well as domestic goods). Although each state will have its own regulations on the nature of these taxes, generally importers are normally obliged to cover them all.¹⁷ For developing countries because most of their tariffs are higher on average for imports than developed countries, the revenue generated by customs duties and additional import duties and taxes can be substantial, one of the reasons why DCs and LDCs may be reluctant to continue the current moratorium on a duty free system for imports on electronic intangibles.¹⁸ Teltscher in her paper on the tariff revenue implication of electronic goods trading wrote in 2001:

First, compared to the tariff rates, the rates for additional duties are significantly higher [for DCs]: they amount on average to 23 per cent, compared to only 6.9 per cent for the tariff. The final calculation of the duties levied on imports therefore increases from 6.9 per cent (tariff only) to 29.2 per cent (tariff, customs surcharges, taxes).¹⁹

- Classification: As mentioned in Chapter 3, the GATS has no compulsory or universally agreed classification system for services. Members usually follow the nomenclature developed for GATS purposes (GNS/W/120), which in many sectors is based on the provisional Central Products Classification (CPC) of the UN²⁰. If electronic intangibles are determined not to fall under either the GATT or the GATS, then new rules will be required and the problem will be to determine the extent of these rules, or whether existing ones can be reformed, extended or interpreted in ways that would mean the law keeping step with the technology.

This chapter explores these issues in detail examining (a) the implications of the choices to be made in legal terms focusing on the structural differences between the GATT and GATS; (b) the policy considerations between a GATT/GATS

¹⁷ Teltscher S., *From physical to digital delivery: Definition, scope and tariff revenue implications of electronic goods trading*, UNCTAD briefing paper, Proceedings of the 34th Hawaii International Conference on System Sciences, 2001, p.8.

¹⁸ Ibid, p. 8.

¹⁹ Ibid. My emphasis.

²⁰ CPC was not used in a number of sectors including financial, telecommunications, air transport, and maritime transport. CPC descriptions are usually technologically neutral, focusing on the end-use of the service concerned rather than the means or medium of delivery.

classification for electronic intangibles; and (c) the differing positions of the European Communities and the United States.

9.3 Structural differences between the GATT and the GATS

At the second session of the ministerial conference, a declaration on global electronic commerce was adopted in Geneva on 20th of May 1998²¹. At that conference, ministers recognised the increased opportunities from global electronic commerce trade, and directed the WTO General Council to establish a comprehensive work programme to address trade related issues relating to electronic commerce, specifically looking also to take account of the developmental needs of developing countries, including economic financial and legal needs. It was also agreed that member states of the WTO would continue their practice of not imposing customs duties on electronic transmissions. In September 1998, the General Council established a *work programme* on electronic commerce²², directing each of its councils including the Council on Trade in Services, the Council Trade in Goods, Council for TRIPS, and the Committee for Trade and Development to look at specific issues under their respective jurisdictions on trade in e-commerce²³, with the General Council playing a central role in the work programme by keeping the work of the separate councils on e-commerce under continuous review through a standing item on its agenda. Furthermore, the General Council, given its overarching remit, would also examine any issues of a crosscutting nature.²⁴

WTO members have held five dedicated discussions on crosscutting issues relevant to electronic commerce, under the auspices of the General Council²⁵. One of the crosscutting issues of concern is the classification of electronic intangibles. The issue before the WTO is whether the supply of digitised products, which can be delivered

²¹ WT/MIN(98)/DEC/2, WTO, 1998.

²² WT/L/274, WTO, 1998.

²³ Defined as “the production, distribution, marketing, sale or delivery of goods and services by electronic means.” (Paragraph 1.3, WT/L/274, WTO, 1998).

²⁴ *Id* at paragraph 1.2.

²⁵ Summaries of the discussions can be found in the following WTO documents: the first discussion in June 2001 in WT/GC/W/436; the second discussion in May 2002 in WT/GC/W/475; the third discussion in October 2002 in WT/GC/W/386; the fourth discussion in February 2003 in WT/GC/W/492, and the fifth in July 2003 in WT/GC/W/509.

either on a physical medium or by way of the internet should be classified under the GATS or GATT, or even TRIPS. The type of products, generally described as electronic intangibles consist of sound recordings, video games, audiovisual works, computer software, and literary works, generally any form of content, protected by copyright or other forms of intellectual property rights that can be delivered in a physical form (CDs, CD-ROMs, DVD is, videos, book's newspapers and magazines), or as a form of an electronic transmission over the Internet.

The trade in electronic intangibles already plays a significant part in international trade. Schuknecht and Perez-Esteve argue:

as access to Internet becomes more available worldwide and bandwidth and phone lines expand, the cheaper prices of these products offered through the internet will cause a substitution effect between the physical and electronic trade of digitizable media products. The extent of this will depend on their degree of substitutability. In the long-term, one might expect, a stagnation, and even a decline, in the physical trade of these products.²⁶

Similarly, Mattoo and Schuknecht say that as products are transferred over the internet, prices will start to drop resulting in a significant pick-up in this form of trade. They argue that above average growth rates in these areas are likely to continue in the future²⁷.

In looking at the classification issue, a certain category of electronic intangibles could fall to be classified under either the GATS or the GATT. This includes a narrow range of media products that can be imported under both HS classifications (the classification system for trade in goods under the GATT), and/or downloaded over the Internet (and hence classified as a service under the GATS system of classification W/120). The WTO has estimated such trade in intangibles to amount to approximately 1% of total merchandise trade and 1% of total duties collected

²⁶ Schuknecht L. and Perez-Esteve R, *A quantitative assessment of electronic commerce*, WTO, 1999, p.11.

²⁷ Mattoo A. and Shuknecht L, *Trade Policies for Electronic Commerce*, WTO, 2000, p.5

worldwide.²⁸ This would not include the vast majority of services, all media/information products that *never did* cross borders in physical formats, being clearly under the GATS (most media/entertainment forms that have traditionally been regarded as services: broadcast TV programming, radio programming), such trade amounting to approximately 99% of trading merchandise, and more than 99% of duties collected worldwide²⁹.

Whereas the GATT contains rules on safeguards, and domestic regulation, and subsidies and countervailing measures, the GATS also has working parties discussing disciplines on domestic regulation, emergency safeguard mechanisms, and government procurement (including subsidies). Most of these negotiations are still at an early stage, and it is not yet apparent how the classification argument of electronic intangibles might impact these different negotiations. What is sure however, is that any uncertainty on classification is likely to impact the confidence of exporters of electronic content.

Finally, if WTO Members were to decide to classify electronic intangibles as trade in *intellectual property rights* (IPRs) under the TRIPS Agreement, the transmission of such IPRs by way of e-commerce will ignore the concept of border crossing and border enforcement of such rights. As such, there will be a need to consider as an alternative to either customs duties (GATT) or tax revenues (GATS), royalties (TRIPS) instead, whether the transmission is a cross-border one or purely domestic. As to enforcement of IPRs, Article 41 of the TRIPS Agreement will apply, and enforcement will inevitably depend on the level of scope of digital rights management technologies in place, more the subject of the World Intellectual Property Organisation's (WIPO's) "Internet" Agreements than TRIPS³⁰.

²⁸ See presentation by Lee Tuthill, trade in services division, WTO "WTO implications of classification issues" at : http://www.wto.org/english/tratop_e/devel_e/sem05_e/presentation_tuthill.ppt. Accessed 26/11/03.

²⁹ *Id.*

³⁰ The two WIPO Internet Treaties were adopted under the auspices of WIPO in 1996: the WIPO *Copyright Treaty* (WCT) and the WIPO *Performances and Phonograms Treaty* (WPPT). The text of these treaties can be accessed at WIPO's *Digital Agenda* at: <http://ecommerce.wipo.int/agenda/index.html>, accessed November 2005. The WCT and WPPT are self-standing treaties which build on the *Berne* and *Rome* Conventions, and the TRIPS Agreement, but in certain areas go further for example in the area of enforcement of copyright, digital rights management, and anti-circumvention measures.

9.4 Establishing a legal framework

So how then do we begin to conceive of a legal framework that can help trade negotiators in classifying electronic intangibles? There are three possible frameworks that can apply; section 9.4.1 below discusses the legal rules for distinguishing between goods and services, section 9.4.2 the principle of trade neutrality, and section 9.4.3 the principle of technological neutrality. Another important principle to consider would be the principle of progressive trade liberalisation, which is covered in section 9.4.4. It would perhaps be helpful at this stage to discuss some of these principles, and whether they can assist in formulating an effective legal framework for classifying electronic intangibles as goods, services, or as some form of hybrid or other category (such as intellectual property rights). Each principle is discussed in turn.

9.4.1 Legal/economic rules for distinguishing between goods and services

The economics literature is full of statements to the effect that goods are material, or tangible, whereas services are immaterial and intangible. Hill (1999) argues that:

Because (a service) is not an entity, it is not possible to establish ownership rights over a service, and hence to transfer ownership from one economic unit to another. In contrast to goods, therefore, services cannot be traded independently of their production and consumption.³¹

Hill distinguishes between a good and a service in a number of ways. In particular, he argues that:

Goods are entities of economic value over which *ownership rights* can be established. If ownership rights can be established they can also be exchanged, so that goods must be tradable. Goods can be consumed or used long after they had been produced at locations which are removed from their place of production stopped. The separation of distribution and use from production is not feasible for services.³²

³¹ Hill P., Tangibles, intangibles and services: a new taxonomy for the classification of output, *Canadian Journal of Economics* Vol 32, No. 2, 1999, p. 442.

³² Page 447, *Id.*

We see therefore that under Hill's analysis goods are material objects, but goods do not necessarily have to be material or tangible. He argues that intangible entities do exist and that they have all the economic characteristics of *goods*. These can be described as "originals" created by authors, composers etc., which have no physical dimensions or spatial coordinates of their own and have to be recorded and stored on physical media, such as paper, films, and disks. They can be transmitted electronically. Hill argues that the intangible is the archetypal immaterial good: "*It is a good because it is an entity over which ownership rights can be established, and which is of economic value to its owner.*"³³ He further argues that when goods are produced, their production has two important characteristics not shared by services:

- The entire output from the process of goods production is owned by the producer and therefore is at the disposal of the producer;
- the use or disposal of the good by the producer is a separate activity from its production and takes place afterwards.

On the other hand, for services, two essential characteristics need to be noted:

- the production of services requires the agreement, corporation and participation of the consuming unit (s); and
- services cannot exist independently of their consumers. In effect, there cannot be a producer without a consumer. A service needs to be provided to another economic unit.

Hill argues that because the service is not an entity, it is not possible to establish ownership rights over a service, and therefore not possible to transfer ownership from one economic unit to another. In contrast to goods therefore services cannot be traded independently of their production and consumption.

In conclusion, Hill argues that in describing services as intangible goods, an assumption is made that the product must be an entity of some kind, whereas a service typically consists of some kind of improvement to an existing entity. Ogoti and Shah (1999) go further than Hill in distinguishing intangibles as goods and/or services.

³³ Page 440, *Id.*

They argue that in certain industries (for example in the software industry), further factors would need to be taken into account such as *mass production*, as opposed to the *customisation* of digital products and services in determining the classification issue: a higher quotient of customisation indicates services, whereas a lower quotient, goods. In their view, the issue is to develop a set of *characterisation factors* for electronic transmissions that will help to distinguish between goods and services.

Similarly Civilka argues that the distinction between goods and services is not definite and rather a *sliding transition* exists where the considerations, purposes, and character of each good and service has to be examined on a case-by-case basis for distinguishing between them³⁴. The problem is not to distinguish between a physical delivery of an object, and a physical process of a service, the difficulty is to “distinguish between the digital products as a group of products, digitally delivered and which may fall within the traditional classification of both services and goods”³⁵. He argues that the physical delivery has an aspect of a product that is a "tangible" object, while the physical process of a service can be described as being an activity that takes place. For all electronic services there is a transmission of digits being sent to a computer, and that these digits are physically delivered to a computer, constituting goods, whereas the aggregate of the digits constitutes a service.

Civilka goes on to argue (a point not considered by Hill), as to whether digital products and services, so-called intangibles, need not be classed either as goods or services, but as *intellectual property rights*. He argues that when users buy the right to use an electronic good or service, what they are actually buying are the rights to use the program, limited by license: “Digital deliveries are neither services or goods but rather another *type-sui generis* type-of merchandise, represented by their connection to intellectual property rights and lack of connection to a physical element or service.”³⁶ Civilka argues that the transfer of intellectual property rights from the supplier to the user is framed in the license agreement between supplier and user so that when the intellectual work is being sold along with the material medium, the ownership passes in respect of the material medium, rather than the author's own

³⁴ Civilka, *Digital Products: goods or services?* Mindaugas Civilka, Vilnius University Law Faculty at: http://www.itc.tf.vu.lt/doc/mokslas/skaitmenines_pranesimas_angl.pdf, accessed October 2008.

³⁵ Id, p. 3.

³⁶ Id, p.5.

work. What is involved therefore is the purchase of the tangible medium on the one hand, and delivery of the right to use the intellectual work as set out in the license agreement on the other. In effect, the trade in electronic intangibles is simply a trade in intellectual property rights, and nothing else. The governments of Singapore and Indonesia have also considered the trade in electronic intangibles as being equivalent to trading in intellectual property rights³⁷. Similarly, the Government of Australia in a submission to the Council for Trade in Services states that:

Most products or services delivered electronically consist of information. They remain information at the point of delivery to the consumer. Therefore, the value of such information in all cases consists solely of its intellectual property value, plus cost of distribution to the consumer.³⁸

In summary, we can look usefully at Hill's arguments that the essential characteristics of goods are that they can be owned, and where they exist independently of their owners, can be traded. Services, by contrast, involve some desired change caused by the service provider to something owned by the consumer or to the state of the consumer herself:

- The delivery of a service requires a relationship between consumer and producer; under this analysis, digital goods and services that can be owned, such as music, video, books, constitute goods;
- however some digital goods and services, such as the ability to watch a video on demand (where the consumer chooses a video from an array, which is then delivered by the suppliers server to the consumer) are services.

Hill's approach is primarily economic as opposed to legal in further considering a suitable legal framework for distinguishing between goods and services. From a legal perspective at a multilateral level we can also ask whether existing WTO

³⁷ See page 2, WT/GC/W/247, WTO, 1999.

³⁸ Page 6, S/C/W/108, WTO, 1999. By contrast, the European commission in its Sixth VAT Directive (as amended) regards the transfer and assignment of intellectual property rights (copyright, patents, a licences, trademarks), as the supply of *services*. See Article 9(2)(e) Directive 77/388/EEC (as amended).

jurisprudence can inform the debate. Perhaps the leading case on this point is the WTO Appellate Body Decision, *Canada_Certain Measures Concerning Periodicals*³⁹ (Canada Periodicals). In this case, the Appellate Body found that while advertising and editorial content had "service attributes", they formed a physical product in the periodical itself. In *Canada Periodicals*, the Canadian government's use of a measure to restrict imports of split-run periodicals under the GATS was rebuked by the Appellate Body on the basis that GATT applied to the imports, and not the GATS. The Canadian measure effectively restricted Canadian advertisers buying cheap (dumped) advertising space in magazines with little Canadian editorial content, restricting Canadian advertisers to buying space in the Canadian magazines market. Canada argued that advertising was a service that fell under the GATS (at the time, Canada had not scheduled any liberalisation commitments in this sector and was therefore free to discriminate between Canadian and non-Canadian magazine imports). However, the Appellate Body had to distinguish between the concept of a good and service which was made more complicated by the fact that neither the GATS nor the GATT explicitly define the terms "services" or "goods". The Appellate Body argued that Canada's measure had the effect of restricting the import of goods into Canada thereby limiting benefits under the GATT: what was at stake was the import of a magazine (a good) rather than the advertising (services) contained in the magazine.

Canada Periodicals was a landmark case in helping to distinguish between goods and services under the WTO covered agreements. As mentioned, services are not expressly defined in the GATS. Under the GATS all services are covered except those supplied in the exercise of governmental authority, and all measures affecting the supply of services. The GATS defines trade in services, as the supply of a service through any of the four modes, specified in Article I⁴⁰. The agreement does not distinguish between the different technological means by which a service may be delivered, whether between people, through the postal system, by telephone or across the Internet. As such the electronic delivery of a service is covered by the GATS

³⁹ Case WT/DS31/AB/R, 1997.

⁴⁰ The four modes of supply are: (1), cross-the border, where the services supplied from the territory of one member into another; (2), consumption abroad, where the consumer purchases a service, which is delivered in the territory of another member; (3). Commercial presence, with a service supplier of one member establishes a subsidiary or a branch in another member to supply a service; (4), presence of natural persons, with services supplied by a person working in the territory of another member.

demonstrating a general principle within the WTO, that the legal regime governing a transaction is determined by the *nature of the product* that is traded and not by means of its delivery or production⁴¹. The General Council has determined that the GATS apply to all measures affecting the supply of services. In the Panel report of the *Bananas* dispute case⁴², the term “affecting” has been interpreted to cover not only measures that directly govern the supply of a service, but also measures that indirectly affect it.⁴³

One focus of *Canada Periodicals* was determining the issue of classification of advertising space within a magazine, a good. As mentioned in Chapter 3, the WTO Agreements make use of two classification systems: the harmonised commodity description and coding system (HS), which applies to goods under the GATT, originally created under the auspices of the World Customs Organisation (WCO), and the classification list (W/120), which is based to a great extent on the provisional United Nations’ central product classification (UNCPC), and applying mainly to services under the GATS. Although both the HS and the UNCPC were originally developed for statistical purposes, most scheduled commitments of WTO members are based on these classification systems. The HS provides a system for the identification of products (product lines) that help Members identify the customs duties payable, and the collection and comparison of trade statistics. The HS is made up of a number of chapters that separate products, by their physical characteristics rather than their end-use criteria. The chapters are further divided by headings, subheadings, and finally, the six-digit HS code number. The HS nomenclature is used to classify anything that qualifies as a good and in accordance with its *physical characteristics*.

For this reason alone, the HS may not be able to classify electronically tradable digitised information if such information was to be characterised as *goods*. Take the example of software: while the HS distinguishes between empty carrier media and carrier media with content, it does not have a classification for the content itself. The HS does not have a classification because software is not a *physical entity*. Goods on

⁴¹ Page 6, WT/GC/W/90, WTO, 1998.

⁴² See report of the panel on "*European communities-regime for the importation, sale and distribution of bananas-complaint by the United States.*" (W. T./D. S. 27//USA).

⁴³ Page 2, WT/GC/W/90, WTO, 1998.

which software is stored, such as magnetic diskettes, magnetic tapes and disks for laser reading systems (e.g., CDs and DVDs) are provided for, as "recorded media." under the HS. As such, software is treated as sound and video recordings only. Furthermore as far as a services' classification is concerned the W/120 only defines software in the context of its description of computer and related services, it does not define software as a service in its own right. Software, is defined as part of the W./120 description of 1Bb Software Implementation Services (Computer and Related services), based loosely on UNCPC Code 842 as services related to "consultancy, development and implementation" (but not the software itself). Neither packaged nor customised software appear to be covered by the existing GATS framework. This is just one specific example of where the goods HS classification framework and the services W/120 classification framework fails to adequately classify the electronic intangible software, either as a good or as a service. The European Communities, however, have looked at the UNCPC 842 definition very carefully on software implementation services. In looking at this definition, the European Communities in its submission to the General Council argue that the electronic transmission of software simply forms the delivery part of the *development* of software and is therefore subject to the GATS and commitments on the services of UNCPC 842.⁴⁴ This is a very clever twist on the definition contained in category 842 and underlies the EC's keenness to ensure that an intangible product such as software falls under the GATS rather than the GATT. In a paper to the WTO's General Council on e-commerce in 2005, the United States was keen to stress the continuation of the moratorium on duty free imports of electronic intangibles and particularly software, and to ensure that the relatively liberal treatment on import of software on physical media (goods) continued when software was delivered also by way of the internet.⁴⁵ We shall return to the differing positions of the European Communities and the United States later in this Chapter at Section 9.5.

9.4.2 The principle of trade neutrality

Under this principle set out in Article III GATT, like products are generally subject to like trade rules. Matsushita *et al* (2003) argues that "the like product determination"

⁴⁴ See WT/GC/W/497.

⁴⁵ See WT/GC/W/551, para 4.

is one of the thorniest in GATT/WTO jurisprudence. Panel and appellate body reports, routinely state that the determination of whether products are "like" should be made on any case-by-case basis.⁴⁶ In WTO jurisprudence, three different approaches have been used for determining whether imported and domestic products are "like" for the purposes of the national treatment obligations under Article III:2 and Article III:4 GATT. The leading case is *Japan_Taxes on Alcohol Beverages*⁴⁷ (Japan Beverages). In this case the decision of whether products are similar, or are directly competitive and substitutable focuses on the following factors:

- The products end-uses in a given market;
- consumers tastes and habits;
- the products properties, nature and quality.⁴⁸

In Japan Beverages, the Appellate Body specifically endorsed looking at "competition in the relevant market", including by assessing the elasticity of substitution between two products.⁴⁹ Because electronic intangibles can be argued to be directly substitutable with their physical counterparts (viz., CDs and MP3 files), the principle of trade neutrality will normally require that electronic intangibles should therefore be treated no differently from physical products, and that GATT rules applicable to physical products (or their equivalent), should apply to electronic intangibles. In the report of the Fifth Dedicated Discussion of the General Council on e-commerce⁵⁰, the General Council picked up on the inconsistent treatment of similar products under the GATT and the GATS. They highlighted the case of software (discussed above) and architectural services. For architectural services they described a situation where a Member had full commitments for architectural services (and therefore no restrictions on market access and national treatment), but at the same time imposed customs duties on the physical architectural design (the *physical outcome* of the service)⁵¹. Because the same architectural design could be downloaded from the internet the problem of inconsistent treatment was very apparent. To deal with this problem of

⁴⁶ See Appellate Body report, *Japan, Taxes Alcoholic Beverages*, WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R, WTO, 1996.

⁴⁷ *Id.*

⁴⁸ See paragraphs 23 to 25, Appellate body report, *Japan Beverages*.

⁴⁹ Paragraph 26, *Japan Beverages*.

⁵⁰ See section 1 (classification) WT/GC/W/509 (July 2003) at page 3.

⁵¹ *Id.*

inconsistency, Drake and Nicolaidis suggest that one solution (under GATS for example) might be to specify that the service being assessed for likeness is actually the service *input* to a transaction rather than the subsequently customized end-product (output)⁵². However, the solution they suggest could still give rise to similar inputs (for example conventional film and its electronic equivalent, a webcast) giving rise to inconsistent treatment. The European Communities argue that where market access for an electronic transmission covered under the GATS is not granted the same level as its physical counterpart, where such counterpart exists (and where transactions are economically comparative), it would then be necessary for WTO members to address consistency problems on a *case-by-case* basis.⁵³ The EC does not state in what forum such cases would be heard, but the assumption would be the WTO's Dispute Settlement Body. However to have an institution such as the WTO pass judgement on individual Member's regulatory regimes in this way would not be satisfactory.

In order to ensure the neutral treatment of physical and digital deliveries we would also need to consider the practicality of imposing and collecting duties on delivery of electronic intangibles and also whether it would be even desirable to do so. The impracticability of imposing duties on electronic deliveries perhaps led to the moratorium agreed by WTO members in 1998 of not imposing customs duties on electronic transmissions. In one of its last submissions on e-commerce to the General Council in October 2005, the United States wanted the moratorium to last until (at least) the Ministerial Conference in Hong Kong, China in 2005 (and during the completion of the Doha Round).⁵⁴ The United States also wanted a clarification on the meaning of the term 'electronic transmissions' to which the moratorium applied, and which the United States felt was vague, preferring instead, 'products transmitted electronically' which it felt was clearer.⁵⁵ At the time of writing, no final agreement seems to have been reached. In Hong Kong, in 2005, Ministers agreed the following text that formed part of the Doha Ministerial Declaration:

⁵² Drake W., and Nicolaidis K., *Global Electronic Commerce and GATS: The Millennium Round and Beyond*, in *GATS 2000 New Directions in Services Trade Liberalisation* (Eds Sauve P and Stern RM), Brookings Institute, 2000.

⁵³ WT/GC/W/497, WTO, 2003

⁵⁴ WT/GC/W/551, para 1.

⁵⁵ WT/GC/W/556, para 1.

46. We take note of the reports from the General Council and subsidiary bodies on the Work Programme on Electronic Commerce, and that the examination of issues under the Work Programme is not yet complete. We agree to reinvigorate that work, including the development-related issues under the Work Programme and discussions on the trade treatment, **inter alia**, of electronically delivered software. We agree to maintain the current institutional arrangements for the Work Programme. We declare that Members will maintain their current practice of not imposing customs duties on electronic transmissions until our next Session.⁵⁶

9.4.3 The principle of technological neutrality

The principle of trade neutrality under the GATT would compare with the principle of technological neutrality under the GATS. The European commission in its submission to the General Council in May 2003 referred to technological neutrality "as the need for a similar treatment of economically comparative transactions, independent from the technology used."⁵⁷ In the same submission, the European Communities also refer (in a footnote) to a different notion of technological neutrality as meaning "where a rule or a specific commitment was written in a manner that did not distinguish between technologies, then that rule or specific commitment would apply to any sort of technology used."⁵⁸ The GATS agreement defines trade in services as the supply of a service through any of four modes: cross-border supply, consumption abroad, commercial presence and movement of natural persons. The four modes differentiate services transactions on the basis of the territorial presence of a supplier and the consumer of the service. The GATS makes no distinction between the different technological means by which a service may be delivered. Measures affecting the electronic delivery of services are "measures affecting trade in services." in the sense of Article 1 of the GATS just as they would be if imposed by any other means. It is also important to note that the "supply" of service is defined to include production, distribution marketing, a sale and delivery of a service⁵⁹.

⁵⁶ Ministerial Declaration, Doha Work Programme, WT/MIN(05)/DEC, December 2005.

⁵⁷ *Id.*, at paragraph 14.

⁵⁸ *Id.* at footnote 3.

⁵⁹ Article XVIII(b) GATS.

Furthermore, in scheduling basic telecommunications services commitments GATS commitments apply to services "provided through any means of technology (cable, wireless, satellite etc)"⁶⁰. Under this principle, a change in delivery technology should not therefore change the applicable trade protections, and that one technology should not be favoured over another. The principle of technological neutrality would also ask that directly substitutable products be treated under the same trade rules. So, for example, CDs and print books would be classed under the same trade rules as MP3 files and digital books respectively. The *US-Gambling* case has now confirmed the principle of technological neutrality arguing that on-line gambling services provided remotely should be classed as "like" domestic gambling services. The issues of likeness is an important one for e-commerce assessing whether electronic services are like their "brick and mortar" or conventional trade services. The test of likeness confirmed in *US-Gambling* is discussed further below in section 9.6.

9.4.4 The principle of progressive trade liberalisation

Under this principle, commitments on tariff reductions may not be withdrawn (GATT Article 2:1 (b)), and any withdrawal of GATS commitments requires payment of compensation to affected countries (GATS Article XX.). The principle of "no step backwards" has been very successful in achieving tariff reductions under the GATT. The question however for WTO negotiators is, whether in classifying electronic intangibles under the GATS, lesser protection is achieved than a classification under the GATT. Ogoti and Shah (2001) argue that the GATT aims at free trade at a faster pace compared to the GATS, which aims at progressive liberalisation of service sectors. There may be merit in this argument, but the counter argument would be that in the long term, the greater flexibility offered by the GATS (for dealing with "content" issues for example) might generate better rewards than simply lower tariffs for electronic deliveries under the GATT.

9.5 The position of the United States and the European Communities on the classification of electronic intangibles

⁶⁰ Document 5/GBT/W./2/Rev 1, WTO, 1997.

In discussing this issue, most WTO Members have gathered around the differing positions adopted by the United States and the European Communities on whether or not the GATT or the GATS respectively should apply to electronic intangibles⁶¹. These positions have arisen primarily from the differing architectures offered by the GATT and the GATS described above. For example, the United States has been the principle advocate that electronic intangibles should be classified as goods and benefit from GATT protections. In its submission to the WTO's General Council, the United States argues:

... While the transmission of these [electronic intangibles] products can certainly be characterised as a service, the products themselves are not consumed in their transmission, but rather retain a permanence analogous to the goods world....⁶²

In the same submission, the United States also attempts to draw a connection between electronic intangibles and other "intangible" products that already have a goods classification. For example, the United States poses the interesting question: "what are the implications of the long-standing practice of some WTO Members to classify "electricity" (clearly an intangible) as a good in their tariff schedules?"

However, in a later submission to the General Council in 2003, the United States appears to have softened its position, taking a more indirect approach to the issue of classification, arguing that:

Today, these products can flow seamlessly across global networks and can be permanently retained on an end-user's computer, and still retain the underlying functions as if they were sent in physical form. Thus, the means of delivery of such products may change but the downloadable products' functional characteristics do not change merely by a difference in delivery.⁶³

⁶¹ With the exception of the governments of Singapore and Indonesia, which have also added the contribution that electronic intangibles could be classed as tradable intellectual property rights under the TRIPS. However, in their submission to the General Council (WT/GC/W/247) both governments also consider the position under the GATT and the GATS.

⁶² Paragraph 7, WT/GC/16, WTO, 1999.

⁶³ My emphasis: see paragraph 7, WT/GC/W/493/Rev.1, WTO, 2003.

The United States appears to stop short of suggesting that electronic intangibles should be classed as goods under the GATT, but focuses instead on the functional characteristics of the product. In doing so, the US shifts the emphasis from the means of delivery by way of a telecommunications or internet transmission service to looking at the product itself, a good. Later the United States suggests that, “the focus should not be on how to classify these products, but rather on how to treat them for trade purposes with the goal being the most liberal treatment irrespective of how such products are classified.”⁶⁴

There is also a greater focus on the issue of trade promotion than classification and that “currently digital products in their physical form and on-line equivalents have for a number of years been traded under circumstances in which they may be subject to either the GATT or the GATS,” and “which counsels against prematurely establishing new trade rules for e-commerce”.⁶⁵

It would appear therefore that the United States has most certainly softened its position on insisting on a goods classification for electronic intangibles under the GATT. On the point of the current moratorium on customs duties the United States addresses the desire by some Members to impose tariffs on electronic intangibles (on grounds that the physical equivalents of such products suffer a higher tariff under the GATTs) by suggesting that equivalence of treatment should be achieved not by imposing tariffs on electronic intangibles but by lowering current tariffs on the equivalent physical product. The United States justifies this argument by suggesting that the “direct effects of government revenue through tariff losses seem to be very small whereas the effects on the efficiency of an economy can be large”⁶⁶. It remains to be seen how DCs and LDCs, for now mainly net importers of electronic intangibles (with the notable exceptions of India and China) will react to such a position. For many DCs and LDCs the loss in both import tariffs on electronic intangibles (should they be classed as goods) and tax revenues could be substantial. Certainly as Teltscher, in her paper referred to earlier, makes clear:

⁶⁴ *Id.*

⁶⁵ *Id.*, at paragraph 13.

⁶⁶ *Id.* at page 7.

...how significant are fiscal losses from the non-collection of tariffs and taxes, if e-commerce replaces traditional trade in goods? The analysis of trade and tariff data showed that while revenues from imports of digitizable products are small in absolute numbers and relative to total revenues, the developing countries' share in world tariff revenues from digitizable products is disproportionately higher than that of developed countries: while developing countries account for only 16 per cent of world imports of digitized goods, their share in tariff revenues resulting from these imports is 63 per cent. Developing countries are therefore primarily concerned should physical delivery of goods be replaced by electronic delivery and tariffs not be collected.⁶⁷

It is also important to point out that the US position on classifying electronic intangibles under the GATT is inconsistent. This is perhaps surprising given the significance of this type of trade to the US. Nevertheless an inconsistency does arise and comes about from the not very much discussed United States position on customs valuation. This position, buried in various obscure meetings of the WTO's Technical Committee on Customs Valuation and the World Customs Organisation (WCO), basically covers the scenario where software or other data instructions are imported into a country by way of satellite signals.

In the Decision on the Valuation of Carrier Media Bearing Software for Data Processing Equipment originally adopted by the Tokyo Round Committee on the 24th September 1984⁶⁸, the Decision reads (at paragraph 2):

In determining the customs value of imported carrier media bearing data or instructions, only the cost or value of the carrier medium itself shall be taken into account. The customs value shall not, therefore, include the cost or value of the data or instructions, provided that this is distinguished from the cost or the value of the carrier medium.⁶⁹

⁶⁷ Teltscher S, *Tariffs, Taxes and Electronic Commerce: Revenue implications for developing countries*, UNCTAD, October 2000, p.10.

⁶⁸ See WTO document: VAL/M/10.

⁶⁹ See paragraph 5 of G/C/W/128 for a full extract of this decision and the commentary of the WTO's Secretariat.

This Decision was in line with United States policy that data should not be taxed, and only the value of the carrier medium (whether by satellite or physical support) should be taxed. However in a separate report produced by the WCO, the WCO Secretariat makes the following statement:

The [WCO] Secretariat believes, subject to the application of GATT decision 4.1⁷⁰, that there may be circumstances under the WTO Agreement where the cost of such software may form part of the customs value of imported goods.

And in a further report by the WCO that:

The WCO believes that there may be situations, perhaps limited in number, where the payment for software imported by satellite could fall within the total payment made or to be made by the buyer in respect of an imported good.⁷¹

In short the WCO is stating that in certain circumstances (for example where the carrier media was a satellite signal), the data or software carried by the satellite signal could be classed as a good and therefore subject to customs valuation. The United States disagreed with this opinion and sought reassurance that in fact data/software was not a good and was not subject to customs valuation. In the end, the US achieved this result⁷².

What is clear is that the United States would now like data and software in the form of electronic intangibles to be classed as goods, and subject to the GATT, albeit with the current moratorium on customs duties remaining in place. It would appear therefore for want of a better expression that the United States would both like to have its cake and to eat it. In contrast, the European Communities contend in its submission to the General Council that electronic intangibles should be treated as services and that e-commerce involves two types of delivery:

⁷⁰This is the Decision adopted by the Committee on Customs Valuation in May 1995 which is referred to above.

⁷¹ See G/VAL/W/12 or the citation to this report by the WTO Secretariat in G/C/W/128 at paragraph 5.

⁷² See paragraph 5.8 G/C/W/128.

- Goods delivered physically, while ordered electronically, which fall within the scope of the GATT;
- Electronic deliveries, which consist of services and therefore falls within the scope of the GATS.⁷³

The European Communities position finds support from other members of the WTO for several reasons: A services classification for electronic intangibles allows countries to apply content restrictions based on national origin. Existing restrictions of this type include the EU Television without Frontiers Directive (TWFD), which requires EU broadcasters to reserve a majority of their transmission time for European Works). With convergence and the coming together of information technology, broadcasting and telecommunication networks, the TWFD has now been amended by the Audiovisual Media Services Directive 2007/65/EC (AVMSD) in 2007.⁷⁴

The AVMSD regulates new delivery mechanisms for audio-visual media content, such as on-demand services. The restrictions imposed by the AVMSD on inclusion of ‘European Works’ in on-line audiovisual programming have softened, reflecting perhaps the reality that material on the internet can be much more easily sourced from jurisdictions outside the EU, and more likely the US.⁷⁵ Nevertheless, the ability to restrict trade in electronic intangibles under GATS offers Members more scope than under the GATT for imposing restraints on the current global strength of US e-commerce companies abroad.

Historically, the WTO Secretariat has tended to lean in favour of the European Commission’s position of a GATS classification for electronic intangibles, and notes that members endorse the view that the vast majority of all products delivered electronically are services, although “there is still disagreement over a limited number

⁷³ Paragraph 1, WT/GC/W/306, WTO, 1999.

⁷⁴ See Articles 5 and 6 of TWF Directive 89/552/EEC (as amended). The AVMSD (Directive 2007/65/EC) amends the TWFD changing its name to the AVMSD and introducing new provisions on on-demand services. The AVMSD was adopted in December 2007. Regulators have two years to bring the provisions of the AVMSD into force to create a new regulatory framework for audiovisual media services by 2009.

⁷⁵ Whereas the TWFD included strict criteria for inclusion of ‘European Works’, the AVMSD’s wording is much more diffuse. For example at Chapter IIB, Article 3i, the AVMSD states: “Member States shall ensure that on-demand audiovisual media services provided by media service providers under their jurisdiction promote, where practicable and by appropriate means, the production of and access to European works...”

of these deliveries”.⁷⁶ In an earlier report, the WTO Secretariat took an even stronger position arguing that: “Any suggestion that ‘electronic transmissions’ as such should be regarded as outside the scope of the GATS would of course fundamentally damage the entire [GATS] Agreement and undermine a wide range of existing commitments, since the vast majority of cross-border trade in many sectors is done electronically.”⁷⁷

In a more recent submission to the General Council, the European Communities also took a strong position addressing directly the United States position of focusing on the functional characteristics of a product:

...the HS and WTO Members’ schedules generally only list physical goods according to their physical characteristics. The fact that some intangibles such as electricity are classified as goods is the exception that proves the rule: where intangible products were intended to be subject to the GATT 1994, this was expressly provided for in the schedules. And the GATT schedules have never covered any information digitised into bits and sent across a border through a telecommunications network, directly from the supplier to the customer....What members need to discuss here is thus only the transmission of digitised information and how to classify the transmission of digitised information.⁷⁸

Clearly, the European Communities are adopting a diametrically opposite view to the position taken by the United States. The Commission discusses a number of electronic intangibles that in the past had to be stored on physical supports (CDs etc) to be transmitted to the customer, but now no longer need such supports given direct delivery options by way of the Internet. The EC can see no reason to artificially turn the electronic delivery of such products into a good in order for the GATT 1994 to apply. The EC argues that:

⁷⁶ Page 2, S/C/W/183, WTO, 2000.

⁷⁷ Paragraph 37, S/C/W/68, WTO, 1998.

⁷⁸ Paragraphs 7 and 9, WT/GC/W/497, WTO, 2003. See also the report of the fifth dedicated discussion on electronic commerce under the auspices of the General Council (July 2003), where the European Communities argue that “there was no tariff line in the classification of goods under the GATT that could accommodate electronic products; the GATT did not, and could not, cover electronic products.” (paragraph 1, page 2 WT/GC/W/509).

“As clarified by the Appellate Body already way back in the European Communities – Bananas case, only where a service is supplied in conjunction with a particular good, the respective scopes of the GATS and the GATT 1994 may overlap. The underlying reason is that a trade measure can sometimes hinder both the importation of the good and the provision of the related service. But now that the service can be delivered without the handling of a good, the application of the GATT is not necessary any more.” And in the next paragraph: “If WTO Members started to classify under the GATT electronic deliveries with a physical equivalent, it would bring under the GATT many services (architectural services, engineering services, consulting services, health services... etc) that have physical outcomes.”⁷⁹

The European Communities argue that to bring such products under the scope of the GATT would create uncertainty and destabilize the operation of the GATS. Also as we have seen above with audio-visual content, there are strong political reasons for the European Communities wanting to classify electronic intangibles as services. For example, the European Commission’s own legal framework for electronic commerce adopts a “services approach”. The primary Directive dealing with e-commerce is the EC’s Directive 200/31/EC⁸⁰ that states:

This Directive seeks to contribute to the proper functioning of the internal market by ensuring the free movement of information society services between the Member States.⁸¹

Clearly the focus of the Directive is on services and *not* goods. In the field of tax, with the amendment to the EC’s Sixth VAT Directive 77/388/EEC⁸², data processing and the supplying of information, intellectual property rights, advertising services, banking, financial and insurance transactions, radio and television broadcasting services, telecommunication services (including access to networks), and electronically supplied services all fall under Article 9 of the Directive, relating to the

⁷⁹ *Id.*, WT/GC/W/497, WTO, 2003.

⁸⁰ Directive 200/31/EC on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce)

⁸¹ *Id.* at Article 2.

⁸² Amended by Directive 2002/38/EC as regards the value added tax arrangements applicable to radio and television broadcasting services and certain electronically supplied services.

supply of *services*⁸³. Therefore to classify electronic intangibles as goods would mean creating inconsistency with the EC's own internal legal framework with that of its external policy.

As mentioned, there is also the issue of protection of European *culture*. One example of such protection at work is the inclusion of audiovisual services under the GATS, which allows for a variety of protections under Articles XVI (market access), XVII (national treatment), and Article XIV (General Exceptions). Presently, a GATS listing allows restrictions on non-EU content being transmitted within the EU by way of national commitment restrictions in the European Communities Schedule of Specific Commitments (both 1994 and 1997)⁸⁴. A GATS listing for electronic intangibles would therefore allow a similar range of protections in related "content rich" sectors, such as education, health, advertising, medical, legal, insurance etc., depending on the level of specific commitments inscribed by the European Communities in these fields. Furthermore, and as stated above, given the European Union's powers to negotiate future trade rounds under any new *potential* EC Constitution for Europe, inconsistencies between internal policy approaches to classification of electronic intangibles with EC external policy will create unwanted difficulties for the Union in the years ahead.

The European position seems to find favour from other WTO Members. The Government of Australia for example appears to support the European Communities' position on classification:

It is probably mistaken to seek a definitive determination of this [classification] question which may, in the end, be resolved according to the nature of the specific transaction. At this stage, we would not see significant benefit from members seeking to identify particular products that could be treated as goods, even if electronically transmitted...The classification process should aim for the maximum separation between the nature of services

⁸³ Interestingly however, electricity and gas (non-physical objects) are treated as *goods* under Article 5(2) Directive.

⁸⁴ In this example the relevant measure would be Council Directive 89/552/EEC (as amended by Council Directive 97/36/EC). Article 4 of the Directive requires that EU broadcasters reserve a majority of their transmission time for European works.

supplied and the means of supply. The analogy for classification should be with other classes of product where the substantial value is distinct, and can be separated from the form and medium in which the product is finally consumed. This is more commonly an attribute of services, rather than goods.⁸⁵

The Government of Japan however, favours the United States position for goods under the GATT arguing that “the GATT principles of the most-favoured nation treatment, national treatment and the general elimination of quantitative restrictions will apply to such digital contents.”⁸⁶ Canada is more cautious arguing for a goods classification on software only (but in classifying software under the GATT would presumably agree *de facto* to all other electronic intangibles being classified in the same way):

In the case of software, the GATT currently provides a well-developed set of rules and disciplines that offer certainty and predictability in the determination of the rights and obligations of producers and particularly exporters in both domestic and foreign markets. Classifying electronically traded software as a good would presumably allow software producers to continue to take advantage of the level of liberalization achieved under the GATT and, in particular, the ITA (The WTO’s Information Technology Agreement).⁸⁷

9.6 US Gambling

US-Gambling marks a turning point for the GATS in that it is the first case decided that directly involves trade over the internet. *Mexico-Measures affecting telecommunications services* discussed in Chapters 3, 4 and 7 concerned cross-border telecommunications services, but in *US-Gambling*, the DSB panel⁸⁸, and after, the

⁸⁵ See paragraphs 21 and 22 of S/C/W/108.

⁸⁶ See paragraph 10, WT/GC/W/253.

⁸⁷ Canada’s non-paper to the WTO (May 2002): *The classification of software delivered electronically* at http://www.dfait-maeci.gc.ca/tna-nac/wto_nonpaper-en.asp?format=print accessed November 2005.

⁸⁸ *United States-Measures Affecting the Cross-Border Supply of Gambling and Betting Services: Report of the Panel*, WT/DS285/R (November 2004).

Appellate Body⁸⁹) discussed US measures that would restrict foreign members from providing gambling services remotely to US consumers, whether by fax, e-mail, telephone or the internet. In 2003, Antigua and Barbuda requested the WTO Secretariat to establish a panel to review US measures on the cross-border supply of gambling and betting services. Central to the complaint was Antigua's assertion that US Federal and state measures on the cross-border supply of gambling and betting services was a violation of GATS Article XVI: 1 on market access. Antigua claimed that the US had made a full commitment to the cross-border supply of gambling and betting services and that prohibiting all cross-border supply of such services was a violation of Article XVI:1⁹⁰: In effect that a full prohibition amounted to a "zero quota". The US argued that it had made no commitment to gambling and betting services and claimed that market access restrictions are allowed and only the specific market access restrictions set out in Article XVI:2 which describe numerical quotas are the categories that would fall foul of Article XVI. The US argued that:

...the gambling-related US measures listed in the Panel request are framed entirely in terms of non-numerical criteria that restrict certain forms of activity, rather than numbers of providers, operations, or output. Thus, no relevant US measures would appear to fall within the ambit of Article XVI:2.⁹¹

Another important issue raised by Antigua was the concept of "like services". Antigua argued that under GATS Article XVII on national treatment, the type of games offered by Antigua are the same as those offered by the US, the only difference being the origin of the services and the suppliers and the mode of supply (cross-border as opposed to commercial presence)⁹². Antigua cited the Appellate Body's report in the *EC-Asbestos* case⁹³ arguing that the AB in that case referred to four categories of characteristics that have been used to assess "likeness" in the context of the GATT: (i) physical properties; (ii) capability of serving the same or similar end-uses; (iii)

⁸⁹ *United States-Measures Affecting the Cross-Border Supply of Gambling and Betting Services: Report of the Appellate Body*, WT/DS285/AB/R (April 2005).

⁹⁰ *US-Gambling Panel Report*, para 3.124.

⁹¹ *US-Gambling Panel Report*, para 3.128

⁹² *Ibid*, para 3.148.

⁹³ *European Communities-Measures affecting asbestos and asbestos-containing products*, WT/DS135/AB/R, April 2001

consumer perception; and (iv) international tariff classification⁹⁴. The US refuted the issue of likeness arguing that the ownership and structure of US gambling services together with how such services were regulated in the US rendered them “unlike”.

The US argued that:

...The GATS explicitly recognizes in its preamble the “right of Members to regulate” services. The “like services and suppliers” language of Article XVII must therefore be interpreted in light of that object and purpose of the GATS. Thus one must consider not only the different competitive characteristics of a service or supplier as such, but also the existence of regulatory distinctions between services in interpreting and applying the likeness analysis under Article XVII.⁹⁵

Japan in its submission as a third party observer to the proceedings made a similar argument to the US that cross-border supply could be considered “unlike” domestic supply because regulatory circumstances were different⁹⁶. *US-Gambling* resulted in an extremely lengthy panel report (almost 300 pages), and a shorter AB report of over 100 pages. A full discussion of the case is beyond the scope of this thesis. In summary however, the other main issue at stake was whether the US was permitted to restrict cross-border gambling and betting services on grounds that its measures were “necessary” to protect public morals or to maintain public order. The US maintained that its measures were consistent with the chapeau of Article XIV, which allows for example derogation of existing GATS commitments on public policy considerations, such as security, public morals, and fraudulent practices.

The Appellate Body report was published in April 2005. In the report, the AB reversed the panel’s decision arguing that three out of the four US measures at stake were necessary to protect public morals and that the US could maintain these measures. The AB also ruled that the US had not shown that one of its measures (the Inter-State Horseracing Act) applied to both domestic and foreign service suppliers and was therefore not in conformity with the chapeau of Article XIV. Both the panel

⁹⁴ *Ibid.*, para 101.

⁹⁵ *US-Gambling* Panel Report, para 3.188.

⁹⁶ *US-Gambling* Panel Report, para 3.162.

and AB reports maintain the rule of technological neutrality discussed earlier in this chapter and that GATS obligations taken in 1994 would apply to any current or future delivery technology under cross-border supply (GATS mode 1)⁹⁷. The AB argued that the US GATS schedule included commitments in respect of gambling and betting services and that any restriction on electronic service delivery under mode 1 was in effect the imposition in the form of quotas and therefore a breach of Article XVI:2(c) GATS⁹⁸. The significance of this ruling is great. New internet services delivered under mode 1 and where such services can be captured by an existing GATS commitment (and relevant CPC and WS/120 classification code) will therefore automatically be covered by the GATS. In other words, a mode 1 commitment automatically secures market access for like services regardless of the technology of delivery. WTO members therefore need to be particularly careful when drafting new commitments under mode 1, to specifically exclude any service that could also be subject to electronic trade (and where such a commitment is not wanted). The US had tried to argue that gambling and betting fell outside their scheduled commitments as they had deviated from the CPC classification code when making commitments in the entertainment sector. The AB argued that in making commitments, members would need to adhere to the CPC and WS/120 and that any deviation from these guidelines should be detailed carefully⁹⁹. Another important issue arising from the case is the distinction between the regulation of *suppliers* of electronic services and *consumers* of such services. So for example as mentioned above, restrictions on cross-border *supply* of electronic services could be classed as a violation of Article XVI, but that restrictive regulation by a member of the *consumption* of those services by the relevant member's consumers would be permissible under Article XIV GATS. Presumably regulations that restrict consumers' consumption would fall to be considered under Article VI on domestic regulation, creating therefore a hazy boundary between GATS Articles XIV and VI. The upshot of this is a fear of diminished sovereignty over domestic public policy and local services regulation. The key issue is to determine what is "necessary" to protect public morals and to maintain public order. Both the Panel and the AB established a weighing and balancing test to determine the issue of "necessity", citing the case of *Korea-Various measures on*

⁹⁷ *US-Gambling* AB Report, para 265.

⁹⁸ *US-Gambling* Panel Report, para 6.355.

⁹⁹ *US-Gambling* AB paras 203 and 204.

*beef*¹⁰⁰. In short, this test questions whether the measures (i) protect very important societal interests; (ii) impose strict controls to protect such measures; and (iii) contribute to the realisation of the ends that they pursue¹⁰¹. In *US-Gambling*, the AB found that the Panel had erred in not looking for suitable alternative remedies that the US could have pursued other than the measures that they had adopted, and that in failing to do so, and with Antigua failing to establish a suitable alternative measure, that the US measures were in fact necessary. The Panel had focused on the failure of the US to enter into consultations with Antigua on alternative measures for protecting public morals as a failure of establishing “necessity”. The AB argued that this was a mistake and that: “such consultations in our view, cannot qualify as a reasonably available alternative measure with which a challenged measure should be compared.”¹⁰² Perhaps in this sense, the AB ruling, reversing the Panel’s determination on the applicability of Article XIV to US measures was not as robustly argued as other aspects of their report, considering that the end result was to create a distinction between the regulation of foreign suppliers of electronic services to gain access to the US market (easier) than the consumption of their services by US consumers (more difficult). In providing access to the US market by the former but restricting access to the latter, Antigua argued that such a result was “absurd”¹⁰³.

9.7 Conclusion

It would perhaps be helpful at this stage before considering possible solutions to the problem of classifying electronic intangibles to first summarise the outstanding problems: First there is a problem with classifying electronic intangibles under the GATT, as most market access commitments that have been made in the e-commerce sector (telecoms, audio visual, computer, express delivery services etc), have been made under the GATS. Second, some electronic intangibles are more like services than goods, for example video on demand, customised MP3 collections etc., and vice-versa (pay-per-view). If both goods and services can be delivered on-line, there will be constant and thorny questions regarding whether e-commerce activities (and which

¹⁰⁰ *Korea-Measures affecting imports of fresh, chilled, and frozen beef*, WT/DS161/AB/R WT/DS/169/AB/R, January 2001.

¹⁰¹ *US-Gambling AB* report, para 323.

¹⁰² *Ibid.*, para 321.

¹⁰³ *Ibid.*, para 68.

electronic intangibles) are subject to the GATT and which are subject to the GATS. Third, customs duties are the significant national measures for trade in goods. Worldwide, national customs systems are designed for trade in goods. Given the nature of distribution over the internet, it may be nearly impossible to reliably enforce customs duties on electronic intangibles, although the technology is now available for putting-in place micro-payment systems for electronic deliverables, spearheaded by the music and film industries' use of digital rights management technologies¹⁰⁴. However for many developing nations (and some developed), the cost of introducing such systems, or requiring their respective Small Medium Sized Enterprise (SME) sectors through domestic regulation to do so, would be prohibitive. Fourth, the GATS has no compulsory or universally agreed classification system for services. Members usually follow the nomenclature developed for GATS purposes (GNS/W/120), which in many sectors is based on the provisional Central Products Classification (CPC) of the UN¹⁰⁵. If electronic intangibles are determined not to fall under either the GATT or the GATS, then new rules will be required and the problem will be determine the extent of these rules, or whether existing ones can be reformed, extended or interpreted in ways that would mean the law keeping step with the technology.

Given these difficulties a possible way forward would be to adopt the solution offered by Baker *et al* (2001) and allow the WTO Dispute Settlement Body (DSB) to resolve the problem. Drake and Nicolaidis however think that such an approach would not be effective in determining which electronic intangibles are goods and which services. They argue that the DSB should be used to interpret WTO members' *collective* intent as expressed in WTO instruments rather than force governments to legislate on such fundamental issues because they could not agree on a common approach. To some extent however, with the *US-Gambling* case discussed above, the DSB has determined some issues on regarding trade in electronic-based services. For example, with regard to technological neutrality, all mode 1 based GATS commitments now cover electronic delivery of 'like' services. *US-Gambling* has not determined however the more thorny questions of which of the trade treaties should apply to electronic intangibles. Drake and Nicolaidis suggest, "establishing a new category of 'hybrid'

¹⁰⁴ <http://www.pico-pay.com/download/musicpaper.pdf> . Accessed October 2008.

¹⁰⁵ CPC was not used in a number of sectors including financial, telecommunications, air transport, and maritime transport. CPC descriptions are usually technologically neutral, focusing on the end-use of the service concerned rather than the means or medium of delivery.

products that have the properties of both goods and services.”¹⁰⁶ Another solution (discussed above) would be to treat electronic intangibles as tradable intellectual property rights, suggested by the Governments of Singapore and Indonesia¹⁰⁷, and the academic author Civilka¹⁰⁸. Civilka further suggests the use of license agreements in assignment of IPR to suggest that electronic intangibles are services and not goods.

Drake and Nicolaidis suggest a fourth solution¹⁰⁹: that trade negotiators should define and agree on clear criteria differentiating goods from services. Coming to such definitions would presumably encompass many of the arguments outlined earlier in this chapter when discussing legal rules for distinguishing between goods and services (Section 9.3). For an electronic intangible to be classed as a good, Drake and Nicolaidis suggest their own definition for a digital good that would require conformity with two fundamental criteria. Digital products can be categorised as goods if:

1. they can be locally stored¹¹⁰; and
2. are transferable between buyers¹¹¹.

They rightly observe however that if such a definition was adopted, WTO Members such as the European Communities would have far less flexibility to apply cultural exceptions (as under the GATS) to restrict non-EU imports of electronic content rich products. In the United States, the *Streamlined Sales Tax Project*, a think tank consisting of the separate states of the United States, are developing measures to design, test and implement a sales tax and use tax system that simplifies the current system in the United States. They suggest a similar definition for a digital good where

¹⁰⁶ Drake W., and Nicolaidis K., *Global Electronic Commerce and GATS: the Millennium Round and Beyond* in GATS 2000 New Directions in Trade in Services (Editors Sauve P. and Stern R.), Brookings Institute Press, 2000, p.410.

¹⁰⁷ WT/GC/W/247.

¹⁰⁸ *Digital Products: goods or services?* Mindaugas Civilka, Vilnius University Law Faculty at: http://www.itc.tf.vu.lt/doc/mokslas/skaitmenines_pranesimas_angl.pdf . Accessed 26/11/03.

¹⁰⁹ *Supra* note 106.

¹¹⁰ Locally stored means that the “product is downloaded onto a physical medium. It need not take on a tangible form: a magazine, CD, or movie can be downloaded onto a computer and controlled by the consumer without any involvement by the producer and without making a separately packaged hard copy.” *Supra* footnote 106.

¹¹¹ “Transferable means that the value of the product can be preserved independently of the initial consumer and transferred to another consumer without the intervention of the producer.” *Id.*

they define the ‘digital equivalent of tangible personal property’ as a product (except prewritten computer software) meeting all of the following conditions:

1. Is expressed in binary digits;
2. Is delivered, accessed, or subscribed to electronically; and
3. The sale of which would be treated as a sale of tangible personal property if transferred on tangible storage media¹¹².

Hill argues that the traditional dichotomy between goods and services can be preserved provided intangibles are grouped with tangible goods. Also intangibles are sufficiently different from tangible goods that there may be a case for identifying them separately by having a trichotomy of tangible goods, intangible goods, and services. He cites the *North American Industry Classification System*, which identifies a new Information and Cultural Industries Sector whose products it acknowledges to be unlike both traditional tangible goods and traditional services. The note to the classification states that, “the value of these products does not lie in their tangible qualities but in their information, educational, cultural or entertainment content.” He argues that Europe should follow a similar approach.¹¹³

Baker *et al* suggests that rather than arguing between the GATS and the GATT, a better outcome might be for WTO Members to reach a negotiated solution to balance their interests. A solution would be to treat electronic intangibles as services in exchange for GATS commitments to give e-products (electronic intangibles) trade benefits equivalent to comparable physical goods¹¹⁴. However, for Baker’s solution to work (particularly for the United States, Canada, and Japan), a sufficient number of other WTO Member States will have to make adequate commitments to justify for example the United States agreeing to classify electronic intangibles as trade in services as opposed to goods. This kind of *critical mass* approach was also used in the negotiations on basic telecommunications, where the United States refused to make a

¹¹² See Digital Equivalent of tangible personal property Issue Paper (July 2003) at: http://www.streamlinedsalestax.org/library/mtg_0503/Digital%20Equivalent%20of%20tpp_ip.pdf, accessed October 2008.

¹¹³ Hill P., *Tangibles, intangibles and services: a new taxonomy for the classification of output*, by, Canadian Journal of Economics Vol 32, No. 2, 1999, p.446.

¹¹⁴ See page 4 Section C: *e-products and the WTO* by S.Baker, P.Lichtenbaum, M.Shenk, and M.Yeo in the International Lawyer, 35Int’l Law.5, 2001.

binding offer under the GATS, until at least 60% of other nations had committed to the Basic Agreement and the Reference Paper. If a GATS classification was settled upon however, another important question to ask would be whether the GATS could provide for a similar level of liberalisation as under the GATT, particularly if Members supported a GATS version of the Information Technology Agreement?¹¹⁵

Whatever solution is found to the problem of classification of electronic intangibles, Member's trade negotiators need to be careful not to get too bogged down in entrenched positions that lead to protracted negotiations within the various councils of the WTO, and on cross-cutting issues in the General Council. A major challenge for the WTO Secretariat would be to develop a test for "likeness" as regards intangible and tangible products and as mentioned in Chapter 9.4.2 (the principle of trade neutrality) above. *US-Gambling* has to some extent put such a test in place. The failure of the WTO to act quickly in determining the issue of classification will lead to the danger that more powerful trading partners will bypass WTO negotiations and incorporate rules on trade in electronic intangibles into Free Trade Agreements and Bilateral Investment Agreements with less powerful partners that are much more favourable to their own commercial interests. This could lead to a web of agreements with conflicting standards on classification.

The Author argues that the European Commission is right to want to protect the integrity of its cultural content flowing over its networks. For example, the new Audio-Visual Media Services Directive adopted in 2007 provides for the fact that on-demand services may well be sourced from outside the EU, but still requires the integration of 'European Works' into content for on-demand services broadcast in the EU.¹¹⁶ A balance is therefore achieved with the aim of preventing on-demand broadcast services (non-linear audio-visual media services)--which the European Commission envisages in time perhaps replacing television broadcasts (linear audiovisual media services)--from being dominated by foreign content. For this reason, one could imagine why the EU should want electronic non-linear audio-visual services to remain under the GATS. If rules of origin was to be the driving force

¹¹⁵ See paragraph 4, non-paper by Government of Canada to the WTO General Council, *Classification of Software delivered electronically*, May 2002.

¹¹⁶ Directive 2007/65/EC of the European Parliament and of the Council of 11 December 2007 amending Council Directive 89/552/EEC. See footnote 75 above.

behind the classification debate then one could argue that *all* content rich products that can be distributed by way of the internet should also be under the jurisdiction of the GATS, allowing (for example) member states to use measures (as opposed to tariffs) to control the entry of such products across their borders as in *US- Gambling*. The GATS also allows for market access restrictions, which theoretically could allow a member state to restrict the number of electronic intangibles imported into a member state. As Teltscher, an economist who worked for UNCTAD, argues:

A second important difference between the GATS and the GATT is the possibility to impose quantitative restrictions or quotas. While the GATT (in general) prohibits the use of quotas, they are allowed under the GATS (depending on the market access commitment specified in a country's schedule). So theoretically, this could mean that a country could put (in principle) a limit on say the number of books transmitted electronically via the Internet.¹¹⁷

The potential for such a restriction could stifle the market for electronic intangibles, burdening it with excessively high levels of regulation that would stop electronic content from being downloaded (subject to the necessary Digital Rights Management technology being in place). One could imagine that in countries that were opposed to foreign content flooding their markets, such quotas could be used subject off course to the principles of market access and non-discrimination under Articles XVI and XVII of the GATS discussed earlier in this chapter, otherwise a country could find itself before the WTO's DSB. However, if the Digital Divide is to be truly addressed, content must be available freely and at low cost. This can only happen if successive trade rounds continue to reduce import tariffs on electronic intangibles to zero. One of the remarkable successes of the ITA agreement (discussed in Chapter 8) on information technology products has been to reduce imports tariffs on such products allowing end-users in DCs and LDCs access to cheaper computers and infrastructure. The same is required for the content flowing over such infrastructure. If we remind ourselves of the definition of the international digital divide arrived at in Chapter 2:

¹¹⁷ Teltscher S, *Tariffs, Taxes and Electronic Commerce: Revenue implications for developing countries*, UNCTAD, October 2000, p.3.

A failure—between those users in countries who have access to communications infrastructure, services and tools to aid literacy and information literacy, and those who do not—to access the minimum available capacity of communication technologies and information within a structural context of successive innovation, competition and trade.

The capacity to *appropriate information* is crucial for addressing the digital divide. Access to content is important. Making content cheaper therefore is a necessary step. The GATT can achieve this by driving down import tariffs through the lockstep of successive trade rounds. The question then is how to control the cultural content of the intangibles imported? As we have seen in this chapter, the GATS achieves this through regulatory measures, for example on the use by the US of Article XIV GATS on grounds of public morality, the US was able to successfully restrict the consumption by US end-users of cross-border gambling services from Antigua. As mentioned above this is a strong argument for the use of the GATS in regulating e-commerce. However we could also argue that the same result could be achieved not through international economic law, but through national domestic laws on obscenity, broadcasting (whether linear or non-linear) and standards in media. The problem for most DCs and LDCs would be putting in place such laws and having suitable powers for enforcement.

Nevertheless, if the primary goal is addressing the Digital Divide, the author suggests that the US Streamlined Sales Tax Project's definition for a digital good should be adopted by the WTO. All electronic intangibles would therefore come under the GATT, so long as the following conditions are met. That the intangible:

1. Is expressed in binary digits;
2. Is delivered, accessed, or subscribed to electronically; and
3. The sale of which would be treated as a sale of tangible personal property if transferred on tangible storage media¹¹⁸.

¹¹⁸ The US Streamlined Sales Tax Project makes it clear that this definition would not apply to pre-written computer software.

This would capture most electronic intangible products, such as music, books and films that can be sold in physical format on tangible storage media, but exclude on-line legal, architectural, educational, and health services that would still be classed as ‘services’ under the GATS. Furthermore, such a move would allow DCs and LDCs to collect additional taxes on the import of electronic intangibles. If the current moratorium on not charging import tariffs on electronic intangibles continues, DCs and LDCs stand to lose. As Teltscher argues:

The majority of countries that are mostly affected by tariff revenue losses come from the developing world... Given their higher levels of MFN rates, this should not come as a surprise. What is remarkable, however, is the magnitude: despite the developing countries’ import share in digitizable products of only 16 per cent, their absolute tariff revenue (loss) is almost double that of the developed countries, amounting to 63 per cent of world tariff revenue losses for these products. This clearly shows that, as far as potential fiscal losses are concerned, developing countries would be much more impacted by the proposed ban. The top ten countries affected by fiscal loss are the EU, India, Canada, Mexico, Brazil, China, Russia, Poland, Argentina and Thailand.¹¹⁹

Clearly, a GATT classification would favour *net exporters* of electronic intangibles, such as the US and Japan, and not net importers, such as the DCs and LDCs. Should a GATT classification be adopted therefore, the current moratorium on not charging import tariffs should be replaced by perhaps a staged response where DCs and LDCs can set import tariffs, subject to rules of origin. The important point to ensure is that DCs and LDCs do not also charge excessive additional taxes, such as customs surcharges (levied on imports) and internal taxes (levied on both imports and domestic goods) both of which the importer will have to bear, and that if excessive, could potentially stifle the market for electronic intangibles in their countries and therefore access to content (particularly of an educational nature as opposed to products that are for entertainment only—music, games and films—which could attract a higher tax).

¹¹⁹ Ibid note 117, p. 5. Note that Teltscher’s article was written in 2001 and therefore the trade statistics she used for econometric analysis will have changed somewhat, particularly for India and China.

Any import revenues collected could be used to help further develop a DCs and LDCs national policy for technology transfer, funding the recommendations suggested in Chapter 8 for example, or in acquiring the know-how and technology to increase the number of IXP exchanges and implement the Layering Theory suggested in Chapter 6.

Paragraph 34 of the *Doha Mandate* that requires WTO Members to “recognize the importance of creating and maintaining an environment which is favourable to the future development of electronic commerce.”¹²⁰ Unless a solution is found to the problem of classification, the WTO risks falling behind as business continues to do what it has been doing throughout history; using technology in advance of the law to further its own commercial interests.

¹²⁰ [WTO | Doha 4th Ministerial - Ministerial declaration](#): WT/MIN(01)/DEC/1, 2001.

Chapter 10*

Enforcing the Right To Development through Technological Processes

We are writing a bill of rights for the world...one of the most important rights is the opportunity for development

Eleanor Roosevelt

10.1 Introduction

The previous chapters of this thesis have centred on answering the first two questions set out in the introduction to this thesis. This Chapter is concerned with the third question: whether it is possible to define a relationship in IEL between civil and political, and economic social and cultural rights as a collective for example in the form of the much debated and somewhat controversial *Right to Development* (the “RTD” as defined in this thesis) on the one hand, with economic indicators, such as Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) on the other? And if so, whether enforcing principles of IEL to grow FDI and GDP through technological processes (and thereby enforce the RTD) at the national [target state] level will help address the Digital Divide in that target state?

Chapter 10 is divided into three sections. The first 10.1 will discuss *an outline of the evolution of development theory*, the second section 10.2 *ICTs and development*, and the third section 10.3 an economic law approach to development (*economic development*). The first two sections are merely introductory and do not aim to discuss in detail these subject areas. For example, in 10.1 in discussing development theory

* A version of this chapter was published in *Capitalism & Human Rights* (ed Janet Dine), Edward Elgar, 2006.

the Author is not attempting to discuss the many specific theories on development proposed by different financial institutions such as the Bretton Woods institutions (eg., World Bank and IMF), for example development theories on sustainable development, micro-development, women-centred development, endogenous development, appropriate development, and “Basic Needs” development etc. The sheer breadth of this discussion would be beyond the scope of this thesis. Instead, the Author’s focus is on the historical evolution of the UN Right To Development (RTD), one of the main themes of this thesis. The reason for this is that the Digital Divide cannot be addressed just by importing technology, but requires a well-trained base of human capital to achieve effective utilisation and absorption of that technology (see the section on *ICT and Development* below). Also, technology diffusion and absorption was discussed in detail in Chapter 8 on technology transfer. The RTD encompasses the whole gamut of rights (civil and political, and economic, cultural and social) including a right to education and a right to share in scientific and cultural knowledge (discussed below in Section 10.3 *Enforcing the RTD through Economic Law*). The Author asserts that by enforcing the RTD, DCs and LDCs will be in a better position to improve their basic living standards at home, and so improve their human capital base. The historical background to the RTD is given in Section 10.1 *Outline Background to The Right To Development*.

One hypothesis of this thesis is that by effectively enforcing the RTD, then FDI and GDP can grow (and vice-versa), which in turn will stimulate technology transfer, innovation, and the narrowing of the Digital Divide, effectively generating a “positive feedback” loop. In Section 10.3(Enforcing the RTD through Economic Law), the Author sets out a new theory (“*Right To Development Theory*”) to prove the link between the RTD, FDI, and GDP. He does this through developing the legal theory and also with the use of symbolic equations. He argues that the equation he develops, **Equation 5** will need to be verified through econometric research, but that the aim of this thesis is to flag-up areas in which research can focus, and which would be the subject of post-doctoral work for example. Such work will be interdisciplinary and at the interface between law and economics, but for the present is beyond the scope of this thesis. With Equation 5 in place, the Author then suggests how the RTD could be operationalised through a form of national-level tax relief, and to do so, he develops the concept of a national measure, the *RTD Tax Relief*. Another reason for choosing

the RTD (as opposed to any of the other theories on development suggested above) is that the RTD represents the culmination of efforts by DCs and LDCs over half a century to use international law to encourage developed countries to assist with international development¹. As such, the RTD is very closely associated with the interests of DCs and LDCs. As the aim of this thesis is to address the Digital Divide through economic law from the perspective of DCs and LDCs, the RTD forms a main theme of this thesis. In agreeing with Marks², the Author also argues that the most powerful nation in the world, the United States, although stiffly opposed to the RTD from commencement, is already promoting something similar to the RTD, the *Millennium Challenge Account* (MCA) (albeit with important differences), and argues that the RTD Tax Relief that the Author proposes will create a working compromise between the MCA and the RTD, and which could be more politically acceptable to the developed world than the RTD alone. As discussed in section 10.1 of this chapter, the RTD has its origins in the attempt by DCs and LDCs to use international law in the pursuit of permanent sovereignty over natural resources, followed by demands for a broader *New International Economic Order*, and failing this, in the successful pitch for the RTD, which seeks to integrate development into the human rights discourse³.

In Section 10.2 in discussing *ICTs and Development*, the Author is not attempting to address the myriad ways in which ICTs can be used, which is beyond the scope of this thesis, but instead the Author focuses on assessing the appropriate use of ICTs in development at a conceptual level: Should DCs and LDCs focus on the use of ICTs as a specialist sector or include ICTs in a more integrated way across different sectors (health, education etc.)? To what extent should international donor organisations, such as DFID, UNCTAD, and the UNDP be involved with local communities (so called Alternative Development) or national government (following standard Modernization Theory) in promoting ICTs and development? In answering this question, the Author also draws on his own field research experience for Harvard Law School's Berkman Center for Internet & Society⁴.

¹ Gordon R., and Sylvester J., *Deconstructing Development*, 22 *Wis. Int'l L.J.* 1, 2004, p. 3.

² Marks S., *The Human Right To Development: Between Rhetoric and Reality*, 17 *Harv. Hum. Rts. J.* 137, 2004.

³ *Supra* note 2, p. 3.

⁴ Berkman Center (Harvard Law School) research report: *Readiness for the Networked World: Jamaica Assessment*, Kariyawasam R., published on-line at <http://cyber.law.harvard.edu/home/2002-01>, Vol 2002-01, pages 1-65, Harvard Law School.

The first two sections of this chapter therefore serve as an introduction to the third section, on which the bulk of this chapter is focused, and which (as mentioned) aims to address the third question posed by the thesis, can the RTD be linked to economic growth factors such as FDI and GDP. The third section also discusses the Bush Administration's Millennium Challenge Account, and the United Kingdom's Commission on Africa, and concludes with a discussion of the role of the WTO in helping to enforce the RTD Tax Relief. The first section starts with a brief outline of the evolution of development theory.

10.2 Brief Outline of the Evolution of Development Theory

Modernization

As Gordon and Sylvester suggest, Development as it is currently construed is essentially a post-World War II phenomenon⁵. In 1949, in proposing a fair deal that sought to improve the lives of people living in underdeveloped areas, Truman put forward his Point IV Program:

“More than half the people of the world are living in conditions approaching misery. Their food is inadequate, they are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas.”⁶

Truman's vision of poverty has continued to form the basis of the development project since⁷, and if Truman characterised the people of developing countries by nature of their poverty, then as Gordon suggests (citing Escobar), the World Bank quantified it in defining countries with an annual per capita income below \$100 as poor⁸. Poverty then became the defining characteristic of the developing world and

⁵ Gordon R., and Sylvester J., *Deconstructing Development*, 22 *Wis. Int'l L.J.* 1, 2004, p. 4.

⁶ Gordon citing Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* 12-14 (1995).

⁷ *Ibid.*

⁸ *Ibid.*, p 23-24.

the solution was economic growth and development⁹. Development had its roots in modernity and the modernization project has been a foundation on which development theory has been built. As mentioned earlier, modernization can be described as “the process by which a society comes to be characterized by a belief in the rational and scientific control of man’s physical and social environment and the application of technology to that end.”¹⁰ Modernization continues to be supported by all the major international aid agencies, which is essentially a Western construct, the imposition of Western best practice and Western legal systems on the developing world. A present-day example of this would be the imposition of Western-style competition law systems as a condition to World Bank funding. In the early 1970s, the reaction to Western-based modernization programs was a call by developing world leaders for a *New International Economic Order* (discussed below). Gordon and Sylvester suggest that the current “reincarnation” of the Western approach to modernisation is “good governance” which has the aim of both limiting the power of the State in the economy while simultaneously expanding the role of the market, and establishing a system of liberal democracy as a counterpart to structural adjustment or neoliberal economic reform. Current examples of Western good governance would be the export of the Sarbanes-Oxley Act, which has its origins in the collapse of Enron and later WorldCom, and which covers procedures for company directors and MultiDisciplinary Partnerships (MDPs) from the United States. The extraterritorial nature of this Act (and the costs for implementation) has been felt in the UK, Asia (particularly the financial capitals of Tokyo and Hong Kong), and Europe.

10.2.1 Constructing Development in practice

In pushing Truman’s agenda, the Bretton Woods institutions, particularly the International Monetary Fund (IMF) and the World Bank (WB) have exercised and continue to exercise considerable influence over the national economies and development plans of DCs and LDCs. The World Bank plays the role of a private commercial bank except that its depositors and borrowers are member states. Over the

⁹ Ibid, p. 5.

¹⁰ Ziauddin Sardar, Development and the Locations of Eurocentrism, in *Critical Development Theory, Contributions to a New Paradigm* 117 (eds Ronaldo Munck & Denis O’Hearn), 1999.

period between 1950-1970 sometimes known as the Golden Age of Development, the WB extended project-based loans to build dams, highways, and other infrastructure projects¹¹. However, as Gordon and Sylvester suggest, “the trickle-down theory, which postulated that economic growth would necessarily shrink the gap between the rich and the poor, proved to be untrue.”¹² Optimism began to wane and developing world leaders called for a permanent sovereignty over natural resources (discussed below). In the second era of development, the WB concentrated on meeting the “Basic Needs” of developing nations, which focused on reducing poverty through programs for food, clothing, shelter, education and employment¹³. The period of the 1980s by contrast is described as the “lost decade for development”. In this period, the third world debt crisis arose and the IMF and WB introduced the concept of *Structural Adjustment Programs* (SAPs), the aim of which was to halt the escalating deficits of debtor countries, mainly developing countries. As Gordon and Sylvester suggest, under the rubric of economic development, “The World Bank’s scope increased to encompass legal and judicial reform, family planning, education, developing the private sector and health care.”¹⁴ It is now widely accepted that SAPs had a detrimental effect on the economies of DCs and LDCs, as by the end of the 1980s, some of these countries were even more debt ridden and unable to provide basic services, such as education and healthcare to their people¹⁵.

The 1990s saw the reemergence of modernization in the form of globalisation, and that now DCs and LDCs needed to integrate into the global economy: development took the form of privatisation, economic liberalisation and the proliferation of free markets. For example, the WB in devising their *Comprehensive Development Framework* (CDF), suggest that growth must now include structural, human, physical, and sector-specific aspects of development, and that development must integrate market-friendly policies and incentives with the agents for change being governments, local organisations and non-governmental organisations (NGOs). Good governance also emphasised marketization and privatisation as opposed to detailed sector-specific

¹¹ Ibid., p. 9.

¹² Ibid.

¹³ Ibid, p.10.

¹⁴ Ibid, p.11.

¹⁵ Ibid.

regulation (government regulation)¹⁶. The CDF encouraged the move away from import-substitution models, moving instead to export-led growth and a domestic environment conducive to private markets¹⁷. The move to privatisation of national incumbent telcos is discussed in Chapters 4 and 7.

10.2.2 Outline Background to the UN Right To Development

Throughout the periods described above, developing world leaders followed a pendulum type relationship with development experts in the West, embracing and subsequently rejecting reforms as they failed. From the early 1970s, a growing body of thought from developing countries in the area of international law tried to establish a legal right for development. This had its origins in a movement for a *Permanent Sovereignty over Natural Resources* (PSNR) that led to a call for a *New International Economic Order* (NIEO), and which eventually culminated in the UN Declaration on the Right To Development¹⁸. The PSNR was a reaction to the agreements that many DCs and LDCs had imposed on them through the period of colonial rule by Western colonial powers and which effectively exploited the natural resources of certain DCs and LDCs¹⁹. These newly independent states now sought to establish authority over their natural resources by passing measures that allowed them to renationalise such resources, in other words, the right to expropriate foreign enterprises if they deemed it necessary to do so. The UN resolution allowing the right to nationalise was eventually passed by the UN Assembly in 1962²⁰, however Western interests focused on the claim for compensation should nationalisation take place. This claim for compensation effectively made it uneconomical for many non-oil exporting developing countries to nationalise natural resources²¹. As such, the movement for the PSNR and subsequent resolution proved to be without teeth, but nevertheless laid the

¹⁶ Ibid, p. 12.

¹⁷ Ibid.

¹⁸ Bunn I., *The Right To Development: Implications for International Economic Law*, 15 Am. U. Int'l L. Rev. 1425, 2000.; Marks S., *The Human Right To Development: Between Rhetoric and Reality*, 17 Harv. Hum. Rts. J. 137, 2004; Gordon R., and Sylvester J., *Deconstructing Development*, 22 Wis. Int'l L.J.1, 2004; Segger MC and Khalfan A., *Sustainable Development Law: Principles, Practices, and Prospects*, OUP, 2005; 'The dielectics of Law and Development' by Scott Newton in *The New Law and Economic Development* (eds Trubek D. and Santos A.), CUP, 2006, Chapter 5.

¹⁹ See Gordon, supra note 6, p. 14.

²⁰ UN General Assembly Resolution 1803, December 1962.

²¹ See Gordon, supra note 6, p. 14.

foundation for a NIEO²². The NIEO was encapsulated in a body of UN measures passed by a majority of members, but never accepted by the West²³. The main foundation for the NIEO was a Charter of Economic Rights which included subjecting private foreign capital to the domestic laws of Third World host countries, full and effective participation in world governance, special trade preferences, stabilizing export prices for commodities exported by Southern countries, debt forgiveness or rescheduling, and technology transfer... The charter also recognised the sovereign right to nationalize foreign property and to determine what compensation should be paid, and confirmed the right of host nation governments to supervise transnational corporations operating within their jurisdictions.”²⁴ Yet again, leaders of the developing world failed to obtain the redistribution of international economic power that they sought (even though the Charter for example was passed by a majority of members), but nevertheless as with the PSNR, some elements of the NIEO did appear in the UN RTD, considerably watered down.

The Senegalese jurist Keba M’Baye is widely credited with the initial idea of the “Right To Development”. In 1972, at a lecture at the International Institute of Human Rights in Strasbourg, he argued: “*every man has a right to live and a right to live better*”²⁵. Over fourteen years later, the UN Declaration on the Right To Development (RTD) which states that the right to development is a human right²⁶, was adopted by the UN General Assembly, resolution 4/128 on the 4th December 1986. Despite being in force for just under twenty years, the Declaration, not being a legally binding instrument, has suffered from a lack of implementation and the political will required for international cooperation. The Declaration’s evolution can be traced back to the transposition of *civil and political rights* (Articles 1 to 21 Universal Declaration of Human Rights²⁷) and *economic, social, and cultural rights* (Articles 22 to 28 Universal Declaration of Human Rights) into two separate legally binding treaties (i) International Covenant on Civil and Political Rights (ICCPR)²⁸; and (ii) International

²² Ibid.

²³ Ibid, p. 15.

²⁴ Ibid.

²⁵ M’Baye K., *Le Droit au Developpement comme un Droit de L’Homme*, 5 *Revue Des Droits de L’Homme* (Hum. Rts. J) pp 503-515, 1972.

²⁶ Article 1 Declaration on the Right To Development (referred to throughout this chapter as the “Declaration”).

²⁷ Adopted by UN General Assembly Resolution 217 (A) II on 10/12/1948.

²⁸ General Assembly Resolution 2200A, adopted 16/12/1966, entering into force 23/03/1976.

Covenant on Economic, Social, and Cultural Rights (ICESCR)²⁹. As the (then) Independent Expert on the Right to Development, Arjun Sengupta, argued, “it took many years of international deliberations and negotiations for the world community to get back to the original conception of integrated and indivisible human rights. The Declaration on the Right to Development was the result.”³⁰ The Right to Development (“RTD”) as a human right has been reaffirmed in the Vienna Declaration adopted at the Second UN World Conference on Human Rights in Vienna, 1993³¹. Sengupta has described the RTD as:

“...a composite right to a process of development; it is not just an “umbrella” right, or the sum of a set of rights. The integrity of these rights implies that if any one of them is violated, the whole composite right to development is also violated. The independent expert describes this in terms of a “vector” of human rights composed of various elements that represent the various economic, social and cultural rights as well as the civil and political rights. The realization of the right to development requires an improvement of this vector, such that there is improvement of some, or at least one, of those rights without violating any other.”³²

10.2.3 Opposition to the RTD

The United States has been opposed to the RTD from its commencement:

“In our estimation the right to development (RTD) is not a “fundamental”, “basic”, or “essential” human right. The realization of economic, social and cultural rights is progressive and not aspirational. We do not view them as entitlements that require correlated legal duties and obligations. States

²⁹ General Assembly Resolution 2200A, adopted 16/12/1966, entering into force 03/01/1976.

³⁰ Sengupta A., *The Right to Development as a Human Right*, 2000, p.1.

³¹ Vienna Declaration and Programme of Action, adopted by the UN World Conference on Human Rights, June 25, 1993.

³² Fifth report of the Independent Expert on the Right To Development, Mr Arjun Sengupta, Submitted in accordance with Commission Resolution 2002/69, at 5, p6, U.N. Doc. E/CN.4/2002/WG.18/6 (2002).

therefore have no obligation to provide guarantees for implementation of any purported “right to development”.”³³

This is despite the fact that the US supported the RTD at the World Conference on Human Rights in Vienna, when the Vienna Declaration and the Programme of Action (discussed in Section 11.3 below) was adopted by consensus³⁴. However the US has consistently resisted any reference to any form of legal obligation that could give rise to a transfer of funds for development to developing countries. As Marks argues, the US has stressed that development occurs thanks to economic liberties and private enterprise rather than a claimed right to development³⁵. He also argues: “About the only difference in nuance between the Republican and Democratic administrations is that the former stress economic liberties as the motor for development while the latter attach importance to individual rights more generally as making development possible.”³⁶ Marks also concisely captures ideological differences between the developed world and the developing over the RTD, particularly with regard to the [then] Cold War between East and West. In doing so he cites Philip Alston’s comment on the Reagan Administration’s view of the RTD: “as the antithesis of a large part of its foreign policy. In this view, the right to development is little more than a rhetorical exercise designed to enable the Eastern European countries to score points on disarmament and collective rights and to permit the third world to “distort” the issue of human rights by affirming the equal importance of economic, social and cultural rights with civil and political rights and by linking human rights in general to its “utopian” aspirations for a new international economic order.”³⁷ Clearly the situation has now changed: The Berlin Wall has come down, and the Cold War has said to have thawed somewhat. And yet the US still appears to be caught by its past. In 2003, when the Human Rights Commission decided to request its Sub-Commission on the Promotion and Protection of Human Rights to prepare a concept document

³³ United States Government, Statement at the U.N. Commission on Human Rights, 59th Sess., Comment on the Working Group on the Right To Development (Feb. 10, 2003), cited by Marks S. in “The Human Right To Development: Between Rhetoric and Reality”, 17 Harv. Hum. Rts. J. 137, 2004, p.8.

³⁴ Vienna Declaration and Programme of Action: Note by the Secretariat, World Conference on Human Rights, Part 1, p.10, U.N.Doc./A/CONF.157/23 (1993).

³⁵ Marks S. “The Human Right To Development: Between Rhetoric and Reality”, 17 Harv. Hum. Rts. J. 137, 2004, p.6

³⁶ Ibid., p.7.

³⁷ Ibid, p. 7-8, citing Philip Alston, “Making Space for New Human Rights: The Case of the Right To Development, 1 HARV. HUM. RTS. Y.B.3, 20 (1988).

establishing the feasibility of establishing the RTD as an international legal standard of a binding nature, guidelines on the implementation of the RTD and principles for a development partnership based on the Declaration to the RTD (discussed below in Section 11.3), the United States (together with Australia and Japan) cast the only negative votes: forty-seven other countries voted in favour³⁸. As to other countries, the EU position for example on the RTD remains unclear. Marks argues that the EU position is often one of “damage limitation” (between those countries supporting the RTD, such as India, China, Cuba, Egypt, Indonesia, Malaysia, Iran, Sri Lanka, Pakistan, and Nepal sometimes referred to as the Like-Minded Group, and often in opposition to the United States) in that the EU “will go along with a resolution if nothing particularly objectionable is inserted or will abstain.”³⁹ He cites a quote from the Greek Ambassador, speaking on behalf of the EU to the Commission on Human Rights in 2003: “The Cotonou Partnership Agreement between the European Union and the African, Caribbean, and Pacific Countries constitutes a concrete contribution to the fight against poverty and a further step towards the realization of the Right To Development.”⁴⁰ As to the other UN agencies on the RTD, Bunn writes: “Highlighting the crucial links between the three key goals of the United Nations Charter in the areas of peace, development, and human rights, the UNDP has set forth a policy to integrate human rights with sustainable development. The UNDP outlines three levels of commitment to human rights, First, it “works for the full realization of the right to development,” particularly in the eradication of poverty. Second, it advocates human rights as part of sustainable development and third, it promotes good governance. The overall approach reflects how development and human rights complement, as well as depend upon, each other.”⁴¹ However, Marks argues that the UN agencies other than the Human Rights Commission have not been as supportive on the RTD, commenting in particular on the lack of any detailed comment on the

³⁸ Ibid, p. 4.

³⁹ Ibid.

⁴⁰ Ambassador Tassos Kriekoukis, Head of the Delegation of Greece on behalf of the European Union, Statement at the Commission on Human Rights, 59th Sess., Item 7: The Right To Development (March 25th, 2003), cited by Marks, *supra* note 803, p. 13.

⁴¹ Bunn I., *The Right To Development: Implications for International Economic Law*, 15 *Am. U. Int'l L. Rev.* 1425, 2000, p. 6 citing “United Nations Development Program, *Integrating Human Rights with Sustainable Development*”, 14-16.

RTD at the UN Millennium Summit in September 2000⁴². He also says however that: “The General Assembly recently reaffirmed over U.S. opposition its “commitments to implement the goals and targets set in all the major United Nations conferences, summits, and special sessions and those undertaken at the Millennium Assembly, in particular, those relating to the realization of the RTD.”⁴³

Given its high profile, several commentators also identify weaknesses within the RTD. Bunn quotes for example Ghai: “The value of the concept of a right is that it creates entitlements, and the entitlements are easier to enforce if the contents and beneficiaries of the right are clearly specified. In the case of the right to development, it is not clear who are the right and duty bearers. Equally vague is the content of the right.”⁴⁴ This lack of justiciability and legal standing of the RTD is discussed further below in Section 10.3. Bunn also cites Brownlie in discussing the content of the RTD which “is to perhaps blur the conceptual profile and make the task of promulgation of the right the more difficult.”⁴⁵ And finally in citing Carty: “The debate about the right to development marks a crisis in legal theory, because it encompasses a determined attempt to place material content before form and yet retain whatever advantages are supposed to attach to the use of legal language.”⁴⁶ There is no doubt that there is a valid argument that the RTD lacks legal standing, but there are also arguments to suggest that the RTD could be enforced in law, but through the process of IEL, which is discussed in Section 10.3 below.

10.3 ICTs and Development

In discussing ICTs and Development, Soeftestad and Sein describe the trustee relationship between developed and developing countries: “...to become developed,

⁴² Supra note 803, p.13. Marks also makes reference to the lack of any specific mention on the RTD in the UNDP’s Human Development Report 2003, in spite of the participation of the Independent Expert on the RTD in the advisory panel.

⁴³ G.A. Res. 223, U.N. GAOR, 57th Sess. See also U.N.Doc. A/RES/57/223, 2002.

⁴⁴ Ghai Y., Whose Human Right to Development? Human Rights Unit Occasional Paper, 5-6 (Commonwealth Secretariat), November 1989.

⁴⁵ Brownlie I., The Human Right To Development, Human Rights Unit Occasional Paper, Vol 11, Commonwealth Secretariat, November 1989.

⁴⁶ Carty A., From the Right to Economic Self-Determination to the Right to Development: A Crisis in Legal Theory, Third World Legal Studies 73, 75(1984).

poor countries need to emulate the developed countries. In turn, the developed countries have the moral duty to help poorer countries achieve this growth. This creates a trusteeship relationship between the two worlds. Many developed countries, including the OECD collectively, take this seriously and in good conscience.”⁴⁷ They divide the literature of ICT and Development into two main camps; the optimists and the pessimists⁴⁸. The optimists see ICTs as a catalyst for national development by being the means for transformation. ICTs are viewed as tools for empowerment which enable common citizens. ICTs can be viewed as a commodity, and by “successfully leveraging their low-cost producer advantage over the developed countries, developing nations can earn foreign exchange by manufacturing computer and related products, through performing high-skilled jobs (eg., offshore software development) and even low skilled jobs (eg., offshore data entry and data processing functions.”⁴⁹ However, they describe the danger to this utopian concept in that the poorer countries often end-up manufacturing products; even organising their economies solely to benefit the richer (developed) countries. “Offshore computing and manufacturing ICT commodities are done mainly to feed the consumerism of the richer nations, and not for the developing countries. The rise in such “global” ICT industries hardly indicates transfer of technology and more importantly, transfer of knowledge. In this context, ICTs result in helping richer countries advance further, while the poorer countries remain poor.”⁵⁰ The pessimists argue that there are few links between ICTs and development, and that ICTs can lead to more repression by authoritarian governments who now have more powerful tools to control their citizens. In citing Sein and Ahmad, they argue that “ICTs can push developing countries deeper into poverty by streamlining and improving design and manufacture of goods and thereby reducing the demand of raw materials, energy, and even low-skilled labour-longstanding comparative advantages of developing countries.”⁵¹

⁴⁷ Soeftestad L., and Sein M., ICT and Development: East is East and West is West and Twain may yet Meet, in *The Digital Challenge: Information Technology in the Development Context* (eds S.Krishna and S. Madon), Ashgate, London, 2003, p. 64 citing K. Nustad, *Development: The devil we know?* *Third World Quarterly*, 22, pp 479-490, 2001.

⁴⁸ *Ibid*, p. 66.

⁴⁹ *Ibid*.

⁵⁰ *Ibid*.

⁵¹ *Ibid*, p. 67 citing MK Sein and IU Ahmed., *A framework to study the impact of information and communication technologies on developing countries: The case of cellular phones in Bangladesh*, *Proceedings of BITWORLD2001*, Cairo, Egypt, 2001.

Soeftestad and Sein propose a different view of ICTs and Development to that of either the optimists and pessimists, who are seen as being at polar ends of the spectrum. They suggest a “middle path”, and that development should be conceptualised through the perspectives of both *human development* and *alternative development* paradigms. The human development paradigm is influenced by Amartya Sen’s work on capacities and entitlements and is centred on the understanding that national development is the enlargement of people’s *choices*⁵². These choices are the choice of healthy life, the choice to be educated, and the choice to a decent standard of living. The key indices in measuring these choices include: Human Development Index, Gender Development Index, Gender Equity Measure, and the Human Poverty Index. The Human Development paradigm therefore stresses non-economic factors over economic or growth factors. A key failing of the paradigm is that it fails to take into account who should be responsible for achieving the indices⁵³. The second paradigm, the alternative development paradigm is again people-centred and development is achieved through civil society, including local participation, initiation, and leadership of development efforts. In summary, human development provides the means to measure socio-economic development, but alternative development utilises political freedom and citizen participation. In this sense, “ICT then becomes a means of communication”.⁵⁴ Soeftestad and Sein source their ideas from the Appropriate Technology (AT) movement, which supports the development and use of sustainable approaches to meeting human and ecological needs through the appropriate use of technology. In turn, AT has its sources in Schumacher’s concept of “small is beautiful”⁵⁵. “To be appropriate, technology must be connected to the place, resources, economics, culture, and impact of its use.”⁵⁶ In short that effective ICT in development requires a human and cultural-centred approach. To measure the intended impact of its use, three fundamental questions first need to be asked: (i) what is to be the level of the impact? often the main beneficiaries of development projects are at the local (community) level. Soeftestad and Sein argue that the main “modernization” perspective places prior emphasis on the national level, but the

⁵² Sen A., *Development As Freedom*, OUP, 2001.

⁵³ Ibid.

⁵⁴ Supra 49.

⁵⁵ Schumacher E.F., *Small is beautiful. Economics as if people mattered*, London, ABACUS, 1974.

⁵⁶ Soeftestad L., and Sein M., *ICT and Development: East is East and West is West and Twain may yet Meet*, in *The Digital Challenge: Information Technology in the Development Context* (eds S.Krishna and S. Madon), Ashgate, London, 2003, p. 70.

alternative development view however is to focus on the local; (ii) on whom does it impact? depending on the level, different stakeholders will be impacted. The offshoot question from this is whether ICTs directly impact the poor or only indirectly?; (iii) on what do ICTs impact? As mentioned in Chapter 2 on the Digital Divide, Soeftestad and Sein argue that first order (simple substitution of old technology with new) and second order impacts (increase in the phenomenon enabled by the technology i.e. increased communication) do not really give a measure of the true impact of ICTs on national development, and that impact can only truly be measured through *third order* effects, such as the generation of new related businesses and societal change (virtual organisations, empowerment of women etc.)⁵⁷

Soeftestad and Sein also discuss the use of Appropriate Technology (AT) which is discussed above. Repeating again their argument that: “To be appropriate, technology must be connected to the place, resources, economics, culture, and impact of its use.”⁵⁸ In short that effective ICT in development requires a human and cultural-centred approach. Following the finding of the Author’s research on the use of ICTs in Jamaica for the Berkman Centre for Internet & Society (Harvard Law School), the Author very much concurs with Soeftestad and Sein’s views on the use of AT. In conducting case study research in Jamaica, the Author used a template (a *Readiness Assessment*) for the use of ICTs in Jamaica. “Readiness is the degree to which a community is prepared to participate in the Networked World. It is gauged by assessing a community’s relative advancement in the areas that are most critical for ICT adoption and the most important applications of ICTs. When considered together in the context of a strategic planning dialogue, an assessment based on these elements provides a robust portrayal of a community’s Readiness. The value to a community of assessing its Readiness lies in evaluating its unique opportunities and challenges.”⁵⁹ The readiness assessment is based on a methodology developed by the Information Technologies Group at the Center for International Development at Harvard University⁶⁰. As a guide for understanding ICTs and development, the methodology looks at the ICT environment through five lenses:

⁵⁷ Ibid., p. 67.

⁵⁸ Ibid, p. 70.

⁵⁹ The Readiness Template can be accessed at *Readiness for the Networked World*, www.readinessguide.org, accessed November 2010.

⁶⁰ www.cid.harvard.edu/ciditg, accessed November 2010.

Networked Policy: By looking at Trade Policy and the Telecommunications Regulatory Environment this category helps to determine whether the national policy facilitates and fosters ICT development in the country or region.

Networked Access: This category looks at indicators such as Information Infrastructure, Internet Availability, Internet Affordability, Network Speed and Quality, Software and Hardware, and Service and Support in order to build an understanding of the relative ease and quality of access to IT and the Internet.

Networked Learning: How has ICT been used and applied in the learning environment by students and teachers throughout primary, secondary and tertiary education? What is the quality and supply of the labor force trained in ICT?

Networked Economy: How advanced is the use of the Internet for business-to-business and business-to-consumer electronic commerce? Moreover, how has the government adopted the use of IT for government citizen services and procurement?

Networked Society: How intensively is ICT integrated in everyday life? Are there significant opportunities available for those with ICT skills? What is the quantity and quality of local content? How are people and organizations utilizing ICT?

The Jamaica case study results reveal findings that reflect Soefstestad and Sein's view of Appropriate Technology. For example, the Author found that ICTs could not be introduced into a community with the expectation that the community will immediately adopt them. Many schools in Jamaica have benefited from the introduction of computers, but without adequate teacher training in the use of the computers and also good access given to the children, the computer lab either becomes a place that is kept under lock and key or quickly deteriorates due to a lack of appreciation for the importance of maintenance. The research revealed that it was

imperative that funding be targeted at tertiary institutions of learning that are equipped to train teachers in the use of ICT in the curriculum. Also, the use of small-scale pilot projects to help inform later and larger projects was very useful in Jamaica.

Introducing a pilot project in a particular area encouraged other infrastructure requirements and systems needed by the pilot and which would make it successful. In this way, the pilot becomes a catalyst for change. Well thought through ICT projects that take into account the needs of the community and the user interface forced both investors and the local community to think about the development of other systems that first need to be put in place before the pilot could succeed. This need to understand the requirements of end-users on the ground was the important lesson arising from putting in place a system of e-government in Portmore (a district in Jamaica) and funded by the Netherlands based development NGO, the IICD.

However, all the successful ICT projects in Jamaica including music, educational learning, e-government, agriculture, improving business efficiency have had at their core one important principle; the need first to identify the local demand and satisfy that local demand before building out complicated IT systems. ICTs needed to be understood in the context of everyday life, and the success of the take-up of ICTs depended on how readily the technical people could satisfy the local demand for service.

Furthermore, development assistance need not be restricted to NGOs or purely government-funded projects. Sometimes funding through government organs could lead to a lack of efficiency at best or outright corruption at worst. And yet a small amount of technical assistance provided directly to well thought through commercial pilot programs could lead to dramatic improvements in working practices for small businesses nationwide. For example, the USAID-funded *New Economy Project* was involved in providing technical assistance and management consultancy to a number of commercial entities in Jamaica that were specifically involved in helping improve the business processes of smaller Jamaican SMEs. In one case, the NEP had been working with a private company called Management Control Systems (MCS.com) to provide on-line payroll and tax services to small companies that do not have the resources to produce their own payroll records, wage slips and tax returns. At the time, the project served a projected market of around 2000 to 2500 firms in Jamaica.

In other words for an initial investment of US\$90,000, the NEP could potentially deliver benefits to over 2000 Jamaican firms.

Clearly the finding in Jamaica support the argument for AT. Furthermore, many of the ideas suggested by the Author in this thesis; the Layering Theory for increasing transparency of access to incumbent networks in developed countries by third country operators (Chapters 6 and 7); using the New modes of Operation in reverse (Chapter 7); the use of competition law in ensuring beneficial technology transfer and to check the potential abuse of monopoly IPR rights by MNCs (Chapter 8); and suggestions by the CIPR for an extension granted to LDCs for patent protection to pharmaceuticals to 2016 to be broadened to cover the implementation of TRIPS as a whole, and that the TRIPS Council consider introducing *criteria* based on Article 66.1 TRIPS (indicators of economic development and scientific and technological capability) to decide the basis on which LDCs should enforce their TRIPS obligations after 2016 (Chapter 8). Although the Author agrees with Soeftestad and Sein's view of Alternative Development (for example in light of the Jamaica case study), the Author suggests that such a view is more appropriate to the actual use of ICTs in development *projects* at the local community level, but that in order to address the Digital Divide, national and international measures are also required, and which by necessity of the globalised nature of the communications industry, require those measure to conform with IEL, predominantly driven by the West. Gordon and Sylvester are particularly scathing of international law. They argue: "International law is based in part on shared interests, but it is also based on power and that power resides with the industrialized world, and more particularly these days, with the United States. Law has been used in the service of development and as a mechanism to control the Third World, through such principles as prompt, adequate and effective compensation... International law proved incapable of assisting the non-West, for its purpose is to serve the West. In the era of globalization, international law will be an even stronger part of the edifice that locks the Third World into a chasing a future that is made in the West through the discourse of Development."⁶¹ There is no doubt some truth to this. However, the RTD Theory, which the Author sets out below, as well as the RTD Tax Relief are also measures which are intended to operate at both the international and national levels, and again

⁶¹ Gordon R., and Sylvester J., *Deconstructing Development*, 22 *Wis. Int'l L.J.*1, 2004, p. 17.

follow the “Modernization” school of thought. The Author suggests that what is needed in order to truly address the Digital Divide is a combined approach utilising both AT at the local community level, but also aspects of IEL as set out in this thesis, for example legislative measures in telecommunications law, competition, intellectual property, trade, and investment. In effect, the Author is suggesting that those very measures that Gordon and Sylvester rightly attack, should also be the instruments that DCs and LDCs should use in order, in this instance, to address the Digital Divide. In the next section 10.4, the Author discusses how the RTD can be enforced through IEL.

10.4 Economic Development

In Section 10.1 (*Outline Background to the UN Right To Development*), the Author set out the series of events that eventually led to the RTD. The Author also explored criticisms of the RTD and described the position taken by different member states, particularly the United States in relation to the RTD, and also some of the UN agencies. The justiciability of the RTD was also mentioned, but discussed more below. In this section, the Author discusses the US Administration’s MCA and sets out ideas for a new RTD Theory and RTD Tax Relief, which he argues could be a realistic compromise between the MCA (pushed by the United States) and the RTD (pushed by the coalition of G90 and specifically the *Like Minded Group*⁶², mentioned above in Section 10.1).

10.4.1 The US Millennium Challenge Account (MCA)

In his speech at the Monterrey Conference in Mexico, March 2002, President Bush launched the MCA, which would utilise a proposed \$5 billion annual increase in Overseas Development Assistance. Funds from the MCA were to be made available to projects in countries, where political administrations governed justly, invested in

⁶² Algeria, Bangladesh, Bhutan, China, Cuba, Egypt, India, Indonesia, Iran, Malaysia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Sudan, and Vietnam.

their people, and encouraged economic freedom⁶³. In order to receive MCA funds, DCs and LDCs need to prove that they will follow or are following three crucial goals: (i) good governance, (ii) The health and education of their people; and (iii) Sound economic policies that foster enterprise and entrepreneurship. In many respects, the MCA follows the concept of “good governance” discussed above in Section 10.1, and which has the aim of both limiting the power of the State in the economy while simultaneously expanding the role of the market. In 2004, Bush signed the law creating the Millennium Challenge Corporation (MCC), which is to administer the MCA. Marks in his article *The Human Right to Development: Between Rhetoric and Reality*⁶⁴, makes a detailed comparison between the RTD and the MCA. He argues that in many respects the MCA contains many of the principles to be found within the RTD, including the Independent Expert’s RTD-Development Compact (discussed below). For example, he argues that both the RTD and the MCA contain provisions on the mutuality of obligations, and that the focus on governance, including human rights, and on health and education overlap with the RTD-DC⁶⁵. There are also significant differences. For example, the RTD foresees multilateral funding, whilst the MCA is to be administered by the MCC, a US entity.⁶⁶ Furthermore, the sixteen specific indicators that the MCC is to use to determine MCA funding include little on human rights when compared to the RTD-DC, which sets as a condition that all human rights (both economic, cultural and social, and civil and political) that fit within the composite RTD should be realised or at least not diminished. Under the MCA, in order to qualify for funds, a country must score above the median on half of the indicators in each of the three groups (six for ruling justly, four for investing in people, and six for economic freedom), and score above the median on corruption regardless of the ranking for the other indicators⁶⁷. Marks has concerns over some of the indicators, particularly the indicators used for “ruling justly” as he argues that two of the sources for these indicators (Freedom House and the Heritage Foundation) are politically biased. For example, he argues that “Freedom House and the Heritage Foundation are clearly identified with the political right and

⁶³ President George W. Bush, Remarks at the International Conference on Financing for Development at: <http://www.un.org/ffd/statements/usaE.htm>., accessed December 2010.

⁶⁴ 17 Harv. Hum. Rts. J. 137, 2004.

⁶⁵ Ibid., p.16.

⁶⁶ Ibid, p. 17.

⁶⁷ Ibid, p. 18, citing Steve Radelet, “Will the Millennium Challenge Account Be Different?, WASH.Q., Spring 2003, at 171.

tend to represent the neoliberal approach to economic issues. These sources are consistent with the known preferences of the Bush Administration. However, a program that is expected to be applied to a wide range of countries over a long period of time would be more credible if it drew on a more diverse set of sources.”⁶⁸ The sources for other indicators used by the MCA include the IMF and the World Bank, the two Bretton Woods institutions that Gordon & Sylvester argue so vehemently against. Clearly there is a danger that access to MCA funds will be governed by mere statistics. For example Marks argues: “The reliance on Freedom House may be presumed to be based on the fact that it produces a numerical ranking of countries. The use of this source as the sole performance indicator of human rights could mean that crucial decisions affecting billions of dollars and millions of lives will be based on the reduction of complex social and political systems to a single number or ranking.”⁶⁹ He also argues that the MCA could have adopted the UNDP’s Human Development Index (HDI) for its source for the indicator for “investing in people”. The HDI is designed to highlight the extent to which governments invest in people, with a focus on education and health. The HDI is also used in the *Human Development* paradigm referred to by Soefstestad and Sein, mentioned above in the section on *ICTs and Development*. The next section discusses other finance schemes, specifically for Africa, proposed by the British Government and its Commission for Africa.

10.4.2 The UK Commission for Africa

In 2005, the UK Government launched its impressive “*Our Common Interest: Report of the Commission for Africa*” (“Africa Report”), as part of its drive to see the *Millennium Development Goals* (MDGs) fulfilled. The Africa report also stresses the significance of economic growth for Africa, suggesting a range of economic growth policies and stressing that “robust competition laws and policies, with strong

⁶⁸ Ibid., p.21.

⁶⁹ Ibid. Marks at p. 23 also refers to the “*Commitment To Development Index*” (CDI), which was created by the Center for Global Development and Foreign Policy, and which measure as its title suggest, the commitment by any one country to development and to global partnerships. The CDI compares not only the dollar amount provided in aid, but it factors in qualitative and quantitative features of policies that affect poor countries, including aid, trade barriers, the environment, investment, migration and peacekeeping. According to Marks, both the US and Japan rank at the bottom of the CDI.

institutions to enforce them, are vital to improving productivity and to promoting innovation and better prices.”⁷⁰ The report stresses the need for good governance, but also argues that policies implemented must promote long-term growth and reflect the country-context. In discussing the investment climate in Africa for example, the Africa Report stresses the need for improving the environment for domestic investment, but also to support foreign investment, for example in enforcing commitments made in the G8 Africa Action Plan at the Summit in Kananaskis 2002, and reinforced at the G8 Summit in Sea Island 2004⁷¹. Investment is also the focus of the 2005 World Development Report “A Better Investment Climate For All”, which supports the idea that enhancing the investment climate, particularly for agriculture and for rural areas, will significantly accelerate economic growth⁷². The Africa Report also discusses setting up an Investment Climate Facility (ICF) which will require US\$550 million over seven years, and which will be used to invest in over 300 projects in Africa. Through the New Partnership for Africa’s Development (NEPAD) programme, the ICF will focus on putting in place legislation, regulation, and policies to enhance competition policy, strengthen the private sector, and investment councils. In this respect, there are similarities with the US MCA, except for one important difference, the ICF is to have African ownership and is to be backed through the *Multilateral Investment Guarantee Agency (MIGA)* of the World Bank that will provide insurance to private (foreign) investors. Domestic (African) investors cannot (currently) be covered due to the MIGA’s current convention⁷³. Whether this will change in the future remains to be seen. The report envisages a range of private investment, particularly in infrastructure. The sector for ICTs will benefit as this is seen by the report’s Authors as a crucial area for Africa both in terms of improving efficiency but also in assisting with the move from the current dependency by many African countries on commodities to services. The report argues that the “benefits of ICT are far-reaching-connecting schools to the internet, enabling remote rural communities to get urgent medical advice by phone, giving farmers access to market price information, and potentially halving the costs of sending remittances.”⁷⁴ In helping to tackle the Digital Divide and investing the resources into ICT needed to

⁷⁰ Our Common Interest: Report of the Commission for Africa” (“Africa Report”), p.222.

⁷¹ Interestingly however, nowhere in the Africa Report is the UN Right To Development mentioned.

⁷² Ibid, para 37.

⁷³ Ibid, para 56.

⁷⁴ Ibid, para 62.

enable Africa to participate in the global knowledge economy, the report argues that the international community will need to move to funding at least \$20 billion a year in infrastructure⁷⁵. In terms of getting greater private sector participation, the Africa Report also calls for the creation of a US\$100 million Africa Enterprise Challenge Fund to support private sector initiative that will contribute to small enterprise (SME) development by increasing access to markets. This is an important provision as micro SME funding will have a direct impact on local communities as borne out by the Author's research (Jamaica Case Study) and also in helping to achieve the Human Development and Alternative Development paradigms mentioned above in Section 10.2. In effect, the Africa Report envisages doubling aid levels over the next three to five years (resulting in US\$51.5 billion of aid reaching Africa by 2008/10), 100 per cent debt cancellation, and meeting existing obligations to achieve the 0.7 per cent ODA/GNI target by raising finance from an International Finance Facility (IFF)⁷⁶, and by developing international levies for example in the form of a tax on airline tickets with revenues dedicated towards development⁷⁷. The airline ticket levy is an interesting option. According to the report, the levy would be voluntary to reflect some of the costs of carbon emissions. The report argues that being voluntary, the levy would avoid many of the difficult issues involved in getting an international agreement on taxation. The RTD Tax Relief, which the Author discusses in Section 10.10 below would also not require an international agreement on taxation, but the corporation of individual states to introduce the measure in national legislation, and also the WGTT to formulate effective criteria for the tax to work. However, in suggesting an airline levy, the British Government is demonstrating at least in part, that it is open to the idea of a further tax, albeit a voluntary one. As mentioned below,

⁷⁵ Ibid, para 74. The report argues that to do this, developed countries should provide an extra \$10 billion a year upto 2010, and subject to review, a further increase to US\$20 a year in the following five years. This would support African regional, national, urban and rural infrastructure projects including roads and slum upgrading to ICT and infrastructure required to support greater integration of Africa's regions. See para 67.

⁷⁶ This would work by immediately raising funds on the capital markets, frontloading aid on the strength of future aid commitments already made by donors. The Africa Report suggests that the revenues needed to pay for a frontloaded 10-or-year hump in spending would then be smoothed out through borrowing. The report suggests that the IFF, if implemented by all countries, would provide an additional US\$50 billion a year in development assistance in the years to 2015, providing the funds necessary to reach the MDGs by 2015. Based on donors' legally binding long-term commitments, the IFF would leverage money from international capital markets by issuing bonds (See paragraph 136). However one danger of this approach (borrowing from future aid budgets to pay for the present) is that in the future, less aid will be available to meet commitments.

⁷⁷ Ibid, page 292.

the RTD Tax would not be a tax on consumers, but financed through a State's commitment to ODA. The next section discusses enforcing the RTD through IEL.

10.4.3 Enforcing the RTD through International Economic Law

In this section, the Author is concerned as to how the RTD could be effectively enforced through domestic and international economic law. In doing so, he puts forward an *Economic Right to Development Theory* (the "RTD Theory") which aims to show the ultimate relationship between the RTD as a composite of human rights on the one hand⁷⁸ and Foreign Direct Investment (FDI) and GDP on the other. In making reference to indicators such as FDI and GDP, the RTD Theory is clearly based on a concept of *economic growth* and *New Growth Theory* (discussed below), an ideological position favoured by the United States. For example, in his testimony to the House Financial Services Subcommittee on Domestic Monetary Policy, Technology and Economic Growth, USAID Administrator Andrew Natsios said: "put simply, economic development assistance in poor countries works best when you are pursuing good policies that are conducive to growth."⁷⁹ Marks also quotes the Heritage Foundation as saying: "Adherence to policies that promote economic freedom should be the most heavily weighted of the three broad criteria that countries must meet in order to qualify for MCA funding. Only economic freedom, which depends on the rule of law, leads to higher per capita income and the alleviation of poverty."⁸⁰ Marks' criticism of the US approach, particularly as regards the MCA, is that it makes very little reference to human rights. However the RTD, which is very much concerned with the vector of human rights that the Independent Expert refers also seeks to integrate growth theory, the importance difference with that of the US position being that growth should not be sacrificed for equity. For example, the then Independent Expert refers to growth as being part of the RTD: "We must include the

⁷⁸ Notwithstanding that the RTD is a *composite* of the human rights to be found in the ICCPR and ICESR. See Section 2 below.

⁷⁹ Marks S., *The Human Right To Development: Between Rhetoric and Reality*, 17 Harv. Hum. Rts. J. 137, 2004, p. 22, citing Statement of Andrew Natsios, Administrator, U.S. Agency for International Development, Millennium Challenge Account: Hearing Before the Subcomm. on Domestic Monetary Policy, Tech., and Econ. Growth of the House Comm. on Fin. Services, 108th Cong., 2003.

⁸⁰ *Ibid*, p. 22, citing Paolo Pasicolan and Sara J. Fitzgerald, *The Millennium Challenge Account*, Backgrounder # 1602, available at: <http://www.heritage.org/Research/TradeandForeignAid/bg1602.cfm>, accessed September 2010.

growth of resources, such as GDP and technology, as an integral element in the vector of rights that constitute the right to development.”⁸¹ As mentioned however, growth must not be at the expense of equity. Sengupta argues: “As considerations of equity and justice are primary determinants of the right to development, the whole structure of growth will have to be determined and reoriented by them.”⁸² The RTD Theory suggested by the Author seeks to integrate new growth theory (in line with the school of “Modernization”), but with equity and justice. As such, the Author argues that the RTD Theory might be a workable compromise between that of the US’s MCA and that of the RTD favoured by the Like Minded Group. The Author argues that putting in place an effective regulatory domestic framework for FDI that will help realise the RTD by way of technology transfer *processes* which in turn will facilitate the delivery of fundamental human rights, such as the right to education, health, access to food, and freedom of information that form part of the composite RTD in the target state, more likely than not, a DC and/or LDC.

The Author argues that generating the real technology *spillover*⁸³, which will help to realise the RTD in the target state, will require balancing foreign investor intellectual property rights (IPR) protection with the use of competition law and potential WTO surveillance to check on misuse of MNC market power on the one hand, with incentivising the international business community to invest in technology transfer to the target state on the other⁸⁴. In achieving the latter, the Author puts forward a recommendation for introducing a *Right to Development Tax Relief* (“RTD Tax Relief”) that will operate in investor states and be administered jointly through the investor state’s department for international development and tax revenue departments, and that will apply to any nationally registered MNC under relevant Company Act legislation in the investor state⁸⁵.

⁸¹ Ibid, citing the Independent Expert, “Third Report of the Independent Expert on the Right To Development, Mr Arjun Sengupta, Submitted in Accordance with Commission Resolution 2000/5, U.N. ESCOR, 57th Sess., p.14, U.N.Doc. E/CN.4/2001/WG.18/2., 2001.

⁸² Supra note 888, citing Fourth Report of the Independent Expert on the Right To Development, Mr Arjun Sengupta, Submitted in Accordance with the Commission Resolution 2001/9, U.N. Doc. E/CN.4/2002/WG.18/2, 2001, p.12.

⁸³ Discussed in section 10.3.1.6 below..

⁸⁴ See also Chapter 8 on technology transfer.

⁸⁵ Discussed in section entitled *The Legal Obligation* below. The idea for a tax relief for companies that license technology to developing countries has already been suggested by the Commission on Intellectual Property in its (CIPR) report on intellectual property and development: Chapter 1,

In proposing the Theory, the Author hopes to link the *human-centred* RTD with target and investor state obligations under domestic economic law and investor state obligations under IEL, giving for the first time a potential legal mechanism for the implementation of the RTD that will be founded both in equity and justice, and which will have justiciability. Besides demonstrating the link between the RTD and economic law by way of discussing the law, the Author also demonstrates the link through simple economic theory, using a series of (symbolic) equations culminating in *Equation 5* discussed below. The value in Equation 5 is to indicate the economic variables that the RTD could depend on, and therefore, provide the basis for further research, both legal and econometric, that could test the link between the RTD, FDI, and GDP. In addition, more work is needed to understand the process of FDI and any technology spillover that may result in the target state (if any), in particular, to examine the processes of spillover that may have a direct bearing on the RTD where, for example, there is a large technology gap between local domestic and FDI firms.⁸⁶

10.5 The Economic Right To Development Theory

In a recent report by the open-ended working group on the RTD of the Human Rights Commission (Economic and Social Council), the working group states that: “The right to development has been defined as the particular process of development in which all human rights and fundamental freedoms can be fully realized. It is a process of step-by-step progressive realization of all the rights, the implementation of a development policy to realize these rights, and the relaxation of resource constraints

Intellectual Property and Development, 2002 at

http://www.iprcommission.org/papers/text/final_report/chapter1.htmf, accessed February 2010, p.16.

⁸⁶ In developing the RTD Theory and Equation 5, the Author was reminded of the popular fictional story of *Dr Jekyll and Mr Hyde* by Robert Louis Stevenson. “It was on the moral side, and in my own person, that I learned to recognise the thorough and primitive duality of man.”: A quotation from Chapter 10 of the book by Stevenson. In looking at Equation 5, we could liken the parameters dealing with human rights in a similar way to Stevenson’s fictional character *Henry Jekyll* demonstrating man’s tendency for goodness, his desire to alleviate the suffering of his fellow man and the respect of basic human rights, and *Edward Hyde*, with commercial interests, a potential desire for greed and a potential disregard for the rights of others; and yet they are one and the same man. We can see a similar balance/conflict in *Equation 5* with both commercial and human rights variables appearing in the same equation.

on these rights through economic growth. The right to this process has to be viewed as a composite right wherein all the rights are realized together in an interdependent and integrated manner. The integrity of these rights implies that if any one of them is violated, the composite right to development is also violated.”⁸⁷ In a separate report by the working group in reviewing the progress and the obstacles in the implementation of the RTD, the working group states that: “The Independent Expert has defined the RTD, following Article 1 and the preamble to the Declaration, as a right to a particular process of development in which ‘all human rights and fundamental freedoms can be fully realized’. Development is regarded as a process of economic growth, with expanding output and employment, institutional transformation and technological progress of a country that steadily improves the well-being of the people.”⁸⁸

It is this concept of linking the RTD with a *process* of development and as a process of economic growth, which depends to some extent on technological progress that this chapter is concerned with. In this chapter, the Author argues that technological processes for the delivery of food (for example technology transfer for cooling systems in refrigeration trucks), access to health (electronic medical records, machinery for blood sampling and treatment), education (on-line educational resources, technology for educational materials in CD ROM or machine readable format), freedom of expression (access to the internet and communications infrastructure), all can be delivered by way of effective technology transfer, and that technology transfer depends to some extent on international and national frameworks for the regulation of IPRs and competition. The working group on the RTD has made explicit reference to technology transfer and the RTD. For example in its report reviewing the progress of the RTD, the working group states that:

“19. Availability of resources - material and human - and access to technology have always been recognized as the forces that drive and sustain

⁸⁷ Preliminary study of the independent expert on the right to development, Mr. Arjun Sengupta, on the impact of international economic and financial issues on the enjoyment of human rights, submitted in accordance with commission resolutions 2001/9 and 2002/69, E/CN.4/2003/WG.18/2, Geneva 2003, p.3

⁸⁸ Consideration of the sixth report of the independent expert on the right to development, E/CN.4/2004/WG.18/2, February 2004, p.4.

the development process. Indeed, access to appropriate technology has often been the more critical input in undertaking development. It has not only been a substitute for other inputs, but has also provided the quantum jumps in attaining outcomes perceived, at some point in time, as being unattainable. It has been the means by which the developing countries have tried to catch up with those that had a head start, and it has been the tool that the developed world has used in attaining and sustaining their well-being and living standards. The issue of access to and transfer of technology is, however, an issue between the developed and the developing world.”⁸⁹

10.6 The RTD and Collective Rights

We will come back to the issue of access to and transfer of technology slightly later in this chapter. In developing the Theory however, an important question to ask is whether the RTD can apply to a *collective* of people or is specifically tied to an *individual* living person? The question is important to answer as if the RTD can only be recognised as an individual right, then it would be much more difficult to link (directly) enforcement of the RTD with the regulation of intellectual property or competition at the domestic level, than if the RTD can be linked directly to a collective of people. The reason for this is that the regulation of intellectual property and/or competition is *economic* law, and from the perspective of English law for example, economic law comprises the regulation of *State* interference with the affairs of commerce, industry and finance⁹⁰. The eminent legal scholar and jurist, Clive Schmitthoff once argued that “English economic law shows two characteristics. First, it has evolved the central concept of public interest and, secondly, its fabric is very different from that of other branches of law... The new concept of public interest is used to indicate the wide-and growing-area in which Parliament has regulated certain activities of private persons in the social and economic sphere because it considers such regulation to be desirable for the common weal. The concept of public interest is thus a socio-political concept.”⁹¹ In a similar vein, the noted international trade lawyer

⁸⁹ Ibid, p. 10.

⁹⁰ Sealy LS and Hooley RJA, *Commercial Law, Text Cases and Materials*, Third Edition, Lexis/Nexis Butterworths, p.31.

⁹¹ Schmitthoff CM, “*The Concept of Economic Law in England*” [1966] JBL 309, pp315, 318-319 cited in Sealy and Hooley *ibid*.

and legal jurist John H. Jackson once defined international economic law as embracing “trade, investment, services when they are involved in transactions that cross national borders, and those subjects that involve the establishment on national territory of economic activity of persons or firms originating from outside that territory.”⁹² We can see therefore that from such guidance, a link between economic law and “people”, as a collective, can be easily established, but not as easily linked perhaps to an individual, although more recent legislative frameworks for competition law are increasingly recognising the interests of individuals, such as the “consumer” in policymaking, for example in the regulation of electronic communications services⁹³. The question therefore is to determine whether the RTD applies only to individuals or also gives rise to collective rights: If the latter, then it becomes easier to link the RTD with a system of economic law, and therefore the transfer of technology (and hence IP and competition frameworks). The importance of making this link is to then realise the RTD through effective enforcement of domestic economic law in the target state, and also to look for economic solutions that can be equally enforced in investor states.

In reading the Declaration, Article 2(1) sets out the RTD as a *human-centred* right:

“The human person is central subject of development and should be the active participant and beneficiary of the right to development.”

However at the same time, the then Independent Expert (Arjun Sengupta) also refers to the *collective* rights that arise as a consequence of the Declaration⁹⁴. He argues that

⁹² Jackson J. *The World Trading System* 21-22 (1989) MIT Press.

⁹³ See OFCOM’s guidelines on handling competition complaints at:

http://www.ofcom.org.uk/consult/condocs/resp/eu_directives/guidelines.pdf, date accessed February 2010.

⁹⁴ Collective rights need to be distinguished from *group* rights. In the case of collective rights where the rights holders are individuals, the individuals are the direct beneficiaries. For group rights, the groups hold the rights and are the beneficiaries as regards specified criteria leading to the increase in the value or interests of the group. In the context of this chapter, the RTD can be described as a collective right as opposed to a group right. More fully, it can be argued that the RTD is an individual right that can be exercised collectively by all the citizens of a country, where the rights holders are individuals, and the collective is recognised in order to realise the RTD through a collective development policy. It is possible for the RTD to also exist as a group right, when for example it is necessary to give certain rights to minorities and indigenous peoples, where special development policies need to be designed for such groups. A full discussion is outside the scope of this chapter. See “Considering collective rights, group rights and peoples’ rights” at

the right to development was promoted both by the Third World protagonists and First World critics as a “collective right of states and of peoples for development.”⁹⁵ This is an indirect reference to the concepts of PSNR and NIEO discussed earlier in Section 10.1. Article 1 Declaration recognises the collective rights of peoples by stating: “all peoples are entitled to the human right to development.”

In discussing collective rights, the Independent Expert cites Georges Abi-Saab, who suggests a possible definition of collective rights as a sum-total of double aggregation of the rights and of the individuals. (If there are n different rights, r_i , $i = 1, \dots, n$, and if there are m different individuals $j = 1, \dots, m$, having these rights, the collective rights will be $R = \sum_i \sum_j r_{ij}$)⁹⁶. In effect, this equation links individual rights and the rights of the collective. The Independent Expert goes on to argue that “In the case of a collective right, such as that to self determination, the right-holder may be a collective such as nation, but the beneficiary of the exercise of the right has to be an individual...Indeed, in many cases individual rights can be satisfied only in a collective context, and the right of a state or nation to develop is a necessary condition for the fulfilment of the rights and the realization of the development of individuals.”⁹⁷ In one of its reports, the open-ended working group on the RTD (under the ESC Commission on Human Rights) has argued that “the realization of the right to development is seen as the fulfilment of a set of claims by people, principally on their State but also on the society at large, including the international community, to a process that enables them to realize the rights and freedoms set forth in the International Bill of Human Rights.”⁹⁸

http://www.minorityrights.org/Legal/development/rtd_pt1_considering.pdf, date accessed February 2010, p.10.

⁹⁵ Sengupta A., ‘*The Right to Development as a Human Right*’, 2000, p.11.

⁹⁶ Ibid, p. 12. The Independent Expert cites George Ali-Saab (The Hague Academy of International Law), *The Right to Development at the International Level* (The Hague, 1975).

⁹⁷ Ibid.

⁹⁸ *Consideration of the 6th report of the Independent Expert to the right to development*, UN Economic and Social Council, E/CN.4/2004/WG.18/2, Geneva, February 2004, paragraph 3. In this same report at page 20, the International Bill of Human Rights is defined as mainly comprising the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights.

The Independent Expert also argues that in understanding the concept of collective rights and its link to the process of development, three fundamental criteria need to be met in realising the RTD:

- (a) effective participation of all individuals in the decision-making and the execution of the process of development, which would necessarily require transparency and accountability of all activities; and
- (b) equality of access to resources; and
- (c) equity in the sharing of benefits.⁹⁹

We see here a strong reflection of the ideas expressed by the school of *Alternative Technology* and the *Human Development* and *Alternative Development* Paradigms discussed above in Section 10.2 *ICTs and Development*. In applying Sengupta's criteria to the development of the RTD Theory and the establishment of a RTD Tax Relief, it can be argued that: (a) will be satisfied in the target state if a fully transparent legislative procedure involving the executive, judiciary, the legislature and civil society of the target state is able to pass economic law (competition and IP laws) that will realise effective technology transfer in the target state; and (b) will be satisfied if technology transfer can lead to technology being accessed and used in a fair and equitable way for the benefit of all members of the community of the target state (and particularly at the local community level following the Human Development and Alternative Development Paradigms); and (c) will be satisfied if the benefits of the technological processes delivered through technology transfer actually lead to improved access to food, education, health, and freedom of expression for all members of the community of the target state. As the Independent Expert argues, the three criteria (a)-(c) are "the essential elements of the process of development which make the right to that process a human right and which are the foundation of a right to development-development with equity and justice."¹⁰⁰

10.7 The RTD and Economic Law

⁹⁹ Ibid.

¹⁰⁰ Ibid, p.13.

Having linked the RTD to collective rights, it now becomes necessary to examine more closely how the RTD can be linked with *economic* law. To begin this process, it would be first helpful to look at the *Vienna Declaration 1993*¹⁰¹, which established the consensus of the RTD as a human right (and which the United States accepted). Paragraph 10 of the Vienna Declaration states that: “Lasting progress towards the implementation of the right to development requires effective development policies at the national level, as well as equitable economic relations and a favourable economic environment at the international level.”¹⁰² The Vienna Declaration clearly states that the RTD requires a favourable economic environment at the international level, which using economic terminology can be re-stated as, the RTD is a *function* of an equitable economic environment at the international level. An equitable economic environment at the international level can in turn be described as a function of the effective regulation of IEL. The regulation of IEL will depend on international treaties dealing with economic issues such as trade, competition intellectual property rights, and technology transfer, and primarily the WTO’s TRIPS Agreement.

As discussed in Chapters 7 and 8, TRIPS creates a number of obligations on the international community for technology transfer, particularly as regards DCs and LDCs. For example, Article 66.2 TRIPS Agreement, which calls for Developed country Members to “provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base.” Furthermore, Paragraph 11.2 of the *Doha Decision on Implementation-Related Issues and Concerns* (the “Implementing Decision”) reaffirms that the provisions of Article 66.2 are *mandatory*, and that the TRIPS Council “puts in place a mechanism for ensuring the monitoring and full implementation of the obligations in question”.¹⁰³ On 19th February 2003, the TRIPS Council made a decision on implementing Article 66.2 in compliance with paragraph

¹⁰¹ *Vienna Declaration and Programme of Action*, adopted by the UN World Conference on Human Rights, A/CONF.157/23, June 25, 1993 .

¹⁰² My emphasis.

¹⁰³ WT/MIN(01)/17, Article 11.2. Around 100 implementation issues were raised in the lead-up to the Doha Ministerial Conference. The implementation decision, combined with paragraph 12 of the main Doha Declaration, provided a two-track solution for agreeing some of implementation issues prior to the Doha Round. According to the WTO, more than 40 items under 12 headings were settled at or before the Doha conference. See the WTO website at: http://www.wto.org/english/tratop_e/dda_e/dda_e.htm#implementation, date accessed October 2010.

11.2 Implementing Decision, requiring developed country Members to submit annual reports on actions taken or planned in pursuance of their commitments under Article 66.2¹⁰⁴.

With the failure of the discussions at Doha, there should perhaps be further movement here. For example, in a Decision (*General Cancun Decision*) adopted by the WTO's General Council in August 2004, the Council has instructed the Committee on Trade and Development to "expeditiously complete the review of all the outstanding Agreement-specific proposals on special and differential treatment and report to the General Council, with clear recommendations for a decision, by July 2005."¹⁰⁵ Provisions on special and differential treatment affect DCs and LDCs in that they grant such countries certain preferences at the WTO. We will, however, have to wait and see to determine whether the review will have any meaningful outcome for DCs and LDCs¹⁰⁶. A committee has been created look into the Special and Differential Rights (S&D) of DCs and LDCs. The committee is to look at alternative ways of achieving S&D, for example to make legal recourse to dispute settlement conditional on applying a test of whether trade policy meets development objectives. The test would focus on the likely net effects of not implementing WTO rules in favour of a more development orientated trade policy¹⁰⁷.

As mentioned in Chapter 8, in an ideal world, an effective IPR regime should not block innovation or effective competition in the target state. Article 7 TRIPS Agreement sets out the objective that the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology. Furthermore, the TRIPS Agreement also contains a number of provisions that deal with anti-competitive conduct, including Articles 8 and 40 (see Chapter 8). Article 8.2 also allows for Members to adopt "appropriate measures" to prevent the abuse of intellectual property rights by

¹⁰⁴ IP/C/28.

¹⁰⁵ Clause 1(d), WT/L/579.

¹⁰⁶ In October 2004, the WTO Committee on Trade and Development did produce a report listing all the special and differential treatment provisions to be found in the WTO covered agreements for LDCs. See WT/COMTD/W/135, October 2004. The report simply lists the provisions, but makes no recommendations going forward.

¹⁰⁷ See "Our Common Interest: Report of the Commission for Africa", UK Government, 2005, paragraph 114.

right holders or the resort to practices which “unreasonably restrain trade or adversely affect the international transfer of technology”. Again under Article 40.2 TRIPS, members may adopt appropriate measures to prevent or control anti-competitive practices. Article 31 TRIPS sets out the *conditions* for compulsory licensing¹⁰⁸ (see Chapter 8). However, in order to implement such measures, LDCs and DCs are left with the task of putting in place effective IPR legislation, which requires both trained personnel and resources¹⁰⁹. In the area of human rights, we can also find obligations on the international community in finding solutions to international economic problems, so for example under Articles 1, 55¹¹⁰ and 56 of the United Nations Charter which specifically make reference to international cooperation in solving international problems of an economic nature. Both TRIPS and the UN Charter are legally binding treaties, TRIPS in particular, given the availability of sanctions under the WTO’s Annex on Dispute Settlement¹¹¹. Furthermore, the Declaration itself contains specific provisions on cooperation at the international level to promote an equitable economic environment. Article 3(3) Declaration states that:

“3. States have the duty to co-operate with each other in ensuring development and eliminating obstacles to development. States should realize their rights and fulfil their duties in such a manner as to promote a new international economic order based on sovereign equality, interdependence, mutual interest and co-operation among all States, as well as to encourage the observance and realization of human rights.”

¹⁰⁸ Selected conditions include: authorization to be based on individual merits, requirements for the rights holder to be already approached with a reasonable offer of licensing (unless a national emergency applies), in the case of semi-conductor technology use restricted only for public non-commercial use or to remedy a practice determined after judicial or administrative process to be anti-competitive, non-exclusive, predominantly for the domestic market, provisions for economic remuneration, possibility of revocation of the license. Compulsory licenses are discussed in Chapter 9.

¹⁰⁹ In the *General Cancun Decision*, referred to above at footnote 91, the WTO’s General Council states at para 1(d) on development that the: “Council affirms that such countries, and in particular least-developed countries, should be provided with enhanced TRTA [trade related technical assistance] and capacity building, to increase their effective participation in the negotiations, to facilitate their implementation of WTO rules, and to enable them to adjust and diversify their economies. In this context the Council welcomes and further encourages the improved coordination with other agencies, including under the Integrated Framework for TRTA for the LDCs (IF) and the Joint Integrated Technical Assistance Programme (JITAP).”

¹¹⁰ Article 55(b): “solutions of international economic, social, health, and related problems; and international cultural and educational cooperation;”

¹¹¹ Annex II WTO Agreement, Understanding of rules and procedures governing the settlement of disputes.

As mentioned earlier however, the Declaration is not a legally binding instrument, although Sengupta has argued that the RTD could in time become customary law, and that in addition, the RTD deals with rights recognised in international conventions, that are legally binding¹¹². Finally, there are two other international instruments that although may not be legally binding, nevertheless have relevance particularly in influencing the role of MNCs in helping to enforce (indirectly) the RTD. The first instrument is the UN *Global Compact*¹¹³, which seeks to regulate the business practices of transnational corporations as well as to promote principles that could be incorporated into company policy in human rights, labour, the environment, and anti-corruption. The Global Compact is not a regulatory instrument, but instead relies on public accountability, transparency, labour and civil society. The second instrument is the *UN Norms on Corporate Responsibility* developed by the working group of the UN Sub-commission on the promotion and protection of human rights, and adopted by the sub-commission in August 2003¹¹⁴. The Norms recognise that although States are primarily responsible for protecting human rights, MNCs are also responsible for promoting the principles as set out in the Universal Declaration on Human Rights, and several other treaties dealing with civil and political, economic cultural and social rights¹¹⁵. The Norms are not legally binding, but many of the substantive provisions on human rights contained in the Norms do make use of existing provisions in international law, the Norms now applying these provisions to private enterprises¹¹⁶.

10.8 Obligations at the domestic (target state) level

As obligations on economic law can be imposed on States at the international level to comply with certain treaties, such as TRIPS, so too can similar obligations be imposed at the domestic level, and specifically the target state. For example, TRIPS

¹¹² *Fifth report of the Independent Expert on the right to development*, Economic and Social Council, E/CN.4/2002/WG.18/6/Add.1, 31st December 2002, paragraphs 13-14.

¹¹³ See <http://www.unglobalcompact.org/Portal/Default.asp>, date accessed March 2010.

¹¹⁴ The Norms deal with the right to equal opportunities and non-discriminatory treatment, right to personal security, respect for national sovereignty and human rights, rights of workers, consumer protection obligation, environmental protection obligations, and general provisions for the application of the Norms by transnational corporations.

¹¹⁵ Commission on Human Rights, Sub-Commission on the Promotion and Protection of Human Rights. Session 55.D Workers Rights, 4th August 2003.

¹¹⁶ *Ibid.*

sets-out specific requirements for domestic legislation in the protection of IPRs and such obligations when coupled with IPR provisions in certain bilateral or Free Trade Agreements (FTAs) can create TRIPS-plus provisions that will also apply at the domestic level¹¹⁷. As a consequence of signing such agreements, the target state, usually a DC or LDC, will then find its hands tied in terms of having effective control over its own domestic regulatory agenda on say foreign investment, competition, IPRS, and labour standards. As such, the target state will need to balance any local measures introduced to generate increased spillover through technology transfer (for example through the imposition of performance requirements¹¹⁸), IPR legislation, and competition law to check possible MNC IPR exploitation with its obligations under bilateral/investment/FTA agreements. Generating effective spillover in the local target market is crucial for DC and LDC innovation and growth. The actual diffusion of technology into the local market (spillover) is as important as the technology transfer itself (see Chapter 8).

There is also the related issue of *absorption*. It is one thing to create policy incentives to encourage MNCs in generating spillover, but quite another for developing country producers to use bare, documented technological information, which is dependant on the absorption capacity of the producers. As mentioned earlier, development is regarded as “a process of economic growth, with expanding output and employment, institutional transformation and technological progress of a country that steadily improves the well-being of the people.”¹¹⁹ It is this concept of linking the RTD with a *process* of development and as a process of economic growth, which depends to an increasing extent on technological processes that will help deliver access to adequate food, health, education, cultural life and scientific progress. The ICESR, a legally binding international treaty, sets out specific rights in this regard with a right to an adequate standard of living including adequate food¹²⁰, the right to the enjoyment of the highest attainable standard of physical and mental health¹²¹, the right to

¹¹⁷ Both the specific domestic provisions of TRIPS, bilateral trade agreement/investment agreement, and FTAs are discussed more fully in Chapter 10 of this thesis.

¹¹⁸ For example on local employee training, sharing of know-how etc.

¹¹⁹ Consideration of the sixth report of the independent expert on the right to development, E/CN.4/2004/WG.18/2, February 2004, p.4.

¹²⁰ Article 11 ICESR.

¹²¹ Article 12 ICESR.

education¹²², and the right to take part in cultural life and to enjoy the benefits of scientific progress¹²³, all of which can be delivered through technological processes. The Author does not argue that access to effective technology is the only way to achieve such rights, but it is becoming an increasingly significant way given the costs involved. For example, and as mentioned earlier in this chapter and cited again here, the Human Rights Commission working group on the RTD has specifically stated that: “Availability of resources - material and human - and access to technology have always been recognized as the forces that drive and sustain the development process. Indeed, access to appropriate technology has often been the more critical input in undertaking development. It has not only been a substitute for other inputs, but has also provided the quantum jumps in attaining outcomes perceived, at some point in time, as being unattainable.”¹²⁴ To what extent then is the target state under an obligation to implement the economic and social rights mentioned above, and can any legal relationship be found between the RTD and economic and technological indicators? This question is addressed in the next section.

10.9 The Legal Obligation

Article 2(1) ICESCR sets out the legal obligation:

“Each State Party to the present Covenant undertakes to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realisation of the rights recognised in the present Covenant by all appropriate means, including particularly the adoption of legislative measures.”

Commentators have questioned whether Article 2(1) gives rise to obligations that are immediately justiciable, and although there has been controversy on the subject, it does appear that the Article does give rise to obligations on States with immediate

¹²² Article 13 ICESCR.

¹²³ Article 15 ICESCR.

¹²⁴ Consideration of the sixth report of the independent expert on the right to development, E/CN.4/2004/WG.18/2, February 2004, p. 10.

legal effect¹²⁵. And so under Principle 21 of the Limburg Principles (which provide guidelines on the implementation of the ICESCR Covenant):

“The obligation ‘to achieve progressively the full realisation of the rights’ requires State parties to move as expeditiously as possible towards the realisation of the rights. Under no circumstances shall this be interpreted as implying for States the right to defer indefinitely efforts to ensure full realisation. On the contrary all State parties have the obligation to begin immediately to take steps to fulfil their obligations under the [ICESCR]¹²⁶ Covenant.”¹²⁷

Similarly Principle 17 of the Limburg Principles state that:

“At the national level States parties shall use all appropriate means, including legislative, administrative, judicial, economic, social and educational measures, consistent with the nature of the rights in order to fulfill their obligations under the Covenant.”

Note however that although the obligations under Article 2(1) have immediate effect, both the Article and the Limburg Principles also specify that the State can “take steps” in realising the rights set out in the ICESCR. Notwithstanding this however, clear obligations arise. Furthermore Article 8(1) Declaration also sets out obligations on the State:

“States should undertake, at the national level, all necessary measures for the realization of the right to development and shall ensure, inter alia, equality of opportunity for all in their access to basic resources, education, health services, food, housing, employment and the fair distribution of income.

Effective measures should be undertaken to ensure that women have an active

¹²⁵ Rehman J., *International Human Rights Law a practical approach*, Longman 2003, p. 107.

¹²⁶ [ICESCR] inserted for clarity.

¹²⁷ Principle 21, *The Limburg Principles on the Implementation of the International Covenant on Economic, Social and Cultural Rights*, UN ECCOR. Res. Commission on Human Rights, 43rd Sess., Agenda Item 8, UN Doc. E/CN.4/1987/17Annex (1987).

role in the development process. Appropriate economic and social reforms should be carried out with a view to eradicating all social injustices.”

We can see here as well the reference to an *economic* solution for implementation of measures at the national level to realise the RTD. The Author suggests that one possible interpretation of an “economic solution” would be to put in place an effective domestic legislative framework in DCs and LDCs for intellectual property and competition law that would facilitate beneficial technology transfer and specifically the technological processes required to help deliver adequate access to food, health, education, the right to enjoy a cultural life, share in scientific progress, and provide the means of freedom of expression, all of which form part of the composite RTD.

However there are considerable hurdles to jump. As the Commission on Intellectual Property states: “Since many technologies of interest to developing countries are produced by organisations from developed countries, the acquisition of technology requires the ability to negotiate effectively based on an understanding of the particular area of technology. This process requires a determined approach on the part of the recipient of technology to acquire the necessary human capital and the appropriate institutions.”¹²⁸ We see here the relevance of the use of appropriate technology and the Human Development and Alternative Development paradigms mentioned earlier in Section 11.2 above. Clearly there are considerable costs in doing this and we should bear in mind that low-income countries, with over 40% of the world’s population, account for less than 3% of world trade, with developed countries exporting around \$6000 per capita and developing countries around \$330 per capita, with the lowest income countries exporting less than \$100¹²⁹. In helping to tackle this problem, the Independent Expert has proposed an idea for a *RTD-Development Compact* (RTD-DC), which would form the basis of financial aid from the international community, but would also recognise the reciprocal obligations of both developed and developing countries. The Author has already discussed the RTD-DC

¹²⁸ CIPR report, Chapter 1, Intellectual Property and Development, 2002 at http://www.iprcommission.org/papers/text/final_report/chapter1.htmf, accessed February 2010, p.15.

¹²⁹ *Finding a way forward in the Doha Development Round: key issues for LDC trade*, LDC Ministerial Meeting Dakar, 4-5 May 2004, Oxfam International, p.1.

with respect to the US MCA above, but discusses the RTD-DC in more detail in section 10.13 below.

Obligations at the domestic level however should not just apply to DCs and LDCs in attempting to attract technology transfer. The Author also argues that generating real technology *spillover* will require incentivising the international business community to invest in technology transfer to the target state. How this can be achieved is discussed in the next section.

10.10 Right To Development Tax Relief

To incentivise the international business (MNC) community, the Author puts forward a suggestion for introducing a *Right to Development Tax Relief* (“RTD Tax Relief”) that will operate in investor states and be administered jointly through the investor state’s international development department and/or tax revenue department, and that will apply to any nationally registered MNC under relevant Company Act legislation in the investor state. The Author argues that to qualify for the RTD Tax Relief, the MNC will need to satisfy a minimum set of *Technology Transfer Terms* (the “Terms”), which the Author suggests could be established by the WTO’s Working Group on Technology Transfer (WGTT), such Terms to be annexed to the investor state’s implementing legislation for the RTD Tax Relief. Under this proposed scheme, MNCs will notify their technology transfer agreements to the relevant investor state’s development department and/or tax revenue department.

Both the development and tax revenue departments of the investor state could have *concurrent jurisdiction* (for example as compared to similar provisions on concurrency to be found in national competition law frameworks, such as the United Kingdom’s *Competition Act 1998*, allowing for both a sector-specific national regulatory authority and a separate competition authority to hear competition complaints) to call for and examine such agreements, and if found to be in breach, have the power to impose both civil and criminal penalties both on the MNC as a corporate entity or individually on the MNC’s board of directors. The power to do so will be set out in the implementing legislation bringing the RTD Tax Relief into force in the relevant investor state’s jurisdiction.

There may be issues of *State Aid* linked to the implementation of the RTD Tax Relief which will need to be examined, for example in Europe, under Community competition rules on State Aid found in Articles 87 and 88 EC Treaty (now Articles 107-109 Treaty on the Functioning of the European Union) and relevant case law specifically defining the meaning of aid in terms of its effect, for example preferential tax treatment,¹³⁰ and the application of the ‘market investor principle’.¹³¹ Furthermore, there may be issues of State subsidies at the multilateral level given that the WTO also has certain rules (Subsidy Rules under the *WTO Agreement on Subsidies and Countervailing Measures*) on States offering support to private industry. As mentioned in the introduction, the analysis of State Aid/WTO subsidy rules is outside the scope of this thesis.

The Author also suggests a *sliding scale* of tax relief: greater relief provided for MNCs licensing into LDCs with less relief available for licensing into DCs. The appropriate scale for tax relief, the Author suggests, could be set by the WGTT following a separate set of *Measures*. Alternatively, the Commission on Intellectual Property (CIPR) suggests that the TRIPS Council should consider introducing *criteria* to decide the basis on which LDCs should enforce the TRIPS obligations after 2016.¹³² Such criteria could include indicators of economic development and scientific and technological capability as reflected in Article 66.1 TRIPS Agreement of the need for flexibility to create a viable technological base.¹³³ In making this recommendation, the CIPR refers to a study completed by Lall and Albaladejo,¹³⁴ which set out various measures of scientific and technical capability in developing countries. The author can see no reason why a similar set of measures of scientific and technical capability (hereafter called the “Measures”) could not be used to set a *sliding scale of tax relief* providing the greatest relief to those MNCs investing in

¹³⁰ Case 173/73 *Commission v. Italy* [1974] ECR 709.

¹³¹ Cases C-39/94 *Syndicat Francais de l'Express International (SFEI) v. La Poste* [1996] ECR I-2547; C-278-280/92 *Spain v. Commission* [1994] ECR I-4103.

¹³² Chapter 1, CIPR *Intellectual Property and Development*, 2002 at http://www.iprcommission.org/papers/text/final_report/chapter1.htmf, accessed February 2011, p.16.

¹³³ See CIPR on *Intellectual Property and Development*, Chapter 8, The International Architecture, 2002 at http://www.iprcommission.org/papers/text/final_report/chapter8.htmf, accessed February 2010, p.8.

¹³⁴ *Indicators of the Relative Importance of IPRs in Developing Countries*, UNCTAD/ICTSD, Geneva 2001 at: <http://www.ictsd.org/unctad-icstd/docs/Lall2001.pdf>, accessed February 2010.

developing countries with very low Measures, and gradually reducing the tax relief depending on rising Measures. The Measures suggested here are not the same as the Terms suggested in the text above. The Terms includes a minimum set of legal terms on technology transfer, approved by the WTO's Working Group on Technology Transfer, that would form the basis as to whether a MNC that included such terms in its technology transfer agreements with developing country producers/states would qualify for tax relief or not. It is a *legal test*, which if satisfied would qualify the MNC for tax relief. The Measures suggested above would then determine the *scale* of that tax relief: a higher Measure leading to lower tax relief and vice-versa. The Measures therefore would form more of an economic *means-based* test.

In this section 10.10, we have looked at the mechanism of the RTD Tax Relief, how it could be constituted of separate Terms and Measures that operate in the form of a sliding scale for tax relief to the MNC (or TNC) interesting in transferring beneficial technology transfer to a receiving state. In Chapter 11, the author sets out how this RTD Tax Relief could be *operationalised* by way of the UN's Universal Periodic Review mechanism, and with specific reference to the United Kingdom (operationalising the RTD Tax Relief at a country-specific level).

10.11 Linking the RTD with economic growth (GDP) and FDI

By reviewing the obligations on States at both an international and domestic level, and looking at possible *technological processes* of development an explicit link between technology transfer and the RTD has now been made. In this section, the relationship between technology transfer and FDI is made, which would then provide the foundation for linking FDI with the RTD. Linking FDI with the RTD is significant as both, to some extent, are also linked with economic growth as defined by Gross Domestic Product (GDP). The presumption is that by increasing FDI into a country, then that would have a corresponding effect on GDP, which in turn would impact the RTD. We can start then by asking the question: What is the relationship between FDI and technology transfer?

Business partnerships are a major source of technology transfer including, FDI, Build Operate Transfer (BOT) agreements, subcontracting, licensing and franchising. There

has been much discussion of FDI in recent years. For example, UNCTAD's *World Investment Report* (2004) focuses on the shift to services in world trade and the role that FDI will play in that shift. According to the 2004 report, although global inflows of FDI declined in 2003 for the third year in a row, the prospects for FDI look to improve, particularly in Asia, and to developing countries, which experienced a growth of 9% in 2003 rising to \$172 billion overall¹³⁵. In terms of law, there were 244 changes in laws and regulations affecting FDI in 2003, 220 of which further liberalisation¹³⁶. FDI is discussed in the context of technology transfer in Chapter 8.

As we saw in Chapter 8, FDI can be defined as the act of establishing or acquiring a foreign subsidiary (foreign affiliate) over which the investing firm (parent) has substantial management control¹³⁷. This is quite a narrow definition for FDI. In a report for the Asian Development Bank surveying the technology spillovers from FDI¹³⁸, Fan, an ADB economist suggests a broader approach: "FDI can potentially benefit domestic firms. The benefits arise from foreign firms demonstrating new technologies, providing technological assistance to their local suppliers and customers, and training workers who may subsequently move to local firms. Local firms can also learn by watching. Moreover, the very presence of foreign-owned firms in an economy increases competition in the domestic market. The competitive pressure may spur local firms to operate more efficiently and introduce new technologies earlier than would otherwise have been the case. Because foreign firms are not able to extract the full value of these gains, this effect is commonly referred to as the spillover effect."¹³⁹ There are of course many negative effects of FDI including for example the *crowding out* of local businesses as a result of foreign entry. Dine discusses a number of negative consequences including citing a study by Borenszstein, De Gregorio and Lee showing that FDI only benefits countries that have average male schooling above one year of secondary education. Below that and

¹³⁵ *World Investment Report*, UNCTAD, 2004.

¹³⁶ *Ibid.*, overview section.

¹³⁷ Maskus K., *The role of intellectual property rights in encouraging foreign direct investment and technology transfer*, 9 *Duke J. Comp and Int'l L.* 109, 1998, p.7.

¹³⁸ Fan EX., *Technology Spillovers from Foreign Direct Investment-A Survey*, Asian Development Bank, ERD Working Paper No.33, December 2002, p. 7. Fan cites the economist Kokko in Kokko A., "Technology, Market Characteristics, and Spillovers", *Journal of Development Economics* 43:279-93, 1994.

¹³⁹ *Ibid.*

FDI has a negative effect¹⁴⁰. Furthermore, that in many low-income countries, FDI is not sought for technology transfer but for the employment of low-skilled workers (mostly in low-technology manufacturing activities) and for foreign exchange¹⁴¹. In some cases, the need to attract FDI may result in the lowering of regulations relating to health and employment in the target state, particularly in dedicated “Export Zones”, where in the manufacturing sector materials may be imported by FDI firms, assembled and then exported with little or no use being made of local inputs other than labour. As Dine argues, “If this is coupled with the tax concessions given to the companies to locate their plants in the country it can be seen that the development benefits from this strategy are negligible.”¹⁴²

As we saw in Chapter 8, firms that engage in FDI and operate in more than one country can be classed as MNCs. MNCs can transfer technology in a number of ways as described above, but two main ways are either through FDI through a foreign subsidiary or through external licensing with a third party in the target state. MNC can achieve tighter control over the technology transfer process by using FDI, particularly when the target state’s legislative framework for the protection of IPRs is weak. Although UNCTAD’s 2004 report paints a favourable picture as regards FDI in-flow into developing countries, only a select group of DCs are actually receiving this investment: The majority loose out. In the last ten years, although global FDI figures have increased by almost a factor of five, only 0.5% of global FDI flows have been invested in 49 LDCs¹⁴³. Furthermore, it is anticipated that the decentralization of R&D activity by MNCs will likely continue to be focused on a small number of DCs. For example in 2003, the top ten recipients for FDI in Asia were headed by China, Hong Kong (China), Singapore, India and the Republic of Korea, in that order¹⁴⁴. However as mentioned above, it is not entirely clear to what extent FDI also contributes to actual technology spillover and absorption into local target markets. Fan suggests a more cautionary approach: “Until now, policy frameworks in most developing countries have tended to focus predominantly on attracting FDI, particularly in high-technology areas. Policy initiatives have largely bypassed

¹⁴⁰ See Dine J., *Companies, International Trade and Human Rights*, Cambridge University Press, 2005, p. 24.

¹⁴¹ Ibid.

¹⁴² Ibid.

¹⁴³ IP/C/W/398 at page 4.

¹⁴⁴ Ibid, p.50.

measures to specifically enhance the spillover benefits from FDI. There are now a large number of empirical studies that suggest it is difficult for domestic firms to extract the potential benefits of spillovers when a large technology gap exists between domestic and FDI firms. FDI policy should thus be placed in a broader economic policy context in order for the host economies to maximize the benefit they derive from FDI inflow. Government policy can play a role by investing in growth theory. More rigorous theoretical work is needed to explore the relationship between FDI and spillovers, FDI and domestic firms, and the role of FDI in promoting growth.”¹⁴⁵

Fan makes a reference to growth theory. The relationship between FDI and GDP described above illustrates a certain kind of thinking in economics known as “New Growth Theory” (NGT), which takes as its central focus the growth of technological knowledge and its diffusion and absorption. NGT views innovation and imitation efforts that respond to economic incentives as major engines of growth (Fan 2002). Generally, growth theory falls into three broad categories: (1) *post-Keynesian* growth models which emphasise the role of savings and investment in promoting growth; (2) *neo-classical* models which emphasise technical progress; and (3) *new growth* models which emphasise the role of R&D, human capital accumulation and externalities¹⁴⁶. Under the NGT model, the social rate of return to investment must exceed the private rate of return (Balasubramanyam 1996). In addition, under NGT, knowledge spillover contributes to growth in the aggregate. In his paper linking FDI with growth, Balasubramanyam argues that FDI has long been recognised as a major source of technology and know-how to developing countries, but that technical progress accounts for a low proportion of the growth experienced by most developing countries because of the lack of human capital¹⁴⁷. He also argues that although NGT provides “powerful support for the thesis that FDI could be a potent factor in promoting growth”, the absence of a favourable economic climate could result in FDI becoming counter-productive, in that FDI can actually “thwart rather than promote growth” and

¹⁴⁵ Fan EX., *Technology Spillovers from Foreign Direct Investment-A Survey*, Asian Development Bank, ERD Working Paper No.33, December 2002, p. 26-27.

¹⁴⁶ Balasubramanyam VN., Salisu M., Sapsford D., “*Foreign Direct Investment and Growth in EP and IS Countries*”, *The Economic Journal* Vol 106, No. 434 (January 1996), 92-105, p.94.

¹⁴⁷ Ibid.

may “enhance the private rate of return to investment by foreign firms while exerting little impact on social rates of return in the recipient economy.”¹⁴⁸

Clearly the jury is still out on FDI and its significance to local spillover.

Notwithstanding Fan’s and Balasubramanyam’s cautionary comments on FDI, it is perhaps at this stage that we should ask: what exactly is the economic relationship between the RTD and GDP, and between GDP and FDI? And therefore is it possible to establish a relationship between FDI and the RTD? If the latter is possible, then could we find a way of achieving/enforcing the RTD through FDI, and as a component of FDI, technology transfer?

10.12 The Link between FDI, GDP and the RTD

Sengupta has suggested a symbolic (economic) approach that links the RTD with GDP¹⁴⁹. As background he explains that the realisation of many of the interdependent human rights depends on the sufficient availability of goods and services, and that such availability is constrained by a country’s resources, represented to some extent by GDP. Furthermore he argues that “access to the relevant goods and services would depend on public policies, including public expenditure which cannot expand indefinitely without an increase in public revenue; this in turn, would be related to the country’s GDP. A process of development in which all rights are realised together would, therefore, include growth of GDP as an element that would relax the country’s resource constraints.”¹⁵⁰ How then can we link the well-understood and documented ways of *growing* GDP by way of investment (both domestic and foreign) with the RTD?

Marks in reviewing Sengupta’s *symbolic* theory linking the RTD with GDP¹⁵¹, where Sengupta describes the RTD as a *vector*, shows it symbolically as:

$$R_D = (g, R_1, R_2, \dots, R_n) \quad (1)$$

¹⁴⁸ Ibid.

¹⁴⁹ Sengupta A., “*Fifth report of the independent expert on the right to development*”, Economic and Social Council, Commission on Human Rights, open-ended working group on the right to development, E/CN.4/2002/WG.18/6, Geneva, September 2002, p. 5.

¹⁵⁰ Ibid, paragraph 7.

¹⁵¹ Marks S., “The Human Rights Framework for Development: Five Approaches”, Harvard School of Public Health, 2001, p. 9.

Where R_D is the right to development, which consists in an undefined relationship between growth in domestic product (g) and the realisation of “ n ” number of human rights.

In their paper analysing the relationship between trade strategy, FDI and growth in developing countries in the context of New Growth Theory¹⁵², economists Balasubramanyam, Salisu and Sapsford¹⁵³ test a hypothesis put forward by the economist Jagdish Bhagwati that the volume and efficacy of incoming FDI will vary according to whether a country is following the export promoting (EP) or the import substituting strategy (IS)¹⁵⁴. Balasubramanyam *et al* test Bhagwati’s hypothesis, using the formula:

$$Y = g(L, K, F, X, t), \quad (2)$$

where: Y = gross domestic product (GDP),

L = Labour input,

K = domestic capital stock,

F = stock of foreign capital,

X = exports,

t = a time trend, capturing the technical progress. The term “ g ” expresses that Y (GDP) is a function (more precisely, a production function) of the variables on the right hand side of the equation.

They then difference equation 2 above (measure the rate of change of the variables with respect to time “ t ”) giving¹⁵⁵:

¹⁵² Discussed above at section 10.3.1.

¹⁵³ Balasubramanyam VN., Salisu M., Sapsford D., “*Foreign Direct Investment and Growth in EP and IS Countries*”, *The Economic Journal* Vol 106, No. 434 (January 1996), 92-105.

¹⁵⁴ *Ibid.* p. 92-93. They define EP as a strategy which equates the average effective exchange rate on exports to the average effective exchange rate on imports, which results in trade being neutral and bias free. In contrast, an IS strategy is one where the effective exchange rate on imports exceeds the effective exchange rate on exports and is biased in favour of import substitution activities.

¹⁵⁵ They also make the assumption that the equation in 2 is linear in logs. In the context of economics, “log” usually means 'natural log', that is \log_e , where e is the natural constant that is approximately 2.718281828. So $x = \log y \Leftrightarrow e^x = y$.

$$y = \alpha + \beta l + \gamma k + \psi f + \theta x, \quad (3)^{156}$$

Where the lower case letters denote the *rate of growth* (in terms of time t) of the individual variables set out in equation 1 (so for example “l” shows the growth rate of labour input and “x” is the growth rate of exports). The parameters $\beta, \gamma, \psi, \phi$ are output elasticities of labour, domestic capital, foreign capital and exports respectively, and y is the rate of growth of GDP with time t. They argue that because of the well known difficulties of accurately measuring capital stock (domestic and foreign capital), they approximate instead the rate of growth of the capital stock by the share of the respective domestic and foreign capital stock in GDP. Balasubramanyam *et al* do this by replacing the rates of change in domestic and foreign capital inputs by the share of domestic investment and foreign direct investment in GDP (so $k = I/Y$ and $f = FDI/Y$), where I is domestic investment, FDI is foreign direct investment and Y is GDP. This then yields the following equation:

$$y = \alpha + \beta l + \gamma (I/Y) + \psi (FDI/Y) + \theta x, \quad (4)$$

Balasubramanyam *et al* therefore arrive at equation (4) linking the rate of change of growth (GDP) and FDI. The Author now makes use of equation 4 by substituting the term for “y” in equation 4 for g^{157} in equation 1 (which links the RTD with the rate of growth of GDP), giving:

$$\mathbf{R}_D = ([\alpha + \beta l + \gamma (I/Y) + \psi (FDI/Y) + \theta x], \mathbf{R}_1, \mathbf{R}_2, \dots, \mathbf{R}_n) \quad (5)$$

Equation 5 now shows in a purely *symbolic* way the potential relationship between the RTD expressed by the symbol \mathbf{R}_D with foreign direct investment (FDI)¹⁵⁸. It also

¹⁵⁶ This formula has also been tested in another study entitled “*The impact of Foreign Direct Investment on Labour Productivity in the Chinese Electronics Industry*” by Liu X., Parker D., Vaiyda K, and Wei Y., Lancaster University Management School Working Paper 2000/002, where the authors were looking for the evidence that FDI in the Chinese electronics industry was associated with higher local productivity. The results confirmed this hypothesis.

¹⁵⁷ Note that this is not the same term “g” used in Equation 2 to represent the production function.

¹⁵⁸ This equation in no way represents a statistical/mathematically defines relationship between the RTD and the variables on the right-hand side of the equation, but seeks to demonstrate symbolically, that such a relationship might exist. Equation 5 *extends* the Independent Expert’s own symbolic vector representing the RTD set out in equation 1 (as described by Marks) by making the link with FDI, and indirectly with technology transfer as a component of FDI. Clearly more empirical research is required

shows the potential relationship between the RTD on the one hand, and domestic investment, domestic labour productivity, and the growth rate of exports on the other.¹⁵⁹

The significance of the symbolic Equation 5 is in linking the RTD with economic factors promoting growth (GDP), such as FDI, labour and the growth in exports. All of these factors can be measured and enforced through domestic economic law in the target state. However, as mentioned above, examining FDI, specifically technology transfer *processes* and their relationship to spillover in the target market require further analysis.

In the discussion above, it would appear that the author is attempting to combine Bhagwati's essentially market based economic growth model approach with Sengupta's social justice model (based on Sen's capabilities approach). This would at first appear to be a contradiction of terms. Furthermore (and as a subset of the sentence before), that Equation 5 as a consequence also appears to be presented as a new form of economic theory. In both cases, this is not the author's intention. As regards the first concern on linking a market-based approach with a social justice model, the idea of linking the concept of a RTD (social justice) with FDI (market-based), for example is to show that economic, social and cultural rights cannot be improved without simultaneous improvement to civil and political rights. This is indicated by the discussion in Chapter 2 when examining the specific components of the International Digital Divide. The thinking behind Equation 5 is to demonstrate that although economic rights might be addressed through a beneficial technology transfer, unless citizens of the receiving state also have access to the necessary freedoms under civil and political rights (viz freedom of expression and/or a right to privacy) to enjoy the technology transferred (for example access to technological services, such as narrowband and broadband internet access brought about by FDI into the receiving state's telecommunications sector), then the advantages of access to the Internet are diminished, perpetuating the Divide. We saw in Chapter 2 (section 2.3.4 Human Capital Base) in research by Norris of the significance of access to

to test the equation and to find an appropriate statistically defined relationship. See the Conclusion section below.

¹⁵⁹ Measurements, for which the Author argues can be made, and variables, which can be enforced in domestic frameworks of economic law.

media to help address the Digital Divide. Similarly, if a receiving state was to introduce a data termination charge (as part of its telecommunication laws regulating market-based economic growth) on all content providers (providers of audio or video including NGOs, such as Amnesty International) in socially restrictive states, then innovation would be impacted, and likewise freedom of expression. A data termination charge would be a charge imposed by infrastructure operators on content providers to ‘deliver’ the latter’s content to end-users connected to the infrastructure operator’s network. Innovation would be impacted because it would be more expensive for providers of content to directly reach end-users and therefore a disincentive to create new content rich applications. In this respect, linking the RTD (a rights based on model of social justice) on the left hand side of Equation 5 with FDI (market-based economic growth model) on the right hand side is illustrative only of this subtle linkage. Equation 5 is not a new economic model for growth. It is symbolic only, demonstrating the subtle links between Sengupta’s concept of social justice (RTD) with Bhagwati’s concept of economic growth (FDI).

With this said, assuming that such research on economic growth, for example in large magnets for FDI like China and India will be forthcoming, the question then remains as to how DCs and LDCs can be assisted in achieving Equation 5, in growing GDP, and how the developed countries can help. This in part, can be through the RTD-Development Compact, proposed by the Independent Expert (Sengupta), and discussed in the next section.

10.13 The RTD Development Compact

The RTD-Development Compact (RTD-DC) is a mechanism for implementing the RTD. It is the mechanism, as put forward by the Independent Expert, by which DCs and LDCs enter into a “development compact” with the international community to seek assistance and cooperation in meeting its development goals¹⁶⁰. As the

¹⁶⁰ Sengupta bases his RTD-DC on the Norwegian Minister’s Stoltenberg’s Development contracts, originally conceived to assist the IMF in resolving the problems of the arrears of defaulting countries. See Fourth Report of the Independent Expert on the Right To Development, Mr Arjun Sengupta, Submitted in Accordance with the Commission Resolution 2001/9, U.N. Doc. E/CN.4/2002/WG.18/2, 2001.

Commission on Human Rights working group on the RTD made clear in 2004¹⁶¹, “the logic of a development compact rests on the acceptance by and a legal commitment of the international community to pursue, individually and collectively, the universal realization of all human rights and, on their part, for the developing countries to follow explicitly a development strategy geared towards the universal realization of human rights.”¹⁶² The RTD-DC is based on a framework of *mutual commitment or reciprocal obligations* between the target state and the [investing] international community to “recognise, promote and protect the universal realisation of all human rights.”¹⁶³

As the HR Working Group on the RTD makes clear, three essential elements are required to bring a RTD-DC to life: (1) a programme of development to which target state civil society, donor institutions, and other countries are consulted on, and which specifies policies and sequential measures to be adopted in order to realise the RTD; (2) which specifies the responsibilities of donors and multilateral agencies, detailing their Official Development Assistance (ODA) budget; and (3) an effective monitoring system. Sengupta (the then Independent Expert) argues that to finance the RTD-DC, the international community will need to honour existing ODA commitments of 0.7% of their GNP to go into a “callable fund”¹⁶⁴, which would be serviced by a support group, and which would review DC and LDC proposals for funding¹⁶⁵. This callable fund is similar in concept to the MCA proposed by the US Bush Administration, but depends on multilateral funding as opposed to the MCA.

¹⁶¹ E/CN.4/2004/WG.18/2, p.19.

¹⁶² Ibid, paragraph 36.

¹⁶³ Ibid.

¹⁶⁴ The Commission on Human Rights open-ended Working Group on the RTD points out that in 1970 at the UN General Assembly, although the international community pledged 0.7% of GNP for ODA to developing countries and 0.15 to 0.2% of their GNP to the LDCs, “only a handful of countries have come anywhere near to meeting this target.” In 2003, the ODA from industrial countries amounted to only \$56 billion per year, about 0.2% of their GNP. At the Millennium Summit, the Heads of State committed a further \$40-\$60 billion in resources to meet the aims of the Millennium Development Goals, which taken together would only amount to 0.5% of the GNP of OECD countries. See E/CN.4/2003/WG.18/2 at paragraph 22. The report stresses the need to address LDCs and DCs current levels of debt that have severe domestic budgetary repercussions. For example, Africa cannot expand much needed imports such as capital, intermediate, and consumer goods, due to budgetary constraints imposed by servicing high international debt, and that African exports have been less than half of other developing countries. The report indicates that “Africa’s share of world exports declined from 3.9% in 1980 to 1.5% in 1997, owing largely to protectionism in the industrial countries against goods exported from Africa.” Ibid, Paragraph 25.

¹⁶⁵ Ibid, paragraph 37.

What are the reciprocal obligations that could form the basis for any RTD-DC? The Author argues that as regards the developed countries, the obligations could be in putting-in-place a RTD Tax Relief as discussed above, honouring current commitments on ODA, and in the long term, honouring existing commitments under WTO law, such as Article 66.2 TRIPS on technology transfer and technical assistance, and already agreed provisions on Special & Differential Treatment for DCs and LDCs¹⁶⁶.

As to the other side of the development compact, obligations on DCs and LDCs would be in developing national development policies that have the RTD as their very foundation; putting-in-place effective IPR regimes to facilitate technology transfer and FDI, and competition frameworks to check any imbalance of IPRs¹⁶⁷; and conducting more research at a national level, with the help of the international community, to examine the relationship between FDI, technology transfer, local spillover, and its implications for development and the Digital Divide. In Chapter 12, the concluding Chapter, the Author discusses how and why the WTO (rather than the Commission for Human Rights for example) could be involved in the implementation of the RTD-DC and the RTD Tax Relief to help address the Digital Divide, and also the role that developed national governments and the governments of DCs and LDCs could play in that process. And finally, and importantly, the Author summarises the research completed for this thesis and whether the questions (i)-(iii) posed in Section 1.1 (Introduction) have been addressed.

The next chapter (11) discusses one way as to how the RTD can be **operationalised**, for example by looking at the position of the UK and how MNCs based in the UK can be incentivised to provide beneficial technology transfer to producers in DCs/LD

¹⁶⁶ Discussed in more detail in Chapters 7 and 8.

¹⁶⁷ Ibid.

Chapter 11

Operationalizing the Right to Development: The RTD Tax and the Universal Periodic Review

In a world of interconnected threats and opportunities, it is in each country's self interests that all of these challenges are addressed effectively. Hence, the cause of larger freedom can only be advanced by broad, deep, and sustained global corporation among states. The world needs strong and capable states, effective partnership with civil society and the private sector, and agile and effective regional and global intergovernmental institutions to mobilize and coordinate collective action.

Report of Kofi Annan, UN Secretary-General In larger freedom, September 2005

The right to development can only be compelling for those who find the principle on which it is based to be compelling.

High Level Task Force on the implementation of the right to development, March 2010

11.1 Introduction

This chapter looks to take the conclusions on the Right To Development set out in the previous chapter and to explain how the RTD can be *operationalised*. As we saw from the previous chapter, it is possible to think of the RTD as a legally enforceable right and that this right extends to both individuals and communities, and to States acting on behalf of both. The RTD can be seen as a vector of the individual human rights and which is dependant on the effective implementation of a general set of civil and political, and social and economic rights within the country concerned. And as we saw also in the previous chapter, it is not possible to envisage greater social and economic rights without also considering enforcement of civil and political rights.

Educating the human capital base is just as important as setting in place the right to a free press, the right to privacy, and freedom of expression.

The aim of this chapter is to establish a mechanism for operationalising the RTD. This chapter suggests that the RTD Tax Relief described in the previous chapter can be implemented and enforced through the UN's *Universal Periodic Review Mechanism* ('UPR') established by the Human Rights Council ('HRC') in Resolution 5/1 of 18th June 2007.

The chapter provides a template for operationalising the RTD by providing for a *Technology Transfer Tax Credit* in WTO member state domestic law, and that would be available to MNCs registered for corporation tax purposes in that member state to receive a tax credit for technology transferred by the MNC to producers in DCs and/or LDCs. The chapter provides a case study of the United Kingdom, and the UK's Department for International Development. The chapter argues that the UK, with a long tradition of providing aid to developing countries and with a relatively advanced tax collection regime, could provide leadership in operationalising the RTD, and developing a UPR reporting template to the HRC that could be used by other developed nations, particularly the Quad States, and industrializing developing nations, such as India, China and Brazil. The chapter argues that the latter three states in particular are in a position to offer leadership through multilateral fora to the Group of G90 and like-minded states in bringing the indivisibility and interdependence of the RTD to all States. This could be by implementing a tax credit scheme as outlined by the UK case study in this chapter, and then reporting on the performance of this scheme as part of the cycle of reviews under the UPR process.

11.2 Right To Development

The UN commission on human rights established the Independent expert on the right to development (Arjun Sengupta--subsequently replaced in 2006 by a task force that was perceived to have a broader base of expert advice on the implementation of the declaration on the rights to development).¹⁶⁸ The task force was required to investigate criteria on the compliance of Millenium Development Goal 8 (MDG 8)

¹⁶⁸ A/HRC/15/WG.2/TF/CRP.4, January 2010, para 2.

with the RTD.¹⁶⁹ According to the report on expert consultation by the high-level task force on the implementation of the RTD (sixth session), the task force has now reviewed 12 global development, aid and trade-based partnerships with a view to establishing criteria and sub-criteria in compliance with the RTD. The aim of this exercise was to “Move the right to development from political commitment to development practice, using as a tool a set of criteria and operational sub criteria for the periodic evaluation of compliance with the RTD.”¹⁷⁰ Participants to the working group on the right to development (sixth session), were clear that the primary addressees of these criteria were states and intergovernmental mechanisms and processes, such as the working group on the RTD, the Human Rights Council, the General assembly and the treaty monitoring bodies of the United Nations.¹⁷¹ The participants identified national institutions, academic institutions and civil society organizations as secondary audiences. Also, the participants recognized that under international human rights law, governments would be regarded as the duty bearers rather than the claimants of rights under the RTD. However, states also represented the collective interests of those people under their jurisdiction, which then gave them the right (potentially) to make claims under the RTD for their citizens.¹⁷² The participants also made clear that the criterion that the task force were recommending would “seek to provide greater content to the right to development and therefore must use terms which will last over time, while indicators may reflect current conditions and require revision to future use.”¹⁷³ The selection of the criteria and indicators required close methodological scrutiny.

11.2.1 RTD Criteria: Core Norm, attributes and indicators

The RTD draft criteria have now been published by the working group on the RTD in its March report 2010.¹⁷⁴ In the annex to the report, the task force sets out a table listing the criteria. The task force makes clear the basic expectation of the RTD is the

¹⁶⁹ Ibid.

¹⁷⁰ Ibid, para 4.

¹⁷¹ Ibid, para 26.

¹⁷² Ibid, para 28.

¹⁷³ Ibid, para 30. In

¹⁷⁴ A/HRC/15/WG.2/TF/2/Add.2, March 2010 at the Annex to the report.

Core Norm. This “Core Norm” has three attributes¹⁷⁵: “(a) States acting collectively in global and regional partnerships; (b) States acting individually as they adopt and implement policies that affect persons not strictly within their jurisdiction; and (c) States acting individually as they formulate national development policies and programmes affecting persons within their jurisdiction.”¹⁷⁶ Each of the three attributes are assessed by reference to several criteria, and these in turn are referenced through a selection of sub-criteria. The sub-criteria are supported from a range of reliable measurement tools listed in the footnotes to the Annex.¹⁷⁷ According to the high-level task force, the criteria and sub-criteria are meant to stay relatively stable, but the indicators are expected to change from time to time and as circumstances develop.¹⁷⁸

11.2.2 Problems with indicators and recommendations

In the June 2010 report by the chairperson rapporteur¹⁷⁹, the report makes clear that there are several problems or concerns with regard to the RTD criteria. For example some delegations felt that there was a lack of clarity on the three sub levels of the criteria. Also there were concerns on who would monitor the limitation of the RTD and that there was a clear need to clarify the rights of peoples.¹⁸⁰ Others felt that the emphasis was slipping more to national efforts as opposed to international corporation and that there was a need to emphasise shared responsibility and access to resources.¹⁸¹ There was concern also of the criteria adopting a human rights-based approach to development. Some felt that the emphasis should be on strengthening the economic development and capacity of states to promote and protect all human rights.¹⁸² There was also a perception that the criteria lacked an overall balance between national and international spheres of responsibility. Also that the criteria and corresponding sub criteria went beyond the contents of the RTD Declaration (discussed in Chapter 10) in

¹⁷⁵ Ibid, para 2.

¹⁷⁶ Ibid, Annex.

¹⁷⁷ These footnotes for example point to a range of databases both at the National and international level that form the relevant indicators.

¹⁷⁸ A/HRC/15/WG.2/TF/2/Add.2, para 13.

¹⁷⁹ A/HRC/15/23, June 2010.

¹⁸⁰ Ibid, para 20.

¹⁸¹ Para 22.

¹⁸² Para 30.

looking at other issues such as good governance and participation.¹⁸³ It was agreed that the criteria would be circulated to governments and other entities so that they could be further refined and developed. Also, once agreement was reached on the criteria,, the working group would begin the process of developing a reporting template.¹⁸⁴

11.2.3 Reconciling the RTD Tax Relief with the RTD Criteria

As mentioned above, the criteria for the RTD are set out in the annex to the March 2010 report of the working group on the RTD high-level task force on the implementation of the right to development.

The Annex lists several attributes. For example the first attribute is a comprehensive and human centred development policy. The second attribute is participatory human rights processes. The third attribute is on social justice in development. It would now be useful to consider how the RTD tax relief as described in the previous chapter can be reconciled against the attributes, criteria, sub criteria and indicators to the RTD. There are several criteria under which the RTD tax relief could fall. For example in attribute one, under 1(f) "to promote and ensure access to adequate financial resources". The sub criteria at (1)(f)(i) is listed as "domestic resource mobilisation" and the relevant indicator of this criteria is "effective taxation policies that ensure mobilisation of maximum available resources to fill the performance of human rights." In the footnotes to the criteria, this indicator is defined as "government revenue as a percentage of GDP". It is unclear exactly what this means from the point of view of taxation, and perhaps a more helpful criteria would be the next one down at 1(g) "to promote and ensure access to the benefits of science and technology". Here the relevant sub criteria is listed as 1(g)(i) "poor technology development strategy", explained as "the existence of a policy framework for technology development targeted at poor people's needs." Again the footnotes to the Annex define this criteria as "the existence of a national policy statement on science and technology." Another relevant sub criteria to 1(g) is 1(g)(iii) defined as "manufacturing technology" with the relevant indicator of "technology component of exports and performance

¹⁸³ Para 32.

¹⁸⁴ Supra note 12, Para 38.

requirement provisions in trade agreements." However it is not clear from this definition whether this is in relation to goods or services. Also of relevance under criteria 1(g), is sub criteria 1(g)(iv) "technology transfer, access and national capacity", where the relevant indicator is "electricity consumption; Internet coverage; intellectual property and licensing, intellectual property and technology transfer provisions in trade agreements." The footnotes to the Annex define this indicator as "bilateral trade agreements and regional trade agreements that include conditions tightening intellectual property rights protection beyond the agreed level of the TRIPS agreement." This would imply that the technology transfer provisions are only to be found in bilateral and regional trade agreements as opposed to private technology transfer agreements between licensor or licensee, or for example between a parent and a subsidiary through some form of foreign direct investment. Further the sub criteria on information technology at 1(g)(vii) seems (to this author) to be to use an indicator that is too narrowly defined as access to telecommunications infrastructure. Again the footnotes to the annexe define this indicator by reference to mobile telephone usage statistics only. This can be misleading, in that the telephone line density (the number of fixed lines per 100 population) could be much lower in some developing countries where mobile phone penetration is higher.

It is argued therefore that the RTD tax relief could either fall under criteria 1(f) on adequate access to financial resources, or 1(g)(iv), the sub criteria for technology transfer, access and national capacity.

11.3 Operationalising the RTD Tax Relief: The UK example

We have seen above how the RTD tax relief can be reconciled against each of the attributes, criteria, some criteria and indicators has developed by the high-level task force. This section looks at how the RTD tax relief can be implemented in national law. Given that the UK has a fairly developed tax collection system, and also is one of the leading aid donors in the world, it would be useful to look at implementation of the RTD relief in UK law, and that could form a precedent for the rest of the world, particularly the Quad nations, and also the leading industrialising countries of India, China and Brazil. These latter three played a significant role in the recent Doha round

of talks and therefore their implementation of the RTD tax relief would be significant in terms of bringing on board other developing countries.

11.3.1 The company's wider duties and technology transfer tax credit

The United Kingdom has recently amended its company law statute. Under the Company Law Act 2006, at section 172 of the Act, directors of companies now have statutory duties to have due regard to stakeholders and the wider community when considering their actions. This is an important provision in that, directors now need to consider perhaps the greater good of the company's impact in the community. Under section 172, directors have a duty to the company to act in good faith, to promote the success of the company for the benefit of its members as a whole. Directors must have regard to: the consequences of any decisions in the long-term, company employees, suppliers and customers, and the company's impact on the community and environment. They must have high standards of business conduct and they need to act fairly between members of the company. Section 170 of the Act makes clear that this is a general statutory duty and replaces the common law rules at section 170(4). The Act also requires the court to have regard to the existing interpretation and development of common law principles (for example the laws of agency). The argument is that if companies now have an obligation to regard the wider community, then in developing countries where UK companies operate, there may also be a need for directors to consider (under UK company law) the impact the company is having on the local community. Good corporate social responsibility would indicate that a duty to provide beneficial technology transfer to producer partners in the developing world where UK companies operate would be within the scope of directors' duties.

The reason that this duty is mentioned is with regard to incentivising UK companies to provide beneficial technology transfer. As we have seen in the previous chapter, technology transfer is a key to the implementation of the RTD. One way to incentivise multinationals is to provide beneficial technology transfer and to grant them tax relief for doing so. If there is a general duty under section 172 Companies Act 2006 for directors to have regard to the wider community, the need to do so would be further strengthened if there was a commercial incentive operating alongside corporate social responsibility obligations.

The commercial incentive would be a technology transfer investment tax credit. Presently under the UK Finance Act 2002, the Finance Act provides for a community investment tax relief. At section 57 of the Act the community investment tax relief is defined as a tax relief to those companies providing finance to community development finance institutions for lending to enterprises in disadvantaged communities that are excluded from mainstream sources of finance. There is no reason why a RTD tax relief could not be based on a similar form of financial instrument. Schedule 16 of the Finance Act defines a community investment tax relief and sets out the eligibility for that tax relief. Under the Finance Act, where a corporation makes an investment into a community development finance institution, the company is eligible to receive a tax credit of up to 5% per annum of the amount invested in the community development finance institution and which may be claimed in the tax year in which the investment is made and in each of the four subsequent years. The value of the tax credits is therefore directly in proportion to the amount of investment made.

In a similar way, a company that has a qualifying technology transfer agreement can register the agreement with the Department for International development. So long as the agreement complies with a relevant set of Terms (the *legal* Terms to be contained within a technology transfer agreement as determined by the WGTT) as set out in Chapter 10.10, DFID in exercising the duties delegated by the Secretary of State, would-be able to grant the transferor a technology transfer investment tax credit. In order to bring this into effect, the Finance Act 2002 would need to be amended by statutory instrument to allow for a new form of corporate tax relief (the scale of the relief to be determined by the Measures discussed in Chapter 10.10 i.e. higher tax relief for a lower level of Measures and correspondingly lower relief for a higher level of Measures, the Measures being an indication of the receiving state's technological and manufacturing capability as described in Chapter 10.10). The regulatory change to bring this into effect could then be notified under the United Nations Universal Periodic Review Process as part of the U.K.'s commitment to operationalise the RTD. The subject of the periodic review is discussed in the next section.

11.4 The Universal Periodic Review (UPR)

The universal periodic review is the UN process that involves reviewing the human rights records of all 192 UN member states once in every four years. The UPR allows each state the opportunity to declare the steps they have taken to improving human rights within their territory and the steps that they intend to take to improve the position. Also, the UPR process allows states to share human rights practices that are considered best practice developed globally. The UPR is a unique process, which was established by the Human Rights Council (HRC) in March 2006 and following the resolution of the General Assembly (resolution 60/251). This resolution mandated the HRC to “undertake a universal periodic review, based on objective and reliable information, the fulfillment by each state of its human rights obligations and commitments in a manner which ensures universality of coverage and equal treatment with respect to all states.”¹⁸⁵ On the 18th January 2007, the HRC agreed an institution-building package, one of the elements of which is the UPR.

The reviews are conducted by the UPR working group, which consist of 47 members of the HRC (although any UN member state can take part in dialogue with the state under review). Each state review is assisted by a *troika* (a group of three states drawn from lots prior to each working group session). The review is based upon documents submitted to the UPR working group. These documents consist of: (1) information provided by the state under review, which can take the form of a “national report”; (2) information from independent human rights experts and groups, known as the “special procedures”, human rights treaty bodies, and other UN entities; (3) information from other stakeholders including non-governmental organizations and national human rights institutions.

At the relevant review session of the working group, the state under review will present its national report as well as the answers to any written questions it has received in advance. Any questions that other member states wish to pose to the state-

¹⁸⁵ A/RES/60/251, April 2006, section 5(e).

under review will have been submitted in advance to the troika. At the review session, states can then take to the floor and ask questions and make recommendations about the documentation provided by the state under review. This is therefore a very effective technique in ensuring that the state under review is challenged on any promises that it has made or where there are gaps in the state under review's response to questions.

A report is then prepared by the troika (in consultation with the state under review). This report, known as the "outcome report" and gives a summary of the review. The outcome report is adopted at a later meeting of the working group, and not sooner than 48 hours after the country review. Following the adoption of the outcome report, the state is then required to implement any recommendations contained in the final outcome reports. When the time comes for the second review of the state under the UPR, the state under review will need to provide information on what they have done (or not done) to implement recommendations made during the first review (four years earlier).¹⁸⁶

In this way, the UPR can provide an effective means to check for implementation of the tax relief on beneficial technology transfer as a component of the RTD.

11.5 Conclusion

This chapter has set out a means of operationalising the RTD. The chapter recommends operationalising one component of the RTD by means of an amendment to the UK Finance Act 2002, and creating a new tax relief for those companies in the UK who provide transfer of appropriate technology to producers in DCs/LDCs. As described above, in order to qualify for the tax credit, the UK company will need to submit its technology transfer agreement to DFID for verification. DFID could then confirm that the agreement is a qualifying agreement under the Finance Act (as amended) and issue the company with a tax credit certificate, which it can use to offset against corporation tax. It is suggested that as part of the amendment to the UK

¹⁸⁶ See the UPR process at <http://www.upr-info.org/-UPR-Process.html>, accessed December 2010.

Finance Act, that the amendment includes a provision that the Secretary of State is able to delegate his powers for the purposes of verifying compliance with the requirement for approval of a technology transfer tax credit to DFID. This example follows a similar mechanism already established for a community development tax credit under the Finance Act 2002.

As to whether the UK company's technology transfer agreement is a qualifying agreement, will depend entirely on whether the agreement's clauses comply with any (yet to be established) Terms by the WTO's working group on the transfer of technology, and as suggested above. It is also important to remember that this tax credit (higher for a lower level of Measures and vice-versa) would only apply for the supply of services as opposed to goods because of restrictions imposed by the WTO's subsidies and countervailing agreement on the export of goods.

The implementing legislation to establish the RTD tax relief (or technology transfer tax credit in the UK) could be seen as a provision that the UK government could then report as part of its UPR obligation for the next cycle of reviews planned for 2012, when the review for the UK arises again, or four years later in 2016.

It is suggested that the UK regime for such a tax credit for beneficial technology transfer agreements could form an important precedent for other countries implementing similar schemes, such as the United States and Canada, both of which have advanced tax collection regimes and where similar schemes to that of the UK could be adopted.

Other DCs/LDCs looking for enforcement of Article 66.2 TRIPS could then use the UPR process, specifically the UPR working panel review sessions, to table questions and recommendations on the implementation of the scheme. If the UPR process is used in this way, this aspect of the RTD (technology transfer, under attribute 1 of the RTD criteria) could be quickly achieved. This could be done whether or not the working group on the RTD has completed a reporting template for the RTD.

To make all of the above a feasible reality, civil society needs to assert its influence. On-line campaign groups, such as *Avaaz*, have been remarkably successful in pushing

for changes in law that help the public good.¹⁸⁷ In a similar way, civil society needs to encourage political leaders to act from the bottom-up in helping to develop the case for development. By using a mechanism such as the UPR and in requiring developed country governments to implement tax relief schemes that incentivise the business community in investing in technology transfer to states impacted by poverty, the DC/LDC's human capital base can be enhanced through transfer of know-how.

In a report by the high-level task force on the implementation of the RTD, specifically the criteria and operational sub criteria for the implementation of the RTD the report states: "the consultation concluded that the right to development, in spite of the political context in which it is subjected to contending priorities, enriches both substantive and procedural elements of international human rights law by addressing redistribution and equity questions at the national and international levels from the perspective of accountability and other principles, shared by the development and human rights agendas. The greatest challenge, in this regard, lies in defining whether and how human rights, in particular the right to development, can contribute to creating an enabling environment necessary for the constant improvement of the well-being of the people."¹⁸⁸

The implementation of the RTD tax relief is one way of overcoming this challenge and to operationalising the RTD.

¹⁸⁷ <http://www.avaaz.org/>, accessed December 2010.

¹⁸⁸ A/HRC/15/WG.2/TF/CRP.4, January 2010, paragraph 32.

CHAPTER 12

CONCLUSION

Chapter 2 to this thesis reviewed research on the digital divide and a series of definitions before arriving at a new definition for the international Digital Divide:

A failure—between those users in countries who have access to communications infrastructure, services and tools to aid literacy and information literacy, and those who do not—to access the minimum available capacity of communication technologies and information within a structural context of successive innovation, competition and trade.

From this definition, the thesis then identified four specific sectors in which to investigate the operation of IEL:

- Competitive access to communications and information technology networks;
- The transfer of technology; and
- The trade in electronic intangibles.
- The human capital base

In reviewing these sectors, the author has also been mindful of the following questions introduced in Chapter 1:

- (iv) Can IEL be used to help address the Digital Divide between developed and developing nation states?
- (v) Can IEL be used to accelerate the process of development in developing and least developed countries through *technological processes* (viz., telecommunications and technology transfer)? and;
- (vi) Is it possible to define a relationship in IEL between civil and political, and economic social and cultural rights as a collective for example in the form of the much debated and somewhat controversial *Right to Development* (the “RTD” as defined in this thesis) on the one hand,

with economic indicators, such Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) on the other? If so, how can the RTD be '*operationalised*'?

The bulk of this thesis (chapters 3-7) has been concerned with the first sector on competitive access to communications and information technology networks (converging now to become NGNs). This thesis shows that NGNs are not currently regulated at the international (WTO) level and that the need for mandatory regulation in even the more advanced territories, such as the European Union has not been sanctioned. Certainly the current regulatory framework favours the IBPs and large telecommunication incumbents in the developing world and that for many smaller DC and LDC ISP operators the current framework is not delivering effective competition. Solutions to regulatory problems in this sector are given in Chapter 5-7 (see below). Chapter 2 discussed NGNs and how effective competition does not depend on just *interconnection* of the underlying physical networks, but also *access* to the higher service layers of the protocol stack. With new services based on differing protocols coming on-line every year, this issue of access is crucial for delivering effective competition at all layers. Chapter 3 reviewed the rules of the game as regards international telecommunications, Chapter 4 went deeper reviewing the issues surrounding peering and transit agreements, the means by which smaller ISPs in both the developed and developing worlds access the backbone networks of larger IBPs to access the wider internet. In this chapter, a number of potential anti-competitive practices were reviewed from the nature of the agreements themselves to the migration by IBPs of smaller ISPs from peering agreements to paying transit agreements. Problems associated with a lack of infrastructure, particularly a lack of a sufficient number of IXPs in Africa, were mentioned and how lack of infrastructure maintains the monopolies of the large telecommunications incumbents in the developing world. The definition above of the international digital divide refers to the need to have access to communications infrastructure, and with such access, the content and information tools that flow over the infrastructure. We have also seen from references to UNCTAD's World Investment Report 2008 that continued investment in infrastructure, particularly for Africa remains a high priority for both the developed and developing world. In 2007 in Nepal for example, just having access

to cheaper international bandwidth meant an anticipated drop in the cost of internet access for end-users by 67%.¹⁰²⁹

Chapter 5 set out the important elements of the European Commission's new regulatory framework for electronic networks and services that forms the basis to the Layering Theory discussed in Chapter 6. In Chapter 6, the author argues that the EC's new framework could form a model template for the regulation of NGNs in the developing world. But for this to happen, the European framework needs to be improved, particularly its current test of SMP as established by Article 14(2) *Framework Directive*, and based on the case of *United Brands*. The author argues in Chapter 6, that under the current new regulatory framework, the European Commission is left with the daunting task of having to review constantly its definition of relevant product and service markets that underpins its test of dominance. NGNs offer the potential of delivering a new raft of advanced internet services within a myriad of new relevant product and service markets that fall outside current definitions. The author argues that the *Layering Theory* is a regulatory tool that will allow NRAs greater power to accurately determine market power in the communications sector by establishing a new test for *interpreting* SMP. The Author contends that as more traffic is switched over TCP/IP networks it will become increasingly important for regulators (worldwide) to accurately determine where the access bottlenecks are so as to regulate for effective competition. The European framework could, the author argues, be an excellent template for the rest of the world.

Why the need for redefining market power and exporting the Layering Theory to other regulatory frameworks elsewhere? The overriding reason is off course to enhance effective competition by addressing the potential for abuse of market power, and thereby bring down the cost of access to the internet, addressing the Digital Divide. Chapter 4 makes clear that IBPs do not necessarily prevent access and interconnection. In fact, IBPs will want to interconnect through peering agreements with other large ISPs in order to expand their network coverage. However Chapter 4 also makes clear that IBPs migrate smaller ISPs from peering agreements to paying transit agreements. Further although bundling and price discrimination can in fact be **pro competitive**, Chapter 4 reviews several different examples of potential

¹⁰²⁹ Lie E., *International Internet Interconnection, Next Generation Networks and Development*, Global Symposium for Regulators, Dubai, 2007, discussion paper available at: http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/discussion_papers/Eric_lie_international_interconnection.pdf, accessed October 2008, p. 16.

anticompetitive practices by IBPs on international backbone routes (particularly to DCs and LDCs where competition between IBPs on available routes is much less extensive given the lower returns on investment in infrastructure). An IBP could leverage its market power in specific ways by:

- Extracting from smaller ISPs agreements not to compete in certain service or geographical markets;
- Setting a price floor on the service offered by the smaller ISP;
- Linking the smaller ISP's access to a desired service; e.g., long-haul backbone trunks; or
- Forcing a commitment to buy or lease less desirable and/or less competitively provisioned services.

The problem is two fold: *first*, internet interconnection is currently **not** regulated by WTO instruments, such as the Reference Paper, and *second* that both international and domestic laws do **not** require IBPs to lodge their peering and transit agreements to NRAs as part of a process of disclosure.

In 2007, the ITU in a symposium on international internet interconnection discussed the lack of transparency in internet interconnection with NGNs and the rise in ‘differentiated charging’ (the process by which operators charge in accordance with the type of network protocol being used—see Chapter 6). We saw how this concept of differentiated charging, pushed by the large backbone operators has led to a counterargument for the need for ‘net neutrality’—all network application needs being met equitably i.e. any particular internet host, protocol or application should not receive preferential treatment. In the United States, where differentiated charging is most common, there has been strong opposition to this model of charging by service and content providers such as *Microsoft*, *Google* and *Skype*, who do not own backbone infrastructure of their own network and who fear the higher costs for access that might result. The point was made in Chapter 4 that if large content providers, such as *Google* fear differentiated access, what are the implications for much smaller DC and LDC ISPs crucially dependant on access to the NGNs of IBP backbones on

far fewer and less competitive routes to IXPs in the developing world? In the report produced for the ITU symposium on internet interconnection in 2007, Lie states that:

In the absence of countervailing influences, the international internet market risks a return to the questionable competitive environment of the late 1990s where market concentration in the hands of a Tier-1 ISPs led to high prices for international internet connectivity.¹⁰³⁰

As mentioned above, the problem is not just with interconnection of networks, but with access to the higher service layers of the NGNs. To offset the potential for ‘unconsidered de facto determination of international NGN interconnection norms’ by the larger backbones, Lie argues that stakeholders need to engage as a matter of priority in policy development on internet interconnection.

The Layering Theory is in response to Lie’s plea for engagement. In Chapter 6, the author argues that the Layering Theory, if implemented at the national, regional and multilateral levels by both developed and developing nations could prevent the potential for abuse of dominance arising from a market concentration of Tier 1 ISPs (IBPs) that Lie warns off.

If incorporated into a revised Reference Paper by WTO member states as an additional commitment at future trade rounds, the Layering Theory will also work in tandem with existing rules on cost-oriented interconnection to increase *effective competition* between providers of international digital networks and services at the multilateral level. As mentioned, the Theory is to give NRAs/NCCs a tool for accurately determining a relevant market in the communications sector and thereby determine dominance. Such a power is particularly important in markets where electronic applications are driven by software just as much as hardware (e.g. electronic program guides, application interfaces, the production/manufacture for which could be outsourced to a third country). By applying the theory at the *multilateral* level by amending WTO measures such as the regulatory Reference Paper (as suggested at Annexe 1 to this thesis), the Author is advocating for increased effective competition at the multilateral level for cross border electronic services under mode 1 or consumption abroad of electronic services under mode 2 GATS. The

¹⁰³⁰ Ibid, p.9.

Layering Theory will allow for increased market access and national treatment for any operator (whether from a developed or developing country) to deliver electronic intangibles into a target WTO member state (subject to WTO scheduled commitments). This would be particularly advantageous for ISPs in developing countries. If the Reference Paper was to be amended in line with the Layering Theory by the WTO Secretariat (specifically the Council for Trade in Services) and recommended as an additional commitment at future trade rounds, then for each WTO member that schedules this commitment, better rules on interconnection and access that specifically apply to NGN networks can be achieved for *each* IXP exchange in that member's territory. This is not the case at present as the current Reference Paper excludes internet networks and services (discussed in Chapter 4). For smaller DC and LDC ISPs interconnecting and gaining access to a large IBP, whether the local telecommunication incumbent in its own territory or with other IBPs at IXP exchanges at home or overseas, the new amended template for a Reference Paper promises enhanced effective competition. Cheaper access to communications and information technology networks is in line with our definition of the Digital Divide set out in Chapter 2. The knock-on effect will be to bring down the costs for internet access in the developing world, addressing the Digital Divide.

However, in order to enhance effective competition at *all* layers of a NGN network at IXPs, the NRA/NCC in a DC or LDC must be able to *enforce* the Layering Theory. In light of anticompetitive practices, and to ensure that LDC/DC ISPs have the means to lodge complaints to NRAs, they will require access to the OSI Layer 5-7 filtering and cost accounting technology, upon which the Layering Theory depends (discussed in Chapter 6). Operators and regulatory authorities in the developed world already have access to such technology.

The Author argues that in light of failure of the Doha Round, if developed countries are to truly honour their publicly stated commitments to Article 66.2 TRIPS on technology transfer discussed in Chapter 8, then the Quad countries could as part of a technical assistance program under UNCTAD, the World Bank, ITU or the WTO transfer the technical expertise required to the developing world to train regulators on implementation of the Layering Theory and to put in place the OSI Layer 5-7 filtering and cost accounting technology at IXPs in DCs and LDCs, or at least the international gateway exchanges, where local DC incumbents interconnect with the networks of the international backbone operators. For example, there are currently only 17 IXP

exchanges throughout the whole African continent.¹⁰³¹ In 2007, as part of its commitment to enforcing Article 66.2 TRIPS, the European Communities set out several objectives in their submission to the TRIPS Council. These objectives are discussed in Chapter 8, but several of these objectives, particularly objective 1 (licensing of cost accounting software and OSI Layer 5-7 server hardware/software), 2 (access to engineers and IP routing specialists), 5 (the training of local NRA staff and local ISP legal teams), and 6 (ancillary IT equipment) could form a good basis for a request for technical assistance to the European Communities to implement the Layering Theory.

As mentioned in Chapter 7, adoption of a revised reference paper (RP) in light of the Layering Theory works both ways; DC and LDC markets will be just as open to competition by aggressive and efficient foreign operators as developed country markets by DC and LDC operators who are able to undercut on costs for innovation and service delivery due to access to a cheaper workforce. As Chapter 7 outlines, DC and LDC commitments to a revised RP can still be made so long as adequate measures to protect domestic incumbent telcos have been implemented into national law prior to such a commitment being made. For example, DC and LDC governments can choose to introduce legislation that will protect any incumbent telco from new competition measures (brought in by adoption of the revised RP) that is responsible for *services of a general economic interest (SGEI)*, for example universal service/universal access and public broadcasting functions. The European Commission was successful in protecting its Member States' national telco incumbents in just this way through the operation of the former Articles 86(2) and 86(3) of the EC Treaty for example (now Articles 106(1) and 106(2) TFEU), which sets out the framework for SGEI in Europe.

In the next trade round, either as part of the Doha negotiations or more likely in subsequent rounds, if G-90 countries were to seek from the Quad countries GATS specific commitments in network-based transactions and complementary services (services ancillary to telecommunication services, such as financial, distribution, computer, audiovisual etc), DCs and LDCs who are able to attract sufficient FDI into their home markets and who can utilise beneficial technology transfer to innovate based on a well trained resource of human capital, will be able to make use of such

¹⁰³¹ InfoDev ICT Regulation Toolkit at: <http://www.ictregulationtoolkit.org/en/Section.2195.html>, accessed October 2008.

commitments to generate an export portfolio of advanced network electronic services and goods into markets in the developed world. Much will depend on the relative negotiating positions of the parties concerned. In a similar way, the Quad Countries might be very resistant to DCs and LDCs protecting their domestic incumbents by DC/LDC regulators ruling out competition in SGEI services. However if DCs and LDCs were to also make a “critical mass” offer of opening up TCP/IP internet services to competition (subject to other scheduled commitments in complementary services), then such a restriction might be more palatable.

Again as discussed in Chapter 7, G-90 countries could also seek a phased implementation for any revised RP in light of the Layering Theory applying to packet-switched networks. There is also nothing to stop DCs and LDCs liberalising their own telecommunications regimes independently of the WTO and the RP, and at a pace that suits their own developmental needs. The crucial question will be the need to attract FDI. As UNCTAD’s *World Investment Report 2008* has shown, a number of DCs, such as Singapore, China, India, and Korea are not just magnets for inward foreign direct investment (FDI), but also are *suppliers* of foreign direct investment themselves, and usually through technology orientated companies, such as Singapore Telecom and the Hong Kong-based Hutchinson Telecom. Chapter 7 discusses how DCs can use the New Modes of Operation (introduced in Chapter 3) *in reverse*, aggregating traffic for termination in developed countries.

The other argument that needs to be made in favour of developing countries is that as a number of these countries develop their ICT industries, invest in IP-based infrastructure, develop the necessary human resource skills in areas of protocol design, coding, hardware and software development, and begin to identify technology service products that are suitable for export over network-based technologies (“complementary services”), such countries will then need to enforce the provisions of Article IV GATS, which deals with increasing the participation of developing countries in international trade in services¹⁰³². In future trade rounds, it is in such areas where the thrust of negotiating resources should apply, at least in the technology sectors. These issues have been discussed in Chapter 7.

¹⁰³² For an excellent discussion of the need to implement Article IV GATS, see the Communication from Cuba, Pakistan, Senegal, Sri Lanka, Tanzania, Uganda, Zambia, and Zimbabwe on Increasing Participation of Developing Countries in International Trade in Services: Effective Implementation of Article IV GATS, S/CSS/W/131, December 2001.

Chapter 8 discusses the Doha Ministerial Declaration introduced for the first time in the WTO, a binding mandate for WTO Members to examine the relationship between trade and technology transfer. For this sector, as with the first sector on competitive access to communications and information technology networks, current IEL favours the developed nations. For technology transfer at the international level, the main regulatory framework is the WTO's TRIPS Agreement. Chapter 8 makes clear that there are a number of provisions within TRIPS that can be enforced to ensure that the international process of technology transfer is better achieved, for example Articles 7, 31, 40, 65 and 66 of TRIPS, but that to date very little progress on implementation and enforcement has been made. In the context of the divide, DCs and LDCs have been clamouring for better enforcement of Article 66.2 in particular on transfer of technology. At the international level, if there is to be any improvement in this sector, it will have to do with the enforcement of Article 66.2. However the problem with the technology transfer sector is not just at the international level. As Roffe and Tesfachew argue, there has perhaps been too much concentration of analysis on the imperfections of the international technology transfer process and not enough on the *domestic* absorptive and adaptation capacity of the host country¹⁰³³. If DCs and LDCs are to truly benefit from technology transfer, more attention has to be paid to improving host country legislation on technology transfer in terms of making it effective in attracting foreign investment, creating spillover, and also in dealing with potential abuses of market power by MNCs. What is required is a mix of both sector-specific (ex-ante) measures that sets out basic rules on technology transfer in advance, for example in the setting of price controls and compulsory licensing by government, as well as general competition type (ex-post) provisions which deal with issues of discrimination, transparency, and unfair competition.

As we saw in Chapter 8, there are dangers of the enforcement by LDCs and DCs of measures of this type. Enforcement of host country competition provisions on MNCs for example could result in threats of trade and/or financial retaliation by developed country governments. To avoid the risk of this kind of retaliation, LDCs and DCs could make better use of regional trade or economic area agreements, where a common set of rules (both ex-ante and ex-post) for technology transfer could be adopted and integrated into the framework of a regional agreement. For example, to

¹⁰³³ Roffe P., and Tesfachew T., *Revisiting the technology transfer debate: Lessons for the new WTO Working Group*, at <http://www.ictsd.org>, date accessed, October 2004

help maintain a level of consistency of regulatory treatment amongst European NRAs, the EC has included clauses at Articles 6 and 7 Framework Directive¹⁰³⁴, which require NRAs to consult with the EC in introducing measures which would have a significant effect on the European internal market. In a similar way, by harmonising competition provisions within the framework of a regional trade agreement, LDCs/DCs could have a better chance of enforcing such provisions against MNCs at a national level. As discussed in Chapter 8 (section 8.7), DCs and LDCs could also benefit from increased access to information on technology transfer made available in the public domain. By implementing these measure and enhancing technology transfer at an international and domestic level both developed and developing countries will be enhancing the appropriation of information and information literacy tools necessary for the training of the human capital base in DCs and LDCs, enhancing absorption and spillover of technology and thereby the process of innovation, all of which according to the definition set out in Chapter 2, will help address the Digital Divide.

In Chapter 9, we saw that the ability of DCs and LDCs to export electronic intangibles into developed country markets will also depend on potential WTO rules on classification. In this last sector of three identified as relevant to the Digital Divide and investigated in this thesis, current regulation for electronic intangibles at the international level is absent. The WTO has failed to classify electronic intangibles either as goods under the GATT, services under the GATS, or as some form of hybrid intellectual property right under TRIPS. Furthermore the status of the current moratorium of not imposing customs duties on imports of electronic intangibles is uncertain following the collapse of the Doha Round this year. As such, current regulation favours the interests of net exporters of electronic intangibles, such as the Quad countries, and particularly the United States. The greatest impact of the lack of current regulation on DCs and LDCs is the loss of potential revenues that such countries could be earning from import tariffs, and additional import duties and taxes, such as customs surcharges that are only levied on imports, and internal taxes—sales taxes or consumption taxes—that are levied on both imported and domestic goods. Nevertheless, cross-border trade in electronic services under GATS mode 1 has been substantially strengthened as a result of the WTO's Appellate Body report in *US-*

¹⁰³⁴ Directive 2002/21/EC.

Gambling. In a more recent case, *China-Measures affecting trading rights and distribution services of certain publications and audiovisual entertainment products* ('China-Audiovisual', Appellate Body report, 21st December 2009)¹⁰³⁵, the Appellate Body (AB) looked at the classification of 'sound recording distribution services' in China's schedule of specific commitments. China argued that 'electronic' sound recording distribution services were *not* covered by China's schedule of commitments. However both the Panel and AB found that sound recording distribution services" in sector 2.D of China's GATS Schedule extended to the distribution of sound recordings in non-physical form through electronic means and upheld the Panel's conclusion (in paragraph 8.2.3(b)(i)) of the Panel Report that the provisions of China's measures prohibiting foreign-invested entities from engaging in the distribution of sound recordings in electronic form were inconsistent with Article XVII of the GATS. This is an important finding and further strengthens the precedent established in the earlier WTO case of *US-Gambling* that on-line products are equivalent to their physical counterparts, and that the WTO is able to extend the commitments made by a member to include intangible products delivered over the Internet.

However, as mentioned, the thorny issue of how electronic intangibles might come to be classified by the WTO (GATT, GATS, TRIPS) is yet to be determined. The consequence of a classification decision either through the DSB or by agreement within the WTO membership will have significant implications for DCs and LDCs. Tariff peaks already create strong disincentives for LDCs/DCs in moving towards processing raw materials and agricultural commodities and higher value added manufacturing products. They reduce the gains from trade, hinder efforts to technologically upgrade, and restrict a country's financial capacity to import technology¹⁰³⁶. If applied to electronic intangibles, say as an indirect consequence of the WTO membership at some future stage agreeing to classify electronic intangibles as goods rather than services¹⁰³⁷, then the gains already made by certain DCs in the IT

¹⁰³⁵ *China – measures affecting trading rights and distribution services for certain publications and audiovisual entertainment products*, WT/DS363/AB/R, AB-2009-3, 21st December 2009.

¹⁰³⁶ WT/WGTTT/M/1, para 41.

¹⁰³⁷ Or potentially as a longshot, the WTO's Dispute Resolution Body ruling on the point, although it could be argued that the DSB should not be used to interpret the WTO members' *collective intent* rather than forcing governments to legislate because they could not agree on a common approach. For a more detailed discussion, see Drake and Nicolaidis, Chapter 14 Global Electronic Commerce and

sector could in time be severely curtailed. Despite this concern, the Author makes clear in Chapter 9 that *all* electronic intangibles should be classed as goods to give greater certainty to the trade in electronic intangibles. The author recommends adopting the test for goods as set out by the US *Streamlined Sales Tax Project*. Furthermore, that the moratorium (the current status of which is uncertain following the collapse of the Doha Round) of not charging import tariffs on electronic intangibles be dropped¹⁰³⁸. The author argues that a goods based classification and the scrapping of the moratorium will allow DCs/LDCs to generate additional revenues on imports (using revenues to invest in capacity building programs domestically), as currently most DCs and LDCs are net importers of such products but that also through progressive liberalisation and the lock-step nature of the GATT agreement, these tariffs can be expected to come down through future trade rounds. This in turn will lead to more information and information-literacy tools becoming available to end-users in DCs and LDCs, one of the elements identified in Chapter 2 as helping to address the Digital Divide.

Finally, in Chapter 10, the author argued that to enhance the human capital base, DC and LDC states need to strengthen both civil and political, and economic, social and cultural rights, and collectively all rights as represented by the UN Right To Development. The author suggested a Right to Development Tax Relief (“RTD Tax Relief”). The idea for a tax relief for companies that license technology to developing countries has already been suggested by the Commission on Intellectual Property (CIPR) in its report on intellectual property and development¹⁰³⁹. As mentioned in 10.10, the Author develops this idea further in formulating the RTD Tax Relief which he suggests could operate in investor states and be administered jointly through the investor state’s international development department and/or tax revenue department, and that will apply to any nationally registered MNC under relevant Company Act legislation in the investor state. The Author argues that to qualify for the RTD Tax

GATS: the Millennium Round and Beyond in *GATS 2000 New Directions in Trade in Services*, edited by Sauve P and Stern R., Brookings Institute Press, 2000, p. 410.

¹⁰³⁸ Presently WTO members have agreed a *moratorium* on the use of customs duties for electronic transmissions. The moratorium was still in place at the last meeting of the General Council of the WTO in 2003. The moratorium was again confirmed at the Sixth Ministerial WTO Conference in Hong Kong in 2005 (WT/MIN(05)/DEC. This moratorium is not legally binding and it remains free for WTO members to agree to impose customs duties on electronic intangibles at some point in the future, WT/GC/W/509.

¹⁰³⁹ Discussed in Chapter 10.10. Chapter 1, *Intellectual Property and Development*, 2002 at http://www.iprcommission.org/papers/text/final_report/chapter1.htmf, accessed February 2011, p.16.

Relief, the MNC will need to satisfy a minimum set of Technology Transfer Terms (the “Terms”), which the Author suggests could be established by the WTO’s Working Group on Technology Transfer (WGTT), such Terms to be annexed to the investor state’s implementing legislation for the RTD Tax Relief. Under this proposed scheme, MNCs will notify their technology transfer agreements to the relevant investor state’s development department and/or tax revenue department. The Author also suggests a sliding scale of tax relief: greater relief provided for MNCs licensing into LDCs with less relief available for licensing into DCs. The appropriate scale for tax relief, the Author suggests, could be set by the WGTT following a separate set of Measures. As discussed in Chapter 10.10, a lower set of Measures would lead to a higher tax relief, and vice-versa.

In Chapter 11, the author then looks at how the RTD could be **operationalised at a country specific level** (using the UK as a case study) by introducing a tax credit system for MNCs through amendment of the UK Finance Act 2002, and use of the UN Universal Periodic Review mechanism to report implementation of the RTD Tax Relief. The author argues that implementation of such a scheme in the UK can provide a useful template to the Quad countries, the United States, Canada, Japan and the European Communities with advanced tax regimes in implementing similar schemes to help operationalise the RTD.

12.1 Concluding Thoughts

There is little doubt that competition for the world’s resources is constantly increasing with the growth in the world’s population. Furthermore the implications for the world of global warming and dimming are also becoming well understood with available land mass and access to clean water for the poorest people potentially shrinking and the consequent implications for mass migration and rapidly rising populations.

Effective development policy as applied to DC/LDCs will need to become a priority for the developed world, but simple aid is not going to work, business processes are required. As argued in this thesis, the use of technology and IEL is just one solution to address the Digital Divide. The Author asserts that the recommendations outlined above are extremely relevant for DCs and LDCs, given that the policy options for them to control their microeconomic policies are becoming increasingly limited,

partly as a result of signing FTAs and bilateral agreements with developed countries, but also as a consequence of the WTO covered agreements.

Clearly DCs and LDCs may argue that progress has not been made. For example, in the past, many developed countries have used during their various phases of development, various aspects of IEL: a combination of tariffs, quotas and sector-specific subsidies to develop their domestic industries. Some developing countries that are now newly industrialised nations “protected the home markets to raise profits, implemented generous subsidies, encouraged their firms to reverse engineer foreign patented products, and improved performance requirements such as export-import balance requirements and domestic content requirements on foreign investors (when foreign companies were allowed in).”¹⁰⁴⁰ All of these strategies are now severely restricted under current WTO agreements.

And yet there are still available options. The Layering Theory set out in Chapter 6 and applied to DCs and LDCs in Chapter 7 also seeks to use principles of IEL, specifically trade and competition law to help achieve greater transparency and access in world (and national) communications markets. The Author also argues that by implementing effective IPR and competition regimes and making effective use of FDI and technology transfer, we can begin to address the Digital Divide. However, the Author notes caution in that DCs and LDCs will need to measure the costs of implementing more rigorous IPR regimes as it is by no means certain that increased IPR protection yields greater benefits in terms of FDI. For example as argued in Chapter 8, developing countries who have acceded to the WTO, and who have therefore accepted TRIPS in full, will have to adopt a certain level of minimum standards in patent (and other IPR rights) protection and enforcement as set out in Section 5 TRIPS (patents).

Also discussed in Chapter 8, the value of increasing IPR protection in the target (developing country) state to attract FDI will need to be carefully assessed. State commitments under bilateral trade/investment agreements and FTAs will need to be considered. DCs and LDCs often grant increased IPR protection by way of such agreements to gain increased market access opportunities through preferential tariffs in specific markets, such as agricultural and manufactured goods for example in the United States or in the EU. However, such preferential tariffs are *time-bound* in that

¹⁰⁴⁰ E/CN.4/2003/WG.18/2 at paragraph 25, citing Dani Rodrik. “*The Global Governance of Trade as if Development Really Mattered*”, JFK School of Government, Harvard University, July 2001.

they will be eroded once the US reduces remaining tariffs and quotas on a non-discriminatory basis in future trade rounds¹⁰⁴¹. In contrast, DC/LDC IPR commitments made in FTAs or bilateral agreements will *remain* in place, unless renegotiated by the parties concerned, which to some extent will depend on the bargaining positions of the parties concerned, which given the current position of LDCs/DCs as evidenced by the recently failed Doha round negotiations, does not prove to be very promising.

The Digital Divide remains a huge issue in developing countries, particularly the LDCs. This thesis suggests that the Digital Divide can be addressed by using existing laws within IEL in imaginative ways, such as reforms in telecommunications, technology transfer and trade, but that these reforms are *specific* and that to implement them the political will must exist on *both* sides: from the developed nations as part of reform through the WTO and domestically at home; amending the Reference Paper; accepting a goods based classification on electronic intangibles and dropping the moratorium on customs duties for imports; enforcing Article 66.2 TRIPS on technology transfer; reforming domestic law on market power in the communications sector and providing for increased market access on electronic intangible exports from DC/LDC countries through more effective GSP regimes. For the developing nations: as part of reform through the WTO and domestically at home; scheduling more commitments to all services impacting on network-based transactions; accepting an amended reference paper as an additional commitment in the GATS; liberalising telecommunications and internet services domestically (subject to SGEI commitments); improving domestic frameworks on technology transfer (and IPRs), and strengthening both civil and political rights as well as economic, social and cultural rights in the form of the RTD. To effectively address the Digital Divide as defined in this thesis, the political will to implement these reforms must exist. Does it?

¹⁰⁴¹ Fink C., and Reichenmiller P., “*Tightening TRIPS: The Intellectual Property Provisions of Recent US Free Trade Agreements*”, Trade Note 20, World Bank, February 2005.

ANNEXE 1

A NEW REFERENCE PAPER FOR BITS AND BYTES

Definitions

Users mean “electronic communications network and service consumers and electronic communications network and service suppliers.”

Major Supplier means “a supplier who either individually or jointly with others, enjoys a position equivalent to dominance for the relevant Component Part in a particular Layer (as set out in Schedule 1) in the supplier’s relevant geographic market, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.”

Electronic Communications Networks means “transmission systems, and where applicable, switching or routing equipment and other resources which permit the conveyance of signals over any of the Layers as defined in Schedule I irrespective of the type of information conveyed.”

Electronic Communications Service means “a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, and who’s Component Part(s) fall into any of the Layers as defined in Schedule I, but excluding services providing, or exercising editorial control over, content transmitted using electronic communications networks and services. An Electronic Communications Service may consist of one or several Component Parts.”

Component Part means “a physical or logical part of an Electronic Communications Service and which falls into one of the Layers as defined in Schedule I.”

Access means “the making available of facilities and/or services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis for the purpose of providing electronic communications services.”

Interconnection means “the physical and logical linking of public electronic communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access electronic communications services provided by another undertaking. Electronic communications services may be provided by the parties involved or other parties who have access to the network. Interconnection is a specific type of access implemented between public network operators.”

1. Competitive safeguards

1.1 Prevention of anti-competitive practices in telecommunications

Appropriate measures shall be maintained for the purpose of preventing suppliers who, alone or together, are a major supplier from engaging in or continuing anti-competitive practices.

1.2 Safeguards

The anti-competitive practices referred to above shall include in particular:

- (a) engaging in anti-competitive cross-subsidization;
- (b) using information obtained from competitors with anti-competitive results; and
- (c) not making available to other services suppliers on a timely basis technical information on electronic communications networks and services and commercially relevant information which are necessary for them to provide electronic communications services.

2. Interconnection

2.1 This section applies to linking with suppliers providing public electronic communications networks and services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.

2.2 Interconnection and access to be ensured

2.2.1 Interconnection with a major supplier will be ensured at any technically feasible point in the network. Such interconnection is provided.

- (a) under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates;
- (b) in a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and
- (c) upon request, at points in addition to the network termination points offered to the majority of users, subject to charges that reflect the cost of construction of necessary additional facilities.

2.2.2 Access with a major supplier will be ensured at any technically feasible point in the network. A major supplier must meet all reasonable requests for access.

2.3 Public availability of the procedures for interconnection and/or access negotiations

The procedures applicable for interconnection and/or access to a major supplier will be made publicly available.

2.4 Transparency of interconnection arrangements

It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.

2.5 Interconnection and access: dispute settlement

A service supplier requesting interconnection and/or access with a major supplier will have recourse, either:

(a) at any time or

(b) after a reasonable period of time which has been made publicly known

to an independent domestic body, which may be a regulatory body as referred to in paragraph 5 below, to resolve disputes regarding appropriate terms, conditions and rates for interconnection and/or access within a reasonable period of time, to the extent that these have not been established previously.

3. Universal service

Any Member has the right to define the kind of universal service obligation it wishes to maintain. Such obligations will not be regarded as anti-competitive per se, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member.

4. Public availability of licensing criteria

Where a licence is required, the following will be made publicly available:

(a) all the licensing criteria and the period of time normally required to reach a decision concerning an application for a licence and

(b) the terms and conditions of individual licences.

The reasons for the denial of a licence will be made known to the applicant upon request.

5. Independent regulators

The regulatory body is separate from, and not accountable to, any supplier of electronic communications networks and services. The decisions of and the procedures used by regulators shall be impartial with respect to all market participants.

6. Allocation and use of scarce resources

Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.

Schedule 1

LAYER 4 CONTENT
LAYER 3 APPLICATIONS
LAYER 2 TRANSPORT
LAYER 1 ACCESS

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