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TRADE POLICY IMPLICATIONS OF THE NEW ECONOMY: PRELIMINARY THOUGHTS

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**THE TRADE POLICY IMPLICATIONS OF THE NEW ECONOMY:
PRELIMINARY THOUGHTS**

EXECUTIVE SUMMARY

This note draws attention to a number of forces that are shaping the two-way interaction between the emerging new economic landscape and the rules-based trading system. Implicit to the analysis is the question of whether the role of trade policy in the new economy differs in any significant manner from the role it has hitherto assumed. There is little doubt that trade and investment rule-making and liberalisation are closely (and increasingly) related to the process of technological innovation and the diffusion of ideas, products, services and best practices that innovation entails. It is not surprising then that, in the light of the heightened technological intensity of cross-border trade and investment flows, trade policy has in recent years been assigned the task (among many others) of helping societies anticipate, accompany, facilitate and respond to ICT-driven changes.

Important building blocks for the new economy were laid in this regard during the Uruguay Round, notably in the fields of intellectual property protection, trade and investment liberalisation in services, and technical barriers to trade. This was done even before the very concept of the new economy had found its way in the hallways and lexicon of international commercial diplomacy. The period since the Uruguay Round, which paralleled the remarkable rise of what we have come to call the “New Economy”, has seen concerted efforts by the multilateral community to adapt the trading system to the realities of doing business in the digital age. The most significant developments in this regard were the 1996 Information Technology Agreement (and the follow-up ITA-II negotiations), the 1997 Agreement on Basic Telecommunications Services, and the 1998 Declaration on Global Electronic Commerce and the establishment of an ongoing WTO-wide work programme on e-commerce. The period since the end of the Uruguay Round has also seen important trade-centred attempts at addressing barriers to trade in ICT products within various regional fora. And the New Economy lies at the heart of negotiations which recently resumed under the WTO’s built-in agenda in the services field. Such negotiations offer WTO members an important opportunity to lock in the far-reaching reforms and liberalisation efforts that many have in recent years enacted in key ICT-user industries.

Trade policy has an important complementary role to play in helping countries harness the growth and development potential of the new economy. It can do so in a number of ways, including by not getting in the way of ICT-driven changes but rather by helping make them as orderly and predictable as possible; by contributing to declining costs through further tariff liberalisation in ICT and related products; by liberalising critical input services and strengthening standards of intellectual property protection, without which little of the gains from innovation can be expected; by encouraging the adoption of international standards and by promoting least-trade restrictive ways of reducing transaction costs associated with needlessly burdensome or covertly protectionist standards and related requirements; and by promoting the adoption of best practice, pro-competitive, regulatory frameworks. In a nutshell, it should keep doing for the new economy what it has been doing for much of the recent (and, in some cases, not too recent) past, while being mindful of the constant need to adapt its rules and practices to the changing global economic landscape.

Moreover, there is much the trading system can do to help developing countries secure a greater share of the considerable gains deriving from greater connectivity to the world's electronic highways. By making the world a safer, more predictable place in which to invest and conduct business across borders, and by giving greater credibility and permanency to domestic reform efforts, there is much the trading system can do to promote greater flows of investment and the transfer of ICT technologies, skills and related managerial competencies that come with them. The note cautions however against the dangers of ICT hubris in development terms. While there is every reason to believe that the spreading use (including through properly designed trade and investment policies) of ICTs in developing countries is an investment that will yield significant economic and social rewards, they will likely materialise in the longer rather than shorter term. Moreover, such rewards are unlikely to come in the absence of complementary policies encouraging sustainable growth and development.

I. Introduction

1. This note builds on a suggestion by the Delegation of Sweden at the May 2000 meeting of the Trade Committee concerning a possible Trade Committee contribution to the OECD "Growth Project" by considering the trade policy dimensions of economic growth in "the New Economy". The analysis put forward in this note is by essence preliminary in scope and content, reflecting the dearth of policy-relevant material of either a qualitative or empirical nature devoted to this nascent topic.

2. The note focuses on the interaction between trade policy and ongoing developments in the information and communication technology (ICT) sector, whose growth and economy-wide diffusion is most centrally associated with what has come to be called the "New Economy". Such interaction is increasingly two-way in nature. ICT applications are exerting significant changes on business models, both within and between firms and across borders. In the process, they are spawning new forms of cross-border exchanges and novel ways of contesting markets. They are also challenging the efficacy of traditional instruments of trade and investment protection and prompting policy-makers to reconsider long-standing approaches to regulation.

3. Such developments present important new challenges to trade policy, whose agenda in recent years has increasingly been concerned with the need to anticipate, accompany, facilitate and help nurture ICT-driven changes. Three such challenges appear of greatest relevance in an ICT context: (i) adapting the trading system's architecture of rules to the realities of business in the digital age; (ii) removing, in a progressive and orderly manner, obstacles that impede the development and diffusion of innovative ideas and products; and (iii) ensuring that all members of the multilateral community can share in the economy-wide benefits that the ICT revolution portends, regardless of their level of development.

II. What's new about the new economy? Some background considerations

4. The new economy and the favourable economic conditions accompanying it has been the subject of considerable recent attention in the media and financial markets, as well as in academic and policy circles. Many have hypothesised that we are indeed in a new economy that is the product of various structural changes occurring in the last two decades and that has contributed to the recent improvement in overall economic performance. For the most part, such changes have to date been confined to the OECD area, and most visible in the United States (OECD, 2000). The forces behind such changes include the effects of globalisation and increased international competition on labour and management practices and the resulting reduction in costs and improvements in efficiency associated with these changes. But most prominently, the new economy is associated with the impact of technological innovation over the last several decades that appears to have begun to bear fruit by the mid-1990's. At its core lies the pervasive role that information and communication technologies (ICTs) are playing in bringing about in a growing number of countries a restructuring of economic activities across a wide range of sectors (see Box 1).

Box 1. ICT in world trade

The United States, Japan, Europe and emerging Asian electronic producers vie for leadership in the information and communications technology (ICT) sector. U.S., EU and Japanese producers generally compete in high-value-added areas, such as software, micro-processors and product design. Meanwhile, emerging Asian countries concentrate on more labour-intensive production of commodity electronic components or final assembly of ICT equipment.

The ICT industry is characterised by relentless competition, constantly declining profit margins and rapid obsolescence, with product cycles of less than one year in some market segments. As a result, cost management and speed to market are critical to success. The need to move quickly and at low cost in a competitive global setting make ICT producers exceptionally vulnerable to factors that delay market entry. Tariff and non-tariff barriers, including standards-related measures, increase ICT suppliers' relative costs in key foreign markets and play an important role in determining their international competitiveness.

The ICT industry ranks amongst the most globalised of all major industrial groups, with production of commodity electronic components and peripherals and final product assembly largely done abroad, particularly in the rapidly emerging Asian economies characterised by lower wage costs.¹ ICT producers seek to contain costs and enhance their competitive positions by securing high quality products and components internationally, setting up foreign production and sales facilities and entering into international strategic alliances. The quest for greater scale economies has seen the sector account for a significant share of cross-border merger and acquisition activity in recent years. Recognition of the sector's high growth and development potential, in particular the scope for economy-wide technological diffusion and human capital upgrading, has provided a major important impetus to the liberalisation of foreign direct investment (FDI) regimes worldwide. However, FDI liberalisation has typically proceeded in a context of fierce (and potentially trade- and investment-distorting) locational competition among (and within) countries through various investment incentive schemes (UNCTAD, 1999).

An important characteristic of the ICT industry lies in the growing technological interdependence and convergence between its three core segments of computer hardware, computer software and telecommunications equipment. Growing convergence and interdependence is particularly evident in the essential role of each segment in the establishment and development of the Internet. While telecommunications has traditionally been a much more heavily regulated area than computers and software, the last few years have witnessed significant regulatory convergence. Such convergence, however, has led to increased standards-related barriers in certain sectors of the industry, such as the computer sector, at the same time that standards-related barriers in other sectors, notably the telecommunications equipment sector, are being relaxed in relative terms with liberalisation of telecommunications markets worldwide. Meanwhile, thanks to the Information Technology Agreement reached in the WTO in December 1996, which eliminated customs duties on a broad range of products on January 1st 2000 (see below), the ICT sector ranks amongst the least protected industry sectors in terms of formal border barriers.

¹ A typical PC designed and manufactured in the United States may contain a disk drive from Singapore, a display monitor and motherboard from Chinese Taipei, and a keyboard manufactured in Malaysia (USITC, 1998).

Exports of ICT registered the single strongest growth among all categories of world merchandise trade during the 1990's (see Table 1 below and Annex Figure 1). The sector's share of manufactured exports reached 14% at the end of 1999, up significantly from 9% in 1990. The sector's share of world merchandise exports exceeds that of trade in agriculture, mining, chemicals, and automotive products, and nearly twice the combined share of world trade in iron and steel, textiles and clothing (8%). World trade in ICT products is highly concentrated, with the top 20 exporters and importers accounting for 97 and 91% respectively of total trade in the sector (see Annex Figures 2 and 3). OECD countries account for three out of every four dollars spent on both exports and imports of ICT products, with the rest involving primarily emerging Asian countries. While all countries stand to gain from becoming more efficient importers of ICT products and related services, hence from continued liberalisation of trade and FDI in the sector, it bears recalling that the vast majority of WTO members are so far minor players in ICT trade.

Table 1: World Merchandise Exports by Product, 1990-99

	Value in 1990	Value in 1995	Value in 1999	Share in total trade 1990	Share in total trade 1995	Share in total trade 1999	Annual % change 1990-1999
Agricultural products	414,191	576,713	543,824	12.22	11.69	9.94	3.46
Mining products	482,862	521,329	556,293	14.25	10.57	10.16	1.79
Manufactures	2,390,001	3,641,829	4,186,197	70.54	73.80	76.48	7.26
Iron and steel	105,763	150,364	126,105	3.12	3.05	2.30	2.22
Chemicals	295,857	465,636	525,652	8.73	9.44	9.60	7.45
Other semi-manufactures	263,740	388,800	414,018	7.78	7.88	7.56	5.80
Automotive products	318,941	452,179	549,230	9.41	9.16	10.03	7.03
Office and telecom equipment	298,493	600,655	769,420	8.81	12.17	14.06	12.57
Other machinery and transport equipment	595,504	851,005	975,958	17.58	17.25	17.83	6.37
Textiles and Clothing	212,267	307,101	333,953	6.26	6.22	6.10	5.83
Other consumer goods	299,437	426,089	491,863	8.84	8.63	8.99	6.40
Total merchandise exports	3,388,187	4,934,452	5,473,446	100	100	100	6.18

Source: WTO

(i) Defining characteristics of the new economic landscape

5. An important characteristic of the new economy lies in its increasing - though far from complete - indifference to notions of geography, distance and time. Transaction costs for consumers and businesses alike will fall rapidly as many steps that intervene between buyers and sellers - distribution, sales, retailing - are compressed. By far the most significant impact of the development of electronic commerce will be the falling barriers and costs to market entry. Starting a new business and contesting new markets (both business to business and business to consumer markets) will be much easier, allowing a far greater number of suppliers to enter markets. Small and medium-sized enterprises, alongside large multinational corporations, can now be full participants in the global marketplace. Businesses in developing countries can now hope to overcome some of the obstacles of infrastructure, capital and transportation that limited their economic potential in the past.

6. Second, service industries, especially finance and telecommunications, but also logistics management, education, energy and seamless transportation networks, are creating the reality of a global infrastructure for the world economy. This infrastructure is greatly facilitating the adjustment and redeployment of old industries and the development of new ones. Such links usefully recall the two-way

interaction between the old and the new economies, as the latter economy is both structurally dependent upon the former and able to assist in its transformation.

7. Third, the emerging new economy is essentially a knowledge-based economy, with information and ideas as two of its most precious resources. Compared to the classical factors of production – land, labour and capital – information and knowledge are highly mobile and much less constrained in their capacity for expansion.

(ii) *Measurement challenges*

8. Despite the obvious promise of ICT-driven change, the notion of a new economy remains somewhat elusive, meaning different things to different people. Estimates of its importance vary widely, and a cottage industry seems to have sprung up in estimating the size of the new economy and its impact on growth, productivity, and other aspects of economic activity – including exports, investment and retail sales (Landefeld and Fraumeni, 2000; Barua, Pinnell, Shutter and Whinston, 1999).

9. Moreover, given the pace of change in ICTs and the myriad new ways that businesses, households and other economic agents exploit such technologies, it is not surprising that institutions that collect economic data are behind in measuring the magnitude and scope of the sector's impact on national economies. Yet if governments cannot adequately measure output, sales or cross-border trade in many of the sectors – especially services – where ICTs are important, it will likely be difficult for them to document the full potential of the new economy and to credibly state the case for, assuage the legitimate fears, and advocate the benefits from technology-driven change in the ICT sector and in industries that are heavy ICT users (Haltiwanger and Jarmin, 1999). Gaining a clearer sense of the boundaries and size of the new economy is thus of central importance to any informed discussion of its policy implications, including in trade policy terms.

(iii) *Redefining the relationship between the “old” and “new” economies*

10. Recent developments in world energy markets and the lingering sensitivities arising from discussions of further trade liberalisation in agriculture, textiles or clothing are useful reminders that “old economy” forces and relationships have hardly ceased to matter. While it seems increasingly appropriate to talk of a new economy, most of the jobs and the largest share of countries' gross domestic output (GDP) remain in traditional industries. This is especially so for developing countries, with likely implications for development and trade priorities at the national level as well for WTO negotiating dynamics.

11. Still, technological advances in the ICT sector are imparting a two-way dynamic to the interaction between the old and the new economies. There is much evidence already of how the new economy is affecting the old economy. For instance, farmers can now use the Internet to check weather conditions and soil forecasts based on satellite information and gain real-time access to trends in commodity prices. In virtually every industry, from steel to automobile parts, buyers can locate prospective sellers and make instant deals through on-line exchanges or so called “e-procurement” networks. Similarly, the demands of the old economy are driving the new economy. For example, a dynamic retail industry is using ICTs to coordinate value chains from design and marketing, to purchasing and manufacturing, to inventory management and transportation or to customer check-out and after sales service. All such steps generate demand for hardware and software applications to improve business systems. The same story applies over and over as “traditional” or “old economy” sectors become the customers and end-users for the information sector.

12. Today's knowledge-based economy is thus not so much replacing other, older economic activities – software is not about to substitute for the food people harvest and eat or the cars they manufacture and drive. But it is fundamentally altering the nature, quality and timeliness with which goods and services, be they financial services, medical advice, films or recordings - can be produced, brought to market or traded across borders. ICT applications also have the potential to significantly influence the cost structure and relative competitiveness of firms and entire industries. More fundamentally, the burgeoning electronic marketplace is changing the way economies function by making technology, information and know-how more accessible than ever before. It is making itself felt in the way skills or expertise can now be sourced from around the world; in the way production can be integrated across many different time zones and borders; and in the way information on designs, costs, markets and so forth can be shared widely and instantly. These transformational properties of ICTs are blurring the boundaries between the old and the new economies, between tradable and non-tradable products, and indeed between goods and services.

III. What role for trade policy?

13. While the private sector is clearly the driving force of the new economy, and while innovation and its diffusion appear to have prospered in a freewheeling, free-market environment, the role of governments in setting the rules of the game remains of critical importance. Governments, indeed, have a key role to play in establishing the infrastructure or framework conditions of the new economy, be it in the fields of intellectual property protection, the protection of privacy, competition policy, trade and investment policy, or labour market regulation.

14. Trade (including investment) policy has an important contributing role to play in helping countries harness the economic benefits flowing from the emerging economic landscape. Well-designed trade policies can accelerate the development of electronic commerce; spark demand for new goods and services; promote technological progress and the development of new distribution channels; help ensure low cost access to telecommunications and the Internet; and prevent the creation of unnecessary new barriers while ensuring strong consumer protection.

15. The sustained commitment to market openness that countries around the world have shown in recent years has done much to increase the size of markets available to innovators, stimulating innovative activities even in countries with small domestic markets. It has done much as well to facilitate the diffusion of innovative technologies and business practices, particularly by providing investors with a more predictable environment within which to commit productive resources over the longer-term.

16. Trade policy also helps fulfil the key micro-economic function of promoting orderly conditions of adjustment in industries and firms faced with the need to move up the value-added chain and upgrade the skills of workers. One of the seemingly counter-intuitive implications of the new economy is that it may actually strengthen the case for trade and investment liberalisation in traditional sectors. As noted earlier, many areas of the "old" economy are major beneficiaries of ICT applications. But the benefits of technological change will only be fully realised if those segments of the "old" economy are allowed (indeed enticed) to operate more freely and flexibly by responding to – and confronting – new sources of competition.

17. A potentially important systemic consideration arising in the trade policy field from new economy developments concerns the increasing disjunction between the accelerating product cycle firms face in global markets and the lengthening negotiating cycle governments contend with as the trade agenda moves ever deeper inside national borders into issues where greater domestic regulatory sensitivities arise. The blistering pace of technological progress has had profound implications for the operation of a number of key sectors, none more so than in ICT and in associated user industries (e.g. telecommunications

services, transport, or finance). Even national regulation of these sectors tends to be one step behind technological changes. Yet if multilateral trade regulation proves slow and ponderous, or if negotiated outcomes fail even to lock-in the regulatory *status quo* - a common occurrence in the first round of GATS negotiations, the risk arises of seeing waning private sector enthusiasm in multilateralism and its continued pursuit.² Non-governmental routes to securing market access and standard-setting may well prove more attractive for the private sector than the WTO route, as might *regional* inter-governmental approaches. As the Chairman of the Trade Committee notes in his scope and modalities paper, slowing momentum at the multilateral level has, as during the closing years of the Uruguay Round, seen renewed interest in regional trade agreements.³

18. While some of the concerns just noted undoubtedly owe in some part to cyclical developments – periods of buoyant worldwide growth typically lessen the sense of policy or rule-making urgency, the question arises of whether the disjunction noted above and its effects on business attitudes towards the multilateral trading system may well also display some structural traits. The tendency for countries, particularly in the developing world, to liberalise trade and investment regimes (notably in services) on a voluntary, unilateral basis, and limited evidence of policy backsliding once liberalisation has begun, may also have a role to play in this regard, as the world economic landscape is significantly more open to trade and investment than one might surmise by scouring WTO members' schedules of commitments (Sauvé and Wilkie, 2000).

IV. Building blocks for the new economy: the contribution of the Uruguay Round

19. The multilateral trading system has not been immune from the far-reaching changes spawned by the ICT revolution. While many, if not most, of the more tangible manifestations of the new economy – especially the spectacular rise of the Internet and of electronic commerce – occurred *after* the conclusion of the Uruguay Round, important new economy building blocks were laid during the last round of multilateral trade negotiations. Arguably the three most important developments in this regard were the successful incorporation in the multilateral trading system of disciplines in the areas of trade-related intellectual property rights (the Agreement on Trade-Related Intellectual Property Rights, or TRIPs); of services trade and investment (the General Agreement on Trade in Services, or GATS), as well as the considerable strengthening (and multilateralisation) of disciplines targeted at the trade-impeding effects of technical standards and other non-tariff barriers (the Agreement on Technical Barriers to Trade or TBT).

(i) Trade-related intellectual property rights

20. The contribution of a strong framework for intellectual property rights (IPRs), such as patents, copyrights, trademarks, registered industrial designs, integrated circuit topographies, to the development of knowledge-based industries is today widely acknowledged. IPRs can ensure that innovators receive an adequate return on their investments while at the same time encouraging the rapid diffusion of innovations, notably by allowing other enterprises to license innovations. Backed by the WTO's powerful dispute settlement mechanism, which the Uruguay Round did much as well to strengthen considerably, the TRIPs Agreement obliges WTO Members to protect the rights, including copyrights and trademarks, of citizens of all other Members.

² A telling sign in this regard was the lack of apparent interest in trade issues on the part of the business community at the June 2000 OECD Ministerial Council Meeting.

³ See "*Scope and modalities of further trade liberalisation*", Chairman's Note, TD/TC(2000)12.

21. Disciplines on intellectual property are especially important for trade over electronic networks, which consists mainly of selling or licensing content, such as information or cultural products like music or films, which are protected by IPRs. Trade in digital products is raising important new enforcement challenges for IPR policy. The new economy also raises the issue of expanding the scope of IPR protection into such fields as software, business models, databases or domain names.

(ii) Trade and investment in services

22. Governments at all levels of development today recognise the vital role that an efficient and vibrant service industry plays in the process of economic and social development. To a large degree, the ICT revolution has been a services phenomenon, the World Wide Web being without a doubt its most vivid expression. The importance of policy in the service sector goes beyond the sector itself. Services are essential inputs into the production of virtually all other goods and services, and producers depend on services to deliver their output to end users. Because the price and quality of the services available in an economy have major impacts on all sectors, service sector policies typically exert major effects on overall economic performance. Extending trade disciplines to the burgeoning area of services was one of the major innovations to emerge from the Uruguay Round. Simply put, as far as trade and investment in services is concerned, the GATS is the multilateral system. It offers all the benefits that the GATT has provided for goods trade for more than five decades, the most essential of which is the stability and civility provided by a system of law and the binding nature of commitments on market access and national treatment which WTO Member countries assume in their national schedules. Stability makes long-term planning possible, and in service industries where direct investment is often the only way to compete effectively in a market (including at times for purposes of selling over electronic networks), this is critical. The potential efficiency gains to be reaped from further multilateral liberalisation of trade and investment in services – a process that only just began in the first round of GATS negotiations – are considerable⁴ (see Box 2).

Box 2. The special role of services trade liberalization

An important challenge confronting the multilateral community is that of ensuring the continued relevance and adaptation of WTO disciplines to trading conditions in the digital age and of achieving faster and deeper liberalization in sectors likely to sustain growth and development in “new” economic activities. While the first set of GATS talks largely predated the advent of the ITC revolution, the negotiations that resumed on January 1st, 2000 have the new economy at its core.

A more open regime for services generally will do much to enable countries, firms and skilled workers alike to take advantage of and spark further development of the new economy. ICT applications lie at the heart of many of the fastest growing components of services trade. Many of them will feature prominently on the liberalizing agenda of the GATS 2000 round. These include energy services, environmental services, audiovisual services, express delivery, the professions, private education and training, private healthcare, travel and tourism. Similarly, the cluster of services that underpin electronic commerce – advertising, computer and information services, distribution, finance and telecommunications, as well as the movement of highly-skilled people⁵ – will also be a major focus of the talks.

⁴ Perhaps the best measure of the state of liberalization that is embodied in the GATS is the share of commitments where no restrictions are maintained on either market access or national treatment. The figure for high income countries is 25 percent of all services, for other countries, less than 10 percent (Hoekman and Mattoo, 1999). These numbers vividly illustrate how far away GATS members are from attaining “free trade” in services, and the magnitude of the task that lies ahead.

⁵ For developing countries, one of the ICT-related areas offering the greatest scope for commercially meaningful tradeoffs concerns liberalization of so-called “mode 4” services trade, involving the temporary

Deepening trade and investment liberalization in these areas in the current round can do much to create or enhance the overall environment within which “new” economic activities can flourish. It can also be expected to have a major bearing on the ability of developing countries to become more closely integrated into the world trading system and provide them with a bigger share of the growth and development benefits likely to arise from the emerging global electronic marketplace.

Trade and investment liberalization at both the regional and multilateral level has in recent years afforded countries ready-made opportunities to facilitate new entry in markets that technological advances have made contestable. It has also allowed them to revisit and reform regulatory approaches in key infrastructural sectors. This is particularly the case in financial and telecommunications services, both of which are key facilitators of new economy growth and the most important users of ICTs. The speed with which regulatory regimes and institutions need to adapt to new technologies and product offerings suggests that countries will likely remain on the virtuous (if not always legally bound) path of autonomous (i.e. unilateral) liberalization and reform. However, the recently-resumed set of GATS negotiations offers a good opportunity to lock-in pro-competitive reforms; disseminate best regulatory practices; extend their benefits on a most-favored-nation treatment basis; and send a strong signal to foreign investors on the irreversible nature of recently-enacted policy changes.

Much however remains to be done by way of regulatory convergence and international regulatory cooperation if cross-border trade in e-commerce is to fulfill its true potential. This concerns areas as diverse as data privacy; encryption technology; the development of secure payments systems; strengthened systems of prudential supervision; balancing industry calls for a right to non-establishment with government concerns over the need for local presence requirements for consumer protection or tax collection purposes; all of which raise legitimate public policy questions to which trade and domestic regulatory officials will need to find least trade- and investment-restrictive answers. While the WTO may not always be the relevant forum in which to address the above issues, there is little doubt that work proceeding under GATS Article VI.4 on domestic regulation will assume considerable relevance in the newly-resumed negotiations.

(iii) *Technical barriers to trade*

23. As tariffs on a wide range of ITC products face elimination in global markets, non-tariff barriers have emerged as the most important obstacle to trade and investment in the sector (see section VI below). Acceptance by all WTO members of the Agreement on Technical Barriers to Trade (TBT) marked a third important Uruguay Round outcome bearing directly on the development of the ITC sector. Superseding and expanding on the first GATT agreement on standards, concluded in 1979 at the end of the Tokyo Round, the TBT Agreement seeks to ensure that mandatory technical regulations, voluntary standards, and conformity assessment of products and their related process and production methods do not constitute needlessly burdensome or disguised barriers to trade nor nullify or impair tariff concessions made on products to which they are applied (ITC, 1999).

24. Of course, the three agreements described above are not the only ones concluded during the Uruguay Round that are of interest from an ICT perspective. Indeed, technological advances in ICTs portend major trade-related benefits in areas like government procurement, customs valuation and the

movement of service providers. Although traditionally a sensitive policy area in many OECD countries, labor mobility is one issue where incremental progress could be made in the new GATS round. It is also an area where opposition within OECD countries is not monolithic—there are indeed many “user” industries facing tight labor markets and skills shortages that would benefit from – and clamor loudly for – more liberal temporary access regimes. The development of coalitions with such industries could help change the *status quo*.

related fight against corrupt practices; the promotion of better governance through enhanced regulatory transparency; trade facilitation and the integration of developing countries into the global trading system. Moreover, heightened global competition in ICT industries raises important challenges for the design of - and future negotiating interest in - new, strengthened, (or possibly even relaxed) WTO disciplines in the fields of subsidy practices, investment incentives and trade-related investment measures. It is important, in this regard, to distinguish the derived benefits for trade arising from the ICT revolution from the narrower question of how the trading system is anticipating, accompanying or adapting to such developments in rule-making and liberalisation terms.

V. Harnessing the potential of trade in the digital age: post-Uruguay Round developments

25. The short period since the conclusion of the Uruguay Round and the entry into force of the Marrakech Agreement has seen three important trade policy developments at the multilateral level bearing directly on the growth of the new economy: the December 1996 Information Technology Agreement (ITA); the February 1997 Agreement on Basic Telecommunications (ABT) under the GATS and the May 1998 Declaration on Global Electronic Commerce. All three developments highlight the contribution that the rules-based trading system can make in helping to build the physical infrastructure of the global electronic marketplace. The economic and commercial magnitude of the ITA and the ABT bears recalling, as their combined trade coverage is the equivalent of global trade in agriculture, automobiles and textiles combined. Just as importantly, the conclusion of the two agreements brings the core of the technological trade of tomorrow under a rules-based system, with a credible enforcement capacity.

(i) *The Information Technology Agreement (ITA)*

26. The ITA, which was reached at the WTO Ministerial meeting in Singapore in December 1996, concerns the opening of trade in the hardware and software essential to the flow of technology and information around the world. The Agreement requires participant countries to eliminate tariffs on a non-discriminatory basis on a specific list of ICT products by January 1, 2000. These products include computer hardware, computer software, telecommunications equipment, semiconductors, and other electronic components and equipment (Sauvé and Fliess, 1998). As of 13 September 2000, the ITA had 38 participants, covering 53 Members and States or separate customs territories in the process of acceding to the WTO. Together, these participants account for 93% of trade in information technology products (WTO, 2000).

27. On September 30, 1997, follow-up discussions among ITA participants, referred to as the ITA-II negotiations, were launched with a view both to broadening the Agreement's product and country coverage and consider non-tariff barriers affecting ICT products. These latter negotiations have yet to conclude satisfactorily, owing in part to the reluctance of some WTO members to seeing ITA tariff-cutting disciplines applied to consumer electronics products (of significant importance to some developing country producers) as well the complexities inherent in tackling standards and related regulatory impediments to trade on a sectoral, stand-alone, basis.

(ii) *The Agreement on Basic Telecommunications (ABT)*

28. To be of use for trading and investing purposes, it is necessary that computers be linked through telecommunication networks. It is here that the path-breaking Agreement on Basic Telecommunications (ABT) reached in the GATS in February 1997 and which entered into force in February 1998, makes an important contribution. In those negotiations, 69 countries made commitments to allow foreign companies to supply telecommunications services in their markets, most of which had until then been state-owned

monopolies. Telecommunications is the textbook example of a sector where technology has undermined the natural monopoly rationale for regulation. The ABT is estimated to have opened up 95% of the world telecommunications market to competition, promoting pro-competitive regulatory principles in all participants and covering the vast majority of nearly US\$1 trillion in telecommunications trade. As the United States Trade Representative recently noted: *“the results of the ABT are now becoming clear, and they are remarkable: in over just two years, the ability of dominant carriers to keep rates artificially high and depress demand for telecommunications services and electronic commerce has sharply eroded, helping cut rates and access charges significantly in a number of key markets. As well, with the broader market access and increased investor stability provided by WTO commitments, new investment in undersea fibre optic cables may spark a fifty-fold increase in capacity by the end of 2001, as compared to mid-1999. And during the last five years, traffic flowing over telecommunication networks has increased ten-fold, and the rate of growth continues to rise, with Internet traffic doubling every ten days.”* (Barshefsky, 2000).

29. Like the ITA, the ABT can be broadened to new membership. To date, over half of WTO members have refrained from scheduling liberalisation commitments in telecommunications services under the GATS. Broadening ABT membership and deepening commitments among signatories will be an important objective of negotiations in the sector during the GATS 2000 round, as will be that of encouraging acceding members to participate in the ABT and enact pro-competitive regulatory reforms in the sector. As well, much attention can be expected to focus in the current talks on ensuring that interconnection charges are cost-oriented and that domestic regulatory regimes are administered in a fair and transparent manner. This will not only contribute to further declines in costs and improve efficiency. It also means that, in countries that have liberalised their telecommunications regimes, competing suppliers of Internet access will contest markets, once more enhancing the efficiency of the physical infrastructure.

(iii) The challenge of e-commerce

30. The question of how far the electronic marketplace needs to be regulated has for some years been the object of an intense debate, including in trade policy circles. E-commerce presents a rather unique challenge to policy-makers, in that the primary aim of policy has been not so much to remove existing barriers but to prevent their emergence in future. It would of course be wrong to ignore the necessary role that governments must play in helping markets, including electronic markets, to function properly whilst achieving legitimate public policy objectives. Consumer protection and the protection of public morals and national security are obvious examples, as are the protection of intellectual property and the enactment and vigorous enforcement of competition policy, which is called upon to ensure that business ventures involving creation and use of on-line trade platforms do not have anti-competitive effects.

31. Recognising the key potential that the then incipient e-commerce revolution could make to countries' growth and development prospects, WTO Members adopted a Declaration on Global Electronic Commerce at the Organisation's May 1998 Ministerial Conference in Geneva. The Declaration featured two main elements: first, a decision not to impose customs duties on electronic transmissions (until Ministers reconsidered the matter, initially foreseen by the end of 1998). And second, a decision to launch a three-pronged work program on electronic commerce under the relevant WTO bodies with a view to: (1) confirming the rules on e-commerce that already exist in the WTO; (2) identifying any weaknesses in the existing legal structures that might require strengthening or clarification; and (3) identifying any areas not currently covered by WTO disciplines where Members agree that it might be appropriate to move forward.

32. Failure to complete the scheduled Ministerial review in time, and the inconclusive nature of the December 1999 WTO Ministerial meeting in Seattle, has raised some questions over the status of the 1998 Declaration, in particular the issue of whether the moratorium on customs duties remains in force. As regards the work program, the WTO General Council agreed in July 2000 to:

1. reinvigorate the work in the WTO on e-commerce on a practical basis, which was understood to be without prejudice to any delegation's position on the status of the 1998 Declaration;
2. invite the four subsidiary bodies: i.e. the Goods, Services and TRIPs Councils and the Committee on Trade and Development, to pick up where they had left off in the work program on e-commerce within their respective spheres of competence, identify cross-sectoral issues, and report back to the General Council at its regular meeting in December 2000;
3. agree to consider how best to organise the General Council's work on e-commerce in light of the re-invigorated work of the subsidiary bodies, including the question of an ad hoc task force to assist in the consideration of subsidiary body reports and cross-sectoral issues.

33. The following is a brief itemised depiction of some of the substantive issues that have emerged from discussions on e-commerce under the relevant WTO bodies. The catalogue of issues attests to the hard work that lies ahead in adapting the multilateral system to trade in the digital age.

(1) Services Council⁶

- Technological neutrality of the GATS (including in relation to the status of technology at the time specific commitments were made).
- Distinguishing between modes 1 or 2 of supply in the context of e-commerce.
- Classification of digital "products" as either goods or services.
- Whether digital products can be considered as "like products" for the purposes of most favoured nation and National treatment
- Classification of new services that have emerged in the context of e-commerce (e.g., authentication services) and clarification of the classifications of - and improving the scheduling of - Internet access and other related services.
- Clarification of the relationship between the Annex on Telecommunications and Internet access and other related services (i.e, whether the Annex guarantees service suppliers access and use of Internet networks and services, in addition to its understood coverage of access to and use of public telecommunications networks by Internet access providers).
- Clarification of the applicability of the competitive safeguards in the ABT Reference Paper to major suppliers of telecommunications services in relation to e-commerce
- Whether e-commerce might substitute for the movement of natural persons (that it should not be used as an excuse to avoid liberalisation in this area).

⁶ See WTO (1999 and 1999a).

*(2) Goods Council*⁷

- Issues considered included those relating to: market access (ITA; trade facilitation, security export restrictions); customs valuation; import licensing; customs duties (per GATT Art II); standards; rules of origin; classification (HS, GATS or TRIPs).
- The goods vs service debate has dominated discussions, while some issues - e.g., the characterisation of electronic transmissions (GATS, HS or TRIPs) were felt to be cross-cutting issues which should be taken up by the General Council.

*(3) TRIPs Council*⁸

- Technological neutrality of TRIPs, including the issue of commitments pre-dating advances in technology.
- Issues related to: *copyright* (meaning of publication, moral rights, and reproduction in a digital context; relationship to traditional knowledge protection); *trademarks* (territorial nature of rights vis-à-vis the Internet; well-known marks; trademarks and domain names); *technology transfer* (Art 7- promotion of innovation and transfer of technology; Art 66.2 - incentives for transfer of technology to developing countries; anti-competitive behaviour); *enforcement* (jurisdiction; liability of Internet Service Providers); other (Geographical indications; industrial designs, patents, etc.).

*(4) Committee on Trade and Development*⁹

- The benefits of e-commerce for developing countries: reducing distance between buyers and sellers; reducing the need to maintain establishments abroad; reducing the need for middlemen; increased efficiency in public procurement and customs valuation; the impact of enhanced transparency on corrupt practices and the promotion of good governance; market information and knowledge. Main problems calling *inter alia* for enhanced technical co-operation include: weak human and physical infrastructure (telecommunications, financial services, energy; transportation networks); absence of competition laws.
- Other issues identified in Committee discussions include: creating an enabling environment without compromising public policy objectives; creating a favourable environment for foreign investment and competition; balancing the above objective with the need for international assistance and technology transfer; national sovereignty and tax policy; investment in education; need for appropriate regulatory frameworks; role of small and medium-sized enterprises.
- Issues for future work include: the effects of e-commerce on GATS modes 3 and 4; the effect of unrestricted e-commerce on market access for developing countries; the impact of e-commerce on developing country enterprises' ability to compete; the possible substitution

⁷ See WTO (1999b).

⁸ See WTO (1999c).

⁹ See WTO (1999d).

effects of e-commerce on trade; effects of e-commerce on inter-firm relations; impact on customs revenue; and IPR issues.

VI. Tackling non-tariff measures

34. ICT producers have encountered a variety of standards-related barriers in international markets, such as duplicative conformity assessment regimes; differing quality assurance; testing and certification requirements; and disparate marking and labelling requirements. Although standards and technical regulations are generally imposed for legitimate public policy reasons, such as protecting the safety of ICT workers and consumers and the integrity of telecommunications networks, even when countries use international standards as the basis of their domestic ICT technical standards, such standards may still often impose higher costs on foreign producers if products are required to undergo redundant testing inspection. Standards-related barriers can be extremely costly for ICT firms, both financially and in terms of lost time in bringing products to market. Delays can be especially harmful in the ICT industry because of its exceedingly short product life cycles. A firm that must take time to redesign, test, or certify its products can lose sales opportunities if its technology is no longer considered cutting edge or competitors' products have already established a foothold (i.e. enjoy so-called "first-mover advantages") by the time the product is brought to market.

35. Empirical estimates of the effects of standards-related barriers to trade are limited and methodology to measure such effects is, as with trade in services, largely underdeveloped. Costs associated with standards-related barriers are difficult to quantify, particularly costs of lost revenues due to time-to-market delays. Still, available studies suggest that the overall impact of standards-related measures on trade is substantial (OECD, 1999). The U.S.-based Information Technology Industry Council has estimated that duplication in mandatory U.S. and EU testing and certification for computers, telecommunications equipment, and other information technology products costs U.S. companies and consumers more than \$1.3 billion annually (USITC, 1998).

36. While the ITA is widely seen as having increased market access opportunities, industry observers consider that a number of related areas still need improvement, notably in the realm of standards-related issues. Indeed, industry representatives assert that the benefits of duty elimination flowing from the ITA could be reduced or nullified by non-tariff barriers (NTBs). Among the NTBs cited most frequently by ICT industry representatives are: (1) discriminatory certification, testing, and conformity assessment procedures; (2) unfair or needlessly burdensome marking and labelling requirements; and (3) proliferation of quality system registration requirements.

37. To address industry concerns about remaining standards-related and other NTBs affecting global market access for ICT products, specific provision was made in the ITA to ensure that NTBs would not undermine the commitments achieved in the agreement. An Annex to the ITA states that "participants shall meet periodically to consult on non-tariff barriers to trade in IT products as well as to review product coverage". As noted earlier, discussions under the so-called ITA-II considered, without much success to date, a range of NTBs affecting trade in ICT products.

38. Mutual recognition agreements (MRAs) offer one important means of facilitating trade and reducing the costs of multiple conformity assessment procedures in international markets. Ideally, MRAs allow manufacturers of regulated products to test such products once and obtain certification and acceptance in all markets covered by such agreements. MRAs appear to be most effective in overcoming differences in product testing and certification requirements in industries (such as telecommunications equipment) that have traditionally been subjected to a high level of government regulation. They also appear to work best among countries characterised by high levels of regulatory interaction and trust, for

which geographic proximity or long-standing economic and commercial ties may be important determinants. Not surprisingly, significant progress in tackling non-tariff measures affecting trade and investment in ICT products has taken place in various regional settings (see Box 3).

Box 3. Tackling non-tariff barriers to ICT trade at the regional level

While experience under the ITA and ITA-II suggests that addressing various standards-related barriers to trade and investment in ICT is a complex task in a multilateral setting, a number of useful policy experiments have been conducted in this area in various regional fora. One such example is the **North American Free Trade Agreement (NAFTA)**, which came into effect on January 1, 1994 and whose Chapter 9 on technical barriers to trade encompasses all voluntary standards and technical regulations, including those applicable to “process and production methods”. While the NAFTA provisions track much of the disciplines that would later be found in the TBT, its provisions on technical barriers go further than the TBT by committing the parties to “make compatible” their standards-related measures “to the greatest extent possible”, so long as this not reduce “the level of safety or protection of human, animal or plant life or health, the environment or consumers”. Chapter 9 requires mutual recognition of technical requirements when equivalence is demonstrated, as well as mutual recognition of conformity assessment procedures when parties are “satisfied” as to their adequacy. A decision not to afford mutual recognition is to be explained in writing on request. Under the Agreement, a Committee on Standards-Related Measures meets regularly to oversee NAFTA obligations. It is credited with having helped resolve many standards-related problems and encourage MRA activity in various sectors, notably in telecommunications equipment.

As in the NAFTA, the **Asia Pacific Economic Cooperation (APEC) Forum** has standards-related committees. In June 1998, APEC trade ministers agreed to a MRA covering testing and certification of telecommunications and other ICT equipment subject to telecommunications regulations. Under the terms of the MRA, ICT producers may designate conformity assessment bodies to test and certify telecommunications equipment to the technical regulations of the importing market. In keeping with the regional grouping’s reliance on “concerted voluntarism”, individual APEC economies may choose to sign and implement the MRA on a bilateral basis with other APEC economies. Hailed by some as the first multilateral MRA on telecommunications equipment, the agreement does not, in and of itself, create legally binding international obligations. According to US trade officials, the APEC MRA will boost trade in telecommunications and ICT products among APEC members, affecting about \$45 billion in 1998 trade flows, or one third of the global market. (USTR, 1998).

Under the guise of the **New Transatlantic Agenda (NTA)**, which has subsequently become the Transatlantic Economic Partnership, or TEP), the United States and the European Union concluded in June 1997 an MRA covering over \$60 billion of trade in ITC equipment and non-ICT products (pharmaceuticals, medical devices and recreational craft). A major objective of the MRA is to help reduce the cost of testing and certification in the regulated sectors. The agreement foresees mutual acceptance of test data to U.S. and EU regulations during a two-year phase-in period, after which certifications performed by any facility in the United States or the EU recognised under the MRA will be accepted. Dispute resolution under the MRA will be handled by a Joint Committee and Joint Sectoral Committee for ICT products, with decisions requiring the consent of parties. Estimates of the MRA’s potential direct savings to industry (in reduced regulatory costs) have been put at \$1.3 billion, with additional gains resulting from reduced time to market.

39. MRAs are not without drawbacks, however, and may not always be the most effective means for reducing conformity assessment costs in ICT products. For one, experience has shown that such agreements may take considerable time to conclude, particularly if they require parties to agree to some minimal harmonisation of regulatory requirements or are conducted on a multi-sectoral basis. Such delays are especially troublesome in the ICT sector given the rapid obsolescence of many products. As well, MRAs may require that countries with less regulated systems introduce needlessly burdensome regulatory

requirements. While expanding trade and investment opportunities among MRA signatories, the typically bilateral nature of many such agreements may, as in the case of regional trade agreements, potentially impede trade with non-participants.¹⁰

40. In addition to MRAs as possible tools for overcoming multiple testing and conformity assessment requirements in international markets, other, potentially less trade-restrictive means for accomplishing the objectives of technical regulations can be considered. Options in this regard include the unilateral recognition of other countries' conformity assessment results and reliance on suppliers' declaration of conformity.

VII. Addressing the Digital Divide: the contribution of trade policy

41. Many observers have drawn attention to the new economy's potential to narrow the gap between countries and regions, pointing in particular to the capacity afforded by ICT applications to open the way to free and equal access to information and knowledge (Ruggiero, 1998). The last few years has indeed seen a number of developing countries leap-frog costly (and potentially environmentally taxing) phases of industrial and technological development – for example in mobile telephony, with potentially significant implications for the efficiency of activities as diverse as small-scale farming, health care delivery or handicraft exports.

42. Care must however be taken not to succumb too readily to irrational new economy exuberance by viewing ICTs as a kind of magic bullet for developing countries to use to advance their social and economic development. An important challenge for policy, including trade policy, is thus to determine in an objective and rigorous manner whether such developments can be replicated across countries and various cultures and to adjust development assistance and technical cooperation efforts accordingly. As one informed observer candidly pointed out in a recent paper: *“Unfortunately, translation of a utopian vision of the positive impact of ICTs on the developing world into reality is not so simple. In practice, whether or not a developing country can build an ICT-based economic or social sector depends on overcoming many of the same microeconomic and macroeconomic barriers that have long contributed to its underdevelopment: what is the state of its educational system? How are telecommunications costs regulated? Is there a reliable transportation network? Are there limits on foreign direct investment? What sources of investment capital are there for small or medium sized businesses? Is there a tradition of capitalist entrepreneurship in place? Plus a number of newer concerns: what kind of intellectual property rights protection is in place? What sorts of data networks are present? Is there competition in the provision of internet services? The list goes on and on. Is this a realistic vision? The short answer to these questions is Maybe. The slightly longer answer is We Are Trying to Figure This Out. And the most insightful answer from the people who devote their lives to these questions is We Really Hope So!”* (Kirkman, 1999).

43. Research suggests that the digital divide between the “connected” and the “unconnected” is being driven by a number of factors that include first and foremost poverty itself, which in turn translates into a

¹⁰ In 1997, the WTO Committee on Technical Barriers to Trade noted the emerging interest in concluding MRAs at the regulatory level by WTO countries on a bilateral basis. It also noted concerns that had been expressed on “possible difficulties and problems associated with MRAs.” (WTO, 1997). These included problems related to cost, transparency, their discriminatory nature, opportunities for countries to enter into bilateral MRA negotiations, the need to take into account the quality of conformity assessment procedures rather than the origin of the product, and the efficiency and effectiveness of MRAs to solve problems of multiple testing and conformity assessment procedures.

lack a lack of understanding about the uses of technology.¹¹ Public policies that hinder the spread of ICTs can also pose important new economy roadblocks. While such observations speak to realities that may be observed within OECD countries, they are even more germane to developing country settings. As the policy rules of thumb described in Box 4 show, trade and investment liberalization can play a useful complementary role in addressing some of the root causes of the digital divide.

Box 4. Harnessing the development potential of ICTs: policy requirements

While many factors contribute to the successful introduction and use of ICTs in developing countries, one of the key ingredients is the availability of information and communication hardware. Without basic infrastructure, none of the best case scenarios for ICT usage – telemedicine, educational technology, electronic commerce, etc. – can take off and prosper. The key to coordinating efforts to make the global information infrastructure truly global and push national information infrastructures into rural areas, is to determine how far market forces will carry the process, and fill the gap with concerted action by government and other non-private actors, with the support of the international development community. This is not just a theoretical question from an economics text on market failure, but a real question about the respective roles of private and non-private actors in the provision of new technologies in the developing world, about the willingness of governments to make difficult budget tradeoffs and about the most effective use of international financial and intellectual resources.

One of the most promising areas of electronic commerce that is especially suited for developing nations with high educational levels and reliable physical and telecommunications infrastructure is technology-mediated information service processing. There has been a global boom in international trade in such services, part of which has manifested itself in forms ranging from software engineering in India to claims processing in Jamaica or remote bookkeeping in Zimbabwe, all of which are performed at a considerable distance from the business source. There are two main drivers for the success of this kind of model. On one hand, the rising quality and declining cost of technology (particularly the advent of more advanced data compression technologies) allows services to be carried out over global networks. On the other hand, the continuing discrepancy in wage rates between developing and developed nations allows firms to use a labor arbitrage model to contract out services to low cost service providers. Secondary drivers are factors such as language, time zone differential, training, and data security, all of which assure the competitiveness of offshore outsourcing models with local counterparts.

¹¹ The catalogue of statistics depicting the connectivity gap includes a number of disquieting entries, all of which need to be borne in mind in assessing the transformational properties of the new economy and the role trade policy can play in diffusing them in the developing world half of the world's population has never even made a phone call; According to the International Telecommunications Union, at the beginning of 1997, sixty-two percent of the world's main telephone lines were in 23 countries in the developed world. These countries have fifteen percent of the world's population; there are fewer telephone lines in all of Africa than in Tokyo; twenty-five percent of the world's countries have a teledensity of less than 1 – in other words, there is less than one telephone line per 100 people. Sixty percent of the population in the developing world live in rural areas, yet over eighty percent of main telephone lines are in urban areas; eighty-four per cent of mobile cellular subscribers, ninety-one percent of all fax machines and ninety-seven percent of Internet host computers are in developed countries; one third of the world's population has no access to electricity (Kirkman, 1999).

The major bottlenecks already existent in international trade such as customs handling, shipping issues, transportation logistics, and poor physical infrastructure will continue to plague many forms of electronic commerce-facilitated transactions. For this reason, trade and investment liberalisation in services and in digital products will continue to drive most electronic commerce in developing countries.

Policy-makers must attend to a number of areas of concern to create a regulatory, educational and overall policy environment in which connectivity can be encouraged and more importantly, in which fruitful applications of that connectivity can flourish. The following rules of thumb, which flow from the “Networked World Readiness Project” developed by researchers at the Information Technologies Group at Harvard University’s Center for International Development¹² include a number of policy parameters that are amenable to trade, investment and competition policy contributions:

Competition is Good. The greater the competition, the more vibrant the growth of the IT sector, and the more economic growth. Monopolies in the telecommunications sector, especially in the markets for cellular telephony and Internet service provision, stifle growth. Indigenous competition in internet service providers (ISPs) should especially be encouraged to create strong local content.

Encourage Market Forces. Let the private sector take the lead in extending services. If the right incentives cannot be put in place for private firms to provide the services, then identify the sources of market failure – the Canadian model of the information superhighway is one that focused on connectivity of rural northern communities education (encouragement and incorporation of technological platforms for education). Is connectivity a fundamental human right? The Government of Spain recently declared that it believes that it is.

Protect Intellectual Property Rights. If developing countries wish to join the growing global information economy, then it is essential to guarantee IPRs. Given the ever-expanding international data backbones, it is all too easy to divert data flows and digital products away from countries that do not ensure their protection.

Focus on Education. The future of information and communication technologies in developing countries is dependent upon the educational system of a nation. The sophistication of any IT infrastructure that is introduced into any environment is meaningless if people don’t have the skills to (1) know what to do with it and (2) be able to use to their best advantage. The successes of Bangalore and Madras, as well as the recent economic booms within Ireland and Finland can be directly correlated to their highly educated labor forces and high degree of IT skills.

Connectivity Doesn’t Matter if No One Can Afford to Pay for It. As long as the cost of telecommunications service remains high, the impact of ICTs within developing nations will be extremely limited. Pricing plans that charge high per minute or hour of use charges are a major obstacle to widespread use of the Internet and other communications devices. Most governments, however, are unwilling to relinquish control over one of their few “cash cows.” Even when governments commit themselves to the path of privatization or increased competition, they often postpone the actual arrival of these events for a number of years, citing the need to “prepare” themselves. Such a tendency can only set countries back even more in terms of reaping the benefits that ICTs can bring to their societies.

¹² See: “Readiness for the Networked World: A Guide for Developing Countries”, available at <http://www.cid.harvard.edu/ciditg/projects.html>

VIII. Final thoughts

44. Like any first adventure in uncharted waters, the analysis contained in this note is by essence tentative and incomplete in both scope and content. Many issue-areas that are closely related to the new economy, and which have potentially significant implications for trade policy and future rule-making approaches at the regional or multilateral level, have not been taken up. This includes issues such as trade in biotechnology products and its links to the WTO Agreement on Sanitary and Phytosanitary Standards (SPS Agreement) and ongoing discussions on trade and environment; the scope for more comprehensive rule-making approaches in the field of investment given the potency of foreign direct investment as a vector of technological diffusion; or the relationship between intellectual property protection and competition policy. Similarly, the note has not attempted to document in empirical terms the degree to which cross-border trade and investment activity, both regionally and globally, has become more ICT-intensive. Nor has it addressed the question of whether (and how) the spread of ICT applications is affecting the trade policy demands of old economy industries, such as steel, textiles or shoes, that have long enjoyed a higher level of trade protection in OECD countries. All are questions to which answers could be sought through future work, including through collaborative work with other OECD Directorates and Committees, should Members so desire.

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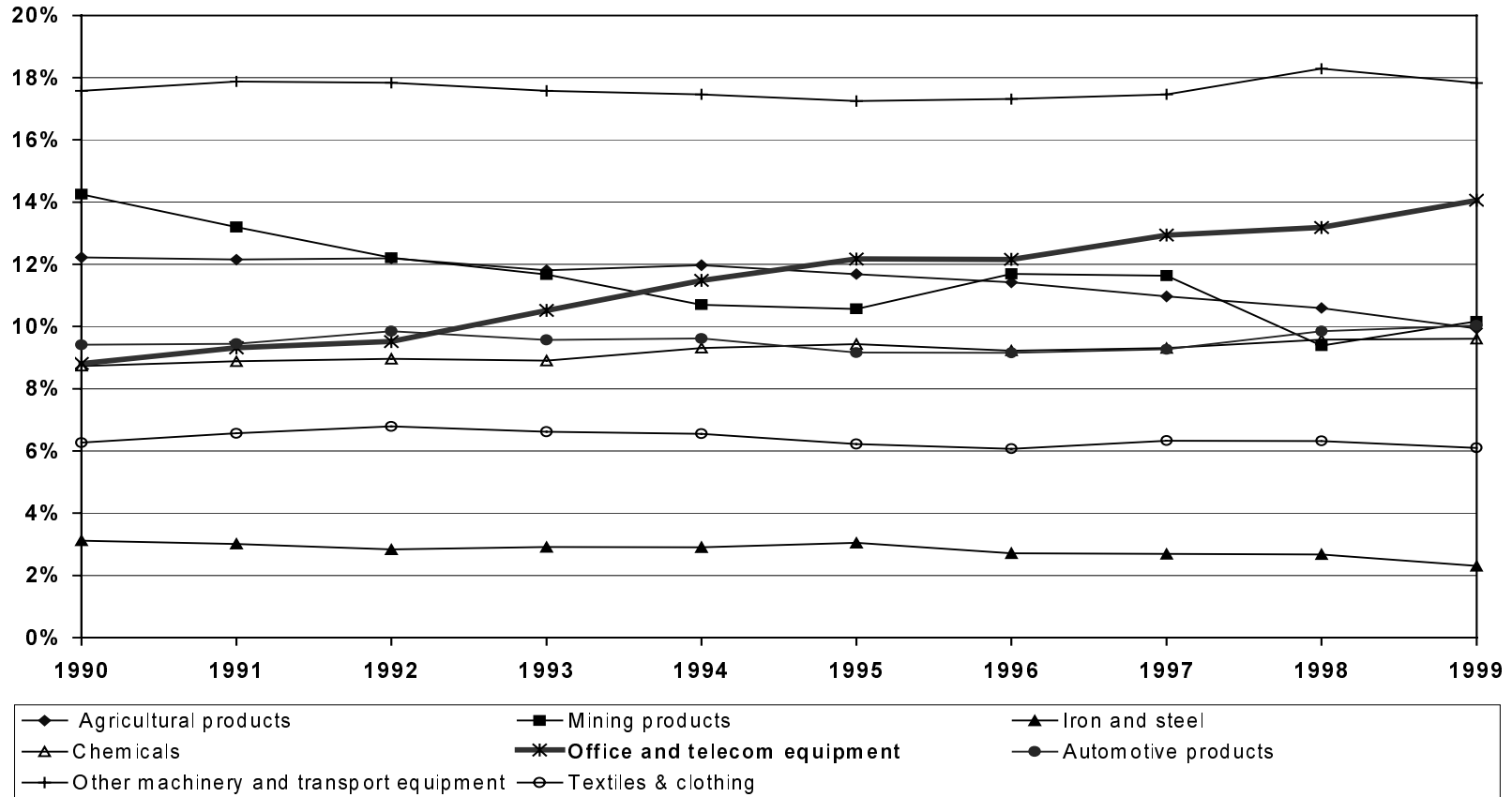
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Annex Figure 1: Share of World Merchandise Exports by Selected Product Categories, 1990-99

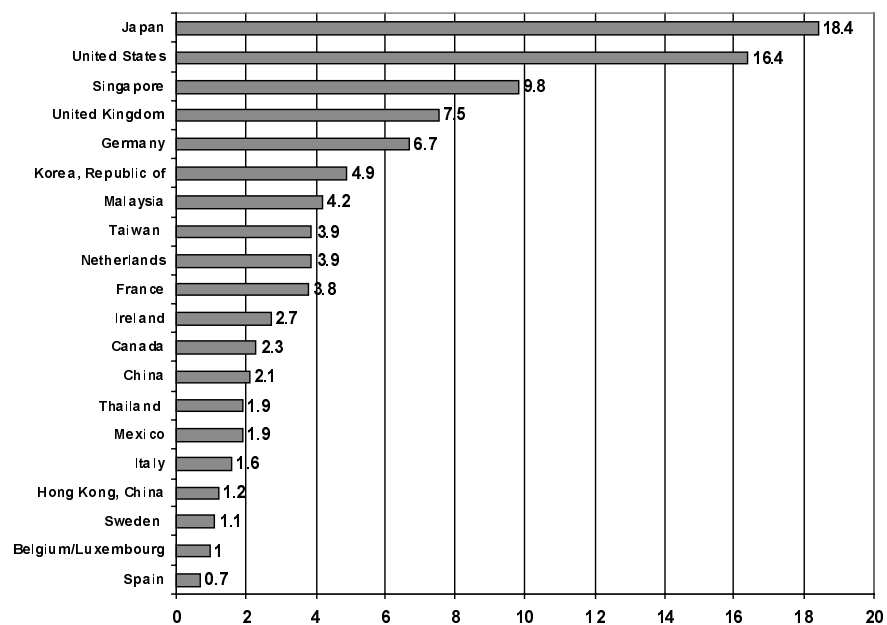
percentages



Source: WTO

Annex Figure 2: Top Twenty Exporters of ICT Products, 1998

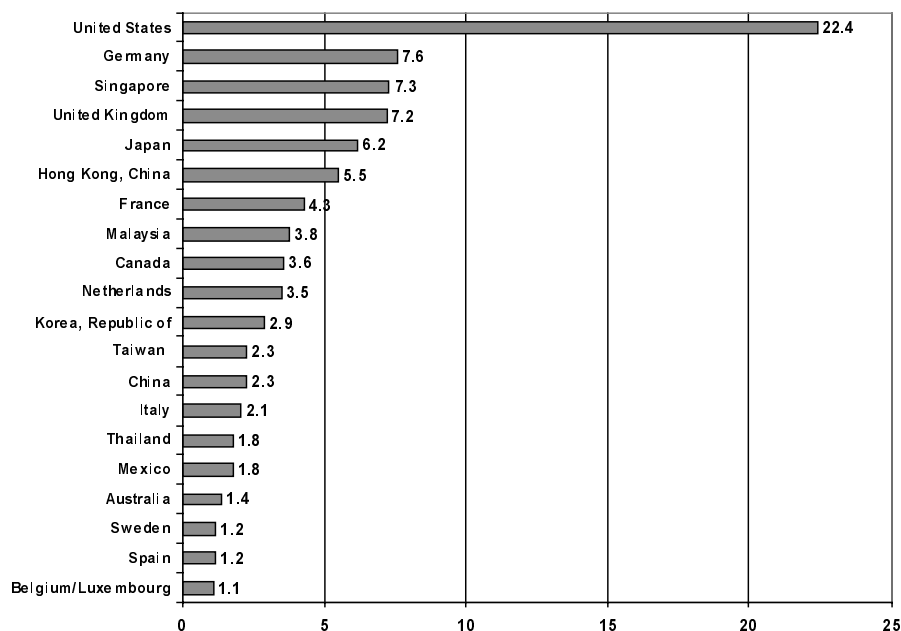
(in percent of world exports)



Source: WTO

Annex Figure 3: Top Twenty Importers of ICT Products, 1998

(percent of world imports)



Source: WTO