Working Party of the Trade Committee

ELECTRONIC COMMERCE: A CLUSTER APPROACH TO THE NEGOTIATION OF INPUT SERVICES
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Executive Summary

This paper considers the question of whether a "cluster" approach to essential electronic commerce "input" service sectors would be a useful tool for achieving greater liberalisation and promoting the development of e-commerce. This idea originated in Working Party and Experts Meeting discussions on taking a cluster approach to the negotiation of inter-related service sectors. The cluster approach involves grouping together sectors that are inter-dependent in order to reflect commercial linkages between them when preparing for negotiations. There are several reasons for which a cluster approach may be contemplated: to address classification problems, to group commercially related sectors or as in the present case - to encourage an activity involving several services sectors.

Electronic commerce, defined broadly as "the production, advertising, sale and distribution of products via telecommunication networks", is expanding rapidly, particularly commerce that is Internet-based. However this development is not even; there are wide disparities of access to electronic networks between and within countries, even those characterised by an overall high level of Internet usage. Governments are increasingly adopting programmes aimed at facilitating the orderly development of electronic commerce, such as legal frameworks for the protection of data and the recognition of electronic signatures. At the multilateral level, the Information Technology Agreement (ITA) agreed by WTO Members in 1996 has guaranteed the reduction and/or elimination of tariffs on a wide range of IT products. Efforts to develop legal frameworks to underpin the development of electronic commerce are complemented by services trade liberalisation in key sectors, notably in telecommunications and financial services.

The integration of the Internet into international commerce has a particular significance for services, not only because many services are amenable to trade via electronic networks but also because of the role services play in enabling electronic commerce to take place. There is general agreement among WTO members that the vast majority of transactions that take place by electronic means involve trade in services. However, electronic trade raises some questions in the GATS context that are currently under consideration at the WTO. These include the nature of electronically delivered content and the question of which mode(s) of supply apply to electronic transmissions. Whether or not the GATS is technologically neutral is another issue to be clarified by Members.

One difficult aspect of a cluster approach is that of delimiting its scope. For an e-commerce inputs services cluster, examining the supply/value chain for a common type of electronic commercial transaction may lead to "drawing the line" at the following essential input services: telecommunications, financial, computer and related and delivery (postal and courier) services. Other, more extended, clusters for e-commerce - involving, for example, advertising services, legal services, market research services - may also be envisaged. However, the more extensive a cluster is, the less likely it is to be useful in terms of securing Members’ commitments in most or all areas.
Telecommunications networks and services form the basic infrastructure for electronic commerce; it would be difficult to imagine an e-commerce cluster that did not include this essential input. Similarly, financial services, and in particular payment services (electronic funds transfer, processing of cheques, credit card services) are necessary inputs to all forms of commercial activity. Computer services, software services and related data-base and data processing services are essential elements of Internet transactions and applications. Finally, the delivery aspect for products traded electronically and delivered physically is an important complementary support for electronic trade. The advantages to be gained in time-saving and convenience that are associated with e-commerce are somewhat undermined if the delivery aspect is inefficient.

This type of cluster raises some questions. Firstly, financial and telecommunications services are essential inputs to almost any type of commercial activity; in effect, rather than asking if they should be part of a cluster, the more appropriate question may be in which cluster would they not appear? In light of their general infrastructure role, is it appropriate then to negotiate them as part of a specific cluster? And is there a problem with overlap between, for example, an e-commerce cluster and a sector-based cluster that includes the same sector? The answers to these questions may lie in the purpose for which Members use clusters. If it is simply for Member's private reflection in preparation for requests and offers, these overlaps may not be particularly worrisome, as the cluster will still permit some reflection upon sectoral linkages. However, if the clusters are to be agreed as a basis for negotiated commitments, the type and content of a cluster would need to be agreed, without inconsistencies with other co-existing clusters.

I. Introduction

1. The aim of this paper is to consider whether the objective of encouraging the orderly development of electronic commerce could be served by taking a cluster approach to the negotiation of electronic commerce "inputs" or "infrastructure" services. It responds to the request made by the Trade Committee Working Party at its June 2000 meeting, in the context of its and the Services Experts Meeting’s discussions of a cluster approach to inter-dependent services sectors.1

2. The use of electronic mediums - telephone, fax, television, and in particular the Internet - for trading goods and services is, according to all estimates, developing rapidly and creating new and accessible international markets. In 1998, there were 145 million Internet users worldwide, and 257 million in 1999. This figure is predicted to reach 600 million for 2002.2 According to one estimate, the Internet-driven economy will grow by a factor of six over the next four years, resulting in a US$4.48 trillion Internet economy in 2004. Of this figure, Internet commerce is estimated at US$2.5 trillion, the remainder being accounted for by infrastructure spending.3 Not only does the Internet add a new dimension to trade by the marketing, sampling, ordering and payment possibilities it offers, the online environment also permits delivery of goods and services which may be converted into digital format.4 Apart from the importance of its role as a means of trade, the development of information and communications technology

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4. The classification of this digital content as a good, a service or something else, is as yet unresolved, and currently under discussion at the WTO. The term "product" is employed in the paper to designate both goods and services.
has a positive impact on trade facilitation because of the efficiency gains that result from the automation of customs procedures.

3. The benefits associated with electronic commerce, both for traders and consumers, are widely recognised by policy-makers. However, the degree to which the advantages associated with electronic commerce may be realised depends upon access to telecommunications infrastructure with sufficient capacity, which in turn depends upon access to IT equipment and the necessary supporting IT and telecommunications services. Unsurprisingly, the country reporting the largest volume of e-commerce transactions to date, the United States, has a corresponding high level of telephone penetration: 59.5 per hundred inhabitants, (compared with, for example, India, 1.1 telephone per one hundred inhabitants).\(^5\) Indeed, the global expansion of the Internet, while rapid, is also uneven. Many developing countries find themselves on the "unconnected" side of a "digital divide" (see Box 1.) This technological marginalisation is not confined to less developed countries however; even in countries with high Internet penetration, factors such as race, age, education, income and geographical location can lead to disparities in levels of Internet usage.\(^6\)

4. Governments are increasingly adopting policies aimed at facilitating the growth of e-commerce. New legal frameworks for the recognition of electronic signatures, the protection of data transmitted over electronic networks, public-private partnerships for the development of e-commerce and IT education initiatives are just a few examples of policies introduced at the national level in OECD member countries. These are complemented by liberalisation and pro-competitive regulatory reform in telecommunications sectors. With regard to telecommunications services, significant liberalisation at the multilateral level was achieved by the negotiation of the sector after the Uruguay Round, and the adhesion of 69 WTO member countries to the Reference Paper on regulatory principles in the Agreement on Basic Telecommunications, adopted in April 1997. These are not the only elements required for the effective encouragement of electronic commerce; regulatory frameworks addressing privacy, security of payments and the protection of intellectual property need also to be developed to foster confidence in electronic trade. In addition, care should be taken that existing domestic regulation does not unnecessarily constitute an impediment to the development of e-commerce.\(^7\)

5. Efforts at the multilateral level - e.g. OECD, WTO, UNCTAD - reflect the growing consensus that the development of e-commerce brings important economic and social benefits in its wake. Substantial work is underway in order to determine how best to adapt current legal frameworks and commitments to the new challenges associated with electronic trade. WTO members agreed in 1998 on a comprehensive work programme to examine all trade-related issues relating to global electronic commerce, and a temporary moratorium on the imposition of customs duties on electronically delivered products, to be reviewed at the 3\(^{rd}\) session of the Ministerial meeting.\(^8\) Given the failure to conclude discussions on this


\(^7\) Aspects of domestic regulation may represent significant barriers to the growth of e-commerce. Mattoo & Schuknecht for example, argue that such impediments are more important than those created by tariffs and quotas. Should Delegations find it useful, a consideration of this subject could be an area of future work; see section 6.

subject at the Seattle Ministerial, there is no consensus among Members on whether the moratorium is still in place, though some Members have proposed to make it permanent.9

6. The integration of the Internet into international commercial relations has a particular significance for services trade because of the number of services that may be traded electronically and the role that services sectors play in enabling commerce by electronic means to take place. Already, the value of world-wide electronic trade in the services sectors of "business services"10 has been estimated at over US$260 billion.11 Trade that formally takes place over telecommunication networks is boosted by the growing prominence of Internet-based commerce, and new means of trading services that traditionally relied upon a physical format (e.g. engineering consulting services) are facilitated. Trade liberalisation in key sectors such as telecommunications, financial services and computer and related services, has contributed to the encouragement of e-commerce, as has, on the goods side, the adoption of the 1996 Information Technology Agreement (ITA) by 53 WTO members and States or separate customs territories in the WTO accession process.

7. This paper considers the possibility of continuing the enabling role played by services trade liberalisation in the encouragement of e-commerce through the use of a cluster approach to the negotiation of commitments in specific service sectors. It suggests grouping together in a cluster services that are essential to e-commerce, for the purpose of negotiating better quality commitments and thus serving the overall objective of realising the full potential of electronic commercial activity.

8. The paper begins with a consideration of the various meanings associated with the term "electronic commerce" (section II). Section III discusses e-commerce issues that arise in the GATS context, and notes the importance of liberalisation in specific services sectors for the use of the Internet. Following on from this idea, the fourth section considers the possibility of enhancing these benefits by taking a "cluster" approach to the liberalisation of essential services sectors. The use of clusters for negotiating inter-related services sectors has recently been considered by services experts and delegations.12 This section considers the application of this approach to electronic commerce. An illustration of a possible e-commerce inputs services cluster is presented in section V, and the final section discusses some of the issues raised by this cluster.

II. What is "e-commerce"?

9. There is no generally agreed definition of "electronic commerce". The term is generally used to refer to trade (which may encompass publicity, information, ordering, delivery and even consumption) via electronic networks, and in particular, via the Internet. The lack of a uniform definition of electronic commerce makes it a phenomenon that is particularly difficult to assess statistically in global terms. Two indicators that are often used for this purpose are the number of Internet hosts and the number of secure

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10. W/120 classification chapter 1.
12. The Secretariat’s paper "Using cluster approaches to specific commitments for interdependent services" (TD/TC/WP(2000)9) was considered by the Services Experts Meeting in May 2000, and the revised version of this paper by the Trade Committee Working Party at its September meeting. This paper was de-restricted under the responsibility of the Secretary-General in October.
servers in a given country. A survey undertaken in March 2000 in OECD countries based upon the level of these two elements reveals that Internet activity - and therefore one can assume commercial Internet activity - is expanding rapidly. An even more difficult task is the measurement of the value of e-commerce transactions. Estimates vary widely depending upon the definitions used and the way statistics for transactions are compiled.

10. In response to the growth in electronic commerce and in an effort to create an enabling legal environment, the United Nations Commission on International Trade Law (UNCITRAL) adopted a Model Law on Electronic Commerce in 1996. This “framework law” addresses inadequacies in national communications and technology legislation. The model law prescribes procedures that may be transposed into national laws to provide an equal treatment for users of paper-based documentation and users of computer-based information. In addition, at the international level, it is envisaged that the model law may be a useful tool for the interpretation of international legal instruments that create barriers to the development of electronic commerce, by, for example, requiring certain documents of contracts to be in "written", "signed" or "original" form.

11. The model law does not define the notion of "electronic commerce". It does however provide a non-exhaustive list of communication modes based on electronic transmissions that may be encompassed in a definition of electronic commerce. The list includes Electronic Data Interchange (EDI), the transmission of electronic messages using either publicly available or proprietary standards, electronic transmission of free-formatted text via the Internet, telex or telecopy. Many countries have subsequently adopted or incorporated principles of the Model Law in their national legislation.

12. The WTO uses the following working definition of electronic commerce: "the production, advertising, sale and distribution of products via telecommunication networks". This is particularly broad, both in the commercial activities encompassed and the means offered by telecommunication networks. Electronic commerce can thus take place using a variety of information and communication technologies: the telephone, fax, electronic payment and money transfer systems, EDI and the Internet.


14. Using a "functional equivalent" approach, the model law identifies basic functions of paper-based form requirements, with a view to providing criteria that may be then applied to data-based messages, to allow them to enjoy the same legal recognition as their paper-based counterparts. See, for further information, "Guide to Enactment of the UNCITRAL Model Law on Electronic Commerce" (1996), http://www.uncitral.org.

15. EDI may be defined as a way of exchanging information using separate and proprietary systems, typically used for the automatic transmission of information between businesses. It's "closed" nature, due to the fact that access is restricted to registered users, distinguishes it from the Internet, however with the development gateways to the Internet and the consequent possibility for EDI to operate on open networks, this distinction will become less important/clear-cut.: WTO, Electronic commerce and the role of the WTO, Geneva, 1998.


18. While the common element therefore in these attempts to define electronic commerce is the use of information and communication technologies for commercial activity, the activities covered may vary. For the purposes of compiling statistics as to the value represented by this type of commerce, a narrow definition is often preferred. For example, transactions in which marketing and ordering take place by electronic means, but payment and delivery are by conventional means may not be counted as "electronic commerce". As a result, activities outside of the actual transactions are not always captured, and the
13. Despite the array of existing electronic transmission technologies that may be used for commercial activities, there is little doubt that Internet-based e-commerce has expanded (and continues to grow) at a remarkable rate. This is due primarily to its versatility and the new possibilities for interaction between users that it offers. The rapid growth in numbers of Internet users may be explained by the combination of several factors: technological advances, regulatory reforms (in particular in the telecommunications sector) and declining prices for computer hardware. Unhampered by traditional communication barriers of time and distance, the Internet makes possible interaction in an environment where text, sound and images may be exchanged at a low cost. In a commercial context, this opens up new markets and new possibilities to advertise, sample and obtain information, order, pay for and even consume products.

14. The most significant share of e-commerce takes place between businesses (“B2B”) and involves typically large online transactions of industrial parts and components; these transactions account for between 70 and 80 per cent of all electronic sales. Business-to-consumer e-commerce (B2C) has the second-largest share, and covers retail activity conducted over the Internet. Less significant (in terms of volume) types of e-commerce are “C2C” - where consumers trade directly between themselves -e.g. via auction sites, and “C2B”, where consumers drive the commercial process (e.g. airlines competing to give travellers the most competitive prices for tickets).

15. Commerce via electronic means involves therefore the following core goods and services elements:

- telecommunications infrastructure with sufficient capacity,
- IT equipment, (i.e. computers, modems, appropriate software) and internet access services, in order to have access to the infrastructure,
- web-hosting and web-page design services,
- properly functioning (i.e. secure) payment systems,
- necessary supporting information technology, computer and telecommunications services,
- delivery (postal and courier) services,
- transport services, and
- distribution services.

19. The Internet, an open communications system that may be described as a network of information and communication technology networks, is the principal "instrument" of e-commerce. Relying upon telecommunication networks consisting of wires, cable and satellites, the Internet is based on an open and non-proprietary protocol (a series of rules and specifications that enable information transmission). Users can connect to the network from devices such as the computer, which is the most commonly used, but also televisions and mobile telephones, using the services of an Internet services provider (ISP).


22. The inputs cluster discussed in this paper is limited to core services elements.
Other services that may often be involved in electronic commerce are:

- legal services,
- advertising services,
- market research services,
- photographic services.

Box 1. E-commerce, development and the "digital divide"

The development of the Internet electronic commerce has the potential to facilitate the integration into the multilateral trading system of developing countries, both through the possibilities it affords for enhancement of traditional trading methods and meaningful participation in the global digital economy. Benefits derived from e-commerce are not confined to the facilitation of exports; countries that are principally importers of services, like many developing countries, may equally gain advantages from reductions in transaction costs and time efficiency gains. Medical, educational and engineering services are just a few examples of services that may be available at lower cost by Internet.

To date, lack of physical infrastructure is often cited as the principal obstacle to the growth of e-commerce in developing countries and the reason for which, in the majority of developing countries, Internet access is neither good quality nor affordable. It is often the case that telecommunications services are supplied by the state monopoly provider, who is also the monopoly supplier of Internet access. In addition, the distribution of telecommunications capacities tend to disadvantage consumers in developing countries, as does the level and structure of telecommunications services pricing. Local calls, for example, are often not included in the cost of the connection to the Internet, and thus represent an added cost.

The much-talked about "digital divide" persists, despite a higher growth rate in developing countries of telecommunications infrastructure. In terms of telephone access, the average among OECD member countries is over 55 telephone mainlines per 100 inhabitants. In Latin America and the Caribbean region, telephone availability is approximately 20 per cent of the OECD average, and even less in most of the developing world. Even in transition economies where the number of telephones is relatively high, the infrastructure is typically outdated and low quality. This disparity is more marked for the distribution of Internet hosts. In July 1999, according to an ITU survey, developed countries had 312 Internet hosts per 1000 inhabitants, compared to six Internet hosts in developing countries for the same number of inhabitants. Eighty-eight per cent of all Internet hosts were located in the USA, Canada and Europe.

If inequities between countries in terms of access to good quality affordable telecommunication services are not addressed urgently, the rapid expansion of e-commerce could bypass developing countries and widen the digital divide. In this connection, liberalisation of telecommunications sectors, allowing private-sector operators to enter the market, subject to regulation by an independent body is put forward as one fundamental necessary step. Such measures need to be reinforced by continued efforts to make hardware and software accessible. Finally, developing countries need to be able to have access to developed country markets, to which they can export services electronically.

The potential of ICT development for developing countries should not be over-estimated; complementary policies are required that ensure conditions for sustainable growth. Of particular importance is a favourable environment for foreign investment, regulatory frameworks in the telecommunications sector and IP protection, in addition to tackling the traditional obstacles which continue to apply: for example, inefficiencies in customs handling, transportation logistics and poor physical infrastructure.

III. E-commerce and the GATS

16. The general view expressed by WTO members at the 1999 Ministerial Conference in the context of the WTO electronic commerce work programme, is that the vast majority of Internet transactions involve services. In this connection, three types of transactions were identified: (i) service transactions that are completed on the Internet (i.e. from selection to purchase to delivery); (ii) service transactions partially completed online and partially (the distribution aspect) by traditional means (i.e. selection and/or purchase online, delivery by conventional means); (iii) transactions having a telecommunication transport function, e.g. the provision of Internet access services.

17. Apart from the advertising, publicity, ordering and payment facilities that electronic means provide for services trade, many services (or aspects of services) may be delivered electronically. The recent explosion of online banks and travel reservation services sites are just two prominent examples of the potential for creating new markets for services suppliers to exploit, unhampered by geographical and time-zone factors that limit international supply by conventional means. Indeed, it has been noted that some service sectors become more tradable over the Internet, such as retailing and auction services, because of these new possibilities to unite sellers and buyers (or, in the case of auction services, sellers and many potential buyers).

18. The legal clarification of the "technologically neutral" nature of the GATS is important in this context. A confirmation of this principle would mean that all delivery technologies are covered by commitments made for a given mode, unless otherwise specified. If, for example, a WTO Member makes commitments to allow the cross border supply of legal services, these services may be supplied via a number of means, such as fax, e-mail, or letter post. All of these choices are available under the commitment. The choice of means will not affect the classification of the service, supplied "from the territory of one Member into the territory of any other Member" (mode 1) unless a distinction is made when commitments against that mode are scheduled. This question arose during the negotiations on basic telecommunications services, when the principle was confirmed in a Negotiating Group Chairman's note.

19. However, the development of Internet-based trade raises new legal and conceptual questions, many of which are yet to be resolved. Assuming that the GATS is technologically neutral, and thus that electronic delivery of a service is covered by commitments taken (unless otherwise specified), under which modes should electronic transactions be classified? While electronic supply may take place under any of the four modes, it is perhaps natural to think of e-commerce essentially in terms of mode 1 (cross-border supply). But, the distinction between mode 1 and mode 2 (consumption abroad) can sometimes be unclear. Taking the example above of legal advice, with a slight modification: rather than sending by email the legal advice from the lawyer’s computer in country A to that of the client in country B, the lawyer...
makes available the advice on his or her web site. To have the advice, the client in country B must access the web site, located on a server in the lawyer’s jurisdiction – country A. Such a transaction would seem to resemble more service supply via mode 2 – supplied “in the territory of one Member to the service consumer of any other Member”\textsuperscript{28} than mode 1. These distinctions can be difficult and may have implications for other important questions (such as the place of consumption of e-traded services). Further work by the Council for Trade in Services with a view to clarify allocation by mode is envisaged.\textsuperscript{29}

20. Another question upon which there is disagreement among WTO Members is that of classification of products which may be converted into digitised information and delivered electronically. Taking one of numerous possible examples, does the delivery of digitised music, supplied via Internet constitute the supply of a good, a service, or a different type of product that can be classified neither as a good, nor a service? Added to this classification question is that of new services that are created in response to electronic commerce, for example: web-hosting, web site design, electronic authentication services.\textsuperscript{30} Are these services adequately covered by existing classifications, or can they be slotted into those categories? While electronic authentication services may be readily slotted into one of the financial services sub-sectors (e.g. payment services), where to put web site hosting is not as obvious.

21. These are just a few of the many issues that arise with the adaptation of existing rules and frameworks to new technological developments. In any case, there is little doubt among Members that electronic commerce represents a new way to supply many services for which WTO members have scheduled market access commitments. In addition, some of these services have a dual interest in electronic commerce, on the one hand for the new potential markets that may be reached by electronic means, and on the other hand because of their role in the facilitation of electronic commerce itself as a means of trade. Several of these essential services -- telecommunications, computer, financial, delivery services -- may be described as the basic infrastructure of electronic commerce. It follows then that in the services context, any effort aimed specifically at the encouragement of electronic international commerce must take into account the state of liberalisation in these critical sectors.

22. The benefits of liberalisation in the telecommunications sector, to take one example, may be seen in the increased level of access to, and corresponding use of, the Internet. Opening these markets to allow competition among infrastructure and service providers, in combination with appropriate pricing and licence policies leads to improvement in infrastructure and access services. Pricing policies in the telecommunications sector vary dramatically between countries. This is an important factor in Internet usage: OECD studies have shown the direct link between lack of infrastructure competition, high access costs and consequent low rates of Internet use.\textsuperscript{31} Better market access and national treatment commitments in the telecommunications sector would undoubtedly improve access conditions for Internet users and therefore have a positive effect upon the development of Internet-based commerce. The conclusion of the Agreement on Basic Telecommunications has played a significant role in the lowering of costs associated with telecommunications services. The enhanced competitive conditions in the vast majority of telecommunication markets have not only resulted in the participation of new operators, but it has also encouraged investment in new technologies.

\textsuperscript{28} GATS, article I 2 (b).

\textsuperscript{29} WTO, (S/L/74) Work Programme on Electronic Commerce; progress report to the General Council, 27 July 1999.

\textsuperscript{30} Submission by the United States for the General Council, the Council for Trade in Services, the Council for Trade in Goods and the Committee on Trade and Development, WTO Work Program on Electronic Commerce, February 11, 1999.

\textsuperscript{31} OECD, Information Technology Outlook 2000; OECD, Internet access pricing, OECD/EC/COMTEC Workshop, Dublin, June 20, 1996c.
23. However, efficient and accessible telecommunications infrastructure and services are not the only condition for the development of electronic commerce. As mentioned above, while this sector may account for one key "input" in the overall e-commerce infrastructure, other service sectors are equally important "inputs". Financial services such as payment and money transmission services underlie most commercial activities. In addition, in the e-business context, a secure and user-friendly infrastructure that permits on-line settlement of transactions is a significant input to the development of e-commerce. While traditional money transmission services support many payments for products ordered on-line, secure on-line payment services involve efficiency advantages for consumers by allowing "one-stop" e-shopping. Delivery services also play an important role: the advantages of e-commerce for products delivered by conventional means, for example -- time saving, convenience -- are undermined if the delivery component is inefficient. Finally, computer and related services are important components in Internet transactions because the computer is the principal instrument for Internet access. IT services - hardware installation, software implementation and data processing - make possible the interface between a computer user and the Internet. The next section of this paper looks at extending this reasoning to the context of services negotiations. The central question is whether or not a cluster approach to the liberalisation of these services that make up the infrastructure for electronic commerce could result in better quality commitments and thus be a way to enhance conditions for the development of electronic commerce.

IV. A cluster approach to e-commerce infrastructure services negotiations

24. The use of a cluster approach for negotiating specific commitments for inter-related services sectors is currently under discussion at the WTO in the Council for Trade in Services, and is the subject of recent work by the OECD Secretariat. As the Secretariat paper points out, the rationale for a cluster approach in services negotiations is to allow an appropriate recognition of the commercial linkages between selected services sectors, without disturbing the Services Sectoral Classification List, on which existing schedules of specific commitments are based. The paper goes on to explore possible definitions of clusters and how they may be put to use.

25. Without duplicating that work in this paper by going into detail as to the many definitions and uses that may be associated with clusters, the basic elements of a cluster approach may be identified. A core/principal service sector is selected as one in which liberalisation is important. To take one of the examples proposed by the Secretariat, one could consider tourism and travel-related services (Chapter 9 of the Services Sectoral Classification List - "W/120"). This is a sector in which services supply depends upon other services, e.g. construction services (of hotels, resorts, airports, etc.), computer reservation services, and transport services. These "supporting" services would form, with the core service, the tourism and travel services cluster; that is, in negotiations on tourism and travel-related services, the cluster of interconnected services would be taken into account. This example is offered as an illustration of how the basic cluster concept may be used in negotiations. The underlying assumption is, of course, that liberalising one sector without making corresponding commitments in inter-related sectors may lead to a situation where the liberalisation benefits are, for that reason, lessened in economy-wide terms.

26. Discussions as to the usefulness of clusters have to date focussed on principal sectors to be liberalised. The objective of this paper is to consider the possibility of adapting the cluster concept in the

32. While on-line payment services fall traditionally within the domain of financial institutions - notably banks - other actors such as ICT firms are becoming more active in the electronic payment services market. Inter-sectoral partnerships are increasingly common; e.g. ICT firm Yahoo! Inc. in alliance with BancOne and First Data Corporation offers on-line payment services to sellers using the Yahoo! Internet portal. See OECD, Information Technology Outlook 2000.

33. See TD/TC/WP(2000)9/FINAL.
e-commerce field. Rather than focussing on liberalising and encouraging trade in a particular sector, the new focus would be on encouragement of the activity encompassing several services sectors. The rationale remains the same: trade in a particular services sector does not take place in isolation. Commercial inter-linkages between sectors are such that a more comprehensive approach to liberalising trading conditions better reflects better the commercial reality than an approach that strictly follows the classification system used in the GATS.

V. A possible e-commerce inputs cluster -- illustration

27. The central, and perhaps most difficult issue to resolve is that of delimiting a cluster: which services are to be considered essential among numerous services that are undeniably important? Some basic services involved in an Internet-based commercial transaction seem immediately obvious: telecommunications services, banking services, computer and related services and delivery services (postal and courier). Alternatively, a more extended cluster could be contemplated, covering these services as well as, for example, one or several of the following: advertising, legal, market research, photographic, web-site design, distribution. Again, the question arises: which of these services are the most relevant?34

28. In the Secretariat’s paper on clusters, several methods for delimiting a cluster are discussed. Two approaches are considered to be particularly useful: end use and supply/value chain. In the present context, the end-use approach is of little utility, given that there is no single core sector that is the object of the cluster. Being an activity with multiple end-uses or "outputs", the more appropriate method for e-commerce is that of the supply/value chain. A simplified supply chain approach may be illustrated by the purchase of a book over the Internet, a transaction which involves the consumer connecting via his/her computer to the Internet, accessing the bookseller's site, ordering and paying using the secured payment software on the site and receiving subsequent delivery of the book by courier. This example of a common Internet-based transaction illustrates the services inputs in this particular supply chain: telecommunications, financial, computer and delivery services.

29. The next section follows the cluster "portraits" idea put forward in the Secretariat’s paper for a possible e-commerce inputs services cluster based on the four sectors of telecommunications, financial services, computer and related services and delivery (postal and courier) services. Each sector is described briefly, with some observations about its input role into e-commerce.

Telecommunications services

30. The importance of telecommunications for commercial activities and economic growth and development is widely recognised. Access to networks and a variety of telecommunication services, as well as to new innovations is crucial for meaningful participation in the benefits of an increasingly information-based global economy. Technological developments and the opening up of the sector to private participation underlie these changes and contribute to the creation of new services and markets.

31. Telecommunications services, a sub-sector of Chapter 2 - Communications Services in the GATS Services Sectoral Classification ("W/120") is sub-divided into two broad headings: basic

34. Bearing in mind that the greater the number of sectors making up the cluster, the less meaningful the cluster approach becomes, "drawing the line" for an e-commerce inputs cluster might best be done to include just the strict minimum of essential "core" input services.

35. In effect, this is often the case with clusters generally, as many services have multiple end-uses.
telecommunications services (sub-sectors (a) – (g)) and value-added services (sub-sectors (h) – (o)). Basic telecommunications are generally considered to cover:

- (a) voice telephone services,
- (b) packet switched data transmission services
- (c) circuit switched data transmission services,
- (d) telex services,
- (e) telegraph services,
- (f) facsimile services, and
- (g) private leased circuit services.

Value-added services were generally considered to cover:

- (h) electronic mail,
- (i) voice mail,
- (j) on-line information and data base retrieval,
- (k) electronic data interchange (EDI),
- (l) enhanced/value-added facsimile services,
- (m) code and protocol conversion,
- (n) on-line information and/or data processing and
- (o) other.

The vast majority of these sub-sectors have corresponding UN Central Product Classification definitions. 36

32. It should be noted however that this breakdown does not necessarily correspond to any particular national practice for distinguishing between services, and that many countries’ commitments correspond only partially to the CPC system. Moreover, the rapid development of technologies and new possibilities for convergence make distinctions between services even less clear. Suppliers tend more and more to specialise in market segments rather than in particular services. Other types of classifications like, for example, infrastructure owner/reseller or national/international may thus be more appropriate. 37

36. A revised Central Product Classification - CPC Rev1 - was adopted by the United Nations subsequent to the development of the W/120 classification, which was based on the Provisional CPC. The analysis here refers to the latter document, given that it is the basis for existing GATS commitments.

37. WTO, Telecommunications Services, S/C/W/74, 8 December 1998.
33. With these definitional issues in mind, the categories of service developed for the negotiation of basic telecommunications services lends some order and clarity to the nature and scope of new commitments taken. Four service categories were developed, based on geographical distinctions, means of technology, means of delivery and clientele. The use of these categories clarifies commitments by limiting where necessary the scope of a commitment, or distinguishing between different levels of commitments for different services. Where commitments are made without reference to any of the classifications, this indicates that all possible categories are covered by the commitment.

34. The majority of WTO members, including all industrialised countries, took commitments on basic telecommunications when the sector was negotiated after the Uruguay Round. Most countries also undertook commitments on value-added telecommunications services during the Uruguay Round. Significant differences exist in terms of the extent of market access commitments between the basic and value-added services sectors; in general fewer limitations were listed across all modes of supply in relation to value-added services. For basic telecoms, commitments of unlimited market access were much more frequent from industrialised members, in particular for cross-border supply and all industrialised countries committed at least partially for all basic services. This reflects the fact that priorities for industrialised countries are more likely to lie in cross-border supply and consumption abroad, which may not be surprising given the facilitation of supply by these modes by resale techniques and new satellite technology. In order to realise these benefits however, a degree of liberalisation in the market is required. For emerging markets then, foreign direct investment remains the most important means for participation of foreign suppliers; hence the higher overall level of commitments for mode 3 taken by developing and transition countries.38

35. In terms of limitations to market access, differences in priorities between developing and industrialised countries are apparent. The principal types of limitations are those aimed at the numbers of suppliers, the type of legal entity and foreign capital participation. Developing country members listed much more often limitations of the first two types, and equally other types of restrictions, such as requirements to use monopoly facilities, restrictions on resale of excess capacity of leased circuits, etc.39

36. While incumbent operators are among the leading telecom companies, new entrants are becoming increasingly active. The traditional market structure of monopoly fixed-network operators transferring two-way international traffic is being replaced by more complex arrangements whereby several service suppliers operate at various levels of the market, domestically and internationally. High levels of mergers and acquisitions result, in particular mergers of telecommunications operators with Internet service providers and/or computer and software service providers. The inclusion of the Reference Paper in the Agreement on Basic Telecoms responds to the new competition challenges brought about by the combination of deregulation, higher levels of liberalisation commitments secured in the re-negotiation and rapid technological advances in the sector. The Reference Paper sets out some general agreed measures to be maintained by Members in order to prevent major suppliers from engaging in anti-competitive practices. It was incorporated in commitments with little or no modification by 57 of the 69 governments submitting schedules.40 Technological advances will continue to give rise to regulatory challenges. For example, convergence raises problems for ensuring consistency of regulations applied across different multimedia industries, given that the multimedia components originate in vastly different market and regulatory structures. Technological and commercial solutions may also be considered as a complement or alternative to regulatory measures in this context.

37. As the Internet by definition involves telecommunication networks, it would be impossible to imagine an e-commerce cluster that did not involve this sector. Email, on-line information transmission, management, storage and retrieval, and transaction processing are fundamental elements for electronic commercial transactions. However the coverage of some Internet related services - such as Internet access services - by the ABT requires some clarification. Some Members have explicitly scheduled these services, whereas others seem to regard Internet access as covered by either basic or value-added telecommunications commitments. In addition, it has been noted that when the Internet network is defined as a public telecommunications transport service and/or network by a Member, the Annex on Telecommunications services applies to access and use of the network. Accordingly the Annex guarantees access to and use of public telecommunication networks for Internet access providers. However it is not clear whether the Annex ensures access to Internet networks and services for services suppliers.\(^{41}\)

**Financial services**

38. As with telecommunications services, the financial service sector was one for which negotiations continued after the Uruguay Round was completed. The classification system adopted for this purpose defines a financial service as "any service of a financial nature offered by a financial service supplier of a Member".\(^{42}\) These services are sub-divided into two broad categories: insurance and insurance-related services, and banking and other financial services. It is this second sub-category, and in particular payment and funds transfer services, that are essential inputs to electronic commerce. The Annex on Financial Services largely follows the W/120 classification list in the banking and other financial services category, with some clarifications. Thus, a range of "core" banking activities are included in Chapter 7B, such as accepting funds from the public, lending and financial leasing. For the purposes of electronic commerce input services, the banking service of particular interest is 7B (d) "all payment and money transmission services". The corresponding CPC definition for this sub-sector refers to "services auxiliary to financial intermediation". This is clarified by the definition section in the Annex, which specifies that (d) includes "credit, charge and debit cards, travellers cheques and bankers drafts".\(^{43}\) The majority of members have based their Schedules on W/120, but often with some modifications to reflect national definitions. In any case, it should be noted in a general sense that changes in the sector make distinctions between services difficult to maintain, within services that are classified as financial and between financial services and other sectors. For example, the provision and transfer of financial information could arguably be classified as both a financial service and a value-added telecommunication service.

39. Concluded in December 1997, the FSA resulted in an enlarged legal framework for the sector, covering the 2\(^{nd}\) and 5\(^{th}\) protocols to the GATS, the Decision for the adoption of the protocol and the memorandum of understanding on commitments in Financial Services, acceptance of the latter being optional for Members. At the conclusion of the renegotiations, 56 schedules for a total of 70 Members and 16 MFN exemptions were included in the 5\(^{th}\) protocol. Taking into account the five Members that notified commitments for the first time, 102 Members in total had made commitments in the sector by the end of 1997.\(^{44}\)

40. Many market access restrictions have been relaxed as a result of the negotiations as well as through bilateral and regional agreements in the sector. The most common form of market access limitations are restrictions on the type of legal entity, and limitations on foreign capital, restrictions on the

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42. Article V, *Annex on Financial Services*.
43. Article V (a) (viii), *Annex on Financial Services*.
44. At the end of 1999, 61 members had ratified the 5\(^{th}\) protocol, two had accepted but hadn't yet ratified it.
number of licences granted, either through numerical quotas or economic needs tests. National treatment limitations include limitations on land ownership, nationality and residency requirements for board members and subsidies.

41. The development of new information and communication technologies has facilitated the entry into financial services markets of a range of new competitors, such as telecommunications providers and retail distributors. New and enhanced services are being offered, such as smart-cards, electronic fund transfer at point of sale (EFTPOS), and home banking. As Internet transactions are much cheaper than their over-the-counter equivalents, this is expected to become a preferred means of supply for services amenable to electronic delivery, e.g. account management, financial advice. This of course will depend on other factors in the e-commerce environment, such as privacy and security issues. While the relative importance of trading modes seems to be shifting towards mode 1, mode 3 is likely to remain the principal mode of supply of financial services, particularly in developing countries.45

42. The fundamental role of payment services in all commercial activities makes the sector a necessary inclusion in an e-commerce cluster. Indeed for these services, the more appropriate question seems to be in which potential cluster would payment services not be included, rather than the reverse. As is the case with other sectors discussed in this context, Internet-based e-commerce offers many new market opportunities for the supply of banking and other financial services. At the same time, the development of e-commerce depends on the existence of payment systems, and in particular will be supported by the development of on-line payment systems. Apart from the banking services related to conventional modes of payment such as processing of cheques, secure on-line payment services are an important enabling service for e-commerce.

Computer and related services

43. Computer and related services (chapter 1B) are a sub-sector of the Business Services chapter in document W/120. Chapter 1B comprises the following five sub-sectors, each of which corresponds to a sectoral description in the CPC: (a) consultancy services related to installation of computer hardware; (b) software implementation services; (c) data processing; (d) data base services; (e) other.

44. Services classified under 1B(b) and (c) are further disaggregated into sub-classes: (b): systems and software consulting, systems analysis, systems design, programming and systems maintenance; (c): input preparation, tabulation, time-sharing, and "other". This classification raises two interesting issues. Firstly, the inter-relationship between computer and related services and telecommunications services is striking, even though the overlap between sectoral classifications is not entirely clear. Data base services for example, are often supplied over telecommunications networks. The classification of data base services specifically excludes services such as electronic data and message transmission services, which are classified under a sub-item in the telecommunications sector. Whether or not this exclusion covers all the services under this sub-item is open to question. This is further complicated by the fact that data processing services are cross-referenced in the telecommunications services classification of sub-sector (n), on-line information and/or data processing.46 As a result, it is sometimes not clear whether the service being supplied is a telecommunications service or a computer service; the most likely response is that it could be classified as either.


45. Secondly, the description for 1B(b) -- software implementation services -- leaves open the distinction between physical software and software services. What is to be understood by consultancy services related to development and implementation of software? If software is customised for a client, is the end result a service or a good? The same question may apply to packaged software supplied on-line.  

46. Over 62 Members in the Uruguay Round (counting the EC 12 as one member) made commitments on computer and related services, the majority of them making commitments in the first four sub-sectors, and about half making commitments for the fifth "other" sub-sector. More than 60 per cent of Members made full market access commitments for modes 1, 2 and 3 with the highest level being for mode 2. Conversely, very few full market access commitments were made for mode 4. In terms of limitations very few that are sector-specific were listed; entries relate more to the type of legal entity permitted and foreign participation limits. In several cases, quantitative limits on the number of persons were listed, with a slightly higher incidence for sub-sectors (a) consultancy services and (b) software implementation services.

47. Market access through mode 4, the presence of natural persons, is important for this sector. The rapid development of the Internet and related IT sector growth has generated employment opportunities for IT professionals in both industrialised and developing country markets. Shortage of skilled computer service providers has led some countries, such as the United States, to increase the number of temporary visas granted to foreign IT professionals. In October 2000 the United States increased the number of non-immigrant alien workers annually allowed to enter the country from 115,000 to 195,000 for a period of three years. At the same time, the Department of Labour entered into a partnership with the Information Technology Association of America to expand the American high-tech workforce.

48. Direct on-line electronic supply is also an attractive possibility. Certain types of software services may be supplied on-line more rapidly and cheaper than if an IT professional was to travel to provide the service on-site. Finally, commercial presence is also an important mode of supply for computer services because proximity to the consumer is the most effective way to identify market opportunities, through familiarity with administrative, cultural and regulatory environments.

49. The computer services sector is not generally highly regulated. In effect, regulations in other related sectors are often more likely to affect the computer and related services industry. Government policies in relation to research and development, labour, education and training, protection of intellectual property, tariffs on computer equipment, government procurement have a large influence on the computer and related services sector. As e-commerce develops and on-line supply of computer services becomes more commonplace, policies towards general e-commerce issues such as privacy, encryption and consumer protection will have an effect on the computer services sector. Again, the sector is not only one that can benefit from on-line service supply, but it is equally responsible for creating the enabling software that permits on-line supply.

Delivery services (postal and courier)

50. Postal and courier services are classified in the GATS Sectoral Classification List as sub-sectors of Communications services. This classification, which also includes, as noted above, telecommunications

services, reflects the traditional market structure of postal and telecommunications services supplied by a single state monopoly. Trends towards privatisation and regulatory reform have for the most part resulted in a separation of the two sectors, with competition being introduced for aspects of both, but more so in the telecommunications sector than for postal services.

51. The CPC classification for postal services (7511) covers the following four sub-classes: postal services related to letters and parcels, post office counter services, and “other” postal services rendered by the national postal administration. Courier services (7512) covers the pick-up, transport and delivery of letters and parcels by courier, using one or more modes of transport, other than the national postal administration, and “other” courier services. Courier services for mail by air are excluded as they are classified elsewhere (air transport services).

52. According to a note prepared by the WTO Secretariat, six WTO members have made commitments in the postal services sector, whereas thirty-three have done so for courier services. In postal services, three members made commitments that seem to apply to services usually scheduled under courier services – accelerated international mail and items above a certain weight level, and one reserves services to a monopoly. The remaining two schedules appear to guarantee full market access to foreign suppliers. In the courier services sector, less than half of the Members taking commitments listed no limitations upon cross-border supply, and the more significant mode for this sector – commercial presence. The situation for courier services will be affected by commitments made in other sectors on which courier services depend, for example transport services and specific telecommunications services that permit Internet reservation and tracking. For this reason, postal and courier services are possible candidates for a cluster; this idea is explored in detail in the Secretariat’s paper on a cluster approach to inter-related services.

53. State postal service suppliers, with some exceptions, tend to have retained their monopoly over letter post and most other types of mail services, up to a certain weight. Courier services – usually parcel delivery and express letter delivery, are generally no longer reserved for the monopoly provider. Increasingly, private sector operators are seeking to expand their activities towards other segments of the postal market, such as business-to-customer bulk mailings and direct mail advertising. At the same time, national postal operators are seeking to become more efficient through the use of franchising with non-

50. CPC 75111 - this includes newspapers, journals, periodicals, brochures, leaflets, etc., rendered by the national postal administration.
51. CPC 75112 - parcel-related services include pick-up, transport and delivery, rendered by the national postal administration.
52. CPC 75113 - e.g. sales of stamps, packets, etc.
53. CPC 75119 - e.g. mailbox rental and “poste restante” services, and services not classified elsewhere.
54. CPC 75129 - e.g. trucking or transfer services without storage, for freight.
55. The United States has argued that this classification does not adequately reflect the type of services supplied by express delivery services companies, and proposes a new classification: “the expedited transport and delivery of documents, printed matter, and/or other goods, incorporating electronic tracking and other advanced technologies, and services ancillary thereto.” These services include one or more value-added elements, examples of which are tracking, pick-up from shipper, guaranteed delivery within a specific timeframe; Statement by the United States, distributed at the WTO Committee on Specific Commitments, 11 July 2000.
57. TD/TC/WP(2000)9/FINAL.
58. Finland, New Zealand and Sweden have removed monopoly rights in their markets for the supply of postal services.
postal enterprises, such as grocery stores, petrol stations for some basic postal services, and an enhanced participation in other activities, such as express mail. This brings into question a range of regulatory reform issues, including cross-subsidisation and universal service obligations.

54. Despite some loss of letter market share as a result of increased use of electronic media, global letter volumes are predicted to increase over the next five years. The UPU reports that in 1995, 403 billion letters were processed, the vast majority of which was domestic mail. The UPU predicts an annual worldwide increase of 2.5 per cent between 1995-2005 in domestic traffic, with the growth rate slightly slower in high income countries. For international mail, the UPU growth over the same time period is estimated at an annual rate between 3.4 and 5.2 per cent. The share of electronic mail in communications is predicted to double by 2005, having a 5 per cent share in 1995, with fax and telephone accounting for 75 per cent.\(^{59}\) Trade figures for courier services are more difficult to obtain. The leading companies in this sector are predominantly American, serving foreign markets through establishing affiliates abroad. The expansion in activities of multinational enterprises and the growth of on-line purchasing has generated demand for courier and express delivery services. One notable development in this context is the role of “integrators”, that is, international operators specialised in international parcel services. These companies are called integrators because their supply of end-to-end delivery services implies the integration of several services in the supply chain: multi-modal transport services, freight-forwarding, storage, customs broking.

55. As noted in the Secretariat’s paper, the postal sector is to some extent challenged by the quicker alternatives to physical letter mail made possible by new communications technologies. At the same time, these technologies offer new ways for delivery service providers to enhance their businesses. Tracking a parcel’s progress is a significant value-added element to an express delivery service. Some companies offer tracking services to their clients via Internet.\(^{60}\) In addition, EDI is widely used in the supply of express mail delivery services, because it is an efficient medium for sending information in "packets" across private networks information such as orders, product specifications and delivery details.

56. The increasing popularity of home shopping by electronic means contributes to steady growth prospects for the delivery of parcels. Indeed, the success of much on-line e-commerce depends largely upon efficient delivery services. The convenience advantage of Internet shopping is significantly diminished if the purchase is not backed up by quick and cost-effective delivery systems. Many traditional retailers who have commercialised their products on-line have been confronted with this reality. One example cited in the Secretariat's paper is that of the American sportswear manufacturer Nike. This company was obliged to find a new distribution system adapted to the needs created by its on-line sales of sports shoes. Its existing logistics arrangement was not adequate to handle delivery for on-line orders, so the company chose a private express delivery company to handle distribution for those sales. The two services have become integrated: on-line buyers can order by telephoning to a call centre that is operated by the express delivery firm.\(^{61}\)

VI. Conclusions

57. The sectoral descriptions above illustrate the inter-relationship between telecommunications, financial, computer services and delivery services in electronic commercial transactions. Indeed, as noted,

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financial and telecommunications services are essential components of almost any sort of commercial activity. This raises the question of whether it is appropriate to negotiate them as part of a cluster. In other words, shouldn’t they either appear in every possible cluster that would be negotiated, or not in any particular cluster? A similar question arises in relation to sectors such as postal and courier services, for which it is feasible to assume that they may appear in more than one cluster. What are the consequences of overlap between an activity-based cluster involving several distinct sectors and a sector-based cluster, when the same sector is concerned?

58. The answers to these questions lie in the purpose for which Members use a cluster approach. If the aim is to group commercially related sectors together for Member’s private reflection in preparation for requests and offers, the overlaps between activity and sector clusters may not be particularly worrisome. The approach will still be useful for reflection on sectoral linkages and meaningful commitments, whether the focus is on a particular sector or activity. However, if clusters are to be agreed as a basis for commitments, there are significant conceptual inconsistencies involved in using simultaneously sector and activity clusters, because of the likelihood of overlap of sectors between the two.

59. Other related issues arise if this type of cluster were to be used as a basis for negotiations. Financial and telecommunications services are large sectors covering a broad range of services. Would Members be willing to consider broad liberalisation in these sectors as part of an e-commerce inputs cluster, given that the scope of activities involved have a significant broader application beyond e-commerce? What would be the effect of the importance of specific modes for these sectors - notably mode 4 for computer and related services - on Members’ willingness to agree an e-commerce inputs cluster? That said, any efforts to create favourable conditions for electronic commerce will need to include some reflection on these input services sectors and how they function in national economies.