



**General Council
Council for Trade in Goods
Council for Trade in Services
Council for Trade-Related Aspects of
Intellectual Property Rights
Committee on Trade and Development**

Original: English

WORK PROGRAMME ON ELECTRONIC COMMERCE

THE PARADIGM SHIFT OF DIGITAL TRADE

Non-Paper from the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu

The following non-paper, dated 30 June 2017, is being circulated at the request of the delegation of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu.

1 INTRODUCTION

1.1. We very much welcome and appreciate the revival of discussions among Members on e-commerce and digital trade for the first time since the 10th WTO Ministerial Conference. We also support the proposals of Members to address the emerging trend of digital protectionism, and to promote a free and open Internet. As a co-sponsor of the already submitted proposal "REINVOGORATING DISCUSSIONS ON ELECTRONIC COMMERCE" (JOB/GC/96/Rev.1), we now wish to submit this non-paper to suggest that Members use a different and fresh approach to looking at e-commerce or digital trade. This should help to further clarify the concepts and to identify the issues that should be dealt with by the WTO. In other words, the approaches contained in this non-paper are not intended to replace but to supplement the existing proposals. In so doing, we hope to contribute to the in-depth discussion of many inherent issues of e-commerce in future occasions, of course including the 11th Ministerial Conference.

1.2. Despite the fact that WTO Members have been discussing e-commerce at various times over the last two decades, progress has been limited. As pointed out in the communication from Canada, the European Union and other co-sponsors¹ that:

[P]olicy advocates have used various terms to define aspects of this trade – e-trade, e-commerce, digital trade etc. The General Council decision establishing the Work Programme on Electronic Commerce (WT/L/274) defined the term "electronic commerce" broadly enough to cover all of these concepts – "the production, distribution, marketing, sale or delivery of goods and services by electronic means.

1.3. We consider that there is nothing wrong or right about the definition of terms, but all definitions are meant to serve a purpose; they should be workable and implementable in order to be useful in guiding policy proposals.

1.4. In the WTO context, if our discussion is based on a very narrow definition of digital trade, then of course consensus would be easier to achieve. However, the result may not reflect what companies and especially SMEs really need. On the other hand, a very broad definition of digital

¹ JOB/GC/116, JOB/CTG/4, JOB/SERV/248, JOB/IP/21, JOB/DEV/42 (13 January 2017).

trade would probably make consensus very difficult to achieve. For this reason, we would like to suggest adopting the deductive approach to dig out the fundamental issues associated with digital trade, and hopefully to help Members engage in a deeper discussion on e-commerce. From this point of view, the old characterization by Nicolas Negroponte in his well-known classic book, *Being Digital* (1995), may serve as a good starting point.

2 THE DIGITAL REVOLUTION: TWO NEGROPONTE TRANSFORMATIONS

2.1. According to Negroponte, the digital revolution would imply two major transformations:

- **Atoms/bits transformation** : A transformation from atoms to bits in the digital world. Atoms are the basic units of physical products, whereas bits are the basic units of digital content.
- **Static/mobile switch** : A transformation of static devices (such as TV) becoming mobile (e.g., mobile phones) and the dynamic air transmission becoming static broad-band fibre, commonly known as the "**Negroponte Switch**".

2.2. From now on we simply call these two changes "**the Negroponte transformations**" in the digital era. These abstract changes allow us to capture some of the unique features of the digital world, and also help us to focus on the principles we should adopt when thinking about what strategies to pursue in the e-commerce discussion within the WTO.

2.3. The WTO has its comprehensive set of rules under the GATT, the GATS and the TRIPs Agreement, etc. Our fundamental proposition is that an e-commerce environment should become a new topic for discussion only if qualitatively different new problems arise, which the original articles and rules in GATT, GATS and TRIPs cannot deal with satisfactorily. This is said without prejudice to the application of the principle of "technological neutrality", which "seems to be largely shared among WTO Members". We are simply of the view that in this new digital era Members need to pay close attention to the evolution and consequences of e-commerce, such as the emergence of completely new business models made possible by technological advancement, and there is a constant need to review how and whether existing WTO rules apply and remain appropriate.

2.4. With respect to the meaning of "qualitatively different", we suggest it should contain the following three aspects:

- **A qualitative difference should be intrinsically different from a quantitative difference.** For instance, airline transportation efficiency increases the shipment and the extent of various trading operations, however we do not necessarily need to amend the WTO rules to accommodate the efficiency improvements in transportation. Flying at 500 km/hour is just quantitatively different from flying at 400 km/hour; there's no qualitative difference.
- **A qualitative difference should not be pertinent only to a small group of products; it usually involves an industrial perspective or wider spectrum of goods.** Again, using the enhancement of airline transportation efficiency as an example, it may make the international shipment of fresh flowers possible, but fresh flowers are just a small set of products, and no qualitative change in trade is expected, even if more flowers are traded as a result. The GATT should be able to deal with such small changes, so there is no need to open a new discussion. To take another example, it is only when the speed of communication becomes fast enough that GPS as a product becomes commercially possible; GPS *per se* causes no change in regulation by the GATT rules, because it is just a single product change caused by an improvement in the efficiency of communications, not an industry-wide change. By contrast, if the increase in communication speed causes widespread changes in the IoT (the Internet of things) of which GPS is a special kind, then it may deserve a new related discussion.
- **A qualitative change is definitely not merely a change of communication pattern from telephone to Internet.** The Internet is faster and more widespread than the telephone or telegram, but we should consider this Internet impact in more detail. If it is

used in communicating the placing of orders and the specification of terms, then the faster communication speed via email does not constitute a qualitative difference from communicating via telephone. But, if it takes the form of the widespread adoption of the Internet by SMEs, then it does imply qualitatively different business opportunities.

3 QUALITATIVE CHANGES IN TRADE WITH NEGROPONTE TRANSFORMATIONS

3.1. We shall go on to argue that Negroponte transformations are often a necessary condition of identifying qualitative changes. Here is the reasoning. Qualitative changes always happen with a cause; it is impossible to observe a qualitative transformation without there being a fundamental digital-related technological aspect in the background. In fact, we are about to see that most of the important observations concerning e-commerce are very much related to the Negroponte transformations. Let us proceed with some examples of qualitative change:

- Trade in goods

The traditional trade and shipment of newspapers, magazines, CDs and journals in the form of atoms are in principle all replaceable by the digital transmission of bits. So, instead of shipping, for example, The Economist magazine from England to New York, publishers now just transmit the PDF files from London to New York, and use the local machine to print them out. This kind of replacement is almost universal for all sorts of printings. Because the shipment of atoms is completely inefficient compared with the transmission of bits, **all the physical commodities that can be transformed to bits face a qualitative change of trade mode.** Obviously, this is **a qualitative change of trade pattern.**

The bits/atoms switch in the future may be much broader than we may think today, especially if we consider the possible future development of 3-D printing. To the extent that material science is compatible with printing, the international trade can be divided into the two categories: 1) the transmission of blue-prints and 2) the local 3-D printing of commodities. Blue-prints contain information, and they can be transmitted by bits. Then **the trade pattern changes from the shipment of thousands of final products to few shipments of just one 3-D printing machine** (and perhaps some raw material) plus the digital transmission of blue-prints. This, also, is **a qualitative change of trade pattern.**

- Trade in services

When the communication speed becomes faster, many kinds of international services become possible. One well-known example identified by Thomas Friedman is real-time remote diagnostics. An example of the broader type of service is remote medical care, in which the doctor reads patients' various health signals from a distance, and provides diagnosis, medical suggestions, and even prescriptions. Thus, fast transmission creates all kinds of remote service possibilities and changes the act of travelling and making a physical visit (which uses atoms, such as cars and airplanes) to an audio or video connection (which is the transmission of bits). Again, this is a typical atoms/bits transformation. Again, this is **a qualitative change of trade in services.**

3.2. Additionally when a lot of mobile/static switches take place, there will be some spill-over changes in other areas, which may also be qualitative changes. We note that the Negroponte switch is correlated with the transmission speed of bits. Fibre transmission is notably much faster than air transmission. When the bits transmission speed is fast enough, it becomes more efficient to shift the processing, compiling and calculation of data to a central location, rather than diversify such work into various individual terminals. The smarter central station can very efficiently transmit the result to the mobile device anyway.

3.3. Thus, while all the individual devices are "turning dumb", the work of smart calculation is left to a central computing centre. When the devices are "turning dumb", there must be a place for "turning smarter", which is often referred to as the cloud. Again, clouds are in cyberspace; and, interestingly, clouds cannot be defined or claimed by countries or borders either.

4 SUGGESTIONS

4.1. In this non-paper, we introduce a deductive approach rather than the traditional inductive approach to the discussion of issues of the digital trade. Rather than starting with business surveys or Member-specific problem identification, which is the inductive approach that has been employed previously, we should try using the deductive approach model to clarify the fundamental problems of digital trade versus traditional trade. Using the deductive approach, we see that the atoms/bits transformation and the static/mobile Negro Ponte switch change the trade pattern significantly. This deductive approach helps us condense the existing diversified topics being discussed in WTO into 5 or 6 specific ones, which we shall cover in our companion technical reports.

4.2. We encourage Members to use new concepts such as the deductive approach and Negro Ponte transformations to facilitate future policy discussions on e-commerce and digital trade.
