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Future-proofing world trade in technology: Turning the WTO IT Agreement (ITA) into the International Digital Economy Agreement (IDEA)

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Although the Information Technology Agreement (ITA) in the World Trade Organization (WTO) is a sector agreement tailored for the fast-moving ICT industry, the signatories have failed to re-negotiate its scope since 1996. In the meantime, the digital economy has reshaped the industry with emergence of Internet and a range of new products, where many of them are dependent on network services. Supply chain fragmentation has integrated the developing economies in the ICT trade, and they stand to enjoy most of its trade, welfare and efficiency gains. Despite proliferation of bilateral free trade agreements (FTAs) in recent years, they cannot replace a plurilateral 'critical mass' agreement under the auspices of the WTO. This article proposes the creation of an International Digital Economy Agreement (IDEA) by augmenting the ITA through full coverage on trade in goods; including non-tariff barriers (NTBs) and trade in telecommunication and computer and related services in all modes of delivery (including Mode 4); and six priority economies that are currently not signatories of the ITA – Argentina, Brazil, Chile, Mexico, South Africa and the pending WTO accession of the Russian Federation. Under its new and full scope, IDEA would achieve a trade coverage that exceeds 40% of the current trade under the ITA, making both developed and developing economies as key beneficiaries.

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1 Introduction

1.1 ITA: a waning flagship of multilateralism?

Few international trade agreements have had the impact of the Information Technology Agreement (ITA), negotiated under the World Trade Organization (WTO). Since the ITA was agreed and signed during the WTO Ministerial Conference in Singapore in December 1996, it has provided for one of the most ambitious and meaningful trade liberalisations by elimi-

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1 World Trade Organization (1996a).

nating custom duties for electronic goods on a most favoured nation (MFN) basis.[1] ITA is perhaps the most significant trade liberalisation that has taken place in the WTO since its creation in 1995, and only second to the Uruguay Round in the scale of trade volumes liberated.

Following the ITA, the trade in information technology (IT) or information and communication technology (ICT) goods has more than doubled, while the increased exchange of electronic goods has facilitated and contributed to the rapid pace of innovation and development in the sector. It has also helped to spur the inclusion of more developing economies into global supply chains, while allowing for specialisation according to their comparative advantages and welfare-creating technologies becoming affordable to many more people around the globe. The IT or ICT (the terms are used synonymously) sector contributes significantly to productivity growth in other sectors and to the world economy as a whole.

Unlike plurilateral agreements such as the WTO Government Procurement Agreement (GPA) that restricts the benefits to its signatories, the ITA was unique in its construct as an open agreement where the founding members agreed to eliminate tariffs on a minimum list of products. This was extended to all members of the WTO, including those who are not signatories of the agreement according to the principle of most favoured nation (MFN) of the WTO. By the year 2000, zero-tariffs should apply to all IT products included in the agreement. Such an open architecture is subject to a moral hazard problem given the natural incitement for free riding by members who might reap the benefit from the tariff elimination while standing outside the agreement and thus not giving any reciprocal concessions in return. However, ITA was successful in creating a 'critical mass', a threshold of 90% as agreed by the WTO members for agreeing to launch a sector agreement delinked from any trade round. Originally signed by 29 countries, the ITA agreement today has 46 participants (covering 72 member states) together accounting for around 97% of world trade in IT products according to the WTO. However, the list of non-participating countries includes several important emerging markets like Argentina, Brazil, South Africa, Mexico and Chile.

ITA owes much of its success and perhaps even its conception to the end-beneficiary of the agreement, i.e. the ICT industry. The business community had by and large embraced the potentials of multilateral trade and held a free trade stance. First, its sourcing needs for components and specialised competence makes the industry the most globalised of all sectors – thus, tar-

iffs do not protect their business against competition but eradicate their own margins. Second, the industry is relatively devoid of national and political sensitivities. Furthermore, multinational enterprises (without loyalties to any particular country) were able to press the case to several parties present at the negotiation table.

Despite such wide and decisive support, the ITA did not escape politicisation. Inclusion of non-tariff barriers (NTBs) in the agreement was considered to be too cumbersome, and was consequently left out of the agreement after strong resistance from the Asian economies. The European Union (EU) opted to exclude several consumer products from the agreement. Later attempts to expand the product coverage in 1997–1998, in the so-called ITA2 talks also failed. Furthermore, the United States, Japan and Taiwan filed a WTO dispute against the EU in June 2008 for levying tariffs on products that they argued were duty free under the terms of the ITA.[2] The dispute concerned classification of new goods that, in the view of the EU, had evolved in terms of their capabilities and now fell outside of the product coverage of the ITA. The position of the EU was that certain products had become bundled with features of products not included in the ITA, for instance set-top boxes, with built-in recording capabilities or network access; and PC flat-panel displays that carry standardised ports (i.e. DVI ports) that could be used as video monitors or multifunction printers that are also copiers and fax machines. Indeed, there is a conflict between customs classifications, which by default must be rigid and static definitions, and the dynamic product development in the IT sector that constantly challenges boundaries of what products can do. Even prior to these cases against the EU, the World Customs Organisation (WCO) had also failed to reach a consensus on the classification of multifunction printers, with the disagreement leading to the creation of a new product category being set up in January 2007, which needed to be unilaterally included by ITA members.[3]

The EU has called for re-negotiation of the ITA several times, in exchange for giving in on tariffs under dispute. This occurred as late as May 2009, a few months after the last EU-based flat panel manufacturer allegedly exited the business. It is understandable that the EU's trading partners did not agree to negotiate over concessions they were confident to receive for free – but as a result, negotiations were held up until the dispute settlement panel had reported in favour of the complainants in August 2010, and the EU

2 World Trade Organization (2010).
3 World Customs Organization (2004).

decided not to appeal its outcome. Interestingly, the European Commission had not been able to uphold these tariffs within its own jurisdiction and even lost against the complainants in the European Court of Justice.[4] Hence, the coverage in one of the most innovative sectors has been entirely static. As a comparison, the 27 signatories of the plurilateral agreement on pharmaceutical products (based on the same principle of zero-for-zero on an MFN basis) have negotiated three expansions of product coverage, the latest one adding about 1,290 new substances eligible for duty-free treatment, and the signatories are in the midst of negotiating an expansion for the fourth time.[5]

1.2 What differentiates 2011 from 1996 – The purpose of this study

In 2008, Dreyer and Hindley published a working paper on the ITA pointing out the rigidity in product structure that was unfit to accommodate technological change.[6] There are a number of reasons to revisit the topic of ITA, besides the obvious window of opportunity that has presented itself after the conclusion of the dispute between the EU and other WTO members.

First, despite the proliferation of bilateral trade agreements, little further trade liberalisation has taken place since the ITA. The fact that IT products have a complex composition (tens of thousands of components, sourced from various countries) makes ICT products subject to cumbersome calculations to establish country of origin. This is required to enjoy preferential rates under bilateral agreements. A multilateral MFN rate makes such exercises redundant, as all components made in all WTO members enjoy the same tariff-free market access under the ITA. About one third of today's trade is in components, which proves a crucial point: ITA is not an agreement between clear-cut net importers and exporters.

4 European Court of Justice (2009), C-362/07, C-363/07.
5 Office of the United States Trade Representative (2011).
6 Dreyer and Hindley (2008).

Table 1: ICT trade composition
(components and intermediary goods marked in bold)

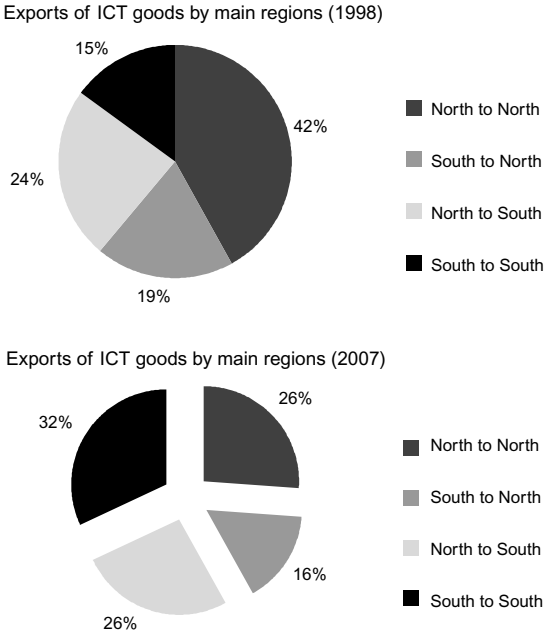
Most exported ICT goods, 2007 (per cent)	HS code (1996)	Share of total ICT exports (%)
Other monolithic integrated circuits	854230	16.4
Parts and accessories of computers	847330	8.1
Transmission apparatus incorporating reception apparatus (mobile phones)	852520	7.5
Portable digital automotic data processing machines, weighing not more than 10 kg (laptops)	847130	5.0
Parts of other electrical apparatus for line telephony (parts of telephone sets)	851790	4.3
Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound (color-tv)	852812	4.1
Storage units (automatic data processing machines) (of computers, including peripherals)	847170	3.6
Parts for radio/tv, transmit/receive equipment	852990	3.5
Other electrical apparatus for line telephony	851780	3.4
Input or output units, whether or not containing storage units in the same housing	847160	2.9

Source: UN Conference on Trade and Development (2009).

This argument is particularly true considering that by the time the ITA was concluded, ICT trade was more an affair within the Quad (Canada, the EU, Japan and the US). This is no longer the case. Today, ICT trade is a key interest of the developing economies, and the south-south trade has even overtaken the north-north trade (see graph 1). Furthermore, ICT goods have a higher share, almost one fifth (19%) of the trade of developing economies, while the average share is about 12%.[7] Obviously, China's rapid technological upgrade and its central role in the Asian production networks in assembling goods for exports (so-called processing trade) have redrawn the map: Asia counts for 64.7% of world exports of ITA goods, but it is also the leading importer with 52.1% of world imports.[8]

7 Anderson and Mohs (2010).
8 UN Conference for Trade and Development (2009).

Graph 1: Exports of ICT goods by main regions 1997/2008



Source: UN Conference on Trade and Development (2009).

Second, since the ITA was introduced, the world has practically experienced a new industrial revolution, namely the Internet and the establishment of the digital economy. These developments spurred globalisation and had a crucial impact on the way commerce and exchange of information takes place in the world. With it came an unprecedented rate of innovation and also changed the composition of ICT trade. Mobile phones are encompassing far more functionalities – but are also dependent on access to content services, media playing capabilities, geo-mapping and GPS functionality to operate properly according to today's standards. A consequence of this development has been the increasing prominence of telecommunication equipment while there has been a rapid decrease in the price of computer-related products (table 2).

Table 2: ICT trade composition

	1998	2007	Change in percentage points
Audio and video equipment	11.3	13.9	2.6
Computer and related equipment	34.0	25.2	– 8.8
Electronic components	32.8	33.8	1.0
Other ICT goods	8.0	8.9	0.9
Telecommunications equipment	13.9	18.2	4.3

Source: UN Conference on Trade and Development (2009).

Consequently, as the digital economy moved world trade into new modes of delivery, it went into new areas of trade policy, and beyond tariffs: Non-tariff barriers and enabling services trade are increasingly the focus of the digital economy. The dissemination of production networks, increased demand for ICT goods, and the welfare and productivity increases that come with it, illustrate the gains of a new accord that encompasses all regulatory aspects of the digital economy. The disputes and hereto lack of progress in expanding the ITA shows that an all-encompassing agreement "to end all disagreements" is necessary if the ITA is to stay relevant to (or even catch up with) technological development.

The purpose of this study is to identify gains and obstacles for 'critical mass' in these new areas of trade policy within the framework of the ITA – and to build a new plurilateral agreement that is future-proof, and tailored to the digital economy that already arrived a decade ago. First, we look into the techniques and potential gains of completing the agreement on IT/ICT goods trade; second, these benefits will be balanced against the potential of increasing the number of signatories with the remaining seminal non-members in ICT trade; and finally, we look into the possibilities for deepening the agreement by non-tariff barriers (NTBs) and in three different areas of services, namely computer and related services, telecommunications and temporary movement of ICT specialists.

2 Expanding product coverage

2.1 Definition of ICT goods

The product coverage stipulated in the current ITA text is listed in its two annexes: annex A, where the HS-codes of the included products are specified; and annex B of products to be covered by the agreement, but which each participant country is left to classify in an appropriate HS category. The subjective assessment in the latter category is due to the way customs procedures work – by descriptive illustrations of products, while ITA is based on purpose or intent of the products. For example, furnaces are not generally an IT product, but those used for semiconductor manufacturing ought to be covered. As mentioned, a revision of the HS categorisation was in the making at the World Customs Organization (WCO) while the ITA was being negotiated. Nevertheless, such ambiguity creates room for interpretation – and as we have seen, where there is room for interpretation, there is room for dispute. Therefore, the key question remains – which goods ought to be covered in a future ITA, or an International Digital Economy Agreement?

To start, teleological interpretation of what the signatories may have intended as IT goods or not probably have very little relevance 15 years later. Likewise the distinction between professional and consumer product is also increasingly indistinguishable, and sometimes a question of capacity (processor speed, memory capacity or handling of various formats or inputs) that are unfit to be captured in a tariff line description. Repeatedly, features in professional products have reached consumer markets within a few years or even just months. This raises the question of what an IT or ICT product is – the OECD has defined it as *'intended to fulfil the function of information processing and communication by electronic means, including transmission and display, OR use, electronic processing to detect, measure and/or record physical phenomena, or to control a physical process'*.[9]

Similar but simpler phrasing would be to simply break down information technology "by the letter", i.e. as information and technology: firstly, it stipulates that such goods are primarily intended for managing information, which means they have the capacity to register, store, process, communicate or render information – or are parts that are used mainly for such purposes. This would expand the coverage from professional and scientific IT equip-

9 Organisation for Economic Co-operation and Development (OECD) (2003).

ment to consumer electronics – while excluding a wide range of goods that contain IT parts and semiconductors, but are not IT products per se, such as microwave ovens, washing machines or automobiles. Furthermore, following this principle, software, applications and various physical products of stored data, e.g. digital imagery and musical recordings, would be included as well.

Secondly, *information* technology goods must be assumed to be technological products – as opposed to mechanical, or products based on analog processing of information. Typically, such products do not contain integrated semiconductors – for example a traditional film-based camera compared to a digital still or video camera. In such cases, digitalisation has created new product categories, or in other cases simply replaced previous product categories in their entirety. An example of such a replacement is fixed line telephony, which was originally an analog technology that has been entirely digitalised. Following the same logic as the above-mentioned example of video and sound recordings, this would imply that all storage media, such as CDs, hard drives, memory cards and software stored on them are included, while analog turntables, cassette players and such media are not.

Finally, this simple 'two-tier test' of what an IT or ICT goods actually is makes subjective requisites less relevant. It creates a product coverage that encompass almost all items that are likely to be retailed where consumer and professional electronic products are generally retailed – adding components, necessary accessories, principal manufacturing equipment thereof. The objective composition of the products is given an appropriate weight while subjective questions such as their 'purpose', or whether they are primarily used by consumers or professionals are not given any weight.

2.2 Achieving full coverage

A key problem of the ITA is also its rigid structure of commitments on the very narrow six or eight digit levels in the HS system. This approach poses problems with multifunctional goods, and stops new products being included automatically if they are assigned to new product classifications. Hindley and Dreyer (2008) suggested that such an approach could be dropped in favour of a 'negative list approach', with commitments by *category* on four-digit level rather than *product-by-product* basis on six or eight digits. For example, commitments ought to be made for entire 'Electrical apparatus for line telephony, telephone sets, parts' (8517) rather than spe-

cifically for telephone sets (851710). Commitments on the higher chapter-by-chapter basis would be impractical as it would include various non-ICT products, e.g. electrical razors, vacuum cleaners (under chapter 85) and nuclear reactors (under chapter 84). Also, any exclusion from commitments on these categories would have to be negotiated with the assumption that they would otherwise be included. Furthermore, any new products created under these categories would be automatically included – for example, if a new telephone technology was invented and given its own subcategory under the category for telephony equipment, this new type of phones would be automatically covered by the ITA.

Table 3

1. Commitments on category level (with all future products in these categories will be included in the future, unless negotiated to be exempt)
• All electric office equipment, including copiers, printers, calculators, computers (laptops, stationary and mainframes): 8443, 8469, 8470, 8471, 8472, 8473
• Inputs (materials and chemicals), tools, machinery for semiconductors manufacturing: 3818, 8486, 8514
• Semiconductors and circuits: 8534, 8540, 8541, 8542
• Electrical parts (converters, transformers, fuses etc.): 8473, 8504, 8532, 8533, 8536, 8544
• Telephony equipment, mobile and fixed line; network and terminals: 8517
• Digital cameras, video recorders, monitors, televisions and displays: 8521, 8528
• All other audio visual products and parts, including transmission or broadcasting equipment, radar equipment (remote controls, peripherals such as Bluetooth), 8518, 8519, 8522, 8525, 8526, 8527
• All storage media and devices, recorded media and software: 8523, 8524
• Optical fibres: 9001
• Scientific instruments, including GPS: 9011, 9012, 9017, 9026, 9027, 9029, 9030
• Other electric equipment with singular functions: 8543
2. Included as single tariff-line, products that are placed in non-ICT categories
• Products covered by the ITA not captured by category listing above
• Semiconductor manufacturing equipment included in the original ITA agreement and the US offer
• Injection and moulding equipment, plastic and rubber parts etc.
• Lithium batteries and other parts more commonly used in ICT industry
• Inspection and laboratory equipment and other types of instruments relevant to ICT sector
• LED panels

The approach essentially captures most ICT goods while a range of products, mostly parts and equipment, which reside in non-IT categories are still to be included on a product-by-product basis (table 3; annex 2). Examples

of such products are optical instruments for inspecting semiconductor wafers (that are categorised as miscellaneous machines, such as balances and ultrasonic fish finders), or lithium batteries that are primarily used in ICT products while other batteries are not.

The current value of the trade flows of ITA goods between ITA countries was approximately $1,310 bn in 2009.[10] Interestingly, the trade (calculated on imports) in all IT goods based on the expanded definition is $1,941 bn annually on a global basis (amongst WTO and non-WTO members alike), which would suggest that only two thirds of such trade is actually captured by the ITA today. Potential trade gains from expansion of product coverage would have a significant effect, adding another 16.7% of trade volumes to the tariff-free trade. This implies that at least $11.5 bn in tariff costs would be eliminated (table 4).

Table 4: Scenario of ITA product coverage expansion

	Trade volumes (imports)	Addition to baseline
Baseline: current trade (imports) in ITA goods within ITA countries	1 310 bn	
Product expansion within existing ITA countries	1 529 bn (+219 bn)	+16.7%

	Weighted average MFN tariff	Trade costs based on weighted average MFN tariffs
Tariffs on IT goods not currently covered	5.3%	**11.5 bn**

Source: Own calculations; UN Comtrade 2010

The tariff rates are admittedly relatively modest, but their gains should not be neglected. First, margins in assembly and processing trade in developing economies are often as low as just a 2–4% – thus, abolishing a similarly low tariff creates headroom for doubling their profits. Second, an expanded scope would provide significant benefits in the form of legal certainty and provide efficiency gains, as it would render many of the subjective judge-

10 Own calculations based on agreed list in the original ITA agreement. The estimate is based on imports, i.e. imports by signatories of ITA from other ITA countries.

ments irrelevant, such as distinction between professional or non-professional users, prime purpose or intended usage. Overall, WCO as a technical forum is better equipped to handle classification issues than the dispute and negotiation-driven WTO. Third, a negative listing approach would not only bring immediate economic gains but would also create structural improvements. It would provide incitement to review the coverage on a regular basis, or as often as new products are introduced. Otherwise, WTO members face automatic inclusion of such products, and create gravity towards further liberalisation rather than towards the status quo.

3 New signatories to the ITA

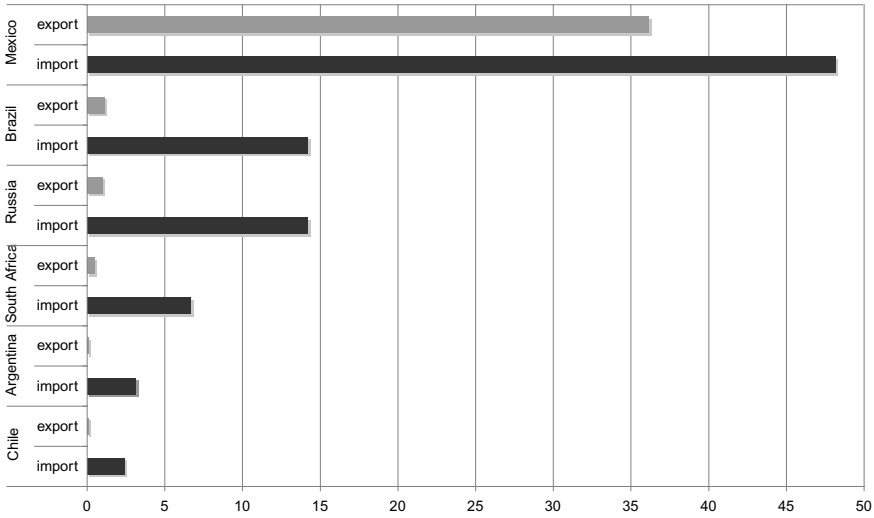
3.1 Remaining three key players and Russia

Five seminal players in the Doha Round are currently outside the ITA, namely Argentina, Brazil, Chile, Mexico and South Africa. Together with the Russian Federation, which is currently negotiating its accession to the WTO, these non-ITA signatories would add another 6.7% of import volumes while the remaining volumes by non-participating economies account for less than 0.52% of world trade.[11]

Mexico clearly stands out from the others. It is one of the top 10 largest countries in IT trade – it is also in a regional trade agreement (NAFTA) with the US, its most important trade partner. Mexico also has a free-trade agreement (FTA) with the EU, Japan and recently signed an agreement with Peru. Additionally, Mexico has unilaterally adopted a so-called ITA Plus programme in 2003 in order to increase the competitiveness of its ICT industry by reducing their import costs. ITA Plus has a wider scope than ITA under the WTO: it includes raw materials such as resins, steel and plastics designated for Mexico's IT industry and audiovisual products that are not covered under the ITA. But ITA Plus in Mexico is also an 'ITA Minus' as it excludes final goods that are manufactured and exported by Mexico, such as displays and monitors.[12] Meanwhile, 82% of Mexico's exports in ICT goods are destined for the US, which are tariff-free under ITA and NAFTA.[13] Such cherry picking of benefits is perhaps the best example of free riding an open agreement. Besides from Mexico, three other non-participating WTO members represent significant trade volumes in the ICT sector today.

11 See footnote 10.
12 Secretaria de Governación Mexico (2002).
13 UN Comtrade 2010.

Graph 2: Examples of ITA members' trade with non-ITA signatories 2010 (bn $)



Source: UN COMTRADE 2010

The remaining three WTO members have been ambitious in bilateral and regional market integration – Brazil is the largest IT market in Latin America, which is also the largest recipient of FDIs for the sector in the region. It is a key member of the Mercosur, the Southern Common Market, which is a customs union between Brazil, Argentina, Uruguay, Paraguay (and with Venezuela's association is pending) that has concluded an FTA with Israel while negotiating primarily with other trade blocs as the EU, Caricom and Andean Communities; Brazil's neighbours, Chile, is one of the most prolific economies in the world in bilateral FTAs, and concluded agreements with the US, Canada, the EU, EFTA, Australia, Korea, Japan, Panama, Cuba, Mexico and is also one of the few economies that signed one with China. It has a four-way deal with Brunei, New Zealand, and Singapore (the so-called P4) and lighter economic complementation agreements with many of its neighbours. About half of Chile's import volumes in ICT are covered by these FTAs, and the country is experiencing growth in the ICT sector; South Africa is the 24th largest trader of ICT goods while it is the 20th largest market of ICT goods and services in the world. South Africa is also the centre of its own customs union (SACU). To conclude, various non-WTO agreements have addressed the tariffs of these non-ITA signatories.

Finally, the last remaining WTO accession of a world player, the Russian Federation, is currently under negotiation. While it is true that tariffs on ICT goods are far from the only issue concerning Russia's trade policy, its WTO accession highlights the question of which existing agreements in the WTO Russia must become signatories of in order to gain accession to the WTO. This is of particular interest to the European Union as Russia's key trading partner. Thanks to its proximity, Russia is both an export market and sourcing potential for the EU.

3.2 New members, new challenges

Table 5 shows the additional value of Argentina, Mexico, Brazil, Chile, South Africa and Russia joining the ITA based on current product coverage.

Table 5: Trade volumes and tariffs in non-ITA signatories trade in ITA goods

	Weighted average MFN tariff on ITA goods imported from ITA-countries (%)	Import of ITA goods from current ITA-members (US$)	Estimated tariff costs for ITA goods imported from ITA countries (US$)	Import of ITA goods from ITA countries under expanded list (US$)
Argentina	9.02	3.14 bn	0.28 bn	3.79 bn
Brazil	8.12	14.2 bn	1.15 bn	16.4 bn
Chile	3.00	2.4 bn	0.07 bn	2.96 bn
Mexico	2.07	48.2 bn (whereof 11.9 bn with US)	0.75 bn	54.5 bn (whereof 14.7 bn with US)
South Africa	1.11	6.67 bn	0.07 bn	7.98 bn
Russian Federation	3.71	14.2 bn (whereof 5.5 bn with EU)	0.53 bn	17.7 bn (whereof 6.88 bn with EU)
Total		**88.81 bn**	**2.85 bn**	**99.5 bn**

Source: Own calculations; UN Comtrade 2010

Taking into account the bilateral trade (i.e. their imports by existing ITA countries), the trade volumes would increase by $85.7 bn.[14] In terms of trade

14 See footnote 10.

volumes, there seems to be more gains from expanding the product coverage rather than acceding the remaining new members. Accumulated, they add less than 7% of existing ITA volumes. By including the trade between the new members themselves (e.g. between Brazil and Russia), the additional volumes amount to 10.6%. However, expanding the coverage or the membership are not mutually exclusive strategies for negotiation.

However, if Argentina, Brazil, Chile and Mexico were to become signatories of the ITA, the plurilateral agreement would practically encompass all the key players of the Doha Round; entry of Russia would bring a geopolitical giant that is a newcomer to WTO negotiations. Inevitably, this brings fundamental change to future negotiations – while new signatories add only marginal volumes of trade, the plurilateral ITA runs the risk of becoming 'multilateralised' and developing similar flaws that block the Doha Round from its conclusion. If an ambitious outcome and liberalisation is sought, the acceding members should enter the agreement with the prospect of signing on to future negotiation on the coverage of the ITA. A plurilateral agreement, or so-called variable geometry is a coalition of the willing, where a number of signatories and political impetus for future deepening revisions need to be taken into account.

Finally, one should not underestimate the value of adding the new members to the ITA. They add more than trade volumes, even in the case of Mexico or Chile who trade exceptionally little under MFN rates. Accession to the ITA locks in unilateral liberalisation or disseminates the bilateral benefits to all WTO members. But most of all, a uniform list of tariff-free trade on agreed products and components facilitates trade by rendering the rules of origin irrelevant, and creating new opportunities. This trade-creating effect is proven by gravity models based on historical data – and show that a non-ITA WTO member would import 14% more from WTO members if it joins the ITA,[15] which suggest an additional $12 bn in trade volumes being created annually.

15 Mann and Liu (2007).

4 Deepening the agreement: Non-tariff barriers

4.1 Effects of non-tariff barriers (NTBs) in ICT

The exclusion of non-tariff barriers (NTBs) from the original ITA may have been a pragmatic decision, or perhaps even a necessity without which the ITA would have never been completed. While the EU was a strong advocate of including NTBs in the final deal, other WTO members and in particular the Asian economies were strongly opposed to any deal that included NTBs.

NTBs are by far bigger obstacles to ICT trade today than tariffs, which explains recent proliferation of bilateral FTAs as they are the only trade policy instrument that enables effective negotiations on NTBs. Despite the emergence of global production networks for exports, imports for IT goods have also been subject to significant balkanisation in the past decade, in particular by economies in the Far East favouring national standards instead of subjecting themselves to existing international standards. Such protectionism and various form of red tape continue to support import substituting policies in various economies.

The prohibitive effects of NTBs are expressed in the forms of tariff equivalents (so-called ad valorem equivalents, or AVEs) that measure their equivalent effects if they had been caused by tariffs. Previous studies have employed figures based on the World Bank study on NTBs by Kee, Nicita and Olarrega (2009), which underestimate or do not capture all forms of NTBs in practice. By looking at studies based on computable general equilibrium (CGE) models for potential gains from bilateral trade liberalisation, it is possible to get a closer approximation of total trade costs arising from NTBs for IT/ICT products. Although there are significant differences in methodology between the studies, they provide overall estimates on trade costs arising from NTBs in relation to tariff reductions in the ITA. Furthermore, a majority of these studies are based on trade flows with the EU or US as trading partner but normally, non-tariff barriers only distinguish domestic goods from foreign ones, and discriminate the latter equally, and it is reasonable to assume that NTBs for like products from other ITA-members are at least not given any preferential treatment.

Table 6: Examples of the costs arising from NTBs

- **Transatlantic (US/EU) trade** – Adriamananjara, Dean, Ferrantino, Feinberg, Ludema and Tsigas (2004) has established that the total NTBs on electrical equipment is about 15%.[a] Another study by Copenhagen Economics (2007) established the NTBs in the US and EU as almost symmetrical at 6.5% for electrical products, such as power generators, electric motors and control apparatus. While AVEs for office machinery, computers and information processing equipment are 22.9% and 19.1% for the US and EU respectively.[b]
- **Japan** – CGE models on NTBs affecting EU exports to Japan estimates AVE of 11.6% for electrical machinery.[c] This is more than twice the figure for the EU (4.5%) and given the national standards, certification requirements and collusive behaviour in other sectors, particularly telephony equipment, it is safe to assume that this parity is maintained in all ITA sectors throughout. Moreover, it should be considered that the trade barriers are higher for ICT products than electrical machinery.
- **Korea** – A study conducted a *posteriori* by ATLASS/CEPII on EU-Korea FTA negotiations arrives at AVEs of 66% for the EU and 71% for Korea. This does not necessarily suggest that NTBs in Korea are several times harsher than other Asian economies but represent difference in methodologies. The agreed measures are assumed to scale them down to 26% and 29% respectively as particular NTBs for consumer electronics are expected to be cut 80% over 5 years.[d]
- **China** – Estimates based on a partial equilibrium model show that the impact of regulatory market access obstacles in China on ICT goods affecting EU imports are above 25%.[e]

	EU	USA	Japan	China	Korea	Summary
Est. effect by NTB in literature	6.5 – 66%	6.5 – 22.9%	11.6%	26.8%	71%	
Trade costs due to NTBs on ITA imports from ITA members	> 14.4 bn	> 12.5 bn	7.5 bn	47.0 bn	42.7 bn	> 124.1 bn (Based on 55% of all ITA trade)

These five countries alone represent about 55% of all ITA trade – even in the unlikely case that the NTBs in the remaining ITA members were zero, the costs arising from NTBs surpass the expansion of product coverage or accessions of six large non-ITA countries, and are about equivalent to 8.9% on all ICT trade.

a Andriamananjara, Dean, Ferrantino, Feinberg and Tsigas (2004). Estimates significant at 10% level.
b Berden, Francois, Thelle, Wymenga and Tamminen (2009).
c Sunesen, Francois and Thelle (2009).
d Decreux, Milner and Péridy (2010).
e Ure (2007).

4.2 Proposed approach on NTBs

The ITA Committee has recognised the trade-distorting effects from NTBs on ICT trade. A non-tariff measures (NTMs) work programme was adopted by the Committee in November 2000 to both identify them and exam-

ine their economic impact.[16] This work is yet to lead to any substantial rules for adoption in the WTO more than a decade later. Meanwhile, bilateral and regional trade agreements are increasingly gaining importance in achieving market-deep integration and harmonising domestic regulation.

There are two techniques for regulatory co-operations and market integration. First is the positive integration, where standards and regulations are harmonised and a set of commonly agreed rules are applied on several markets. Second is the negative integration, where a product allowed into circulation in one of the markets according to the rules that apply there must be automatically allowed into the other markets through arrangements called mutual recognition agreements (MRAs). Initial experiences of the EU in the Single Market project show that positive integration is often laborious and subject to lengthy negotiations between contracting parties. Instead, negative integration or MRAs are expedient means of market integration, especially in a bilateral or regional context. But there are significant differences in economic development and regulatory practice even amongst a limited and select group of WTO members like the ITA signatories that gears the talks towards rule-making and common standard setting rather than negative integration, even on most basic issues. It is worth noting that on complex regulations (e.g. on radio transmitting equipment) even MRAs have been insufficient for achieving full trade liberalisation.

One basic area of harmonisation is electromagnetic compatibility and interference (EMC and EMI). The discussions have been on-going in parallel in ITA and NAMA NTB committee as a part of the Doha Round negotiations. The EU and Switzerland proposed that the International Organization for Standards (ISO), International Electrotechnical Commission (IEC) and the International Telecommunication Union (ITU) are recognised be standard-setting bodies for safety of electrical equipment and their electromagnetic compatibility, while other forums and consortia may come to develop specificitations where standards do not exist, particular on 'innovative products'.[17] Any national standards that deviate from recognised international standards must be justified in reviews to take place with regular intervals. Furthermore, the proposals favour supplier declaration of conformity (SDoC), where the manufacturer declares conformity with the regulations of the market it is entering rather than testing to be required. If testing is still required, then the choice of the test laboratory shall rest with the

16 World Trade Organization (2000).
17 World Trade Organization (2009c).

supplier or reports issued in accordance to relevant standards should be universally accepted.[18]

In particular, there is a strong case for accepting SDoCs and suppliers' assurance of conformity. Standard protectionism by not recognising testing results of safety tests in laboratories in exporters' home countries and demanding duplicate tests at specially assigned assessment bodies has become standard practice to discourage imports. Such measures increase trade costs and could significantly delay new product introduction (by simply assigning less resources to conformity assessment bodies) and even stop imports entirely. Allowing for SDoCs without any requirement for duplicate testing would significantly reduce trade costs by making unnecessary and protectionist double-testing requirements redundant, while maintaining each ITA signatory's ability to enforce their own regulation. This is a technique also favoured on electronics in FTAs to remove mandatory third-party certification, for example in the EU-Korea FTA. Some developing countries however, oppose SDoCs as they lose their means of enforcing their regulations due to lack of a post-market surveillance system, as they do not have the means to monitor and recall unsafe goods. While such claims are justified, it is important that standards are industry driven and often global – it is quite unlikely that there are local conditions that make a product deemed safe in one country and unsafe in another. Much of the EMC and EMI issues affect trade in components, which are subject to quality and safety assurance criteria set by market players who simply cannot afford to source from a supplier with quality or safety issues.

Finally, the gains from addressing NTBs in the ITA agreement are considerable. As we have seen, estimates showed that trade costs from NTBs are of a different magnitude to tariffs – above 125 bn from only 50% of today's trade (suggesting that total cost to ICT trade is above 250 bn). There is an economic rationale for agreeing on standard setting bodies or simplified procedures through accepting SDoC even if it addresses only a fraction of these costs.

Any additional elements beyond EMC/EMI within the framework of the ITA will inevitably occur on a product-by-product basis, which will be a time consuming but valuable exercise – estimates show that a 10% increase in the

18 E.g. International Electrotechnical Commission System for Conformity Testing and Certification of Electrical Equipment (IECEE CB Scheme), ISO/IEC 17025 and ISO/IEC Guide 65 or by any test laboratory that has been accredited by a signatory to the International Laboratory Accreditation Cooperation Mutual Recognition Agreement (ILAC MLA).

harmonised standards relevant for electronics would increase trade by 1.5% and smaller economies benefit more from standardisation than large ones, relatively speaking.[19] A binding agreement on standard setting bodies and subsequent abolishment of testing and certification requirements within ITA on 50% of tariff lines would at least lead to 6–7% reduction of trade cost (equivalent to circa $79–92 bn) and about 9–10% increase of trade volumes.

5 Enshrining services in the ITA

5.1 Rules for CD Walkmans in the time of cloud computing

Despite the rising importance of world trade in services, and in particular for the ICT sector, it has so far never been a part of the ITA negotiations in the past 15 years. Unlike straightforward negotiations about tariff reductions, services negotiations are admittedly difficult and generally complicated by exemptions, domestic regulations and with commitments that are too complex to verify. As mentioned in the introduction, ITA is yet to catch up with the developments since the introduction of the Internet. Just to illustrate these developments, CDs were still the most common medium for music when the ITA came into force – downloads were yet to be introduced. DVDs did not yet exist and VHS tapes were still the market-leading standard for video. Today, the largest vendor of music is an online downloading service;[20] China has also outgrown the US as the world's largest Internet population with 420 million users online.[21] Just as trade in electronics greatly benefitted the developing countries, trade in ICT services has done the same – India has the biggest turnover in world trade in computer and information services, which at 17% annual growth is the fastest growing trade category.[22]

The General Agreement on Trade in Services (GATS) established with the WTO in the Uruguay Round, and subsequent liberalisations through mostly unilateral commitments are the unsung hero of this development. The GATS annex on telecommunications ensures that WTO member are accorded open access to and use of public telecommunications networks on reasonable and non-discriminatory term.[23] A separate memorandum, the Reference Paper on telecommunication, deepened the commitments on

19 Moenius (2007).
20 Apple Press Info (2008).
21 China Internet Network Information Center (2010).
22 Estimates by WTO presented by Dandrea (2009).
23 World Trade Organization (1994).

universal service and against discriminatory practices on interconnection, regulation and licensing procedures.[24] Such deregulation of telecom markets was pivotal in creation of the digital economy. However, much work is still remaining and especially in the area of telecommunication services that are subject to many economic and political sensitivities and exceptions – and expanding the ITA into ICT services and NTBs is what will truly turn the agreement into an all-encompassing agreement for the digital economy.

5.2 The opportunities in ICT services

While there is no universally agreed definition of ICT services as such, but by all accounts, it should at least include computer and related services (CRS) and telecommunication services. In industry terms, it implies at least network access or managed services for both voice and data; consulting and support services; provision of applications or online services, including many aspects of online content provision.

Arguments for why ICT services ought to be incorporated in the ITA are indeed convincing. First – the ICT industry has become increasingly dependent on the network, where much of the business activities are services. Few ICT goods can function without full access to services. For example, mobile phones and tablets have become platforms for applications that require access to networks or content services, such as geo-positioning services; software or server vendors or business applications cannot deliver their output without providing network services as their applications are hosted centrally. This phenomenon called 'servification' is making goods and services complementary and unable to function fully without each other. Furthermore, as we have seen with the example of CDs and video, goods are increasingly converted into services. This is also taking place outside consumer markets and in business markets – entire telecommunication networks are increasingly provided wholesale as managed services, which enabled telecommunication operators to exist and deliver their services without actually owning a network infrastructure. It enables consumers and business to receive all network services for data, telephony and television by one single service provider.

24 World Trade Organization (1996b).

Second, new emerging standards are key to ICT growth and ensuing trends of servification, for example on mobile technology. Fourth generation (4G) network does not only enable more services but it also converges towards new international standards like LTE that replace various national or regional protocols. This greatly encourages increased cross-border trade in both services and equipment. Furthermore, developments in cloud computing will centralise many of the functionalities in today's goods and turn them into online services. A substantial part of the ICT industry's value added, that comes from technical infrastructure, platforms and software, is increasingly provided as services on a global basis.

Third – this convergence between products and services has created a range of categorisation issues similar to the one arising from new products and functionalities amongst ICT goods. Global spending for computer services and computer software reached US$1 trillion in 2007 and estimates predict that spending will grow by nearly 10% annually.[25] Industry estimates show that by 2012, 75% of all new entrants to the software market distribute their products online.[26] Meanwhile WTO members are yet to establish whether software provided cross-border through internet is a service or goods that could be subject to tariffs. The WTO has established the principle of technological neutrality through case law, i.e. the technology used for delivery should be irrelevant.[27] But on the other hand, it is questionable whether this notion would stretch as far as goods and services that are governed by two different pillars of the WTO, namely GATT and GATS. Incorporating full coverage of ICT services under the ITA would make such distinctions less important and merely academic for market access in products and services exemplified.

Fourth – ICT services are not only an integral part of trade in goods, but they also enable services trade in other sectors. While this study assumes computer and information services and communication services as the core of ICT services, the group of services that are enabled by ICT include knowledge process offshoring (KPO), which encompasses various form of offshoring. Examples include financial analysis, engineering, R&D, insurance claims processing, design, education, publishing, medical services and journalistic work.[28] But also intra-firm processes such as front office serv-

25 World Trade Organisation (2009a).
26 McKendrick (2010).
27 United States – Measures affecting the cross-border supply of gambling and betting services, DS285; China – Measures affecting trading rights and distribution services for certain publications and audiovisual entertainment products, DS363, World Trade Organization (2009b).
28 UN Conference on Trade and Development (2009).

ices for customer contact in various sectors and back office functions, such as finance and accounting are enabled by liberalisation of ICT trade. UNCTAD estimates that almost half of cross-border trade in services are enabled by ICT services, and this is increasing rapidly.[29] It is evident that plurilateral services liberalisation on core ICT services would have a strong multiplier effect on all other categories of services, of equal interest to developing and developed economies alike.

Table 7: Trade in services in computer & information services and communication services in 2008

Total trade (2008) bn $	Computer & information services[f]	Communication services[g]	ITA-signatory	Reference paper on telecommunications
India	52.8	3.4	Yes	Yes
EU (external trade)	49.8	27.7	Yes	Yes
United States	28.7	17.3	Yes	Yes
China	9.4	3.1	Yes	No
Canada	7.4	4.3	Yes	Yes
Israel	6.9	0.6	Yes	Yes
Japan	4.9	1.7	Yes	Yes
Norway	3.7	1.2	Yes	Yes
Russia*	3.1	3.4	No	No
Brazil	3.0	0.8	No	No
Australia	2.7	1.8	Yes	Yes
Singapore	2.3	3.1	Yes	Yes
Malaysia	1.9	1.4	Yes	Yes
Argentina	1.3	0.8	No	No
Philippines	1.2	0.6	Yes	No
Hong Kong SAR	1.2	2.1	Yes	Yes
Indonesia	1.0	2.0	Yes	Yes
Korea	1.0	2.0	Yes	Yes
Costa Rica	0.7	0.1	Yes	No
Ukraine	0.6	0.4	Yes	No
Trade of WTO members	186.2	100.5		
Trade of ITA-signatories (share of WTO trade)	178.6 (96%)	85.9 (85%)		
Signatories of Basic Reference paper	--	78.3 (78%)		

* Non-WTO member

f GATS commitments and service trade statistics differ in headings. A vast majority of Computer and Information Services are 'Computer and Related Services' (approximately 80%) with only minor volumes arising from information services

g Majority of communication services (more than 70%) are in telecommunications rather than traditional postal services.

Source: UNCTAD Statistics 2009; WTO 2009 (EU external trade).

29 ibid.

5.3 Incorporating computer related services (CRS)

To begin, there are less political sensitivities towards liberalisation in CRS compared to many other service sectors. Services such as programming, infrastructure management, IT consulting and support, software or database services are increasingly outsourced, or collaboratively developed by firms with no regard to national borders, with multinational enterprises playing a pivotal role with the developing economies that increasingly play the role of *demandeurs* for opening up the markets. It is therefore no surprise that current GATS commitments are surprisingly ambitious on computer-related services – the ITA signatories account for 96% of the trade in CRS amongst WTO members, and the ten largest traders amongst them are sufficient to achieve the 'critical mass' of 90%. Amongst these ten, there are virtually no restrictions in CRS on cross-border trade (mode 1 and 2) and establishment of local commercial presence (mode 3) with the only exception of India's 51% cap on foreign ownership, which has been unilaterally reformed and no longer applied. It seems that the case for including commitments on CRS in the ITA is not overly ambitious.

So far, little work has been done to deepen the commitments on CRS, and some early attempts by the assembly seem today even out of touch – WTO members agreed on the E-Commerce Moratorium that refrains them from tariffs on 'online transmissions', meaning services would not be affected by tariffs (that are imposed on goods). Also, nineteen economies that are all *demandeurs* for further opening of CRS in the Doha Round have signed the 'Understanding on the scope of coverage of CPC 84',[30] stipulating that all CRS are to be covered within one commitment in a single category (chapter heading CPC 84) while the services enabled per se (e.g. banking elements of online banking) are not.

Although many of the standards in the sector are clearly market driven, as proved by the variety of competing standards, rather than by authorities and national industry bodies, there are regulatory barriers besides classification issues that hamper trade. In certain non-market economies, there are licensing regimes with sometimes opaque and arbitrary rules that largely affect online services. There is a widespread licensing requirement in China for online service (a so-called Internet Content Provider license, or ICP-license) and for providing software (so-called app stores) and processing geo-

30 World Trade Organization (2007a) S/CSC/W/51, TN/S/W/60, as to date signed by EU, United States, Canada, Israel, Japan, Norway, Australia, Singapore, Hong Kong SAR, Costa Rica, New Zealand, Chinese Taipei, Croatia, Peru, Chile, Colombia, Turkey, Albania, Mexico.

mapping data and satellite imaging.[31] Other trade barriers are buried within consumer protection or cyber security issues – the EU applies rules for data protection, which limits transfer of consumer data to another EU country or a third country unless it is deemed to have sufficient legal data protection;[32] certain regulators demand local infrastructure and servers physically placed on its territories, or even that proprietary source code of the applications are surrendered to the authorities despite inadequate protection and enforcement for intellectual property. While non-tariff and services barrier regulations have admittedly been proved to be difficult to harmonise within a WTO framework, an agreement on procedural transparency, proportionality and non-discrimination on MFN basis in CRS would vastly improve openness.

5.4 Telecommunication services

As it was noted in the onset, the past two decades have been characterised by unilateral liberalisation and deregulation of the telecommunication markets from public monopolies to one of the most dynamic sectors in services trade. Technological developments aside – establishment of GATS and subsequent annexes played a role in this development. Since then, in the past fifteen years, very little has been achieved. The WTO members' commitments on telecommunications are also far more restricted than for CRS.

For example, China has far-reaching geographic restrictions, joint-venture requirements and non-majority foreign equity caps in telecommunication services – in reality, the market is divided by four state-owned enterprises; India remains unbound across the board for all sub-categories, including voice, data and mobile network services and maintains an antiquated technical restriction that mandates foreign operators to only use GSM; Japan restricts foreign ownership in two of its leading operators (NTT and KDD) to 10%; even the US and some EU Member States (notably Finland, Portugal, Greece, France) have exceptions in their GATS commitments for ownership restrictions for non-EU citizens. Overall, restrictions to trade arise naturally from operator licensing giving the authorities discretionary powers on who may enter the market, which in turn is often combined with collusive and anti-competitive behaviour, or preferences to past national monopolists which inevitably results in high entry barriers.

31 Erixon and Lee-Makiyama (2011).
32 Official Journal of European Communities (1995).

Meanwhile, the telecommunication services have developed significantly beyond basic voice-based services to so-called value-added services (VAS). Clear-cut separation between CRS and telecommunication is increasingly difficult, as the service offering is often a bundling of VAS and CRS: content providers, application vendors and consultancy firms take the role of a traditional operator. They are dependent on bundling network access to provide their products and services to their customers, and increasingly able to do so on a global basis through interconnection and wholesale purchase of network capacities. Companies that are not operators are active in the industry as virtual network operators (VNOs) without actually owning infrastructure in every country they operate in. Network equipment vendors increasingly build a network infrastructure in a country in order to provide capacities on a wholesale basis to the local operators as a managed service. Trade in telephony equipment, CRS and telecommunication services are strongly interlinked. Much of today's market access issues involve incompatibilities between this reality and WTO members' GATS commitments. Removing their restrictions, such as geographic limitations, foreign equity caps and forced joint ventures would bring substantial gains. Also, fair rules on licensing issues would be greatly advanced by incorporating the Telecommunication Annex and the Reference Paper and thus covering all ITA members. There are also national security concerns that relate to foreign ownership of critical services and the possibility of eavesdropping on conversations. GATS provides for caveats on the grounds of public order[33] – which the expanded ITA could reiterate.

ITA members represent 85% of trade in telecommunication services, and therefore fall short of reaching critical mass without participation of non-ITA members – Kuwait alone would contribute with enough trade volumes (6%) to reach 90%; alternatively, critical mass could be reached by the addition of Russia and a constellation of non-ITA members who are nevertheless signatories of the reference paper (Argentina, Chile, Mexico, Pakistan, South Africa). To conclude, telecommunication is inarguably a much more politically sensitive negotiation than CRS – there are significant protectionist interests in the developing world; China and India are fostering their own national champions in these sectors. Network operators are still very much seen as national businesses in many economies with imports and exports being predominantly interconnect and roaming charges for long-distance calls and therefore clearing and settling of debt between operators, rather than cross-border trade. While the telecommunication sector

33 For a detailed analysis of GATS art XX, see Hindley and Lee-Makiyama (2009).

misses the threshold of 90% by only a few per cent, a grand bargaining on ICT goods and services has a certain appeal. Under the current state of play in the WTO, there is practically no new market access on services under the single undertaking of the Doha Round – delinking the entire ICT sectors from the round and negotiating them in the ITA potentially creates alliances between developed and developing countries that are on opposing sides in the Doha talks.

5.5 Mode 4: Temporary movement of physical persons

Services liberalisation in temporary movement of physical persons, so-called Mode 4, is one of the most restricted areas of international trade. An important distinction to make is that Mode 4 is not migration, but temporary relocation, either in the form of staff between subsidiaries of a company, so-called intra-corporate transfers, or through the form of independent providers temporary moving to proximity of the client, as contract service suppliers (CSS) or independent professionals (IP). Mode 4 is particularly important for knowledge intensive sectors such as ICT, and it is the sector where concessions are more likely to be offered than any other. There is a strong and consistent demand of ICT professionals practically everywhere in the world; highly specialised competences have also developed in small geographic clusters in both developing and developed economies.

Concessions on Mode 4 are typically requested and offered bilaterally – the *demandeurs* usually want access to large, developed and high-cost countries like the EU and US, while the latter may have concerns about who they offer concessions to. For example, the EU is likely to make Mode 4 a part of both their EU-Euromed and EU-India FTAs. There is less interest for south-south Mode 4 trade in the sector, but there are convincing arguments for why Mode 4 should be a part of the IDEA. First, the bilateral coverage is simply not enough. The sector is also dominated by multinational enterprises that make very little distinction of where an employee is placed. Products, brands and services are managed on a global basis, rather than nationally or even regionally – many of them are not covered by FTAs or are unlikely to be so in the near future. Even the most pivotal trade link, the one between the EU and the US, is not covered by a bilateral FTA; Second, qualification and licensing requirements are often industry driven and often set by them internationally. Certified engineers from India for certain product platforms are qualified according to the same standards as the United States – and have unique competences and specialisation that are applicable to

both markets. This leads to a third and rather crude final point: As the sector is specialised with highly qualified and specialised solution architects, designers and developers, there is often less concern about temporary movement leading to illegal (or unwelcome) migration.

Given the bilateral concessions, the inclusion of Mode 4 in the International Digital Economy Agreement is less of a landmark agreement than it may seem: it simply extends what is today offered bilaterally or unilaterally from North to South, to also cover North to North, and South to South. Covering Mode 4 is also a logical progression of existing liberalisation for commercial presence (Mode 3): It also makes little sense to have the freedom to establish a commercial presence without the freedom to bring management and transitional staff, such as trainers. Given the points above, it is clear that the most relevant aspect of mode liberalisation in the ICT sector would be intra-corporate transfer, which is perhaps also the most realistic option. It would allow an entity to freely move its staff between its commercial presences around the world, without releasing them from the applicable visa regulations.

Intra-corporate transfers would highly facilitate knowledge transfer within chiefly multinational firms, but less for independent service providers. This would do little for south-south trade, or in the case where service providers do not have an establishment in the country where it is requested to deliver its services. For such cases, the EU has stipulated a numerical quota for such groups and removal of economic needs tests (ENTs) – this offer has already been indicated in the Doha Round for all sectors. Given the degree of specialisation and constant shortage of ICT specialists and lesser degree of political sensitivities in the sector, it is reasonable to assume that a sector-specific quota would be more attractive or easier to negotiate than other service sectors where labour concerns are high, or that a quota on the ICT sector could be higher than the remaining service sectors put together.

Although the ICT sector takes great advantage of cross-border supply, the proximity to the customer market remains important, as it allows firms to become more adaptive to market conditions, develop competitiveness and better deliver their value-added. Therefore, it is often a combination of all modes of supply, and sometimes even hinged on goods trade – for example hardware where the applications will be implemented. In conclusion, including the Mode 4 under the ITA would 'multilateralise' the liberalisation achieved in bilaterals or unilaterally, while delinking the issues from other

areas where bigger political sensitivities persists or economic case is not equally clear cut.

Conclusions: Prospects for the International Digital Economy Agreement

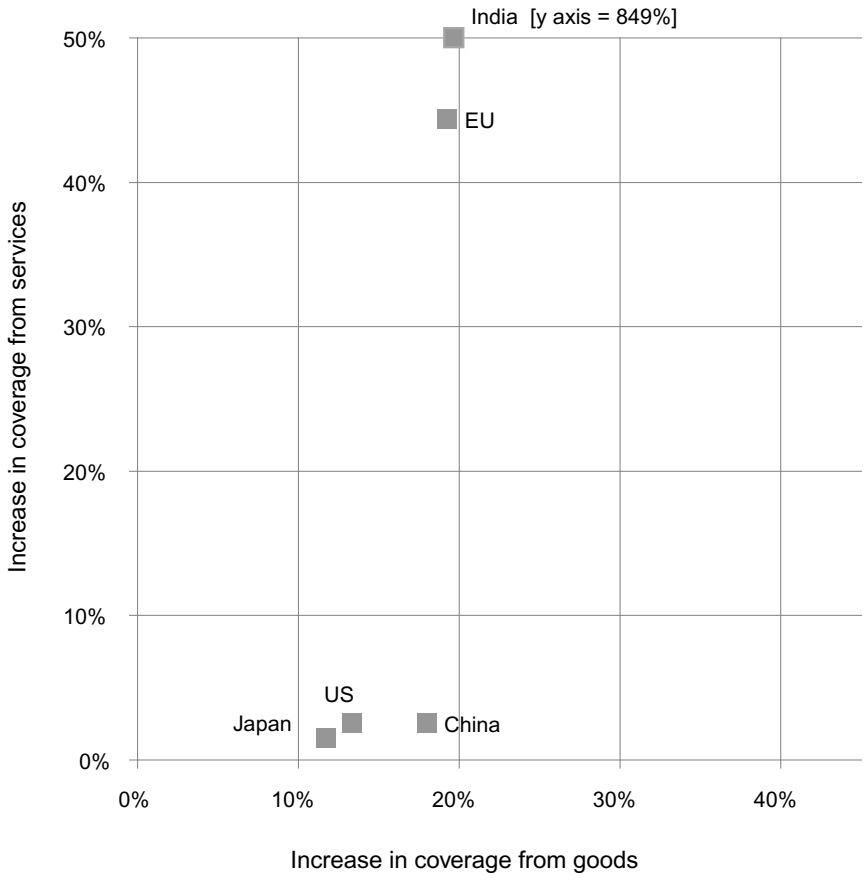
In many respects, the trajectory of the ITA since its inception is an illustration of the inherent weakness of the WTO system. Different political sensitivities led to a minimalist approach where each party agreed to omit important elements, such as consumer electronics and NTBs, rather than a grand bargaining approach. Protectionist interests by the EU and subsequent disputes against it have disrupted progress for fifteen years – a comparison to the Pharmaceutical Agreement (which is now into its fourth revision of the product coverage) shows clearly the opportunities missed for the ICT industry. In both instances, the case for plurilateral agreements, delinked from any trade round, was driven by business. While the Pharmaceutical Agreements had a smaller number of stakeholders, the ITA was in a sense too big in terms of political importance and number of signatories. Developing countries attempted to obtain concessions on textiles in return for the ITA, while the EU insisted on concessions on alcoholic beverages, which led to some calling the ITA the Information, Textiles and Alcohol Agreement.[34] Trade negotiators are simply not inclined to do concessions for free, even if their business and consumer communities ask for it. The linkage strategies lead authors like Bernard Hoekman to state in 2001 at the launch of the Doha Round that there is 'little reason to believe that it will (or should) be a model for future liberalization initiatives under WTO auspices'.[35]

There are several reasons for revaluating Hoekman's assessment. First, Doha Round is mired in its own stalemate – delinking the ICT negotiations which have proponents that go across the North-South divide makes sense from a negotiation and political economy point of view. The impact on the large players shows that developing economies have substantial gains (graph 3), which is not only derived from expanding the product coverage, but they also run a surplus on services trade (annex 3) As we can see, the benefits of expanding the product coverage alone is significant and would increase 10~20% of the coverage for the five large players in the negotia-

34 Fliess and Sauvé (1998).
35 Hoekman and Kostecki (2001).

tions. But the effects from including ICT services would be dramatic, especially in the case of India (+849% increase in coverage), and the EU (+44%).

Graph 3: Export gains from increased coverage/adding services



Source: Own calculations.

Second, increasing specialisation has phased out the sunset industries in the EU and in parts of the developing world that made product coverage a sensitive issue in the past. Third, today's challenges in trade policy are increasingly complex technical issues, such as NTBs and services. Such negotiations are unfit for a single undertaking with the entire WTO membership. Few would recognise the benefit of making some developing countries that

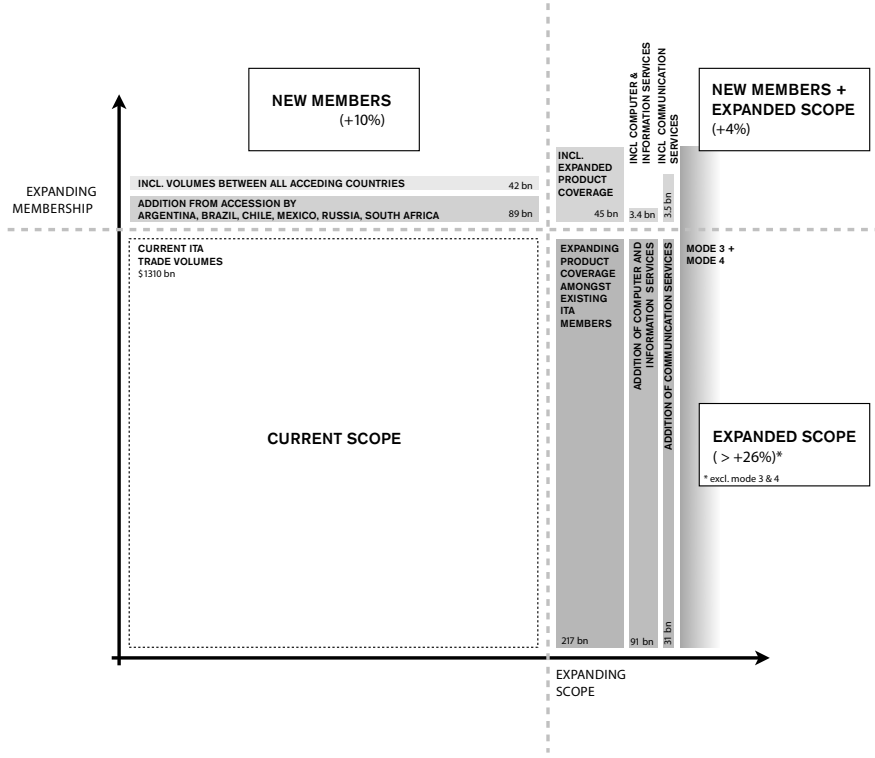
are unable to participate in the ICT value chain, undergo work on SDoC or services until they are capable of reaping the benefits of such liberalisation. Finally, there is a strong demand from the ICT industry in the EU, the US and other economies for a sector agreement 'that reflect more effectively the convergence of goods, services and technology while appealing to a broad range of countries, thus creating a new negotiating dynamic'.[36]

To conclude, one could clearly argue that plurilateral agreements have become a necessity to keep the WTO and the MFN principle relevant. Furthermore, there are clear cases where critical mass can be reached from existing commitments and Doha offers, most notably on computer and related services. This is also why enlarging the group of ITA members must not compromise the institutionally important aspects in creating the International Digital Economy Agreement. Lack of progress will inevitably lead to marginalisation of WTO and further proliferation of bilateral trade agreements – a second best for the international trading system and the industry, which would not get rid of complex rules of origin issues that impede trade from bilateral trade liberalisation.

In conclusion, it is all too clear that ICT sector has moved on since the ITA was negotiated. The WTO and the international trading system simply missed the boat on perhaps the most important innovation for globalisation since the maritime shipping lanes – the Internet. Where we talked of trade in IT products in the past, there is now a digital economy with little distinction between goods, services or national borders. The convergence is increasing with the new mobile and network technologies that have changed the nature of how the digital economy trades. In order to keep the WTO system relevant, a coverage that spans all barriers to ICT products, services and movement of workers is needed – without any conditionality for purpose or usage. The trade policy climate has changed since the mid-1990s: tariff barriers have played out its role to services barriers, NTBs and rules of origin issues. Protectionist interests and pursuit of industrial policy resist industry-driven standard setting that risk balkanising and breaking apart the networks for global production and open information. The discrepancy in scope between ITA and IDEA proves this point very clearly – IDEA adds 27% in trade volumes compared to the ITA (graph 4) even if the economic flows under Modes 3 and 4 are not included, and up to 40% if IDEA included the six new members.

36 Technology CEO Council (2009).

Graph 4: Summary of all gains in IDEA



Source: Own calculations.

Annex 1: List of ITA participants

Albania
Australia
Bahrain
Canada
China
Costa Rica
Croatia
Dominican Republic
Egypt
El Salvador
European Union and its 27 Member States
Georgia Guatemala
Honduras
Hong Kong, China
Iceland
India
Indonesia
Israel
Japan
Jordan
Korea
Kyrgyz Republic
Liechtenstein
Macao, China
Malaysia
Mauritius
Moldova
Morocco
New Zealand
Nicaragua
Norway
Oman
Panama
Peru
Philippines
Saudi Arabia
Singapore
Switzerland
Chinese Taipei
Thailand
Turkey
Ukraine
United Arab Emirates
United States
Viet Nam

Annex 2: Proposed expanded list of coverage for ICT goods

Section 1: Inclusion by category

3818 Chemical elements doped for use in electronics, discs wafers etc, chemical compounds for use in electronics

8443 Printing machinery used for printing by means of plates, cylinders and other printing components of heading 84.42; other printers, copying machines and facsimile machines, whether or not combined; parts and accessories thereof

8456 Machine tools for working any material by removal of material, by laser or other light or photon beam, ultrasonic, electro-discharge, electro-chemical, electron beamer, ionic-beam or plasma arc processes.

8464 Machine tools for working stone, ceramics, concrete, asbestos-cement or like minerals or for cold working glass

8469 Typewriters other than printers of heading 84.43; word processing machines

8470 Calculating machines and pocket-size data recording, reproducing and displaying machines with calculating functions; accounting machines, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device; cash registers

8471 Automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, nesoi.

8472 Other office machines (for ex hectograph or stencil duplicating machines, addressing machines, automatic banknote dispensers, coin-sorting machines, coin-counting or wrapping machines, pencil-sharpening machines, perforating or stapling machines)

8473 Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with machines of heading 84.69 to 84.72

8486 machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays; machines and apparatus specified in Note 9 (C) to this Chapter

8504 Electrical transformers, statical converters (for ex rectifiers) and inductors

8514 Industrial or laboratory electric furnaces and ovens (including those functioning by induction or dielectric loss); other industrial or la-

boratory equipment for the heat treatment of materials by induction or dielectric loss

8517 Telephone sets, including telephones for cellular networks or for other wireless networks, other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network

8518 Microphones and stands therefore; loudspeakers, whether or not mounted in their enclosures; headphones and earphones, whether or not combined with a microphone, and sets consisting of a microphone and one or more loudspeakers, audio-frequency electric amplifiers

8519 Sound recording or reproducing apparatus.

8521 Video recording or reproducing apparatus, whether or not incorporating a video turner

8522 Parts and accessories suitable for use solely or principally with the apparatus of heading 85.19 to 85.21

8523 Discs, tapes, solid-state non-volatile storage devices, smart cards and other media for the recording of sound or of other phenomena, whether or not recorded, including matrices and masters for the production of discs

8525 Transmission apparatus for radio broadcasting or television, whether or not incorporating reception apparatus or sound recording or reproducing apparatus; television cameras, digital cameras and video camera recorders

8526 Radar apparatus, radio navigational aid apparatus and radio remote control apparatus

8527 Reception apparatus for radio broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock

8528 Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio broadcast receivers or sound or video recording or reproducing apparatus

8529 Parts suitable for use solely or principally with the apparatus of heading 85.25 to 85.28

8532 Electric capacitors, fixed, variable or adjustable (pre-set)

8533 Electrical resistors (including rheostats and potentiometers) other than heating resistors

8534 Printed circuits

8536 Electrical apparatus for switching or protecting electrical circuits, or for making connections to or electrical circuits (for example, swit-

ches, relays, fuses, surge suppressors, plugs, sockets, lamp-holders and other connectors, junction boxes)

8540 Thermionic, cold cathode or photo-cathode valves and tubes (for example, vacuum or vapour or gas filled valves and tubes, mercury and rectifying valves and tubes, cathode-ray tubes, television camera tubes)

8541 Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes; mounted piezo-electric crystals

8542 Electronic integrated circuits

8543 Electrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter

8544 Insulated (including enamelled or anodised) wire, cable (including co-axial cable) and other insulated electric conductors, whether or not fitted with connectors; optical fibre cables, made up of individually sheathed fibres

9001 Optical fibres & optical fibre bundles etc, polarising sheets, unmounted optical elements

9010 Apparatus and equipment for photographic (including cinematographic) laboratories, not specified or included elsewhere in this chapter; negatoscopes, projection screens

9011 Compound optical microscopes, including those for photomicrography or microprojection

9012 Microscopes other than optical microscopes; diffraction apparatus

9017 Drawing, marking-out or mathematical calculating instruments (for example, drafting machines, pantographs, protractors, drawing sets, slide rules, disc calculators); instruments for measuring length, for use in the hand (for example, measuring rods)

9026 Instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases (for example, flow meters, level gauges, manometers, heat meters), excluding instruments and apparatus of heading 90.14, 90.15, 90.28

9027 Instruments and apparatus for physical or chemical analysis (for ex. Polarimeters, refractometers, gas or smoke analysis apparatus); instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension

9029 Revolution counters, production counters, taximeters, mileometers, pedometers and the like; speed indicators and tachometers, other than those of heading 90.14 or 90.15; stroboscopes

9030 Oscilloscopes, spectrum analysers and other instruments and apparatus for measuring or checking electrical quantities, excluding meters of heading 90.28

Section 2: Inclusion by product / product currently covered by ITA and additions

701710 Laboratory glassware, whether/not graduated/calibrated, of fused quartz/other fused silica
841989 Machinery, plant & equipment, not elsewhere specified in Chapter 84, other than for making hot drinks/for cooking/heating food, whether/not electrically heated
841990 Parts of machinery, plant/laboratory equipment, whether/not electrically heated (excluding furnaces, ovens & other equipment of heading 85.14
842119 Other centrifuges, including centrifugal dryers, excluding cream separators & clothes-dryers
842489 Other mechanical appliances (whether/not hand-operated) for projecting, dispersing/spraying liquids/powders; excluding 8424.10, 8424.20, 8424.30, 8424.81
842490 Parts of mechanical appliances (whether/not hand-operated) for projecting, dispersing/spraying liquids/powders; fire extinguishers, whether/not charged; spray guns & similar appliances; steam/sand blasting machines & similar jet projecting machines
846691 Parts & accessories for machines of heading 84.64
846693 Parts & accessories for machines of heading 84.56 to 84.61
847710 Injection-moulding machines
847790 Parts of machinery for working rubber/plastics/for the manufacture of products from these materials, not specified/included elsewhere in this Chapter
847950 Industrial robots, not elsewhere specified/included
847989 Other machines & mechanical appliances, other than machines & mechanical appliances for treating metal
847990 Parts of machines & mechanical appliances having individual functions, not specified/included elsewhere in this Chapter
848071 Moulds for rubber/plastics, injection/compression types
850650 Primary cells & primary batteries lithium
853120 Indicator panels incorporating liquid crystal devices (chemically defined)/light emitting diodes (LED)
853190 Parts of the apparatus of 85.31

903141	Optical instruments & appliances for inspecting semiconductor wafers/devices/for inspecting photomasks/reticles used in manufacturing semiconductor devices (excluding 9030.82)
903149	Other optical instruments & appliances, other than 903141
903190	Parts & accessories of the instruments, apparatus & machineries of 9031

Annex 3: Country specific examples: ITA countries

(bn US$, current trade based on national list for imports, agreed product coverage in the WTO for exports)

Table 8: China

China	Imports	Exports
Current trade	172.4	311.1
Product expansion	187.1	367.0
Country expansion (all six non-ITA countries)	177.1	323.5
Product and country expansion	188.9	381.9
Computer and related services	3.2	6.3
Telecommunication services	1.5	1.6

Table 9: EU

EU	Imports	Exports
Current trade	232.1	109.5
Product expansion	259.2	130.6
Country expansion (all six non-ITA countries)	227.1	126.7
Product and country expansion	264.9	151.4
Computer and related services	14.9	34.9
Telecommunication services	14.1	13.7

Table 10: India

India	Imports	Exports
Current trade	24.8	6.1
Product expansion	27.2	7.3
Country expansion (all six non-ITA countries)	24.2	6.4
Product and country expansion	27.4	7.6
Computer and related services	34.2	49.4
Telecommunication services	1.0	2.4

Table 11: Japan

Japan	Imports	Exports
Current trade	40.4	108. 0
Product expansion	78.4	120. 7
Country expansion (all six non-ITA countries)	65.3	110. 6
Product and country expansion	78.9	123. 7
Computer and related services	3.9	0. 9
Telecommunication services	1.1	0. 7

Table 12: USA

USA	Imports	Exports
Current trade	192.0	76.6
Product expansion	232.2	86.8
Country expansion (all six non-ITA countries)	218.4	92.6
Product and country expansion	280.1	105.8
Computer and related services	16.1	12.6
Telecommunication services	7.8	9.5

Non-ITA signatories
(bn US$, agreed product coverage in WTO used as base for current trade)

Table 13: Argentina

Argentina	Imports	Exports
Current trade with ITA countries	3.1	0.098
Product expansion	3.8	0.13
Country expansion (all six non-ITA countries)	4.3	0.18
Product and country expansion	5.3	0.28

Table 14: Brazil

Brazil	Imports	Exports
Current trade with ITA countries	14.2	1.1
Product expansion	16.4	1.49
Country expansion (all six non-ITA countries)	14.7	2.4
Product and country expansion	16.99	3.3

Table 15: Chile

Chile	Imports	Exports
Current trade with ITA countries	2.4	0.068
Product expansion	3.0	0.082
Country expansion (all six non-ITA countries)	2.9	0.094
Product and country expansion	3.6	0.112

Table 16: Mexico

Mexico	Imports	Exports
Current trade with ITA countries	48.1	36.1
Product expansion	54.5	61.3
Country expansion (all six non-ITA countries)	48.4	36.7
Product and country expansion	54.8	62.0

Table 17: Russia

Russia	Imports	Exports
Current trade with ITA countries	14.2	0.976
Product expansion	17.7	1.6
Country expansion (all six non-ITA countries)	14.3	0.98
Product and country expansion	17.7	1.62

Table 18: South Africa

South Africa	Imports	Exports
Current trade with ITA countries	6.7	0.47
Product expansion	7.98	0.59
Country expansion (all six non-ITA countries)	6.8	0.5
Product and country expansion	8.1	0.63

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