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Trade and Innovation: Policy Options for a New Innovation Landscape

Policy Options Paper



 The **E15** Initiative

STRENGTHENING THE GLOBAL TRADE AND
INVESTMENT SYSTEM FOR SUSTAINABLE DEVELOPMENT

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Trade and Innovation: Policy Options for a New Innovation Landscape

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on behalf of the E15 Expert Group on Trade and Innovation

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Note

The policy options paper is the result of a collective process involving all members of the E15 Expert Group on Trade and Innovation. It draws on the active engagement of these eminent experts in discussions over multiple meetings as well as think pieces commissioned by the E15 Initiative and authored by group members. John M. Curtis was the author of the report. While a serious attempt has been made on the part of the author to take the perspectives of all group members into account, it has not been possible to do justice to the variety of views. The policy recommendations should therefore not be considered to represent full consensus. The list of group members and E15 papers are referenced.

The full volume of policy options papers covering all topics examined by the E15 Initiative, jointly published by ICTSD and the World Economic Forum, is complemented with a monograph that consolidates the options into overarching recommendations for the international trade and investment system for the next decade.

The E15 Initiative is managed by Marie Chamay, E15 Senior Manager at ICTSD, in collaboration with Sean Doherty, Head, International Trade & Investment at the World Economic Forum. The E15 Editor is Fabrice Lehmann.

E15 Initiative

Jointly implemented by the International Centre for Trade and Sustainable Development (ICTSD) and the World Economic Forum, the E15 Initiative was established to convene world-class experts and institutions to generate a credible and comprehensive set of policy options for the evolution of the global trade and investment system to 2025. In collaboration with 16 knowledge partners, the E15 Initiative brought together more than 375 leading international experts in over 80 interactive dialogues grouped into 18 themes between 2012-2015. Over 130 overview papers and think pieces were commissioned and published in the process. In a fast-changing international environment in which the ability of the global trade and investment system to respond to new dynamics and emerging challenges is being tested, the E15 Initiative was designed to stimulate a fresh and strategic look at the opportunities to improve the system's effectiveness and advance sustainable development. The second phase of the E15 Initiative in 2016-17 will see direct engagement with policy-makers and other stakeholders to consider the implementation of E15 policy recommendations.

E15 Initiative Themes

- Agriculture and Food Security
- Clean Energy Technologies
- Climate Change
- Competition Policy
- Digital Economy
- Extractive Industries*
- Finance and Development
- Fisheries and Oceans
- Functioning of the WTO
- Global Trade and Investment Architecture*
- Global Value Chains
- Industrial Policy
- Innovation
- Investment Policy
- Regional Trade Agreements
- Regulatory Coherence
- Services
- Subsidies

* Policy options to be released in late 2016

For more information on the E15 Initiative:
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Abstract

The interconnection between trade and innovation is one of mutual reinforcement and this two-way relationship has become the subject of growing attention among experts and practitioners. With the innovation process increasingly organized in global networks and value chains across borders, innovation, trade, investment and industrial policies are now more closely intertwined and their interface is in need of a fresh look. Many countries are actively pursuing ambitious innovation policies to boost their competitiveness. Research and development activities, both public and private, are becoming more transnational in nature. At the same time, societies across continents are in growing need of deploying and adapting new technologies and building innovative capacities to effectively address sustainable development challenges, including the environment, food security and public health. Yet innovation affects countries at separate rungs on the development ladder differently. Distinct policy tools (and their application) intended to encourage innovation and facilitate its dissemination

and absorption will be appropriate in diverse situations. Against this background, the present paper assesses whether current trade regulatory frameworks, in particular WTO agreements, adequately support innovation as a policy objective in the context of the knowledge economy and the digital environment. It then converges around recommendations in six broad categories of possible policy change: global rules on digital trade; new rules to expand the movement of people to pursue innovation opportunities; revised rules on internationally agreed and targeted research subsidies in areas of recognized global public concern; a concerted move to establish international standard-setting on the basis of open and global collaboration; an internationally coordinated approach to trade secrets; and steps to improve innovation-related data collection. It concludes by submitting different approaches to innovation and trade system reform and by identifying a set of research gaps that deserve further analysis at the intersection between innovation, trade and sustainable development.

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Abbreviations	
ABST	Agreement on Access to Basic Science and Technology
ASCM	Agreement on Subsidies and Countervailing Measures
BERD	business enterprise expenditure on research and development
DETA	Digital Economy Multilateral Trade Agreement
EPA	Economic Partnership Agreement
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GIN	global innovation network
GPA	Government Procurement Agreement
IEL	international economic law
ITA	Information Technology Agreement
LDC	least developed country
MFN	most favoured nation
MNE	multinational enterprise
OECD	Organisation for Economic Co-operation and Development
R&D	research and development
RCEP	Regional Comprehensive Economic Partnership
SME	small and medium-sized enterprise
SPS	sanitary and phytosanitary
TBT	technical barriers to trade
TPP	Trans-Pacific Partnership
TRIMs	Trade-Related Investment Measures
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TTIP	Transatlantic Trade and Investment Partnership
UNESCO	United Nations Educational, Scientific and Cultural Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Executive Summary

The relationship between trade and innovation has become the subject of growing attention among development experts, policy-makers and business executives. Globalization and digital technologies have had a profound impact on the global innovation landscape. With the innovation process increasingly organized in global networks and value chains across borders, innovation, trade, investment and industrial policies are now more closely intertwined and their interface is in need of a fresh look.

The E15 Expert Group on Trade and Innovation, which was co-convened by ICTSD and The Evian Group@IMD in partnership with the World Economic Forum, examined the interface between international trade and innovation. The central task was to determine whether current trade regulatory frameworks, in particular WTO agreements, adequately support innovation as a policy objective. To the extent that “choke points” could be identified that appear to limit the international flow of knowledge, technology, business practices and people, the group addressed the question of what policy options could be envisaged in the medium to long term to better facilitate these flows. The experts also identified a set of research gaps that deserve further analysis at the intersection between innovation, trade and sustainable development.

Innovation and the Trading System

New dynamics regarding innovation as a critical constituent of sustainable development have emerged as a result of globalization. Three important trends are briefly reviewed in the paper as background to the policy options: the emergence of global innovation networks (GINs); the growing need to address public goods at the global level; and mounting interest in new forms of industrial policy.

The interconnection between trade and innovation is one of mutual reinforcement. “Trade rules, regimes, and flows provide some of the necessary inputs to innovative activities. On the other hand, inventions, new processes, goods, services, and intangibles benefit from global markets to increase sales, scalability, efficiency, profitability, productivity, and skills” (Benavente 2014). This two-way process is extremely complex to frame and incorporate in multilateral trade and investment rules. Trade liberalization and investment flows contribute to technology diffusion and innovation. On the other hand, the strengthening of national innovation capabilities, which can often rely on discriminatory policies, improves a country’s ability to engage in and benefit from the international trade system.

Domestic innovation-related policies and measures span a wide range of WTO rules and disciplines. There is no single overarching WTO agreement that deals with innovation, but rather a variety of agreements that influence innovation activities such as those on subsidies, intellectual property, services, technical barriers to trade, investment measures and government procurement. The multilateral trading system, through these agreements, clearly has an impact on innovation-related policies and decisions by public and private economic actors on how and where to invest in innovation.

Innovation and Trade-Related Policy Options

The expert dialogue converged around six broad categories of possible policy change that can be set out on a preliminary basis for broader discussion. These categories, which include ten medium to long-term policy options, are: global rules on digital trade; new rules to expand the movement of people to pursue innovation opportunities; revised rules on internationally agreed, targeted, and coordinated research subsidies in areas of recognized global public concern; a concerted move to establish international standard-setting on the basis of open and collaboration rather than through nation-centric considerations; an internationally coordinated approach to trade secrets; and steps to improve innovation-related data collection. The Expert Group also discussed the effects on innovation of intellectual property rights, with an emphasis on patents and particularly on the TRIPS Agreement. However, there was no consensus on whether any modifications were needed or practically feasible at this stage to enhance the TRIPS Agreement’s contribution to stimulate innovation globally.

Digital Trade

Policy change to cover digital trade across borders can conceivably proceed in two ways. First, it can be incremental by building on the principles of existing international trade agreements. A medium-term option is thus to set out clarified and expanded provisions in future trade agreements, particularly in the WTO, to cover all aspects of digital trade based on existing rules and procedures. Second, an ambitious and entirely new international arrangement could be created to cover all aspects of digital trade. Such a Digital Economy Trade Agreement, which would deal with “deeper integration” issues related to digital trade, could be established as a stand-alone agreement or under the WTO, possibly initiated on a plurilateral basis to be multilateralized in due course.

Movement of People: Innovation Networks

A second set of policy options involves removing on a concerted basis barriers hindering the movement of technically and entrepreneurially skilled persons and research professionals across borders to pursue innovation opportunities. An ambitious approach worth exploring would be a system that would link skilled workers together in an “innovation zone” in which countries would agree to allow longer-term work visas that would be valid in all participating countries. This proposal could build on expanded Mode 4 commitments in the General Agreement on Trade in Services (GATS).

Subsidies and Public Grants

A third area of possible reform in support of innovation relates to expanding the policy space for governments and the private sector to explicitly permit subsidies to address agreed and targeted global public policy objectives such as, for example, the development of essential medicines, water management, agricultural productivity, waste disposal, energy conservation and climate change. The first recommendation would be to clarify the relationship between public research grants and permissible subsidies under the WTO Agreement on Subsidies and Countervailing Measures. A more ambitious longer-term option would be to establish an Agreement on Access to Basic Science and Technology, whose fundamental notion would be to preserve and enhance the global commons in science and technology without unduly restricting private rights in commercial technologies.

Technical Barriers to Trade and Standardization

The WTO Agreement on Technical Barriers to Trade could be revised to better facilitate innovation. The concept of standardization, in particular, could be updated to reflect the existence of *a priori* globally open, transparent and bottom-up standards to promote global public goods. WTO processes in this area could be reformed so as to explicitly acknowledge the concept of standardization beyond nation-centric and intergovernmental arrangements.

Trade Secrets

A fifth area of possible policy change relates specifically to trade secrets. National laws and practices with respect to trade secrets vary greatly and it could be of value to bring consistency to the treatment of trade secrets into the international trade legal framework, possibly through a non-binding understanding or in a stand-alone arrangement.

Measurement of Trade and Innovation

A final recommendation relates to the importance of improved measurement of trade-related aspects of innovation to better inform the negotiating process in the WTO (and other relevant international organizations). Efforts towards a better measurement are challenged by the fragmentation of fora, approaches, classifications, taxonomies and databases. International organizations such as the WTO and WIPO could encourage national governments to develop surveys in collaboration with the private sector in order to provide useful information concerning all aspects of innovation and trade.

Way Forward

The Expert Group in its deliberations and exploratory work examined many issues, some of them more mature for policy consideration than others. While there was no consensus on the preferred route for promoting innovation in the context of the existing international trade system, four different approaches to innovation and trade system reform are conceivable: an incremental approach within or beyond the WTO; and, a more ambitious approach within or beyond the WTO. In view of the current deadlock in the Doha negotiations at the WTO, it can be argued that an incremental approach is the most viable option at the multilateral level. However, there is a growing tension between what the multilateral trade system can contribute, particularly in terms of timely decisions, and what is required to facilitate innovation on a global scale.

The cross-cutting nature of innovation and its multifaceted character prevailed in and permeated the discussions of the Expert Group. Important efforts were made in identifying research gaps that deserve further analysis and reflection at the intersection between innovation, trade and Sustainable Development Goals. There was an emphasis on establishing better understanding of the underlying issues as well as the need to carry out further work on a number of the questions examined by the group. These issues fell into four broad thematic areas: policy frameworks, innovation systems and best practices; the international trading system and plurilateral processes; attention to small and medium-sized enterprises; and, intellectual property-related questions.

There are well established institutions that could play a role in leading this consensus and bridge-building process around the policy options presented in the paper as well as carrying forward discussion and analysis of the issues and research gaps identified by the group.

Introduction

In the context of the E15Initiative, a group of experts examined the interface between trade and innovation with the objective of identifying challenges and opportunities facing the global trading system in the innovation landscape of the early 21st century. A set of knowledge gaps and policy options were identified during the discussions, many of which could serve as guideposts to facilitate change in the world trade regime and to steer it in a manner more supportive of the promotion of global innovation for sustainable development.¹

The relationship between trade and innovation has been the subject of growing attention on the part of policy-makers and others in the private and non-governmental sectors. Existing agreements under the WTO, such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) or the General Agreement on Trade in Services (GATS), as well as most recent regional and bilateral trade agreements, touch both directly and indirectly on various aspects of trade and innovation. However, these agreements are often perceived to be suboptimal in terms of generating significant incentives for innovation.

There is a clear link between trade and innovation—with innovation broadly perceived as the transformation of an invention into marketable products and services, the development of new business processes and methods of organization, and the absorption, adaptation and dissemination of novel technologies and know-how. The relationship is one of mutual reinforcement: trade can serve to shape innovation and innovation can shape trade.

The central task of the Expert Group, co-convened by ICTSD and The Evian Group@IMD in partnership with the World Economic Forum, was thus to determine whether the existing system of trade rules is either promoting or simply accommodating innovation worldwide. To the extent that “choke points” could be identified that appear to limit the international flow of knowledge, technology, business practices and people, this paper addresses the question of what policy options could be envisaged or recommended in the medium to long term to better facilitate these flows—thereby encouraging global efforts to further innovation for sustainable development.

The significant changes that the global innovation landscape is witnessing are important to bear in mind. Economic activities are increasingly services-oriented and organized into global or regional value chains, which are becoming ever-more prominent characteristics of the world economy. Research and development activities also are becoming more transnational in nature. At the same time, many countries are actively pursuing ambitious innovation policies to boost their competitiveness. Yet, innovation affects countries differently. Distinct policy tools (and their application) intended to encourage innovation will be appropriate in diverse situations. Policies and experiences in advanced industrialized countries and emerging economies may not be well adapted, for example, to countries where access to global markets and technology flows is more limited and where absorptive and innovative capacities are weaker. Thus, the harmonization of rules, regulations and standards is challenging to achieve in a world economy whose operations and practices are changing rapidly and are increasingly differentiated.

¹ The issues and policy options outlined in this paper are inspired from group deliberations that took place between 2013-14 and draw freely on think pieces, referenced below, commissioned by the E15Initiative.

1. Global Innovation and the Trading System

1.1. The Growing Importance of Innovation

Acknowledgement of the role of innovation has come relatively late in mainstream economics and still remains relatively undigested despite its growing status as a focal point for developmental policies and for growth of the firm. One important reason for this certainly stems from the fact that innovation is hard to measure. Economists are more comfortable with assessing the growth impact of labour, capital and productivity than coming to grips with the complex and multidimensional notion of innovation. The concept remains to some extent a “black box” around which economists circle, inferring what is going on inside through more tangible evidence and indicators, such as R&D spending, patent filings, scientific publications and the development of new products and services.

There are, however, some stylized facts that are worth noting. First, the various indicators associated with innovation are poorly correlated. While intellectual property rights can be important for incentivizing innovation in a number of sectors, they are not necessarily synonymous with it; stronger levels of intellectual property protection could even be detrimental to innovation in other sectors. Second, just as firms are highly heterogeneous, so are returns to patents and other forms of intellectual property. The impact of the vast bulk of intellectual property rights recognized by national authorities, and enshrined under TRIPS and other international intellectual property agreements, remain open to debate in terms of increased innovation. Third, the role of R&D has evolved. While most research is done in the public sphere and the majority of development is done in the corporate sphere, this division has evolved as an increasing number of governments directly or indirectly support business R&D (OECD 2013). There is also a growing priority given to the commercialization of publicly funded R&D. This can result in an imbalance in the determination of research priorities and the allocation of resources in a manner detrimental to the research that ultimately feeds into supporting development efforts and to responding to longer term public policy objectives and needs. Fourth, the innovation gains from imitation can be significant, particularly for newcomer innovators.

Conceptualizing innovation is thus a challenge. This policy options paper follows the definition outlined in the OECD Oslo Manual 2005, which has also been adopted by other international organizations such as UNESCO and the World Intellectual Property Organization (WIPO). “An innovation is the implementation of a new or significantly

improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (OECD and Eurostat 2005, 46). Moreover, “a new or improved product is implemented when it is introduced on the market. New processes, marketing methods or organizational methods are implemented when they are brought into actual use in the firm’s operations” (OECD and Eurostat 2005, 47). While R&D is an essential component of innovation, it is only one part of a broader process of discovery, transformation, adaptation and disruption.

The Oslo Manual concept of innovation has a number of advantages (Benavente 2014). The definition does not focus exclusively on technological processes and products. It recognizes that low-tech sectors—which are less R&D intensive and more prevalent in emerging and developing countries—are also subject to innovation. Moreover, it applies not only to goods, services and intellectual property, but also to other intangibles, such as “soft” innovations in business and organizational methods, including firm-level training, testing, marketing and design. Finally, as quoted above, the requirement of “commercialization” is embedded in the definition through the qualification of the word “implementation.”

1.2. Globalization and the Changing Innovation Landscape

Globalization and digital technologies have had a profound impact on the global innovation landscape. At the same time, innovation has become a crucial aspect of the development process, as policy-makers in both high and low-income countries increasingly see the development and adoption of advanced technologies, know-how and new business methods as key to stimulating productivity, competitiveness, employment and growth. Innovation as a policy objective has thus become a priority for many governments in advanced, emerging and developing economies, increasingly pursued through measures that support private and public R&D as well as incentives for the transfer of knowledge and technology through a mix of industrial, investment and trade policies.

New dynamics regarding innovation as a driver for sustainable development have emerged as a result of globalization. For the purpose of this paper, three trends are briefly outlined: the emergence of global innovation networks (GINs); the growing need to address public goods at the global level such as environmental protection; and mounting interest in new forms of industrial policy. All are perceived as a means of acquiring capabilities and expanding absorptive capacities in science, technology and innovation, not least in developing countries.²

² This section draws heavily on Maskus (2015) and Maskus and Saggi (2013).

1.2.1. The emergence of global innovation networks

The expansion of global innovation networks has mirrored the evolution of transnational production networks and value chains that increasingly characterize world trade and investment in terms of specialization and geographic dispersion. The resultant cross-border trade in value-added embodies the flow of tasks rather than products, “thus providing a direct link to the innovation literature, for which business activities along supply chains, such as R&D, design, production, marketing, and the provision of services, are the crucial elements” (Benavente 2014).

In the narrow sense, [the concept of GINs] refers to the establishment within a multinational enterprise (MNE) of one or more R&D affiliate facilities at different locations around the world, along with the consequent R&D management, specialization decisions, and exchange of information among them and the parent company. This concept, along with explaining the determinants of R&D location choice and the anticipated efficiency gains, lies at the core of the business-economics literature on the globalization of innovation (Maskus and Saggi 2013).

More broadly, innovation networks incorporate many actors, including MNEs (which may collaborate in R&D), high-technology start-ups, universities and public research laboratories, venture capitalists, specialized technology brokers, standard-setting organizations, and government agencies. These networks emerge as different participants recognize the gains from research specialization and collaboration (for example, in licensing, public-private partnerships, and international research alliances). These broader networks have multiple commercial and public objectives, ranging from basic revenue to knowledge creation and the solution of global public problems requiring complex research investments (Maskus 2015).

Policy-makers in countries at all ladders of economic development have come to see the integration of their economy’s enterprises and institutions (e.g. universities, research centres, public laboratories) with GINs as a key driver of technology transfer, knowledge diffusion, local innovation, entrepreneurship and competitiveness. It is worth noting that private and public agents from emerging economies are playing a dramatically growing role in these global collaboration networks and that there is increasing international mobility of research professionals and knowledge workers across institutions and firms within these networks. In this context, even economies that are not following an explicit outward-oriented strategy of development have begun to pay much greater attention to GINs.

1.2.2. Innovation and public goods

Societies across continents are in growing need to deploy and adapt new technologies and build innovative capacities to effectively address sustainable development challenges. These include environmental sustainability (especially efforts targeted at climate change mitigation and adaptation but also the loss of natural habitats and biodiversity), energy efficiency, water management, waste disposal, agricultural productivity, food security, and public health.

Developing countries with narrow markets and more limited absorptive capacities are confronted with several barriers for the effective transfer and adaptation of technologies through imports. First, potential market demand for technologies, products or services that attend to problems of public interest might be insufficient to provide incentives for private R&D and innovation. Second, firms in developing countries might often lack the financial resources and technical capacities to acquire and adapt to local conditions available technologies, such as wastewater treatment, agricultural inputs or renewable power generation, which often require substantial capital investments. As Maskus (2015) concludes, specifically in the context of environmental protection and green technologies, “these dual market failures—inadequate innovation incentives and costly adaptation—call for policy intervention, the most direct and effective of which is likely to be direct subsidization.”

1.2.3. Innovation and new industrial policy

Many innovation and development economists have come to advocate a new form of industrial policy that has gained growing influence and traction in policy circles. The theoretical foundation underpinning this approach can be found in the work of Hausmann and Rodrik (2002), who interpret economic development as a process of self-discovery.³ The current debate and proposals on updated forms of industrial policy are less about market interventionism and more on technological innovation, productivity gaps, R&D, entrepreneurship, vertical specialization and agglomeration economies.

In the European Union, this new interpretation of industrial policy in the modern world economy has led to a proposal to implement a comprehensive package of policy instruments designed to engage in “smart specialization.” Another reason for which the attractiveness of new forms of industrial policy may expand is the perception that certain fast-emerging economies, in particular China, have succeeded in stimulating key industries through the application of a blend of such policy measures. This has added credence to the suggestion that well-designed industrial policies can improve competitiveness, facilitate the transfer of technologies, build innovative capacities and upgrade targeted economic sectors. As a result, many emerging countries may be inclined to follow variants of this prescription in which innovation is a core consideration. For low-income countries—often characterized by low flows

³ According to Maskus (2015): “Their insight is that economic development is an uncertain process in that developing countries may not know what they may be good at producing in the early stages of industrialization or transformation into modern sectors. In this context, a period of “self-discovery” regarding domestic costs can be socially valuable for it permits potential entrepreneurs to experiment in areas of technology acquisition, adaptation, and innovation. However, such activities are likely to be readily imitated, implying that developing countries are likely to engage in too-little ex ante investment and entrepreneurship and too much fragmentation ex post. Their policy prescription is to encourage experimentation through both forms of appropriability [i.e. IP rights and market guarantees] (not necessarily strong IP rights) and public supports, while finding means of rationalizing and concentrating the production mix after the process matures.”

of international trade and investment and for which the trade system does not spur the kind of knowledge diffusion witnessed in middle income and emerging economies—this debate on industrial policy tools may be even more salient as they seek to develop a competitive and sustainable industrial base.

1.3. Multilateral Trade Regulatory Frameworks and Innovation

The central issue that this paper seeks to address is whether current trade regulatory frameworks, in particular WTO agreements, adequately support innovation as a policy objective in the context of the knowledge economy and the digital environment. In other words, what are the contributions and limitations of the current global trade system vis-à-vis innovation and how could it be improved? As the innovation process is increasingly organized in global networks and value chains across borders, innovation, trade, investment and industrial policies are now more closely intertwined and their interface is in need of a fresh look. The role of innovation was not at the forefront of government considerations when the WTO was established in 1994. Addressing its many dimensions in the present-day economic environment could trigger new responses that could help revitalize the multilateral trading system and reaffirm its relevance.

As described by Benavente (2014), “the interconnection between trade and innovation works both ways. Trade rules, regimes, and flows provide some of the necessary inputs to innovative activities. On the other hand, inventions, new processes, goods, services, and intangibles benefit from global markets to increase sales, scalability, efficiency, profitability, productivity, and skills” (See Kiriya (2012) for a review of the literature on the trade and innovation linkage).

This two-way process is extremely complex to frame and to incorporate in multilateral trade and investment rules. Trade liberalization and investment flows contribute to technology diffusion and innovation. Absorptive capacity in the recipient country also plays a key role in this process. Trade restrictions reduce the supply of intermediate goods to an economy, hampering productivity and technology diffusion. On the other hand, the strengthening of national innovation capabilities improves a country’s ability to engage in and benefit from the international trading system. National innovation policies, however, often rely on discrimination (e.g. the identification of “national champions” or localization). In this context, domestic policies and measures to promote innovation need to carefully balance effectiveness with the need to be consistent with multilateral trade rules and disciplines—while the multilateral regime needs to be sensitive to the policy space which might be required to promote innovation.

A key question is thus whether the existing set of WTO rules and disciplines optimally enable or limit today’s global drive to promote innovation. In this context, it is important to underline at the outset that there is no single overarching WTO agreement that deals with innovation, but

rather that there are a variety of agreements that influence innovation activities such as those on subsidies, intellectual property, services, and technical barriers to trade. As a result, the WTO lacks a holistic approach to this pressing contemporary policy challenge. Table 1 identifies a number of policies and measures that are commonly pursued by governments to promote innovation as well as the WTO agreements of relevance. It illustrates the point that innovation-related policies and measures span a wide range of WTO rules and disciplines.

Table 1: Innovation-Related Domestic Policies and WTO Agreements

Innovation-Related Policies and Measures	Relevant WTO Agreements ¹
Domestic R&D support and incentives (e.g. subsidies)	ASCM; Agreement on Agriculture
Protection and enforcement of intellectual property rights	TRIPS
Commercialization of publicly funded research	TRIPS
Transfer of technology and know-how	GATS; TRIMs; TRIPS
Government procurement	GATT; TRIMs; GPA
Technical Standards	GATT; TBT; SPS
Competition policy	TRIPS; TRIMs
Policy/regulatory frameworks and general infrastructure	Aid for Trade

The multilateral trade system, through the agreements listed in Table 1, clearly has an impact on innovation-related policies and decisions by public and private economic agents on how and where to invest in innovation. Moreover, in reviewing existing WTO instruments from the perspective of how they influence innovation globally, the current trade architecture was largely designed before the Internet revolution and the dramatic expansion of the digital environment.⁴ These recent developments have already spurred a massive surge of innovative activity that has had spillover effects on many sectors of domestic economies and global markets.

At the WTO Public Forum in 2013 on “Expanding Trade through Innovation and the Digital Economy,” in which the E15 Expert Group on Trade and Innovation took an active role, Director General Roberto Azevêdo noted that “current WTO rules were conceived in a world with no Internet connection” and that the “multilateral trading system is in urgent need of update if it is to be relevant; if it is to stimulate innovation and development.” The remainder of this paper sets out a number of policy options and processes tailored toward these objectives.

⁴ Relevant WTO Agreements cited in the table correspond to: ASCM (Agreement on Subsidies and Countervailing Measures); TRIPS (Trade-Related Aspects of Intellectual Property Rights); GATS (General Agreement on Trade in Services); GATT (General Agreement on Tariffs and Trade); TRIMs (Trade-Related Investment Measures); GPA (Government Procurement Agreement); TBT (Agreement on Technical Barriers to Trade); SPS (Agreement on the Application of Sanitary and Phytosanitary Measures).

⁵ The WTO has a programme on e-commerce but it remains a sideshow in terms of rules making at the multilateral level. Most analysts believe that it is not properly designed to tackle the challenges posed by the digital revolution to global trade.

2. Innovation and Trade-Related Policy Options

This section focuses on possible policy options for improving international trade rules to promote innovation. The Expert Group examined a number of important issues and developments including the emergence of global innovation networks, the provision of public goods, private R&D support mechanisms, the relationship between intellectual property rights and innovation, and the possible crafting of new multilateral rules for digital trade.

Theoretical and empirical evidence undertaken in recent years suggests that at least six broad categories of possible policy change can be envisaged and set out on a preliminary basis for broader discussion and research. These aim to reduce or eliminate cross-border barriers and constraints on the development, movement, use and adoption of innovation. The six categories of medium to long-term policy options are: global rules on digital trade; new rules to expand the movement of skilled researchers, technicians and entrepreneurs to pursue innovation opportunities; revised rules on internationally agreed, targeted, and coordinated research subsidies by government agencies, universities and private sector facilities in areas of recognized global public concern which could be commercialized by private or public enterprises; a concerted move to establish international standard-setting on the basis of open and global collaboration rather than through nation-centric considerations; an internationally coordinated approach to trade secrets; and steps to improve innovation-related data collection and dissemination.

The Expert Group also did discuss the effects on innovation of intellectual property rights, with an emphasis on patents and particularly on the Agreement on Trade-Related Aspects of Intellectual Property Rights. A think piece was commissioned to this effect (Mercurio 2014). It concluded, among other matters, that there was a need to re-evaluate the purpose of the agreement, which, as drafted, does not consider innovation as its central objective. Mercurio also elaborated on the “need to reflect upon whether the current scope and the duration of patent protection is suitable for all industries, sectors and countries, or whether some differentiation would benefit innovation.”

However, there was no agreement in the Expert Group on whether any modifications were needed or practically feasible at this stage to enhance the TRIPS Agreement’s contribution to the global drive to stimulate innovation. This paper thus takes the view that any policy change in this area, if any, should be incremental, with perhaps more sensitivity to the sector-specific issues. An open discussion and debate should be encouraged and pursued to allow new ideas and proposals to flourish. Consequently, no policy options are set at this time, as further empirical work needs to be done on all aspects of intellectual property rights, including trade-related ones, from the perspective of their impact on innovation performance. An exception to this approach was the issue of trade secrets, as the group considered it useful to explore policy options in this specific area (see *infra* 3.5).

2.1. Digital Trade

Digital technologies are rapidly changing how societies in most parts of the world are conducting day-to-day business. However, the international legal framework, including global trade rules, is lagging behind in addressing these transformative developments.⁵ As a result, possible policy options aimed at enhancing the economic benefits flowing from digital trade featured prominently in the group’s discussions.⁶

In this regard, it was recognized that some progress has been achieved internationally regarding the development of rules on one pervasive component of the digital economy—the Internet. The extraordinary development of the Internet through a bottom-up, decentralised and collaborative approach based on open standards has contributed to the emergence of an almost universal means of communication through which people, processes and data connect (Karachalios and McCabe 2013). This earlier, highly satisfactory development should bear lessons for the standardization process in the area of trade rules, which remains largely top-down and nation-centric.

⁶ Burri (2013) remarks that “international economic law (IEL) has so far not reacted in a forward-looking manner to the digital revolution. If we look at the rules and commitments under the auspices of the World Trade Organization as the mainstay of IEL, no real advance whatsoever has been made since the Uruguay Round (1986–1994), and very little can be expected even in a successful post-Doha scenario. [...] The mega-regional trade deals of the Trans-Pacific Partnership (TPP) Agreement and the Transatlantic Trade and Investment Partnership (TTIP) Agreement [...] may offer some new approaches and more detailed and better structured templates for addressing digital trade. Yet, the claim remains valid that we are still only at the beginning of finding and defining an appropriate transnational and international regulatory framework governing digital technologies, and their associated opportunities and risks.”

Policy change to cover digital trade across borders can conceivably proceed in two ways. First, it can be incremental by building on the principles and provisions of existing international trade agreements. Second, an entirely new international arrangement could be created—possibly (but not necessarily) tied to the WTO or to other plurilateral trade arrangements—to cover all aspects of digital trade. The first option seems to be the preferred alternative of the community directly involved in trade negotiations. The question, however, remains: to what extent could this cautious approach be effective in a global economic environment increasingly impacted by the disruptions in business models generated by digital technologies?

2.1.1. Incremental policy option

With respect to the first option, future trade agreements could set out provisions to cover all online trade based on existing GATT/WTO rules, principles and procedures. These clarified or expanded provisions would touch on, for example, transparency regarding authorization for use and licensing, non-discrimination (both national treatment and most-favoured nation), uninhibited access to cross-border information flows, unrestricted foreign participation in the ICT sector, and increased international cooperation, including improved local and international assistance for increased digital literacy. In this context, those countries that agree to become part of this widened incremental agreement might also achieve consensus on permanently forbidding any form of tariff or other taxes on electronic commerce. The group also considered that extending the Information Technology Agreement (ITA) by expanding its product coverage and signatories, as well as further liberalizing computer-related and telecommunications services, should be priorities.⁷

Further, the Expert Group agreed that other barriers to digital trade such as the lack of access to technology distribution channels and information networks in areas as diverse as aviation, tourism and logistics should also be addressed, thereby decreasing the likelihood of unfair competition.

Overall, the risk of the gradual introduction and spread of a new generation of barriers to cross-border digital trade—whether this trade is classified as a service or as a good—has to be addressed in a trade negotiation setting. Issues such as privacy, intellectual property and security concerns could also be tackled in this context.

2.1.2. Ambitious policy option: create a Digital Economy Trade Agreement

The second and bolder policy option would be the development from scratch of a Digital Economy Multilateral Trade Agreement (DETA), which could either be part of the WTO or designed as a stand-alone agreement (Burri 2013). This entirely new agreement could tackle all known issues and barriers relating to digital trade. It would be a more ambitious and far-reaching agreement and would deal more comprehensively with “deeper integration” issues including privacy, cross border data, consumer protection and security matters than the incremental approach outlined above. It would also touch on data access, storage and use. Ideally, the agreement could feature a negative list approach (where all digital activities are liberalized unless explicitly provided otherwise) with specific negotiated exemptions. Initially, this bold digital trade policy reform initiative, if taken on by the trade community as a preferred option, could be initiated on a plurilateral basis to be multilateralized in due course.

Policy Option 1: Medium-term: Set out provisions in future trade agreements, particularly in the WTO, to cover all aspects of digital trade based on existing rules, principles and procedures.

Policy Option 2: Long-term: Establish a Digital Economy Trade Agreement either as a stand-alone agreement or under the WTO which would deal more comprehensively with “deeper integration” issues including privacy, cross border data, consumer protection, and security matters.

2.2. Movement of People: Innovation Networks

A second set of policy options involves removing on a concerted basis barriers hindering the movement of technically and entrepreneurially skilled persons and research professionals across borders to pursue innovation opportunities wherever these might present themselves. Maskus and Saggi (2013) propose a system that would link skilled workers together in an “innovation zone” in which countries would agree to allow longer-term work visas that would be valid in all participating countries.

Information, knowledge and know-how are usually transmitted by people; therefore, the group thought that increasing the ability of knowledge workers to move across international borders with maximum ease and without being tied to any particular employer for a temporary yet sufficiently long period of time—perhaps for a period of up to ten years—is a longer-term policy option worth exploring.

⁷ The group considered that there might be a need to convene an E15 Expert Group specifically to examine this issue in a more comprehensive manner. For deeper analysis, the policy options produced in this series by the E15 Expert Group on the Digital Economy can be referred to.

⁸ The expansion of the ITA (i.e. the ITA II), covering roughly 200 products that account for more than US\$1.3 trillion yearly in trade flows, was agreed upon on July 24 2015. This is an important achievement since it will gradually bring duty-free trade in information technology products impacting 7% of total global trade. This agreement illustrates how trade liberalization can still be accomplished at a sectoral level when there is a critical mass of willing partners in the WTO. The benefits of this plurilateral agreement will be extended to all WTO members on a most-favoured-nation (MFN) basis.

This expansion in the international mobility of skilled and research-oriented persons would raise the probability of shared knowledge and thus of increased innovation and creativity worldwide. The proposal to create an “innovation zone” of skilled workers with appropriate documentation would most likely start as a plurilateral agreement, but would be open to all countries—whether developed, emerging or least developed—to join this expanded trade arrangement that could build on Mode 4 of the General Agreement on Trade in Services.⁸

Policy Option 3: Medium-term: Expand GATS commitments to further encourage temporary mobility of skilled workers.

Policy Option 4: Long-term: Establish a plurilateral (but preferably broad and inclusive) “innovation zone” working through GATS within which skilled researchers and technical personnel would be able to migrate freely for up to ten years.

2.3. Subsidies and Public Grants

A third area of possible reform in support of innovation relates to expanding the policy space for governments and the private sector to explicitly permit subsidies to address agreed and targeted global public policy objectives such as, for example, the development of essential medicines and other public health matters as well as water management, waste disposal, agricultural productivity, food security, energy conservation and climate change. Publicly funded research grants could be carried out through public agencies, private-public partnerships, universities, foundations or private laboratories (which all work increasingly in collaboration and across multiple nations) with the aim, where appropriate, of commercializing the results of the “subsidized” research.

Although these types of public grants have not been challenged in a significant way under the Agreement on Subsidies and Countervailing Measures (ASCM) of the WTO (or similar provisions in regional and bilateral arrangements) nor under the Agreement on Government Procurement (GPA), as they have been considered pre-competitive and non-specific, they could become an issue of contention as such practices become more commonplace. Aspects of agricultural, biological or electronic research and a raft of other cutting-edge technologies such as nanotechnology, for example, all of which could end up—possibly under licence—in the hands of a private or state-owned enterprise, which could commercialize and sell the resulting output, could be facilitated under this policy option. As Maskus (2015) notes:

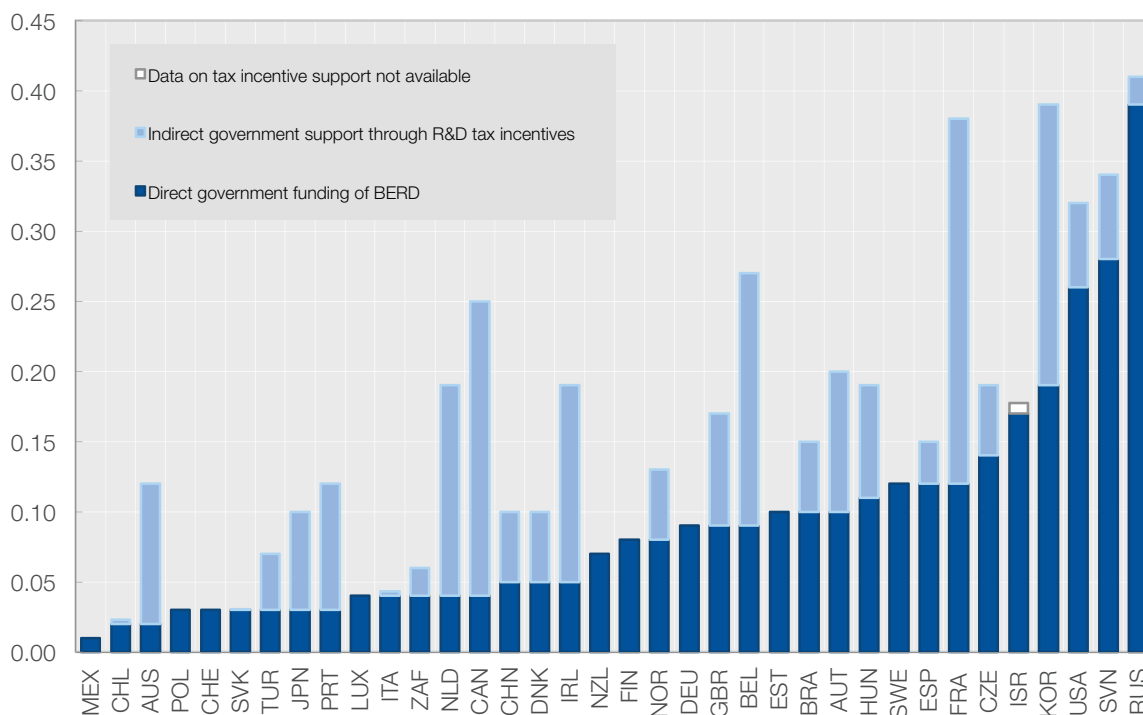
It is primarily this last form of subsidization [direct or indirect subsidies to business enterprise expenditure on research and development or BERD] that potentially raises issues of trade conflict. Where public resources pay for what might ordinarily be thought of as private product-development costs, particularly for entering foreign markets or expanding international market shares, there may be trade damages alleged. Research subsidies, in some circumstances, could act as a substitute domestic protection mechanism as tariffs are cut. They could also reduce a home-firm’s costs or raise its productivity, expanding its trade at the expense of other competitors. In extreme cases such subsidization could act to forestall entry by international competitors, potentially raising issues about whether it is anti-competitive. [...] There are reasons to anticipate increasing use of R&D supports going forward, whether to develop, attract and adapt climate change technologies, integrate domestic firms with GINs, or encourage localized specialization in technological activities.

The role of government in promoting this innovation-intensive activity through direct financial assistance, rather than through tax incentives or other measures, which is common in many countries (Figure 1), thus needs much clearer definition and space within a revised international legal framework. This could include, for example, an explicit exclusion from the WTO’s ASCM, particularly Article 8.2. An effective global specialization strategy could evolve from this more activist and targeted role for government, enabling both multinational enterprises and small businesses to participate with greater certainty in privately or publicly funded research activity.

Many countries appear to be developing policies and procedures to transfer technology from largely (or exclusively) public-supported research laboratories to private or other forms of commercial enterprises, particularly through the adoption and implementation of legislation based on the US Bayh-Dole Act (1980). A related recent development has been provisions in Economic Partnership Agreements (EPAs) negotiated by the European Union with several developing countries to facilitate the access of local researchers to public research grants and programmes in Europe (Spence 2009).⁹ While by no means common or comprehensive as yet, these developments with respect to subsidies provided by the public sector to private or public agencies proposing to use advanced research for commercial ends suggests that substantive trade policy reform along the lines described above is possible and could be evidence of governments acting cooperatively with the private sector in the provision of global public goods in the broader public interest.

⁹ “The agreement would need to pay attention to how the certification of skills acquired in different professions and in different countries is to be recognized by the members, though a strong tilt towards mutual recognition seems appropriate. Since the vehicle would be the GATS, presumably countries could reserve certain sensitive professions or perhaps enact safeguards” (Maskus and Saggi 2013).

Figure 1: Direct Government Funding of Business R&D and Tax Incentives, 2011 (as a percentage of GDP)



Source: OECD 2013

A more ambitious long-term option would be to establish an Agreement on Access to Basic Science and Technology (ABST) negotiated within the WTO. According to Maskus and Saggi (2013), the premise of such an agreement is the following:

The fundamental notion of an Agreement on Access to Basic Science and Technology ABST, meant to complement the global IPRs system, is to preserve and enhance the global commons in science and technology without unduly restricting private rights in commercial technologies. The mechanism would be to place into access pools the patented results of publicly funded research that develops knowledge capable of supporting applied science and R&D, especially in areas of common global concern, such as climate change and medicines. In essence, funding agencies in the participating nations would certify that, as a condition for receiving a grant in specific areas of primary science, universities and scientists must agree to place the resulting patents in common resource pools. These patents would then be available for license to all competent agents from other member countries under terms worked out in advance.

Maskus and Saggi further argue that such an agreement should reside at the WTO for several reasons including the fact that the WTO already manages many agreements on issues that are strongly interrelated with the transfer of scientific results (such as intellectual property, subsidies, standards and services) and that many of the essential WTO principles can be applied to an ABST.

Policy Option 5: Medium-term: Clarify, upon further study, the extent of subsidies or procurement disciplines on research grants (i.e. clarify the relationship between public research grants and permissible subsidies under the ASCM).

Policy Option 6: Long-term: Establish an Agreement on Access to Basic Science and Technology negotiated within the WTO.

2.4. Technical Barriers to Trade and Standardization

The WTO Agreement on Technical Barriers to Trade (TBT) could be revised to better facilitate innovation. The WTO concept of standardization, in particular, could be updated to reflect the existence of a *priori* globally open, transparent and bottom-up standards to promote global public goods, which have led, for instance, to the extraordinary development of the Internet as noted in section 3.1 (Karachalios and McCabe 2013). Improvements in international standards and a more inclusive process in setting these standards on a less nation-centric basis would both reduce operational costs and promote more efficient innovation.

Policy Option 7: Medium-term: Update WTO concepts and definitions of standards so as to encompass more inclusiveness and openness.

Policy Option 8: Long-term: Reform WTO processes in this area so as to explicitly acknowledge the concept of standards and standardization beyond nation-centric and intergovernmental arrangements. This will require the direct recognition of associated contributions and standards from recognized and well established communities of experts, who cooperate, exchange information, build knowledge, and foster innovation on a global scale.

2.5. Trade Secrets

A fifth area of possible policy change relates specifically to trade secrets. National laws and practices with respect to trade secrets vary greatly. Trade secrets appear to be especially important to small and medium-sized businesses given their generally lower costs compared to more elaborate intellectual property processes involving patents, copyright, and other instruments.

The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights was the first multilateral agreement to explicitly require member countries to provide protection for “undisclosed information,” or, as they are more commonly called, trade secrets. Article 39.2 of TRIPS defines a trade secret as information that (1) is secret; (2) has commercial value because it is secret; and (3) has been subject to reasonable steps to keep it secret. Following TRIPS, this definition has been widely adopted into national laws. Trade secrets cover three broad categories of information—(1) technical information; (2) confidential business information; and (3) know-how. Technical information concerns such matters as industrial processes, blueprints, and formulas, among other possibilities. Confidential business information typically includes customer lists (provided that they include truly non-public information), financial information, business plans, and similar types of non-public information on the operation of a business. Know-how includes information about methods, steps, and processes for achieving efficient results (Lippoldt and Schultz 2014).

Figure 2 highlights the continued diversity concerning trade secrets remaining in sample economies some 15 years after the TRIPS Agreement. “Overall, the international comparisons shown in the figure represent a challenging environment for business because consistent protections are not available for certain aspects of trade secrets. The

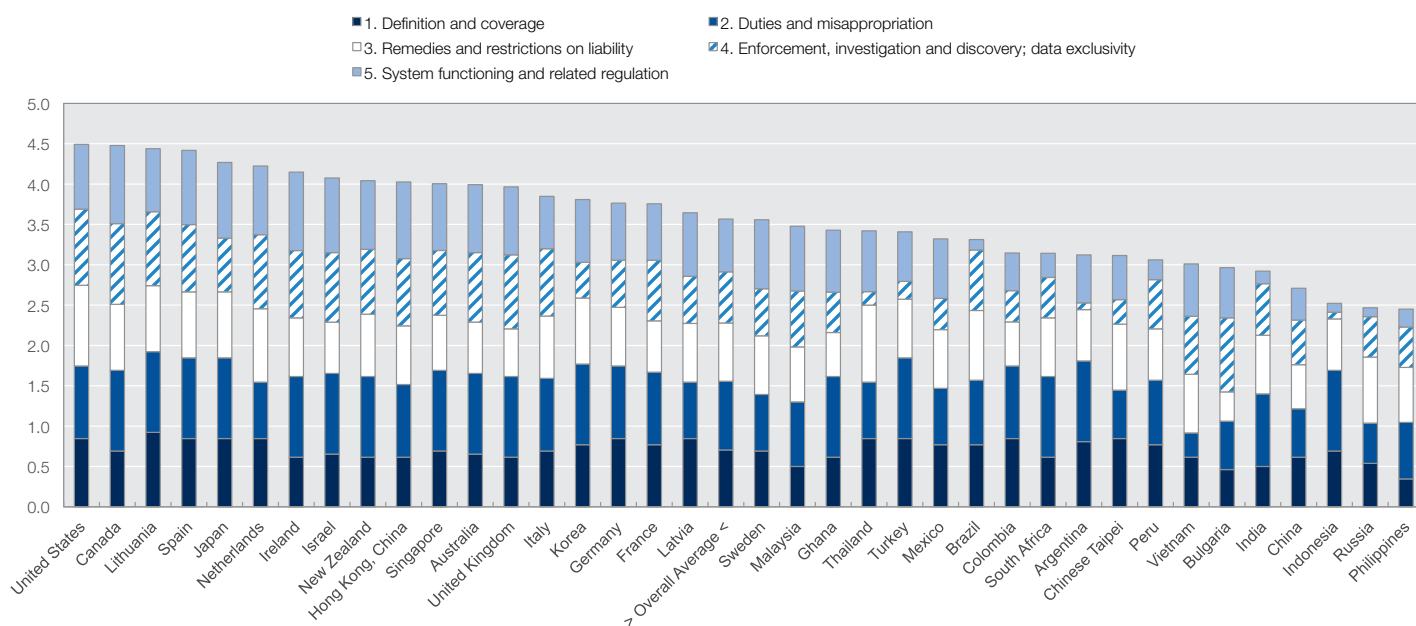
current variability of protection of trade secrets increases the complexity of management of business activities, and may discourage some investment in knowledge development and diffusion” (Lippoldt and Schultz 2014b).

As with other aspects of intellectual property rights protection, the central question regarding trade secrets is to achieve a balance. Intellectual property rights, including trade secrets, influence the behaviour of firms in terms of how they approach foreign markets, how they invest, how they train their personnel, and how and which technologies they use or share, if any. There are no absolutes in this area. The idea is to seek a basic system of trade secrets that functions, and which, on balance, promotes rather than constrains innovation and its dissemination—even if it cannot be measured satisfactorily due to secrecy requirements. This is the limited extent of what policy-makers can be asked to oversee and enforce.¹⁰

Figure 2 Trade Secrets Protection Index, 2010
Bringing consistency to the treatment of trade secrets into the international trade legal framework, which, as mentioned, is challenged by the multiplicity of approaches in national laws, is an important policy option, the Group thought, for governments to consider as they attempt to create enabling conditions for innovation, commercialization and knowledge spillovers. Evidence suggests that some degree of trade secrets protection appears to facilitate a greater diffusion of information with an expanded circle of employees and business partners (Lippoldt and Schultz 2014b). Further research and dialogue on this matter are clearly required.

Policy Option 9: Long-term: Bring consistency to the treatment of trade secrets into the international trade legal framework possibly through a non-binding understanding or in a stand-alone arrangement that might eventually be employed as a starting point for consideration in a regional agreement or a plurilateral accord in the context of the

Figure 2: Trade Secrets Protection Index, 2010



Source: Lippoldt and Schultz 2014

¹⁰ The Expert Group in deliberating on trade secrets did not consider the implications of Art. 39(3) of TRIPS dealing with undisclosed test or other data submitted to public authorities in the case of regulated products (pharmaceutical or agricultural chemical products).

WTO.¹¹ WIPO may also be a convenient venue to consider this matter initially, as there is no dispute settlement attached to it.

2.6. Measurement of Trade and Innovation

A sixth and final area of policy recommendation relates to the importance of improved measurement of trade-related aspects of innovation. While efforts such as the Global Innovation Index (Table 2) have made a good first attempt to link innovation to trade indicators (INSEAD et al. 2013), more work needs to be done. Efforts towards a better measurement of trade-related aspects of innovation are challenged by the fragmentation of institutions (fora), approaches, classifications, taxonomies, and ultimately, databases (Benavente 2014).

Table 2: Trade-Related Indicators in the Global Innovation Index 2013

3 Infrastructure	6 Knowledge & technology outputs
3.2.3 Logistics performance	6.1.1 Domestic resident patent ap/bn PPP\$ GDP
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	6.1.2 PCT resident patent ap/bn PPP\$ GDP
4 Market sophistication	6.1.3 Domestic res utility model ap/bn PPP\$ GDP
4.2.1 Ease of protecting investors	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP
4.3.1 Applied tariff rate, weighted mean, %	6.3.1 Royalty & license fees receipts, % service exports
4.3.2 Non-agricultural mkt access weighted tariff, %	6.3.2 High-tech exports less re-exports, %
4.3.3 Intensity of local competition	6.3.3 Comm. computer & info. services exports, %
5 Business sophistication	6.3.4 FDI net outflows, % GDP
5.2.5 Patent families 3+ offices/bn PPP\$ GDP	7 Creative outputs
5.3.1 Royalty & license fees payments, % service imports	7.1.1 Domestic res trademark reg/bn PPP\$ GDP
5.3.2 High-tech imports less re-imports, %	7.1.2 Madrid trademark registrations/bn PPP\$ GDP
5.3.3 Comm., computer & info. services imports, %	7.2.1 Audio-visual & related services exports, %
5.3.4 FDI net inflows, % GDP	7.2.5 Creative goods exports, %

Source: Benavente 2014

A relatively recent area in which much progress has been made is that of trade in value-added and global value chains (GVCs), or, more generally, the so-called “globalization indicators” (OECD 2010). These novel indicators are crucial for an assessment of innovation capabilities and results. Encouraging the private sector to share its large stock of data with the WTO and similar organizations could advance these efforts towards improved measurement of trade-related aspects of innovation. Confidentiality is always a factor to be acknowledged and respected. However, international organizations such as the WTO and WIPO could encourage national governments to develop surveys in collaboration with the private sector in order to provide useful information concerning all aspects of innovation and trade.

Policy Option 10: Medium-term: Enhance efforts towards improved measurement of trade-related aspects of innovation with a view to better inform the negotiating process in the WTO (and other relevant international organizations) so as to make the multilateral trading system more conducive to the development of innovation capabilities and results.¹²

¹¹ According to Lippoldt and Schultz, such an understanding could be based on a number of principles including: (i) the definition of trade secrets should, in its broad outlines, be no more restrictive than the three-part definition set forth in TRIPS Article 39, paragraph 2; (ii) trade secret law should effectively sanction both breach of duty and third-party misappropriation; (iii) trade secret law should offer a full array of remedies, including ex parte preliminary injunctions; (iv) trade secret laws should include effective provisions for investigating claims; (v) trade secrets should be effectively protected during litigation; and (vi) trade secret laws and related laws should take a balanced approach to employee mobility in attempting to protect confidential information.

¹² This could entail: promote the adoption of the latest classifications; increase cooperation for the collection of data; collaborate between agencies to ensure correspondence between datasets and policy coherence; establish consensual taxonomies in innovation-related sectors; and, improve data packaging and dissemination efforts.

3. Way Forward: A Consensus Building Agenda

The central objective of the trade-related policy reform options put forward in this paper is to ensure that existing trade rules and those under negotiation or consideration encourage innovative activity worldwide, not least in support of Sustainable Development Goals. To the extent that new or expanded bilateral, plurilateral or multilateral governance arrangements can be agreed and implemented to ensure that knowledge is accessed internationally as freely as possible, economies around the world would benefit. R&D investments and creative activity are not curtailed by national borders in the sense that innovations that arise therefrom can be accessed and used by those that have sufficient absorptive capacity. In this process, fewer blockages arising from trade rules, regulations and practices, and more creative provisions to overcome these blockages, will speed up the transmission and adaptation of innovation.

The expert group in its deliberations and exploratory work examined a number of issues, some of them more mature for policy consideration than others. The table presented in Annex 1 summarizes the policy options presented in this paper. In conclusion, we offer an overview of different approaches to system reform as well as areas for future research and consensus building.

3.1. Approaches to System Reform

While there was no consensus in the expert group on the preferred route for promoting innovation in the context of the existing international trade system, Table 3 provides an illustration of four possible ways to proceed and how some of the policy options might fit into these alternative approaches.

Table 3: Different Approaches to Innovation and Trade System Reform

	Incremental approach	More ambitious approach
Within the WTO	<p>For example:</p> <ul style="list-style-type: none"> – Better commitments on Mode 4 in GATS; – Implementation of ITA II; – Clarifying the role of permissible subsidies (e.g. R&D) in the ASCM; – Improving upon TBTs and standards to facilitate innovative procedures. 	<p>For example:</p> <ul style="list-style-type: none"> – Negotiating a Digital Economy agreement as part of the post-Doha agenda; – Developing a non-binding understanding on trade secrets that might eventually be employed as a starting point for a plurilateral accord under the WTO; – Revisiting the TRIPS Agreement or revising some of its provisions.*
		<p>* This is included in the table solely for indicative purposes, as the Expert Group did not formally consider it a policy option.</p>
Beyond the WTO	<p>For example:</p> <ul style="list-style-type: none"> – Further analyses of deep integration efforts in the context of existing preferential trade agreements (EU, TPP, TTIP, RCEP, etc.) with a view to identifying good practices and eventually multilateralizing them in the WTO in the long term; – Enhance efforts towards improved measurement of trade-related aspects of innovation. 	<p>For example:</p> <ul style="list-style-type: none"> – Establish a plurilateral “innovation zone” working through GATS within which skilled researchers and technical personnel would be able to migrate freely for up to ten years; – To pursue negotiations in other fora to pave the way for future multilateral solutions (e.g. with respect to policy option 6 on the establishment of an Agreement on Access to Basic Science and Technology).

In view of the current deadlock in the Doha negotiations at the WTO, it can be argued that an incremental approach is the most viable option at the multilateral level (any attempt to revise the TRIPS Agreement in the current environment, for example, would undoubtedly be met with staunch resistance). However, there is a growing tension between what the multilateral trade system can contribute, particularly in terms of timely decisions, and what is required to facilitate innovation on a global scale. In some cases, this tension is also manifest in regional agreements, such as the Trans-Pacific Partnership, where there is disagreement even among industrialized nations for example regarding rules on the optimal level of protection for intellectual property rights. These tensions are likely to continue, to which should be added potential frictions over the implementation of new industrial policies and the provision of public goods to effectively address sustainable development challenges in advanced, emerging and developing countries.

3.2. Research Agenda

The cross-cutting nature of innovation and its multifaceted character prevailed and permeated the discussions of the group. Important efforts were made in identifying research gaps and issues that deserve further analysis and reflection at the intersection between innovation, trade and Sustainable Development Goals. As illustrated in this report, even when specific policy options were identified, the options were considered with caution. There was an emphasis on establishing better understanding of the underlying issues as well as the need to carry out further work on a number of the questions examined by the group, including ideas of a more aspirational nature that drew the attention of the experts. A number of queries revolved around the trade-intellectual property-innovation nexus.

Without presuming to be exhaustive, the issues that deserve further consideration include the following. They are listed in four broad thematic areas.

3.2.1. Policy frameworks, innovation systems and best practices

- Examination of best practices within various policy frameworks that encourage innovation-led growth, particularly those that combine strong institutional and legal environments and market driven approaches.
- The role of public procurement in promoting innovation capacity within and amongst countries and sectors.
- Case studies on appropriate links between trade, innovation and competition policies, particularly what role can competition play in promoting innovation?
- Establishment of an information bank to help link research teams across borders with special attention being paid to the incorporation of scientists and researchers from low-income countries.
- Open collaboration schemes and their impact on innovation/learning and networking.
- The role of private-public partnerships in the encouragement of innovation particularly in the achievement of Sustainable Development Goals.
- The impact of natural resources-led growth trade and opportunities on technological learning, particularly in least developed countries (LDCs), and how to diminish negative causalities.

3.2.2. International trading system and plurilateral processes

- Analysis of the extent of subsidies or procurement disciplines on research grants (i.e. the relationship between public research grants and permissible subsidies under the ASCM).
- Need for case studies on how international trade impacts upon innovation differentially –opportunities and challenges—in all countries, particularly LDCs.
- How can sound trade and innovation policies help address the technological divide?
- What are the positive or adverse implications of the current plurilateral and mega-regional norm-setting initiatives to stimulate and improve innovation policy frameworks?

3.2.3. Particular attention to small and medium-sized enterprises (SMEs)

- How can micro innovators and SMEs, as important contributors to the economy, equally benefit from global innovation networks and global value chains?
- In what ways can national innovation systems help SMEs capture opportunities for learning in their integration to GINs/GVCs?
- What are the learning opportunities for SMEs in GINs from existing case studies, and what policy options can be considered to promote them more widely, especially in LDCs?

3.2.4 Intellectual property-related questions

- Case studies on the links between increased protection and enforcement of intellectual property and innovation.
- Best practices in intellectual property policies including the role of exceptions and limitations and their contribution to innovation and technology transfer.
- The influence of patent protection on knowledge sharing and partnerships in general.
- The incidence of other intellectual property categories such as copyright, trademark, trade secrets, designs, as stimulus to innovation.
- Further examination around the implications of trade secrets harmonization in the innovation process.

3.3. Consensus Building

There are well established institutions, including those that have partnered together to bring the E15 Initiative to fruition, that could play a role in leading this consensus and bridge building process around the policy options outlined in this paper as well as carrying forward discussion of the issues and research agenda identified above. These processes involve multi-stakeholders working towards finding consensus at the national, regional and international level.

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The papers commissioned for the E15 Expert Group on Trade and Innovation can be accessed at <http://e15initiative.org/publications/>.

Annex 1: Summary Table of Main Policy Options

Policy Option	Timescale	Current Status	Gap	Steps	Parties involved
Digital Trade					
1. Include the digital dimension in trade agreements	Medium Term	Digital trade related rules being developed in bilateral and regional trade agreements	Can be just best endeavours provisions	Like minded countries to agree to elevate matters to multilateral level	Member States WTO
2. Establish a Digital Economy Trade Agreement	Long Term	Multilateral trade rules lagging behind in terms of tackling digital trade	Lack of a comprehensive approach to privacy, cross border data, consumer protection, and security matters in existing multilateral trade rules	Consensus building to launch negotiations on a Digital Economy Trade Agreement either as a stand-alone agreement or under the WTO. It could be initiated on a plurilateral basis	Member States WTO
Movement of People: Innovation Networks					
3. Expand Mode 4 GATS commitments	Medium Term	Limited commitments under GATS Mode 4	Lack of convergence/coherence between trade, migration, and labour policies	Expand Mode 4 GATS commitments to encourage mobility of high skilled persons	Member states WTO
4. Establish an “innovation zone”	Long Term	Movement of entrepreneurially skilled persons and research professionals across borders to pursue innovation faces multiple barriers	Lack of mutual recognition regimes relating to the certification of skills acquired in different professions and in different countries	Consensus building among like-minded countries to establish an “innovation zone” through plurilateral agreements in which countries would agree to allow longer-term work visas that would be valid in all participating countries.	Member States WTO

Policy Option	Timescale	Current Status	Gap	Steps	Parties involved
Subsidies and Public Grants					
5. Clarify the role of permissible R&D subsidies in the ASCM	Medium Term	The area of disciplines on R&D subsidization is unsettled within the WTO	Subsidies to address global public policy issues are potentially actionable Public grants could become more of an issue of contention	Consensus building to explicitly permit subsidies to address agreed and targeted global public policy issues such as, for example, the development of essential medicines, food security, energy conservation, and climate change	Member States WTO
6. Establish an Agreement on Access to Basic Science and Technology (ABST)	Long Term	Growing demands to enhance the global commons in science and technology in areas of global concern, such as climate change and medicines, without unduly restricting private rights in commercial technologies	Trend towards strengthening of global intellectual property rights regime without a concurrent move to enhance access to and diffusion of science and technology	Hold exploratory discussions on objectives, design, and feasibility of an ABST	Member States WTO
Technical Barriers to Trade and Standardization					
7. Update WTO concepts and definitions on standards	Medium Term	Narrow approach to the concept of standards in the WTO as reflected in the TBT Agreement	WTO concepts of standards were established in a pre-globalization and pre-digital era	Launch process to update WTO concepts and definitions of standards so as to reflect the existence of globally open, transparent, and bottom-up standards to promote global public goods	Member States WTO

Policy Option	Timescale	Current Status	Gap	Steps	Parties involved
8. Reform WTO technical standards processes	Long Term	Lack of inclusivity and openness in current WTO concept of national / intergovernmental standardization	Concept of nation-centric intergovernmental standardization process may ignore key contributors or inhibit their participation	Consensus building towards reform of WTO technical standards processes so as to integrate associated contributions and standards from recognized and well established communities of experts	Member States WTO
Trade Secrets					
9. Bring consistency to the treatment of trade secrets in international trade legal frameworks	Long Term	Growing importance of trade secrets for innovation, especially for small and medium-sized businesses	Wide diversity in national approaches, laws and regulations for the protection of trade secrets	Bring consistency through consensus building towards developing a non-binding understanding or a stand-alone arrangement for consideration in the context of a regional agreement or a plurilateral initiative in the WTO. WIPO may also be a convenient venue.	Member States WTO WIPO
Measurement of Trade and Innovation					
10. Improve the measurement of trade-related aspects of innovation	Medium Term	Growing awareness about the importance of improved measurement of trade-related aspects of innovation to better inform trade negotiations and make them more conducive to the development of innovation capabilities	Fragmentation of institutions (fora), approaches, classifications, taxonomies, and databases	Push forward a series of practical measures such as the adoption of the latest classifications, increase cooperation for the collection of data, collaborate between agencies to ensure correspondence between datasets and policy coherence, establish consensual taxonomies in innovation-related sectors, and improve data packaging and dissemination efforts.	Member States WTO UNESCO WIPO UNCTAD OECD Private sector

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The experts all participated in their personal capacity. The views and recommendations expressed in the policy options paper are not attributable to any institution with which members of the E15 Expert Group are associated.



International Centre for Trade and Sustainable Development

The International Centre for Trade and Sustainable Development (ICTSD) is an independent think-and-do-tank, engaged in the provision of information, research and analysis, and policy and multistakeholder dialogue, as a not-for-profit organisation based in Geneva, Switzerland.

Established in 1996, ICTSD's mission is to ensure that trade and investment policy and frameworks advance sustainable development in the global economy.



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