

**OECD GLOBAL FORUM ON TRADE: “TRADE, INNOVATION AND GROWTH”
PARIS, 15-16 OCTOBER: REPORT OF THE RAPPORTEUR: MR. KEN HEYDON**

Opening Remarks

1. In welcoming participants to the 2007 Global Forum on Trade, **Mr Pier Carlo Padoan**, Deputy Secretary General, OECD noted that it brought together around 130 participants coming from over 50 delegations, including over 30 non-OECD economies. He explained that the OECD Global Forum on Trade is an annual event which aims to strengthen the trade policy dialogue between OECD members and non-member countries, with a view to promoting a better understanding of the effects of trade and trade liberalization on the well-being of members and non-members alike, and further reinforcing the multilateral trading system.

2. He said that a key policy issue for all countries is how to stimulate innovation to achieve sustained growth and well-being. Much of the economic growth and rise in living standards over time has been due to advances in technology and increased innovation. There is no doubt that progressive reductions in barriers to trade and investment, in addition to numerous other factors, have contributed, but not enough is known about how countries can stimulate innovation.

3. This important question was addressed by OECD Ministers at this year’s Ministerial Council Meeting. Ministers decided that OECD should deepen its work in this area by developing an OECD Innovation Strategy. The objective of this OECD-wide work is to elaborate best practices and policy recommendations as well as to enhance monitoring and review mechanisms to boost innovation performance of OECD countries. In today’s globalised world, innovation performance is a crucial determinant of competitiveness, productivity and national progress. Moreover, continued innovation is also key to addressing emerging global challenges such as climate change and sustainable development.

4. To strengthen a country’s innovation performance, a comprehensive “whole of government” approach is required, cutting across several policy areas. Essential framework conditions for innovation for example include effective competition in product markets, liberalized trade and investment regimes, a well-educated and skilled workforce, significant public and private investments in R&D, as well as a well functioning system of intellectual property rights. Improving the business environment for innovation is especially important, as business is the main driver of innovation. OECD is well-placed to undertake such comprehensive undertakings and against this background, several OECD Directorates and Committees, with Science Technology and Industry taking the lead, are now working on the issue of innovation.

5. He reported that the OECD Trade and Agriculture Directorate has recently embarked on an ambitious project to examine in more detail the role that international trade and investment play in strengthening framework conditions for innovation. The final objective of this project is to determine how trade policy can be used to boost innovation (alongside other policies). Adding an explicit trade dimension to development of the innovation strategy is extremely important in order to help governments to address innovation systems both in a national and global context. He expressed his hope, and firm expectation, that discussions at the Global Forum would enable us to deepen our understanding of this important and complex subject.

Structure of the Global Forum

6. In Panel 1, “Setting the Stage”, Dr Stefan Tangermann, Director of the Trade and Agriculture Directorate outlined the key issues for discussion related to trade and innovation, based on a discussion paper prepared by the Secretariat. Ms Susanne Huttner, Director of the Science, Technology and Industry Directorate provided an overview of OECD work in the area of innovation, in particular the OECD Innovation Strategy. Dr Catherine Mann and Mr Geoffrey Gamble, set the stage of discussions by making presentations from the academic and business perspective. The panel was convened under the chairmanship of H.E. Ambassador Fernando De Mateo (Vice Chair of the OECD Trade Committee). The Annotated Agenda and CVs of participants can be found on the webpage: www.oecd.org/tad/tradeglobalforum2007.

7. In Panel 2, “Technology Transfer Through Trade”, the panellists, Dr Vandana Chandra, Dr Joao Albero De Negri, Mr Douglas Lippoldt and Mr Rene van Sloten, under the chairmanship of H.E. Ambassador De Mateo, examined the issue of technology transfer through trade (trade in goods, especially capital goods and intermediate products), intellectual property rights, and the importance of trade openness for fostering technological capabilities.

8. In Panel 3, “Competition Effects of Trade”, the panellists, Dr Thijs ten Raa, Mr Vangelis Vitalis and Dr Saman Kelegama, under the chairmanship of H.E. Ambassador Mario Matus, considered the effects of trade on innovation through competition effects resulting from an opening up of markets and/or changes in international trade patterns.

9. In Panel 4, “Trade and Innovation in the Era of Globalisation”, the panellists, Dr Boy Luethje, Mr Koji Ito, Dr Eoin Gahan and Mr Douglas Gregory, under the chairmanship of H.E. Ambassador Matus, took a close look at how innovation evolves in the current globalised trading environment, covering issues such as the internationalisation of R&D, contract manufacturing, and the impact of global value chains on innovation.

10. In Panel 5, “Trade and Innovation in the ICT Sector”, the panellists, Mr Sang-yirl Nam, Mr Esa Kaunistola and Dr John Chiang, under the chairmanship of Mr Yoichi Suzuki, Co-Chair of the OECD Trade Committee, examined trade and innovation in the information and communication technologies (ICT) sector where trade has been an important facilitator of innovation.

11. In Panel 6, “Roundtable – How can Trade Policy Contribute to Innovation”, panellists, Dr De Negri, Dr Bertin Martens, H.E. Ambassador Manuel Teehankee, Mr Keith Dawson and Dr Johannes Potgieter, under the chairmanship of Mr Suzuki, discussed the main points emerging from the conference in order to draw some policy conclusions and to identify where further work is needed.

Main Themes Emerging

12. Of the 3 elements of the Global Forum, trade, innovation and growth, the link between innovation and growth seems to be relatively well understood, and well documented. The other link in the chain, between trade and innovation, which **Pier Carlo Padoan** reminded the conference is a key to developing an OECD Innovation Strategy, is perhaps less well understood, and more controversial.

13. The difference between information and knowledge was stressed as was the difference between invention and innovation. Information and invention were both of little value in and of themselves, and had to be internalised and put to use to create value and contribute to economic growth. In order for innovation to be implemented, it was necessary to bring knowledge and resources (capital, labour, management resources) together. Innovation was inherently a risky undertaking.

14. As pointed out in the Secretariat's Discussion Paper, some economists – most notably Joseph Schumpeter - have argued that greater competition by eroding profits may possibly reduce a company's ability to innovate. There are, nevertheless, good analytical grounds for saying that trade, and trade liberalisation, help stimulate innovation. The discussion paper identifies 3 channels through which this might work: (1) technology transfer; (2) competition; and (3) economies of scale. In summarising the discussions, we first look at how each of these channels was dealt with at the Global Forum.

Technology Transfer

15. Many speakers stressed the international dimension of technological development and the links to trade and FDI¹. **Stefan Tangermann** spoke of the dual role of trade, embodying a direct contribution through embodied technology and an indirect contribution via the lowering of price and hence the cost of access to technology. **Susanne Huttner** pointed out that technological innovation is increasingly open source and drawn from all over the world. **Joao De Negri** told us that involvement in international markets through FDI and trade have positive effects on the likelihood of searching for technology abroad, and that Brazilian firms engaged in export are 40% more likely to acquire technology abroad than firms producing only for the domestic market. **Catherine Mann** pointed out that trade and global markets cut IT prices in the US by an additional 10-30%, yielding one half of the productivity acceleration and accounting for more than a ¼ trillion USD in the period 1995-2000. She also stated that, because of the falling price of IT technology, net importers of IT get more out of their IT investment than do net exporters. But there are important nuances.

16. **Vandana Chandra** added a note of caution. Historically, she suggested, technology transfer from rich to poor countries did not change the fundamental patterns of trade, and the rise of East Asian countries' export capacity has coincided with a rise in their own technological capabilities. When a country domestically fosters its technological capabilities, the possibilities for exporting sophisticated products increase enormously. As **Susanne Huttner** said, innovation is very context specific. This point would seem to be backed up by **Koji Ito's** observation that China's contribution to the globally fragmented production of make-up products rests in part on home-grown Chinese expertise.

17. But let's not throw out the trade and FDI dimension. As **Thijs ten Raa** stated innovation in a narrow sense is an extremely risky, resource consuming activity, and it is often more advantageous to utilise foreign technology. The cut flower industry in Kenya, cited by Dr Chandra, owes a great deal to technology imported from Holland. And, as **John Chiang** reminded the conference, there is no accepted definition of "indigenous innovation".²

Competition

¹ Care is needed when talking about the first element, technology transfer, in distinguishing, as the Discussion Paper does (paragraph 6), between the effects of trade, on the one hand, and FDI, on the other. We should not forget that in some important respects, FDI is trade. The best way, in some cases the only way, to export retail banking services, for example, is by setting up a bank branch overseas; in the GATS jargon, "commercial presence", or mode 3, via investment, is trade.

² Dr. Chiang posed the question what is "indigenous" technology? If one defines "indigenous" technology as technology created only by China/Chinese entirely, it is negligible as most technologies are built on an existing, increasingly global pool of technology. Moreover it is increasingly difficult to define China/Chinese. Are Chinese nationals working in the U.S. Chinese? Are U.S. companies with Chinese nationals working in China Chinese?

18. We need care when talking of the competition dimension of trade-stimulated innovation, in assessing the importance of the “technology frontier”. The Discussion Paper – like much of the literature - suggests (paragraph 12) that if a country, sector or company is at the technology frontier, increased competition through freer trade and investment is more likely to lead to an increase in innovation. Elsewhere, however, in the recent OECD publication, “Economic Policy Reforms: Going for Growth 2007”, it is said (page 155) that recent OECD research finds that stronger competition has particularly powerful effects on productivity in countries far away from the technological frontier, reflecting stronger incentives to adopt new technologies. In looking at the development dimension of trade, innovation and growth, as we surely must, the role of the technology frontier warrants very close attention. How was the role of competition dealt with by speakers?³

19. **Thijs ten Raa** made a valuable contribution by putting in context the Schumpeter proposition that monopoly power provides the main funding for R&D. Drawing on Robert Solow, he pointed out that there are two sources of productivity growth: technical change and efficiency change. The Schumpeterian argument pertains more to the technical-change component of productivity growth, while the neoclassical case for increased competition and free trade pertains more to the efficiency-change component. In a developing country context, while the technical change component may be negligible, he pointed out that the efficiency-change component, i.e. individual companies improving productivity by catching up with modern technology and the market share effect (weeding out of less productive companies) had a much larger effect.

20. The basic, neoclassical, proposition was amply backed up by many speakers. **Saman Kelegama** clearly demonstrated how the more competitive environment following the phase out of quotas under the Multi Fibre Arrangement was a major trigger for innovation in the Sri Lankan textile and clothing industry and the concerted effort to diversify into higher value added niche products. **Esa Kaunistola** described how deregulation in the Finnish and Nordic markets encouraged Nokia to adapt to the dynamics of open competition. **Vangelis Vitalis** showed how in New Zealand agriculture, external competition and removal of domestic support and tariff protection encouraged farmers to adopt (and absorb) new technology and to innovate, thereby enhancing productivity. The extent of the innovation has been impressive, ranging over agri-technology, animal remedies (including genetics), software applications, agricultural tourism and biochemical production. Niche-oriented activities with a high R&D intensity and high premiums are again a key element. The need for value added was echoed in **Vandana Chandra’s** presentation when she said that in order to leapfrog, a country needs to diversify into sophisticated products; it was entry into the

³ The role of competition in stimulating innovation was an important theme of earlier work by the OECD Trade Committee on trade and structural adjustment. A more competitive environment in Australian motor vehicle production and shipbuilding – in the first case via reduced import barriers, in the second through reduced subsidies – helped foster innovation and increased productivity. These two examples are useful because they also illustrate the importance – again brought out in the Discussion Paper – of broadly defining innovation. In Australian shipbuilding, an important element of innovation was the shift from production in steel to the use of aluminium and composite materials. In the case of the motor vehicle industry, a key component was at the organisational level and involved the shift to just-in-time inventory management. There is no doubt that the revival of these two industries, and the innovation that this involved, was triggered by the imperatives of a more competitive environment brought about by lower levels of protection. A more recent, indeed current, example comes from the engineering sector in Britain. Here there seem to be three important, competition-related, ingredients to change. First is the divesting of unprofitable activities. The engineering firm IMI has for example sold off most of its 18 divisions and no longer makes low-technology components such as copper cables. The second ingredient to change is the development of niche activities. IMI now concentrates on valve systems for power plants, which are highly complex and hard for competitors to copy. And the third ingredient is the development of export markets through which to realise the benefits of improved productivity. And the interesting thing here is that emerging markets, such as China and India, once seen only in terms of their threat, now represent an increasing and important share of sales.

international market that brought innovation and growth to Uganda's fish fillet industry. **Koji Ito** too demonstrated the link between trade and value adding when he pointed out that Japanese firms that expanded their business overseas from 1995 to 2000 raised their unit prices considerably, while firms with no overseas business lowered their unit prices. Higher unit price is a result of higher value added. Still on competition, we heard from **John Chiang** how China's ICT industry has been a major beneficiary of the country's opening up to imports and FDI. And **Sang-yiri Nam** described how Korea's growth has been linked to the move from import substitution to a more competition-based culture, again with the ICT sector being a particular beneficiary.

21. It is implicit, I believe, in **Rene Van Sloten's** presentation that heightened competition through trade also stimulates innovation in response to public concerns about sustainable development. He pointed out that customers create the markets for more sustainable technologies. We might conclude therefore, that trade stimulates innovation by inducing firms – in a highly competitive environment – to meet (global) customers' expectations about sustainable development.

Economies of Scale

22. The third channel through which trade can help stimulate innovation is through economies of scale. The Secretariat's Discussion Paper rightly points out that companies producing for both domestic and foreign markets may be better able to recoup R&D investments over a larger sales quantity (paragraph 13). There may, however, be countervailing forces. There are signs for example, that the pharmaceutical industry is discovering the benefits, through greater flexibility, of smaller organisational units.⁴ Speakers tended to confirm the importance of economies of scale.

23. Drawing on a very extensive survey of some 24,000 Brazilian firms, accounting for 95% of Brazil's industrial value added, **Joao De Negri** reported that firm growth was linked, inter alia, to scale and to exports. The Finnish market is so small that **Nokia** had to seek growth further afield. The point appears to apply in agriculture too: New Zealand's experience showed that costs can be more evenly distributed over large production runs. And looking ahead, **Saman Kelegama** said that consideration is being given to venturing into India as a potential solution to the lack of scale economies in the Sri Lankan textile and clothing industry. Also looking ahead, **Johannes Potgieter**, in the final Roundtable, observed that the ability of firms to capture the benefits of economies of scale will depend in part on whether licensees are allowed to export. In summary, exports seem to be an important way for small and developing countries to achieve the scale economies necessary to have an innovative economy.

24. In addition to the 3 channels that have been identified, two important issues related to how trade stimulates innovation came up in the discussions; globalisation of value chains and intellectual property.

Globalisation of Value Chains

25. The Discussion Paper discusses the important role of trade and investment liberalisation in fostering the fragmentation of production processes and the globalisation of value chains. Fragmentation of production processes may be considered as an innovation in its own right as it is a new organisational approach to production. Needless to say trade and investment liberalisation has been the enabler for the globalisation of value chains. **Boy Luethje** illustrated how the advent of contract manufacturers has allowed original equipment manufacturers like Hewlett Packard to focus on product development. Contract manufacturers have been able to focus more on managing the production facilities which is increasingly becoming global. This was in stark contrast to the revelation by **Koji Ito** that Japanese

⁴ This may only be for research activity; it may still be more advantageous for product development, production and sales to be conducted in a larger organisational unit.

manufacturers tended to consider that R&D and production was closely linked and Japanese manufacturers tended to maintain mother factories in Japan from which best practices could be disseminated to other factories abroad.

26. Trade and trade reform can help foster fragmentation in a number of ways: by promoting international technical and process standards to which firms in fragmented value chains must conform; by addressing the danger that rules of origin will disadvantage low-cost suppliers within the chain; by helping foster the rule of law within which the value chain must operate; and by encouraging trade facilitation, enabling suppliers to respond quickly to developments further down the chain.⁵ The Discussion Paper suggests that the emergence of global value chains may imply that tariffs and other barriers to trade are becoming more costly to governments than in the traditional trade environment, in that tariffs on inputs may lead a process to be moved to an entirely new country. This was most evident in **Douglas Gregory's** presentation where it was stated that there is an element of concentration in the fragmentation process, as IBM's procurement has come to be focussed on China, reducing the number of procurement centres from 300 to 3 in six years. Using his words, "Work flows" to where it can be done more efficiently. We may be seeing something similar with attempts by Airbus to concentrate component manufacture in China.

27. What globalisation of the value chain may also lead to – and this is perhaps the other side of the coin – is that a disconnect will become more apparent between reduced barriers to trade in intermediate inputs and maintained or even increased barriers to trade in final products. **Koji Ito's** presentation was directly relevant to this point. In one very illuminating table, it is shown that in the last 25 years, trade in intermediate products has grown from 42% to 60% of total intra-regional trade in East Asia, far outstripping trade in raw materials (7%) and finished products (31%). In all of the three regions examined, East Asia, EU and NAFTA, trade in intermediate products is a more important part of intra-regional trade than trade in finished products.

28. In another interesting nuance, **Catherine Mann** showed how a country's trade patterns expose it to more – or less – value chain competition. In this context, the IT or information technology sector and services sector become extremely important. IT has been found to be a special economy driver which accelerates change, diffusion and policy demands. IT enhances productivity while the demand for IT products increases as economies grow. Services are also an increasingly important sector as evidenced in **Catherine Mann** and **Eoin Gahan's** presentation. Access to IT goods and services and a vibrant services sector is key to development as evidenced in Chile's food sector which is particularly dependent on services infrastructure in order to participate successfully in the global value chain. **Saman Kelegama** gives us another example of how trade policy can affect globalisation of the value chain, as the Sri Lankan textile and clothing industry seeks to use Pakistan's woven fabric base in order to maximise utilisation of the GSP-Plus scheme. Finally, **Bertin Martens** suggested that it was specialisation that opened the path for innovation: it is only when everybody around the room brought different pieces of knowledge together that an innovation occurs. In a similar way, the more specialisation there is in an economy, the greater the possibility that innovation occurs.

Intellectual Property Rights

29. The fifth main theme that was discussed relates to intellectual property rights, an issue which **Bertin Martens** reminded us in the concluding Roundtable attracts two schools of thought. Some trade economists, not entirely without reason, have questioned whether IPRs really are a trade issue and whether this is appropriate business for the WTO – not least because IPR protection often involves an income transfer from poor to rich countries; but also because bringing in IPRs makes it harder to resist arguments for also bringing in other trade-related topics like core labour standards. Others defend the importance of

⁵ These points are well developed in the OECD study, "Intertwined: FDI in manufacturing and Trade in Services".

IPR as a trade issue by pointing out that intellectual property rights are necessary to remedy a market failure; without limits on imitation, the private returns on innovation may be lower than the public returns. IPR protection has been a driver of innovation and an international agreement is necessary to ensure that such rights are not undermined in order to safeguard the continuation of innovative activities into the future.

30. **Douglas Lippoldt's** paper was useful in demonstrating the positive link between IPR protection and increased transfers to developing countries of technology-intensive goods, services and capital, with a 1% change in patent protection in developing countries increasing the stock of inward FDI by 1.6%. Perhaps even more importantly, his research shows a strong positive link between patent protection and innovation in developing countries.

31. But again there are nuances. OECD's own work has shown that beyond a certain point IPR protection - which is not an end in itself, but rather a path to improved welfare - may become counter productive. Citing the recent litigation related to a dominant global software company as an example, **Bertin Martens** suggested that too strong IPR protection can create a monopoly situation inimical to innovation. **Thijs ten Raa** suggested that insofar as IPRs relate to the technical-change component of productivity growth they may be of more interest to industrialised countries, compared with increased competition, which relates to the efficiency component of more interest to developing countries. And as **Catherine Mann** pointed out, and as **Manuel Teehankee** stressed, in a broader context, in the Roundtable, one size does not fit all. The case for IPR protection may be stronger in the area of biotech than it is, for example, in network dependent activities like IT. The desirable level of IPR protection may also be different depending on the level of development of a country. Moreover, as **Keith Dawson** stressed in the closing Roundtable, the IPR debate prompts the question: where do companies get their innovation from? Canadian experience suggests that most innovation has been embedded in machinery, equipment or software and that purchase of patents has not been a significant source of innovation. Finally, there is also the question, alluded to in open discussion at the Global Forum, of whether the TRIPs agreement has fulfilled the objectives of technology transfer to developing countries, and whether developing country interests are best served by IPR disciplines in the WTO or in the framework of regional and bilateral arrangements – again, bearing in mind that IPR protection is not a zero sum game.

Policy Lessons

32. The practical examples given during the conference of how trade helps innovation and growth strike a chord with conclusions reached in another OECD paper “The Dynamic Gains from Trade” which concludes that our understanding of “the relationship between trade, FDI and technology diffusion has not yet reached a stage where firm conclusions can be drawn from the analysis. However, there is already ample evidence that trade and FDI can positively impact productivity. Many countries have reached a higher level of income through the linkages between trade, FDI and technology diffusion...and the interesting empirical question is how they did it rather than to know if there is a systematic link between trade or investment liberalisation and growth”. So, drawing on the debate at the Global Forum, how did they do it? What policy-related conclusions might we reach?

- First, it needs to be accepted that creating *more open markets and strengthening trade rules* is an ongoing, dynamic process, in the sense that trade liberalisation – whether multilateral or unilateral, or indeed bilateral - needs to keep pace with technological change. This came out nicely in **Esa Kaunistola's** paper when he said that we should ensure that there is no erosion of the scope of the Information Technology Agreement - that it keeps up with technological advances - and that efforts are made to check the tendency towards increasing and unharmonised regulation, often on a regional or bilateral basis. This was a concern expressed by many speakers and commentators, in the context of non-tariff barriers, often outside the scope of the WTO and

dispute settlement, and of the need for focussed dialogue, including with regulators. **Geoffrey Gamble** told us that ethics and norms tend to follow science; perhaps in a sense, trade liberalisation follows science too – maybe with a little precaution along the way. Many speakers referred to the need for ongoing trade reform to help foster labour movement, including through mode 4 of the GATS.⁶ The role of trade policy, in the current environment, was well encapsulated in comments from the floor by **Mario Matus** and **Matt Rhode**: what is needed is to bridge the disconnect between commercial realities and the trade liberalisation that is being discussed under the DDA.

- Second, trade-related innovation will only flourish where the *overall policy environment is conducive to change*. This point was stressed by **Stefan Tangermann** in his introduction when he said that trade is not a “silver bullet” and was emphasised by just about all speakers. **Eoin Gahan** stated how regulations can have effects both as a driver of innovation and as a barrier to innovation. **Vangelis Vitalis** spoke of the importance of a holistic strategic overview of the reform process and the importance of simultaneously implementing reinforcing reforms in overall macro-economic management and in micro-economic regulation. The macro-economic environment is clearly crucial, including in getting tax policy and tax incentives right,⁷ but microeconomic concerns are equally important as evidenced in many of the examples presented by **Vandana Chandra**. Many speakers stressed the importance of having effectively functioning labour markets. **Boy Luethje**, in talking about the flexible way that the shop-floor in contract manufacturing facilities in China are organised, pointed out how adaptive and innovative workers had to be, the necessity to ensure that the returns to workers are commensurate with their productivity and stated the need to have a bottom up movement to improve labour standards, while rightly cautioning that protectionist trade policies are ineffective in regulating such problems.⁸ A domestic policy environment conducive to innovation means having an education and training system which can match the supply of and demand for new skills and human capital. **Eoin Gahan** identified skills shortages as one of the barriers facing services innovation in Ireland.⁹ One aspect of the debate that recurred throughout the Global Forum, was whether it is sufficient to get the basic policy framework right or whether it is also necessary to have what **Eoin Gahan** referred to as “dedicated policy development” and **Vandana Chandra** called “dedicated domestic policies”, where market failure is invoked in support of public policy interventions, for example in the supply of basic infrastructure. **Sang-yirl Nam**’s description of Korean experience was invoked by some – but questioned by others – as demonstrating the case for government intervention. As will be mentioned below, a number of speakers in the final Roundtable identified the role of public policy as a fruitful area for further analysis. That debate will continue. There was also a debate about the sequencing and pace of reform, with a strong case presented for doing things as simultaneously and as speedily as political reality will allow. Finally, and importantly, it was acknowledged that for developing countries, getting the policy framework right will call for ongoing development cooperation. Many speakers referred to the limited absorption capacity of developing countries. **Saman Kelegama** gave a good example of

⁶ This strikes a chord with another aspect of OECD trade analysis – in this case work on inter-modal linkages in services trade, showing how liberalisation under commercial presence (GATS mode 3), and the embodied technology that often entails, is frequently complemented by freer movement of service providers.

⁷ The implementation of tax policy reform that enabled the government to reduce dependence on tariffs for revenue was one of key policy initiatives that enabled Bangladesh to restructure the textile industry in the face of the phase-out of the MFA (OECD, 2005).

⁸ There may be a particularly strong case for allowing workers in China to enjoy more of the rewards of rapid growth – see IMF and World Bank research described in *The Economist*, 13 October 2007.

⁹ British engineers say that the biggest challenge in meeting the market opportunities presented by India and China is the shortage of skilled engineers.

cooperation with the Vocational Training Centres established in Sri Lanka in collaboration with USAID.

- Third, it needs to be acknowledged that trade-related innovation is essentially a question of entry and exit. The shedding of unprofitable activities, is just as important as the development of new ones. Some firms have to go broke if resources are to be freed up.¹⁰ **Geoffrey Gamble** pointed out how society has been cautious in accepting new technologies citing examples of electricity, bio technology and automobiles among others, and how vested interests can pose barriers to innovation.¹¹ It is thus important to keep in mind that it may be necessary to make a continued effort to maintain societal support for innovation and trade liberalisation even when it may be obvious - as **Mario Matus** pointed out - that there are more winners than losers. It follows that *attention needs to be paid to the interests of those who lose from the process of innovation*, in order to maintain societal support.
- Finally, trade-related innovation will only flourish where *business itself is prepared to undertake cultural change*. We see evidence of this in the pharmaceutical industry where, for example, GlaxoSmithKline (GSK) has abandoned the top-down approach to research and established small autonomous research clusters that can respond more flexibly to international market needs, avoiding research disasters like that which saw Pfizer invest \$1 billion in an anti-cholesterol drug which had to be abandoned because of side effects found in late-stage testing. Even more radically, GSK has also taken on “open innovation” models whereby managers are rewarded for successful inventions whether they were developed in-house or acquired from outside. Also referred to in the Discussion Paper, this development offers another twist to the pros and cons of jealously guarding IPRs. Speakers made clear that innovation is essentially a process of adaptation (**Douglas Gregory**) and that this process is inherently risky (**Mario Matus**). They gave some pertinent examples of cultural change at the level of the firm: IBM’s more focussed approach in recognition that it can’t be best at everything; Nokia’s transition from a traditional large enterprise to an extended enterprise with an orchestration capability in an “innovation network and ecosystem”; and the shift within Sri Lankan textile and clothing firms from product-centric to customer-centric operations, together with the adoption of carbon neutral products and the concept of “garments without guilt”.

Suggested Areas of Future Work

33. In the final Roundtable, panellists, as well as drawing conclusions from the conference (as incorporated above), also suggested possible areas of future work. These encompassed analysis of:

- Ways of measuring innovation.
- How to evaluate public policy, including the role of government in partnership with the private sector.

¹⁰ It has been estimated for example that some 50% of UK manufacturing productivity growth during the 1990’s was accounted for by exit (Bolaky and Freund, 2004, in TASAP).

¹¹ None of Australia’s original shipbuilders survived the transition to what has been called a re-invented industry. Compensating losers may be the political price for public acceptance of change. This seems to have been part of the equation in New Zealand, if not in agricultural restructuring then in textiles and clothing

- Prospects and policy priorities for small developing countries, and the Least Developed, in seeking to join the global supply chain, including the respective roles of diversification and specialisation¹².
- Ways of building absorptive capacity in developing countries.
- Constraints on innovation arising from non-tariff barriers and restrictions on labour mobility (including mode 4).
- The promotion of trade and innovation in a post-DDA framework, including issues such as investment and competition policy, excluded from the DDA.

34. For possible inclusion under the umbrella of one or more of these broad areas of suggested analysis, the Rapporteur also proposes three, more specific, issues that arose at the Global Forum and which are worthy of follow up analysis: the nature and significance, for developed and developing countries, of the “technology frontier”; the relative impact of global sourcing on import barriers facing, respectively, intermediate and final products; and issues arising from the protection of IPRs. Any follow up work on IPRs might incorporate suggestions made by **Bertin Martens** to examine the dynamic effects of IPRs, as well as the question of regulatory competition aspects of IPRs, of the sort that has seen stem cell research, and associated patents, move to the EU because of the relatively open environment there. These three topics, apart from their own intrinsic interest also share in common the fact that they each have important implications for the development process and the fostering of innovation-through-trade by OECD’s non-Member partners.

Closing Remarks

35. In thanking speakers, chairs, participants from the floor and colleagues in the OECD Secretariat, **Stefan Tangermann** assured the conference that the Trade and Agriculture Directorate would draw extensively on the insights coming from the Global Forum in its ongoing work. That work, to be conducted within the framework of the OECD Innovation Strategy, would be underpinned by the central proposition, questioned by no-one at the conference, that trade is a major driver of innovation, and hence of growth.

¹² There may have been some semantic confusion in the debate about the respective merits of specialising and diversifying in that diversification was often used to describe a shift, within the same industry, to higher value added, niche activities (ie, specialisation).