Global Forum on the Knowledge Economy

TOWARDS STRONG, GREEN AND INCLUSIVE GROWTH - SUMMARY OF KEY IDEAS

CIIE, 25-26 October 2012

This note provides a brief summary of some key ideas, findings and outcomes from the Global Forum on the Knowledge Economy, held in Seoul, Korea, on 18-19 September 2012, focusing on Strong, Green and Inclusive Growth. The presentations and discussions can be found on the OECD Internet, at www.oecd.org/knowledgeeconomy under “Agenda and presentations”.

This note is provided for information to the CIIE during its meeting of 25-26 October 2012 as the discussions at the Forum may provide useful input for the Committee discussion on its future work.

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1. This note summarises salient ideas emerging in different sessions of the 2012 edition of the Global Forum on the Knowledge Economy. More detail on the Forum, including a substantive background paper, can be found on the OECD Internet site, at www.oecd.org/knowledgeeconomy.¹

Opening session

2. The Forum was opened by Richard Boucher, Deputy Secretary General of the OECD. In his opening remarks, he first thanked the Ministry of Knowledge Economy for hosting the Forum and the Korean Institute for Advanced Technology for their work in organising the conference with the OECD. He then noted that this conference is intended to reflect on some of the big policy concerns the world is facing today, including low growth, rising unemployment and inequality, high budget deficits and debt. Apart from these concerns arising from the economic crisis, policy makers also need to address longer-term challenges, including the global shift in wealth, climate change, demographic changes, as well as rising inequality. OECD aims to better understand and measure the new economy, to develop new policy thinking and advice, and help countries around the world to adjust and benefit from the new reality.

3. One important area of the OECD work is the search for new sources of growth. For example, as the economic role of knowledge based assets– software, skills, R&D, databases, and new organizational set-ups – grows stronger, so does the potential for growth based on these assets. But tapping into these sources will require policies that are adjusted to the new reality, e.g. in areas such as skills, competition and tax. OECD work also shows that international trade is no longer a zero sum game. Firms now organize production through regional and global value chains. We need to reconsider our economic models in light of the complex interdependencies that govern the international trading system, and need to ensure that all countries can tap into these value chains and benefit from the globalisation process. We also recognise that in today’s world, growth has an environmental dimension: the progress of well-being is no longer a choice between a growing economy and a cleaner planet, it is about both.

4. We also must not lose sight of the greatest welfare challenge of all: poverty. Any policy decisions we take must be scrutinised in terms of poverty reduction and development. Addressing this issue not only improves well-being, it can also restore balance, competitiveness and productivity. Tax, health, social security, and other policies are needed. But it is particularly important that countries focus on education and skills. Skills are the global currency of the 21st century. Without adequate investment in skills, people languish on the margins of society, technological progress does not translate into economic growth, and countries can’t compete in today’s economies. The good news is that the centre of economic gravity is moving from the industrialised to the large developing economies. And shifting wealth is also associated with more than 500 million people out of poverty in the developing world.

5. Today, the OECD is putting its policy knowledge and experience at the service of countries across the world. To do this, we need to incorporate the concerns of emerging and developing countries

¹ The list of speakers for each of the sessions is contained in document DSTI/GFKE(2012)2, whereas some background to the discussion is contained in document DSTI/GFKE(2012)1.
into our work. We recognise that the epicentre of economic activity is shifting, and that by 2030 developing and emerging countries will account for nearly 60% of global GDP. Our interaction with developing and emerging countries has never been greater and we are doubling our efforts to help developing and emerging countries reduce inequalities, fight corruption, improve public services and build competitive business frameworks. Knowledge sharing is crucial in this strategy. The exchange of best policy practices – which also characterizes this Global Forum – will be beneficial not only for developing countries, but also for advanced economies.

6. In his welcome words, Vice Minister Sang-Jick Yoon noted that Korea still needs to improve in many areas, notably in areas such as software, design and intellectual property. Ambassador Kyung Wook Hur noted that Korea has much to offer on many of the themes to be discussed at this conference. It has had a very adaptive industrial policy, moving with the world market. In recent years, the focus on knowledge-based green growth has grown. For example, Korea will host the Green Climate Fund. Korea is also a major player in global value chains. One difficult challenge is the role of IPR. It is clear that firms increasingly compete on knowledge rather than costs, highlighting the role of IPR. However, striking the balance in IPR policies remains a challenge. KIAT President Yong-Geun Kim welcomed the participants to Korea and noted that the Forum provided a good opportunity to learn.

Session 1: Turning Knowledge into Growth and Employment

7. In his introduction, the moderator, Alistair Nolan noted that knowledge-based capital is of growing importance in OECD countries and beyond, and is creating new policy challenges in many areas, including tax policy, competition policy, financing and intellectual property rights. This session focused on the following key questions:

- The contribution of KBC to growth and investment in OECD and emerging economies appears to be rising rapidly. Is this contribution likely to grow further?
- What policies are particularly important to unlock the promise of KBC for economic growth? How can the impact of investments in KBC be ensured? How important is KBC for emerging economies?
- What policies have worked, in both OECD and emerging economies? What policies should be discouraged? How can learning about policies and approaches be strengthened in firms, institutions and governments?

8. Youngtack Shim: The experience of some major companies, e.g. Apple, shows that manufacturing a product is no longer a guarantee for success. Rather, firms rely on features that make their products special and unique; in many cases, these features are based on intellectual property. Differences in approaches and policies to intellectual property rights across countries and jurisdictions can create difficulties for firms.

9. Masuo Aizawa: The global landscape for innovation has also been affected by the growing role of emerging economies, in particular in Asia, and by a number of important global challenges, such as climate change, energy and ageing that need to be addressed. Innovation policies in many countries are therefore becoming more challenge-driven, where there is also a transition from a focus on knowledge creation to knowledge utilisation. Multidisciplinarity is becoming more important in this context, although it is difficult in many countries, due to barriers between ministries and between science and business.

10. Andrew Wyckoff: In all these areas, knowledge-based assets are continuing to grow in importance, as there is a greater need for firms to differentiate themselves, as the Internet economy continues to drive growth, and as a range of new business models are emerging. This offers new
opportunities, although it is not immediately clear whether everyone will benefit. As regards policies, it is becoming clearer that some framework conditions developed for a pre-KBC era have become outdated and need updating, e.g. in areas such as tax and IPR. New forms of KBC, such as data, are important, although they create challenges related to valuation, trading and privacy. Human capital is clearly key as it is at the heart of KBC and also as much of the knowledge that gives firms an edge is tacit and cannot easily be used by a competitor. New skills, such as team skills, problem-solving skills, and their application in the workplace, are growing in importance, and rest on good education (starting at an early large) as well as continued learning post-education.

11. The discussion touched on the role of IPR where discussants noted its role differed across sectors, with some sectors having a strong foundation in production and value creation based on IPR, whereas in others it was used mainly as a strategic asset. Who owns the IP is also an important consideration in cooperation between universities and business. A better understanding of IPR from an economic perspective was considered to be a potentially useful role for the OECD, complementing the work of other international organisations, such as WIPO.

12. The discussion also touched on the potential for emerging and developing economies in a world driven by KBC. One suggestion was to use official development assistance better to encourage cooperation in addressing global challenges. Another focused on the role of government, which is an important player in the area of data, but suffers from a high degree of risk avoidance. In smaller economies, the challenge is often one of tapping into value chains and in fostering start-up firms that can quickly scale up to the global level.

13. Another comment focused on the financing of KBC, which partly requires markets for risk capital, due to the intangible nature of the assets involved, and the lack of collateral. The development of markets for intellectual property and the use of IP as collateral are some potential ways forward. A final comment noted that we are still often looking at KBC as individual assets, whereas increasingly it is the combination of investments that is important.

Session 2: Do we need a New Industrial Policy?

14. In his introduction, the moderator, Ken Warwick, highlighted a number of reasons for the ‘renaissance’ of industrial policy in current policy discussions: in particular the economic crisis forcing countries to search for new sources of growth, the need for a rebalancing of the economy in some countries, and the perceived success of industrial policy in (emerging) countries. At the same time, there is considerable confusion around industrial policy, particularly around its definition. A broad definition of industrial policy presented by Ken Warwick was: “Industrial policy is any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies, or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention, i.e. in the market equilibrium”. During the session, the panellists were asked to focus on the following broad questions:

- What is the contribution of manufacturing to growth in developed, emerging and developing economies? How is this role evolving? What is the role of services?

- How can governments best encourage structural change in their economies? What policies work in practice? Which should be avoided?

- Do we need a new industrial policy? If so what should it look like?
15. Richard Snabel: As an example of the role of manufacturing, Australian manufacturing has undergone strong structural change because of increasing globalisation, technological progress in ICT, the growing importance of global value chains, etc. The competitiveness of Australian manufacturing is increasingly based on innovation, differentiation and business models targeting value instead of costs. Government plays a key role in creating the right framework conditions where more direct policies could be targeted at reducing information asymmetries and improving the coordination between partners (business, government, and academia). However, industrial policy is not widely supported and used in Australia.

16. Ambassador Hur: In the context of Korea, the shift towards higher capital-intensive and knowledge intensive industries increasingly limits employment creation by the manufacturing sector. The challenge for Korea now is to create more jobs in service industries knowing that services are characterized by low productivity levels (productivity in services is 50% of productivity in manufacturing in Korea, being 70% for the whole OECD). The policy focus in Korea has accordingly shifted to high value added services, the more as these services are crucial inputs into manufacturing. In addition, industrial policy has become more horizontal in Korea (illustrated by the creation of a Ministry of the Knowledge Economy, and the Korean initiative on Green Growth). Korea had applied more direct forms of industrial policy in the past, but this has sometimes had negative effects for the longer term.

17. Carlos Alvarez: Another way of describing industrial policy is to state that its objective is to facilitate structural change towards higher productivity industries, particularly in identifying constraints and removing obstacles (in R&D, access to finance, education, etc.) to this change. While manufacturing has played a distinctive role in the development of countries, industrial policy is not limited to manufacturing, however; it increasingly extends to tradable services because of their growing importance for learning and accumulating knowledge. Industrial policies in developing countries have shifted away from (pure) import-substitution towards the prioritisation of higher productive industries; policies today include domestic entrepreneurship, attractiveness of FDI and mission oriented research.

18. Prof. João Carlos Ferraz: In the Brazilian context, industrial policy is a tool/instrument that needs to be clearly integrated with other policies (e.g. macro-economic, social and investment policies). Industrial policy is very dependent on the specific circumstances in a country (not ‘one size fits all’) and has to be flexible to changing conditions. Moreover, it is important to have a strong analytical framework, a clear political priority and coordination across ministries, with the Ministry of Finance in particular. The discussion on industrial policy often suffers from a number of false distinctions: horizontal versus vertical, direct versus indirect, soft versus hard, picking the winners and building national champions versus creating framework conditions. There is a need for tenacity in deploying industrial policies; lobbying and vested interests should be taken into account but cannot be the reason for not implementing industrial policy.

19. The second round of interventions focused on what the role is of industrial policy in different development stages of countries, what impact industrial policy has generated in response to the economic crisis and what the targets of industrial policy should be (firms, sectors, technologies, etc.). Context is very important for industrial policy and coordination between government/business/academia is necessary for right targeting and evaluation. The discussion on industrial policy would benefit from a strong analytical framework that would need to be generic to cover a wide range of number of countries but specific enough to be applicable to individual countries.

20. There are sometimes important costs of targeting within industrial policy (e.g. overinvestment by the private sector), which is one of the reasons why Korea now focuses more on broader technologies instead of industries. Moreover, there is a need for having different industrial policies in different stages of development and for countries to adapt and update policies to changing conditions. For example, in Brazil,
industrial policy in the aftermath of the economic crisis was at the same time demand led (because of rising prices of commodities, an emerging middle class and infrastructure investment in Brazil) and policy-induced (by decreasing the domestic costs in the light of the large reserves of foreign exchange flowing into the country and the accompanying appreciation of the Brazilian currency).

21. Questions from the audience focused on the importance of priority setting, the complexity of policy making, the impact of leadership from the top, and the need for tenacity as well as flexibility for industrial policy. A final intervention from the floor questioned if a different term for industrial policy was maybe needed as a lot of dogma’s are typically used in the discussion on industrial policy. Panel members agreed that the term industrial policy has not always been constructive in policy discussions but did not directly see an alternative. The chair concluded the session taking from the discussion the importance of flexible tenacity, the importance of coordination across institutions and the need for priority setting and evaluation.

Session 3: Big, Small and Innovative Businesses: What Role, what Policy?

22. The session started with a review by Karen Wilson of recent OECD work on entrepreneurship. High-growth firms typically represent a small share of the overall firm population, but contribute disproportionately to employment growth. No matter their size, young firms are more dynamic than older firms, and regulatory and administrative barriers remain high in many countries. While venture capital is important for high-growth firms, there is also a significant volume of business angel investment. Moreover, it is important to build links between different parts of what could be described as the ‘entrepreneurial eco-system’. The session then focused on the following questions:

- What are the main barriers to young high-growth firms? How can these be addressed, and what works in practice?
- How can the contribution of SMEs to growth and job creation be strengthened? What works in practice?
- What is the balance in policies between large, small and innovative firms? Should governments have different policies or are framework policies sufficient? How can the interaction between firms be enhanced to strengthen performance?
- What are the new opportunities linked to small, multinational firms? Is policy action needed for such firms? If so, what should such policies look like?

23. William Saito: From the perspective of an entrepreneur, business plans almost never reflect what actually happens when a business is created. Everything hinges on the characteristics of the entrepreneur. Entrepreneurship requires skills that are not taught in many universities, such as teamwork and leadership. In this respect, the educational divide between science, technology and liberal arts needs to be closed. Encouraging female entrepreneurship would be beneficial in many countries, while many Asian countries, as well as OECD countries more generally, face the problem of demographic transition, for which reason enabling entrepreneurship among older age groups is important. Around 300 000 engineers worked each on the Manhattan Project and the Apollo programme. The average age of those engineers was 27. 27 is also an age when large numbers of entrepreneurs create start-ups in Silicon Valley. Accordingly, more needs to be done to facilitate entrepreneurship for younger persons. Venture capital activity in Japan is not highly developed. Generally speaking, governments should be looking to lower barriers to entrepreneurship, but failure among firms must be seen as an inevitable part of the process. Failure is so often a function of limited human capital of the entrepreneur.

24. Prof. Manhong Mannie Liu: China has a very large non-market economy. The market economy contains about 50 million SMEs. But government-owned companies occupy strategic positions in fields
such as energy and transport, and receive sizeable public funding. Labour costs have increased greatly in China in recent years, and labour scarcity has become a problem in some sectors. A section in the 12th 5-year plan was devoted to SME financing difficulties. By the end of 2010, total financial assets in China were close to USD 15 trillion equivalent: but over 90% of this sum was in the banking sector. The government has stipulated a percentage of all loans that banks must provide to SMEs. But data suggest that only around 2.6% of all bank loans go to SMEs. Venture capital is becoming increasingly expensive, and the government is trying to encourage business angel investment.

25. Prof. Yong-Jin Kim: In Korea, a large number of start-ups were created after the 2008 economic crisis. Many of the entrepreneurs involved were in their forties (often being persons laid-off from shrinking larger companies). Fear of failure is significant, and many parents in Korea would prefer their children to work in the public sector, where conspicuous failure is not an issue. Large companies in Korea account for a dominant share of economic activity – so the creation of linkages between small and larger firms is an important goal.

26. Mok Lee Chew: In Singapore, SMEs only contribute about 60% of GDP. Public support for SMEs aims in part to increase economic diversification. Key challenges faced by small high value-adding firms in Singapore include finding and retaining talent, given the small size of the Singaporean labour market, and finding finance, especially financing that comes with mentoring and expertise. The government has a co-investment programme investing up to 1 million Singaporean dollars in local firms. However, the teams instrumental in creating a business might not be best suited to grow the business. Government procurement in Singapore provides a test bed for many small innovative firms. Larger firms also face important risks in working with small companies, but such relationships can be important in facilitating upgrading among SMEs. There is a 5% budget earmark across Ministries in Singapore. From these earmarked funds, SMEs can bid for resources for the funding of new ideas.

27. China has set up a so-called ‘government guidance fund’, through which the government has tried to foster the venture capital sector. Channels for investing private investable resources are limited. But business angel investment may represent an important investment outlet. Recent data indicate that business angels in China are: young – 39 years on average; have become particularly active recently – 60% began investing after 2009; 50% are women; and are well educated - 80% have a college degree. Chinese business angels also exhibit a strong sectoral concentration, particularly in e-commerce. In Korea, however, there are not many angels at the moment.

28. Various of the speakers commented that some education systems in Asia are moving away from rote learning and promoting creativity. However, a focus on standardised competitive test-taking should not operate as a bar to teamwork. Entrepreneurs are often adept at assessing risk – rather than taking risk, and risk assessment should be something addressed by education systems. Moreover, the practice of intra-preneurship is very culturally dependent: often, good new ideas have to be spun out of firms, as differential rewards are hard to accommodate in a corporate hierarchy. More broadly, immigration is extremely important as a source of human capital and entrepreneurial talent: immigrants offer new and divergent perspectives. The United States’ SBIR programme and the ERISA act - which mandates pension funds to undertake risky investment – are positive developments for entrepreneurs. The X prize concept is also becoming more popular in the United States – and is a significant funding innovation. These programmes are sometimes emulated in other countries; for example, China’s ‘government guidance fund’ was copied from programmes operating in the United States (SBIC) and Israel.

29. Some countries are operating programmes to encourage foreign entrepreneurial teams to locate in their countries. In the public programme EntrepreneurshipChile, for example, experts are also brought in from around the world. At the same time, entrepreneurship is not for all, and that for many young people, obtaining business experience may be a more important step than going into business.
Session 4: Making Globalisation Work for All – Drawing Benefits from Global Value Chains

30. In his introduction, Koen de Backer noted that the rise of Global Value Chains (GVCs) has been driven by the globalization of the economy, increasing interconnectedness and the re-allocation of resources across borders. This rise has highlighted a number of issues including the measurement of GVCs, changes in perspectives on trade (traditionally exports were seen as good and imports as bad but that is changing today as 30% of exports include imports from elsewhere), competitiveness and upgrading of value chains and the systemic risk related to GVCs. This session focused on the following questions:

- What does the rise of global value chains imply for trade and competitiveness policy?
- How can economies draw greater benefits from global value chains? What role can governments play? What is the experience at the national level and what lessons can be learned?
- How will global value chains evolve? Will they continue to grow, or will there be some retrenchment following the economic crisis?

31. Max von Zedtwitz: There has been a trend towards moving upstream in GVCs with many emerging countries moving away from manufacturing as they seek to invest more in R&D and innovation. In terms of R&D, this is still limited to a few emerging economies, notably China and to a lesser degree India, that attract the bulk of foreign R&D. MNEs are drawn to these countries mainly because of the size of their markets, and the size of the markets makes R&D interesting. At the same time, it is still difficult to good R&D in these countries as diversity, creativity and openness are limited. Moreover, the rapid growth of these economies may limit innovation, as scaling and expanding as such is often the main growth strategy.

32. Francisco Monge: Costa Rica is an example of a country that has successfully moved up the value chain. Being a small country, with a small domestic market and limited products, it proactively sought integration into GVCs through an export platform, which included free trade agreements, and by attracting FDI, which was critical to help diversify and improve the quality of exports. Now the country is diversified into high tech GVCs and is a leader in high-tech exports in Latin America.

33. Sanghoon Ahn: South Korea is another example of a country that proactively pursued FDI, both inward and outward, and has succeeded in integrating into the GVCs, particularly in the automobile and electronics industries. Trade in intermediate goods is very important to the country. However, South Korea now needs to upgrade the labour force as unskilled people have been losing jobs.

34. Andrea Goldstein: These examples show that development is associated with diversification (in terms of an increased number of exports and a larger range of products). Diversification helps make a country more competitive and trade more resilient; it may also help reduce vulnerability to shocks in specific sectors. In the past few years, GVCs in Asia Pacific have become increasingly diversified and product sophistication has risen. In several cases, e.g. China and Vietnam, the state has been a major player in encouraging diversification.

35. Thanin Pa-em: Thailand’s policies are broadening beyond the focus on GVCs as such. There is a growing focus on beyond GDP, i.e. more inclusive and greener growth, as well as concerns about future ageing. There have been concerns that Thailand has become stuck in a middle-income trap, and that there is a need for greater product and process innovation, the building of brands, and a stronger focus on education, in particular higher education. Also, stronger connectivity will be essential. Last year’s flooding also demonstrated the risks of value chains, as many firms were heavily affected.
36. In the discussion, the following points were made. MNCs are drawn to emerging markets, not necessarily due to innovation but due to the size and growth potential. It takes time for R&D investments to have results. The key is the commercialization of R&D, not just the R&D itself.

37. In terms of policies, there are a number of actions that can help countries integrate into GVCs. These include trade liberalization or openness, investment in education (skills, language and culture) and increasing FDI attractiveness by improving the business climate and framework conditions as well as providing connectivity and access to business infrastructure.

38. Once a country is integrated into GVCs, there are further steps that can be taken to upgrade. However, the objectives must be clear. The more a country upgrades, the more the country gets into niche product areas. Is it better to stick to what you do, get into lots of GVCs and or work on upgrading? In order to upgrade effectively, countries must provide a sense of stability as well as transparency and openness. Diversity is important and also a recognition and reward for innovators.

39. There can be regional integration of GVCs by addressing tariff and non-tariff trade barriers. South-south integration can also be important and offers a new potential for developing and emerging economies. In terms of global rules to govern GVCs, competition policy, standards and global guidelines such as the OECD MNC guidelines can play important roles. Scientific and technical connectivity is also important.

**Session 5: Greening Business – Seizing the Opportunity**

40. In his introduction, Dirk Pilat noted that the global economy faces a range of environmental stresses around such issues as water, energy, climate change and biodiversity. Business – both large and small - is essential to green growth and many new green business models are emerging. Policy can provide vision and leadership, develop green capabilities (for instance in R&D, infrastructure and skills), strengthen markets for green products, and foster green innovation and entrepreneurship. This session focused on the following questions:

- **What are the opportunities for ‘green’ and ‘growth’ to go together?** How can these be seized? What role can new business models play? How can these be scaled up?
- **What are the obstacles and how can they be overcome?** Which countries, regions, firms and organisations lead the way? What can be learned from their experience?
- **What can be learned from previous periods of economic transformation?**

41. Georg List: From the perspective of AVL, which is a company involved in the greening of transport technologies, the following points can be made:

- Greening business is a societal goal, and as such better information is required. For instance, authoritative informational sources are needed on such issues as forecasts of carbon dioxide emissions and future technology options.
- The market alone will not be sufficient. Many markets are relevant, including financial and consumer markets. There is resistance to paying for the hidden costs of environmental goods.
- Much still needs to be learned about how to achieve green growth.
- Green innovation needs an equal partner in the public sector. In Austria, for example, the government does play such a partnership role. Throughout the OECD area, major regulatory challenges are on the way, which can only be tackled through sophisticated government action. For instance, issues around the introduction of autonomous or crash-free driving represent larger policy challenges than did electrification.
Large companies are essential. Large firms also need to learn to work with entrepreneurial small firms, and vice versa.

42. Joo Sueb Lee: The Global Green Growth Institute (GGGI) was established in 2010, and seeks to foster green growth where climate change is one of the most important environmental concerns. Responding to these concerns can open opportunities for job creation, however. Businesses must rise to these challenges or face competitive difficulties. An example of this is provided by Kodak, once a global leader in photographic technologies, but later needing to file for bankruptcy. By contrast, Fuji film foresaw environment-related challenges in the arena of photographic film. It changed its business model and continues to operate as a successful company. In developing countries, the transition to green growth is also important, but much still needs to be done. Future investments in infrastructure need to plan for ever more frequent extreme weather events. Technical innovations mean that successive generations of industrial plants can become cleaner. Rapid urbanisation and increasing levels of consumption in developing countries likewise offer many green business opportunities. Partnerships with government are essential. While the market is not perfect – being subject to externalities, information asymmetries and free-rider problems – it does provide a basic framework that needs to be enabled and, where necessary, corrected for.

43. Pierre Möhnen: Theory suggests a trade-off between growth and environmental concerns. However, research by Michael Porter (the so-called Porter hypothesis) suggests that environmental regulations can foster productivity growth in firms. This research shows that firms respond to market incentives, and that environmental regulations have a positive impact on ecological innovations. Ecological R&D is found to have a positive effect on product, process and environmental innovations. Labour productivity is also positively related to environmental regulations. This suggests that it is important to design regulation that is flexible (more performance-based than technical).

44. Kilaparti Ramakrishna: The current crises affecting food, fuel and finance suggests that the way business is being done is not getting the world to where it needs to be. Environmental awareness has increased globally in recent decades. But surveys around the world indicate that the general public’s priorities focus on growth. There are also concerns in some quarters that the green growth agenda may reflect developed-country priorities. Environmental regulation and an enabling environment, involving policy certainty and the removal of barriers to entry for green firms, are essential inputs from government. The United Nations can serve as an intermediary between countries that are more and less advanced in the adoption of green technologies and policies.

45. Mr. Lee observed that government needs to build the right types of infrastructure. Many green investments require large upfront investments – which again emphasizes the importance of policy certainty. Prof Mohnen commented that the private sector knows the technology better than governments, but may be unaware of all the outcomes from the use of specific technologies. Mr. Ramakrishna noted that commitments at national and regional level are probably more easily met than global commitments.

46. Commentators from the floor noted that technology transfer involves more than just technology: it should also entail knowledge transfer. It was likewise observed that the track record of previous global funds has not been good. Joo Sueb Lee agreed that technology transfer can be very complex. Partnerships with science and technology institutes in developing countries can be useful. Mr. Ramakrishna concurred that green technology transfer has been a problematic challenge. With respect to questions concerning the green climate fund, it was noted that there will be a Board of Governors and at least some of the projects will be publicly-privately co-financed.
47. The panelists expressed their optimism about the future. In this connection, Professor Mohnen noted that in developing countries the primary challenge is to meet basic needs. As incomes rise, environmental goals will increase in importance.

Session 6: Innovation for Better Lives – Focusing on People’s Needs

48. This session focused on the following questions:

- What are the new opportunities to use technology and innovation to improve the quality of life and how can these be seized? What is the experience across countries? What has worked in practice?
- How can government best strengthen technology and innovation in a context of scarce resources? What policies work in practice? Which should be avoided?
- What role can demand-side policies, such as innovative public procurement and smart regulation play in innovation for better lives?
- What role can foundations and philanthropic organisations play?

49. Market mechanisms are not enough to address growing social challenges such as health, aging, environment and development issues. Government plays a role but there are limits to the role of policy. Other stakeholders must be engaged including the private sector, both large and small firms, as well as NGOs and foundations

50. Societal innovation is needed, not just “social innovation”. The ultimate goal is to have innovation in society resulting in systemic changes in policies, methods or tools – that is the sustainable impact of social innovation and social entrepreneurship.

51. We have experienced “Innovation 1.0” but need to move to a new paradigm – Innovation 2.0, which is inclusive innovation. This includes frugal innovation, purpose-driven innovation, transformational innovation platforms, impact investment and challenge-driven innovation.

Frugal innovation

52. Policy maker focus has been on cutting edge science and technology innovation, overlooking more flexible, lower cost, “appropriate” technologies. Solutions for the bottom of the pyramid often mean doing more with less and developing new business models. This is important not only in developing countries, which have growing middle classes, but also increasingly in developed countries in which the middle classes are shrinking and income disparities are growing. There are growing examples of innovation in developing countries which can be applied in developed countries.

Purpose-driven innovation

53. Government entrepreneurship policies often target SMEs. However, large companies are critical to unleashing entrepreneurship by partnering with smaller firms at the local level and bringing innovations to scale (leveraging their brand and financing). The policy mix should therefore include all sizes of companies. For example, 70% of ICT deployment is not technology-driven and it can be capital intensive. Large companies play an important role in investing where governments might not.

Transformational innovation platforms

54. These are the “game changers”. ICTs, in particular, play a key role as drivers of innovation and growth. Broadband, for example, provides access and serves as an innovation platform. It is changing
education as well as the business landscape by facilitating movement to a more open source environment. The potential impact on young people is striking, particularly in the developing world where the youth populations are high. In Kenya, broadband access is resulting in a series of tech hubs being created and driving innovation in a variety of areas and industries.

**Impact investment**

55. Finance and social capital needs vary across the growth phases of firms and organizations. A variety of funders might be involved in the financing of these organizations, including public, private, NGOs and foundations. Different funders address different needs over each phase of the life span of a venture. A better understanding is needed about the financial and non-financial support for organizations over their lifespan and the impact of that support.

**Challenge-driving innovation**

56. Greater innovation is needed on key social challenges such as health care and aging. Innovations targeted to the “Silver Economy” can provide new sources of growth through the development of technologies in areas such as security and safety, diagnosis and treatment and assisted technology. Technology can also drive inclusive innovation, for example, by enabling the disabled.

57. There is a growing trend of innovations from the “citizens sector”, in which people are taking on social challenges themselves and innovating at the local level. This is having an increasingly impact in terms of the development of new technologies or business models and, in some cases, leading to innovation in policy. Small local firms can be a bridge to larger companies, helping to identify BOP opportunities. These innovations don’t need to be brand new, nor technology-driven. For example, social innovation can be the new use of an existing distribution system which provides broader access.

58. There is a lot of innovation at the local scale but there is a need for networks to leverage and connect them on a larger scale. Intermediaries such as NGOs and foundations can play an important role in that respect. New collaborations of people, capital and projects are needed. NGOs and companies are more willing to work together than in the past.

59. Innovation 2.0 requires Policy 2.0, both bottoms up and top down (the latter being to promote innovation by providing the necessary framework conditions and investing in innovation platforms such as broadband, education and R&D). New policy approaches are important at all level – local, regional and national.

**Session 7: Where will the New Jobs come from? Turning Growth into Opportunity for All**

60. This session focused on the following questions:

- **How can governments foster job-rich growth? Are additional policies needed to support job creation for specific groups in society?**
- **What good practices are emerging, at the national and regional level, in the business community and among other stakeholders? What can be learned from these experiences?**

61. In his introduction, Alistair Nolan focus on the context for this session, i.e. high unemployment in many OECD countries, as well as possible gap between the growth of GDP and employment in some countries (e.g. United States). Some of the growth in employment emerges from non-tradable services, and specific areas of growth, such as the Internet and the “app” economy. At the same time there has been a rise in income inequality, in which globalisation and technology have played a role, with most evidence
pointing to skills-biased technological change as the main driver. At the same time, not all jobs are easily replaced by technology, including some low-skilled jobs.

62. Geoff Mulgan: It is important to look at patterns of demand to understand where new sources of employment growth might come from. In the OECD context, this includes health, education and leisure. It is also possible to look at technology. Or to look at what jobs are being produced – and what skills are lacking: e.g. creativity, teamwork. However, predicting future demand is not easy and who creates value and who creates jobs may be quite different (e.g. in the case of Apple). There are important productivity effects of the shift to a knowledge-based economy, including an increasing number of intermediary roles, which reflects an increasingly complex economy where more coordination roles are needed. For example, in the green economy there are a large number of jobs in maintenance and services, few in commodity production. The labour market today is characterised by massive waste and a large mismatch between demand and supply. The labour market is in need of innovation, e.g. different routes into the labour market; a better use of technology to match skills to needs. However; we will need to change mindsets as well. NESTA is about to publish a paper on the relationship between data analytics and performance, more work is to come.

63. Keilor Rojas Jimenez: Costa Rica has a high level of economic development. It abolished the army in 1947 and the savings from that decision have been devoted to education since. Education is free and mandatory, and accounts for about 7% of GDP. This has helped diversification in Costa Rica’s export package as this requires highly skilled people. Green growth is also a priority, including national parks, a focus on enhancing the share of renewable energy and a goal of reaching carbon neutrality by 2021. Education includes a focus on bilingual education to help people insert in MNEs. There is also a strong focus on vocational training and partnership with industry.

64. Hidehiko Nishiyama: Most people in Japan are in middle class, but some groups have really started to lose in Japan since the financial crisis. APEC 2010 focused on inclusive growth, which included a focus on the employability young workers; female employment and entrepreneurship; more flexibility in the education system, greater use of ICT and quality of teachers; as well as global awareness. Trends in inclusive growth include a greater use of technology and improvement in services in many services; innovation in demand; the embracing of diversity, e.g. nationality; as well as a greater role for female executives and improvements in the work-life balance.

65. Young-Bum Park: Korea appears to be in a good position, but in reality there are serious problems in the labour market. Relatively high youth employment, and older people are losing their jobs with a pension system that is underdeveloped. Also growing globalisation; some good jobs being created outside Korea, e.g. in China. The labour market also needs reform, e.g. hiring and firing rules. Retraining is a problem as Korean companies are not willing to invest much. There has been a growth of irregular workers, even in institutes such as KRIVET. Reform of the labour market is quite hard.

66. A first round of discussion focused on innovation in education and whether we need additional policies for specific groups. Geoff Mulgan pointed to the lack of experimentation in the labour market, which does not work as an innovation system with the scaling of good ideas. There may be a need to focus on specific groups and approaches, e.g. new models for apprenticeships, match-making, etc. A problem at the moment is the lack of success. Other interventions pointed to the need for continuous learning in the workplace, even for highly-skilled workers, and the need to change working styles. Education needs to be more responsive to changing demand. Moreover, the gender balance is still a challenge in several Asian countries, including Japan and Korea.

67. A second round focused on the challenges related to a more complex economy; does this imply that matching is becoming harder? Geoff Mulgan noted that technology is revolutionising education.
However, there are important symptoms of a lack of innovation, e.g. it takes the same time to teach certain professions everywhere. In a complex labour market, matching may be harder. The recent experience in the crisis also suggests that some flexibility was helpful, e.g. in working hours. At the same time, forcing down hours through legislation does not work and suffers from the lump of labour fallacy. The UK experience suggests that a certain middle group has disappeared, but there is a challenge on how to avoid people getting stuck. Interesting is also a recent Harvard study which suggests the growing oligopolistic character of the global economy, with the largest global firms becoming bigger at a global level. Other responses pointed to the need for stronger vocational training, including scholarships, a stronger emphasis on adjustment to structural change, and the importance of social policy.

68. A final round of discussion focused on research priorities for the future. Geoff Mulgan noted that some areas can be researched, but much can only be discovered by experimentation and testing through action – i.e. not just top-down action. Keilor Jimenez emphasized soft skills, and Hidehiko Nishiyama urged for more comparative research. Young-Bum Park urged for a stronger business perspective in education.

Session 8: Conclusions and “What’s Next?”

69. Dirk Pilat: The OECD undertakes events such as the GFKE as part of its work, and sees great utility in such events in part because of the great diversity of views represented. This was an excellent example.

70. Richard Snabel: The discussions at the forum have been characterised by a high level of creativity throughout the GFKE. It was very appropriate for Korea to host the GFKE, given its leadership role in such areas as green growth and the development of knowledge-based capital. From across the various Forum sessions a number of common themes were evident:

- The importance of education and skills, including so-called ‘soft’ skills.
- The importance of collaboration, for instance between small and large firms, between business and government and between business and research communities.
- The importance of knowledge networks.
- The importance of ICT, referred to in all Forum sessions.
- The importance of leadership.
- The importance of innovation, including, for instance, frugal and issue-driven innovation.
- The importance of facilitating knowledge flows and application.

71. Moreover, learning from failures is important: analysts need to examine policies that have not worked as well as those that have. Immigration is also an important phenomenon which could be examined further. There was a particularly broad discussion of policy in the session on GVCs, which for instance touched on questions around trade liberalisation, connectivity and human capital development.

72. Yong-Geun Kim: From the Korean perspective, the GFKE represents a good learning opportunity. 15 years ago Korea experienced the severe effects of the Asian financial crisis – but the country has undergone a long period of rapid economic growth. Korea effectively has no natural resources, depending on its human capital. The country copied, borrowed and studied widely to achieve technological mastery. Samsung now is a major competitor for Apple. Going forward, Korea has to achieve competencies allowing it to enter higher-value niches in GVCs. The government in Korea supports many aspects of the economy, with the condition that the support results in success (i.e. in small business loans and in the supply of R&D). In some ways though there is a low-risk culture in Korea, which may need to change. There is a need to change the Korean education system: the development of creativity has to be advanced.
73. Richard Johnson: From the OECD’s Business and Industry Advisory Council, a number of observations were made on areas of work that might be the focus of future analysis and events such as the GFKE:

- With respect to knowledge-based capital, there is a need to analyses some elements further, such as Intellectual Property Rights and new business models. More needs to be done on public sector innovation. OECD would do well to help identify the growing range of models of innovation.
- On finance: there are new areas that could be assessed around: IP valuation and securitisation; social impact bonds; angel investing; impact capital investing.
- Further consideration could be given to the ways in which ICT-based technological advances enable new business models.
- Issues around green growth might be linked with inclusive growth.
- Analytic work might try to links the development of GVCs to jobs and KBC. What, for instance, does the new production economy look like? Do phenomena such as additive manufacturing or 3D change the nature of where production occurs.
- How do innovation and entrepreneurship relate to healthy ageing?

74. Moreover, one of the OECD’s assets is its ability to convene. The organisation might capitalise on this strength and foster innovation networks, such as a network of innovators working on frugal innovation.

75. Ken Warwick offered the following comments:

- We see that some parts of the world are thriving, despite the crisis, and these places are searching to augment their knowledge assets.
- In the discussion of R&D tax credits, it has to be recalled that many of the spillovers are still localised. We need to better understand the nature of spillovers that may exist for other knowledge-based assets.
- There are likely to be gains in comparing experiences of different modes of innovation, such as frugal innovation. For instance, countries experimenting with ways of using ICT to counter problems of disability could learn from each other.
- With respect to industrial policy, there is a great range of experience and diversity of circumstances. This poses a challenge for those concerned with policy evaluation. “Flexible tenacity”, a term used during the GFKE to describe the Korean experience of industrial policy, may be key to success in industrial policy. It is interesting to observe that Korea is moving to greater reliance on horizontal policies, while some other OECD countries are moving in a different direction, towards more vertical measures.
- With respect to the challenge of unemployment – can we bring innovation systems thinking to bear here? This is a longer-term challenge, too, as economies restructure. We need to assess how higher productivity can be combined with job-rich growth.
- The interactions between regulation and innovation also need to be better understood.

76. Overall, there was agreement that Korea had been an excellent host to the GFKE. Mrs. Yuko Harayama, Deputy Director of the OECD’s Directorate for Science, Technology and Industry, thanked all the Korean counterpart institutions and staff for their excellent organisational work and hospitality. Thanks were also offered to the OECD Secretariat by Mr. Kim.
Some key ideas

77. A number of recurring themes from the forum as regards policies to drive strong, green and inclusive growth were the following:

1 - Education and skills are the key to growth and innovation

- Education must not focus so heavily on rote learning and competitive tests, and must encompass soft skills that breed entrepreneurs and creativity. Universities need to be independent but accountable, and innovative education delivery needs to be implemented from primary through to tertiary levels.
- Skills-based education is vitally important. Leadership skills, creativity, vocational skills, team-working, networking etc are just as important (if not more so) as formal academic skills. To breed innovation, informal education must be recognized as valuable.

2 – Collaboration and partnerships must be more efficient

- Facilitating multi-discipline collaboration between countries is vitally important to facilitate knowledge flows. Equally important is efficient collaboration within countries (business, government ministries, institutions, NGOs, academia, citizens etc)
- Governments must explore how to harmonize stakeholder interests to a defined and understood objective. Buy-in from all stakeholders is crucial to foster innovation
- The interfaces of the different types of collaboration need to be explored and improved. Collaboration must be easy between large companies and SMEs, between business and research, between business and government, and between business and the ‘citizen sector’

3 – Knowledge systems (networks, platforms, and flow) need to be improved

- Removing barriers to bi-directional immigration is a key to achieving the beneficial knowledge flows that foster innovation
- The linkages between knowledge owners and seekers are complex and need to be better understood
- Removing barriers to market entry is vital, especially in economies in which large firms dominate the economic landscape, in order to promote knowledge flows.
- Governments should work towards removing inter-institutional and inter-ministry competition, self-interest and protectionism. It must create an environment where knowledge sharing is seen as an innovation enabler rather than a threat.
- Knowledge networks and platforms should be sector specific in order to achieve the full potential benefits.

4 – Stimulating innovation requires a new approach to innovation planning, models, and financing

- Strong leadership and clear long-term strategy direction is required at the government level, especially in sectors with large capital expenditure requirements and long time scales for implementation (greening the auto industry for example). To encourage business to invest in innovation of this sort, the ‘fear of future priority change’ needs to be removed.
- New and emerging innovation models need to explored, such as frugal innovation and challenge-driven innovation. Policies must be in place that can identify, facilitate and expand these models to commercially viable scales.
- Access to finance, especially for young dynamic innovation start-ups and early-stagers, needs to be improved. Inherent problems in the economics of large VC funds often stop investment in seed/early stage financing rounds.
Financing of early-stage companies and SMEs needs to be innovated, so that it truly supports innovation. Policy makers should look at alternatives to traditional VC, including the importance of angel investing, impact investing etc.

5 – Policy issues, regulation and industrial policy

- Context and local circumstance are key to policy formation. It is extremely difficult to find policies that are cross-border transferable for innovation stimulation, so localized conditions must be taken into account in industrial policy decisions.
- How to evaluate industrial policy in the international context is extremely difficult due to industrial policies necessarily being local-context specific.
- Policies need to reflect and understand the new fragmented production systems and globalised economy, as these can drastically alter perceived value within global value chains.
- R&D Tax Credit policies need to be better understood and evaluated in terms of spillovers. Spillovers are both local and international, and often it takes secondary forms that are not currently appreciated.
- How regulation and policy induces innovation needs to be explored further. In principle, top down approaches should not be prescriptive but should provide the framework for bottom up actions.
- Trade policy liberalization is required in many countries.
- Lessons need to be learnt from both the good policies and the poorer ones.

6 – ICT is the bedrock for all other aspects of innovation enablement

- ICT is the key to innovation and improvement in education (delivery, quality, and accessibility), skills and innovation. An efficient ICT infrastructure is vital to emerging economies’ ability to move up the value chain and access GVCs.

7 – Understanding Knowledge Based Capital opportunities

- The ability to evaluate, report, measure, diffuse and implement Knowledge Based Capital can become a differentiator in the global market place, so policies need to enable these actions.

8 – Diversifying, enlarging, and skilling the labour market are key challenges

- Making the labour market more efficient and innovative is a pre-requisite for growth and innovation. Ways to engage the under-employed, un-employed and ‘wasted but potentially productive’ labour sectors needs to be investigated more thoroughly and innovatively.
- Diversifying the local labour pool is a key requirement, and policies must encourage minority group and female participation to increase talent, abilities, and perspectives. Empowering women into work is seen as a key strategy to combat ageing society issues concerning future workforce productivity.
- There is a growing disparity between business growth and job creation. How an economy copes with this dilemma is of paramount importance.