

March 2010

## OECD Work on Innovation, Science and Technology

### *Key business considerations*

#### Introduction

In today's increasingly knowledge-based economies, innovation is a crucial prerequisite for companies to grow and remain competitive. Innovation now drives sustainable growth and job creation across the OECD and major non-member economies, and serves as a tool in meeting societal Grand Challenges – such as green growth, health and energy security. As a result, BIAC and the OECD regard innovation as a top policy priority that must be addressed in a horizontal and cross-cutting manner. Business requirements include a wide range of issues, such as continued focus on research and development, skills and human resources, adequate infrastructure, public-private cooperation and innovation networks. Building on the outcome of the analysis and policy recommendations of the Innovation Strategy launched at the May 2007 OECD Council Ministerial, BIAC calls upon policy makers to keep innovation as a cross-cutting priority on its agenda after the finalization of the Strategy in May 2010.

We encourage the OECD to align its work on innovation to the changing policy context and new innovation drivers as they come up. In every crisis lies the seed of opportunity. Innovation offers a powerful platform for post-crisis recovery provided OECD countries embrace the new innovation paradigm. In addition, green growth plays a broader role in policy thinking. The shifting geography of innovation in major non-OECD countries provides new transitional challenges, but also huge opportunities for growth. These new shifts and challenges require innovative and efficient governance. While the economic crisis has impacted access to risk and venture capital, as well as R&D spending, innovation can accelerate recovery and put us on a sustainable growth path.

Recognizing the importance of innovation for sustainable growth, job creation and addressing global challenges, BIAC encourages the OECD to pay particular attention to the following areas as its future work program is being designed:

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### *Foster an overall innovation-friendly policy framework*

The policy framework for innovation must be robust if knowledge-based societies are to increase productivity and growth, while promoting competitiveness and job creation. The provision of an enabling framework for the private sector that facilitates the necessary financial flows, innovation and entrepreneurship and that encourages the uptake of innovation and diffusion of technology is essential. BIAC considers the following issues as particularly important:

- A stable macroeconomic framework is a fundamental pre-requisite for innovation. It should operate within a clear, stable and well-designed legal, fiscal and regulatory framework. In addition, the need to “get the price signals right” and to avoid regulatory failures remain other important pillars for well-functioning markets, without which innovation cannot thrive.
- Human capital is essential for innovation. The Innovation Strategy’s adoption of “empowering individuals to innovate” as a central platform of innovation should set the stage for expanded OECD horizontal activities linking education at all levels and innovation. International mobility, new skills (e.g. creativity, team-oriented, critical thinking and adaptability), the development of an entrepreneurial culture, labor market flexibility and excellence in higher education and lifelong learning for all should remain a strong focus of the OECD.
- Governments need to promote sustainable policies for investment and capital formation. This means developing multiple financing mechanisms, and recognition that public-private partnerships can leverage R&D. Sound policies towards risk capital and taxation are essential elements in addressing innovation. In addition, a smoothly functioning legal, regulatory and administrative system is needed to promote entrepreneurial activity for business, both existing and new companies.
- An effective and efficient IPR regime serves as a critical enabling tool for innovation. It provides incentives to take risks and encourages the creation and adoption of new technologies in all areas. This requires a robust IPR regime to maintain the balance between exclusive protection for a defined period and disclosure of IP in accordance with internationally established IPR policies. At the same time, the access and diffusion of IPR for innovation can increasingly be accelerated through open innovation business models, through a range of new collaborative mechanisms, and through the emergence of global knowledge networks and markets. In particular, the OECD’s horizontal initiative on knowledge networks and markets should be closely linked to the next phase of the Innovation Strategy.
- Greater emphasis should be placed on international collaboration to foster R&D, which increases efficiency and maximizes opportunities for international cooperation. Cooperation will be essential for achieving critical mass across disciplinary boundaries. The OECD’s initiative on global governance and science and technology should prove useful in addressing this need.

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- Trade, competition and technology go hand in hand. Free international trade and investment liberalization are therefore essential to facilitate the diffusion of technology and key drivers for obtaining sustainable global economic growth. The risks of knowledge-protectionism or green protectionism must be resisted while foreign investment is encouraged to facilitate the flow of knowledge and technology. Sound trade and investment policies need to be complemented by robust competition policies that enable entrepreneurial new market entrants and ensure the most efficient allocation of scarce resources.

The wide range of framework conditions that need to be in place highlights the importance of understanding the linkages among different policy fields and the effects on innovation. At the same time, we need new innovation indicators for better governance and evidence base for innovation policy. Such indicators must be in line with the broadening aspects of innovation, e.g. business models, services, design and organizational developments.

### ***Finance the innovation process***

A key component of any innovation activity is access to financing and policies to support capital formation. Vast amounts of financing will be necessary to encourage the development and deployment of technology, and the majority of funds will have to be mobilized by the private sector. Both public and private entities need to be encouraged to sustain their research and development (R&D) activities. In times of economic downturn or a slow recovery process, financially-stretched governments, companies and institutions may become less receptive to pro-innovation arguments as they deal with other “immediate” challenges. Improvements in effectiveness and efficiency remain available, for example, through increased collaboration, better design and use of public-private partnerships, and greater emphasis on international R&D collaboration, to name just a few.

BIAC believes that the role of financing for the innovation process needs to remain high on governments’ policy agendas. In this context, the following areas require continued attention: the role of public support schemes and best practice models in this area; the role of venture capital; tax incentives for research and innovation; and the economic value of intangible assets, which are increasingly important for both traditional companies and “knowledge companies” that heavily rely on patents or employees’ know-how. Due attention needs to be given to implications for access to financing.

### ***Realize the potential of intellectual assets for new types of value creation***

The process of value creation is continuously changing, and new sources of growth are emerging. The importance of intellectual assets, such as IPRs, software, designs, brands and reputational capital are evolving and becoming increasingly important elements for value creation. The increasing role of data, digitally enabled global value chains, tacit or “sticky” knowledge, new business models, and social innovations represent significant new developments related to intellectual assets. The expansion of the service sector,

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globalization and new information technologies have contributed to a faster creation and dissemination of knowledge, underlining the importance of intellectual assets – often in conjunction with tangible assets - such as the ways in which intellectual assets enable sustainable manufacturing in traditional manufacturing sectors. In a number of OECD countries, investments in intellectual assets far outweigh those in physical assets. Our economies, therefore, have to develop new mixes of resources and skills within new innovation eco-systems to adapt to the changing processes of value creation.

Intellectual assets are increasingly important to the efficiency of capital markets, to good corporate governance, to investment decisions and to understanding the growing role of intellectual capital in new growth theories and policies. BIAC urges the OECD to increase its analysis of the changing role of intellectual assets for growth – especially when taken together with the work on knowledge markets and networks. The OECD has played a major role in documenting the changing nature of value creation and in analyzing new innovation-oriented activities, which largely rely on research and development, patents, software, human resources and new organizational structures. BIAC believes that work on intellectual assets should remain high on the agenda to further improve the understanding of their contribution to value creation in the context of a rapidly changing environment.

### ***Foster education and skills for innovation***

The importance of adopting an integrated approach to innovation policies is well illustrated by the close link between education standards and economic outcomes. The need for more people to be entrepreneurial and skilled in areas of science, technology, engineering and mathematics (STEM) is clear. This requires boosting the attractiveness of such subjects in order to foster a more innovative society. At the same time, there is a need for transversal skills, such as adaptability, language and communication skills, and increased use of ICT, which can improve the mobility of highly-skilled individuals between economic sectors and between countries.

Without the right mix of skills, we cannot reap the full benefits of innovation. Therefore, education and training are not only necessary to ensure against shortages of highly-skilled workers in key economic sectors, but also to help individuals' adaptability to the changing nature of jobs across all sectors. Close cooperation between the business community and all stakeholders in the education system is essential for ensuring that educational learning outcomes increasingly meet the changing needs of the labor market. We encourage the OECD to help establish relevant, high-quality education systems, particularly in the fields of science and technology, and to encourage sufficient international mobility, flexible labor markets as well as links between countries and between the public and private sectors.

### ***Promote the benefits from cooperation in globally-connected societies***

Innovation is a game changer. The changing nature of innovation underscores the shift away from a linear concept of innovation to a system or eco-system model, in which universities,

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companies, public research organizations and non-profit entrepreneurs develop, translate and commercialize knowledge in new ways to create economic value and meet other societal needs. These complex networks of relationships, in which public and private actors both compete and cooperate among each other, are at the heart of today's innovation. Users and user communities are becoming increasingly important as producers of new knowledge. This is increasing the number of innovators and providing businesses with additional scope to benefit from knowledge produced outside companies.

We have witnessed increased internationalization of public- and private-sector research and development and of innovation more broadly. Firms increasingly rely on knowledge developed by global centres of expertise. New technologies, including ICT, have enabled new ways of cooperation to emerge. Human resources and scientific cooperation are globalised even as we see a new multi-polarity in global R&D in every changing value chain. This raises important questions for policy makers who remain focused on interests that are primarily national in scope. It is therefore essential that policy measures take into account the global and more open nature of the innovation process. It also requires a good understanding of the mechanisms that underpin international cooperation and trends towards more collaborative innovation, an area in which the OECD has played and should continue to play a key role.

We have entered a period where the role of knowledge has grown and where complexity has increased. There is a need for each country to reform its science system to vigorously promote the development of its human resources and to take advantage of a global pool of knowledge. The continued success of business depends on making creative and effective use of science and technology, which require partnerships and cooperation between and among private and public sectors. The new and changing role of universities should be given due attention with a specific focus on the increasingly important role they can play in every innovation network of companies. A structured analysis and benchmarks would help industry, universities and the public sector to further improve cooperation.

### ***Unleash the power of entrepreneurship and entrepreneurial culture***

Entrepreneurial policies make a critical difference for innovation and increasingly provide the new comparative advantage for growth. The OECD should play a leading global role in analyzing the contributions of entrepreneurship to innovation and job creation. Several recent studies have shown that four of the five biggest constraints on innovation, especially for SMEs, relate to entrepreneurship – the lack of an entrepreneurial culture and management talent, policies that discourage or retard entrepreneurship such as legal and administrative barriers to new company entry (and exit), lack of risk capital for entrepreneurial activity, and limitations on universities and public research organizations as the hubs of entrepreneurial ecosystems or regional clusters. The OECD should undertake a range of horizontal activities across the OECD, including the CIIE, to better understand the role of public policy in enabling entrepreneurship for innovation and the role of entrepreneurial firms (including new types of entrepreneurs such as social entrepreneurs and public-private entrepreneurs) in providing new sources of innovation and growth.

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### *Foster innovation for green growth and addressing global challenges*

In a Declaration on Green Growth signed by all 30 OECD countries, plus Chile, Estonia, Israel and Slovenia on the occasion of the June 2009 OECD Ministerial Council Meeting, Ministers tasked the OECD with developing a Green Growth Strategy bringing together economic, environmental, technological, financial and development aspects into a comprehensive framework. BIAC welcomed the OECD Green Growth Strategy, underlining that innovation is a «must» to work effectively towards this major policy goal. Green growth requires innovation in a wide range of technologies and non-technological areas (e.g. business models), major progress in the development and deployment of key technologies, better use of existing knowledge and technologies across sectors and geographical boundaries, and increased international and public-private co-operation in the area of innovation. We encourage the Directorate for Science, Technology and Industry to play an active part in developing green growth policy approaches.

While green growth is currently one of the overarching priorities of the OECD, the role of innovation to address other global challenges, such as food security and global health, should also be duly highlighted. Particular attention should be attached to how the pursuit of grand challenges impacts on governance systems. International collaboration and cooperation at the national level among different Ministries, at the international level among governments, with international organizations and with the private sector are key to addressing global challenges effectively. The OECD can provide useful tools in this context.

### *The importance of non-member economies in driving innovation*

Major non-member economies are becoming increasingly involved in global developments towards knowledge-based growth. China, for example, has become a world player in science and technology, both in terms of funding and human resources for R&D. R&D spending and output has increased at a stunning rate since the mid-1990s, and Chinese firms are expanding their operations abroad, tapping into knowledge pools and establishing overseas R&D centres. More generally, innovation has traditionally been regarded as spreading from developed to developing countries. However, this is changing as innovation is also increasingly moving from developing to developed countries. The innovation ecosystem will increasingly need to be considered globally.

While presenting major opportunities, this also challenges OECD economies in the process. A better understanding of the challenges and opportunities it involves is thus essential. This includes, among others, key issues, such as securing adequate enforcement of IPR. While becoming increasingly prominent in the global knowledge-based economy, emerging economies still require major changes to become fully innovation-oriented. The trend towards more global forms of innovation is strong and, we believe, permanent. At the same time, recent developments have shown that there is a need to increasingly focus on the security of software, computer systems and infrastructure more broadly.

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There is a common interest in identifying and implementing those policy approaches that can benefit local economies and encourage international cooperation in order to deliver sustainable economic development on a global scale. We hope that further efforts in this area will be recognized and encouraged at the appropriate levels. We call upon the OECD to continue monitoring developments with regard to innovation in major non-member economies, which will provide important insights for both OECD and non-OECD countries.

### ***Take a whole-of-government approach***

The critical importance of innovation requires political leadership, policy coherence and policy coordination. It needs to be integrated fully into national economic policies in ways that cut across the priorities of different Ministries. Policymaking for innovation needs to shift from discrete issues with relatively narrow constituencies in individual Ministries to coordinated innovation strategies that engage the public and broader constituencies. The OECD development of the Innovation Strategy, which relied on the close cooperation among different OECD Directorates and Committees, illustrated the challenges and opportunities involved in fostering cooperation. Some of the practical tools that could be explored include assessment of regulation by a cross-ministerial process with a particular focus on the likely impact on the level of innovation such regulation might generate or impair.

The OECD has devoted considerable effort to understanding the linkages among different policy fields and the effects on fostering innovation. Looking forward, the priority should be to implement and establish effective and comprehensive framework conditions suggested by the Innovation Strategy. But framework conditions alone cannot produce innovation. The changing context, concept, nature and geography of innovation require new policy responses, business models and societal “mindsets”. In BIAC’s view, this will require taking a more holistic view of how to promote innovation activities, involving close cooperation among different Ministries to address innovation in an integrated manner.

### **Concluding remarks**

There is a growing need for international cooperation to leverage national efforts to support innovation and to avoid duplication in areas that are of broad-based concern. Major global challenges are too large and too complex to be solved alone. Approaches that are based on cooperation and partnership are necessary, and should be encouraged as tools for delivering the desired outcomes in a cost-effective and timely fashion. The critical importance of innovation requires political leadership, policy coherence and policy coordination. It needs to be integrated fully into national economic policies in ways that cut across the priorities of different Ministries. Building on the outcome of the OECD Innovation Strategy, governments increasingly should take a whole-of-government approach in addressing innovation and designing policy measures.

The OECD can play a major role by helping countries respond to new dimensions of increasingly global innovation and ensure that policies reflect the changing nature of innovation processes. A forward-looking approach to putting the Innovation Strategy in

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practice can assist countries by (1) providing the building blocks for innovation through concrete “innovation toolkits” and best practices; (2) anticipating new trends and assisting policy makers to get ahead of the curve; and (3) providing new measurement tools and benchmarks for innovation. We call upon the OECD to keep innovation as an overarching priority after the conclusion of the Innovation Strategy, recognizing that innovation requires a cross-cutting and horizontal approach as well as cooperation at the national and international levels and with the private sector. BIAC looks forward to remaining actively involved in these discussions.