

EXECUTIVE SUMMARY

Patented inventions are increasingly present throughout the economy and their influence on innovation and economic performance is pervasive. Over the past two decades, the number of patent applications filed each year in major patent offices has grown at a rapid pace, especially in new areas such as information and communications technologies (ICT) and biotechnology. Increased inventiveness and growing investment in research explain part of the growth in patenting, but changes in patent regimes that have expanded the realm of patent protection and strengthened rights of patent holders, together with a more strategic behaviour of patentees, have also played a role. Ensuring that the patent system continues to serve its dual role of providing incentives to invention and facilitating diffusion of technology in this new environment will require increased vigilance by policy makers and robust empirical evidence for measuring the effects of patents on innovation and economic performance.

Ministers in charge of science and technology policy from all OECD countries concluded at the January 2004 meeting of the OECD Committee for Scientific and Technological Policy at Ministerial level that *“patent regimes play an increasingly complex role in encouraging innovation, diffusing scientific and technical knowledge, and enhancing market entry and firm creation. As such, they should be subject to closer scrutiny by science, technology and innovation policy makers.”*¹

The OECD Conference on Intellectual Property Rights (IPR), Innovation and Economic Performance, held in Paris on 28-29 August 2003, foreshadowed this need by providing policy makers with factual evidence and analysis that shed light on the policy debate about patents and by setting out implications for the development of IPR regimes that contribute more efficiently to innovation and economic performance. Organised at the initiative of the OECD Directorate of Science, Technology and Industry, as part of a broader project on IPR, the conference was designed as a forum for discussion among researchers, stakeholders and policy makers. A number of policy-oriented empirical studies undertaken by economists and legal experts, in most part especially prepared for the project, were presented and discussed at the conference. Results and conclusions from those studies were tested against the views of policy makers and practitioners from the business community and patent offices. Discussions were organised around a number of themes, including the link between patents and economic performance, recent changes in patent regimes, the impact of patents on entrepreneurship and technology diffusion, and the protection of intellectual property in software and services.

The presentations and discussions led to the conclusion that the strengthening and extension of the patent system correspond to broader changes in the economy, notably the transition to increasingly global knowledge-based economies characterised by growing innovation and heightened dependence on intellectual assets as a key source of economic value and competitive advantage. Broad generalisations about the effects of patenting on innovation and economic performance are difficult to make, as the effectiveness of patents seems to vary considerably by industry sector and technological field. For example, whereas most participants agreed that patents provide incentives to innovate in the pharmaceuticals sector, opinions were divided as regards software. Nevertheless, discussions reflected that the expansion of patent protection has certainly influenced industrial structure by, for example, facili-

1. Final Ministerial communiqué available at www.oecd.org/sti/innovation

tating the breakdown of vertically integrated industries (*e.g.* semiconductors and pharmaceuticals) and creating opportunities for small firms that by virtue of their intellectual property can attract capital and integrate themselves into global value chains (*e.g.* biotechnology). At the same time, participants identified several areas for which additional attention is needed in order to ensure that patents continue to both protect inventions and encourage disclosure: 1) enhancing the diffusion of patented technology; 2) ensuring thorough examination and high-quality of issued patents; and 3) improving international co-ordination.

Participants raised concerns about the possible effects of patenting on diffusion of knowledge and on access to patented knowledge for follow-on research, especially in new technological fields. Two main areas of interest were identified regarding policy directions to improve the diffusion of knowledge and follow-on innovation:

- *Exemptions for research use of patented inventions.* Participants indicated a need for better monitoring the evolution of exceptions for research use of patented inventions. Research exemptions allow research institutions, such as universities, to use freely patented research results from other institutions when the purpose is non-commercial. Recent court decisions in the United States have narrowed the scope of application of the exception and the definition and status of research exemptions in other regions is heterogeneous and sometimes uncertain.
- *Markets for technology,* notably patent licensing agreements, play an increasingly important role in the economy, especially as innovation becomes more co-operative. They contribute to the diffusion of technology in an era characterised by greater patent protection and favour the creation of science-based SMEs. On the basis of improved understanding of such markets, governments might consider policy measures to remove obstacles to their development.

Key to an effective patent system is ensuring the quality of patents. Low-quality patents include those that are overly broad, or for which inventiveness is weak. Such patents contribute to congestion in the patent system and give patent holders more protection than might be warranted, reducing the net benefit of patents to society. However, ensuring high-quality standards for patents can be costly. Participants identified two areas in need of attention.

- *New areas of patent protection,* notably biotechnology, software and business methods, have raised new issues that the patent system have had difficulties in addressing. There is need for developing the capability to rapidly build up expertise in new areas and learn how best to apply basic patenting principles and ensure the granting of high quality patents. More policy-oriented studies based on empirical evidence have to be undertaken to face future challenges as further new areas emerge.
- *Patent administration.* Concerns regarding the quality of patents are not limited to new areas. Growing workloads at patent offices make it more difficult to maintain the quality of all issued patents. Participants noted that post-grant measures, such as opposition systems, can help offset such problems. They also identified a need for a better assessment of the issue of patent quality, including definitions and measurement, and for improving existing solutions.

International issues were also high on the conference participants' agenda. The question of patent administration and enforcement in developing countries was hotly debated. Even among OECD countries, business representatives highlighted the challenges of protecting inventions across multiple jurisdictions, and patent officials identified a need for greater co-operation.

- *Developing countries* are currently strengthening their patent systems, mainly under pressure from developed countries but also with the view of encouraging indigenous inventions. The level of development of a country, notably its innovative capability, determines its ability to use efficiently a patent system. As a result, it might not be in the interest of all developing countries to adopt patent systems as strong as in developed countries in all aspects. More economic analysis distinguishing between the poorest and middle income among the less developed countries is needed in this domain.
- Reinforced *international co-operation* among patent authorities was seen as a priority by many participants, especially as relates to patentability criteria and prior-art searches. This could not only reduce the administrative burden on patent offices, but provide a more consistent IPR framework for firms and other inventors that exploit their IP globally.

These proceedings summarise the presentations and discussions held at the conference and include a compilation of written contributions prepared by a number of participants. The publication is organised into five parts that roughly follow the conference structure. The first part explores the links between patenting, innovation and economic performance. The second describes recent changes in patent regimes. The third analyses the impact of patents on entrepreneurship and diffusion of technology. The fourth part looks at the protection of intellectual property in software and services and the impact of patents on diffusion of knowledge in this area. The last part concludes with the views of patent officials, policy makers and experts on current and future challenges for patent policy, including issues related to adapting patent systems to developing countries.