

Executive Summary

Because it increasingly affects competitiveness and industrial structure, globalisation is high on the policy agenda in many OECD countries. The globalisation process is currently characterised by the rapid integration of large emerging countries such as China and India, by the increasing international tradability of services, and by a growing specialisation of production in global value chains. The increasing internationalisation of business research and development (R&D) is another important dimension. Until recently, the technological capabilities of firms were far less globalised than activities such as marketing and production, but firms now increasingly offshore R&D activities to other countries. Large multinational enterprises (MNEs) are the main drivers in this process.

While internationalisation of R&D is not entirely new, it is now taking place at a much faster pace. Moreover, it is spreading more widely, including to developing countries, and involves more than adapting technology to local conditions. It is linked to changing motivations for outward investment in R&D.

Traditional cross-border R&D largely involved adapting products and services to the needs of host countries and to local conditions close to “lead users”. R&D activities were also undertaken abroad in order to support MNEs’ local manufacturing operations. Today, MNEs seek not only to exploit knowledge generated at home in other countries, but also to source technology internationally and tap into worldwide centres of knowledge.

Intensified global competition has forced companies to innovate and develop commercially viable products and services faster. The knowledge to do so has become more multidisciplinary and more broadly located, making innovation more expensive and riskier. Innovation strategies therefore increasingly depend on global sourcing to sense new market and technology trends worldwide. This has become a major reason for locating R&D outside the home country. MNEs’ geographic dispersion is also increasingly viewed as a basis of knowledge creation.

Most R&D investments still go to OECD countries, and the United States is the most important receiving country. However, non-OECD countries have attracted an increasing amount of R&D investment in recent years. Surveys indicate that China and India, among others, are now considered very attractive locations for future investment both because of their large and rapidly growing markets and their large pools of qualified workers and their relatively low, though rising, labour costs. However, they also indicate important drawbacks, such as inadequate enforcement of intellectual property rights (IPR). While these may not deter companies from investing, they may affect the type of R&D undertaken in these countries.

Changes in the investment behaviour of MNEs reflect the changing landscape of innovation and the increasingly global supply of science and technology (S&T) resources and capabilities. China and India, for example, have taken their place as important players with a growing capacity for research and innovation. While they lag OECD countries in terms of investment in R&D per capita, their capabilities are already large in absolute terms.

The internationalisation of R&D is part of the broader process of internationalisation of innovation. Business R&D has become increasingly internationalised, but so have science, human resources and technology co-operation. Complex policy issues therefore arise, since innovation policy instruments such as R&D support, education and training policies, and infrastructure policies are predominantly national in scope. The challenge for governments is to adjust national policies in light of increasingly international innovation networks.

Overall, the internationalisation of a firm's R&D promises substantial benefits: a more cost-efficient innovation process, better ability to learn about R&D conducted by other companies/institutions, a quicker road to commercialisation, and a positive impact on the firm's own innovation capacity. At the same time, many countries are concerned about the possible erosion of home-based R&D and thus a reduced capacity to absorb knowledge and technologies developed abroad. This is particularly true for smaller countries with small markets that may lack the critical mass for research. Some OECD countries and many developing countries fear being marginalised in this way.

The policy response to these challenges needs to take account of the current nature of the globalisation process and to build on individual countries' strengths. The key elements for action include:

- **Excellent framework conditions.** Political stability, public infrastructure, market size and development, tax rates and labour market conditions are key factors in locating R&D.
- **An excellent innovation system based on local strengths.** A strong and vibrant research base, effective protection of IPR and a well-trained workforce are major determinants of MNEs' investment in R&D and promote the growth of domestic enterprises.
- **Stronger international linkages.** This involves supporting the internationalisation of public research organisations, fostering the international mobility of researchers (inward and outward), and linking domestic firms to foreign sources of innovation. It may also require opening R&D funding and programmes in OECD countries to foreign firms and research institutes.
- **Policy coherency.** Policy approaches need to be better integrated and more coherent. This involves horizontal co-ordination across various policy areas (education, science and innovation, but also macro-economic, trade, fiscal, competition, development and employment policies) as well as vertical co-ordination at regional, national and international levels of governance.

Effective policies should respond not only to national concerns in terms of attractiveness and competitiveness, but also to global challenges. Turning the internationalisation of R&D into a global win-win situation will require a stronger policy focus on:

- Encouraging brain circulation and brain connection.
- Embedding inward and outward foreign direct investment in R&D in the local environment and thus fostering inward and outward spillovers.
- Enhancing the exploitation of home-based knowledge in developing countries in response to global challenges and development objectives.
- Strengthening the relevance of international collaboration by focusing on thematic priorities in fields of worldwide importance.