

How has innovation changed over time?

The notion of what innovation is and what role policy can play to encourage innovation has changed considerably over the past decades (see [Changing perspectives on innovation](#) [1]). It is now widely accepted that innovation encompasses a wide range of activities beyond R&D, including organisational change and innovations in marketing, and that these non-technological innovations can contribute substantially towards firms' performance and hence their growth. Moreover, the recognition of how critical interactions among institutional actors (firms, universities, research organisations) are in the production, diffusion and use of knowledge has substantially shaped the design of innovation policies.

A new context for innovation has also emerged. This new context is characterized, notably, by the growing importance of the following factors:

- **New innovation networks and clusters** (see [Innovation Networks and Clusters](#) [2]). Networks and clusters have always been important for innovation, but their nature and intensity have changed, most notably with opportunities enabled by ICTs, the rise of open innovation, the fragmentation of production, and new approaches to cluster policies, among other factors. Innovation networks and clusters facilitate knowledge spillover between firms, higher education and research institutions, and other public and private entities. They also support the pooling of resources for innovation; encourage better combinations of skills, finance and capacities; and contribute to overcome coordination failures.
- **Stronger international linkages** (see [International Linkages](#) [3]). Collaborations with foreign partners have become more important as communication costs have decreased and also as openness to trade and foreign direct investment (FDI) have facilitated diverse forms of collaboration on innovation. The attractive feature is that international linkages allow firms to gain access to a broader pool of resources and knowledge at lower cost and to share the risks. It can take a variety of formal and informal forms—formal R&D networks, the flow of labour across borders, scientific exchanges or virtual networks—and the types of interaction can range from simple one-way information flows to highly interactive and formal arrangements.
- **Knowledge-based capital and intangible assets** (see [Knowledge-based capital and intangible assets](#) [4]). Investment and growth in OECD economies is increasingly driven by intangible or knowledge-based capital. In many countries, firms now invest as much or more in knowledge-based capital as they do in physical capital such as machinery, equipment and buildings. This feature is critical for innovation policies today.
- **Information and communication technologies** (see [Impacts of ICTs](#) [5]). The development of ICTs has substantially changed innovation landscape over the past decade. ICTs have improved information exchange and knowledge diffusion incurred in the production of innovations, reduced production costs, increased firm productivity, expanded the market for innovative products and services, and also offered new opportunities for innovation (e.g. “big data”).

References

- OECD (2010a), The OECD Innovation Strategy: Getting a Head Start on Tomorrow, OECD Publishing. doi: 10.1787/9789264083479-en
- OECD (2010b), Measuring Innovation: A New Perspective, OECD, Paris.

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- OECD (n.d.), “Innovation in science, technology and industry— New sources of growth: Knowledge-based capital”, <http://www.oecd.org/sti/inno/newsourcesofgrowthknowledge-basedcapital.htm> [6]

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