

Executive Summary

Innovation is one of the most fundamental processes underpinning economic growth, the driver of growth in output per unit of labour and capital invested, and an important basis for developing solutions to economic and social challenges such as climate change, ageing societies and poverty.

The innovation process, however, requires significant and appropriate public policy support to secure the social benefits it can deliver. The OECD is therefore working with governments around the globe to produce a set of policy recommendations, adapted to the current environment and based on sound analysis, that propose how governments and their partners can support innovation in new and more effective ways. These recommendations and the analysis underpinning them are brought together in the *OECD Innovation Strategy*. This book is part of that Strategy: it focuses on one of its major themes, increasing the contribution of new entrepreneurial ventures and small and medium-sized enterprises (SMEs) to innovation.

The double focus on SMEs and entrepreneurship in new ventures is itself an important development. Whereas in the past innovation policy worked through investments in research and development, a broader view now needs to be taken of where innovation occurs and the conditions needed to support it. Innovation is not just science and technology; it is also the creation of a multitude of new products and services in all sectors of the economy, new marketing methods and changes in ways of organising businesses, in their business practices, workplace organisation and external relations. In this framework, new firm creation through entrepreneurship (which typically generates new SME entities but occasionally also “born large” firms) and innovations in existing SMEs play an important role.

The purpose of this book, then, is to examine how governments and their agents can boost innovation by improving environments for enterprise creation and innovation in small and medium-sized firms and strengthening the capabilities of entrepreneurs and SMEs. It examines the innovation performance of new firms and SMEs, the factors driving it forward and holding it back, and the implications for policy.

In examining these questions, the book:

- Sets out the role of SMEs and entrepreneurship in innovation and the drivers of and influences on innovation performance. It makes a distinction between a few very high-performance new and small firms that can have a disproportionate effect on innovation – often by introducing breakthrough innovations to the market – and the bulk of SMEs and entrepreneurs, which have more modest economic impacts individually but together make a substantial difference.
- Presents a set of country-level data on SMEs, entrepreneurship and innovation performance, and a review of major policies and new policy developments in the field.

This information is presented in the form of Country Notes for OECD members and a selected group of non-members.

- Examines three novel but also critical aspects of policies for SME innovation and innovative entrepreneurship:
 - ❖ The participation of new and small firms within global and local knowledge flows, and the barriers that policy should address.
 - ❖ The need for education and training systems to change so as to better foster the growth of entrepreneurial human capital.
 - ❖ The importance of social enterprises and social innovation and the need for an evolution in the governing institutional frameworks in order to facilitate their growth.

Major findings and messages

The environment for innovation has changed; *the importance of new and small firms to the innovation process has increased*. Increasing incomes, more “niched” market demand and changing technologies have reduced the structural disadvantages of small firm size stemming from their more limited economies of scale. In addition, the knowledge economy, more open and distributed innovation, globalisation, a shift to non-technological innovation, the emergence of the “Silicon Valley Business Model” and a new imperative for social innovation and social entrepreneurship have all given rise to a new “entrepreneurial economy”, as opposed to the “managed economy” of the past.

New business ventures and SMEs have a number of critical roles to play in supporting innovation. New firm entry and SME growth contribute to *upgrading the aggregate productivity* of the economy by displacing firms with lower productivity and placing incumbents under competitive threat. New spin-off ventures enable the *commercialisation of knowledge* that would otherwise remain un-commercialised in large firms, universities and research organisations. Small firms on average do not appear to be more innovative after allowing for their size, but they are often active in *breakthrough innovations*. New and small firms also *participate strongly in the flow of knowledge* within innovation systems, not just as knowledge exploiters but also as knowledge sources.

But there is *an uneven distribution of small firm innovation* between a few highly innovative and high-growth-potential firms and the great majority of SMEs that innovate very little compared to their larger counterparts. Policies will need to distinguish clearly between these two groups of firms, reflecting the different ways in which they innovate. The different needs can be characterised by a distinction between a Science, Technology and Innovation mode of innovation on the one hand, focused on R&D and breakthrough innovations, and a Doing, Using and Interacting mode of innovation on the other, focused on incremental innovations in the “ordinary” SME. Both must be encouraged.

On average across the OECD area, SMEs represent a *major share of all firms (99%), all employment (approximately two-thirds) and all value added (over one-half)*. These shares vary significantly by country. Among those presented in Chapter 2, SME activity shares range from minima of 47.2% of employment in industry in the Slovak Republic, 52.6% of employment in services in the United Kingdom and 49.9% of value added in Ireland, to 85.4% of employment in industry, 88.8% of employment in services and 75.2% of value added in Greece, where SMEs are particularly significant. The data also show substantial

shares of total activity accounted for by each of the sub-categories of micro, small- and medium-sized firms.

The data suggest that *SMEs innovate less than large firms* across a range of categories including product innovation, process innovation, non-technological innovation, new-to-market product innovations and collaboration in innovation activities. For example, in Sweden only approximately one-in-five SMEs had introduced a product innovation in the last three years compared to nearly one-half of larger firms. However, when adjusted for size, the innovation gap tends to be smaller, at least when measured in terms of share of turnover due to new-to-market product innovations. In the case of Sweden, approximately 8% of turnover was due to new-to-market innovations in SMEs, compared with approximately 14% of turnover in larger firms.

There are *significant burdens on SME innovation performance* and the administrative process of starting businesses. Large firms also experience problems, but there are certain areas in which SMEs suffer to a greater extent than their larger counterparts, including access to internal and external financing and availability of qualified personnel. For example, in Italy approximately 11% of small firms report lack of qualified personnel as a barrier to innovation, compared with 6% in large firms; and whereas only 15% of large firms report lack of external finance as a barrier, nearly 20% of SMEs do. However, while SME financing problems have generally been recognised by policy makers, the barrier of skills in SMEs has received less attention.

Many *new policies have been pursued* to foster the creation of new innovative enterprises and encourage SME innovation in the countries reviewed. For example, the Austrian programme “*AplusB*” (Academia plus Business) financially supports centres at universities to foster academic spin-offs. In the Netherlands the *TechnoPartner* programme provides a “package” of policy instruments (seed capital, patenting support, credit guarantees, coaching of entrepreneurs, angel investment) promoting more and better technology-based start-ups (“*technostarters*”) in and around universities. These programmes can provide inspiration for policy development in other countries.

The first of the thematic chapters examines knowledge flows. The major message is that *new firms and SMEs do not innovate alone* but rather in collaboration with others, including with their suppliers and customers, and with universities and research organisations. Collaboration is an important element in the strategies of innovative SMEs to overcome some of the barriers they face, including limited funding and the lack of management resources, technological competences, and adequate time horizons to invest in a long-term strategy.

There is strong *spatial clustering in knowledge-driven sectors*, i.e. those where R&D intensity, basic university research and highly-skilled workers are most important. This is associated with important local knowledge spillovers in these sectors. Local business linkages and networks are therefore critical to new and small firm innovation.

However, globalisation has also created new opportunities for domestic knowledge to be exploited overseas and for tapping into knowledge generated abroad, raising a new challenge: *connecting to global knowledge flows*. Governments are increasingly promoting global knowledge flows through initiatives to support cross-border alliances among and between firms and research organisations; to create linkages between SMEs and foreign direct investment ventures; and to attract highly-skilled labour from abroad.

The second thematic chapter examines the issue of skills. *Higher education institutions are increasingly providing entrepreneurship education.* This works best when entrepreneurship support is embedded within teaching, entrepreneurship is seen as a strategic objective and ambition of the institutions, clear incentives and rewards are applied for academic staff engaged in entrepreneurship promotion, support is provided for financial and human resources, and entrepreneurship-dedicated structures are in place such as chairs, centres and incubation facilities. Start-up assistance and evaluations of support approaches should also be put in place surrounding the entrepreneurship courses. Entrepreneurship is also increasingly provided in vocational education and training and schools. For example, apprenticeship programmes are good vehicles for developing entrepreneurship skills, but SME participation in apprenticeship and other vocational training is relatively limited, potentially reflecting inappropriate training supply. Shifts are also occurring in school curriculums aimed at fostering in students the ability and desire to act entrepreneurially.

As well as gaps in external provision of entrepreneurship training, in-house training of employees by SMEs is much less common than for large firms. Despite the general importance of vocational education and training (VET) to skills development in firms, *enterprises with less than 50 employees provide significantly less employee training than larger firms.* This is even true for countries known for their strong training cultures, such as Denmark, the Netherlands, Norway and Sweden. There is also a systematic access gap: younger, better-educated workers in highly-skilled occupations such as managers, professionals and technicians have greater access to training opportunities than less educated “routine” (i.e. involved in routine tasks) and older workers. One of the problems is that externally-provided entrepreneurship training approaches for managers and workers are not sufficiently geared to the “how to” nature of competences that firms require.

The smart use of *Knowledge Intensive Service Activities (KISAs)* by SMEs can nevertheless provide a significant boost to the *entrepreneurship skills of SME employees.* This involves SMEs bringing in outside firms and consultants to help them implement change, for example in quality control, marketing or product development. Experts may be called on in a range of areas, such as in research and development, legal, information technology, marketing and other knowledge-intensive activities. Their advice and joint work with SME workforces upgrades skills, increasing the ability of SMEs to develop, absorb and apply knowledge in their broader innovation processes. Yet despite the capacity to support learning in this way, engagement with KISAs is not part of recognised public SME training support programmes.

There is much to be gained from a policy approach which recognises that SME skill acquisition occurs in the context of local skill ecosystems. The concept of skills ecosystems directs attention to the *interdependency of multiple actors and policies in creating and sustaining the local conditions under which appropriate skills can be developed and deployed* in particular regions. These ecosystems involve regional and industry-specific networks that bring together public and private training providers (colleges, universities, etc.), employers, industry representatives, unions, labour market and training intermediaries (temporary work agencies and group training companies), local and regional government agencies, and community representatives, in order to develop skill strategies and deliver training.

The final thematic chapter concerns social entrepreneurship and social innovation. Defining social entrepreneurship is both challenging, given the newness of the concept and differences in how it is conceived across countries, and important for the provision of appropriate legal and administrative environments. The key characteristic of social

entrepreneurship is that it aims to provide innovative solutions to unsolved social problems through some form of business. It often goes hand in hand with social innovation processes. Social entrepreneurship is in fact best thought of as a vehicle and agent of social innovation, although it is not the only one. Examples include individual social entrepreneurs, such as scientist Victoria G. Hale who founded the Institute for One World Health, collective organisations such as the Wonju Health and Social Care Co-operative in Korea, and charities such as the Silai for Skills women’s training and employment initiative in Bristol, United Kingdom.

Social enterprises, like associations or co-operatives, often need different support from that provided to traditional businesses. This support must be cognisant of their special engagement toward social responsibility.

Like social entrepreneurship, social innovation has blurred boundaries. In global terms, however, *social innovation is about social change in response to social needs and challenges.* The OECD has developed the following definition. Social innovation “implies conceptual, process or product change, organisational change and changes in financing, and can deal with new relationships with stakeholders and territories. It seeks new answers to social problems by identifying and delivering new services that improve the quality of life of individuals and communities and identifying and implementing new labour market integration processes, new competencies, new jobs, and new forms of participation, as diverse elements that each contribute to improving the position of individuals in the workforce.”

Recommendations

The main recommendation of the book is that *policies to strengthen entrepreneurship and increase the innovation capabilities of SMEs should be one of the main planks of government innovation strategies.* Furthermore, governments should target SMEs and entrepreneurship as a *major potential source of new jobs* in the recovery from recession. Indeed, well-designed policies may achieve two objectives at the same time: job creation from new firm start-up and SME growth and productivity improvements from increased new and small firm innovation.

To realise these benefits, governments should introduce an *innovation strategy for SMEs and entrepreneurship.* It should stress actions in four main areas (see Annex A, pp. 216-217):

1. Promoting conducive entrepreneurship cultures and framework conditions.
2. Increasing the participation of new firms and SMEs in knowledge flows.
3. Strengthening entrepreneurial human capital.
4. Improving the environment for social entrepreneurship and social innovation.

Favourable entrepreneurship cultures and framework conditions are the foundation of innovative entrepreneurship and social innovation. This covers a range of issues and fields, including securing stable macroeconomic policies, well-designed mainstream policies, enabling regulatory frameworks and tax regimes and positive attitudes to entrepreneurs and entrepreneurship. The following key actions are recommended in this area:

- Foster positive attitudes in society to business start up and growth, including through education and the media.

- Ensure that the specific needs and conditions of entrepreneurship and SME activity are taken into account in *framework conditions and regulations affecting business*.
- Facilitate the inter-linked processes of *firm dynamics*, or the combined package of firm entry, growth, decline and exit.
- Tackle *finance gaps* affecting new and small firms, such as in the early stages of innovation.
- Secure conducive conditions for both *high-employment-growth firms* and *innovation in the bulk of new and small firms*.

The emphasis on *knowledge flows* stems from the fact that innovation in firms is not an isolated process, but is enabled by many connections with outside actors. As well as intellectual capital protection, sources of finance, competitive markets, human capital and so on, entrepreneurs and small firms need access to knowledge to innovate. This knowledge is created and exchanged within open and distributed innovation systems at global and local levels involving interactions among customers, suppliers, competitors, and market and technology collaborators. The following recommendations are offered to policy makers seeking to facilitate knowledge flows:

- *Strengthen knowledge-based entrepreneurship* by providing advice and training to start-up entrepreneurs who have strong technological knowledge but lack market and commercial expertise. Programmes should also be developed to promote corporate and university spin-offs with initiatives for proof-of-concept (i.e. testing the technical and commercial viability of early-stage innovative ideas), pre-competitive research and seed funding.
- *Promote partnerships within innovation systems* that involve large and small firms, universities and research institutes, and governments and their development agencies. Use these partnerships to provide soft enterprise support infrastructure (e.g. science parks and business incubators), collaborative research opportunities, services for knowledge transfer (e.g. innovation brokers, labour mobility schemes, programmes for the commercialisation of university research), and intelligence functions aimed at anticipating future needs and opportunities and acting on them through the partnership.
- *Stimulate local knowledge flows* in the following ways: Involve SMEs in interactive learning networks, for example through cluster programmes and programmes to encourage informal interpersonal interactions among entrepreneurs alongside more formal networks, for instance through shared space and facilities. Encourage local universities and research institutes to be actively involved in a “third mission” of helping develop the locality in which they are embedded, for example through collaborative research and consultancy with SMEs, and through technology-bridging institutions that help shape the direction of research and facilitate technology transfers. Strengthen the absorptive capacity of SMEs, for example with skills development and innovation purchasing initiatives. Promote local labour mobility such as through university-industry staff exchange programmes.
- *Use the concept of “related variety”* to guide policy. Related variety strategies promote knowledge spillovers among sectors with related competences and knowledge bases in order to generate new combinations of activities with strong growth potential.
- *Encourage openness to global sources of knowledge* by facilitating cross-border strategic alliances, securing better local embedding of foreign direct investment ventures, and attracting highly-skilled labour from abroad:
 - ❖ Measures for SME cross-border alliances should include providing information and connections to SMEs on potential strategic partners overseas, and supporting SMEs in

their efforts to upgrade their R&D, skills and technologies so as to facilitate the move into more knowledge-intensive networking.

- ❖ Embedding of foreign direct investment ventures should be promoted through integration of inward investment policies and cluster policies; promotion of corporate spin-offs from foreign direct investors; and joint technology development and training initiatives involving foreign affiliates and local SMEs.
- ❖ In the spirit of “brain circulation”, policy should seek to attract talented labour from other countries and facilitate diaspora return. Options include support for attraction of students and researchers into higher education institutions; promoting co-operation between industry and universities in training and hosting researchers; and making diaspora populations aware of local job vacancies.

Learning processes are at the core of entrepreneurship and SME innovation. Yet many emerging and potential business creators are lacking *entrepreneurship skills* such as in risk assessment, strategic thinking, networking, and motivating. These skills are also critical to innovation by employees in existing SMEs. The following recommendations are offered:

- *Build up entrepreneurship education in universities and higher education institutions* by smartly scaling-up, shifting the emphasis from business management to growth-oriented entrepreneurship, introducing interactive teaching methods that incorporate practical experience and linking into wider networks including alumni networks and external economic development organisations.
- *Strengthen VET programmes for business founders, SME managers and SME workforces* by changing the nature of vocational education and training to better fit the needs and motivations of entrepreneurs, offering short duration “Innovation Bootcamps” for SME owner-managers such as weekend seminars and short online courses, and increasing the flexibility of vocational education and training for SME workforces.
- *Embed teaching of an entrepreneurship mindset* in school curricula and accompany this with relevant teacher training and teaching materials designed for entrepreneurship.
- *Reinforce training in SMEs* by launching in-company projects and increasing SME apprenticeships and developing the training function of small business support programmes, such as for business succession, management and training and business counselling.
- *Increase the use of informal learning sources*, by facilitating collaborations with firms and consultants providing knowledge-intensive service activities (KISA), for example using “innovation vouchers” for SMEs.
- *Strengthen local skills ecosystems*. Promote greater participation of SMEs in local training programmes through the engagement of employers, unions and individuals. Create integrated training strategies combining training located in higher education, vocational education and training, and formal and informal training in SMEs.

Finally, the importance of meeting social needs and promoting sustainable development should not be underestimated in innovation policy. Encouraging *social entrepreneurship and social innovation* will help in this respect. The key recommendations are to:

- *Improve financial, fiscal, legal and regulatory environments*. Build environments that enable social enterprises to meet their economic and social goals. Facilitate the development of a social investment marketplace, for example with fiscal incentives to attract investors, multiple forms of credit enhancement, and seed funding programmes for individuals in

the early phases of social entrepreneurship projects. Introduce public procurement measures that include socio-environmental criteria. Experiment with innovative institutional arrangements between civil society, governments, financial institutions and social enterprise ventures.

- *Undertake research into social entrepreneurship and social innovation* and their main components in order to assess the needs of the various entities belonging to the sector. Work to create a clear definition of social innovation and an understanding of how to develop it.
- *Evaluate the impacts of social entrepreneurship and social innovation*, using appropriate methods such as Social Return on Investment measures and balanced scorecards.
- *Provide training opportunities* to social entrepreneurs and include social entrepreneurship in school and university curricula.
- *Introduce social clauses in public procurement procedures* to encourage involvement of social enterprises in provision of social goods and services.
- *Establish social innovation funds*, dedicated to specific fields where social innovation is needed (eldercare and climate change) or to supporting promising experiments and models.
- *Create incubators for social enterprises and social innovation intermediaries* to bring together the skills and expertise necessary to help sustain and develop social projects, provide a space to experiment, support learning across a community of innovators and establish clear pathways for scaling up the most promising models.