

## Executive Summary

Innovation can drive growth and create jobs. It happens in the least developed countries as well as in the most developed. In all countries, benefits can be reaped by well-planned policy interventions to support innovation, but this is neither simple nor easy, and no one approach suits all. Innovation policy has to take account of local conditions, economic inequities, demographic challenges and informal economic activity if there are to be positive outcomes. This suggests that the understanding of innovation, and of innovation policy, should have greater prominence on the development agenda, and this volume aims to help that happen.

The basis of this publication was two meetings held at the OECD in 2009 which focused on innovation in development. The first was a workshop, Innovation for Development: Converting Knowledge to Value, which was a joint OECD-UNESCO undertaking in January 2009. The second was an expert meeting, Innovating Out of Poverty, in April 2009, which was initiated by the OECD Development Co-ordination Directorate (DCD). The meetings were part of cross-cutting work on the OECD Innovation Strategy. They were held not just to make innovation prominent on the development agenda but also to ensure that development has a place in the Innovation Strategy.

Chapter 1 provides background, a summary of outcomes of the two meetings, including areas for action to be taken, and a review of work done to rise to the challenge of putting innovation on the development agenda. Chapter 2 provides the key issues emerging from the meetings and sets the stage for the chapters that follow.

Chapter 3 deals with theory and frameworks related to innovation for development, and Chapter 4 applies the innovation systems framework to Sub-Saharan Africa. Then, Chapter 5 examines the complexities of knowledge policies for development, and Chapter 6 gives concrete examples of the mechanisms that enable North-South knowledge flows and makes proposals for improving them. Chapter 7 returns to innovation strategies in developing countries and ends with a list of recommendations for policy practitioners.

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### *Directions and challenges*

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Chapter 1 elaborates on the role of development in the OECD Innovation Strategy released in May 2010, on the need for more policy-relevant knowledge for development and for capacity building in the area of innovation and innovation policy, especially at a time of economic turbulence. This goes beyond policy for innovation driven by research and development (R&D) to include other sources of knowledge. It also involves the gathering of knowledge about innovation policy by working with international organisations and donors to use the OECD approach to country reviews of innovation policy in developing countries.

Actions have been initiated since the meetings. These include putting innovation on the agenda of the Development Assistance Committee (DAC) for the first time in over a decade, the holding of the first annual OECD Council meeting on development issues, and the elevation of development by the US Department of State to equal status with

diplomacy and defence. Germany and Japan have active development initiatives that stress the need for horizontal co-operation in achieving their agendas.

At the OECD, the Directorate for Science, Technology and Industry (DSTI) has created a new division, Country Studies and Outlook (CSO), to undertake reviews of innovation in both OECD and non-OECD countries. Since the OECD-UNESCO workshop, the Swedish International Development Co-operation Agency (Sida) has created the UNESCO Chair on Research Management and Innovation Systems and launched a new project, Innovation for International Development: Knowledge and Research Application, to address the Millennium Development Goals (MDGs). UNESCO has also launched an initiative to facilitate South-South learning through the International Science, Technology and Innovation Centre for South-South Co-operation (ISTIC).

Canada's International Development Research Centre (IDRC) is supporting case study work and training related to innovation activities through a UNU-MERIT project and graduate student field work administered by the Tshwane University of Technology Institute for Economic Research on Innovation (IERI).

The World Bank held a Global Forum on Science, Technology and Innovation Capacity Building Partnerships for Sustainable Development in December 2009. It is also developing an action plan for capacity building through partnerships with other stakeholders and international organisations.

In line with the measurement agenda of the OECD Innovation Strategy, and funded by Sida, the New Partnership for Africa's Development (NEPAD)'s Office of Science and Technology is supporting measurement activities in 19 African countries to improve the measurement and comparability of statistics on R&D and innovation.

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### *Key issues*

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Chapter 2 focuses on the key issues considered in the rest of the volume and on those which came out of the two meetings. They include innovation as a driver for development; learning as a basis for innovation and for innovation policy; innovation systems as a tool for understanding innovation; the role of innovation policy and policy learning; and the need to adapt the innovation systems framework to the context of Africa.

A framework for understanding innovation has to take account of the instability, the inequalities and the heterogeneities present when innovation takes place in a developing environment. The cross-cutting nature of innovation, which is underlined by the OECD Innovation Strategy, requires coherence among the policies that are expected to influence innovation and these should be directed at or generated from the local level. Learning is a key aspect of innovation and institutions of learning may need better connections with firms, governments and other institutions of learning for there to be stronger support for innovation. The knowledge that contributes to innovation can result from learning by doing, using and interacting, from indigenous knowledge, from the experience gained in the informal economy and from knowledge gained through formal R&D.

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*Challenges for applying the innovation systems framework: the case of Sub-Saharan Africa*

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Chapter 3 reviews the innovation systems literature and its application in development as a framework for interpreting issues examined in later chapters. It introduces the discussion of knowledge sources and systems that recurs in Chapter 5 and of absorptive capacity for knowledge, as well as the role of learning at the local level and as a result of framework conditions involving institutions of education, health and government services. The chapter ends by looking at the relevance of the innovation systems perspective to policy in Sub-Saharan Africa.

Chapter 4 applies the innovation systems approach to Sub-Saharan Africa and deals with concrete issues such as the role of extractive industries, infrastructure, foreign direct investment (FDI) and learning, a subject also addressed in Chapter 6. It discusses the large informal sector and the challenges of converting knowledge to value within it. These include: the high rate of population growth and the youth of the populations of African countries, which creates a need to find jobs for young and unskilled people; the urbanisation of the population and the growth around cities of informal settlements in which the informal economy dominates; the social and economic inequities that are part of the reason for the informal economy; and the bias against women, children and migrants. There follows an explanation of how the informal sector has emerged and continues to grow, and a discussion of how it fits into an innovation system. That gives rise to consideration of demand-driven innovation, skills needed in the informal sector, the place of the informal sector in value chains, and the role of intermediary organisations and power relations.

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*Knowledge creation, technology transfer and innovation strategies in developing countries: Policy issues*

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Chapter 5 looks at knowledge institutions, develops a knowledge ecology, and relates it to an innovation system. This involves a discussion of the linkages between institutions that facilitate knowledge flows and of the discovery process that lets countries find out which areas of science and technology they are good at. As in previous chapters, heterogeneity is an issue, and a distinction is made between the higher-income developing economies that have the capacity to generate and absorb knowledge and the low-income economies that do not. The chapter's aim is to provide a conceptual framework for the design of innovation policy in developing countries.

Chapter 6 discusses the framework conditions needed to enhance North-South knowledge flows through the transfer of intellectual property, trade and FDI. These conditions include mechanisms for investing in human capital, outward-oriented trade policies and FDI policies that do not discriminate against local firms. The chapter thus notes the need for investment in education, science and technology, and R&D to enhance absorptive capacity for knowledge transfer. It calls attention to the importance of technological infrastructure, socioeconomic infrastructure and productive capacity. Appropriate framework conditions also include transparent regulation, low risk and support for entrepreneurship. Specific incentives for FDI are discussed. While Chapter 6 provides examples of topics discussed in Chapter 5, it also links to Chapter 4 and the knowledge flow aspects of innovation in Sub-Saharan Africa.

Chapter 7 moves from innovation systems to innovation strategies in developing countries and in so doing recalls many of the issues raised in the previous chapters, such as framework conditions, skilled human resources, their stock and mobility, technology platforms and knowledge flows within the system and globally. The point is made that innovation in developing countries is not always driven by R&D but by knowledge gained through learning by doing, collaboration and information networks. This is brought to bear on the discussion of innovation strategies, and the chapter provides direction for the design of innovation policies that are domestically contextualised while taking account of global connections.



**From:**  
**Innovation and the Development Agenda**

**Access the complete publication at:**  
<https://doi.org/10.1787/9789264088924-en>

**Please cite this chapter as:**

Kraemer-Mbula, Erika and Watu Wamae (eds.) (2010), "Executive Summary", in *Innovation and the Development Agenda*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264088924-3-en>

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