

## Chapter 1

### **Making innovation policy work: The benefits and lessons of experimental innovation policy**

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*Building on concrete examples, this volume explores a number of emerging topics in innovation policy for sustainable growth and shared prosperity. The book develops the concept of experimental innovation policy, which integrates monitoring and evaluation at the policy design stage and throughout the process of policy implementation. This approach can help improve the quality and efficiency of public expenditures supporting innovation policy. Policy making based on experimentation is particularly important for new and emerging innovation domains, where the scope for learning and improvement is the greatest.*

This volume is organised in three parts. **Part 1 (Chapters 1-2)** outlines the motivation for the book and sets out some key conceptual issues. To make the discussion on experimental innovation policies as specific and relevant as possible for practitioners and policy makers, **Part 2 (Chapters 3-7)** focuses on specific design and implementation issues in three selected emerging domains of innovation policy: pro-poor or base-of-the-pyramid (BOP) innovation, innovative entrepreneurship, and green innovation. **Part 3 (Chapters 8-9)** focuses on cross-cutting issues of experimental innovation policy, namely on how to institutionalise policy design and implementation as a continuous process of policy learning, error-detection and correction.

**Chapter 2** (by Yevgeny Kuznetsov and Charles Sabel) focuses on the concept of new open economy industrial policy and provides the foundation for several other chapters in the book. The chapter explores how policy makers – operating under pressures from politicians and vested interests, and with only a partial view of the economy – can make accountable choices on public investments and policy measures aimed at specific economic activities. It focuses on three challenges that governments face, namely the power of vested interests, a lack of information on the economy and a lack of capability for successful policy making.

Open economy industrial policy focuses on establishing connections among domestic firms and between firms and the world market. In contrast to import substitution policies, the objective of these policies is to increase economic openness, enhance knowledge flows, foster productive innovation and strengthen non-traditional exports. An example of such a policy is the development of a venture capital (VC) programme that allowed engineers, born in Chinese Taipei and trained both at home and abroad, to deploy their skills in start-up firms whose activities complemented and facilitated the re-organisation of US leaders in the computer and semi-conductor industries. VC therefore became an instrument to orient and reorient the direction of the economy's development in rapidly shifting and highly demanding markets. Another example is Ireland, which, starting in the 1950s, created a method for identifying and developing growth-enhancing connections. As Chinese Taipei used VC to connect its expatriate engineers to each other and world markets, Ireland used selective foreign direct investment (FDI). The result in both cases was cumulative capacity building, evident in Chinese Taipei in the creation and evolution of firms, and in Ireland, at least through the mid-1990s, principally in the growing responsibilities of local managers rising through the professional networks of particular sectors.

There are three reasons why these policies are different from traditional industrial policies. First, by linking the better-performing segments of the private and public sectors, they alleviate existing institutional constraints and help develop new solutions. Second, these policies often start at the periphery of policy making and are therefore less susceptible to rent seeking. In many cases, they do not have a large budget, as they rely on other policies and programmes. Third, by linking the better-performing segments of an existing institutional framework and searching for out-of-the-box solutions to familiar problems, they can help reshape the existing institutional framework. The chapter therefore shifts the debate on government activism in support of globally competitive industries from picking winners to a process of step-by-step transformation of the private and public sectors. Open economy industrial policy emphasises strategic collaboration with the private sector to ensure that interventions work as expected. Very little can be said *ex ante* about either the instruments to be used or the economic activities to be promoted. Instead, the discussion focuses on the processes and procedures for selecting and correcting selections of both, rather than on specific policy instruments or sectors.

One such procedure is diagnostic monitoring: the systematic evaluation of a portfolio of projects or programmes to detect and correct errors as each project evolves (including the weeding out of inefficient ones) in light of experience and new information. Fundación Chile provides a good example of how diagnostic monitoring is conducted: staff members, hired on the basis of demonstrated technical knowledge and familiarity with the markets and business practices in a particular sector, apply for grants to develop a case for launching a new venture in some general area. The best of these preliminary plans can be used to apply for a second, longer-term grant to develop a business plan for a new venture, typically in partnership with outsiders. This process continues until the early stage venture becomes a candidate for seed capital and enters the familiar sequence of VC financing. At every stage, projects are benchmarked against internal and external alternatives, and the start-ups that result are the institutionalised expression of the efforts provoked by that benchmarking. The operation of the start-ups in turn relaxes constraints on the development of the clusters whose growth propels the Chilean economy.

Open economy industrial policy facilitates the search process and the connections among domestic firms, and between them and world market actors. This is not automatic. The chapter concludes that developing countries that want to encourage capacity-building connections with the world economy must devise novel institutions—search networks—to connect domestic and foreign actors, overcome constraints and provide complementary public inputs.

**Chapter 3** (by Rafael Kaplinsky) is the first of two chapters focusing on base-of-the-pyramid (BoP) innovation, which is one of the important emerging areas of innovation policy. The chapter notes that outside China, despite rapid economic growth in many low and middle income countries, there has been little progress in meeting the Millennium Development Goal target of halving the incidence of global poverty by 2015. Part of the explanation for this weak poverty-reducing performance has been the historic trajectory of innovation. During the 20th century, most global innovation had its origins in the north, producing products for high-income consumers, developing technologies that excluded poor producers and that were energy-intensive and polluting.

This innovation trajectory gave rise to the not-for-profit appropriate technology (AT) movement after the 1970s. But many of the technologies developed were inefficient in that they made greater use of both capital and labour per unit of output. Moreover, the appropriateness of technology is inherently contextual, and involves trade-offs between objectives. For example, many labour-intensive and small-scale technologies are relatively energy-intensive. The AT movement often failed to recognise these trade-offs and was guilty of over-promise, undermining the credibility of the technologies it was promoting. Finally, the social context of innovation was often not conducive to the diffusion of ATs. The dominant innovators in the global economy were located in advanced economies and had no or little incentive in meeting the needs of the income-less global poor, or of incorporating the poor in global value chains.

A series of disruptive factors – the growing importance of low-income consumers in the context of the global economic slowdown, the development of radical technologies (such as mobile telephony and renewable power), the development of new capabilities in low-income economies and the emergence of new types of innovation actors – have begun to transform the potential of AT to support pro-poor growth. While this new vintage of ATs will be largely market-driven – since it provides the potential for profitable production – there are important dimensions in which this market-driven process can be supported by policy. The chapter identifies five such actions, namely:

- *The removal of market imperfections that are intrinsic to pro-poor innovation*, notably imperfections in the market for knowledge. Users of innovation often lack knowledge of the nature and extent of pro-poor innovations, while producers of innovations often lack knowledge of relevant markets, particularly those that are not geographically close. At-the-border distortions are important too, as they often affect imports from low-income economies more than those from high-income economies. Moreover, regulatory barriers affect the market for pro-poor innovation.

- *A realignment of actors in the innovation system* (and in the related value chains) to focus on pro-poor technologies. If there is market demand, private firms may respond relatively well to the growing potential of AT. But there is also a need to re-orient other institutions. For example, standards need to be adjusted to respond to the needs and capabilities of the poor.
- *Strengthening the role of non-market actors.* Non-market actors have already played a key role in the provision of innovative public goods in some areas, such as innovations aimed at neglected diseases or diseases disproportionately affecting the poor. But in other markets, such as infrastructure provision, their role should be strengthened.
- *A stronger connection between BOP policies* aimed at mass markets, often served by private firms, and the poorest groups, where non-market actors play a larger role. The poorest groups in low-income economies have little or no cash income and are therefore not a market for private firms. Yet, there are important interconnections between this group and the mass market, and policy needs to consider how it can ensure the greatest complementarity of approaches focused on the two groups.
- *A redistribution of income to the poorest groups*, which has substantially strengthened the markets for pro-poor growth, and thus positively influences pro-poor innovation and the development of a pro-poor growth path.

**Chapter 4** (by Carl Dahlman and Yevgeny Kuznetsov) deepens the discussion on BOP innovation and explores specific policy approaches and experiments. It suggests that different BOP innovations can be distinguished on two principles. First, whether the returns to such innovation can be appropriated by the private sector or whether there are significant externalities (including public good aspects). Second, the magnitude of the start-up costs to develop a new business of innovation. These could be significant, in which case there may be need for critical mass, and there is a possibility for disruptive innovation. In other cases, start-up costs may be small, and the resulting innovation is likely to be more incremental.

Recognition of the poor as a major market opportunity has led to a new type of innovation, sometimes known as “Ghandian innovation” or “piggy-frogging”: a combination of piggybacking (which involves adopting and adapting global knowledge) and leapfrogging (which involves leveraging the local context to skip certain steps in the process of economic development to move directly to a more advanced stage). This approach is one example of a shifting approach by multinationals and other global actors from

“design globally, execute locally” to “design locally, execute globally”. The resulting BOP innovation involves the co-development of new solutions by the poor and global knowledge agents that leverages local tacit knowledge and social capital, and that enables the poor to transform from being passive beneficiaries to crucial collaborators in the innovation process.

This transformation also has practical ramifications for the design of public policies to promote BOP innovation. Since local context and co-development with local agents is showing growing promise, it is necessary to develop new practices. This needs to involve a search for relevant technologies as well as experimentation and learning of public policies and emerging good practices. One approach to do this is to assemble a portfolio of promising projects and programmes that can be implemented, financed and scaled up once they show promise. At the same time, policy makers will need to monitor the projects, revising or eliminating poorly performing initiatives. A critical element here is how policy makers learn from success and failure: how for instance, information on the performance of one programme can inform the design of similar programmes.

The chapter provides a framework to structure this process of search, experimentation and learning, which involves three steps. First, it is important to document the diversity of experimentation efforts in BOP innovation. The chapter shows a wide range of efforts in both technological and organisational innovation, such as advanced market commitments or crowd-sourcing in the health domain. Second, this diversity needs to be made more amenable to policy makers, e.g. in establishing taxonomies of policies and approaches. For example, the US Defence Advanced Research Projects Agency’s (DARPA) experience can provide a useful approach for radical BOP innovations, whereas early stage venture capital (VC) funds and agricultural extension agencies may be relevant approaches for more incremental BOP innovations. Third, policy will need to establish a procedure for *diagnostic monitoring* – as described in Chapter 2, the detection and correction of each portfolio of projects and programmes as they evolve. This is particularly important since BOP innovation is still emerging gradually, with significant scope for experimentation and learning, also at the global level. The chapter therefore also recommends that mechanisms be developed and investments made to develop the capability for *diagnostic monitoring* at the global level, involving a range of public and private (including non-governmental) actors.

**Chapters 5 and 6** turn to another important emerging dimension of innovation policies, namely support for innovative entrepreneurship. Chapter 5 (by Bob Hodgson and Yevgeny Kuznetsov) explores how countries can increase the rate at which new technology-based businesses are generated, improve their rate of survival and assist them to grow quickly. The promotion of technology-based start-ups and innovation clusters has been a concern of govern-

ment for many decades. In most middle-income economies, a variety of support instruments have been put in place: technology incubators, science parks and initiatives based on the US Small Business Innovation Research (SBIR) programme. These programmes appear to be of two types: on the one hand, predominantly public-sector and grant-based support to early stages of the incubation cycle (support for research and development and seed funds for commercialisation) and, on the other hand, predominantly private-equity and later-stage VC investment in companies that have proven to be successful.

The chapter proposes an approach based on the management of the incubation cycle, which focuses on the creation of early-stage private sector capabilities. It builds on and connects existing programmes, projects and initiatives (technology incubators, technology transfer offices in universities, science parks and other programmes) by institutionalising search networks composed of diverse players that rarely work together. This approach contrasts with existing, more administrative approaches such as: SBIR-type grant-based programmes that are popular because they are easy to administer, relatively transparent and result in tangible outcomes such as technical prototypes. However, there are reasons to be sceptical regarding their impact. If there is no involvement of early-stage VC or other appropriate forms of financing, the technical prototypes that are funded may not go beyond this stage, even if they have commercial promise.

The emerging proactive search approach proposed in the chapter is less straightforward as it aims to achieve synergy among players and capabilities that previously did not interact. This approach reveals that the deal flow, namely the co-existence of many promising ideas yet few structured deals, is often the binding constraint for the development of innovation clusters and a VC industry. This contradicts the finding of most studies which focus on the shortage of VC finance as the major problem.

Instead, the chapter regards the VC industry as a search network for identifying and combining finance, technical expertise, marketing know-how, business models, standard-setting capacity, etc. Once integrated, these components become nodes in a new set of search networks for designing and building products. By supporting a diverse portfolio of ventures and combining hands-on monitoring and mentoring with market selection, private-public search deal generation networks organise a process of continuous economic restructuring and also learn about how to improve restructuring itself. Also, there is a sharp distinction between early- and later-stage VC in this process.



The chapter concludes that this proactive search approach is only emerging. The chapter offers a diverse portfolio of examples to illustrate this approach, along with an analytical and conceptual underpinning of the approach, with the intention that this will help to improve the design of relevant public sector programmes and policies.

**Chapter 6** (by Mark Dutz and Vijay Vijayaraghavan) explores policy initiatives by India's Department of Biotechnology (DBT) for the adaptation and commercialisation of existing global biotechnologies to provide quality affordable solutions for local needs in healthcare, agriculture, industry and the environment. Accelerated technology adaptation has been implemented through actions in six complementary policy areas: 1) translational research; 2) global consortia; 3) skills development; 4) regulation; 5) institutional governance; and 6) public/private partnerships. A notable outcome of these programmes to-date is India's first indigenously-developed oral vaccine to prevent high infant mortality from rotavirus-caused diarrhea, supported by a global public/private partnership (PPP) consortium. It is the first time that an Indian company has brought a vaccine successfully through phase III trials, India's first community clinical trial conducted directly through doctors and clinics, with the licensed vaccine to be sold to governments worldwide including UN procurement agencies at a price of USD 1.

Among the six policy areas, India's promotion of translational research through global consortia between local and foreign firms, universities and public research entities, complemented by support of domestic PPPs, appears to have been critical in spurring learning, including about structured research protocols that lead to commercialisable products. The impact of such learning is suggested, among others, in 78% of surveyed biotech firms indicating that they collaborate with other firms or academia for co-development, and with 86% of these firms collaboratively monitoring progress and results via milestones and joint review processes.

The chapter points to a key outstanding challenge for improved implementation, namely the adoption of more rigorous performance measurement by the Biotechnology Industry Research Assistance Council (BIRAC), the DBT new interface agency with the private sector. This includes both the incorporation of impact evaluation into programme design that allows learning from comparing the results of firms benefiting from support with a similar group of firms not benefiting from the same support, and the institutionalisation into programme implementation of *diagnostic monitoring* routines for more continuous monitoring, learning and improvement. Such performance evaluation based on both impact evaluation and continuous experimentation with feedback would help to assess and improve the cost effectiveness of policies and outcomes relative to alternative solutions, to provide accountability, and to inform and build support from new prospective enterprise applicants



and from society at large for any demonstrated (and not just presumed) positive benefits relative to costs of existing and future support initiatives in this area. It also would facilitate joint learning of how to best address emerging challenges through successive modifications of programme design features driven by evidence-based analysis and debate, thereby improving the quality of public expenditures supporting innovation policy and providing a more solid foundation for future funding decisions.

The chapter also suggests that the BIRAC should consider applying to its initiatives an even more systematic set of the *diagnostic monitoring* principles of error detection and correction for continuous improvement – going from: 1) helping programme recipients to detect and better deal with their own deficiencies early on, to 2) helping the programme implementers themselves detect and better manage deficiencies in the programmes, strengthening the range of support initiatives in response to this continuous learning.

The key recommendation from the chapter is for firms and governments to learn from evolving local experience based on more rigorous performance measurement, including from the more systematic incorporation of the lessons from impact evaluation into project and programme design (with explicit metrics to report and learn from failure) and the institutionalisation into project and programme implementation of diagnostic monitoring routines for continuous improvement through redesign.

**Chapter 7** (by Mark Dutz and Dirk Pilat) discusses the final new dimension of innovation policies, namely green innovation policies. The chapter explores the role that innovation can play in achieving a greener economy, with a focus on radical innovations that may help move from “business as usual” to a green growth path. It reviews the role of different types of innovation for green growth, the rationale for innovation policies in a green growth strategy and experience to date with policies that favour more radical green innovation. In practice, countries will use a combination of supply- and demand-side policy instruments to achieve policy goals that may differ from country to country. The appropriate policy settings and policy tools will depend on each industry’s capacity for innovation, and notably on whether it is involved in innovation at the frontier, in fostering incremental innovation and adopting technologies from abroad, or in building its local capabilities for innovation.

Even when countries have similar policy goals, their instrument mixes can be expected to differ, as these need to be adapted to the specific environments in which they are intended to work. These environments vary in terms of the structure of the industrial productive base, existing local institutions, and prevailing preferences. For instance, without the institutional ability to implement complex tax policies effectively, tax incentives for research

and development (R&D) may be ruled out as a policy instrument. Different countries also exhibit different degrees of acceptance of regulation. Moreover, the efficacy of various demand-side instruments can be highly sensitive to industry-specific characteristics. To help policy makers better understand which policies best foster green innovation, more systematic compilation, global sharing and learning about the effectiveness of different policies in different contexts are needed.

The chapter concludes by discussing mechanisms that could facilitate the sharing of what works in the area of green innovation. This learning can usefully distinguish three areas:

- *Existing green innovation policies.* There is an urgent need for well-designed performance measurement of specific policy interventions in the area of green innovation. Both experimental impact evaluation with randomised controlled trials and quasi-experimental evaluation of existing interventions are needed, particularly to learn about the effectiveness of different policies to promote both radical innovation and the broader absorption of existing green technologies. Arguably even more important is understanding how to improve existing programmes' performance through ongoing experimentation during programme implementation, with continuous feedback aimed at evidence-based iterative learning and improvements built into programme design and implementation. Moreover, the effectiveness of all existing green innovation policies should ideally be evaluated in the context of a national wealth accounting framework that explicitly incorporates the value of natural capital.
- *Relevant experience from related innovation policy fields.* There is also much scope for policy learning from related domains. For example, the unmet health needs of poor populations across the world have posed a variety of related innovation challenges, such as developing business models with R&D costs at levels that do not require high-priced blockbuster products. Policy initiatives such as specific prize funds, advance market commitments, patent buy-outs, compulsory licenses, patent pools, patent commons and open source approaches can provide useful insights. The experience of non-profit private foundations, such as the Bill and Melinda Gates Foundation, could also provide relevant lessons for green innovation.
- *New as-yet-untried innovation policies.* A major challenge in the area of green innovation involves fostering effective global consortia to address priorities for public goods by building on existing bilateral consortia. As an illustration, Canada awarded in 2012 its first bilateral Canada-India Research Center of Excellence (CIRCE) initiative.

Once the fixed costs of setting up initiatives like this are incurred, it would require relatively little additional cost to enrich and globalise such bilateral consortia by including other appropriate participants in the Canada-India platform. The policy challenge is how best to fund such add-on initiatives, how best to identify and bring in the most appropriate complementary global talent, and how best to assist in the dissemination and commercialisation of the research findings. Learning about such new initiatives and policies is a major challenge.

The final part and last two chapters of the book focus on the design and implementation of experimental innovation policies. **Chapter 8** (by Eric Oldsman) explores the role of monitoring and evaluation and its influence on policy design. Recognising the importance of innovation, governments around the world have launched policies aimed at accelerating the development and application of technology. In many instances, the allocation of resources has been accompanied by calls for meaningful measurement of results and greater accountability. This is particularly true in an era of tight budgets and fiscal austerity.

Organisations are therefore placing greater emphasis on trying to measure their performance. Reciting the mantra – “what gets measured gets done” – more and more organisations are picking particular aspects of performance to measure and then devote significant resources to collecting data and reporting results. However, there is evidence that much of this effort may be wasted. To be useful, the right things need to be measured in the right way. As importantly, data need to be turned into information, information into insights, and insights into action. This implies that performance measurement should be embedded in a broader evaluation system, which fosters critical thinking and continuous improvement as part of a policy cycle.

The chapter concludes that organisations need to make sure to count what is important and count it correctly. In this regard, indicators need to be selected and defined with care; requisite data need to be collected and analysed in a suitable manner. Done properly, performance measurement can provide a clear picture of what particular programmes have been able to achieve in terms of measurable results. However, while necessary, organisations need to go well beyond simply measuring performance. They need to focus attention on determining the factors that underlie performance, diagnosing the root cause of any identified deficiencies, in order to take appropriate corrective action. They also need to consider a broad range of issues that do not lend themselves easily to measurement. More generally, critical thinking – an ability to state questions clearly, marshal valid and reliable information, weigh evidence, assess the strength of arguments, recognise implicit assumptions and values, and draw reasoned conclusions – needs to be encouraged throughout the organisation. In this respect, formative evalua-

tions are critically important. They provide an opportunity for organisations to examine accepted truths, questioning the justification for specific claims and calling attention to unstated assumptions.

Clearly, organisations need to establish the technical capacity to undertake evaluations successfully. As importantly, to realise the full promise of using evaluations to inform policy, senior managers must actively support the process and cultivate a culture of learning. While evaluations can be required by legislative mandate or outside funders, managers within institutions must be fully committed to using evaluations to help drive their organisations forward.

**Chapter 9** (by Dan Breznitz and Darius Ornston) focuses on learning and experimentation within innovation agencies. It examines how two historically low-technology economies, Finland and Israel, assumed leadership in new and rapidly evolving innovation-based industries. It argues that “Schumpeterian development agencies” (SDAs), such as the Finnish Fund for Research and Development (SITRA) and the Israeli Office of the Chief Scientist (OCS) in the Ministry of Trade and Industry, played a transformative role, by introducing new science and technology policies and facilitating industrial restructuring. In contrast to standard practice, however, these agencies were located on the periphery of the public sector and had few hard resources.

While the analysis in the chapter focuses on Finland and Israel, there are similar developments in Ireland, where the decision to split the Industrial Development Authority permitted the development of new industrial policies targeted at domestic software entrepreneurs. In Denmark, steep cuts to the Ministry of Trade and Industry paradoxically created space for a new generation of policy makers to promote restructuring through sectoral dialogue and reliance on local inter-firm networks. Outside of Europe, Chinese Taipei’s Industrial Technology Research Institute (ITRI) introduced the innovation policies that made it a leading semiconductor manufacturer.

In each case, reform-oriented policy makers relied on similar instruments to scale and monitor new science, technology and innovation (STI) policies. For example, SDAs used formal and informal inter-personal networks to bring experimental STI policies rapidly to the centre of national discourse. Irish policy makers formed industry organisations, such as the Irish Software Association, to raise awareness about new policies, while Danish policy makers leveraged local, inter-firm networks to implement new labor market initiatives. At the same time, policy makers in small open economies relied on international openness to challenge established industrial policies and monitor new ones.

This is not to suggest that peripheral public agencies will successfully scale and monitor new STI policies everywhere. In identifying the specific mechanisms that permit scaling and monitoring, the chapter also explains why some countries may be less innovative than others. For example, they may lack effective co-ordinating and consensus-building institutions. They may be fragmented along ethnic, religious or ideological lines, or power may be concentrated in ways that inhibit effective private-public and inter-sectoral dialogue. Alternatively, they may be less vulnerable to external pressure, either because of domestic policy choices that reduce international openness or their location in a region with less geopolitical competition. Some states may suffer doubly, from a fragmented society and limited international exposure, making it more difficult to scale and monitor new innovation policies.

At the same time, policy makers can mitigate these disadvantages. First, policy makers seeking to promote experimentation are better off providing small agencies with a mandate to engage in radical policy experimentation rather than concentrating power in a high-profile, centrally located developmental agency. This finding is as true for large countries as it is for smaller states, as comparatively marginal agencies such as DARPA spearheaded experimentation in new information and communication technologies in the United States. Second, the chapter suggests that the success of SDAs is shaped less by their financial resources than their informal networks. The SITRA and OCS managers surmounted fiscal constraints by leveraging both formal and personal networks to engage other policy makers and private sector representatives. National governments can actively facilitate this process by promoting closer co-operation among public and private sector actors.

At the same time, reform-oriented policy makers should remain sensitive to the limitations associated with these strategies. Co-ordination and consensus-building can stifle experimentation by mobilising resources around institutionally entrenched actors, reinforcing existing prejudices and blinding actors to new ideas. As a result, this chapter also underscores the benefits of economic openness for both large and small states. SDAs increased monitoring capacity by linking STI policies like Finland's new technology policies and Israel's Yozma programme to international economic competition. International organisations and external evaluations also played an important role in ameliorating the deficiencies associated with co-ordination and consensus-building. While small states are uniquely "advantaged" in their reliance on international trade and institutions, there is no reason why policy makers in larger states cannot replicate this strategy by deepening economic integration and linking new STI policies to international economic competition.

A number of messages connect the various chapters, in particular as regards the role of government in innovation and industrial policies. Throughout the book there is an understanding that industrial and innovation policies characterised by top-down government interventions are not the right approach to development. The reasons for the failures of such policies are well known, and include the risks of capture by vested interests, lack of information on the economy and strong information asymmetry with private actors, and a lack of capability in the public sector for effective policy making.

Instead, the book points to another approach to innovation (and industrial) policy, characterised by search, experimentation, monitoring, learning and adaptation, all of which need to occur in a context of international openness to knowledge, trade, investment and competition. This new approach also rests on close co-operation with private and non-governmental actors, who are often better placed to identify barriers to innovation, and areas for productive investment or policy action.

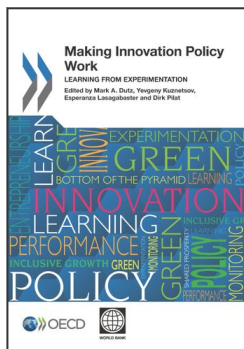
This approach rests on a much stronger focus on (diagnostic) monitoring and evaluation, which need to be embodied in programmes and policies from the outset. This is particularly important for new and emerging areas of policy, such as policies for BOP innovation, high-growth entrepreneurship and green innovation, where there is significant experimentation underway and where the scope for learning and identification of good practices is the largest. Such learning should benefit from policy experimentation at the global level, which will require strengthened mechanisms to identify and diffuse good practices, including through specific knowledge platforms and networks.

A number of other interesting conclusions emerge from the various chapters:

- Some very successful innovation policies have emerged from agencies and actors on the periphery of policy making. Such a peripheral position typically implies limited room for large budgetary interventions, but can limit capture by vested interests and may enable more creative and co-operative policies than those emerging from more central agencies. The success of these agencies with limited budgets also suggests that governments can achieve results in the innovation area in other ways than through public financial support alone.
- The development of new approaches and policies is not limited to governments alone. Non-governmental actors, such as private and social enterprises, foundations and other civil society organisations, play a key role in specific areas, such as health, and can be instrumental in developing new actions and scaling them up.

Finally, the chapters raise a number of issues for further research. First, they raise questions on how policy makers learn from experience and mistakes that are made, how to encourage more entrepreneurial experimentation and appropriate risk-taking not only by enterprises but in policy making, how not only success but failure can be openly discussed and built upon, and how such learning can be organised, embedded and institutionalised in the policy-making process. Second, they point to a need to better understand systems and their behaviour, and how policy can influence the behaviour of (increasingly) complex systems to achieve more sustainable growth and shared prosperity. More broadly, it is hoped that the chapters of the book will help launch a series of conversations together with further exploration and learning into how to make innovation policy, its implementation and its measurement—including the measurement of investments in innovation capabilities by enterprises—work for better development impact in different domains and different country contexts.





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