

Innovation Policy Challenges For The 21st Century

Europe is confronted by an intimidating triple challenge: economic stagnation, climate change, and a governance crisis. This book demonstrates how these challenges are inter-related, and discusses how they can be dealt with more effectively in order to arrive at a more economically secure, environmentally sustainable and well governed Europe.

This volume offers a detailed conceptual framework for understanding and learning about technology innovation policies and programs, and their implementation in the context of different countries.

This is an open access title available under the terms of a CC BY-NC-ND 4.0 International licence. It is free to read at Oxford Scholarship Online and offered as a free PDF download from OUP and selected open access locations. Innovation is a pivotal driving force behind economic growth. Technological capability deepens and diversifies industrial activity, which fundamentally enhances growth potential. Consequently, failure to build effective technological capability can lead to slow long-term economic growth. This book synthesizes and interprets existing knowledge on technology upgrading failures in order to better understand the challenges of technology upgrading in emerging economies. The objective is to bring together diverse evidence on three major dimensions of technology upgrading: paths of technology upgrading, structural changes in the nature of technology upgrading, and the issues of technology transfer and technology upgrading. Knowledge on these three dimensions is synthesized at the firm, sector, and macro levels across different countries and world macroregions. Compared to the challenges and uncertainties facing emerging economies, our understanding of technology upgrading is sparse, unsystematic, and scattered. The recent growth slowdown in many emerging economies, often known as the middle-income trap, has reinforced the importance of understanding the technology upgrading challenges they experience. While our understanding of these issues from the 1980s and 1990s is relatively more systematised, the more recent changes that took place during the globalization and proliferation of global value chains, and the effects of the 2008 financial crisis, have not been explored and compared synthetically. The current effects of COVID-19, geopolitical struggles, and the growing concern around environmental sustainability add significant complexity to an already problematic situation. The time is ripe to take stock of our existing knowledge on processes of technology upgrading in emerging economies and make further inroads in research on this crucial issue.

All over the world, open innovation is emerging and requires much more interactions between different actors with different organizational cultures: large firms and SMEs (i.e. industry), universities and research institutions (i.e. academia), as well as national and regional authorities for building the legal or incentive framework of innovation (i.e. government). Certainly, flows of knowledge between these three spheres, which are also known as the triple helix, have always existed; but what appears to be new in an open innovation environment is the overlapping of their missions. In many areas such multi-actor interactions with overlapping roles did not emerge spontaneously, as was the case with the United States. Based on robust cases studied by researchers and practical experiences of personnel involved in innovation at public or private institutions, this book successively discusses the policy framework in Europe and Japan, the new role for universities due to intellectual property reform or technology transfer promotion, the new challenges for firms in terms of licensing, patents, corporate venturing, including entrepreneurship, incubation, venture capital or cross-industry knowledge sharing. All issues addressed in this book are clearly those toward regional innovation policies and practices that are open in nature. It contains descriptions and analysis of the various approaches taken by industrial, governmental, and academic players in various regions of Japan (Tohoku, Tokyo) and Europe (France, Belgium). The mix of theoretical and empirical material collected in this book was first presented at an international symposium in Tokyo. The dynamics of regional innovation is an on-going issue, and we are still standing at the threshold of this field of research. It is exactly why such a book is needed now.

Potentials and Limits of Foresight Studies

Broad-based Innovation Policy for All Regions and Cities

Handbook on Science and Public Policy

Cohesion and Excellence from a Schumpeterian Perspective

Small Firms and Innovation Policy in Japan

Opportunities and Challenges for the Knowledge Economy

In economics, business, and government policy, innovation policy requires the creation of new approaches based on insight in what happens in innovation processes, on the micro level of people, firms and interaction between them. In innovation policy it should also be recognized that innovation entails a whole range of activities beyond R&D, such as entrepreneurship, design, commercialization, organization, collaboration and the application of knowledge and innovations. This edited volume explores the roles of individuals and organizations involved in the creation and application of innovations. Covering topics as diverse as the macro-economic importance of innovation, theories of knowledge and learning, entrepreneurship, education and research, organizational innovation, networks and regional innovation systems, *Micro-Foundations for Innovation Policy* provides critical insights into the development of innovation policy.

Innovation networks are a major source for acquiring new information and knowledge and thus for supporting innovation processes. Despite theoretical and empirical contributions to the explanation of networks, many questions still remain open. For example: How can networks not emerge by their own, be initiated? How can fragmentation in innovation systems be overcome? And how can networking experience in market economies be transferred to the emerging economies of Central and Eastern Europe? By presenting a selection of papers which explore innovation networking from theoretical and political viewpoints, the book aims at giving answers to these questions.

This book examines dynamics between demand and innovation and provides insights into the rationale and scope for public policies to foster innovation.

This book uniquely applies the Schumpeterian innovation policy perspective to the countries of Central and Eastern Europe (CEE). A broad framework of the science, technology, innovation and growth system underpins the empirical and conceptual analysis of the critical issues of demand, FDI, finance and education. Specifically, the expert contributors address the (in)capacity of CEE to play a more significant role in the knowledge-based competitiveness of the EU. They question whether it is possible to bolster this capacity with innovation technology-incentive policies, and discuss the changes required at EU and individual country levels to remove sector- and industry-specific obstacles to greater competitiveness based on innovation. Policies are analysed from the perspective of growth, and the conclusions drawn are relevant to labour market and competition policy. This highly original, explicit and systematic study will prove an illuminating read for academics, researchers, students and policy makers focusing on a range of areas including economics, heterodox economics, European studies, technology and innovation in Seven Candidate Countries

Smart Specialisation

Innovation Studies

Final Report

Achievements, Challenges, and Opportunities for Cooperation: Report of a Symposium

Mission-oriented Innovation Policy in Japan

India's Changing Innovation System

As part of its review of Comparative National Innovation Policies: Best Practice for the 21st Century, the Board on Science, Technology, and Economic Policy convened a major symposium in Washington to examine the policy changes that have contributed to India's enhanced innovative capacity. This major event, organized in cooperation with the Confederation of Indian Industry, was particularly timely given President Bush's March 2006 visit to India and the Joint Statement issued with the Indian government calling for strategic cooperation in innovation and the development of advanced technologies. The conference, which brought together leading figures from the public and private sectors from both India and the United States, identified accomplishments and existing challenges in the Indian innovation system and reviewed synergies and opportunities for enhanced cooperation between the Indian and U.S. innovation systems. This report on the conference contains three elements: a summary of the key symposium presentations, an introductory chapter analyzing the policy issues raised at the symposium, and a research paper providing a detailed examination of India's knowledge economy, placing it in terms of overall global trends and analyzing its challenges and opportunities.

As the economies of western countries move from primarily resource-based to knowledge-based, and trade liberalization limits what governments can do through direct action, the landscape of innovation is changing and policymakers must react accordingly. This exciting new book examines the challenges that policy makers face in responding to a new environment. The book addresses how governments are now seeking to drive innovation through new forms of R&D policies, through public procurement, skills development, entrepreneurship and innovation culture to name but a few of the approaches. Innovation Policy Challenges for the 21st Century explores these and other contemporary issues in innovation, reviewing the state of the art literature and consolidating current thinking at the frontiers of innovation. The volume debates and presents scattered and anonymous material in a coherent way, with a particular focus is on 'hot topics' in the field of innovation studies that have been previously under-researched. The book is divided into four key themes: government as a key actor in the innovation process, entrepreneurs as innovators, skills and competences required to maintain and improve innovation performance in Europe and finally, the wider context in which innovation policy develops.

Innovation underpins competitiveness, is crucial to addressing societal challenges, and its support has become a major public policy goal. But what really works in innovation policy, and why? This Handbook, compiled by leading experts in the field, is the first comprehensive guide to understanding the logic and effects of innovation policies. The Handbook develops a conceptualisation and typology of innovation policies, presents meta-evaluations for 16 key innovation policy instruments and analyses evidence on policy-mix. For each policy instrument, underlying rationales and examples are presented, along with a critical analysis of the available impact evidence. Providing access to primary sources of impact analysis, the book offers an insightful assessment of innovation policy practice and its evaluation.

The book gives practical guidance for policy makers, analysts and researchers on how to make the most of the potential of Foresight studies. Based on the concept of evidence-based policy-making, Foresight studies are common practice in many countries and are commonly understood as a supportive tool in designing future-oriented strategies. The book outlines approaches and experiences of integrating such Foresight studies in the making and implementation of science, technology and innovation (STI) policies at different national levels. It delivers insights into practical approaches of developing STI policy measures oriented towards future societal and technological challenges based on evidence drawn from comparable policy measures worldwide. Authors from leading academic institutions, international organizations and national governments provide a sound theoretical foundation and framework as well as checklists and guidelines for leveraging the potential impact of STI policies.

Globalization of the Economy, Unemployment and Innovation

Innovation Policies for the 21st Century: Report of a Symposium

Economic Development, Climate Change, and Governance

Challenges and Opportunities

German-U.S. Innovation Policy: Summary of a Symposium

Science, Technology and Innovation Policy for the Future

Successes and challenges

This report assesses the potential for mission-oriented innovation policies (MOIPs) to contribute to the sustainable transition in Japan, and examines the challenges and opportunities that MOIPs would present. As part of a series of MOIP national case studies, the report finds that the ongoing ambitious and top-down MOIPs led by the center-of-government build upon a long history of proactive and goal-oriented policy intervention. MOIPs in Japan are the latest step of decades of efforts to reduce the fragmentation and lack of holistic coordination of Japan's science, technology and innovation policy in order to proactively address societal challenges. Available evaluations of these policies demonstrate very encouraging results in that regards. The study concludes with recommendations to pursue these efforts, including by mainstreaming these policy initiatives across the government structure and complementing them with more bottom-up challenge-based initiatives.

This is the first book on a new policy approach that has been widely adopted in Europe and beyond. It analyses the concept of smart specialisation and discuss the need for smart specialisation strategies, explains why the approach is new and different from more standard policy processes and explores what are the conditions for successful implementation. Smart Specialisation: Opportunities and Challenges for Regional Innovation Policy describes the origin of the concept, explains when a smart specialisation policy is necessary, provides a detailed analysis of the design principles of the policy and discuss the pertinence of this approach according to regional development levels. Finally the book discuss the practical implementation phase of the process - based on the first feedback acquired from certain regions engaged in the preparation of their smart specialisation strategy. The book is original in that it provides the first full analysis of smart specialisation strategies both at theoretical and practical levels. It has been written at the critical period of the implementation of smart specialisation strategies in every region in Europe. The fact that the EU has adopted smart specialisation as a mandatory principle for every region and member states will make this book well received by and very useful for: i) policy makers in regional and national administrations in Europe, ii)

policy makers in other parts of the world who are in charge of regional policy and have heard about the concept, iii) consultants, analysts and experts who are active on the "markets for smart specialisation diagnosis and expertise", iv) scholars, researchers and graduate students working in the field of regional studies, technology policy and geography of innovation.

"This book examines the nature of the process of technological change in different sectors of various countries, analyzing the impact of innovation as well as research and development activities on different outcomes in different fields and assessing the design and impact of policies aimed at enhancing innovation in organizations"--Provided by publisher.

While nations have always competed for territory, mineral riches, water, and other physical assets, they compete most vigorously today for technology-based innovations and the value that flows from them. Much of this value is based on creating scientific knowledge and transforming it into new products and services for the market. This process of innovation is complex and interdisciplinary. Sometimes it draws on the genius of individuals, but even then it requires sustained collective effort, often underpinned by significant national investments. Capturing the value of these investments to spur domestic economic growth and employment is a challenge in a world where the outputs of innovation disseminate rapidly. Those equipped to understand, apply, and profit from new knowledge and technical advances are increasingly able to capture the long-term economic benefits of growth and employment. In response to this new, more distributed innovation paradigm, the National Academies Board on Science, Technology, and Economic Policy (STEP) convened leading academics, business leaders, and senior policymakers from Germany and the United States to examine the strengths and challenges of their innovation systems. More specifically, they met to compare their respective approaches to innovation, to learn from their counterparts about best practices and shared challenges, and to identify cooperative opportunities. The symposium was held in Berlin and organized jointly by the German Institute for Economic Research (DIW) and the U.S. National Academies with support of the German Federal Ministry for Education and Research (BMBF) and the American Embassy in Berlin. Both U.S. and German participants described common challenges on a wide variety of issues ranging from energy security and climate change to low-emissions transportation, early-stage financing, and workforce training. While recognizing their differences in approach to these challenges, participants on both sides drew out valuable lessons from each other's policies and practices. Participants were also aware of the need to adapt to a new global environment where many countries have focused new policy measures and new resources to support innovative firms and promising industries. Meeting Global Challenges: U.S.-German Innovation Policy reviews the participants meeting and sets goals and recommendations for future policy.

**The Challenges of Technology and Economic Catch-up in Emerging Economies
Report of a Symposium**

U.S. Innovation Policy for the Global Economy

**Special Issue: Emerging Challenges for Science, Technology and Innovation Policy Research
Innovation Imperative**

Innovation Policies in Europe and the US

Challenges for European Innovation Policy

This title was first published in 2003. During the 1990s research and technological development policies moved from a 'problem-solving' approach towards a wider one focusing on the systemic nature of the innovation process. This change can be featured as the transition from a technology policy towards an innovation policy. 'Innovation Policies in Europe and the US: The New Agenda' provides a comparative analysis of eleven highly industrialized countries' innovation policies in the 1990s, and addresses the nature, dynamics, causes and effects of this transition. By combining the analytical skills of sociologists, economists and political scientists the book sets up a novel framework for studying the evolution of this particular policy area by examining institutional change from a broader perspective.

Economic globalization has intensified since the 1980s and created faster channels of international interdependence and an accelerating technology race. In this new asymmetric world economy the EU is facing a dynamic and flexible US system which takes advantage of the global quest for foreign direct investment. Innovation policies in the EU - in particular in Germany - are found to be rather inadequate. There are also new theoretical challenges where a "structural macro model" and a Schumpeterian model of innovation and full employment are presented as new approaches. Besides theoretical challenges the increasing global dynamics raise new problems of international policy coordination which could lead to unsustainable economic globalization.

This Handbook assembles state-of-the-art insights into the co-evolutionary and precarious relations between science and public policy. Beyond this, it also offers a fresh outlook on emerging challenges for science (including technology and innovation) in changing societies, and related policy requirements, as well as the challenges for public policy in view of science-driven economic, societal, and cultural changes. In short, this book deals with science as a policy-triggered project as well as public policy as a science-driven venture.

America's position as the source of much of the world's global innovation has been the foundation of its economic vitality and military power in the post-war. No longer is U.S. pre-eminence assured as a place to turn laboratory discoveries into new commercial products, companies, industries, and high-paying jobs. As the pillars of the U.S. innovation system erode through wavering financial and policy support, the rest

of the world is racing to improve its capacity to generate new technologies and products, attract and grow existing industries, and build positions in the high technology industries of tomorrow. Rising to the Challenge: U.S. Innovation Policy for Global Economy emphasizes the importance of sustaining global leadership in the commercialization of innovation which is vital to America's security, its role as a world power, and the welfare of its people. The second decade of the 21st century is witnessing the rise of a global competition that is based on innovative advantage. To this end, both advanced as well as emerging nations are developing and pursuing policies and programs that are in many cases less constrained by ideological limitations on the role of government and the concept of free market economics. The rapid transformation of the global innovation landscape presents tremendous challenges as well as important opportunities for the United States. This report argues that far more vigorous attention be paid to capturing the outputs of innovation - the commercial products, the industries, and particularly high-quality jobs to restore full employment. America's economic and national security future depends on our succeeding in this endeavor.

Five Big Challenges

Innovation Policy

Emerging Challenges for Science, Technology and Innovation Policy Research

Concepts and Challenges in the European Perspective ; ... with 28 Tables

Micro-foundations for Innovation Policy

Science, Technology, and Innovation Policy

Opportunities and Challenges for Regional Innovation Policy

Examines the impact of science and technology systems on economic and social development.

There is wide consensus on the importance of knowledge for economic growth and local development patterns. This book proposes a view of knowledge as a collective, systemic and evolutionary process that enables agents and social systems to overcome the challenges of the limits to growth. It brings together new conceptual and empirical contributions, analysing the relationship between demand and supply factors and the rate and direction of technological change. It also examines the different elements that compose innovation systems. The Economics of Knowledge, Innovation and Systemic Technology Policy provides the background for the development of an integrated framework for the analysis of systemic policy instruments and their mutual interaction the socio-political and economic conditions of the surrounding environment. These aspects have long been neglected in innovation policy, as policymakers, academics and the business community, have mostly emphasized the benefits of supply side strategies. However, a better understanding of innovation policies grafted on a complexity-based approach calls for the appreciation of the mutual interactions between both supply and demand aspects, and it is likely to improve the actual design of policy measures. This book will help readers to understand the foundations and working of demand-driven innovation policies by stressing the importance of competent and smart demand.

This publication summarises the main findings of a series of high-level expert workshops, organised with support by the European Commission, to deepen the understanding how OECD countries can move towards a broad-based form of innovation policy for regions and cities. Weaknesses in technology and knowledge diffusion are weighing on productivity growth and innovation in OECD countries, particularly in firms that are distant from the technological frontier (global or national). This in turn weakens their capacity to meet future challenges and undermines inclusive growth.

This new book discusses the extent to which the Japanese economy encourages entrepreneurship and innovation. Although Japan has a strong reputation as an innovator, some people argue that this reputation is misplaced. Contrary to earlier expectations, the USA rather than Japan emerged as the leader in the biotech industries in the 1990s, and also many small firms in Japan supply only a few - or just one - other company, thereby limiting their view of the marketplace and the commercial opportunities within it. Despite the increase of international patents, international scientific citations and a positive technology trade balance, the Japanese innovation system is weak in giving birth to radical innovations. The book explores fully these issues, making comparisons with other countries where appropriate. It concludes that the Japanese innovation system has both advantages and disadvantages and contributes to a better understanding of how policy changes take place.

Innovative Flanders

An International Assessment of Knowledge Transfer Policies

Handbook of Innovation Policy Impact

A Reflexive Overview

The New Agenda

Mission-Oriented Innovation Policy

Rising to the Challenge

Innovation is increasingly recognized as a vitally important social and economic phenomenon worthy of serious research study. Firms are concerned about their innovation ability, particularly relative to their competitors. Politicians care about innovation, too, because of its presumed social and economic impact. However, to recognize that innovation is desirable is not sufficient. What is required is systematic and reliable knowledge about how best to influence innovation and to exploit its effects to the full. Gaining such knowledge is the aim of the field

of innovation studies, which is now at least half a century old. Hence, it is an opportune time to ask what has been achieved and what we still need to know more about. This is what this book sets out to explore. Written by a number of central contributors to the field, it critically examines the current state of the art and identifies issues that merit greater attention. The focus is mainly on how society can derive the greatest benefit from innovation and what needs to be done to achieve this. However, to learn more about how society can benefit more from innovation, one also needs to understand innovation processes in firms and how these interact with broader social, institutional and political factors. Such issues are therefore also central to the discussion here.

Leading economists discuss how economic policy can stimulate technological innovation.

This open access book encompasses a collection of in-depth analyses showcasing the challenges and ways forward for macroeconomic modelling of R&D and innovation policies. Based upon the proceedings of the EC-DG JRC-IEA workshop held in Brussels in 2017, it presents cutting-edge contributions from a number of leading economists in the field. It provides a comprehensive overview of the current academic and policy challenges surrounding R&D as well as of the state-of-the-art modelling techniques. The book brings to the forefront outstanding issues related to the assessment of the macroeconomic impact of R&D policies and its modelling. It speaks to the rising importance of R&D and innovation policy, and the proliferation of macroeconomic models featuring endogenous technological change. The contents of this book will be of interest to both academic and policy audiences working in the fields of R&D and innovation.

A guide to maximizing the impact of work done at public research institutions and universities to boost innovation and growth.

Demand-side Innovation Policies

Challenges, Opportunities and Future Options

The Economics of Knowledge, Innovation and Systemic Technology Policy

The Triple Challenge for Europe

Innovation Policies for the 21st Century

Global Challenges to R&D and Innovation Policy

Structural Change, Schumpeterian Adjustment, and New Policy Challenges

Recognizing that innovation is the key to international competitiveness in the 21st century, policymakers around the world are seeking more effective ways to translate scientific and technological knowledge into new products, processes, and businesses. They have initiated major programs, often with substantial funding, that are designed to attract, nurture, and support innovation and high-technology industries within their national economies. To help U.S. policymakers become more aware of these developments, a committee of the National Academies' Board on Science, Technology, and Economic Policy undertook a review of the goals, concept, structure, operation, funding levels, and evaluation efforts of significant innovation programs around the world. As a part of this effort, the committee identified Flanders, a region of Belgium with substantial autonomy, which is recognized for its comprehensive approach to innovation. Based on initial meetings in Washington and Brussels, and with the endorsement of Flanders Vice Minister-President Fientje Moerman, it was agreed to organize a conference that would review regional innovation policies in the context of the policies and programs of the Flanders government, and their interaction with those of the European Union. This book provides a summary of that symposium.

Focuses on the changing roles and challenges of innovation and growth policy, and the strategies and measures that are critical in a globalizing world. This title provides guidance for innovation policy strategy formulations and design of innovation policy measures.

As the economies of western countries move from primarily resource-based to knowledge-based, and trade liberalization limits what governments can do through direct action, the landscape of innovation is changing and policymakers must react accordingly. This exciting new book examines the challenges that policy makers face in responding to a new environment. The book addresses how governments are now seeking to drive innovation through new forms of R&D policies, through public procurement, skills development, entrepreneurship and innovation culture to name but a few of the approaches. Innovation Policy Challenges for the 21st Century explores these and other contemporary issues in innovation, reviewing the state of the art literature and consolidating current thinking at the frontiers of innovation. The volume debates and presents scattered and anonymous material in a coherent way, with a particular focus is on 'hot topics' in the field of innovation studies that have been previously under-researched. The book is divided into four key themes: government as a key actor in the innovation process, entrepreneurs as innovators, skills and competences required to maintain and improve innovation performance in Europe and finally, the wider context in which innovation policy develops.

Governments, nongovernmental organizations, donors, and the private sector have increasingly embraced value-chain development (VCD) for stimulating economic growth and combating rural poverty. Innovation for Inclusive Value-Chain Development: Successes and Challenges helps to fill the current gap in systematic knowledge about how well VCD has performed, related trade-offs or undesired effects, and which combinations of VCD elements are most likely to reduce poverty and deliver on overall development goals. This book uses case studies to examine a range of VCD experiences. Approaching the subject from various angles, it looks at new linkages to markets and the role of farmer organizations and contract farming in raising productivity and access to markets, the minimum assets requirement to participate in VCD, the role of multi-stakeholder platforms in VCD, and how to measure and identify successful VCD interventions. The book also explores the challenges livestock-dependent people face; how urbanization and advancing technologies affect linkages; ways to increase gender inclusion and economic growth; and the different roles various types of platforms play in VCD.

Innovation Policy in the Modern World

Harnessing Public Research for Innovation in the 21st Century

Industrial Dynamics, Innovation Policy, and Economic Growth through Technological Advancements

Innovation for inclusive value-chain development

Meeting Global Challenges

Innovation Networks

Evolution and Future Challenges

To mark the opening of a study of Comparative Innovation Policy: Best Practice for the 21st Century the Board on Science, Technology, and Economic Policy (STEP) convened a symposium providing an overview of areas to be examined in the study and topics requiring further policy attention. The event highlighted the policies and programs of leading nations and provided valuable insights into some of the common challenges of growing and supporting high-technology industry and the commercialization of public investments in R&D. This report contains a summary of the symposium proceedings and an introduction analyzing the issues and placing them in a broader policy context.

Innovation Policy Challenges for the 21st Century

Policy Challenges in Europe and Japan
National Innovation Strategies in the Global Economy
Macroeconomic Modelling of R&D and Innovation Policies
Innovation Policy and the Economy
The Dynamics of Regional Innovation
A Guide for Developing Countries