

National Policy On Science Technology And Innovation In

This report examines digitalisation's effects on science, technology and innovation and the associated consequences for policy. In varied and far-reaching ways, digital technologies are changing how scientists work, collaborate and publish.

This publication provides the proceedings of an international workshop, held in South Africa, intended to address how international co-operation in science and technology can further the three inter-related aspects (economic, social and environmental) of the development process.

The OECD Science, Technology and Innovation Outlook 2018 is the twelfth edition in a series that biennially reviews key trends in science, technology and innovation (STI) policy in OECD countries and a number of major partner economies. The 14 chapters within this edition look at a range of ...

Despite its economic impact, understanding what shaped emerging economies' success seems to be a mystery. These complexities are compounded by fast moving technologies, such as the increased usage of artificial intelligence (AI) and the internet of things (IoT). These new technologies have a social impact, but it is how these impacts are developed and managed by people and companies that is significant. Similarly, it is important to investigate how the uncertainties and intangible factors are dealt with and how businesses can utilize innovative approaches to become adaptive in emerging market economies. Research is needed to determine how actors or businesses interact to shape and define either new institutions, new industries, or new innovation to meet the need of potential customers in emerging economies. Innovation Management and Growth in Emerging Economies explores how innovation from emerging economies is being developed through strategic choices and presents the benefits and the drawbacks, the processes, and the characteristics and management practices of both private and/or public organizations. The chapters identify the trends and approaches to innovation development as well as the strategies of adapting and converting threats and challenges into opportunities. The target audience of this book is composed of practitioners, policy influencers, course instructors, professionals, academicians, students, and researchers in the fields of business, administrative sciences, management, and economics.

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.?

This publication provides a guide to the thinking that underpins the Science, Technology and Innovation Policy (STIP) Review programme of UNCTAD within the context of sustainable development and the 2030 Agenda. It has been written primarily for Member State governments that are considering or implementing STIP reviews as well as all those involved in UNCTAD intergovernmental mechanisms including the Commission on Science and Technology for Development (CSTD). It outlines the framework, the methods and the various possible steps in the implementation process of STIP Reviews and their expected short- and medium-term outcomes.

In October 2003 the U.S. Agency for International Development (USAID) and the National Research Council (NRC) entered into a cooperative agreement. The agreement called for the NRC to examine selected aspects of U.S. foreign assistance activities-primarily the programs of the USAID-that have benefited or could benefit from access to strong science, technology, and medical capabilities in the United States or elsewhere. After considering the many aspects of the role of science and technology (S&T) in foreign assistance, the study led to the publication of The Fundamental Role of Science and Technology in International Development. In the book special attention is devoted to partnerships that involve the USAID together with international, regional, U.S. governmental, and private sector organizations in fields such as health care, agriculture and nutrition, education and job creation, and energy and the environment. This book explores specific programmatic, organizational, and personnel reforms that would increase the effective use of S&T to meet the USAID's goals while supporting larger U.S. foreign policy objectives.

Science, Technology, Innovation, and Economic Growth in Arab Countries explores fresh approaches to STI policy formulation and implementation in the region, with applications to developing countries elsewhere. Developing useful contexts for studying Arab policies about science, technology, and innovation requires trustworthy data and judgment. Omar Bizri brings together both in this book. Data from sources such as the World Bank, UNESCO, the International Telecommunication Union, Nature, Science and recent surveys and policy formulation initiatives anchor this study among national initiatives that focus on essential needs, including safe water and food production, renewable energy utilization, and job and enterprise creation. For those eager to understand the challenges of STI capacity building, this book explores the many connections between technological change and economic growth. Presents and analyzes data about past, current and proposed efforts aimed at STI capacity building in Arab countries Emphasizes demand-driven policies for promoting rapid infrastructure and endogenous STI capacity building, as well as job creation Explores ways to enhance STI capacity building efforts through community-based and national initiatives Includes data from sources such as the World Bank, UNESCO, the International Telecommunication Union, Nature, Science and recent surveys

Contents: Overview of U.S. Science and Technology Policy; What are Some Perspectives on Science and Technology Policy?; Who Makes Decisions Regarding Science and Technology Policy in Congress?; Who Makes Decisions Regarding Science and Technology Policy in the Executive Branch?; Who Makes Decisions in the Judicial Branch Regarding Science and Technology Policy?; What Organizations Provide Science and Technology Advice to Policymakers?; What Are the Opportunities and Challenges of the Current Science and Technology Policy Decisionmaking Process?. Charts and tables.

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.

Openness and sharing of information are fundamental to the progress of science and to the effective functioning of the research enterprise. The advent of scientific journals in the 17th century helped power

the Scientific Revolution by allowing researchers to communicate across time and space, using the technologies of that era to generate reliable knowledge more quickly and efficiently. Harnessing today's stunning, ongoing advances in information technologies, the global research enterprise and its stakeholders are moving toward a new open science ecosystem. Open science aims to ensure the free availability and usability of scholarly publications, the data that result from scholarly research, and the methodologies, including code or algorithms, that were used to generate those data. Open Science by Design is aimed at overcoming barriers and moving toward open science as the default approach across the research enterprise. This report explores specific examples of open science and discusses a range of challenges, focusing on stakeholder perspectives. It is meant to provide guidance to the research enterprise and its stakeholders as they build strategies for achieving open science and take the next steps.

Diplomacy for the 21st Century recommends steps that the Department of State should embrace to take full advantage of the leading science and technology (S&T) capabilities of the United States. These capabilities provide the department with many opportunities to promote a variety of the interests of the United States and its allies in a rapidly changing world wherein S&T are important drivers of economic development at home and abroad and help ensure international security. This report assesses and makes recommendations concerning the changing environment for the conduct of diplomacy in the years ahead, with a focus on the role of S&T in the development and implementation of U.S. policies and programs. According to this report, prompt steps by the department's leadership are essential to ensure adequate comprehension of the importance of S&T-related developments throughout the world and to incorporate this understanding within the nation's foreign policy for the 21st century. This report also urges the adoption by the department of a broader whole-of-society approach in carrying out its responsibilities at home and abroad - extending beyond traditional interagency coordination and the narrow band of current external partners to include foundations, universities, research centers, and other groups who are extending their international reach.

Recognizing that a capacity to innovate and commercialize new high-technology products is increasingly a key for the economic growth in the environment of tighter environmental and resource constraints, governments around the world have taken active steps to strengthen their national innovation systems. These steps underscore the belief of these governments that the rising costs and risks associated with new potentially high-payoff technologies, their spillover or externality-generating effects and the growing global competition, require national R&D programs to support the innovations by new and existing high-technology firms within their borders. The National Research Council's Board on Science, Technology, and Economic Policy (STEP) has embarked on a study of selected foreign innovation programs in comparison with major U.S. programs. The "21st Century Innovation Systems for the United States and Japan: Lessons from a Decade of Change" symposium reviewed government programs and initiatives to support the development of small- and medium-sized enterprises, government-university- industry collaboration and consortia, and the impact of the intellectual property regime on innovation. This book brings together the papers presented at the conference and provides a historical context of the issues discussed at the symposium.

This book aims to give policy makers an overview of the evolution of science, technology and innovation (STI) policies in a selected number of East Asian countries. China, Japan, Republic of Korea and Singapore have transformed their economies and societies in recent decades. From STI policies that enabled catch-up growth, these countries have evolved towards policies that are more aligned with sustainable development through integrating social, economic and environmental dimensions into their STI policies. The forthcoming Fourth Industrial Revolution is also reshaping STI policies in these countries as governments prepare to support the development of frontier technologies such as artificial intelligence, as well as respond to the impacts of these technologies on their societies and economies. Governments are also evolving themselves as the public sector opens up to integrating innovations from civil society and the private sector and further strengthen the innovation capacity of the public sector to improve policy making processes and deliver services to their constituents. All three themes are explored in this book in separate chapters, through a comparative analysis of the STI policies of China, Japan, Republic of Korea and Singapore. The experiences of these countries can serve as useful references for other countries in the Asia-Pacific region and beyond that are interested in utilizing national level STI policies to achieve sustainable development, particularly in the context of the emergence of frontier technologies.

Research cooperation in a nation is a fundamental key to national competitiveness in technology that supports growth in a national economy. To fully understand why some nations are more successful in innovation than others, one must examine the structure and process of knowledge creation and use — the Science & Technology policy of a nation. National innovation requires progress both in Science & Technology, and also in economy. Research cooperation for innovation is necessary, since science, technology, and production are performed in different sectors of a nation. Universities conduct research science, and science discovers nature. Governments support most of the research in universities, and therefore are the principal sponsors of science. Industry develops most technology and commercializes technology into economically useful products/services. The structure and process of knowledge in a nation thus requires (1) creation of knowledge in science, (2) translation of science into technology, and (3) design of technology into commercialization of utility. At a national level, innovation is thus a complicated concept — proposing a need to identify the proper ways that government-university-industry can cooperate to advance knowledge and economically benefit from innovation. Special programs in Science & Technology policy that have proven beneficial in fostering research cooperation for national competitiveness will be covered in this book. Cooperative Innovation: Science & Technology Policy helps readers understand a practical science & technology policy for a nation. Its contents are particularly useful for government administrators of research, industrial research directors, university research directors, and students of science & technology policy.

In 2004, an ad hoc committee was charged with preparing this third report examining the most senior S&T appointments to federal government positions and updating the accompanying list of the most urgent S&T presidential appointments. Sufficient changes have occurred since the National Academies 2000 report on presidential appointments — including the 2001 terrorist attacks, the anthrax deaths, the reorganization of homeland-security activities in the federal government, new developments in S&T, and concerns about the politicization of S&T decision making and advice — to warrant this new edition. In contrast with previous reports on the subject, this one covers not only presidential appointments to top S&T leadership positions but also the appointment of scientists, engineers, and health professionals to serve on federal advisory committees that focus on science-based policy or on the review of research proposals. The committee recognizes that other areas of federal responsibility are as important as S&T, but S&T appointments are the only ones within its purview.

Why are some countries better than others at science and technology (S&T)? Written in an approachable style, *The Politics of Innovation* provides readers from all backgrounds and levels of expertise a comprehensive introduction to the debates over national S&T competitiveness. It synthesizes over fifty years of theory and research on national innovation rates, bringing together the current political and economic wisdom, and latest findings, about how nations become S&T leaders. Many experts mistakenly believe that domestic institutions and policies determine national innovation rates. However, after decades of research, there is still no agreement on precisely how this happens, exactly which institutions matter, and little aggregate evidence has been produced to support any particular explanation. Yet, despite these problems, a core faith in a relationship between domestic institutions and national innovation rates remains widely held and little challenged. *The Politics of Innovation* confronts head-on this contradiction between theory, evidence, and the popularity of the institutions-innovation hypothesis. It presents extensive evidence to show that domestic institutions and policies do not determine innovation rates. Instead, it argues that social networks are as important as institutions in determining national innovation rates. *The Politics of Innovation* also introduces a new theory of "creative insecurity" which

explains how institutions, policies, and networks are all subservient to politics. It argues that, ultimately, each country's balance of domestic rivalries vs. external threats, and the ensuing political fights, are what drive S&T competitiveness. In making its case, *The Politics of Innovation* draws upon statistical analysis and comparative case studies of the United States, Japan, South Korea, China, Taiwan, Thailand, the Philippines, Argentina, Brazil, Mexico, Canada, Turkey, Israel, Russia and a dozen countries across Western Europe.

"Provides a state-of-the-art overview of science, technology, and innovation in the context of globalization and global policy"--

The global economy is characterized by increasing locational competition to attract the resources necessary to develop leading-edge technologies as drivers of regional and national growth. One means of facilitating such growth and improving national competitiveness is to improve the operation of the national innovation system. This involves national technology development and innovation programs designed to support research on new technologies, enhance the commercial return on national research, and facilitate the production of globally competitive products. Understanding the policies that other nations are pursuing to become more innovative and to what effect is essential to understanding how the nature and terms of economic competition are shifting. *Building the 21st Century U.S.-China Cooperation on Science, Technology, and Innovation* studies selected foreign innovation programs and comparing them with major U.S. programs. This analysis of Comparative Innovation Policy includes a review of the goals, concept, structure, operation, funding levels, and evaluation of foreign programs designed to advance the innovation capacity of national economies and enhance their international competitiveness. This analysis focuses on key areas of future growth, such as renewable energy, among others, to generate case-specific recommendations where appropriate.

In immediate responses to the COVID-19 crisis, science and innovation are playing essential roles in providing a better scientific understanding of the virus, as well as in the development of vaccines, treatments and diagnostics. Both the public and private sectors have poured billions of dollars into these efforts, accompanied by unprecedented levels of global cooperation.

Basic scientific research and technological development have had an enormous impact on innovation, economic growth, and social well-being. Yet science policy debates have long been dominated by advocates for particular scientific fields or missions. In the absence of a deeper understanding of the changing framework in which innovation occurs, policymakers cannot predict how best to make and manage investments to exploit our most promising and important opportunities. Since 2005, a science of science policy has developed rapidly in response to policymakers' increased demands for better tools and the social sciences' capacity to provide them. *The Science of Science Policy: A Handbook* brings together some of the best and brightest minds working in science policy to explore the foundations of an evidence-based platform for the field. The contributions in this book provide an overview of the current state of the science of science policy from three angles: theoretical, empirical, and policy in practice. They offer perspectives from the broader social science, behavioral science, and policy communities on the fascinating challenges and prospects in this evolving arena. Drawing on domestic and international experiences, the text delivers insights about the critical questions that create a demand for a science of science policy.

This book offers a comprehensive assessment of the innovation system of Viet Nam, focusing on the role of government and providing concrete recommendations on how to improve policies that affect innovation and R&D performance.

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 book examines the implementation of science, technology and innovation (STI) policy in eight Latin American countries and the different paths these policies have taken. It provides empirical evidence to examine the extent to which STI policies are contributing to the development of the region, as well as to the solution of market failures and the stimulus of the region's innovation systems. Since the pioneering work of Solow (1957), it has been recognized that innovation is critical for economic growth both in developed and in less-developed countries. Unfortunately Latin America lags behind world trends, and although over the last 20 years the region has established a more stable and certain macroeconomic regime, it is also clear that these changes have not been enough to trigger a process of innovation and productivity to catch-up. Against this rather grim scenario there is some optimism emerging throughout the region. After many years of inaction the region has begun to invest in science, technology and engineering once again.

Furthermore, after many changes in innovation policy frameworks, there is now an emerging consensus on the need for a solution to coordination failures that hinder the interaction between supply and demand. Offering an informative and analytic insight into STI policymaking within Latin America, this book can be used by students, researchers and practitioners who are interested in the design and implementation of innovation policies. This book also intends to encourage discussion and collaboration amongst current policy makers within the region.

Science, Technology, and National Policy is the first collection of essays to deal with technology as it relates to, and is influenced by, public policy-making. Bringing together twenty-five of the most significant papers on this topic, the editors seek to provide a broad perspective, to sample the full spectrum of core concerns in technology policy, and to stimulate critical thinking. Part One treats the social, political, economic, and international concerns that affect technology policy. Part Two examines how different government institutions deal with technology, including the federal executive, Congress, courts, and state and local governments. Ideal for professional and course use, this volume offers an excellent framework for discussing and coming to terms with these complex issues.

The United States has long recognized that the nation's prosperity and security depend on how we address challenges of disasters, poverty, famine, and disease around the world. The U.S. Agency for International Development (USAID) has played a vital role in promoting U.S. national and international interests by advancing strategies for employing science, technology, and innovation to respond to global challenges. The focus by USAID on science, technology, and innovation is critical to improve development outcomes. At the core of this progress is the engagement of science institutions and other innovative enterprises and their commitment to work in partnership with USAID to research, test, and scale solutions. *The Role of Science, Technology, Innovation, and Partnerships in the Future of USAID* provides an assessment and advice on the current and future role for science, technology, and innovation in assistance programs at USAID and on the role of partnerships in the public and private sectors to expand impact. This report examines challenges and opportunities for USAID in expanding the utilization of science, technology, and innovation in development assistance; assesses how USAID has deployed

science, technology, and innovation; and recommends priority areas for improvement going forward in partnership with others.

Science and Technology Policy theme is a component of Encyclopedia of Technology, Information, and Systems Management Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. Science and technology policy covers all the public sector measures designed for the creation, funding, support, and mobilization of scientific and technological resources. The content of the Theme on Science and technology policy provides the essential aspects and a myriad of issues of great relevance to our world such as: Science and Technology Policy; International Dimensions of Science and Technology Policy; The Innovation System; The Policy Making Process in Science and Technology; Regional Perspectives: A New Scenario for Science and Technology Policies in the Developed and Developing World . These two volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs

This volume explores the governance and management of science, technology, and innovation (STI) in relation to innovation policy and governance systems, highlighting its goal, challenges, and opportunities. Divided into two sections, it addresses the role of governments in promoting innovation in Latin-American contexts as well as barriers and opportunities for STI governance in the region. The chapters tackle the role of institutions, innovation funding, technological trajectories, regional innovation policies, innovation ecosystems, universities, knowledge appropriation, and markets. Researchers and scholars will find an opportunity to grasp a better understanding of innovation policies in emerging economies. This interdisciplinary work presents original research on science, technology and innovation policy and governance studies in an understudied region.

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

Science, Technology and Innovation in Uganda is part of the World Bank Studies series. These papers are published to communicate the results of the Bank's ongoing research and to stimulate public discussion. This study presents a unique methodology to view science, technology and innovation (STI) in developing countries. The study provides a set of cases studies drawn from a diverse range of experiences across the Ugandan private sector and offers concrete policy recommendations on how to support broader development of STI in Uganda. The study finds that of all the STI challenges facing firms, universities, and public research organizations in Uganda, the barriers to collaboration and communication are the most urgent in terms of STI priorities to address in the coming years.

Since the 1950s, under congressional mandate, the U.S. National Science Foundation (NSF) - through its National Center for Science and Engineering Statistics (NCSES) and predecessor agencies - has produced regularly updated measures of research and development expenditures, employment and training in science and engineering, and other indicators of the state of U.S. science and technology. A more recent focus has been on measuring innovation in the corporate sector. NCSES collects its own data on science, technology, and innovation (STI) activities and also incorporates data from other agencies to produce indicators that are used for monitoring purposes - including comparisons among sectors, regions, and with other countries - and for identifying trends that may require policy attention and generate research needs. NCSES also provides extensive tabulations and microdata files for in-depth analysis. Capturing Change in Science, Technology, and Innovation assesses and provides recommendations regarding the need for revised, refocused, and newly developed indicators of STI activities that would enable NCSES to respond to changing policy concerns. This report also identifies and assesses both existing and potential data resources and tools that NCSES could exploit to further develop its indicators program. Finally, the report considers strategic pathways for NCSES to move forward with an improved STI indicators program. The recommendations offered in Capturing Change in Science, Technology, and Innovation are intended to serve as the basis for a strategic program of work that will enhance NCSES's ability to produce indicators that capture change in science, technology, and innovation to inform policy and optimally meet the needs of its user community.

Research and development (R and D) leads to innovation, and innovation leads to technological change. Technological change, in turn, is the primary driver of economic growth. Public/private partnerships -- cooperative relationships among industry, government, and/or universities -- leverage the efficiency of R and D and are thus a critical aspect of a nation's innovation system. This text is intended for upper-level undergraduate and MBA courses such as Economics and Technology, Economics of Innovation, and Economics of Science and Technology, among others. The first chapter introduces the concept of public/private research partnerships along with other concepts fundamental to an understanding of innovation and technology policy. The framework chapters (2-5) set forth an argument for the public's role -- government's role -- in innovation in general and in public/private partnership in particular. The remaining chapters (6-14) describe a number of public/private partnerships and, to the extent possible, evaluate their social impact. This book provides an overview of the science, technology, and innovation (STI) policies in Vietnam in a globalized world. Science, technology and innovation policies play important roles in boosting research and development, promoting entrepreneurship and building national innovation systems, especially in developing countries. The author offers in-depth analyses and insights on the STI system of Vietnam and provides comparisons with the major STI development trends around the world. Each chapter of the book includes intensive studies and analyses of the STI system and policies in Vietnam, providing valuable arguments and essential tools for students, researchers, and policy makers in the field of science and technology management, political science, public policy and business studies. The author then addresses potential challenges and proposes policy recommendations to overcome them to improve the performance of the Vietnam's STI system in the context of globalized economies and international integration of science and technology.

Issues involving science, technology, and health (STH) have moved to the forefront of the international diplomatic agenda. Other vital issues linked to technological developments pervade longer-range foreign policy concerns. Thus, STH considerations are often central to the Department of State's bilateral and multilateral interactions with other governments. STH aspects play a large role in discussions of such critical topics as nuclear nonproliferation, use of outer space, population growth, adequate and safe food supply, climate change, infectious diseases, energy resources, and competitiveness of industrial technologies. In addressing these issues, expert STH knowledge is essential to the anticipation and resolution of problems and to the achievement of foreign policy goals. The Department, recognizing that it requires strengthened capabilities to address such an array of topics, asked for suggestions by the National Research Council as to how it could better deal with foreign policy issues with STH content.

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