

RIO (Research and Innovation Observatory) – EU (2/2)

The screenshot shows the homepage of the RIO (Research and Innovation Observatory) – Horizon 2020 Policy Support Facility. The top navigation bar includes links for 'RIO-PSF Home', 'Country Analysis', 'Policy Support Facility', 'Library', 'Statistics', and 'About'. Below the navigation is a breadcrumb trail: 'RIO - H2020 PSF > Statistical data'. The main content area features a section titled 'Statistics' with three sub-sections: 'Key Indicators' (represented by a bar chart icon), 'Data Catalogue' (represented by a grid icon), and 'Country-based Initiatives' (represented by a map of Europe). Each sub-section has a brief description below it.

An official website of the European Union How do you know?

European Commission

Search

Research and innovation

Research and Innovation Observatory – Horizon 2020 Policy Support Facility

RIO-PSF Home Country Analysis Policy Support Facility Library Statistics About

RIO - H2020 PSF > Statistical data

Statistics

This section provides data, key indicators and interactive visualisations at EU and national level, which cover four innovation dimensions, i.e. Inputs-Investments, Framework Conditions, Innovation Outputs and Impact.

Key Indicators

The key indicators cover four innovation dimensions, i.e. Inputs-Investments, Framework Conditions, Innovation Outputs and Impact. They are based on data from well-accredited sources, mainly

Data Catalogue

The catalogue contains the original data which have been used for the production of the key indicators. It follows the same classification with the key indicators. All datasets are synchronised daily with the

Country-based Initiatives

Background data for the RIO Country Report.

An Outline of the Recent Initiatives in the Development and Utilisation of Research and Innovation Indicators at the National Level in International Organisations and Selected Countries
The Thursday Meetings, Council for Science, Technology and Innovation, Cabinet Office, Web Conferencing, Tokyo, 1 July 2021
Tomohiro Ijichi, Faculty of Innovation Studies, Seijo University

The State of U.S. Science & Engineering – United States (1/7)

The screenshot shows the official website for the National Science Board Science & Engineering Indicators. The top navigation bar includes links for Home, Reports, State of U.S. S&E 2020 (which is underlined), Data, Topical Search, State Indicators, About Us, and social media links. A search bar and a 'SHARE YOUR THOUGHTS' button are also present. The main content area features a purple header 'The State of U.S. Science and Engineering 2020'. To the right, there's a large image of the 2020 report cover, which features a stylized, glowing ribbon-like graphic against a dark background. The report cover includes the title '2020 NATIONAL SCIENCE BOARD SCIENCE & ENGINEERING INDICATORS The State of U.S. Science & Engineering' and the date 'January 2020'. On the left, a sidebar lists various report sections with '+' icons for expansion: Preface, Executive Summary, Introduction, U.S. and Global Education, U.S. S&E Workforce, Global R&D, U.S. R&D Performance and Funding, Global Science and Technology Capabilities, and Glossary. The 'Preface' section is expanded, providing a detailed description of the report's purpose and structure. The right side of the page contains a sidebar for 'Authors' (Beethika Khan, Carol Robbins, and Abigail Okrent, January 15, 2020) and 'Related Reports' (Academic Research and Development, Elementary and Secondary Mathematics and Science, Higher Education in Science and Engineering, Production and Trade of Knowledge- and Technological...).

- 隔年で作成・公表されており、2020年版からは、名称及び構成が変更されている。
- 科学・工学に関する広範な内容(たとえば、初等・中等理数科教育から公衆の態度・知識・関心まで)が取り扱われている。

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The State of U.S. Science & Engineering – United States (2/7)

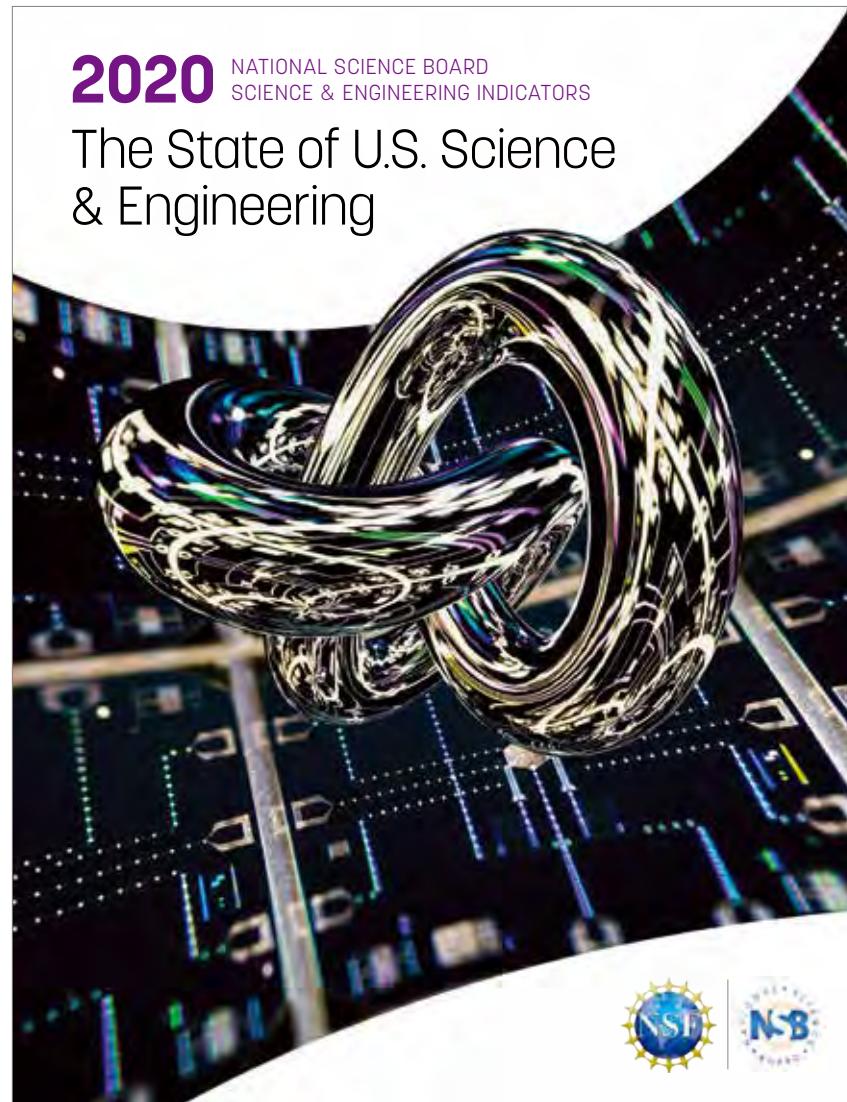
The screenshot shows the homepage of the Science & Engineering Indicators website. At the top, there are two logos: one for the National Science Foundation (NSF) and another for the National Science Board (NSB). The title "SCIENCE & ENGINEERING INDICATORS" is displayed next to them. A search bar and a "SHARE YOUR THOUGHTS" button are also at the top. Below the header, there are navigation links for "Home", "Reports", "State of U.S. S&E 2020" (which is underlined in blue), "Data", "Topical Search", "State Indicators", and "About Us". Social media icons for Facebook, Twitter, LinkedIn, and YouTube are located on the far right.

The main content area features a purple banner with the text "The State of U.S. Science and Engineering 2020" on the left and "2020" with a globe icon on the right. Below the banner, the date "January 2020" is visible. The page is divided into several sections:

- Executive Summary:** This section contains a summary of the report's findings. It states that the U.S. S&E enterprise continues to advance along several dimensions. The United States continues to perform the largest share of global research and development (R&D), generate the largest share of R&D-intensive industry output globally, award the largest number of S&E doctoral degrees, and account for significant shares of S&E research articles and citations worldwide. However, other nations, particularly China, are rapidly developing their science and technology (S&T) capacity. The changing global landscape affects the position of the United States relative to the other major global players. For example, the United States has seen its relative share of global S&T activity remain unchanged or shrink, even as its absolute activity levels have continued to rise.
- Authors:** Beethika Khan, Carol Robbins, and Abigail Okrent. The date January 15, 2020, and a link to "Author contact information" are also listed.
- Related Reports:** This section lists other reports:
 - Academic Research and Development (January 2020)
 - Elementary and Secondary Mathematics and Science Education (September 2019)
 - Higher Education in Science and Engineering (September 2019)
 - Invention, Knowledge Transfer, and Innovation (January 2020)
 - Production and Trade of Knowledge- and Technology-Intensive Goods (January 2020)
- Preface**
- Introduction**
- U.S. and Global Education**
- U.S. S&E Workforce**
- Global R&D**
- U.S. R&D Performance and Funding**
- Global Science and Technology Capabilities**
- Invention, Innovation, and Perceptions of Science**
- Conclusion**
- Glossary**
- References**
- Explore Further**
- Acknowledgments and Citation**

At the bottom of the page, there is a footer with the text: "An Outline of the Recent Initiatives in the Development and Utilisation of Research and Innovation Indicators at the National Level in International Organisations and Selected Countries" and "The Thursday Meetings, Council for Science, Technology and Innovation, Cabinet Office, Web Conferencing, Tokyo, 1 July 2021". The footer also includes the name "Tomohiro Ijichi, Faculty of Innovation Studies, Seijo University".

The State of U.S. Science & Engineering – United States (3/7)



The State of U.S. Science & Engineering – United States (4/7)

The screenshot shows a web browser displaying the 'SCIENCE & ENGINEERING INDICATORS' website. The header includes the NSF and NSB logos, the website address 'ncses.nsf.gov', a search bar, and a 'SHARE YOUR THOUGHTS' button. The main navigation menu at the top includes links for Home, Reports, State of U.S. S&E 2020, Data, Topical Search, State Indicators, and About Us (which is underlined). Below the header, the page title 'About Us' is displayed. On the left, a sidebar contains links to 'About Science and Engineering Indicators', 'Redesigned Indicators', 'What Makes a Good Indicator?', 'Indicators Thematic Reports', 'The State of U.S. Science and Engineering', 'State Indicators Data Tool', and 'Access to Indicators'. The main content area features a section titled 'About Science and Engineering Indicators' with a detailed description of the report's purpose and methodology. It also includes sections on 'Redesigned Indicators' and 'The State of U.S. Science and Engineering'.

About Science and Engineering Indicators

Science and Engineering Indicators (Indicators) provides high-quality quantitative information on the U.S. and international science and engineering (S&E) enterprise. *Indicators* consists of detailed thematic or focus area reports, a state data tool, and a congressionally mandated report delivered biennially to the President and Congress that highlights important trends from across the focus areas. *Indicators* reports employ a variety of presentation styles—such as narrative text, data tables, and figures—to provide accessible data to consumers with different information needs.

The data described in *Indicators* are a quantitative summary of the scope, quality, and vitality of the S&E enterprise over time and within a global context. These data are intended to contribute to an understanding of the current environment and to inform the development of future policies. The reports do not model the dynamics of the S&E enterprise nor forecast future outcomes. Also, *Indicators* is factual and policy neutral. It does not offer policy options nor make policy recommendations. The National Science Board authors one or more companion pieces that draw on the data in *Indicators* to offer recommendations related to national S&E research or education policy, in keeping with the Board's statutory responsibility to bring attention to such issues.

Indicators is prepared under the guidance of the National Science Board by the National Center for Science and Engineering Statistics (NCSES), a principal federal statistical agency within the National Science Foundation (NSF). Social, Behavioral and Economic Sciences Directorate. NCSES develops the content and the dissemination platforms. *Indicators* reports are subject to extensive review by internal and external subject matter experts, federal agencies, National Science Board members, and NCSES statistical reviewers for accuracy, coverage, and balance.

Redesigned Indicators

With the 2020 edition, *Indicators* has been redesigned to be maximally useful and accessible to a wide audience while maintaining the high quality of previous editions. It has transformed from a single, voluminous report into a series of streamlined reports—focusing on key indicators and major findings—published on a rolling basis. Detailed data tables underlying the analyses, including the types of data available in previous *Indicators* editions, continue to be available online. The National Science Board will deliver *The State of U.S. Science and Engineering* report, highlighting trends and comparisons from the *Indicators* thematic reports, to the President and Congress by 15 January of 2020 in fulfilment of the congressional mandate.

The State of U.S. Science & Engineering – United States (5/7)

The screenshot shows a web browser displaying the 'SCIENCE & ENGINEERING INDICATORS' website. The top navigation bar includes links for Home, Reports, State of U.S. S&E 2020, Data, Topical Search, State Indicators, and About Us. The 'About Us' link is underlined, indicating it is the current page. On the right side of the header is a 'SHARE YOUR THOUGHTS' button with a magnifying glass icon. Below the header, the main content area has a light gray background. A sidebar on the left lists several links: 'About Science and Engineering Indicators', 'Redesigned Indicators', 'What Makes a Good Indicator?' (which is selected and highlighted in blue), 'Indicators Thematic Reports', 'The State of U.S. Science and Engineering', 'State Indicators Data Tool', and 'Access to Indicators'. The main content area features a section titled 'What Makes a Good Indicator?' with three detailed paragraphs explaining the concept of indicators, their relevance, and how they are used.

About Us

What Makes a Good Indicator?

The source data are "indicators," that is, quantitative summary information on the scope, quality, and vitality of the S&E enterprise and its change over time. This section provides a brief overview of the type of high-quality domestic and international data sources used in the *Indicators* reports and data-quality issues that influence the interpretation and accuracy of the information presented. This section draws in part upon a review published by Bronwyn Hall and Adam Jaffe in 2017 called "Measuring Science, Technology and Innovation: A Review" in the *Annals of Science and Technology*, vol. 2, no. 1. For more details on methodological, statistical, and data-quality criteria please see the General Methodology or the Technical Appendix of a specific report.

A good indicator explains something meaningful about the state of U.S. S&E in its global setting and over time. Each report provides multiple indicators to inform different aspects of a topic. The data are used by a wide variety of people and organizations with differing views about which indicators are the most significant for their specific purposes. Because each indicator provides a partial measure of overall activity, multiple indicators facilitate a more accurate and comprehensive understanding of an issue.

A good indicator for the *Indicators* reports is policy relevant, contributing to an understanding of the current environment and informing the development of future policies. *Indicators* data are used by policymakers at the federal, state, and local levels. A good indicator is also policy neutral, providing objective, balanced, and accurate information. *Indicators* generally emphasizes neutral and factual descriptions using simple statistical tools and then invites the exploration of more sophisticated causal models and relationships by the research community.

When possible, the indicator is a direct measure of the intended concept, for example, the representation of different demographic groups in S&E jobs. In other cases, the intended concept is hard to measure directly and related or proxy indicators are the best available. For example, measurement of the capacity of the S&E workforce is difficult; *Indicators* therefore presents the number of S&E degrees earned as a proxy indicator of S&E workforce capacity.

Many of the indicators in the report are collected in surveys that are conducted by national statistical agencies in the United States and other countries. Well-constructed surveys align the questions asked of respondents to the concepts that the indicator is intended to measure and provide the detailed category breakdowns that are most relevant to data users. How well the survey-based indicator represents the intended population depends on how well the survey has been able to obtain responses from the targeted population. *Indicators* provides links to the surveys and data used in the reports so that interested readers can learn more about the precision or inherent variability of the data.

The State of U.S. Science & Engineering – United States (6/7)

The screenshot shows a web browser displaying the 'SCIENCE & ENGINEERING INDICATORS' website at nceses.nsf.gov. The page title is 'About Us'. On the left, there is a sidebar with links to 'About Science and Engineering Indicators', 'Redesigned Indicators', 'What Makes a Good Indicator?' (which is highlighted), 'Indicators Thematic Reports', 'The State of U.S. Science and Engineering', 'State Indicators Data Tool', and 'Access to Indicators'. The main content area contains two columns of text. The left column discusses the use of administrative data as indicators, mentioning patent and bibliometric data. The right column discusses the use of international surveys and data, noting harmonization by international organizations like the Organisation for Economic Co-operation and Development and the United Nations. Below this, a section titled 'Indicators Thematic Reports' lists ten thematic reports: Elementary and Secondary Mathematics and Science Education, Higher Education in Science and Engineering, Science and Engineering Labor Force, Research and Development: U.S. Trends and International Comparisons, Academic Research and Development, Publications Output: U.S. Trends and International Comparisons, Production and Trade of Knowledge- and Technology-Intensive Industries, Science and Technology: Public Attitudes, Knowledge, and Interest, and Invention, Knowledge Transfer, and Innovation.

Some indicators used in the report come not from surveys but from data collected by companies, governments, and organizations as part of their ongoing internal activities; these data are administrative data. Patent and bibliometric data are two examples. Because the data collection was not originally intended to produce an indicator, these data may not fully correspond to the intended use for *Indicators* reports and may not fully represent the desired population. Good features of these kinds of data are that the respondent burden is low because the data already exist, data sets are large, and the data have been carefully structured, though generally for uses other than as an indicator. Additionally, these data are often available with a shorter delay than is possible with survey data production cycles. In these cases, transparency about the difference between the data-gathering concept and the actual data provides users a frame for the summarized administrative data as an indicator.

For use of international surveys and data, wherever possible, comparisons are presented using data that have been harmonized by international organizations, such as the Organisation for Economic Co-operation and Development and the United Nations, or have been prepared across countries using consistent standards.

Indicators Thematic Reports

Indicators includes the following thematic or focus area reports to comprehensively cover the S&E enterprise:

- Elementary and Secondary Mathematics and Science Education
- Higher Education in Science and Engineering
- Science and Engineering Labor Force
- Research and Development: U.S. Trends and International Comparisons
- Academic Research and Development
- Publications Output: U.S. Trends and International Comparisons
- Production and Trade of Knowledge- and Technology-Intensive Industries
- Science and Technology: Public Attitudes, Knowledge, and Interest
- Invention, Knowledge Transfer, and Innovation

The State of U.S. Science & Engineering – United States (7/7)

The screenshot shows the homepage of the Science & Engineering Indicators website for the year 2020. The top navigation bar includes links for Home, Reports, State of U.S. S&E 2020 (which is highlighted), Data, Topical Search, State Indicators, About Us, and social media links. A search bar and a "SHARE YOUR THOUGHTS" button are also present. The main content area features a purple banner with the text "The State of U.S. Science and Engineering 2020" and "2020 January 2020". To the left is a sidebar with a table of contents for the report, including Preface, Executive Summary, Introduction, U.S. and Global Education, U.S. S&E Workforce, Global R&D, U.S. R&D Performance and Funding, Global Science and Technology Capabilities, Invention, Innovation, and Perceptions of Science, Conclusion, Glossary, References, Explore Further, and Acknowledgments and Citation. The main content area displays 20 numbered figures (11-20) illustrating various aspects of U.S. science and engineering, such as R&D expenditures, growth rates, and intensity. On the right side, there is a sidebar for "Related Products from the National Science Board" and a timeline of other reports from December 2019 to May 2020.

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中国创新指数 – 中国

首页 | ENGLISH | RSS订阅 | 统计微博 | 统计微讯 | 移动客户端

2021年5月7日 星期五

国家统计局 National Bureau of Statistics

最新发布 数据查询 图片新闻 热词: GDP CPI PPI PMI 总人口 社会消费品零售总额 检索 | 高级

统计动态 统计知识 统计词典 常见问题解答 微观数据申请 曝光台 行政处罚信息 政策 公开指南 政策公开制度

走进展示 最新发布 数据解读 通知公告 图片新闻

当前位置 > 首页 > 统计数据 > 最新发布

2019年中国创新指数较快增长 创新发展新动能加速聚集

来源: 国家统计局

发布时间: 2020-10-30 15:00

关闭窗口 打印本页

据国家统计局社科文司《中国创新指数研究》课题组测算^[1], 2019年中国创新指数达到228.3(以2005年为100), 比上年增长7.8%。分领域看, 创新环境指数、创新投入指数、创新产出指数和创新成效指数分别达到249.9、199.1、295.3和168.8, 分别比上年增长10.5%、3.0%、11.8%和3.1%。测算结果表明: 2019年, 我国创新环境明显优化, 创新投入稳步提高, 创新产出大幅提升, 创新成效进一步显现, 创新发展新动能不断增强。

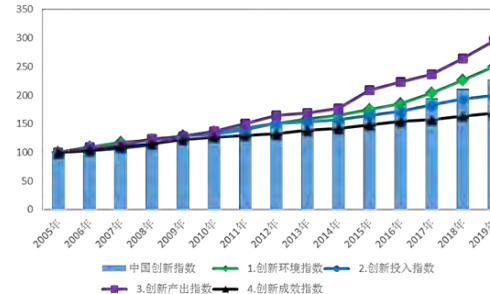
(一) 创新环境指数。2019年我国创新环境指数为249.9, 比上年增长10.5%, 连续3年保持两位数增长。该领域5个评价指标全部实现增长, 其中, 享受加计扣除减免税企业所占比重指数大幅提升, 增速达到38.9%, 连续3年成为全部21个评价指标中增长最快的指标。

(二) 创新投入指数。2019年创新投入指数为199.1, 比上年增长3.0%。该领域的6个评价指标指数五升一降, 其中, 每万人R&D人员全时当量指数增长较快, 增速为9.2%; R&D经费占GDP比重指数和开展产学研合作的企业所占比重指数均实现稳步提升, 增速分别为4.2%和4.1%; 基础研究人员人均经费指数下降4.7%。

(三) 创新产出指数。2019年创新产出指数达295.3, 比上年增长11.8%。该领域的5个评价指标指数全部实现增长, 其中, 每万名科技活动人员技术市场成交额指数和每万名R&D人员专利授权数指数分别到达489.1和429.3, 在全部评价指标指数中位居前列。

(四) 创新成效指数。2019年我国创新成效指数为168.8, 比上年增长3.1%。该领域的5个评价指标四升一降, 其中, 人均主营业务收入指数和新产品销售收入占主营业务收入的比重指数增长较快, 增速分别为8.6%和5.7%; 高新技术产品出口额占货物出口额的比重指数下降2.7%。

图 2005-2019年中国创新指数及分领域指数



中国创新指数情况

	2005年	2010年	2015年	2018年	2019年
中国创新指数	100.0	133.0	174.0	211.8	228.3
一、创新环境指数	100.0	135.7	174.9	226.2	249.9
1. 劳动力中大专及以上学历人数指数	100.0	161.7	244.9	260.0	269.5
2. 人均GDP指数	100.0	166.6	239.2	288.2	304.8
3. 理工科毕业生占适龄人口比重指数	100.0	142.8	183.9	211.8	220.5
4. 科技投入占财政支出的比重指数	100.0	116.4	101.2	109.6	114.0
5. 享受加计扣除减免税企业所占比重指数	100.0	103.0	150.3	343.1	476.7
二、创新投入指数	100.0	132.3	164.2	193.4	199.1
1. 每万人R&D人员全时当量指数	100.0	182.5	262.0	300.8	328.5
2.R&D经费占GDP比重指数	100.0	130.7	157.5	163.6	170.5
3. 基础研究人员人均经费指数	100.0	163.5	248.0	313.4	298.6
4. 企业R&D经费占主营业务收入比重指数	100.0	112.8	125.5	136.7	142.1
5. 有研发机构的企业所占比重指数	100.0	117.6	143.8	192.3	195.4
6. 开展产学研合作的企业所占比重指数	100.0	103.7	106.6	129.2	134.6
三、创新产出指数	100.0	137.2	208.3	264.1	295.3
1. 每万人科技论文数指数	100.0	152.8	165.4	182.8	193.0
2. 每万名R&D人员专利授权数指数	100.0	230.6	337.9	423.9	429.3
3. 发明专利授权数占专利授权数的比重指数	100.0	89.3	136.7	122.8	144.8
4. 每百家工业企业发明专利授权数指数	100.0	100.1	180.0	325.3	386.4
5. 每万名科技活动人员技术市场成交额指数	100.0	155.3	287.7	419.3	489.1
四、创新成效指数	100.0	126.8	148.7	163.7	168.8
1. 新产品销售收入占主营业务收入的比重指数	100.0	115.2	127.3	161.5	170.8
2. 高新技术产品出口额占货物出口额的比重指数	100.0	109.0	100.7	104.9	102.1
3. 单位GDP能耗指数	100.0	123.8	151.7	169.1	173.8
4. 人均主营业务收入指数	100.0	179.0	292.5	302.3	328.4
5. 科技进步贡献率指数	100.0	117.8	128.0	135.9	137.7

注:[1]因国内生产总值(GDP)等指标根据例行统计制度开展了历史数据修订, 中国创新指数历史测算结果作相应调整。

附件:

中国创新指标体系及指数编制方法

- 中国においても、研究・イノベーション指標（及び指数）群についての多様な資料等が作成・公表されている。

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http://www.stats.gov.cn/tjsj/zxfb/202010/t20201030_1797238.html

国家创新指数报告 – 中国

国家创新指数报告 2018

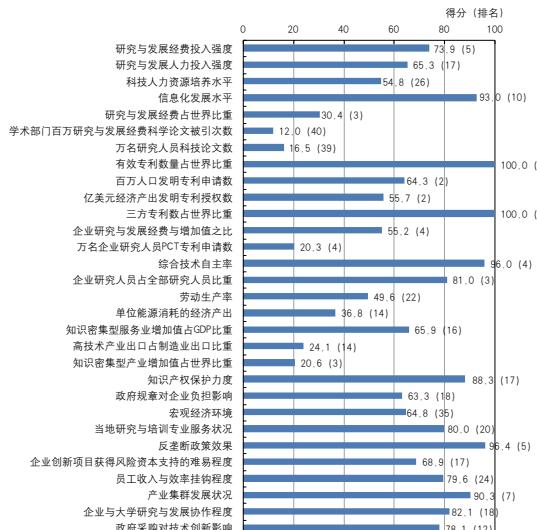
中国科学技术发展战略研究院 著

科学技术文献出版社
SCIENTIFIC AND TECHNICAL DOCUMENTATION PRESS
· 北京 ·

日本

亚洲国家。2016年人口约1.27亿人，国土面积约37.8万平方千米，GDP总量49 401.6亿美元，人均GDP 38 901美元，为高收入国家。单位能耗产出10.07美元/千克标准油；R&D经费投入1554.5亿美元，位列世界第3位；R&D经费投入强度为3.14%；SCI收录论文7.9万篇；PCT专利申请数45 210件；高技术产业出口占制造业出口比重为16.22%。

日本国家创新指数综合排名第2位，与上年持平。5个一级指标中，创新资源排名第8位，比上年下降2位；知识创造排名第2位，比上年提升1位；企业创新排名第1位，与上年持平；创新绩效排名第14位，比上年下降11位；创新环境排名第18位，比上年下降3位。



国别分析 65

研究・イノベーション指標体系のさらなる開発への取組 – ドイツ

21.04.2021 | RESEARCH

Indicators in research and innovation

Dynamic research and innovation needs good indicators. Since 2017, the German Federal Ministry of Education and Research (BMBF) has been funding projects that improve indicators and offer new approaches to measuring impact of research and innovation.



Messen Sie Ihre Innovation © Adobe Stock/faithie

A well-defined set of indicators is important for assessing the impact of the German Federal Government's High-Tech Strategy. It also serves the purpose of evaluating individual funding

- ドイツでは、指標を改善するためや動的で進化し続ける研究・イノベーションのインパクトを測定するための新たなアプローチに関する取組がなされている。

Capturing innovations - new topics, methods and sources

It is a core interest of the German government to maintain and further enhance the international performance of Germany as an innovative country. Motivated by the [OECD Blue Sky Forum in 2016](https://www.oecd.org/sti/blue-sky.htm) (<https://www.oecd.org/sti/blue-sky.htm>)

, the Federal Ministry of Education and Research (BMBF) decided to fund projects to improve and further develop indicators for measuring research and innovation (R&I) in science and education. Since 2017, these projects have contributed to the recording and impact measurement of new topics, innovation sectors and phenomena. In this way, standard measurement models are expanded and recast with innovative indicators. In addition, empirical approaches are opened up through the use of new data sources and methods. Our goal is to utilize this research to enable evidence-based funding policies and to continuously improve funding instruments.

Redefining indicators - funding announcements and research funding.

The first round of the funding call on "Further development of indicators for research and innovation" of January 2017 aimed to initiate capacity building in the field of innovation research that will be effective in the long term. The BMBF selected seven projects for funding. In November 2018, the second round initiated the funding of seven additional projects for the further development of the indicator system. The funded research projects focus on new phenomena such as social innovations, household innovations and open innovation processes. They apply new methods in the context of digitization, tap additional data sources and further develop existing indicator catalogs.

研究・イノベーション指標の開発及び利用 – フランス (1/4)



Vous êtes ici: [SAVOIR-FAIRE](#) > [Indicateurs & analyses](#)

SAVOIR-FAIRE

- [Évaluations](#)
- [Indicateurs & analyses](#)
- [Intégrité scientifique](#)
- [International](#)
- [Publications](#)

Indicateurs & analyses

Le Hcéres produit des analyses, des synthèses et des indicateurs qui lui permettent de contribuer à la réflexion stratégique des acteurs de l'enseignement supérieur, de la recherche et de l'innovation, ainsi qu'à la conception et à l'évaluation des politiques publiques. Pour cela, il s'appuie sur les travaux de son département Observatoire des sciences et techniques (OST) et de ses départements d'évaluation.

Analyses et études

Les analyses et études du Hcéres nourrissent la réflexion des acteurs de l'enseignement supérieur, de la recherche et de l'innovation. Elles contribuent

Indicateurs et méthodes

L'OST produit des indicateurs sur la recherche et l'innovation. L'Observatoire adapte ses méthodes aux évolutions des structures internationales

Sources et données

L'OST enrichit des bases de données (publications, brevets, projets de R&D) permettant des comparaisons nationales et internationales. L'Observatoire

研究・イノベーション指標の開発及び利用 – フランス (2/4)



Vous êtes ici : Savoir-faire > Indicateurs & analyses > Indicateurs et méthodes

INDICATEURS & ANALYSES

Analyses et études

Indicateurs et méthodes

Sources et données

Publications OST

Indicateurs et méthodes

Les bases de données dont dispose l'Observatoire des sciences et techniques (OST) du Hcéres permettent de calculer des indicateurs qui nourrissent des analyses et des publications spécifiques comme le Rapport sur la position scientifique de la France, ou annuelles comme les synthèses destinées à la publication « L'état de l'Enseignement supérieur et de la Recherche » du Ministère de l'enseignement supérieur, de la recherche et de l'innovation (MESRI).

Les indicateurs produits par l'OST servent à différents niveaux. Ils permettent par exemple de décrire la position scientifique de la France dans le monde. Ils peuvent servir aux établissements pour élaborer leur stratégie ou alimenter leur processus d'autoévaluation. Ils alimentent enfin diverses productions du ministère chargé de l'enseignement supérieur, de la recherche et de l'innovation.

L'OST s'emploie par ailleurs à adapter en permanence ses méthodes et les bases sur lesquelles il s'appuie en se référant aux meilleures pratiques internationales.

研究・イノベーション指標の開発及び利用 – フランス (3/4)

The screenshot shows the homepage of the Hcéres website. The header features the Hcéres logo (a red tree icon inside a white circle with the text "évaluation et qualité Hcéres") and the tagline "ACCOMPAGNER, ÉVALUER, ANALYSER POUR SOUTENIR LA QUALITÉ DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE". The menu includes "MENU" and a search bar. Below the header, there's a purple decorative banner with abstract shapes. The main content area has a white background. On the left, a sidebar titled "INDICATEURS & ANALYSES" lists "Analyses et études", "Indicateurs et méthodes", "Sources et données", and "Publications OST" (which is highlighted with a red vertical bar). Above the sidebar are five small icons: a magnifying glass, a document, a chart, a gear, and a plus sign. To the right, the title "Publications OST" is displayed above a grid of three publications. Each publication has a thumbnail image and a brief description. The publications are:

- À LA UNE**
La position scientifique de la France dans le monde et en Europe, 2005-2018
- Mesurer le taux d'accès ouvert des publications scientifiques: le cas de la France
- Dynamics of scientific production in the world, in Europe and in France, 2000-2016

An Outline of the Recent Initiatives in the Development and Utilisation of Research and Innovation Indicators at the National Level in International Organisations and Selected Countries

The Thursday Meetings, Council for Science, Technology and Innovation, Cabinet Office, Web Conferencing, Tokyo, 1 July 2021

Tomohiro Ijichi, Faculty of Innovation Studies, Seijo University

研究・イノベーション指標の開発及び利用 – フランス (4/4)



《参考》Springer Handbook of Science and Technology Indicators



- 44の章から構成されており、科学技術活動やその成果の多様性・多面性等を反映して、広範な指標が提案されてきていることが窺える。

おわりに (1/2)

- 研究システムと指標群
 - 把握・理解しようとすることが、
システム内部か、それともシステム外部へのインパクトか
 - インプットだけか、
それともアウトプットやアウトカム、インパクトも含めるか、
さらに枠組み条件等も含めるか
- 各国・地域における課題に応じて
指標群等が設定されているように窺われる

おわりに (2/2)

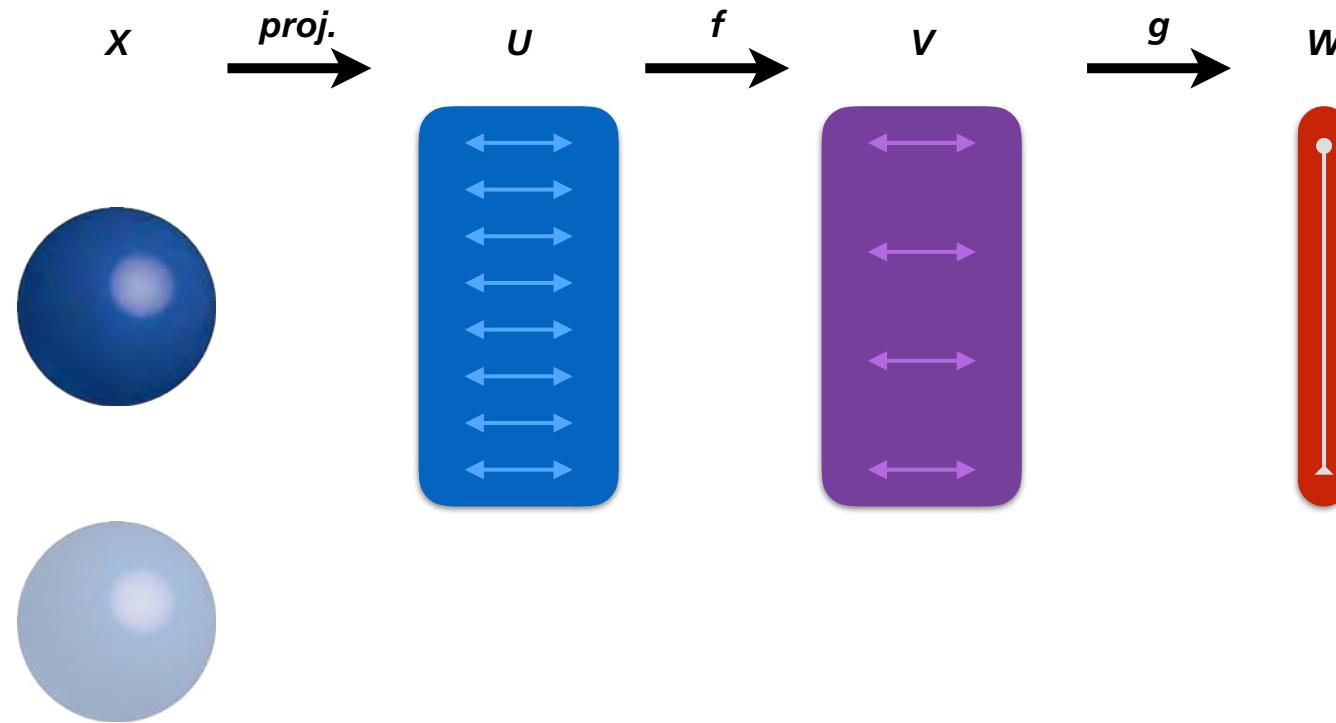
- 研究の活動やその成果・効果等は、
実に多様な形態や方法を有していることから、
それらに関する測定や指標群も、同様に多様であるべきであろう
- 個々の指標が活用されるべき適切なレベル
(国全体<政策>/機関・プログラム<施策>/プロジェクト<事業>等といったレベル)について、
十分な見極めが必要であろう
 - 例. 施策の取組自体に関するものであるのか、若しくは、
施策の取組による直接的な結果に関するものか、又は、
多元的な施策の取組による結果として
これら施策の対象であるシステムの主体による活動の結果等や
システムに関する変化に関するものであるのか、といった別

参考資料

研究・イノベーション指標に係る 全般的留意事項の詳細

指標 (indicator)

- 対象をある観点から捉えて（射影して）指示示す (indicate) もの



- 他の参考文献. 高根正昭, 1979, 『創造の方法学』, 講談社, 978-4061455535.
- 単位を有する; 又は, 無次元量 (比率等)
 - 値自体が直接的な意味を有する

指標 (index) : 指標との違い

- 単位を有しない
 - 値 자체は直接的な意味を有しない
- cf. 尺度水準
 - 指標 (indicator) は、その数値自体に何らかの意味を有し、通常は、単位を有するか無次元量 (パーセンテージ等) で表示される。これに対して、指標 (index) は、その数値自体は、通常は、何らかの統一した変換によって 1 次元の情報 (例. 単なる大小等) に射影して表される順序尺度でしかない場合が多い。

(参考) 尺度水準 (level of measurement)

Incremental progress 漸次的進展	Measure property 測度属性	Mathematical operators 数理演算子	Advanced operations 発展演算	Central tendency 中位傾向
Nominal 名義尺度	Classification, membership 分類, 範疇	=, ≠	Grouping グルーピング	Mode 最頻値
Ordinal 順序尺度	Comparison, level 比較, 水準	>, <	Sorting ソーティング	Median 中央値
Interval 間隔尺度	Difference, affinity 差, 類似性	+, -	Meterstick 尺	Mean, Deviation 平均値, 偏差
Ratio 比率尺度	Magnitude, amount 規模, 量	×, /	Ratio 比率	Geometric mean, Coefficient of variation 幾何平均, 変動係数 (相対標準偏差)

次の資料を改変して作成 : https://en.wikipedia.org/wiki/Level_of_measurement.

測定対象の全体と測定可能な範囲

- 測定の対象とする「全体」を何とするか?
 - 測定の対象とする「全体」の中から、
実際に測定することのできる範囲(枠)を何とするか?
 - 統計調査
 - 対象母集団(target population)
 - 枠(frame), 枠母集団(frame population)
- * 測定の対象の「全体」や「枠」について、よく留意する必要がある.

統計調査における標本 (sample) と誤差 (error)

- 悉皆 (全数) (census) ／標本抽出 (sampling)
 - 標本抽出法
 - 標本の大きさ (sample size) <調査客体数>
 - 標本誤差 (sampling error)
 - 非標本誤差 (non-sampling error)
- * 統計調査によらない場合であっても、
何らかの「全体」からそれを代表するものとして「標本」を抽出する
際は、偏り (bias) がないように留意する必要がある。

測定単位 (measurement unit)

- 測定単位量については、等価値であると仮定している
例。
 - 「金額」
 - 「人数」
 - 「成果数」
- * 「測定単位」とその設定の背後にある暗黙の仮定について、留意する必要がある。
↓
得られた結果について適切に解釈する際に、不可欠となる。

正規化 (normalisation)

- 規模の異なる対象（国・地域、機関等）を相互比較するために、その対象の全体量（例. 人口、従業者数等）やその対象による活動の全体量（例. GDP、売上高等）で除する
- * 国際比較のために、GDP で何らかの活動の全体量を除する場合がよくあるが、その際の分子と分母との関係について、「効率 (efficiency)」等として安易に解釈しないように留意する必要がある。

インプット, アウトプット, アウトカム；パフォーマンス<フロー>

- 活動主体：インプット, アウトプット；パフォーマンス
 - 活動により生み出された成果の受け手：アウトカム
 - 「成果の受け手」の意思等もある
 - 活動主体にとっての活動のインプットやアウトプット：
活動主体は manage できる
 - 活動により生み出された成果の受け手に生じる活動のアウトカム：
活動主体は究極的には manage することができない
- * **活動主体の対象及び範囲について、留意する必要がある。**

フロー、ストック

- フロー (flow):
単位時間 (例. 年) 当たりの量
 - ストック (stock):
ある仮定のもとで、活動主体等に蓄積されていると推定される量
 - ある仮定のもとで、減耗を考慮する
-
-
-
-
-
-
-
-
-
- * たとえば、研究開発支出額 (R&D expenditures) は、ある1年のフローを表しているが、これに対して、研究開発従事者 (R&D personnel) の数は、ある時点 (広義には平均等を取る場合も含む) での量を表す。
 - * 研究開発費 (R&D expenses) は、「費用」概念であることに留意する。

《参考》「支出額 (expenditures)」と「費用 (expenses)」との相違 (1/2)

- 例. 1 億円の研究機器を購入した場合、その年において、
 - 支出額：1 億円
 - 費用：1,000 万円
(仮に減価償却が定額法に基づき、耐用年数(償却期間)が 10 年間で定額法償却率が 0.100 であるとした場合)

《参考》「支出額 (expenditures)」と「費用 (expenses)」との相違 (2/2)

- 「研究開発統計」(我が国でいう「科学技術研究調査」)：
 - 「支出額」について把握する。
(("R&D expenditures" に対して)「科学技術研究費」と呼ばれる。)
 - 補足的に、「費用」についても把握する。
- 租税(研究開発優遇税制措置等)：
 - 「費用」(事業年度において損金の額に算入される)「試験研究費」と呼ばれる。)に基づく。
- 企業会計における会計基準(有価証券報告書等における記載事項)：
 - 「費用」('研究開発費' と呼ばれる。)