

研究・イノベーション学会
科学技術・イノベーション政策分科会／研究戦略・評価分科会

STI 政策に関する「我が国の基本的課題のレビュー」シリーズ (3)

国におけるイノベーション推進体制の形成と変遷： United Kingdom (連合王国) の例

2024 年 3 月 29 日

東京, 政策研究大学院大学／オンライン (Zoom)

成城大学 社会イノベーション学部

伊地知 寛博

アウトライン

- UKにおける企業部門の研究開発・イノベーションの概要
 - UKの国家体系と権限（政策領域との関係）
 - UKにおける主要な科学技術・イノベーション行政体制（概略）
 - Haldane principle と資金配分機関の位置づけ
 - UKRI への再編と Innovate UK の展開
 - 近年の動向
- * 政策等の具体的内容ではなく、体制の形成と変遷に重点を置く。

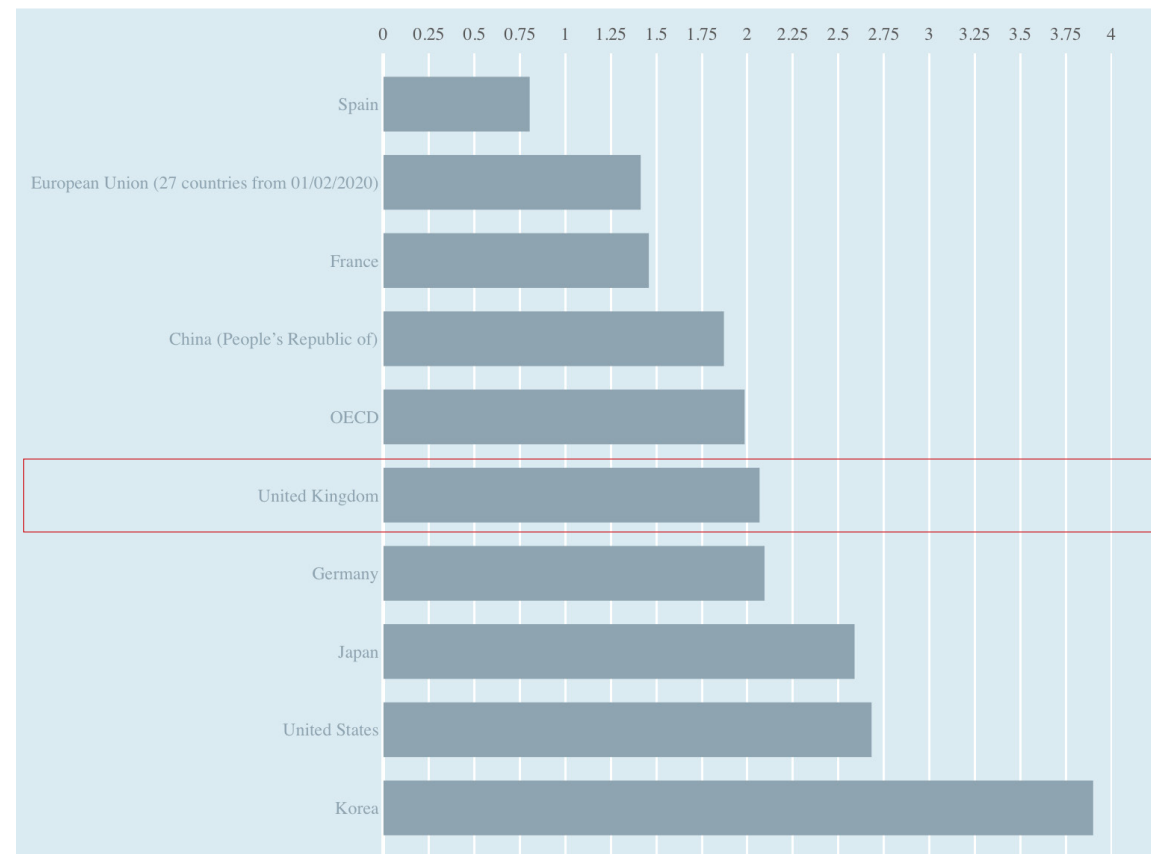
UKにおける企業部門の研究開発・イノベーションの概要 (1/3)

- 企業部門による研究開発支出額は、主要諸国では「中位」である。

Main Science and Technology Indicators (MSTI database) [i](#)

Frequency of observation: Annual • Measure: Business Enterprise Expenditure on R&D (BERD) • Time period: 2021

Combined unit of measure: Percentage of GDP



© Main Science and Technology Indicators (MSTI database) OECD

UKにおける企業部門の研究開発・イノベーションの概要 (2/3)

European Innovation Scoreboard 2023

- European Innovation Scoreboard 2023 では, 以下のように示される:



United Kingdom

	Performance relative to EU in 2023	Performance change 2016-2023	Performance change 2022-2023
SUMMARY INNOVATION INDEX	114.8	1.3	-2.6
Human resources	161.5	4.2	-3.4
Doctorate graduates	208.3	4.4	-8.0
Population with tertiary education	142.8	15.0	0.0
Lifelong learning	128.4	-9.9	0.0
Attractive research systems	170.6	13.4	-0.8
International scientific co-publications	158.9	70.5	0.0
Most cited publications	142.0	-3.4	-1.5
Foreign doctorate students	241.1	-1.4	0.0
Digitalisation	39.1	0.0	0.0
Broadband penetration	33.8	0.0	0.0
People with above basic overall digital skills	N/A	N/A	N/A
Finance and support	122.6	48.9	0.0
R&D expenditures in the public sector	64.1	-1.6	0.0
Venture capital expenditures	134.9	76.7	0.0
Government support for business R&D	176.0	89.1	0.0
Firm investments	76.2	-6.5	0.0
R&D expenditure in the business sector	83.5	0.0	0.0
Non-R&D Innovation expenditures	70.6	-20.7	0.0
Innovation expenditures per employee	73.6	0.0	0.0
Use of information technologies	120.2	-7.3	0.0
Enterprises providing ICT training	107.5	-29.3	0.0
Employed ICT specialists	133.3	13.8	0.0
Innovators	48.1	-58.2	0.0
Product innovators (SMEs)	91.0	-8.4	0.0
Business process innovators (SMEs)	10.5	-111.2	0.0
Linkages	206.5	19.3	0.0
Innovative SMEs collaborating with others	216.6	-13.6	0.0
Public-private co-publications	216.8	74.9	0.0
Job-to-job mobility of HRST	193.8	23.5	0.0
Intellectual assets	70.4	-20.0	-7.8
PCT patent applications	95.0	-3.3	-0.7
Trademark applications	71.2	-22.3	-8.0
Design applications	34.1	-39.3	-16.6
Employment impacts	147.3	15.2	0.0
Employment in knowledge-intensive activities	175.9	33.7	0.0
Employment in innovative enterprises	123.8	-2.3	0.0
Sales impacts	106.8	-9.9	-10.2
Medium and high-tech goods exports	67.6	-18.5	-24.0
Knowledge-intensive services exports	147.8	30.0	-1.3
Sales of innovative products	119.2	-46.3	0.0
Environmental sustainability	116.1	6.5	0.2
Resource productivity	192.0	45.1	0.0
Air emissions by fine particulate matter	84.7	2.5	0.0
Environment-related technologies	85.9	-14.6	0.5

The **UNITED KINGDOM** is a **Strong Innovator** with performance at 114.8% of the EU average. Performance is above the average of the Strong Innovators. Performance is increasing at a rate lower than that of the EU (8.5%-points). The country's performance lead over the EU is becoming smaller.

Relative strengths

Foreign doctorate students
Public-private co-publications
Innovative SMEs collaborating with others
Doctorate graduates
Job-to-job mobility of HRST

Relative weaknesses

Business process innovators
Broadband penetration
Design applications
R&D expenditures in the public sector
Medium and high-tech goods exports

Strong increases since 2016

Government support for business R&D
Venture capital expenditures
Design applications

Strong decreases since 2016

Business process innovators
Sales of innovative products
Enterprises providing ICT training

Strong increases since 2022

Environment-related technologies

Strong decreases since 2022

Medium and high-tech goods exports
Design applications
Trademark applications

The second column shows performance relative to that of the EU in 2023. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2023; light green: between 100% and 125%; light orange: between 70% and 100%; dark orange: below 70%. The next columns show performance change over time between 2016 and 2023 and between 2022 and 2023, with scores relative to those of the EU in 2016. Positive (negative) performance changes are shown in green (red).

UKにおける企業部門の研究開発・イノベーションの概要 (3/3)

- 世界的に巨大な研究開発型企業が基盤を置いているわけではない。

World rank	Company	Country	Region	Industry-ICB3 sector name	R&D 2021 (€ million)	R&D one-year growth (%)	Net sales (€ million)	Net sales one-year growth (%)	R&D intensity (%)
20	ASTRAZENECA	UK	Row	Pharmaceuticals & Biotechnology	7110.2	34.0	33036.4	40.6	21.5
36	GSK	UK	Row	Pharmaceuticals & Biotechnology	5501.2	3.5	40463.3	0.0	13.6
94	HSBC	UK	Row	Banks	2095.2	22.7	46440.0	1.1	4.5
163	ATLASSIAN CORPORATION	UK	Row	Software & Computer Services	1233.6	45.1	2474.7	34.2	49.8
169	LLOYDS BANKING	UK	Row	Banks	1206.3	2.6	19362.2	7.9	6.2
209	ROLLS-ROYCE	UK	Row	Aerospace & Defence	964.3	-9.6	13738.8	-2.0	7.0
220	APTIV	UK	Row	Automobiles & Parts	909.4	0.6	13789.5	19.5	6.6
231	UNILEVER	UK	Row	Food Producers	847.0	5.9	52444.0	3.4	1.6
247	BT	UK	Row	Fixed Line Telecommunications	785.2	12.4	24730.6	-2.3	3.2
268	SHELL	UK	Row	Oil & Gas Producers	719.6	-10.1	230888.2	44.8	0.3
325	NATWEST	UK	Row	Banks	568.2	37.6	12766.2	-0.3	4.5
393	EXPERIAN	UK	Row	Support Services	456.5	54.3	5551.8	17.1	8.2
395	MICRO FOCUS INTERNATIONAL	UK	Row	Software & Computer Services	454.0	-2.9	2560.4	-3.4	17.7
482	RECKITT BENCKISER	UK	Row	Household Goods & Home Construction	371.3	8.7	15697.1	-5.4	2.4
488	RELX	UK	Row	Media	367.7	-2.5	8592.3	1.9	4.3
536	SAGE	UK	Row	Software & Computer Services	333.3	11.5	2189.6	-3.0	15.2
537	BAT	UK	Row	Tobacco	332.1	6.5	30464.3	-0.4	1.1
561	SMITH & NEPHEW	UK	Row	Health Care Equipment & Services	314.3	16.0	4601.8	14.3	6.8
590	BAE SYSTEMS	UK	Row	Aerospace & Defence	287.0	5.2	23154.2	1.3	1.2
604	AMDOCS	UK	Row	Software & Computer Services	276.3	11.0	3786.5	2.9	7.3
646	MELROSE INDUSTRIES	UK	Row	Industrial Engineering	253.8	-21.6	9212.6	-12.9	2.8
705	BP	UK	Row	Oil & Gas Producers	234.9	-19.9	139271.5	-12.5	0.2
722	ASTON MARTIN LAGONDA GLOBAL HOLDINGS	UK	Row	Automobiles & Parts	226.8	5.0	1299.2	79.0	17.5
747	JOHNSON MATTHEY	UK	Row	Chemicals	217.1	0.5	19202.1	3.3	1.1
766	INTERNATIONAL GAME TECHNOLOGY	UK	Row	Travel & Leisure	210.1	24.6	3675.6	17.5	5.7
805	EYGS	UK	Row	Support Services	198.7	24.3	4263.4	93.2	4.7
824	DYSON TECHNOLOGY	UK	Row	General Industrials	194.0	-22.2	5785.5	2.3	3.4
846	CHANEL	UK	Row	Personal Goods	187.9	53.8	13704.0	14.3	1.4
889	NOVOCURE	UK	Row	Pharmaceuticals & Biotechnology	177.7	52.5	472.4	8.2	37.6
894	ROYALTY PHARMA	UK	Row	Support Services	176.7	66.1	151.2	19.4	116.8
947	TRITON	UK	Row	Real Estate Investment & Services	165.1	-1.6	501.6	-25.2	32.9
961	LIVANOVA	UK	Row	Health Care Equipment & Services	161.9	20.0	914.1	10.8	17.7
983	SYNEOS HEALTH UK	UK	Row	Pharmaceuticals & Biotechnology	157.3	47.5	946.3	47.9	16.6
1038	PLAYTECH	UK	Row	Software & Computer Services	148.8	-6.0	1252.0	3.6	11.9
1080	SENSATA TECHNOLOGIES HOLDING	UK	Row	Electronic & Electrical Equipment	140.4	21.0	3373.5	25.5	4.2
1153	RED BULL TECHNOLOGY	UK	Row	Automobiles & Parts	131.1	-14.8	374.2	-6.5	35.0

Formation and Transition of the Governmental System for Promoting Innovations: A Case of the United Kingdom

Meeting, Science, Technology and Innovation Policy Group (STIPG) and Research Strategy and Evaluation Group (RSEG), Japan Society for Research Policy and Innovation Management (JSRPIM), GRIPS, Tokyo and Online (Zoom), 29 March 2024

Tomohiro Ijichi, Faculty of Innovation Studies, Seijo University

UK の国家体系と権限 (政策領域)

国と議会・政府	政策領域	
	研究	教育 (高等教育*を含む)
United Kingdom	✓	
England		✓
Scotland		✓
Wales		✓
Northern Ireland		✓

* 上の表に示すような関係のため、たとえば、England での高等教育機関に対する研究のための資金配分機関である Research England に対応する他の country での機関は、それぞれ以下のとおりとなる：

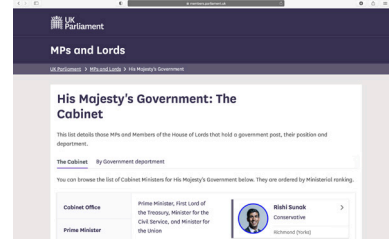
- Scottish Funding Council
- Higher Education Funding Council for Wales
- Department for the Economy, Northern Ireland

UKにおける主要な科学技術・イノベーション行政体制（概略）

Cabinet

Prime Minister

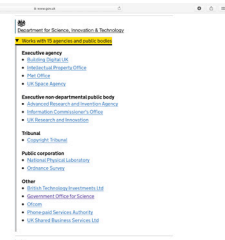
Cabinet Ministers



Government Chief Scientific Adviser

Co-Chairing

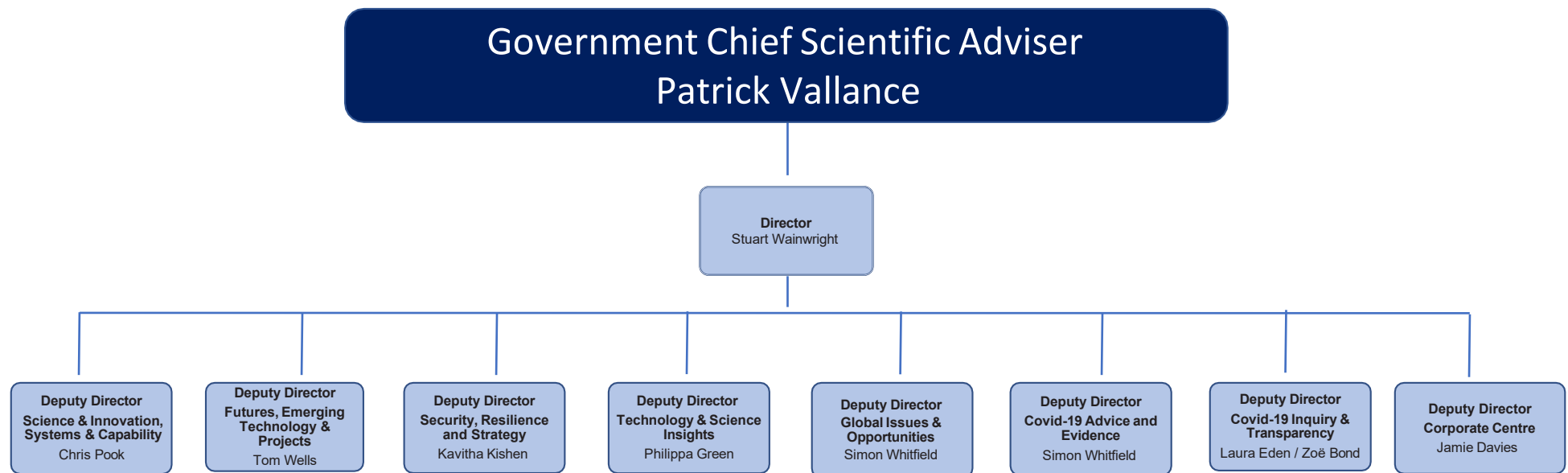
Other Departments etc.



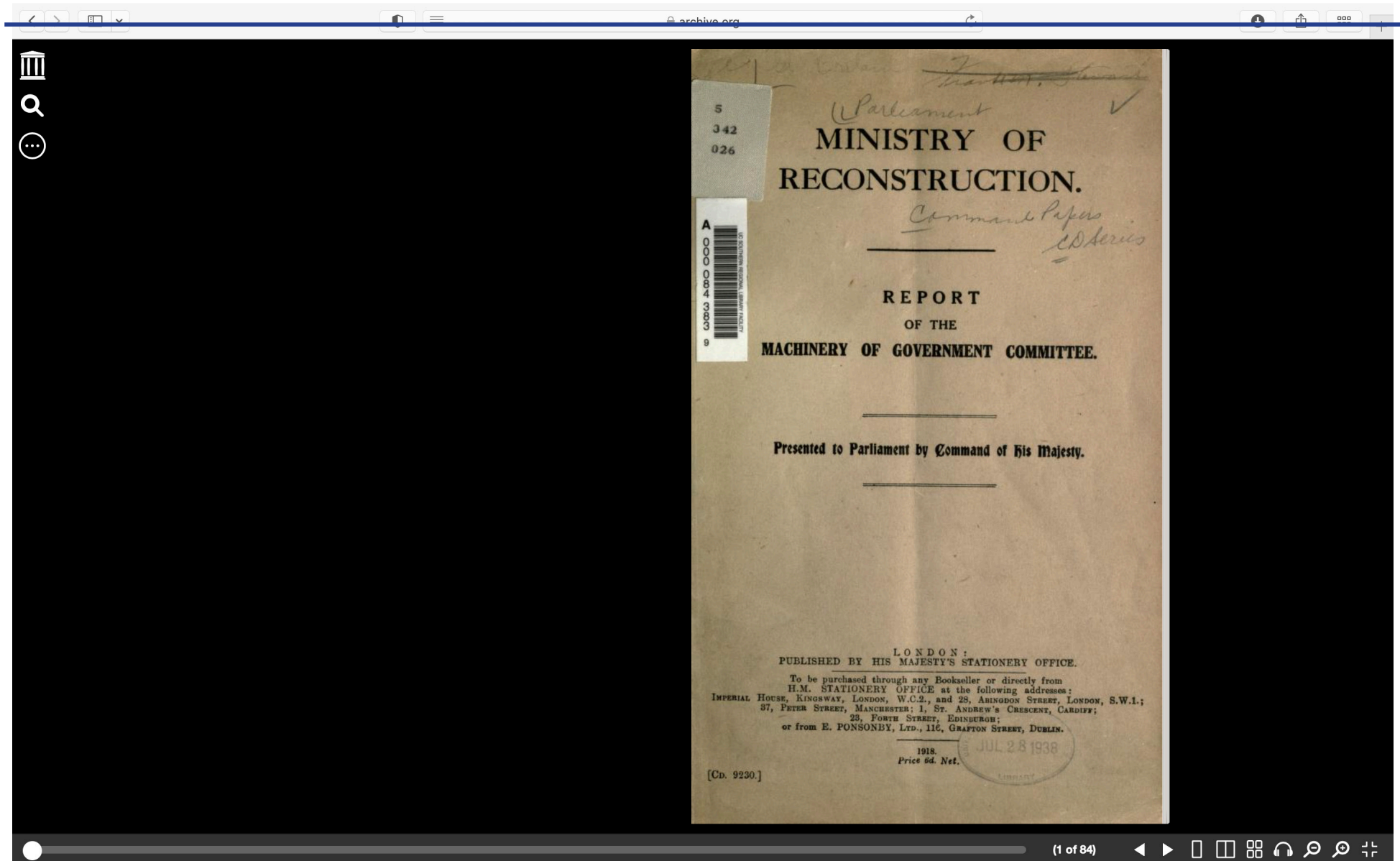
(参考) Government Office for Science の所掌範囲



Government
Office for Science



Haldane principle (1/4)



Science and Technology Act 1965

Status: This is the original version (as it was originally enacted).



Science and Technology Act 1965

1965 CHAPTER 4

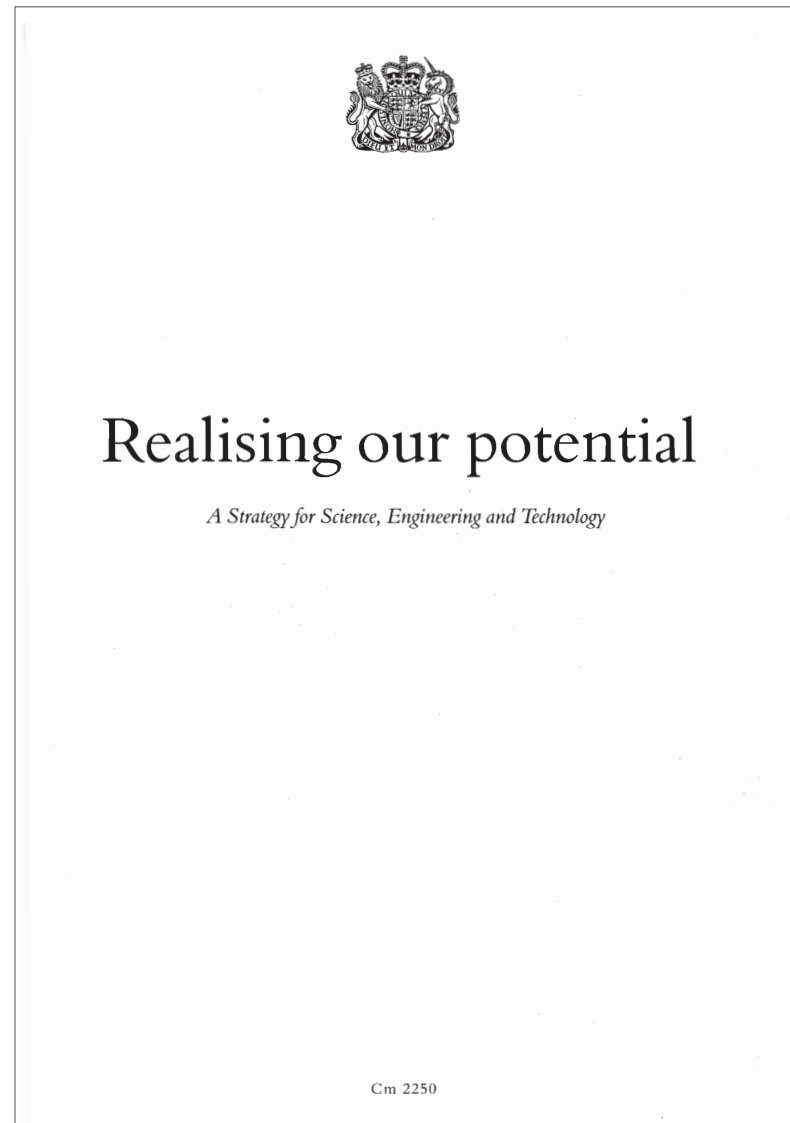
An Act to make further provision with respect to the responsibility and powers in relation to scientific research and related matters of the Secretary of State, the Minister of Technology and certain chartered bodies and other organisations, and for purposes connected therewith. [23rd March 1965]

BE IT ENACTED by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1 The Research Councils

- (1) The following bodies established or to be established by Royal Charter shall be Research Councils for the purposes of this Act, that is to say,—
 - (a) the Agricultural Research Council and the Medical Research Council; and
 - (b) if Her Majesty is pleased to establish such a body, each of the two bodies respectively referred to in this Act as the Science Research Council and the Natural Environment Research Council; and
 - (c) any other body which is established for purposes connected with scientific research and consists of persons appointed by a Minister of the Crown and which is declared by Order in Council to be established as a Research Council for purposes of this Act.
- (2) The Science Research Council shall be a body established wholly or mainly for objects consisting of or comprised in the following, namely, the carrying out of scientific research, the facilitating, encouragement and support of scientific research by other bodies or persons or any description of bodies or persons and of instruction in the sciences and technology, and the dissemination of knowledge in the sciences and technology.
- (3) The Natural Environment Research Council shall be a body established wholly or mainly for objects consisting of or comprised in the following, namely, the carrying out of research in the earth sciences and ecology, the facilitating, encouragement

“Realising Our Potential” (1993) – White Paper



Lambert Review of Business-University Collaboration (2003)



Lambert Review of Business-University Collaboration

Final Report

December 2003

「産学協働・技術移転」の展開と Technology Strategy Board (TSB) の設置

- 1975 年から, Knowledge Transfer Partnerships (KTPs) が行われている。
- 2004 年, Department of Trade and Industry (DTI) 内の助言機関として, TSB が設置される。
- 2007 年, 助言機関と同一の名称で, 設置形態を助言機関から Science and Technology Act 1965 に規定する Research Council の一つとする資金配分機関としての TSB が, 他の多くの Research Councils の本部と同じ場所に設置される。
- 学際研究等に向けて, Research Councils 等の中で共同で推進するプログラム等も展開される。
- Research Councils 間で共通する事務等の統合を図ることも構想される。

Higher Education and Research Act 2017 – UKRI への再編

Status: This is the original version (as it was originally enacted).



Higher Education and Research Act 2017

2017 CHAPTER 29

An Act to make provision about higher education and research; and to make provision about alternative payments to students in higher or further education. [27th April 2017]

BE IT ENACTED by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

PART 1

THE OFFICE FOR STUDENTS

Establishment of the Office for Students

1 The Office for Students

- (1) A body corporate called the Office for Students is established.
- (2) In this Act that body is referred to as “the OfS”.
- (3) Schedule 1 contains further provision about the OfS.

2 General duties

- (1) In performing its functions, the OfS must have regard to—
 - (a) the need to protect the institutional autonomy of English higher education providers,
 - (b) the need to promote quality, and greater choice and opportunities for students, in the provision of higher education by English higher education providers,
 - (c) the need to encourage competition between English higher education providers in connection with the provision of higher education where that

Haldane principle (2/4)



House of Commons
Innovation, Universities,
Science and Skills Committee

Putting Science and Engineering at the Heart of Government Policy

Eighth Report of Session 2008–09

Volume I

HC 168-I



House of Commons
Science and Technology
Committee

Putting Science and Engineering at the Heart of Government Policy: Government Response to the Innovation, Universities, Science and Skills Committee's Eighth Report of Session 2008–09

Ninth Special Report of Session
2008–09

*Ordered by The House of Commons
to be printed 21 October 2009*

HC 1036
Published on 26 October 2009
by authority of the House of Commons
London: The Stationery Office Limited
£0.00

Haldane principle (3/4)



Higher Education and Research Act 2017

UK Public General Acts > 2017 c. 29 > Part 3 > Funding and directions > Section 103

Table of Contents **Content** Explanatory Notes ? Impact Assessments ? More Resources ?

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What Version ?

Latest available (Revised)

✓ Original (As enacted)

Advanced Features ?

Show Explanatory Notes for Sections

▼ Opening Options ?

▼ More Resources

Status:
This is the original version (as it was originally enacted).

103 Haldane principle, balanced funding and advice from UKRI

- (1) The Secretary of State must have regard to the matters mentioned in subsection (2) when—
 - (a) deciding to make a grant under section 101,
 - (b) determining any terms and conditions of a grant under that section, or
 - (c) giving a direction under section 102.
- (2) The matters are—
 - (a) the Haldane principle, where the grant or direction mentioned in subsection (1) is in respect of functions exercisable by one or more of the Councils mentioned in section 95(1) pursuant to arrangements under that section,
 - (b) the balanced funding principle, in any case, and
 - (c) any advice provided to the Secretary of State by UKRI about the allocation of funding in relation to its functions.
- (3) The “Haldane principle” is the principle that decisions on individual research proposals are best taken following an evaluation of the quality and likely impact of the proposals (such as a peer review process).
- (4) The “balanced funding principle” is the principle that it is necessary to ensure that a reasonable balance is achieved in the allocation of funding as between—
 - (a) functions exercisable by the Councils mentioned in section 95(1) pursuant to arrangements under that section, and
 - (b) functions exercisable by Research England pursuant to arrangements under section 97.

Haldane principle (4/4) – 法律における定義

- The “Haldane principle” is the principle that decisions on individual research proposals are best taken following an evaluation of the quality and likely impact of the proposals (such as a peer review process).

“Haldane原則”とは、個々の研究提案に関する決定は、(ピア・レビュー・プロセスのような) 提案の質及び見込まれる影響の評価に従って最良になされるという原則である。

Catapult Network Review (2021)



Department for
Business, Energy
& Industrial Strategy

Catapult Network Review

How the UK's Catapults can strengthen
research and development capacity

BEIS Research Paper Number 2021/013

April 2021



Department for
Science, Innovation
& Technology

2023 Update to the 'Catapult Network Review'

An update on developments since the
Catapult Network Review April 2021

September 2023

UK Innovation Strategy (2021)



UK Innovation Strategy

Leading the future by creating it

July 2021

Innovate UK の展開

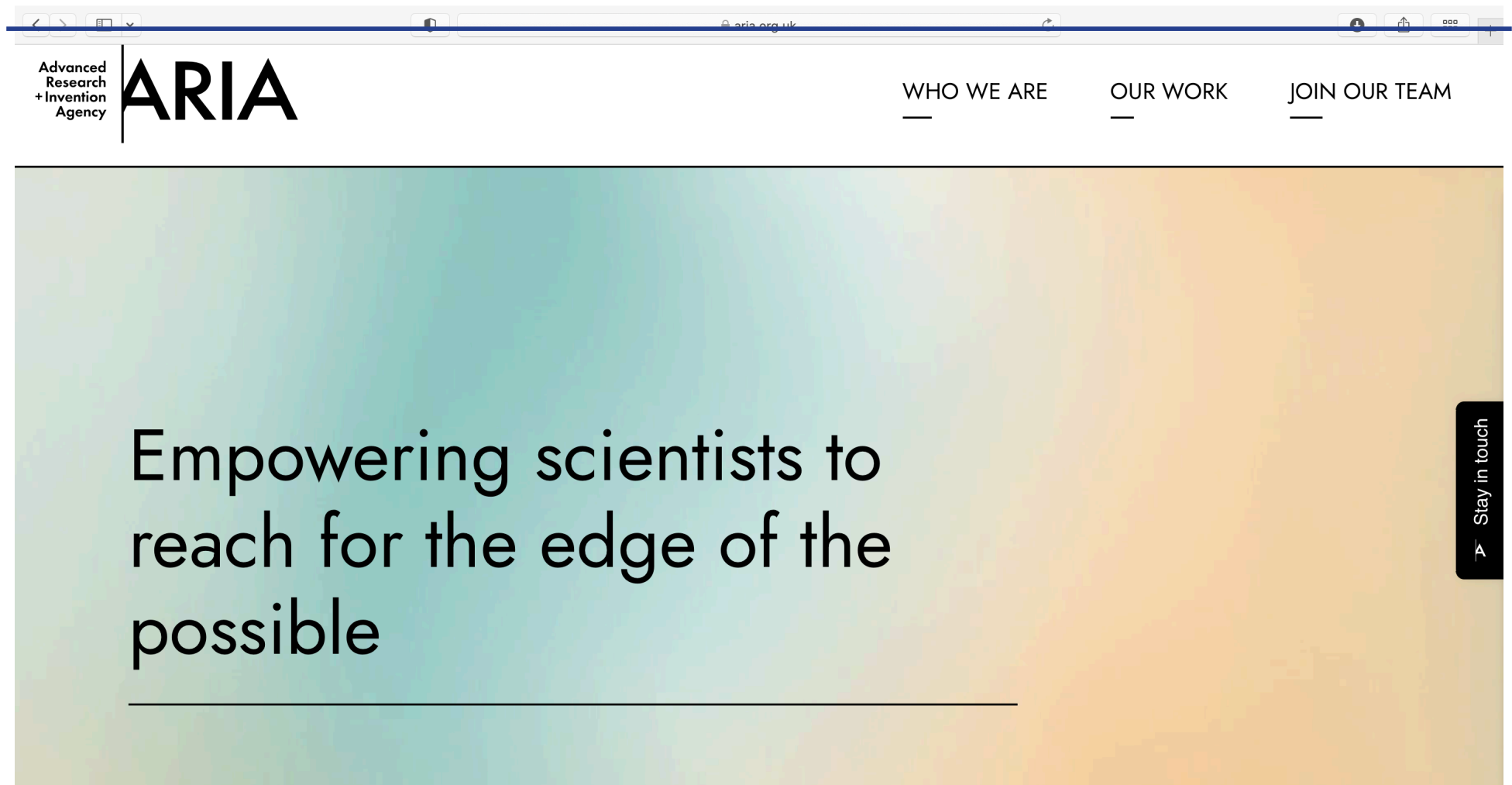


Ex-Innovate UK KTN



The Knowledge Transfer Network Limited,
operating as Innovate UK Business Connect

Advanced Research and Innovation Agency (ARIA) の設置



ARIA is an R&D funding agency built to
unlock scientific and technological

Many of society's most important advances have stemmed
from those with the foresight to pursue new capabilities that



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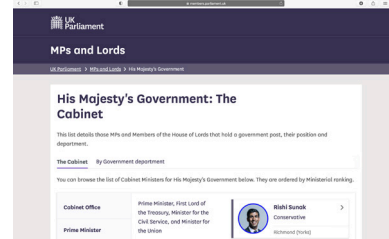
Tomohiro Ijichi, Faculty of Innovation Studies, Seijo University

UKにおける主要な科学技術・イノベーション行政体制（概略）（再掲）

Cabinet

Prime Minister

Cabinet Ministers



Government Chief Scientific Adviser

Co-Chairing

Other Departments etc.

