



ELSEVIER



Innovative approach to measuring research performance

Supporting decision makers improve Discovery, Collaboration, and Evaluation

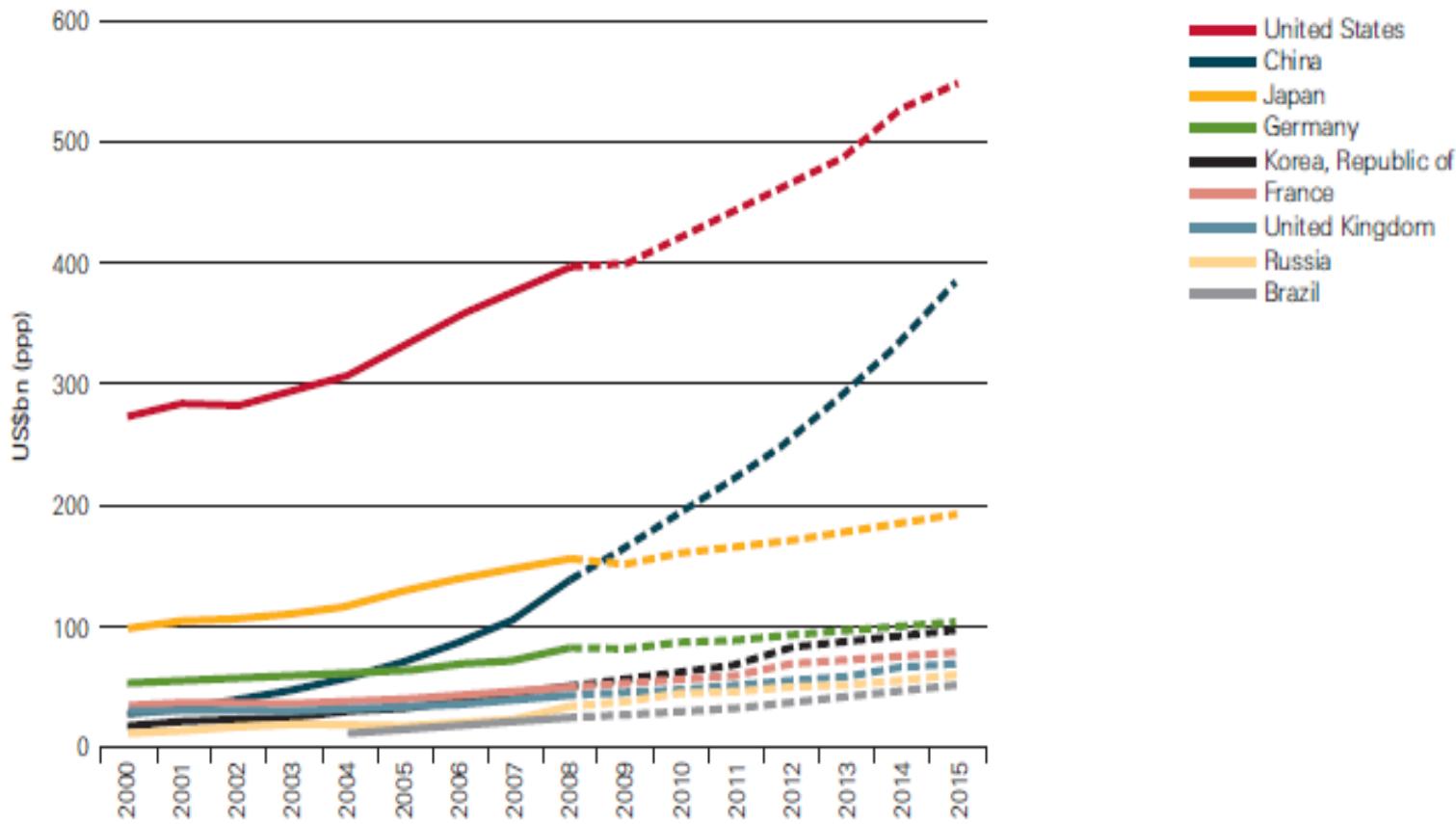
Michiel Kolman, PhD

Senior Vice President

Global Academic Relations

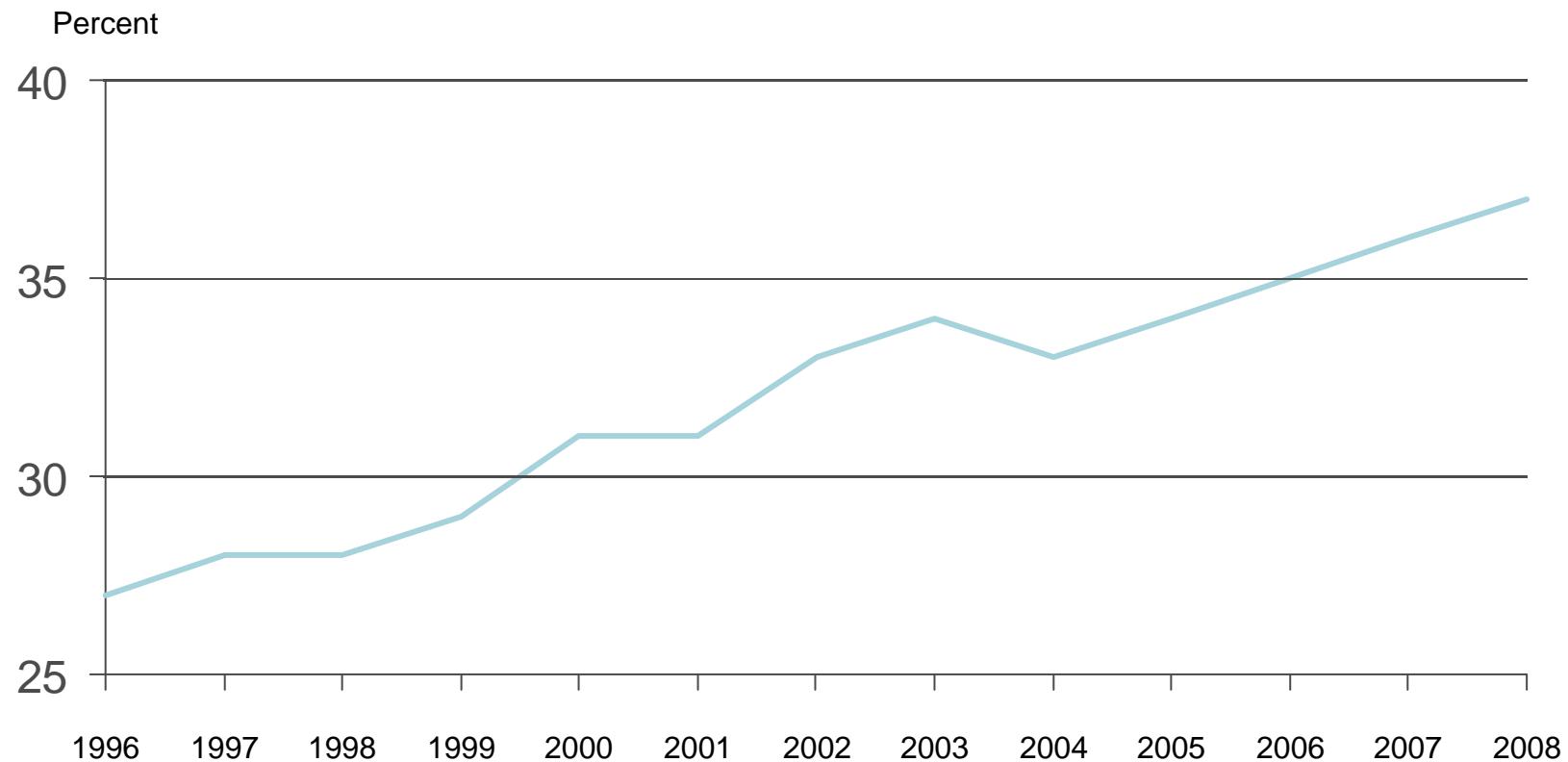
May 2012

Increase in Global Competition

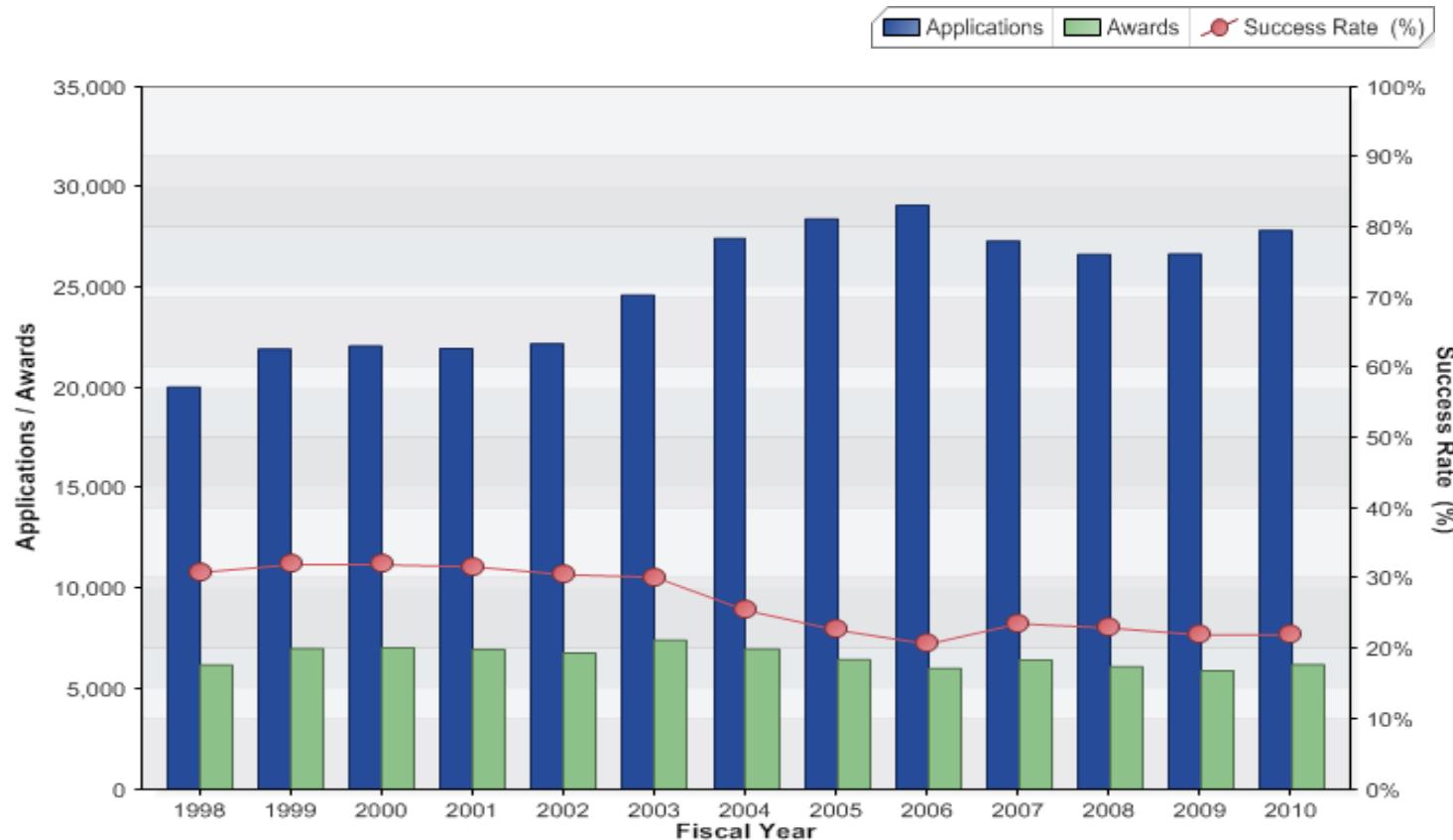


Increase in Global Collaboration

Proportion of the world's papers produced with more than one international author



Increased Competition for Limited Resources



Increase in applications, but lower awards and success rate

What we hear around the globe...

A

*How do we identify
niche areas to nurture
or continue to invest in?*

B

*Who do we target for
recruitment or retention?*

C

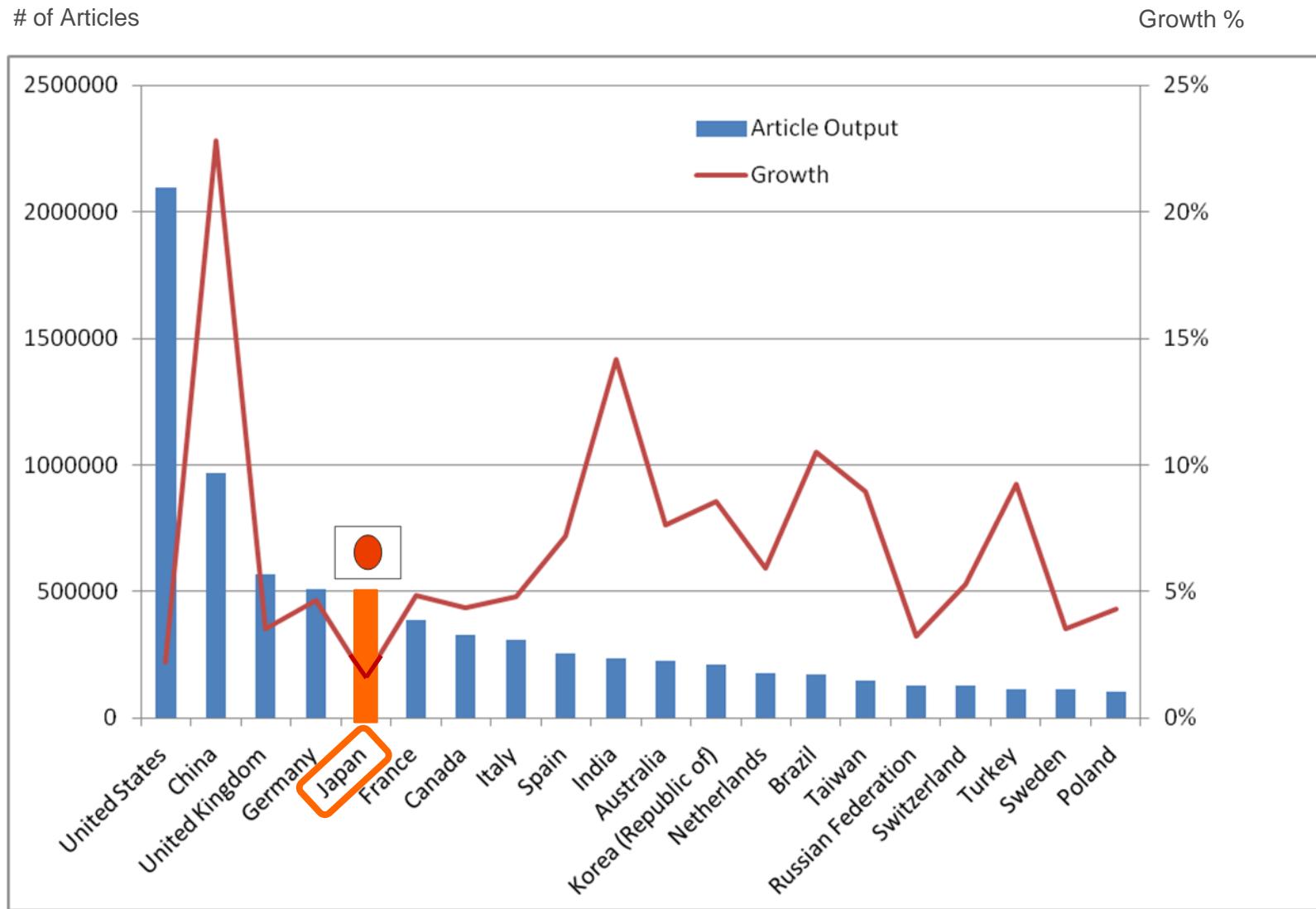
*How we assemble
multi-disciplinary teams?*

Comparison of Top 20 Countries

- Research Output / Growth
- Citation per Article
- State of the Art

Research Output / Growth of Top 20 Countries

(Based on number of articles published between 2006-2010)

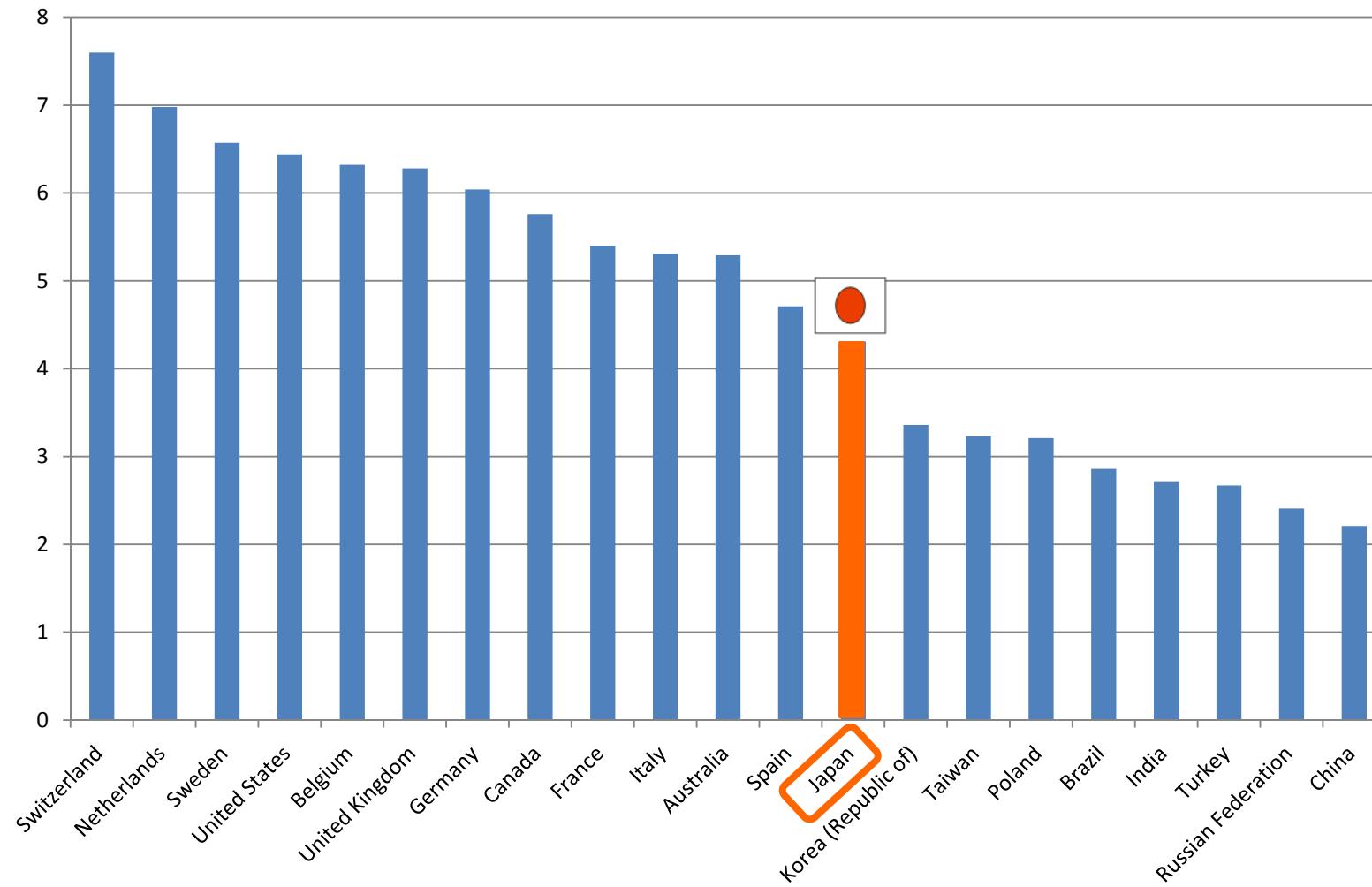


Source: SciVal Spotlight 2010 (May 2012), based on articles from SciVal Spotlight for co-citation analysis.

Citation per Article of Top 21 Countries

(Based on number of articles published between 2006-2010)

Citation per Article

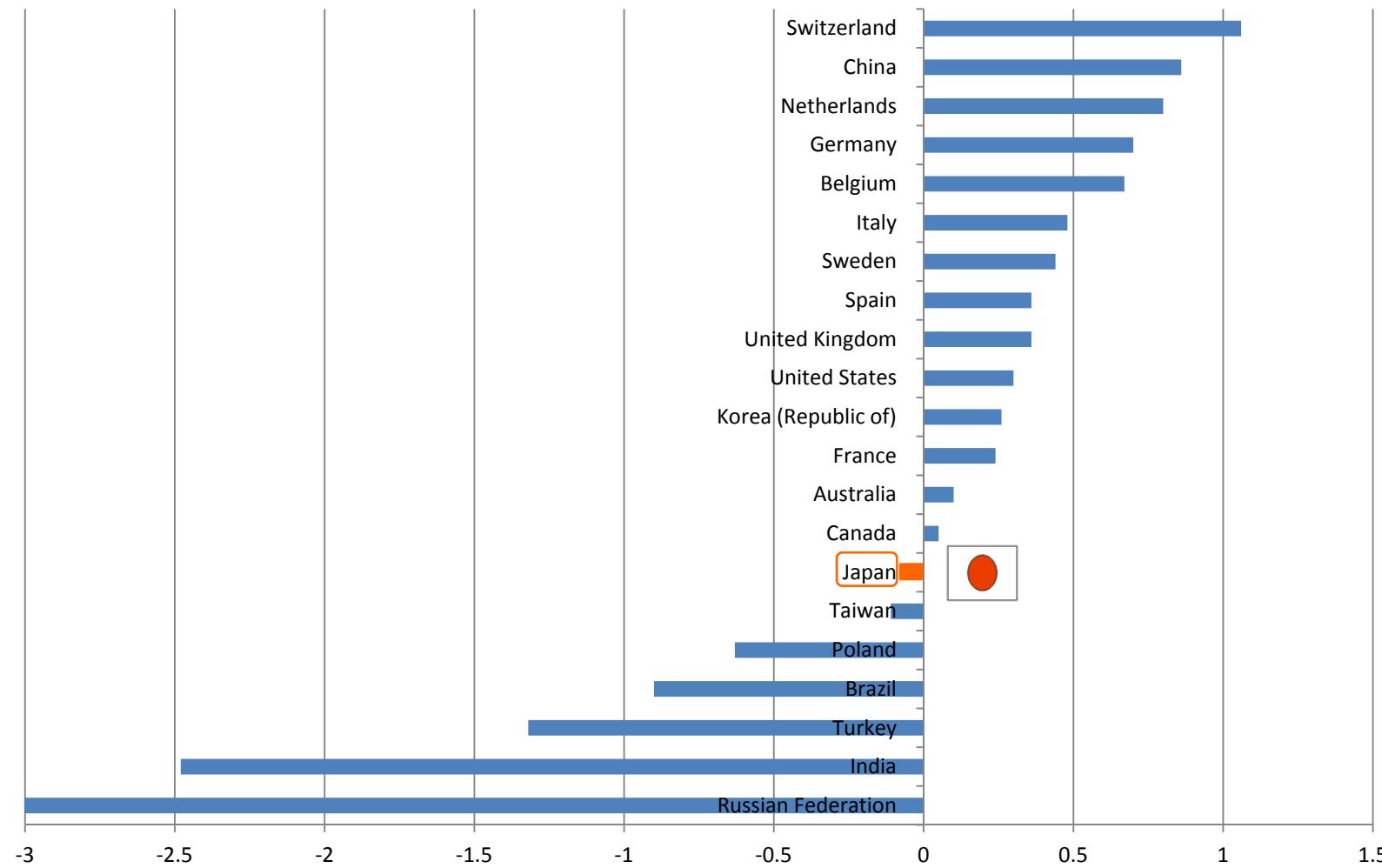


Source: SciVal Spotlight 2010 (May 2012) , based on articles from SciVal Spotlight for co-citation analysis.

State of the Art of Top 21 Countries (Based on number of articles published between 2006-2010)

Recency of the Work Cited

Average



Source: SciVal Spotlight 2010 (May 2012) , based on articles from SciVal Spotlight for co-citation analysis.

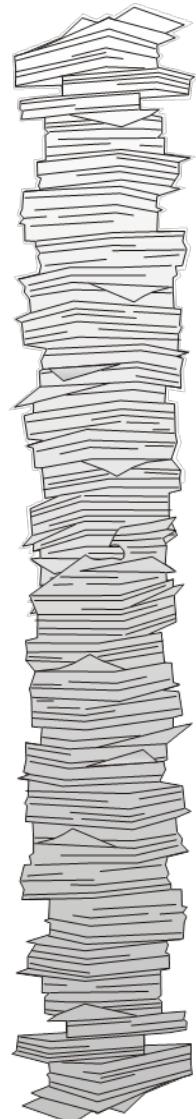


Research Competency of Japan – High Level Overview

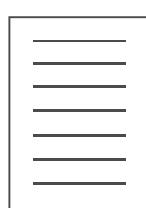
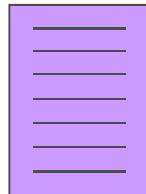
Measuring research strengths: Scival Spotlight maps

Peer-reviewed

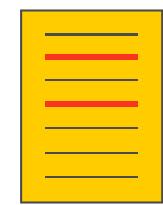
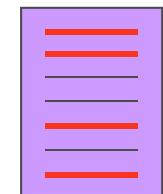
materials



References

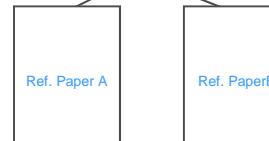


'Highly-cited' References

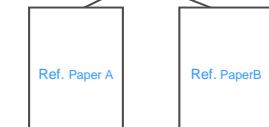


Co-Citation Analyses

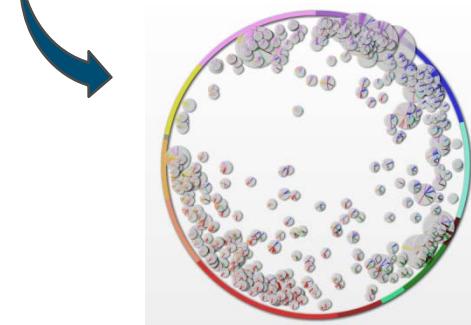
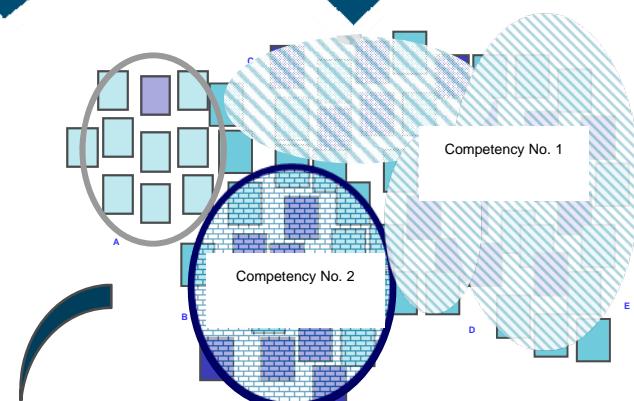
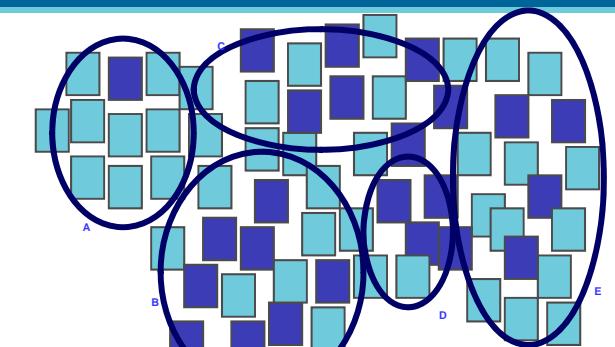
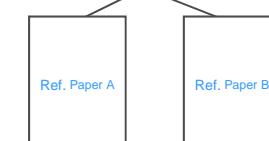
Paper 1



Paper 2



Paper 3



Three criteria to define Leadership

Definition ①: “Publication” Leadership

- An institution is publication leader in a field when its *Relative Article Share* is larger than 1.0. When the Relative Article Share of a university is 1.203, this means that it has 20.3% more published articles in this field than the institution ranked #2.

Definition ②: “Reference” Leadership

- An institution is reference leader in a field when its *Relative Reference Share* is larger than 1.0. When the *Relative Reference Share* of a university is 2.37. This means that it has 137% more reference articles than the institution ranked #2.

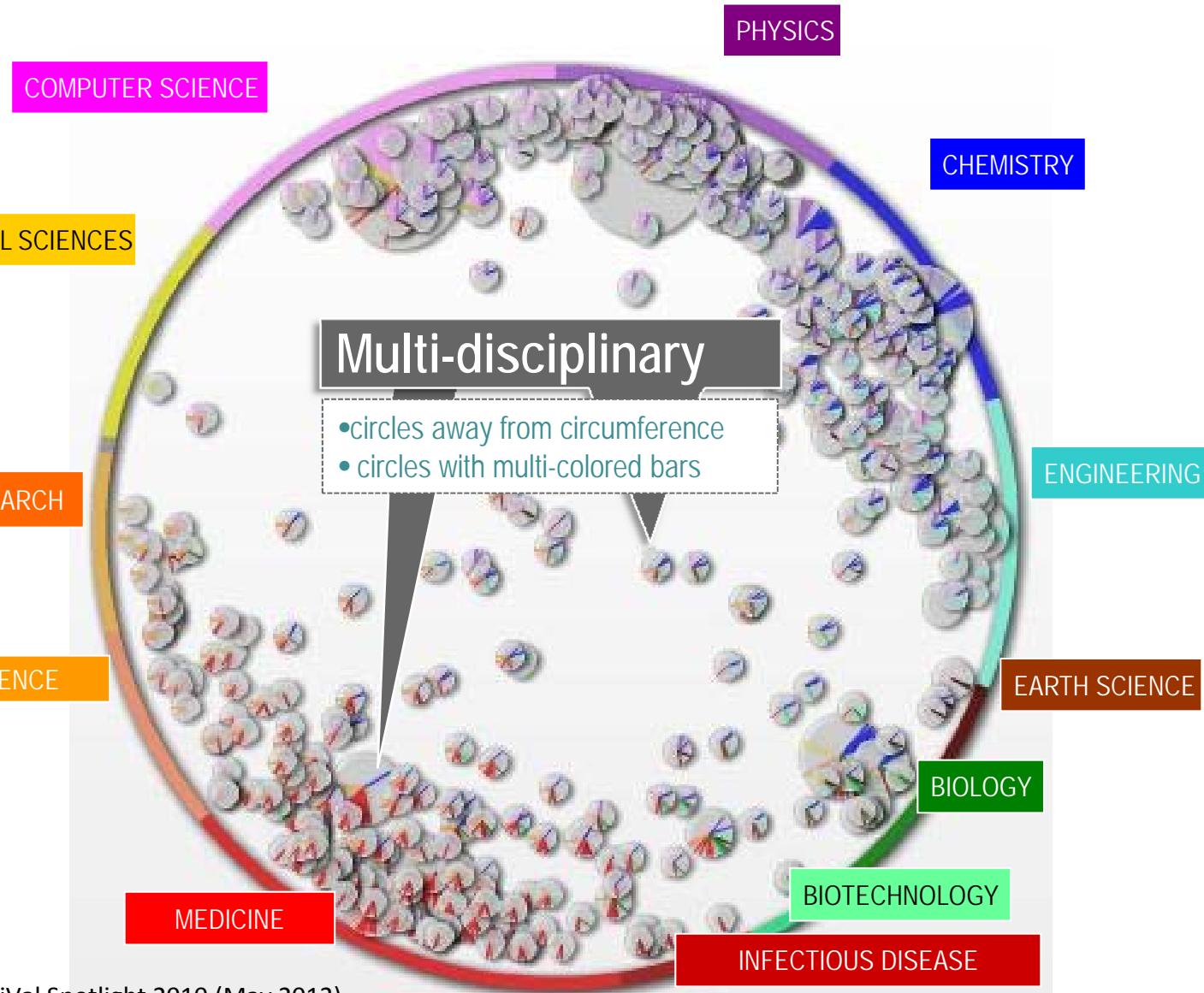
Definition ③: “Innovation” Leadership

- The State of the Art (innovation) value indicates the recency of the work cited. A positive value (> 0) means the work cited by that institution was published more recently than the average recency of work cited in this field.

Defined as “Distinctive Competency” when it’s a significantly large field of research, and either one of leadership criteria is filled.



Spotlight Map for Japan as a Nation



Source: SciVal Spotlight 2010 (May 2012)

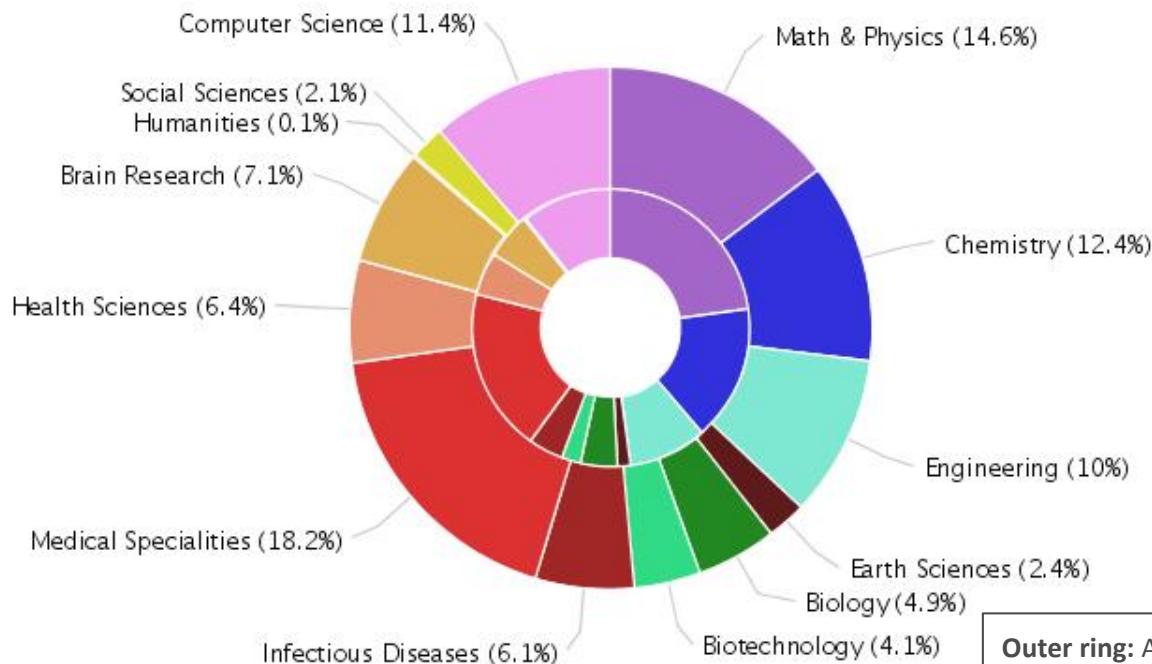


National Publication Overview (2006-2010)

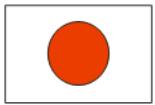
Publication Output Overview

Articles from Japan	564,076
Articles in Competencies of Spotlight	183,419 (32.5%)
Number of competency	398

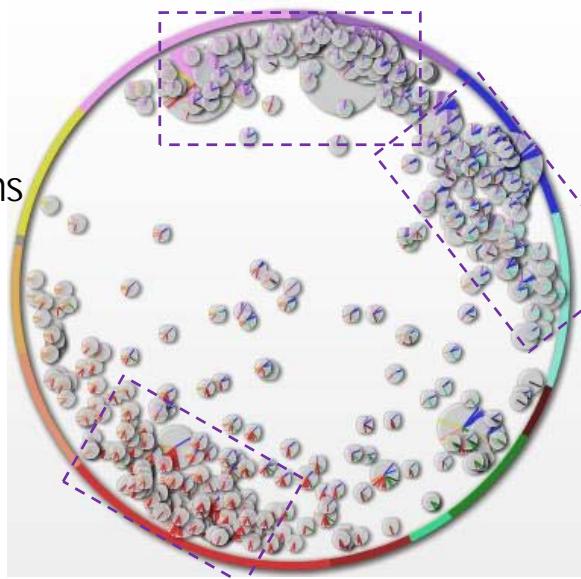
Subject Area Overview



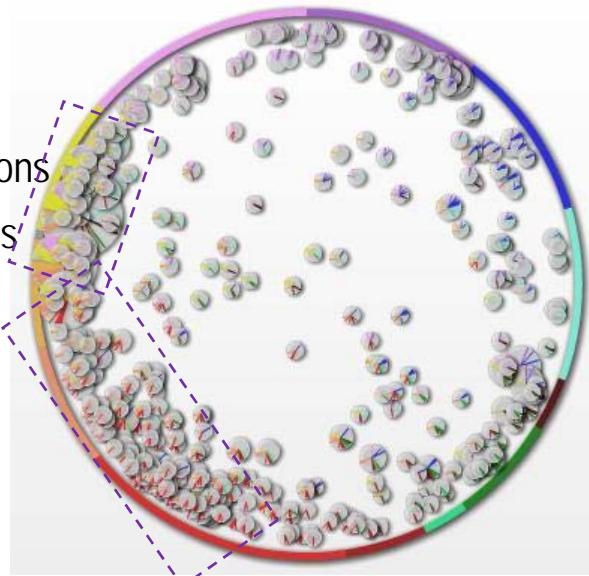
Other Countries' Maps



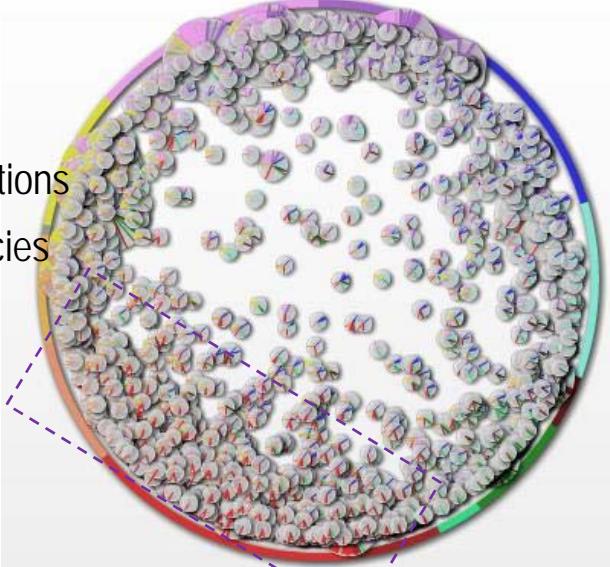
564,076 Publications
398 Competencies



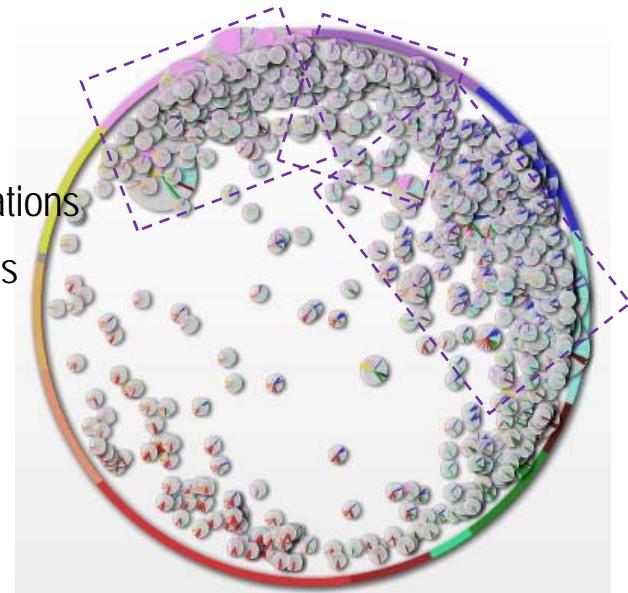
656,143 Publications
418 Competencies



2,306,011 Publications
1,817 Competencies



1,250,460 Publications
885 Competencies





Research Competency of Japan – Looking into Institutions and Research Area



Research Area where Japan outperforms others

Filter competency of Japan

Leadership of this country

- Publication leader (195)
- Reference leader (212)
- Innovation leader (128)

Article share of this country

- Growing share (184)
- Declining share (214)

Trend of field (worldwide)

- Growing field (282)
- Declining field (116)

Robotic Systems

Professor, Keio Univ

Associate Professor, Keio Univ

Nuclear Physics

Chief Scientist, Riken

Professor, Osaka Univ

Endoscopy (Stomach Neoplasm)

Associate Professor / Univ of Tokyo

Medical Doctor / National Cancer Center

Carbon, Electrochemistry

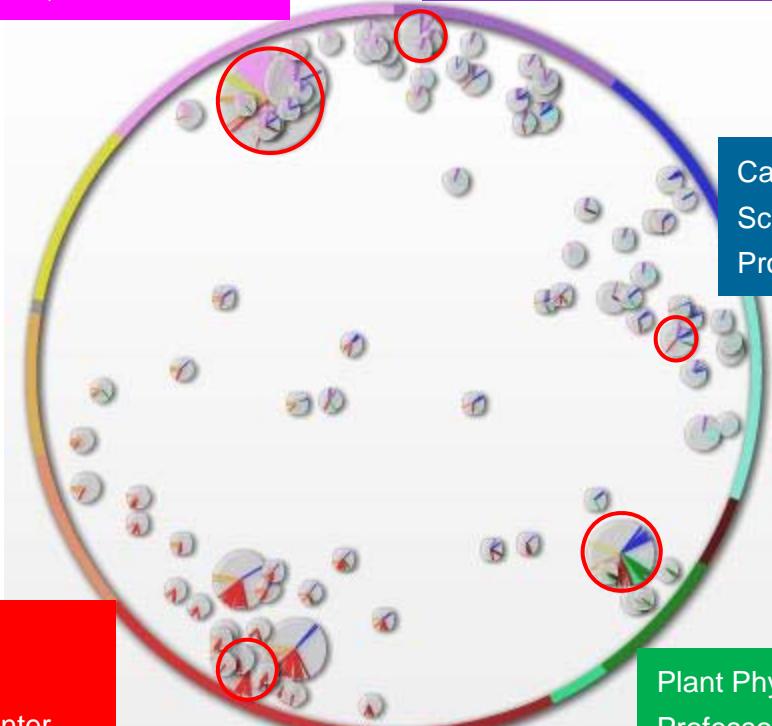
Scientist / NIMS

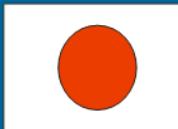
Professor / Waseda Univ

Plant Physiology

Professor / Kobe Univ

Professor / Kyoto Univ





Zoom In: Research Competency #2 Robotic Systems

Competency DC #2 Robots; Control; Experiments

Summary

Trends

Disciplines

Countries

Institutions

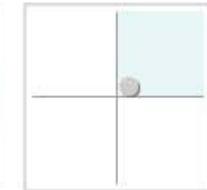
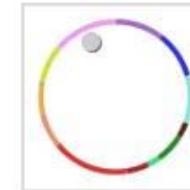
Authors

Compare

Methodology

Articles published in this field (2006-2010)

	Articles	Annual growth	Citations
Articles published worldwide	46,729	+10.0% ▲	107,377
Articles published in Japan	8,032	+10.6% ▲	12,681



Why is this field a distinctive competency of Japan?

Show the contribution to this field from: Japan all contributing countries worldwide

Top keywords for Japan

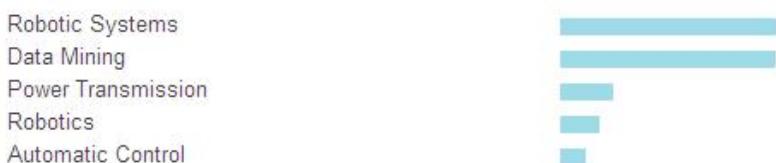


Top authors from Japan

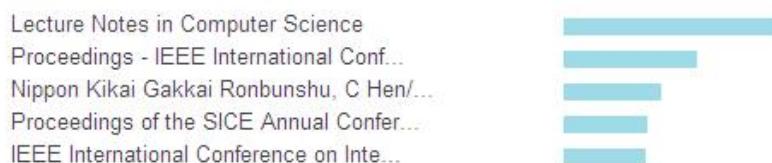


[details »](#)

Top disciplines for Japan



Top journals for Japan

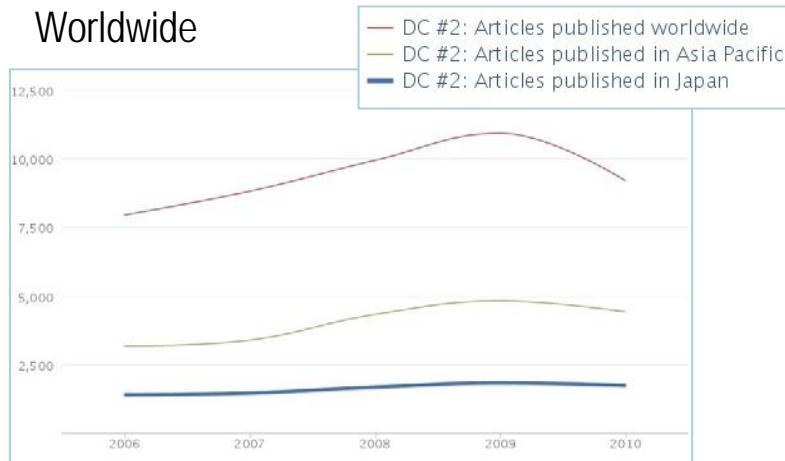




Zoom In: Research Competency #2 Robotic Systems

Trend of Articles Published

Worldwide



Top Countries



Top Countries

Country		Articles published in this field	Fractionalized article count
1. Japan	Asia Pacific	8,032	5,581.9
2. United States	North America	10,481	4,118.3
3. China	Asia Pacific	5,643	2,922.1
4. Germany	Europe	3,149	1,384.9
5. United Kingdom	Europe	3,201	1,217.8
6. Korea (Republic of)	Asia Pacific	2,059	1,097.3
7. France	Europe	2,282	1,048.7
8. Canada	North America	2,216	964.9
9. Italy	Europe	1,747	709.2
10. Spain	Europe	1,461	639.4

Source: SciVal Spotlight 2010 (May 2012)



Zoom In: Research Competency #2 Robotic Systems

Top Institutions: World

Institution			Articles published in this field	Fractionalized article count
1. Keio University	Japan		630	519.4
2. University of Tokyo	Japan		742	496.8
3. Osaka University	Japan		450	296.6
4. National Institute of Advanced Industrial Science and Technology	Japan		425	296.3
5. Harbin Institute of Technology	China		361	224.2
6. Kyoto University	Japan		350	217.5
7. Korea Advanced Institute of Science and Technology	Korea (Republic of)		365	209.9
8. Tokyo Institute of Technology	Japan		316	200.0
9. Carnegie Mellon University	United States		429	195.6
10. Advanced Telecommunications Research Institute International (ATR)	Japan		284	192.2

Top Authors: World

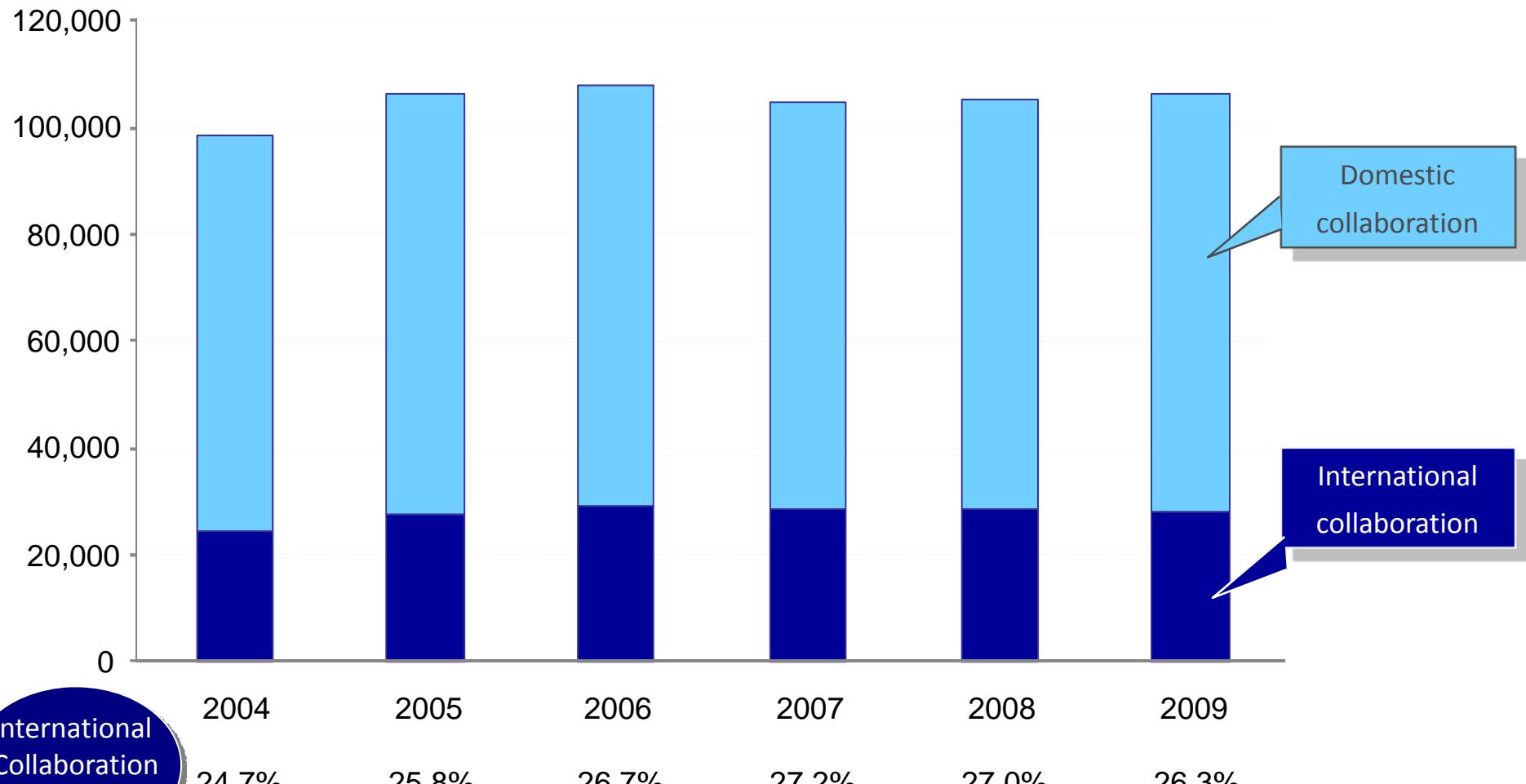
Author			Articles published in this field	Fractionalized article count
1. Ohishi K.	Keio University; Nagaoka University of Technology; 1 more		250	226.8
2. Katsura S.	Keio University; Nagaoka University of Technology		126	119.8
3. Ishiguro H.	Osaka University; Advanced Telecommunications Research Institute International (ATR); 1 more		107	71.8
4. Takanishi A.	Waseda University		77	65.3
5. Ohishi K.	Nagaoka University of Technology; Keio University		66	62.0
6. Hagita N.	Advanced Telecommunications Research Institute International (ATR); Osaka University; 1 more		79	61.8
7. Kosuge K.	Tohoku University; Nihon University		62	53.2
8. Ohka M.	Nagoya University; Universiti Teknologi MARA		51	43.7

Opportunity for New Collaborations

Overview: Research Output from Japan

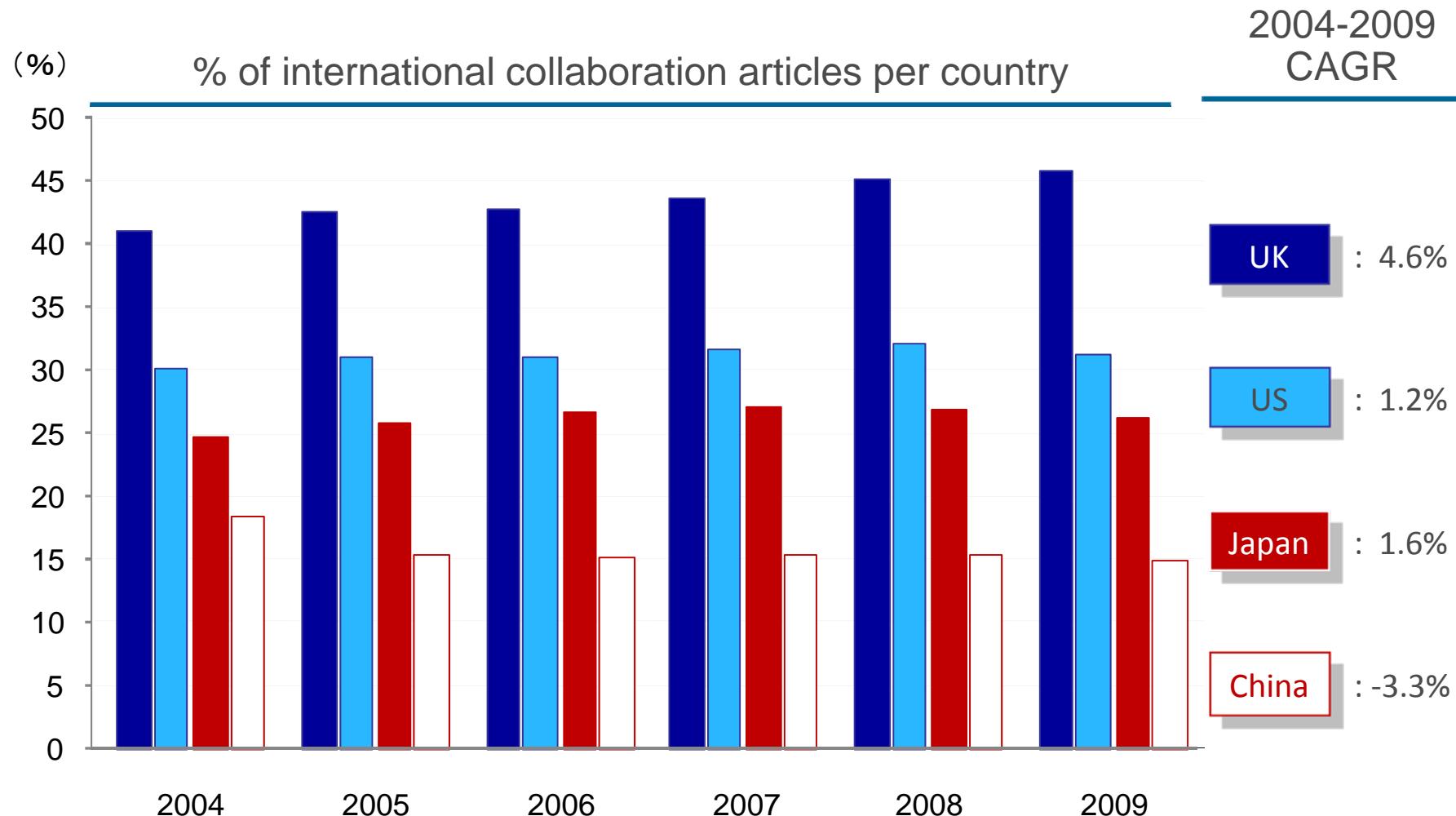
Trend of inter/national collaboration

of article



Overview: County comparison (1/2)

Trend of international collaboration – Rate (%)



Compound Average Growth rate (CAGR) of Japan is similar to US

Evaluating UK Research Performance: BIS Report



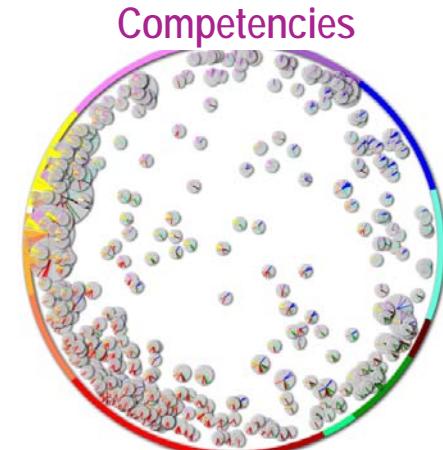
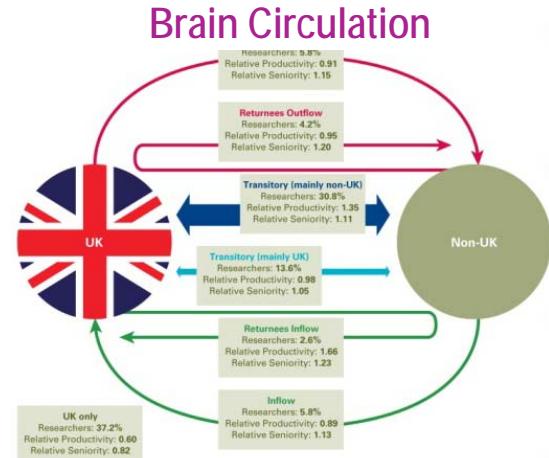
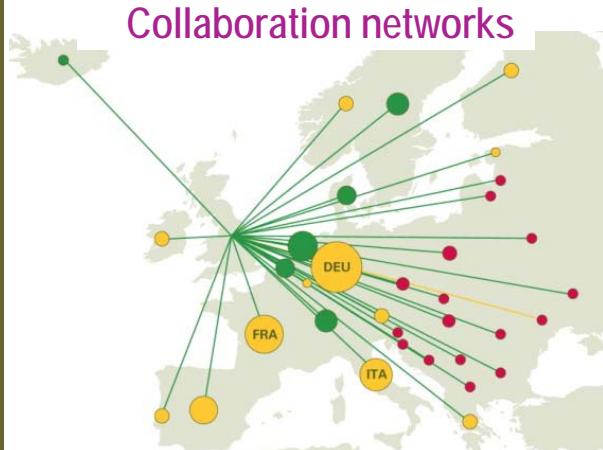
BIS report inputs: quantitative

Data

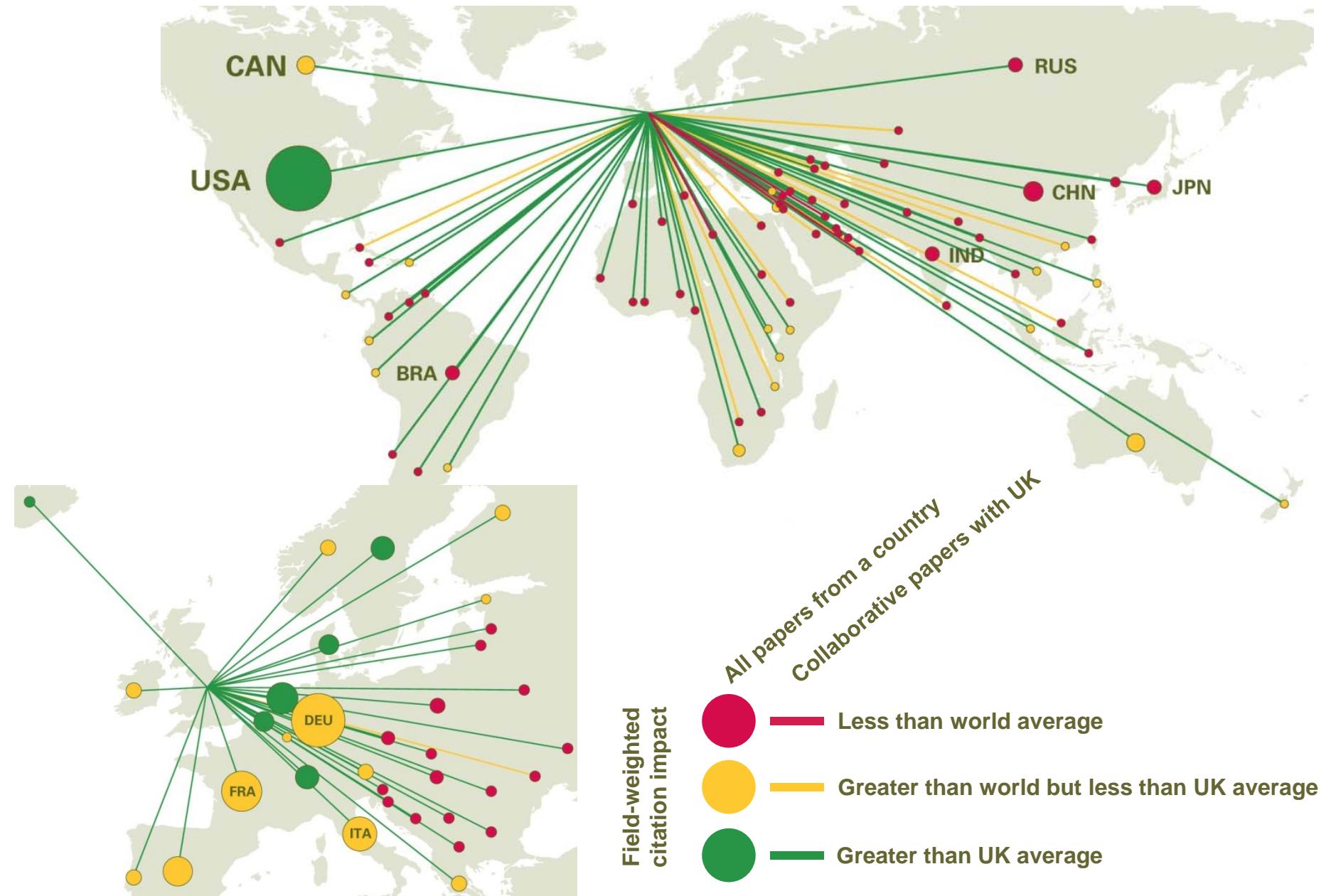
- Scopus
- ScienceDirect usage
- OECD
- HESA
- WIPO
- AUTM
- HEFCE

- 112 database tables, 2.3 Gigabytes
- 20MM+ articles, 200MM+ citations, 3B downloads
- 45MM indicator values
- Largest indicator: 6MM+ values

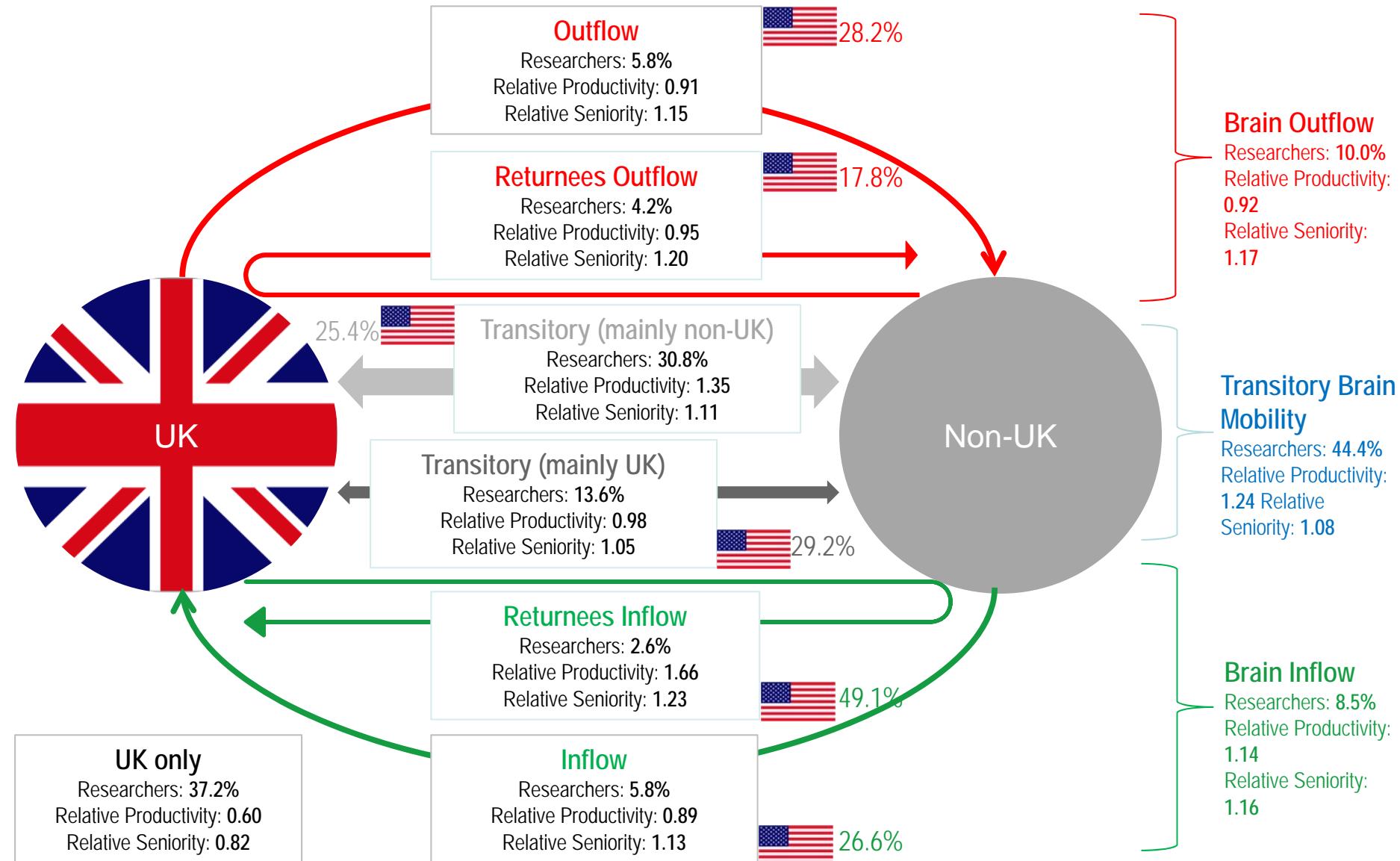
Analyses



UK: collaboration networks



Monitor brain circulation



Thank you for your attention!

Appendix – Data Source

SciVerse Scopus

The largest abstract and citation database of research information



Universiteit Leiden

Centre for Science and
Technology Studies
Social and Behavioural Sciences



ORGANISATION
FOR ECONOMIC
CO-OPERATION
AND DEVELOPMENT



Perspektywy

SciVerse Scopus

sciencedirect scopus

- **19,500+** active titles from more than **5,000** international publishers including coverage of:

- Life Sciences
- Health Sciences
- Physical Sciences
- Social Sciences
- Arts and Humanities

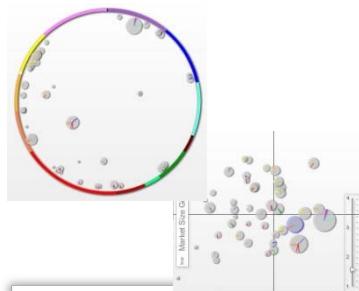
- **Independent journal metrics**

- **SNIP:** The Source-Normalized Impact per Paper corrects for differences in the frequency of citation across research fields.
- **SJR:** The SCImago Journal Rank reflects prestige of source - value of weighted citations per document.

SciVal - 研究機関の課題をあらゆる視点から支援する

SciValは、研究環境を取り巻くさまざまなニーズに応えるための包括的なウェブソリューションです。

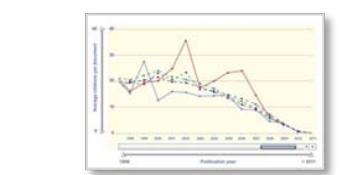
世界と比べて研究の強みを有する研究テーマを可視化する



機関内の全研究者の研究活動を的確に把握する



個人やチームの研究業績を客観的な測定値で評価する



外部資金獲得の機会を最大化する



SciVal でわかること:

- 強みとなる研究領域の把握
 - 研究が活発な領域の特定
 - 機関内の専門家の特定
 - 共著ネットワークの把握
 - 若手研究者の特定
- 仮想研究チームのモデル化
- 外部資金獲得の機会の特定
- データに基づく研究業績評価等