



ELSEVIER

Data-Driven Approaches to Enhance Research Strategy and Partnerships *- an Elsevier Perspective*

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The World of R&D in 2022

\$2.5 trillion invested in R&D

Japan punch above it's weight
3rd largest economy in the world
1.5 % of global population
3.9% of global scholarly output
But..

No. 7 in global scholarly output
No. 13 in Global Innovation Index
⇔ *How to accelerate innovation?*

Content of Talk

- “Not just a publisher” – introducing Elsevier
- Analytics around Japanese Institutions
- Proxies of economic impact of universities



Elsevier is the world's largest science information company



Global customer base

- 14,000 academic and government institutions
- 71 of the top 100 R&D driven corporations
- 5,000+ healthcare institutions
- 180+ countries and regions



Leading scientific publisher

- 2,800 journals publish 18% of world's articles, account for 28% of all citations
- 99% of Nobel Laureates in science published with Elsevier since 2000



Sophisticated data analytics

- Big data platform: 87m publication records, 100m patents, 6m grants, 20m datasets
- Expertise in research and health domain
- Technology and analytics: Extractive and generative Artificial Intelligence

Research Intelligence for Assessment & Strategy

Elsevier has been using AI for years

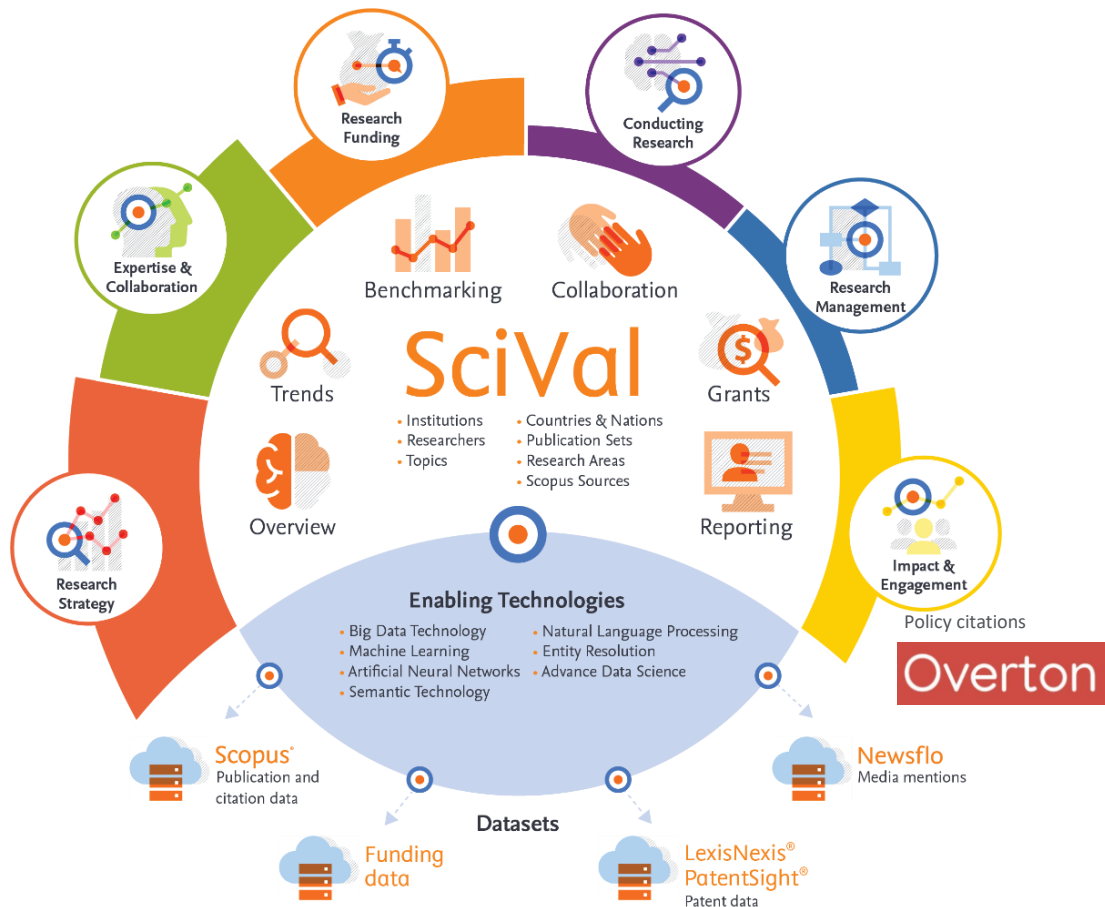
Machine Learning (ML): statistical techniques that help machines perform tasks without explicit programming by training with data

Extractive AI: designed to recognize patterns, extract pre-existing data, and make predictions

Now introducing
Generative AI

Scopus[®] AI

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What would you like to learn more about?

What are key challenges for industry academia collaboration in Japan?



What are key challenges for industry academia collaboration in Japan?

Industry-academia collaboration in Japan faces several identified in the abstracts:

- Conflicts between academia and companies:** Conflicts have been highlighted as barriers to promoting academia-industry collaboration, attributed to the vulnerability of innovation creation and insufficient awareness concerning human resources for industry.
- Relevance and practicality:** Industry faces challenges in applying academic research results due to issues of relevance and practicality. Academic research result formats are compared to popular non-academic formats, such as conferences and blogs, highlighting the strengths and weaknesses of each.
- Agility and accessibility:** Industry and academia have generally found it difficult to cooperate. Factors making collaboration activities in private universities include tight budgets, and grants-in-aid for scientific research.

In conclusion, the key challenges for industry-academia collaboration between academia and companies, issues of relevance and accessibility between industry and academia. These challenges can improve collaboration between the two sectors.



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Landing real-world impact in research evaluation

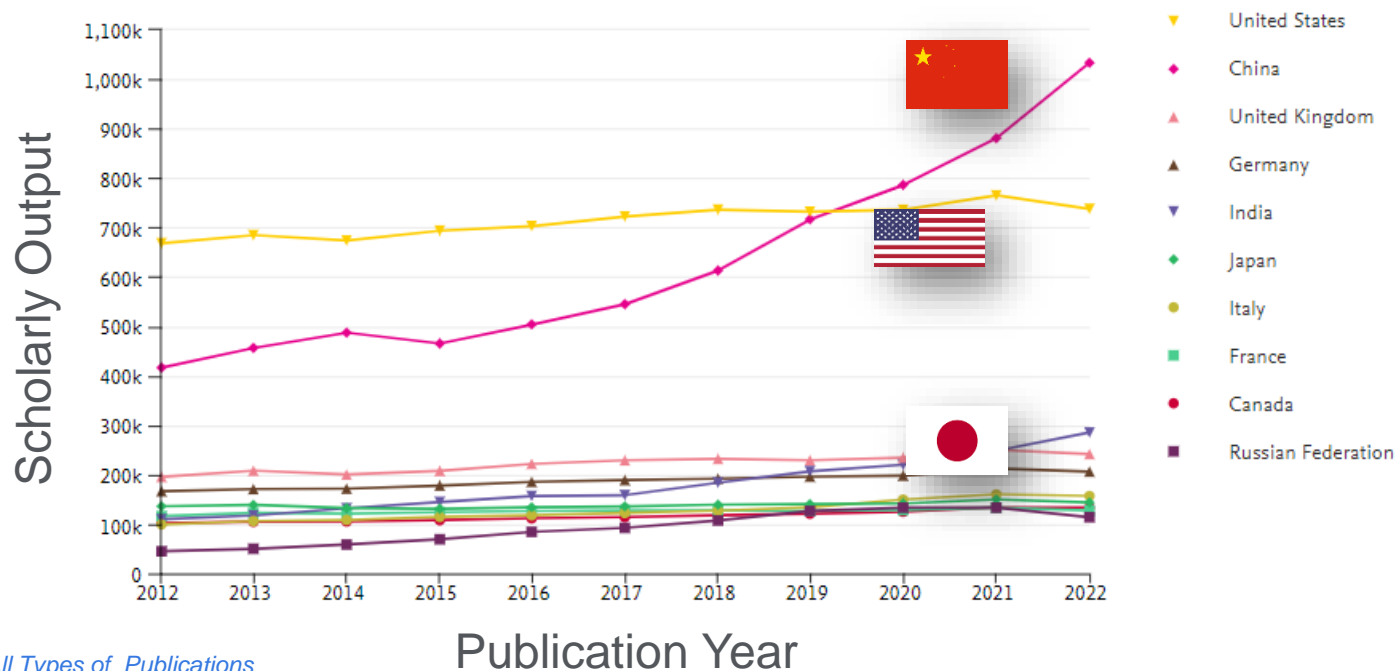
<https://beta.elsevier.com/academic-and-government/research-evaluation-and-impact>

Nov 2023



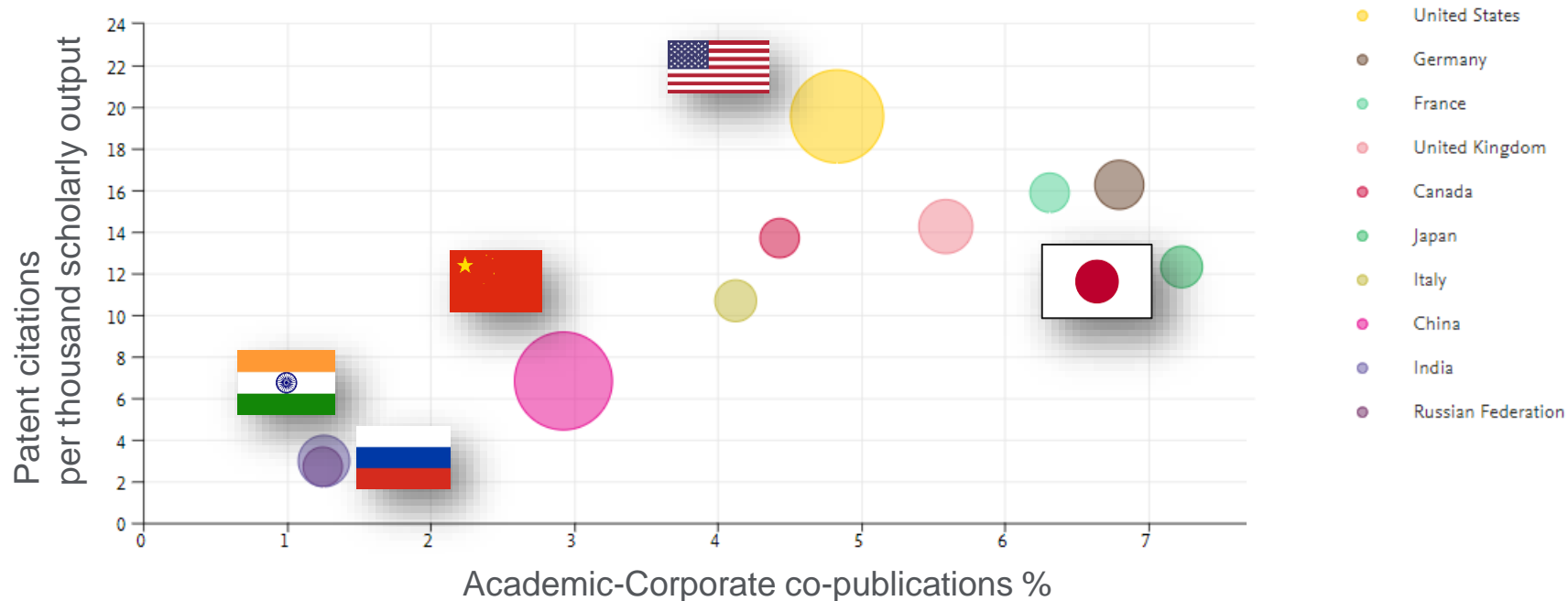
The World of Research 2012-2022 – Scholarly Output

- The world has seen a shift in research both in volume and quality towards Asia.
- China has in 2019 overtaken the United States in volume of Scholarly Output.
- India has overtaken both the UK in 2022 and Japan in 2019 in volume.



The World of Research 2018-2022

–Corporate Collaboration & Patent Citing Scholarly Output



University Research Strategy



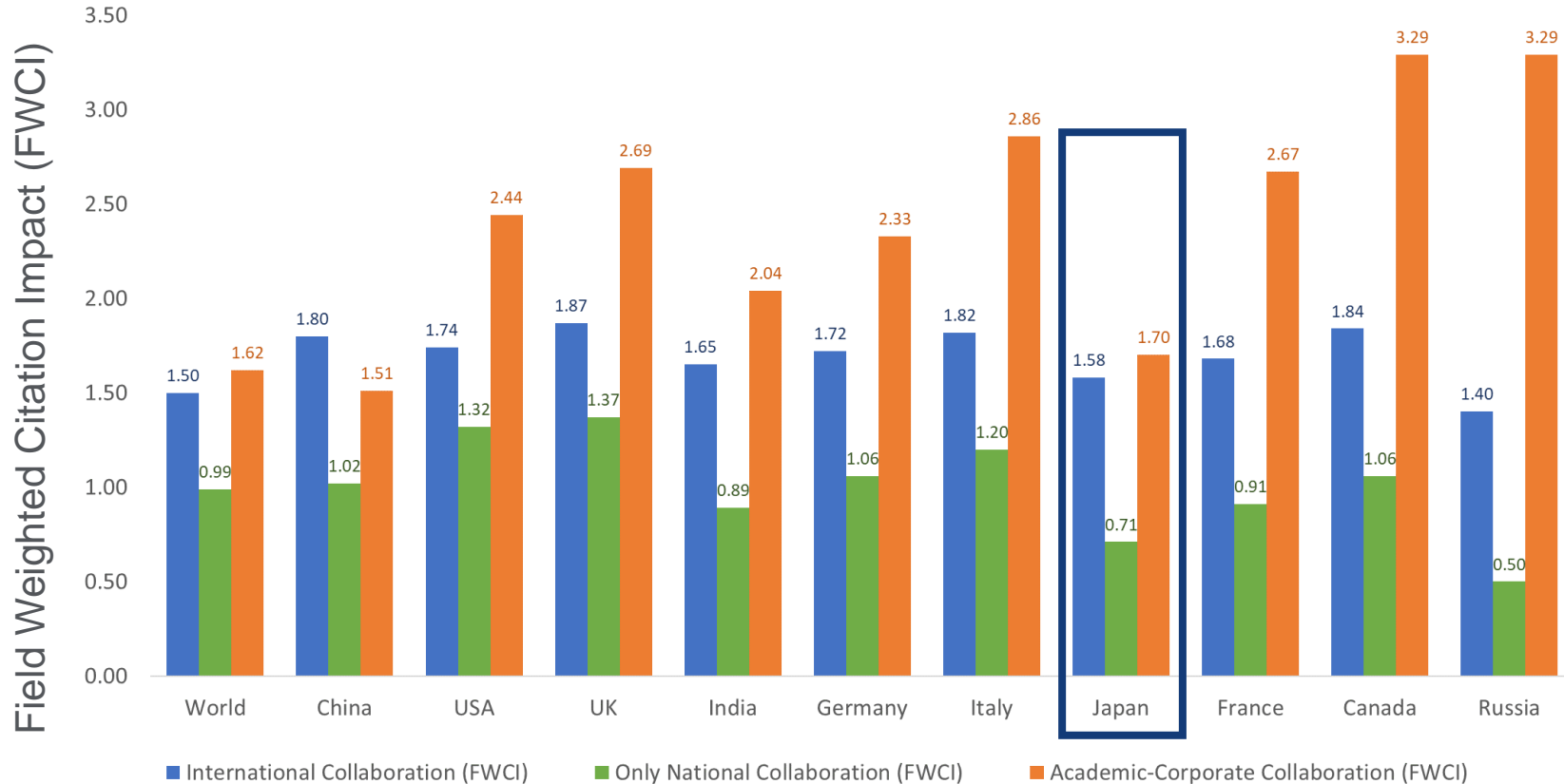
- Know & build your strengths
- Know who to partner with
- Execute and follow-up!

Question 1:

Raise your hand if you think that co-publishing between Academia and Industry leads to HIGHER Academic Impact (citations)



Collaborations leads to Academic Impact!



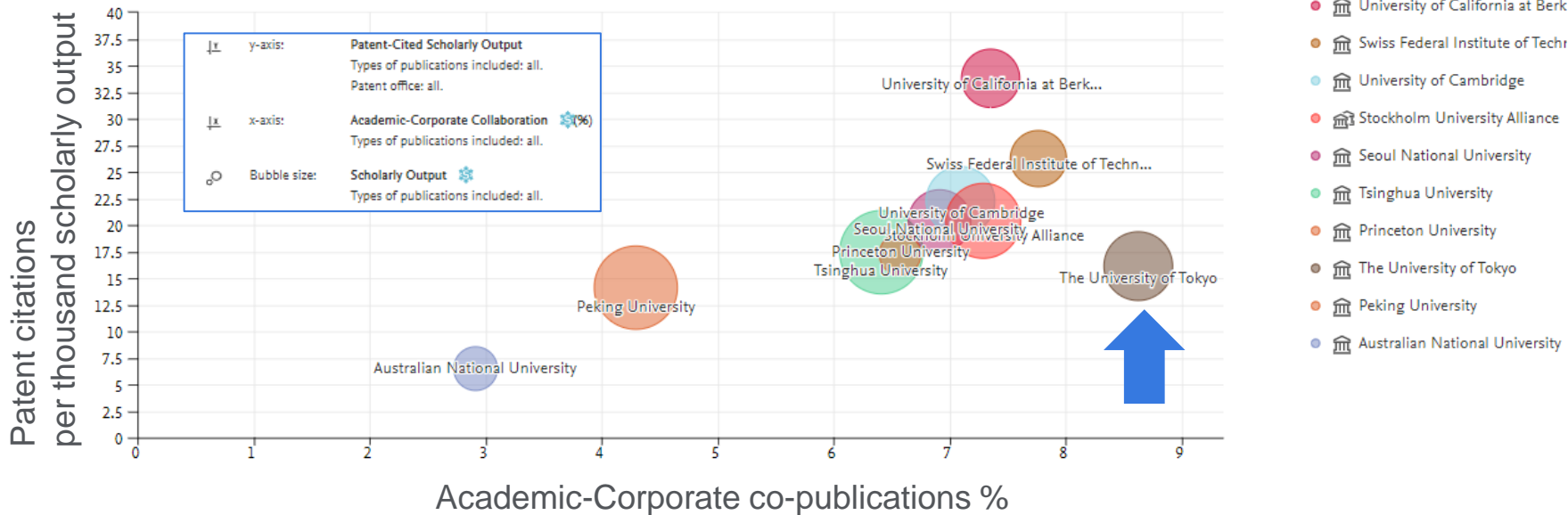
Question 2:

Do you know your institutions data with respect to Industry-Academia collaborations?

For University of Tokyo if you think less than 5 % of Academic Publications are co-published with industry, then raise your hand



University of Tokyo and Strategic Partners



Question 3:

Do you think it is **IMPORTANT** to know how your institution contribute to economic and societal impact?

If **YES**, raise your hand!



TU/e and NXP to collaborate on new technology for wireless communication

MAY 24, 2023

Both parties will make kr

TU/e opens electron microscopy lab and extends cooperation with Thermo Fisher

MAY 30, 2023

The new lab was made possible by a contribution from the 65th anniversary of TU/e.

ASML and Eindhoven University of Technology strengthen longstanding collaboration

APRIL 24, 2023

Stronger partnership through extended joint research programs and collaborative facilities



TU/e and NXP signing the MoU. From left: TU/e vice president NXP, TU/e executive

In signing a letter of intent, both parties have expressed their ambition to develop new technology for wireless communication within the space of a major research program in the Brainport region.



The opening of the new lab, by Harald Seidel, Maurits Smits and

Eindhoven University of Technology (TU/e) has today announced the opening of the new Center for Multiscale Electron Microscopy, one of the most advanced microscopes, and Thermo Fisher Scientific, which allows scientists to see structures at the atomic level. At the opening symposium, the TU/e and Thermo Fisher extended their cooperation.



ASML and TU/e sign the Memorandum of Understanding. From left to right: Frank Schuurmans (Head of Research ASML), Robert-Jan Smits (President TU/e) and Jos Benschop (Senior Vice President Technology ASML). Photo: Bart van Overbeek

ASML and Eindhoven University of Technology (TU/e) today announced a new phase in their longstanding partnership. This includes a jointly defined research program, the construction of a new ASML research facility on the TU/e campus, including the creation of a state-of-the-art cleanroom.

About Technical University Eindhoven (TU/e)

- Leading Dutch Technical University
- Eindhoven Brainport region (5000 tech companies)

Key project with Elsevier

- co-develop and operationalize **economic impact indicators** enabling TU/e to measure and articulate its economic contributions to the Brainport region.
- Engage with like-minded institutions to gain adoption of the economic impact indicators to **enable comparative benchmarking**.

Agreed indicators with TU/e



Education

- 1a. Students in relevant disciplines
- 1b. Stay rate of student in region %
- 1c. Job expectation for graduates %
- 1d. Graduates finding job in tech/ knowledge sector %

Scientific Impact

- 2a.1. Co-publications with companies
- 2a.2. Co-publications with local companies
- 2b.1. No professors with co-position/joint assignments in industry
- 2b.2. Authors with dual affiliation (public&private)
- 2c. Industry income
- 2d. Research output and impact in relevant research topics

International Impact

- 3a. International faculty
- 3b. International students
- 3c.1. Funding: private funding to TUE projects
- 3c.2. Funding: public funding together with private companies
- 3c.3. Funding: TUE participation in joint Horizon projects

Ecosystem Impact

- 4a.1. Patents: TUE held patents
- 4a.2. Patents: share of TUE patents also held by companies
- 4a.3. Patents: share of TUE patents also held by local companies
- 4a.4. Patents: Global patents citing TUE research
- 4b.1. start ups: # alumni founded start-ups (local/Europe/world)
- 4b.2. start-ups: # spinouts
- 4c. Media: TUE related stories (local/Europe/world)

Some questions for discussions

- Are the type of data and evaluation framework discussed useful?
- What is the most challenging data to gather?

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