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APQN Annual Academic Conference (AAC)
and Annual General Meeting (AGM)
Keynote Speech 2

Bridging Academia and Industry for Quality Higher Education

Insights from Japan and the Role of QA Agencies in Asia

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Speaker Profile

Specialization: Mathematics (Topology)

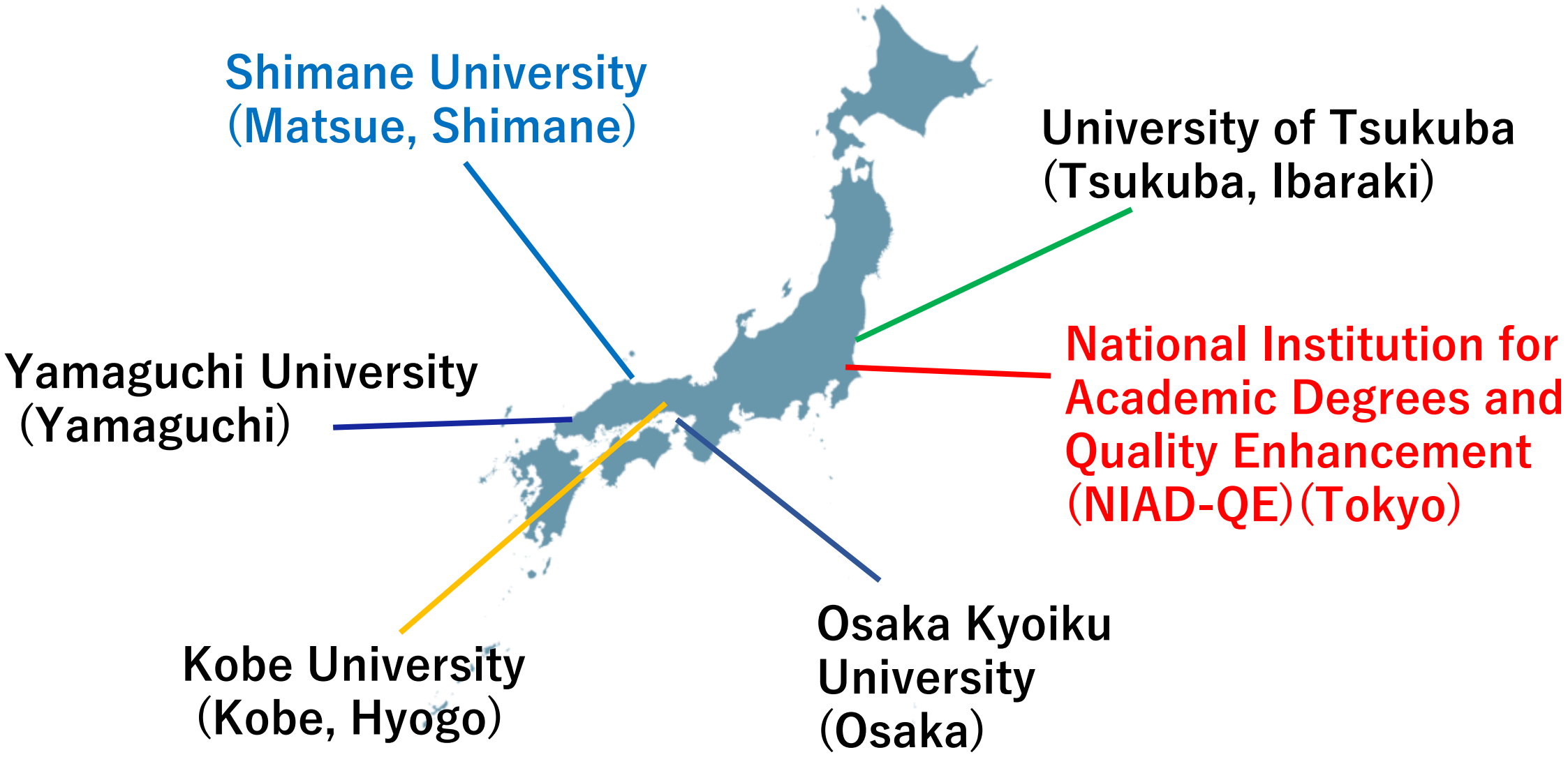
Degrees:

- Bachelor of Science, University of Tsukuba
- Master of Education, Osaka Kyoiku University
- Doctor of Science, University of Tsukuba

Professional Experience:

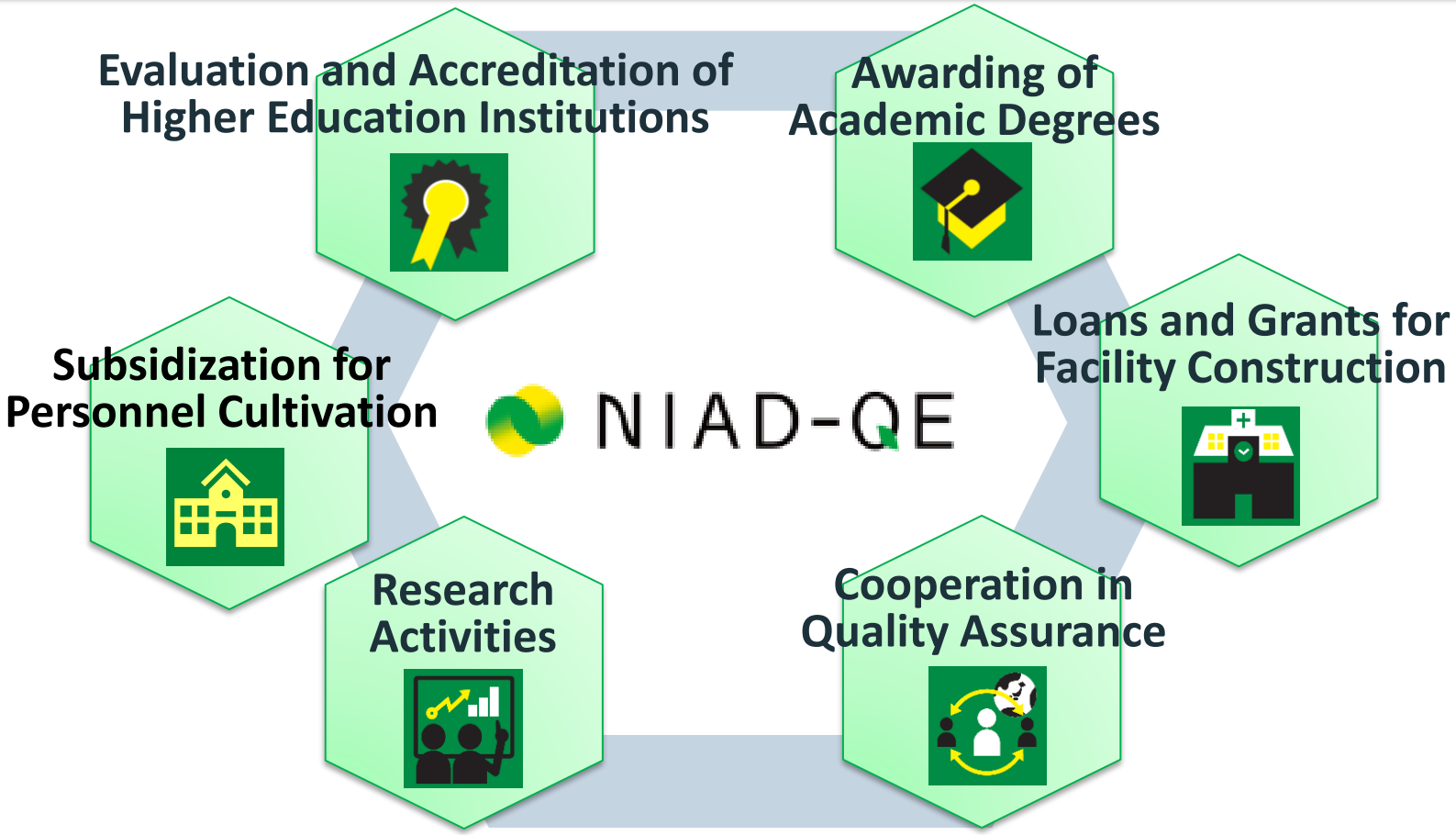
- 1981–1987: Osaka Kyoiku University (Faculty of Education)
- 1987–1993: Yamaguchi University (Faculty of Education)
- 1993–2015: Shimane University (Faculty of Science and Engineering)
  - 2011–2015: Dean, Faculty of Science and Engineering
- 2015–2024: President, Shimane University
- 2024–present: President, National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE)

My academic and professional journey across Japan



NIAD-QE: What we do

Working with universities and colleges to ensure that higher education merits the expectations to society, **NIAD-QE** supports efforts of universities and colleges to enhance the quality of their education and research, and strives to achieve recognition and appreciation of academic degrees as the results of learning at the higher education level.



NIAD-QE: What we do

- **Evaluation and Accreditation of Higher Education Institutions**

NIAD-QE conducts the certified evaluation and accreditation of universities, colleges of technology (KOSEN), and law schools. Further, NIAD-QE conducts the evaluation of education and research for the National University Corporation Evaluation scheme.

- **Loans and Grants for Facility Construction**

NIAD-QE provides loans and grants for the development of facilities at national university corporations and other institutions. Supports efforts to enhance the education and research environment at universities and colleges, and to improve their finance and management.

- **Awarding of Academic Degrees**

NIAD-QE is the only organization in Japan that has the right to award academic degrees equivalent to university degrees. Supports diverse forms of learning at the higher education level.

- **Research Activities**

NIAD-QE undertakes research that forms the basis of its various roles and indicates the directions they should take, as well as conducting studies and research to verify the soundness of its activities. Reflects the outcomes of research in further efforts to develop NIAD-QE's work, and makes them available to the public.

- **Cooperation in Quality Assurance**

NIAD-QE undertakes higher education quality assurance activities in partnership with universities and colleges, along with quality assurance organizations within Japan and overseas. Provides information about higher education for the various needs of stakeholders

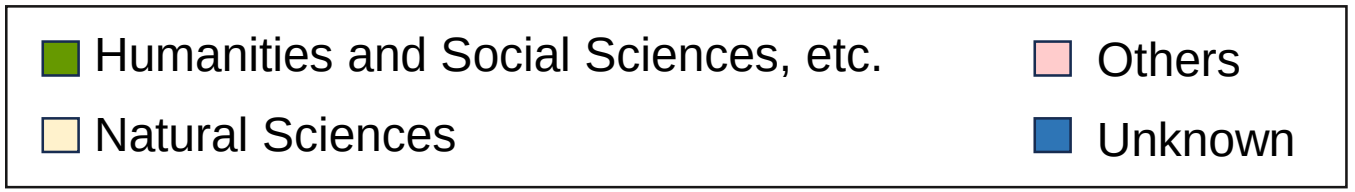
- **Subsidization for Personnel Cultivation**

NIAD-QE provides subsidies to fund the establishment of academic units at universities and colleges of technology (KOSEN). Supports efforts to cultivate highly skilled professionals who will drive growing fields such as digital and green business.

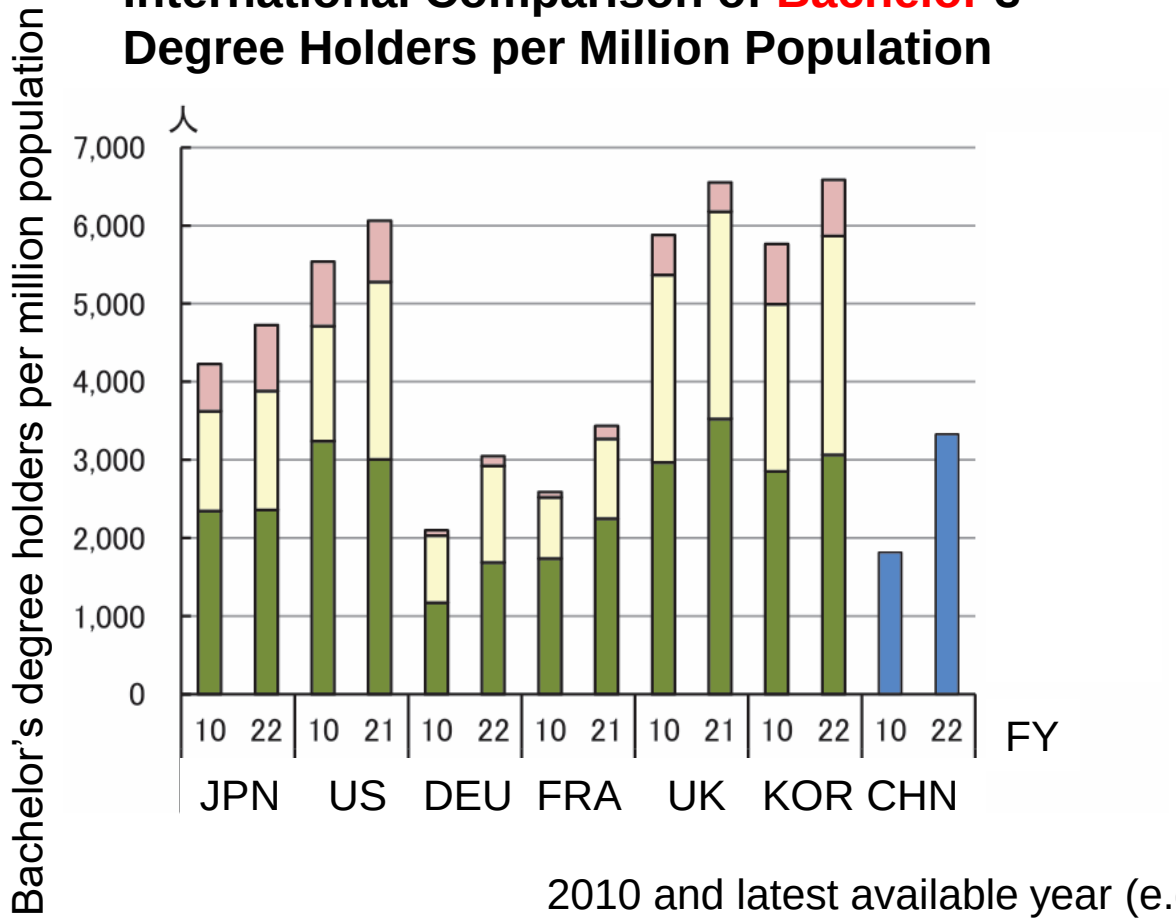
Overview of Japanese Higher Education (FY2024)

	Number of institutions				Student	Faculty
	Total	National	Public	Private		
Universities	813	86	103	624	2,949,795 (incl. G. 271,639)	192,531
Junior Colleges	297		15	282	78,295	6,237
College of Technology	58	51	3	4	56,342	3,922
Professional Training College	2,676	8	176	2,492	558,255	35,706
Total	3,844	145	297	3,402	3,642,687	238,396

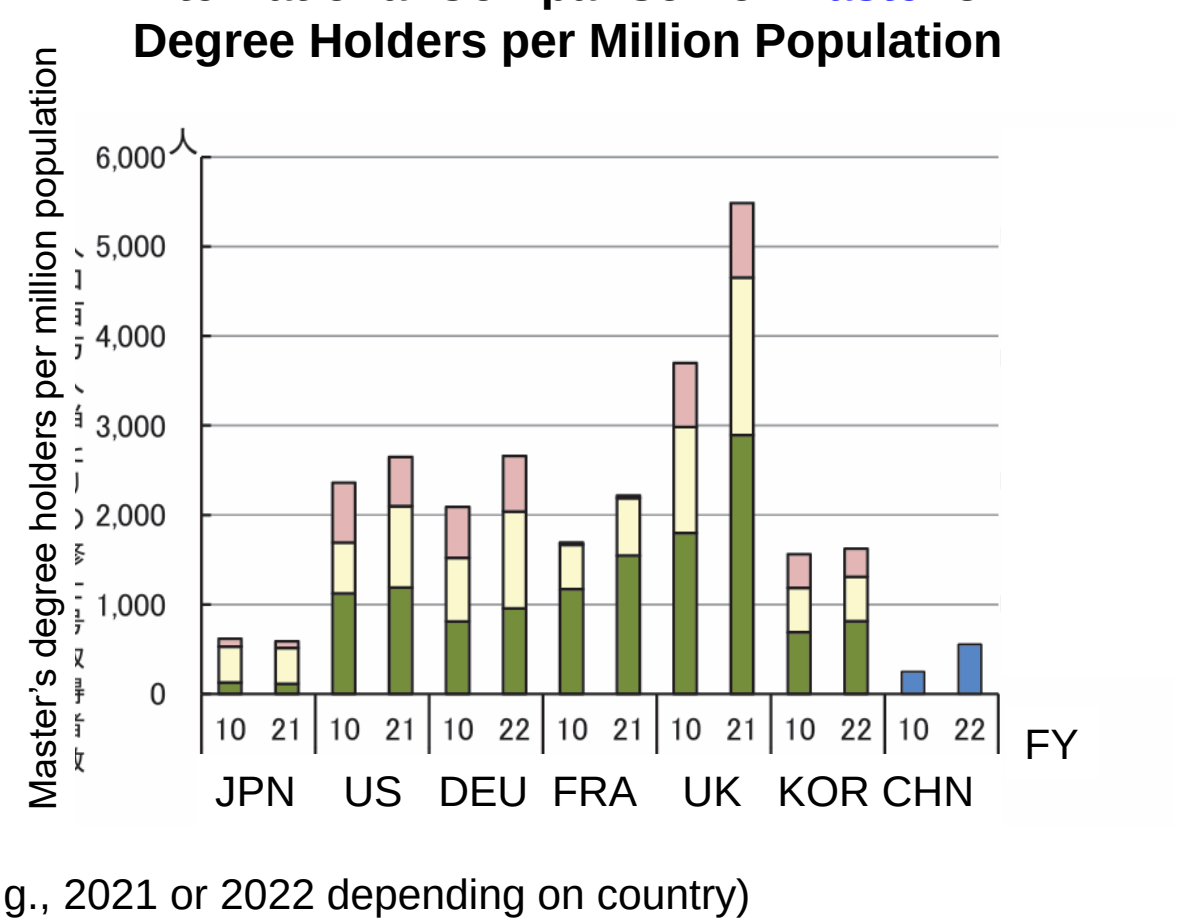
- Enrollment is tightly regulated by the government.
  - Universities cannot freely expand student numbers.
- Faculty numbers and basic quality requirements are set by national standards.
  - Key structural conditions are fixed at the national level.
- Japan has a very high participation rate in higher education.
  - Overall participation (age 18): 87.3%
  - University/Jr. college enrollment: 62.3%



International Comparison of Bachelor's Degree Holders per Million Population

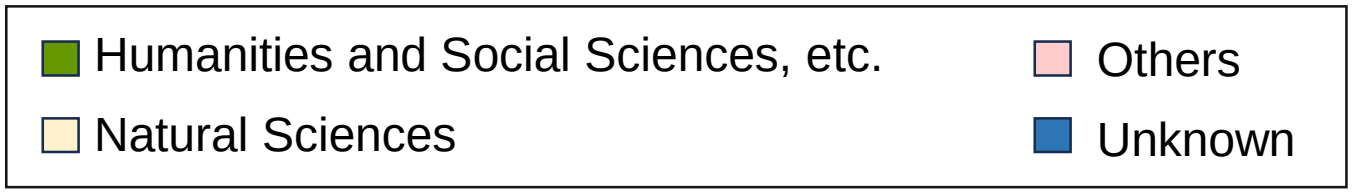


International Comparison of Master's Degree Holders per Million Population

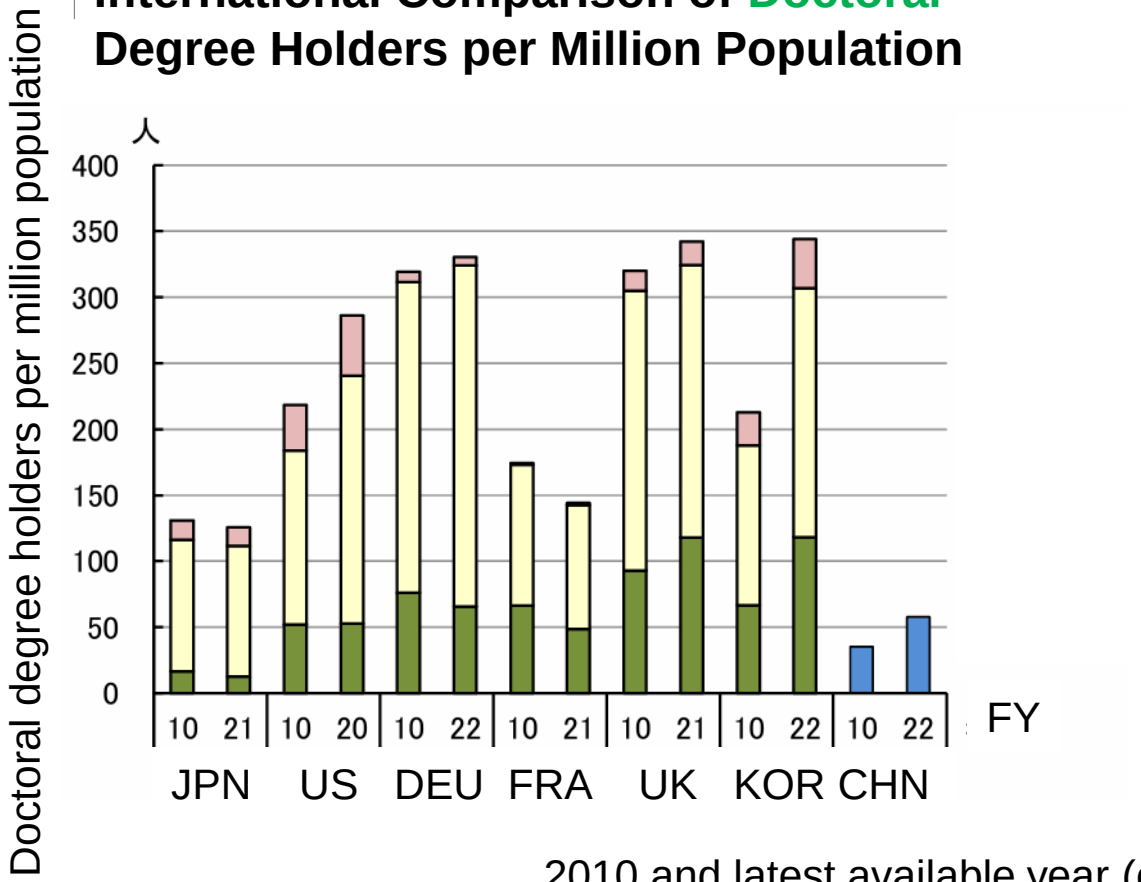


2010 and latest available year (e.g., 2021 or 2022 depending on country)

2024 NISTEP RESEARCH MATERIALNo.341 DOI: https://doi.org/10.15108/rm341 "Japanese Science and Technology Indicators 2024", NISTEP RESEARCH MATERIAL, No.341, National Institute of Science and Technology Policy, Tokyo. DOI: https://doi.org/10.15108/rm341



International Comparison of Doctoral Degree Holders per Million Population



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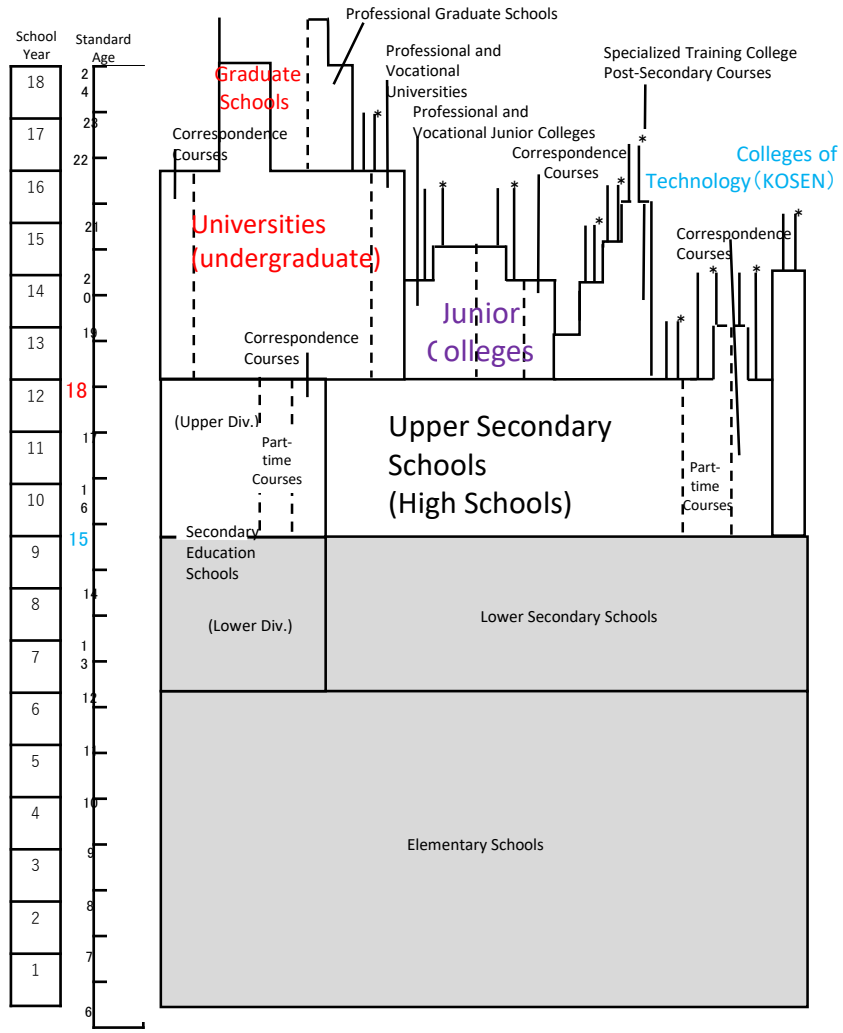
Organization of the School System in Japan



Higher Education Challenges in Asia and Japan

- Across Asia, universities are aligning education with changing industrial and social needs.
- In Japan, each university is making its own effort to connect academic learning with real-world practice.
- The government promotes collaboration in key growth fields such as digital, green, and data science.

Japan’s Structural Challenges in Bridging Academia and Industry

- Japan’s Structural Challenges in Bridging Academia and Industry.
- Economic stagnation weakened Japan’s traditional corporate training model.
- Companies now expect universities to produce job-ready, adaptable graduates.
- KOSEN succeeded in hands-on training; universities struggle with practical & interdisciplinary learning.
- Graduate education undervalued: low incentives, minimal salary premium, limited recognition.
- Universities still oriented toward researcher training rather than professional training.

Japan’s Challenge in Lifelong and Social Learning

- Universities emphasize “co-creation with society,” yet engagement with adult and non-traditional learners remains limited.
- Recurrent education and reskilling programs are expanding but remain small-scale and fragmented.
- Micro-credentials and flexible pathways are emerging, but lack consistent recognition.
- QA agencies can strengthen quality, transparency, and public trust — though the national system is still developing

Regional Core Universities (RCUs) in Japan

- Japan has long recognized a structural gap between academic learning and industrial needs.
- To address this, the government promotes stronger collaboration between universities, industry, and local governments.
- Multiple national initiatives encourage universities to contribute directly to regional innovation and workforce development.

Japan’s Efforts to Bridge the Academia–Industry Gap

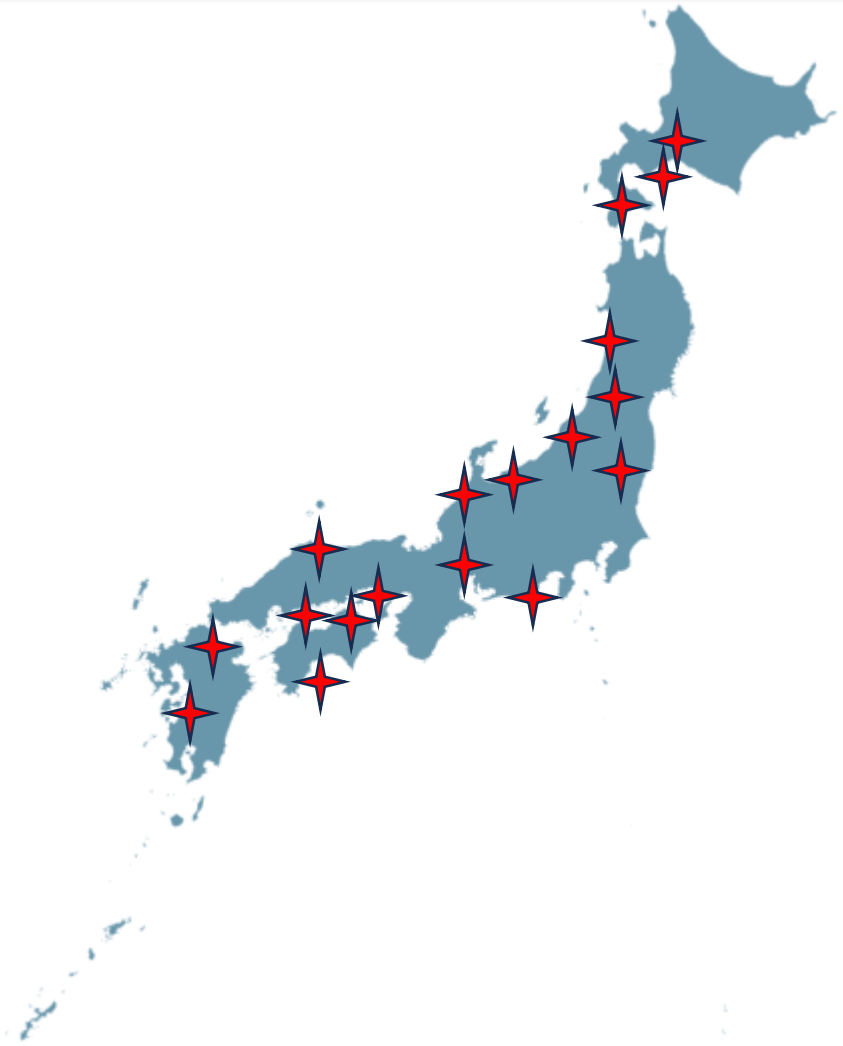
- RCUs are designated universities that serve as regional innovation anchors, expected to:
  - Lead industry–academia–government collaboration
  - Support regional industries and local governments
  - Develop human resources aligned with societal needs
- Alignment with Europe’s 4th Generation Universities
- Both RCUs and 4th Generation Universities emphasize:
  - Co-creation with industry and communities
  - Applied, interdisciplinary education
  - Societal problem-solving and regional transformation
- ➡ Japan is moving in the same global direction of universities becoming engines of regional innovation.

Adoption of Regional Core University Projects (2018–2023)

Year	National	Public	Private	Total
2018	7	0	0	**7**
2019	1	0	1	**2**
2020	1	0	0	**1**
2021	2	1	0	**3**
2022	5	0	2	**7**
2023	1	0	0	**1**

Total (2018–2023): 18 projects
National Univ.: 17
Public Univ.: 1
Private Univ.: 3
➡ National universities form the majority, reflecting their role as regional hubs with research and innovation capacity.

The regions where these projects are being implemented



Acceleration program for reorganization of universities and KOSEN

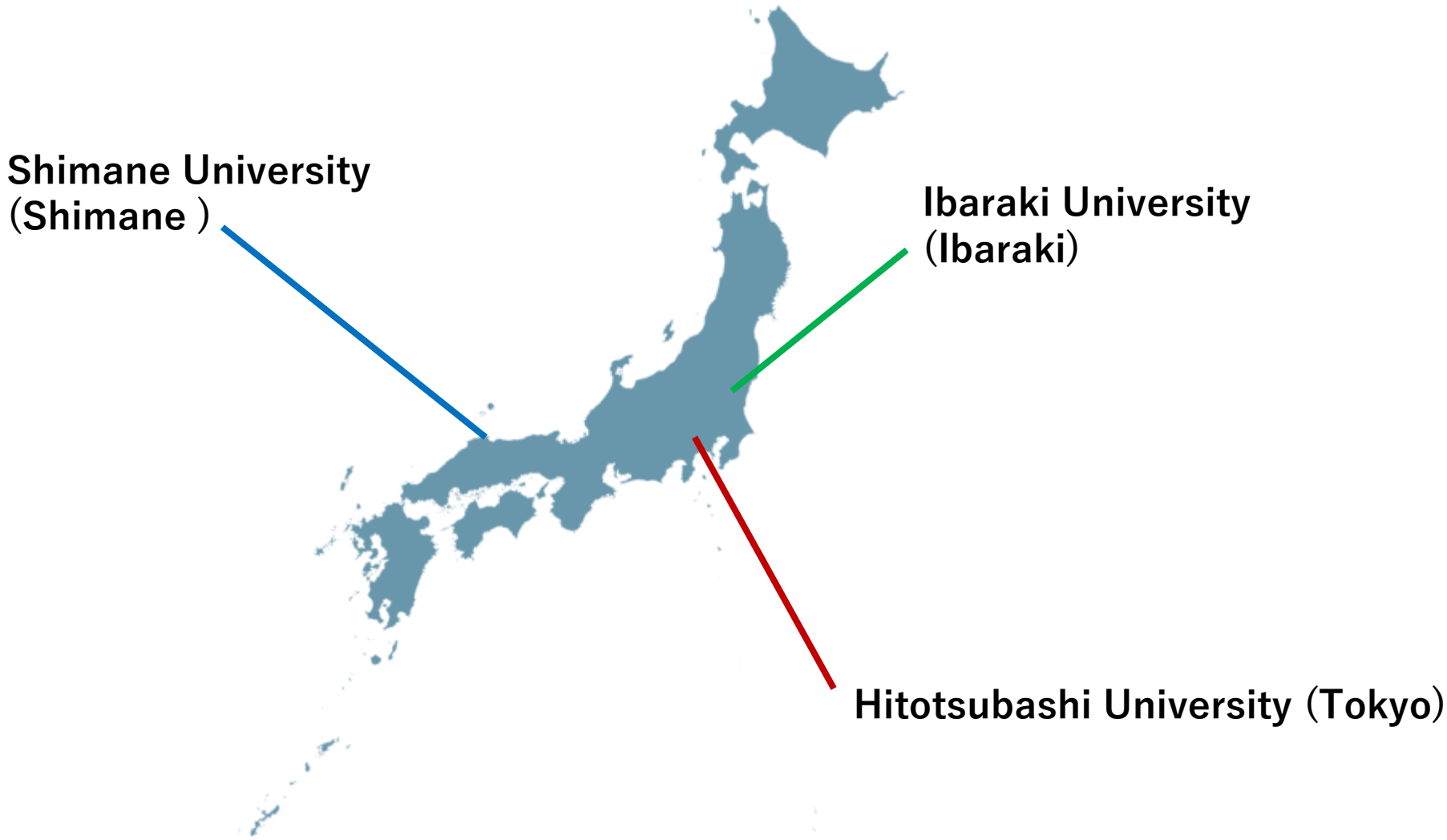
- Support restructuring of universities and colleges to develop human resources in **digital, green, and data science** fields.

Category	Target	Support	Duration
Type 1: Transition to Specified Growing Fields via Faculty Restructuring, etc.	Public & private universities	Up to **¥2 billion (≈ USD 13 M)/yr**	≤ 10 yrs
Type 2: Functional Enhancements to Secure Advanced ICT Specialists	National, public, private univ. & KOSEN	Up to **¥1 billion (≈ USD 6.5 M) /yr**(+bonus for top 5)	≤ 10 yrs

Selection Conducted by **NIAD-QE** (evaluation, monitoring, and coordination).
Criteria: collaboration with industry/local gov't, gender balance, student recruitment outlook, social relevance.

Scale
¥300 billion total (≈ USD 2 billion), covering ~261 institutions (≈ 29 % nationwide).

Examples of Universities Bridging Academia and Industry Across Japan



Hitotsubashi University – Industry–Academia Co-creation

- **Josui Alumni Seminars**: Alumni-led, practice-oriented career seminars; ~20% of students participate.
- **Social Data Science Programs**: Real-company and government datasets used in PBL projects with 20+ partners.
- **Economics Graduate Consulting**: Year-long student consulting with firms/public agencies, mentored by practitioners.
- **MBA Programs**: Multiple practice-based MBAs (ICS, etc.); internationally accredited and globally ranked.(AACSB accredited)

一橋大学の理念

Captains of Industry

「Captains of Industryとは、混沌、困窮、諸悪に対して戦い、人類を導く真の勇者である」
（トーマス・カーライル『過去と現在』）

一橋大学は、日本及び世界の様々な課題の解決に向けた社会イノベーションに資する知識創造と人材育成を使命とし、先端的・学際的・国際的な社会科学の研究・教育を推進していきます。

https://150th.hit-u.ac.jp/about/

Ibaraki University - School of Collaborative Regional Innovation: A Curriculum Bridging Theory and Practice

- School of Collaborative Regional Innovation (Ibaraki Univ.) offers an interdisciplinary program centered on co-creation with industries and communities.
- The **Co-Creation Education System** is co-designed and jointly operated with regional partners.
- A key feature is the long-term paid Co-op Education, where students learn while working in companies or local governments — creating a loop between theory and practice.
- Co-op education enables students to acquire problem-solving and collaboration skills in real industrial contexts, bridging the gap between academia and industry.

Learning Contents

Analyze local problems with data

Solve problems with business methods

Start a new business that solves the problem

Through interdisciplinary and cross-disciplinary learning centered on business and data science, students will become practitioners who will take on the challenge of solving regional problems and creating new value.

Graduation

	1st Year	2nd Year	3rd Year	4th Year
Learning Culminates			Seminars	Graduation Thesis and Project Report
Praxis	On Campus: B Pre-Cooperative Education Seminar	Off Campus (Companies and Local Governments): Pre-Cooperative Education Practice (Unpaid)	Cooperative Education Practice I (Paid)	Elective: Cooperative Education Practice II (Paid)
Theory		D Problem Exploration Classes: Community Design; Economy/Environment/Governance; Smart Manufacturing	C Program Core Classes: In-depth (Economics and Management; Data Science); Program of Regional Business Design; Elective Program; Program of Data Science for Regional Revitalization	
Theory	A Program Common Classes: Economics and Management; Data Science			
Theory	A School Core Classes: Social Entrepreneurship, Human Geography, Sociology, Investigative Approach, Practical English, etc.			
Theory	A General Education Classes: Entrepreneurship, Informatics, AI/Data Science, Languages, Liberal Arts, etc.			

※Prior to the Cooperative Education Practice (I/II), students take the "Pre-Cooperative Education Seminar," in which they conduct on-campus company research, and the "Pre-Cooperative Education Practice," in which they gain short-term work experience at a placement site.

※Curriculum Model

High School — Period for Inquiry-Based Cross-Disciplinary Study: Acquires the knowledge and skills necessary to identify and solve problems

https://www.mirai.ibaraki.ac.jp/_doc/overview/gakkan_pamphlet_en.pdf

Shimane University - Regional Revitalization through Industry–Academia–Government Collaboration

Project Period: 2018–2027 (Expanded from 2023)

Goal: Establishing a Global Hub for Advanced Metal Materials

Background & Key Directions

- Addressing population decline and limited higher-education resources by positioning Shimane University as the region's central academic hub
- Advancing Shimane's core metal-material industries through university-led R&D and innovation-driven industrial transformation
- Implementing university-wide collaboration in research, education, and partnerships — reflecting principles of a Fourth-Generation University

Expected Regional Impact

- Formation of new innovation clusters
- Development and retention of regional talent
- A sustainable foundation for regional industrial transformation

「Establishment of a Global Hub for Advanced Metal Materials」

NEXTA serves as an open innovation hub for R&D and training in advanced metal materials.
Inherits the tradition of Tatara steelmaking while promoting next-generation casting technologies

Industry-academia-government partnerships led by the Governor of Shimane Prefecture.

Strong academic collaboration with:
Univ. Oxford
Univ. Cambridge
Science Tokyo
Hokkaido Univ.
Kumamoto Univ.

【Shimane University】

Practizing top-level research on metallic materials (super-heat-resistant alloys, soft magnetic materials) and cultivating highly specialized personnel demanded by regional industry

「Establishment of the Next Generation Tatara Collaborative Innovation Centre (NEXTA)

Professor Roger Reed (University of Oxford) appointed as Director of the NEXTA Centre

Top-level research and educational practice

・Thirteen co-authored papers with the University of Oxford

・Taught by University of Oxford faculty

World-leading global education (foursubjects)

Strengthening the university management system

・ Appointing director from companies

・ Acceptance of researchers from companies through the cross-appointment system

Talent abounds Research achieve ments

Joint Research Talent Development Support

Creating a virtuous cycle

Spillover effects on the prefecture's cluster industries (foundry industry, metalworking industry, automotive parts manufacturing, software-based IT industry, etc.)

【Special Steel Industry Cluster】

【Next-Generation Aircraft Energy Project】

Domestic production of aircraft engine components

【Next-Generation Motor Industry Project】

Development of High-Efficiency Motor Cores

「 Establishment of a Global Hub for Advanced Metal Materials 」

Major Projects and Key Outcomes

Notable Achievements of Shimane University

- Increased percentage of local students in related programs (17%(2018) → 34%(2024)).
- Growth in joint research with local companies (9 (2018) → 24 (2024) cases).
- Significant rise in international conference presentations.

Industries

- Successful material efficiency improvements (e.g., ~10% motor efficiency increase using amorphous cores).
- Collaborative development of advanced special-steel processing technologies with local industries.

Discussion – Sharing Efforts, Bridging Understanding

- Many universities and agencies are making strong efforts to innovate.
- Yet, good practices are not always widely recognized or shared.
- Despite media coverage and government promotion, information often remains fragmented.
- QA agencies can help interpret and connect these efforts to promote shared learning.

Conclusion – Toward Shared Quality and Co-Creation

- Quality assurance is about connection, not control.
- Collaboration builds trust; dialogue builds quality.
- Let’s keep learning from each other — across borders and disciplines.