

How to best measure performance in research?

Case at Hiroshima University



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広島大学

Students: **15,407**

UG: 10,887

Graduate: 4,520

Non-degree: 262

International: 1,443

Faculty members:

1,726

Staff members:

1,690

Campuses:

3

- Budget size: **9th** (among about 90 national universities in Japan)
- Number of recipients of Japan's national Grant-in-Aid for Scientific Research: **10th** (among over 700 universities in Japan)

An aerial photograph of the Hiroshima University campus, showing a large complex of brick and concrete buildings, parking lots, and green spaces, surrounded by a city and mountains in the background.

**Hiroshima
University (HU)**

Founding Spirit:

a single unified university,
free and pursuing peace
[since the reformation in 1949]

Background photo:
Former Science Building, an
A-bomb survivor building in
Hiroshima City

1. The pursuit of **PEACE**
2. The creation of new forms of **KNOWLEDGE**
3. The nurturing of **WELL-ROUNDED** human beings
4. **COLLABORATION** with the local, regional and international community
5. Continuous **SELF-DEVELOPMENT**

HU as a comprehensive research university

11 Schools

(Undergraduate Programs)

+ a new one in 2018

Integrated Arts and Sciences

Dept. of Integrated Global Studies
(from 2018)

Letters

Education

Law

Economics

Applied Biological Science

Science

Informatics and Data Science (from 2018)

Engineering

Medicine

Dentistry

Pharmaceutical Sciences

Integrated Arts and Sciences

Letters

Education

Social Sciences

Law School

Biosphere Science

Science

Advanced Sciences of Matter

Engineering

Biomedical & Health Sciences

International Development & Cooperation

11 Graduate Schools

(Graduate Programs)

Hiroshima University (HU):

a recipient of the two major national grants for universities

RESEARCH

Program for Promoting the Enhancement of Research Universities (for 10 years from 2013):

HU selected as one of 22 institutions



EDUCATION

Top Global University Project (for 10 years from 2014):

HU selected as one of 13 leading (Type A) universities

Collaborative actions to solve unpredictable global issues

Program for Promoting the Enhancement of Research Universities (FY2013-22)

- ◆ **Funded by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)**
- ◆ **To improve Japanese universities' competitiveness, responding to globally declined share of academic papers**
- ◆ **To enhance Japanese universities' research capabilities by implementing an intensive reform of research environment**

For example, HU under this program has made efforts to:

- **Develop a research propelling system such as University Research Administrators**
- **Facilitate continuous creation of world-class research hubs**
- **Establish competitive environment for securing and fostering excellent researchers**
- **Boost global research activities**

22 Institutions selected for this Program for Promoting the Enhancement of Research Universities

- Hokkaido University
- Tohoku University
- Tsukuba University
- University of Tokyo
- Tokyo Medical and Dental University
- Tokyo Institute of Technology
- University of Electro-Communications
- Nagoya University
- Toyohashi University of Technology
- Kyoto University
- Osaka University
- Kobe University
- Okayama University
- **Hiroshima University**
- Kyushu University
- Kumamoto University
- NAIST
- Keio University (*private)
- Waseda University (*private)
- NINS
- KEK
- ROIS

*From FY 2013
through FY2022*

*(mid-term evaluation
conducted in 2017)*

\$2M – 4M /year/institution

Ten indicators set by MEXT related to:

Program for Promoting the Enhancement of Research Universities

External funding

- **National Grant-in-aid for Scientific Research**
 1. **Adopted numbers per researchers**
 2. **Adoption rates of junior researchers**
 3. **Grant amount per faculty members**
 4. **Publication in arts/humanities and social science**
- **Grants for creation of large-scale int'l research centers**
 5. **COEs, WPIs**
- **Grants for strategic creative research**
 6. **CREST, ERATO, SAKIGAKE**

Production of academic papers

7. **Q-values (ratio of Top 10% cited)**
8. **Internationally-co-authored papers (ratio of int'l co-auth'd.)**

Collaborations with industry

9. **Joint research with industry**
10. **Technology transfer (patents)**

An ongoing attempt to explore how to measure performance in research

Research University Consortium

*launched with 33 research universities/institutions in Japan in 2017, including 22 ones selected by MEXT for the Program for Promoting the Enhancement of Research Universities

Taskforce to discuss improvement of research performance analysis

Existing good practices

Better indicators/
measurement

Arts &
Humanities, and
Social Science

Combined use of two Key Performance Indicators @ HU



Dual functions of AKPI®

Achievement-motivated Key Performance Indicator

- **to monitor:**
 - the level of achievement until HU becomes one of the world's top 100 universities
- **to quantify:**
 - the research and educational tasks undertaken by each faculty member, for proper allocation of HU's resources in various fields

AKPI® for HU's monitoring

faculty members' activities with the aim of becoming a world top-100 institution

Uses **quantified measures** developed by HU

Promotes **trans-disciplinary** collaborations

Builds **int'l research network**

Papers
Doubled

High
IF journals
Published

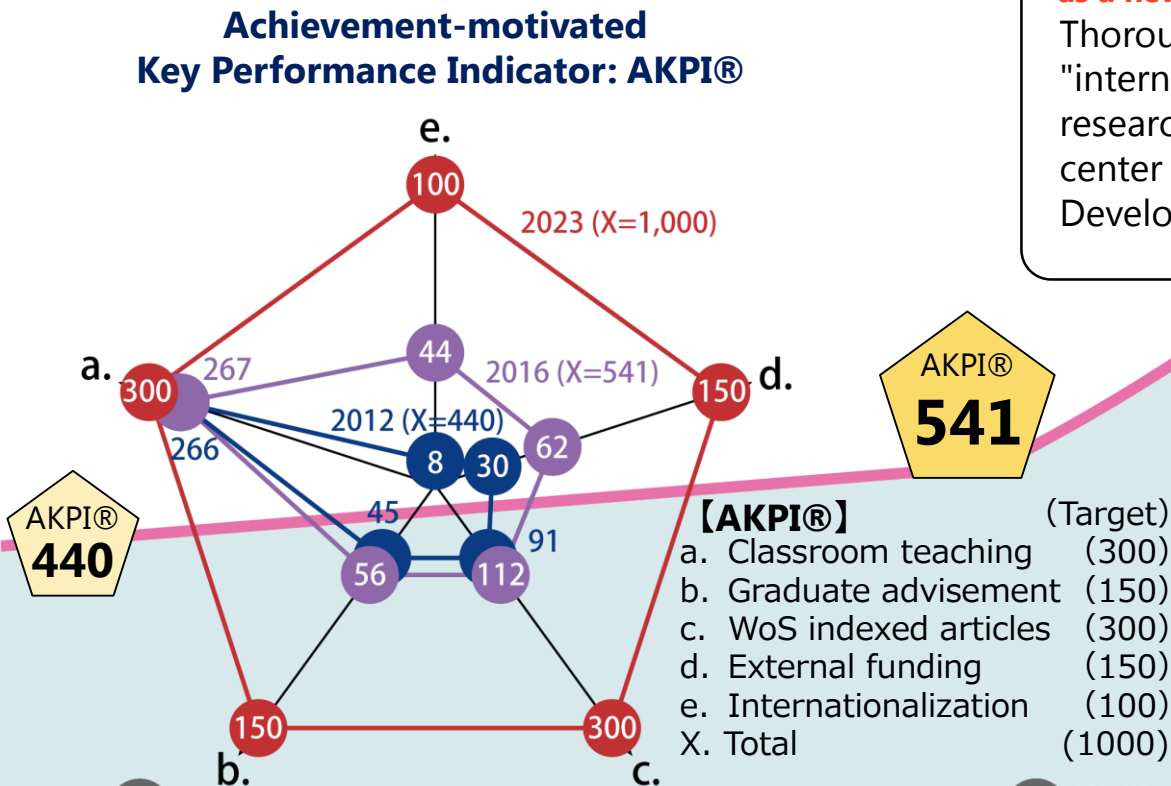
Int'l
co-authorship
Doubled



AKPI®
1000
(Target)

SPLENDOR PLAN 2017
as a new long-term vision
Thorough "university reforms" and "internationalization" to aim for a comprehensive research university as a world-class knowledge center implementing "Science for Sustainable Development"

【AKPI®】
HU's uniquely developed AKPI® (**Achievement-motivated Key Performance Indicator**) allows all the faculty and staff members to take backcasting approaches and monitor the concrete path to our goal, which has been set as X=1,000 (the sum of Items a. to e.) by 2023.



Introduction of BKPI® since 2016

Basic Effort Key Performance Indicator

1. Education

2. Research

3. Social Services

4. University Governance

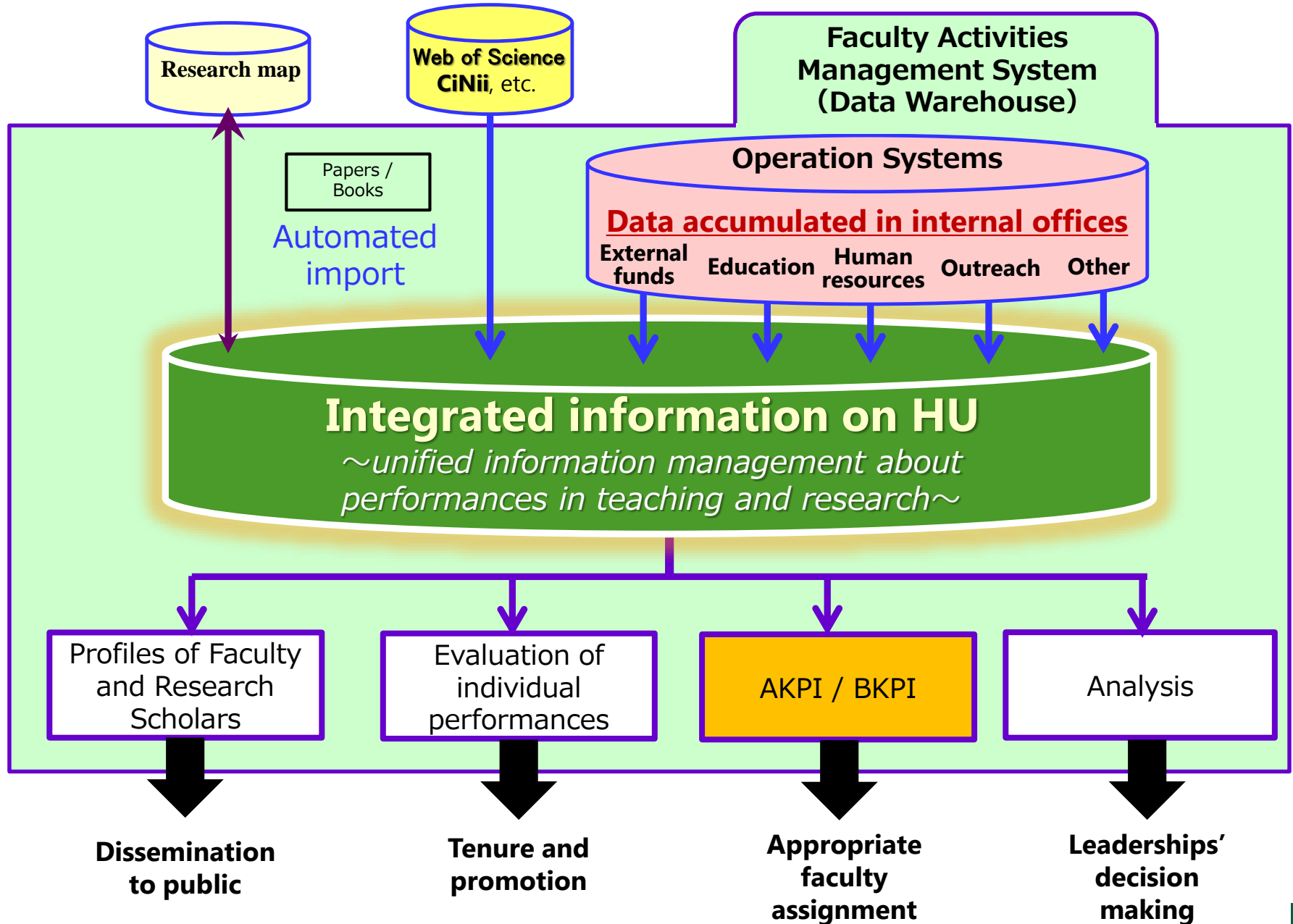
5. Medical Services

6. Center Duties

- Research papers
- Book authored
- Patent
- Presentations
- Award receiving
- Acquisition of external funds

*Each faculty member engages in various responsibilities at the front lines of **education, research, and social service**. Hiroshima University aims to create an environment where every faculty member's individuality and creativity are respected and well utilized, while placing the limited human resources into where this institutional objective is achieved efficiently.*

Collection and use of information at HU



Challenges: in measuring performances in research

- **Junior faculty members**
- **Arts & Humanities and Social Sciences**
- **Languages**
- **University rankings**

Thank you!

followed by reference materials ...

Recent highlights in research

HU launching collaboration with:



Council of Scientific &
Industrial Research

HARVARD
UNIVERSITY

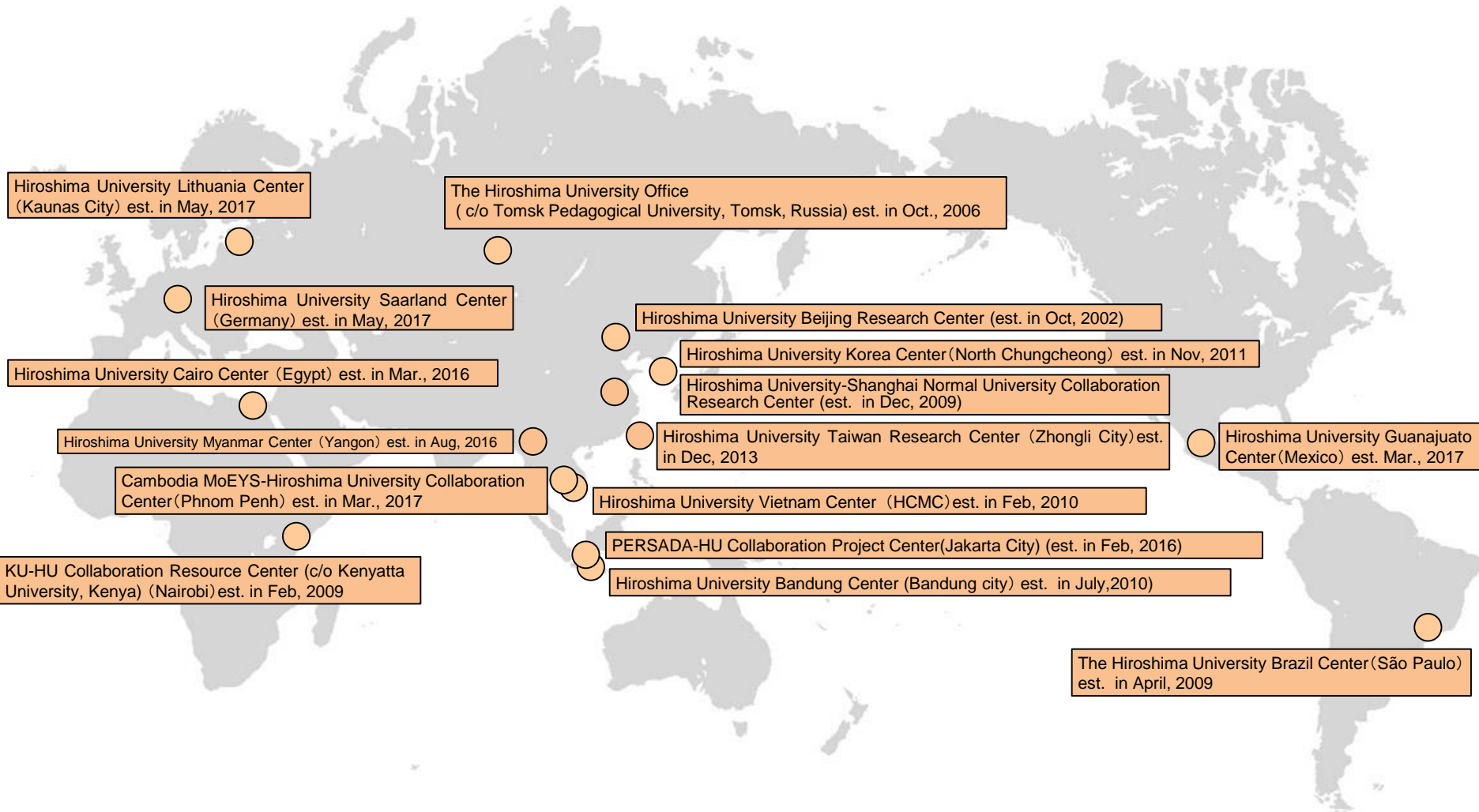


futureearth
research for global sustainability

ASU
Arizona State
University

Hiroshima University's overseas bases

(as of April, 2018) <14 countries/regions, 16 bases>



10 Centers of Excellence and 16 Promising Research Initiatives @ HU



	V1	V2(1)	V3(13)	V4(8)	V5(6)
Q1 (11)	Multi-disciplinary	Astronomy (1)	Physics (2) Clinical Medicine (2) Molecular Biology / Genetics (3)	Material Sciences (2) Environment / Ecology Earth Science (1) Immunology	
Q2 (9)			Chemistry (3) Mathematics	Agricultural Sciences (1) Botany and Zoology (2)	Social Sciences and General (3)
Q3 (8)			Biology / Biochemistry (3) Pharmacology / Toxicology	Computer Science Engineering (2)	Psychiatry / Psychology (1) Economics / Marketing (2)
Q4			Microbiology Neuroscience / Behavioristics		

(No. of COEs or PRIs)



Expanding networks to accelerate international research collaborations

**Expanding the
Writing Center's
functions**

**Helping organize
international
conferences**

**Improving
international
science
communication**

**Creating
international
research networks**

**Enhancing the evidence as well as
reputation of research outcomes**

Increasing international research collaborations and internationally co-authored papers