Designated National University Corporation Concept Presentation

Future Vision of Osaka University toward 2031, the University's 100th Anniversary

A World-Leading Innovative University



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President, National University Corporation Osaka University
Thursday, January 20, 2022

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- New Priority Initiatives and Plans toward the 4th Period





Osaka University's Goal of **Social Transformation**

Creating

A Society that Fosters a Sense of Purpose in Life

through Co-Creation with Society

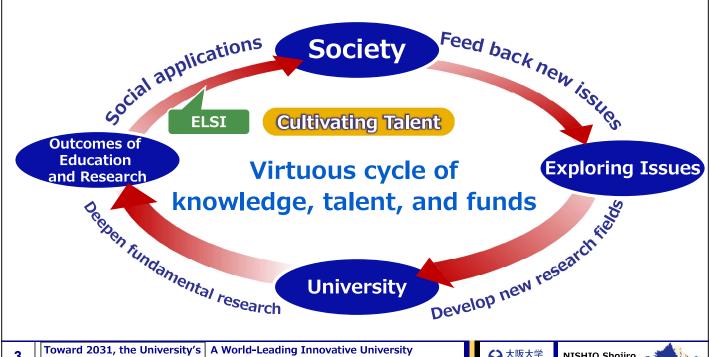


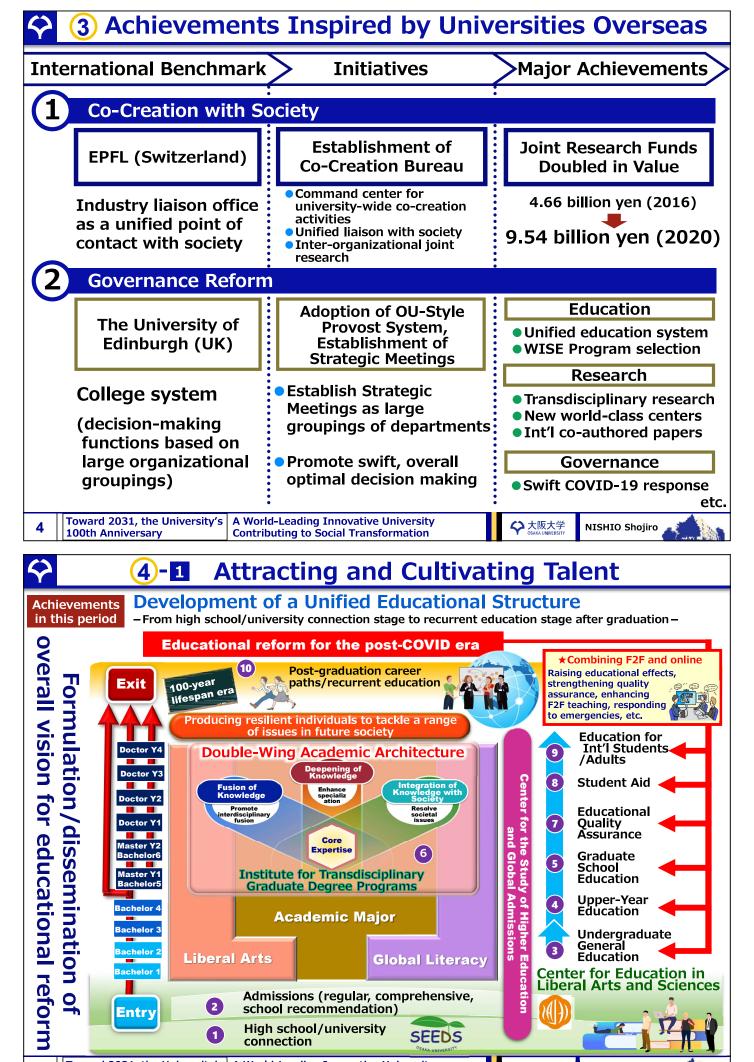


Overview of Management Reform Concept

Management Reforms Driven by the OU Ecosystem

A virtuous cycle that generates new values and creates further social transformation







4-1 Attracting and Cultivating Talent

Comparison with International Benchmark Universities

Osaka University's scores have risen

while those of international benchmark universities have fallen

University Rankings: Comparison of THE World Teaching Reputation Scores

University	2020	2021	Change	
Osaka University	43.6	45.2	<u>+1.6</u>	
The University of Edinburgh	75.9	74.6	-1.3	
EPFL.	62.4	59.8	-2.6	

- Reforms for unified educational structure
- Reputation of Osaka University students among employers: Ability to tackle problems with no clear answers

Toward 2031, the University's 100th Anniversary

A World-Leading Innovative University **Contributing to Social Transformation**



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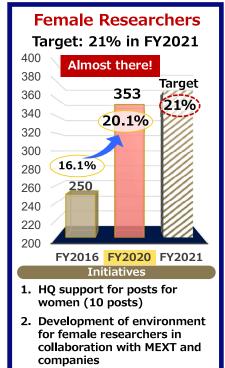


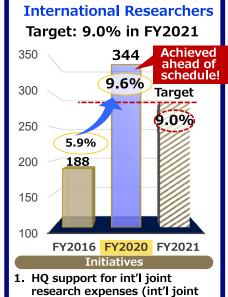


Attracting and Cultivating Talent

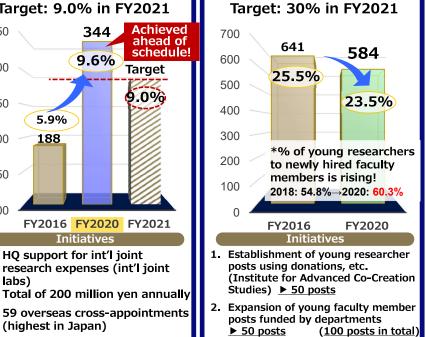
Activating Innovation with Diversity

- Diversity is the key to innovation
- ▶ Realizing campuses with Diversity & Inclusion





2. 59 overseas cross-appointments



Young Researchers

(highest in Japan)





Strengthening Research Capacity

Advancement of World-Class Research



Advance research for social creation



Form new world-class research centers

Osaka University's paramount ideal:

Environments that enable all researchers to pursue their research based on intellectual curiosity







Strengthening Research Capacity

Achievements in this period

Formation of a New World-Class Research Center

Center for Quantum Information and Quantum Biology (est. April 2021)

- Brings the largest community of researchers in the world together at Osaka University
- Aims to advance quantum technologies beyond today's information communications and processing technologies
- Selected for MEXT Q-LEAP
- Total of 1.9 billion yen (2020) in external funding: self-supporting operation achieved

Reference: Research Indicators				
No. of researchers	76			
FWCI	1.15			
Papers in Top 1%	1.3%			
Papers in Top 10%	16.6%			
University ranking by number of patent applications related to quantum computing*	Global 5th∕Japan 1st			

*Source: Osaka University and Clarivate Analytics Japan, Technology Trends Survey, July 6, 2020





Strengthening Research Capacity

Achievements in this period

Advancement of Research for Social Creation

Formation of a center contributing to the protection of human life and continuity of social and economic activity, in preparation for future infectious disease threats

Establishment of Center for Infectious Disease Education and Research (est. April 2021)



- 1. Disseminate information based on scientific evidence
- **Build foundations for fundamental research toward** conquering infectious diseases
- 3. Pursue education and training of medical workers



a comprehensive university





Immune regulation Kiyoshi Takeda Professor Analysis of natural immune systems



Depth of research expertise in immunology and virology, and



Advisory Council on Countermeasures against Novel Influenza and Other Diseases



Behavioral economics **Fumio Ohtake** Specially Appointed Profe Economic policy







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Strengthening Research Capacity

Achievements in this period

Co-Creation with Society Utilizing Insights Gained from the Humanities and Social Sciences

ELSI comprehensive research center: a pioneering initiative in Japan

Research Center on Ethical, Legal and Social Issues (ELSI Center) (est. April 2020)



University-wide pursuit of ELSI-related activities in order to utilize new advancements in science and technology

General Research

Collaborative Research

Practice Research

Cultivation of ELSI Experts

International deployment of the ELSI Center

Collaboration with University of Montreal and other universities outside Japan Participation in drafting proposals for the U7+ Forum, a multilateral international consortium



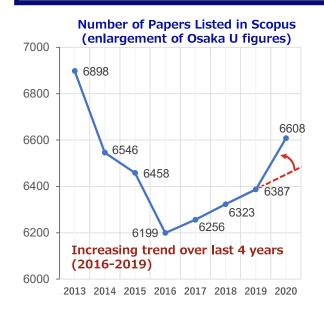
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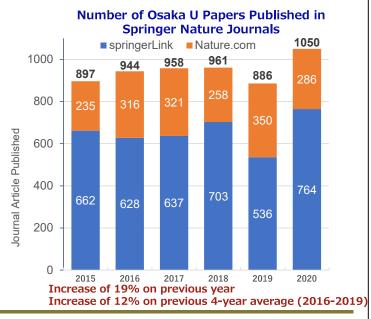
Strengthening Research Capacity

Achievements in this period

IR and URA Support for Research Capacity Enhancement

Increasing numbers of papers and published journal articles





Increased support from second half of 2019

Eligibility

Support

Middle tier young/doctoral researchers eligible based on analysis of paper quality and quantity

• English-language paper writing support

Journal publication costs support

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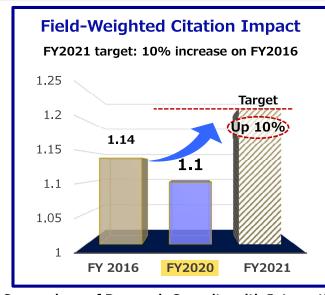
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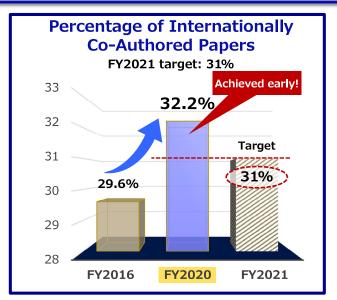






Strengthening Research Capacity





♦ 大阪大学

Comparison of Research Capacity with International Benchmark Universities

University Name	Field-Weighted Citation Impact		Internationally Co-Authored Papers	
Oniversity Name	FY2016	FY2020	FY2016	FY2020
Osaka University	1.14	1.10	29.6%	32.2%
University of California, Berkeley	2.56	2.31	45.8%	49.7%
The University of Edinburgh	2.37	2.25	56.8%	62.6%
EPFL	2.15	1.89	66.1%	68.5%





Co-Creation with Society

in this period

- Establishment of command center for co-creation: Co-Creation Bureau (est. January 2018)
- ◆Development of OU Ecosystem (virtuous cycle system)

Co-creation with society

- Promote joint research
- Strengthen intellectual property strategy
- Cultivate talent for innovation
- Bolster fundraising activities



Exploring issues

Osaka University Co-Creation Bureau



Information-gathering and analysis of problems by IR and URA

Virtuous cycle of knowledge, talent, and funds in the OU Ecosystem

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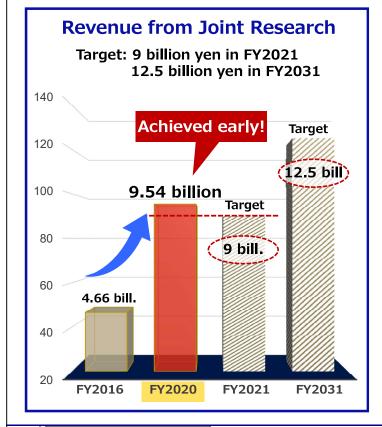




Co-Creation with Society

Achievements in this period

Major Expansion of Joint Research



Achievements in FY2019

*FY2019 Status of Industry-Academia Collaborations at Universities, etc., MEXT

Revenue from/No. of joint research projects

No.2 in Japan

Revenue from large-scale joint research projects

10 million yen+

No.1 in Japan (third year running)





Co-Creation with Society

in this period

Coordinated Promotion of Patent Strategy

Strengthening Intellectual Property

IP Licensing

Licenses

204 (2016) **310** (2020)

Value

220 million (2016) - 640 million (2020)

University-Initiated Startups

80 companies (2016) \rightarrow 168 companies (2020) 3rd in Japan

Promoting International Industry-Academia Collaboration

Joint Research with Overseas Firms

16 projects (2016) → 33 projects (2020) **Doubled**

International Patent Applications

15th in the world (Educational institutions)(2020)

2nd in Japan

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International Collaboration 4)-4

in this period

Strengthening the Foundation of **International Collaborative Networks**

Expanded to 5 Global Knowledge Partners (aiming for 20)

· Tackling global-scale problems and fostering highly-skilled professionals

Completed establishment of ASEAN Campuses in 4 countries

· Tackling local issues and fostering highly-skilled professionals among local students



University College London

Overseas Centers for Academic Initiatives (4)

Global Knowledge Partners

The University of British Columbia

European Center for Academic Initiatives

University of Groningen

Shanghai Jiao 💜 Tong University

ASEAN Center for cademic Initiatives

ASEAN Campuses

Thailand, Vietnam, Indonesia, Brunei

Osaka Univ.

University of California/ University of California **Education Abroad Program** Osaka Office



Davis

University of California,



Monash University (tentative)





International Collaboration

Achievements in this period

Achievements with Global Knowledge Partners

Promotion of International Joint Research

Joint research projects designed to tackle global-scale societal problems

12 with Shanghai Jiao Tong Univ.

18 with UCL

Hosting of Online Seminars (November 2020)

Seminars with Shanghai Jiao Tong University in 10 areas

Academic Exchange Seminars

Student Seminars

Participation of division heads from Osaka and Shanghai city governments on Smart Cities, advancing international regional-level collaboration



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International Collaboration

Achievements in this period

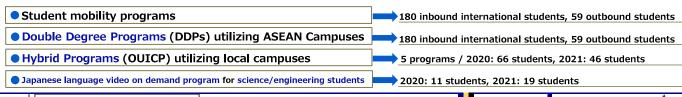
Osaka University ASEAN Campuses

Promoting joint research and advanced talent development responsive to local needs

Developing DDPs in areas of collaboration, utilizing local campuses to reduce the length of stay in Japan



Solving regional problems, contributing to "quality growth"







International Collaboration

Developing an Alliance under Osaka University Leadership Osaka University Partner Summit April 30, 2021

Discussion and joint statement on "The Role of Universities in Facing Societal Challenges and Recovering from COVID-19"

Opportunity to announce interim achievements of collaboration toward Expo 2025 Osaka, Kansai, Japan















Joint statement with 6 participating universities

Mahidol University (Thailand), Shanghai Jiao Tong University (China), The University of British Columbia (Canada), University College London (UK), University of California, Davis (US), University (Netherlands)















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International Collaboration

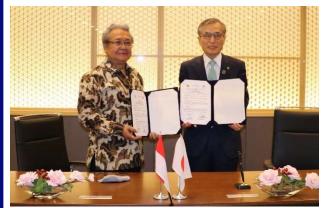
Achievements in this period

Partnerships with Foreign Governments, etc.

Partnership Agreement with Government of the Republic of Indonesia

Collaboration across 3 research fields, Promotion of joint research

- Vaccine development
- Food security
- Biotechnology



H.E. Mr. Heri Akhmadi, Indonesian Ambassador Extraordinary and Plenipotentiary to Japan (left) with President Nishio (right)

Partnership Agreement with Government of Brunei Darussalam

Joint symposiums on themes including halal science

Advancement of joint research and educational programs in collaboration with Brunei Ministry of Education and Ministry of **Primary Resources and Tourism**









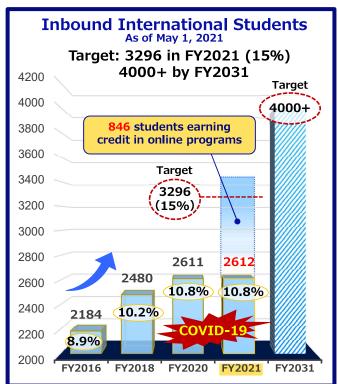
Scene from the 4th Joint Symposium

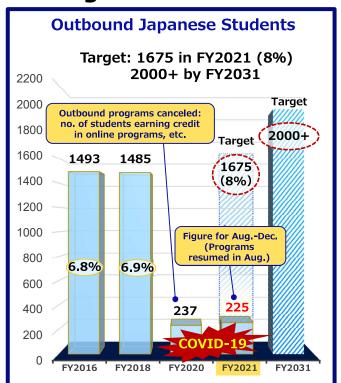




International Collaboration

Student Exchange





COVID-19 pandemic has necessitated a major review of student exchange initiatives. Going forward, we will promote student exchange with a focus on online activities as well.

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Nurturing globally-focused individuals in Osaka for the next 100 years

▶ A base where international researchers and students from 70 countries and regions gather



▶Improved environment for inbound international researchers and students

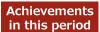
Global Village Minoh Semba 300 student rooms

(Opened in April 2021)





4)-5 Governance Reform



Establishment of Senior Executive Vice President (Osaka University Provost) Positions and Strategic Meetings, Building Strong and Flexible Governance Systems

Balance of bottom-up and top-down approaches important in university management

President

Senior Exec. Vice President for Management

Senior Exec. Vice President for Education and Research

Medical, Dental, Pharmaceutical and Life Sciences Strategic Meeting Science, Engineering, and Information Sciences Strategic Meeting

Humanities and Social Sciences Strategic Meeting

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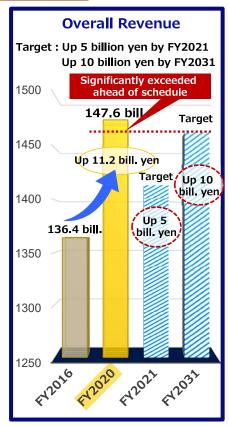


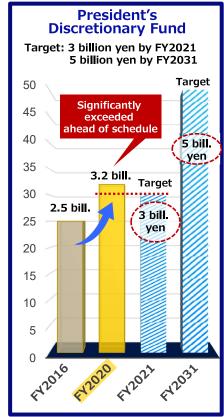


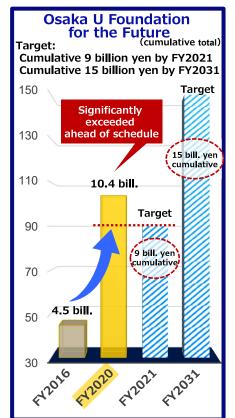
4-6 Reinforcement of the Financial Base

Achievements in this period

Reinforcement of a Stable and Sustained Financial Base









Base

for funds and real estate

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New Priority Initiatives and Plans toward the 4th Period

Creating

"A Society that Fosters a Sense of Purpose in Life" through Co-Creation with Society

Become an opinion leader in the creation of a society where individual active lifespan (social longevity) is extended, people of all ages apply their diversity in support of community, and each and every person enjoys a rewarding and happy life.



Development of Osaka University Master Plan as unified medium/long-term university management policies to achieve this goal



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Reference Materials Contents

(Materials related to achievements)

- 1. Attracting and Cultivating Researchers for the Future (Attracting and Cultivating Talent)
- 2. Development of Educational Programs to Tackle Societal Issues (Attracting and Cultivating Talent)
- 3. Improving the Environment for Young Researchers (SAKIGAKE Club) (Attracting and Cultivating Talent)
- 4. Solving Societal Problems with the Humanities and Social Sciences (Strengthening Research Capacity)

(New initiatives toward the 4th Period)

- 5. Outline of OU Master Plan 2027
- 6. Establishment of a Student Life-Cycle Support System
- 7. Strengthening Functions for New Co-Creation with Industry (Launch of Consortium for a Co-Creative Future)
- 8. Overall Vision for Development of Information Infrastructure (OUDX Initiative)
- 9. A University that can Contribute to Carbon-Neutral Goals at a Global Level

(Others)

10. Office for Information and Communications Technology Services/Office for Information Security



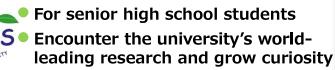
1. Attracting and Cultivating Talent

Achievements in this period

Cultivating Young and Female Researchers for the Future



Osaka University SEEDS Program



422 applicants from across Japan (for 130 places)



Mebae Tekijuku

- 40 students, 5th year elementary to 3rd year junior high
- Develop scientific sense, nurture budding scientists of the future



Class by Prof. Tamotsu Yoshimori (Biosciences), recipient of the Medal with Purple Ribbon (fall 2019)







2. Attracting and Cultivating Talent

Achievements in this period

Development of Educational Programs to Tackle Societal Issues

Advancing Talent Development Programs through Co-Creation with Society

Programs in medicine, dentistry, pharmaceutical and life sciences

Selected for WISE Program, FY2018

Transdisciplinary Program for Biomedical Entrepreneurship and Innovation

 Collaboration with national research institutes and major pharmaceutical companies to cultivate talent to develop social applications for research findings in medicine, dentistry, pharmaceutical and life sciences

Programs in science, engineering and informatics

Selected for WISE Program, FY2019

Multidisciplinary PhD Program for Pioneering Quantum Beam Application

- Solving global-scale societal problems with a focus on joint research in "nuclear medicine"
- Collaboration with the University of British Columbia

Programs in humanities and social sciences

Newly established in FY2020

Global Japanese Studies Education and Research Incubator

 Cultivating global talent with a grounding in "Japanese studies" as the academic basis for social applications

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3. Improving the Environment for Young Researchers

SAKIGAKE CLUB

A **mechanism** for the formation of teams to carry out leading-edge interdisciplinary research

Goals

A club composed of outstanding young Osaka U researchers

Forums for exchange

Opportunities for funding

Places for relaxation

Eligibility

Outstanding young researchers at Osaka U, generally aged 45 or under Approx. 60 members



Example of achievements

Application for COI-NEXT

(Program on open innovation platform for industry academia co-creation)

URA support for cross-disciplinary exchange helps initiate new research







4. Strengthening Research Capacity

Solving Societal Problems with the Humanities and Social Sciences

Realizing a "society that values life" by 2050

Selected for MEXT Project for Co-creating Knowledge in Humanities and Social Sciences

▶ Aiming to systematize the processes of identifying what knowledge in the humanities and social sciences can contribute and achieve in order to tackle the problems society is likely to confront in the future

Osaka U is the only university in Japan to be selected! SSI is taking the lead in advancing activities!

Main themes set:

- Models for society and humans taking into account population trends
- Overcoming social divisions
- Creating value for a new human society

3-step approach to problem solving

Step 1 Hold workshops/ young researcher seminars Discover/coordinate various issues



Step 2 **Build research teams**

Research individual issues

Social Solution Initiative

Step 3 Host symposiums **Propose solutions**



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5. Outline of OU Master Plan 2027

Osaka University Master Plan 2027

Guideposts for the university's medium/long-term future

Policies on the vertical axis

- Educational **Foundations** Research
- →Environments fostering rich intellectual capabilities
- **Foundations**
- →Environments where free thinking can blossom
- Management →Management with co-creation at its core **Foundations**

Policies on the horizontal axis

- Digital transformation for the new COVID-19 era
- Globalization and diversity & inclusion
- Creating enriched time for free thinking to grow (work style reform)
- Branding initiatives to foster and invigorate co-creation with society



6. Establishment of a Student Life-Cycle Support System

Education and Support Tailored to Different Stages of the Student Life-Cvcle

Feedback



recurrent education

Post-graduation career paths/

Educational



connection

Undergraduate

Render educational effects visible and explain them to society

Support individual students' learning (self-realization)

Graduate

Press ahead with educational reforms (curriculum reforms)

Data Collection

Educational

DX in Education

Integration of databases from pre-admission to post-graduation Analysis of educational effects

Admissions Information

Student Affairs **Information**

Student **Ouestionnaire** Information

Career Support **Information**



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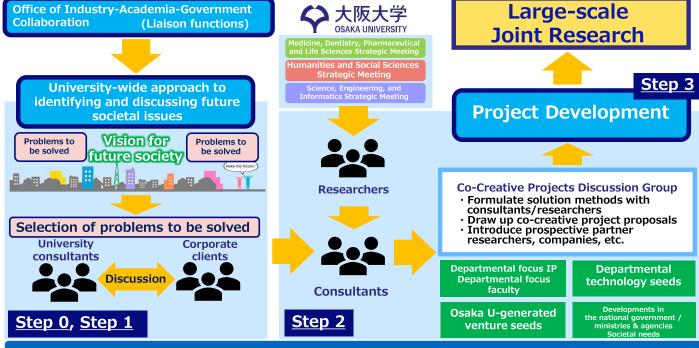




7. Strengthening Functions for New Co-Creation with Industry

Launch of Consortium for a Co-Creative Future (April 2020)

Industry and Osaka University identify and discuss societal issues and future visions, and explore solutions together



Consortium for a Co-Creative Future





Development of New Information Infrastructure to Support Education, Research, and University Management





OU Digital Transformation Initiative

Build more sophisticated learning environments to support blended education (DX in Education)

- Visualization of learning status
- Development of information infrastructure



Develop eResearch environment to enable pursuit of research activity fully online (DX in Research)

- DX of research/laboratory environments
- Development of infrastructure for intensive management of research data
- Public access to research data



Achieve DX in Management to support strategic university management

- Raising quality and efficiency of student services through digitalization
- Obtaining data to contribute to management decisions



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A University that can Contribute to Carbon-Neutral Goals at a Global Level



- Research on new energy through transformative innovation
- Cultivation of talent responsive to changes in global conditions

 Development of facilities fully equipped to reduce emissions



Osaka University's total greenhouse gas emissions:

Aiming to <u>achieve government target</u> by FY2030



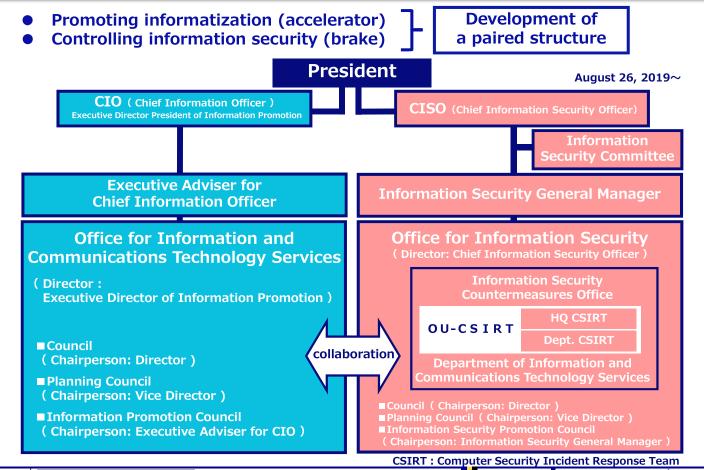


Realization of a carbonneutral society









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