

UTokyo International Collaborative Research Organization on Floating Offshore Wind Energy and Related Technologies **UT-FloWIND**

Overview of Vision, Mission and Activities

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Background of **UT-FlOwIND** Installation (1/2)

Renewable energy is expected to become a key source of power in the future and, in particular, offshore wind power is seen as a key solution.

Offshore Renewable Energy Area Utilization Act (April 2019 (effectuation))

Promote the introduction of primarily bottom-fixed offshore wind power within territorial waters to contribute to achieving carbon neutrality by 2050

Offshore Wind Industry Vision (1st Edition) (December 2020)

Project targets have been set for offshore wind power 10 GW by 2030 and 30–45 GW (including floating offshore wind) by 2040

4th Basic Ocean Plan (Cabinet decision: April 2023)

7th Strategic Energy Plan (Cabinet decision: February 2025)

Offshore Wind Industry Vision (2nd Edition) (August 2025)

Target Set for **Floating** Offshore Wind Projects: 15 GW by 2040 (plus 30 GW overseas)

Amendment of the Offshore Renewable Energy Area Utilization Act

(April 2026 (effectuation))

Legislation has been enacted to allow offshore wind power to expand into the Exclusive Economic Zone (EEZ) (If expansion extends to the EEZ, floating structures will be the primary focus)

Background of **UT-FlOwIND** Installation (2/2)

Major Floating Offshore Wind Projects in Japan

Offshore Wind Demonstration Project (MOE, 2010–2016)

➔ **Goto Offshore Wind Farm** (Commercial operation starts in 2026)

Fukushima Floating Offshore Wind Farm Demonstration Project (METI/ANRE, 2011–2020)

Demonstration Research of Next-Generation Floating Offshore Wind Power Generation Systems
(Barge type) (NEDO, 2019–2024)

➔ **Kitakyushu Hibikinada Offshore Wind Farm** (Commercial operation starts in 2026)

Public-Private Council on Enhancement of Industrial Competitiveness for
Offshore Wind Power Generation (METI, since 2020)

“Technology Development Roadmap” (NEDO, 2021)

NEDO Green Innovation Fund: Cost Reduction Project for Offshore Wind

Phase 1: Component Technology Development (since 2021)

Phase 2: Floating Demonstration (since 2024) (**Off the southern coast of Akita, Off the coast of Aichi**)

Industry Initiatives

To contribute to the large-scale commercialization of floating offshore wind power and the creation of domestic industries, the industry has formed a technology consortium to tackle technical challenges.

Floating Offshore Wind Technology Research Association (FLOWRA)

(21 power generation companies and related sectors) (since February 2024)

Floating Offshore Wind Construction System Technology Research Association (FLOWCON)

(15 companies in the construction industry and related sectors) (since January 2025)

Process of UT-FloWIND Installation

Situation at UTokyo prior to Establishing UT-FloWIND (-Sep. 2025)

Researchers spread across various schools and departments had been independently conducting world-class R&D in fields such as **wind power generation, floating structure engineering, power and grid systems, port, ship, and ocean engineering, ICT (Information and Communication Technology), HPC (High Performance Computing), and marine and energy policy** and developing human resource in the fields.

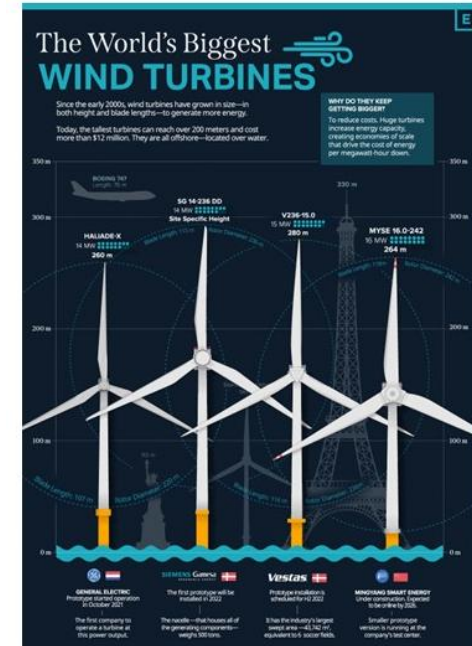
The field related to “floating offshore wind power” appears, at first glance, to be a niche technological field, but, in reality, it encompasses a wide range of diverse cutting-edge technical and social challenges

Refining a single organization or technical field is not enough in R&D or in human resource development.

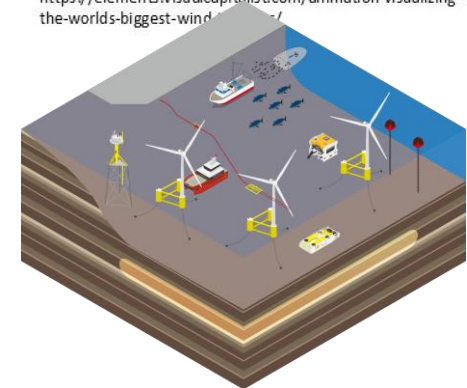
Comprehensive initiatives involving collaboration across a wide range of fields, industry-academia-government partnerships and international collaboration, are essential.



UTokyo International Collaborative Research Organization on **F**loating Offshore **W**ind Energy and Related Technologies (**UT-FloWIND**) has been established in October 2025



<https://elements.visualcapitalist.com/animation-visualizing-the-worlds-biggest-wind-turbines/>



Organizational Structure of **UT-FlOwIND**

E-mail flowind@edu.k.u-Tokyo.ac.jp <https://fwind.k.u-tokyo.ac.jp>

Partner Schools and Institutes

- Graduate School of Frontier Sciences (GSFS) (Principal)
- School of Engineering (SoE)
- Institute of Industrial Science (IIS)
- Atmosphere and Ocean Research Institute (AORI)
- Research Center for Advanced Science and Technology (RCAST)
- Institute for Future Initiatives (IFI)

Divisions



Collaboration

Domestic Partners (Planned)

Industries (Electricity providers, WT manufacturers, floater manufacturers, related companies, etc.)
FLOWRA, FLOWCON, etc
ClassNK, JAMSTEC, SRC, MPAT, Keidanren Committee for the Promotion of Ocean Development, etc
Universities and local government, etc

Overseas Partners (Planned)

NREL, DTU, DNV, NTNU, UK FOWCE, Univ. Sao Paulo OTIC, Germany, France, Taiwan, etc

Participating Faculty Members (55 members)

GSFS: T. Sato (Director), T. Kitagawa, Y. Ito, K. Suzuki, T. Waseda, S. Hirabayashi, R. Wada, Y. Konno, T. Kodaira, T. Tokunaga, S. Tabeta, J. Matsushima, K. Mizuno, S. Warisawa, K. Hiekata, H. Okuda, T. Matsunaga, J. Sasaki, Y. Matsuba, S. Baba, Y. Kameyama, S. Yoshimura
SoE: T. Ishihara, T. Ishida, Y. Takahashi, S. Takagi, T. Kawabata, J. Takahashi, H. Murayama, K. Tanaka, H. Fujii, K. Shibamura, H. Houtani, Y. Wan, R. Matsuhashi, A. Kumada, G. Hoshino, M. Zhao
IIS: Y. Hasegawa, D. Kitazawa, C.K. Rheem, Y. Okabe, T. Maki, Y. Yokota, Y. Iwafune, K. Ogimoto
AORI: M. Fujii, M. Makino, K. Sato, S. Kimura, J. Hayakawa
RCAST: M. Sugiyama, M. Iida
IFI: H. Shiroyama, Y. Takamura

Advisors (3 members): H. Suzuki, K. Takagi, K. Nishimoto

Vision and Mission for UT-FloWIND

- UT-FloWIND brings together researchers, spread across various schools and departments, from a wide range of academic disciplines and, consequently, deepens and accelerates R&D in floating offshore wind energy and related technologies. By collaborating with the Japanese government, industry, society, and overseas research institutions, UT-FloWIND leads the way in this field and contribute to achieving a carbon-neutral and resilient society.
- UT-FloWIND aims to develop a floating offshore wind power generation system (the “Japan Model”) capable of operating efficiently, stably, and for extended periods even under the harsh wind and sea conditions typical of the Asia-Pacific region.
- UT-FloWIND cultivates highly skilled professionals capable of leading academia, government, industry, and international projects in this field both domestically and internationally.



Mission : As a Hub connecting knowledge of industry, academia, government and global, we will lead the sustainable energy transition pioneered by Floating Offshore Wind Power.

Overview of Activities of UT-FloWIND

Mission: As a Hub connecting knowledge of industry, government, academia, and global, we will lead the sustainable energy transition pioneered by floating offshore wind power.

Activities of UT-FloWIND

① Research Group Activities in the Field of Research

Deepening and Integrating the Core Academic Principles

② Hub for Industry-Academia Collaboration

Matching with On-Site Challenges, Social Cooperation Programs and Corporate Sponsored Research Programs

③ Hub for domestic and international collaboration

Research and Educational Exchanges through Intense Collaboration, etc.

④ Industry-Academia-Government Roundtable

Creating a Grand Design for the Future by Leveraging Comprehensive Knowledge

⑤ Highly Skilled Professionals Development Program

Interdisciplinary Research Topics for Master's and Doctoral Programs, Educational Programs

Activities of Activities of UT-FloWIND

Mission : As a Hub connecting knowledge of industry, government, academia, and global, we will lead the sustainable energy transition pioneered by floating offshore wind power.

① Research Group Activities in the Field of Research

Core topic: Data sharing platform

- Metocean/G&G Database
- Wake & turbulence effect
- Geotechnical survey etc.

Metocean & Geology

Core topic: Strategic EIA

- Environmental Impact Assessment
- Bird strike, Ecosystem monitoring
- Blue economy etc.

Ecosystems & Environmental Impact

④ Industry-Academia-Government Roundtable

Grand Design for the Future Based on Comprehensive Knowledge

Technology & Systems

Core topic: Japanese-Style Floating Structures, Digital Technology/AI/Robotics

- Floating Structure Design Suitable for Construction, Installation, and Operation
- Automation (Sensors, Drones, Robots)
- Digital Twins, etc.

Industry & Policy

Core topic: Integrated Strategy

- Supply chain management
- Marine Space Planning
- Energy policy, Regional industry formation etc.

⑤ Highly Skilled Professionals Development Program

Master's and Doctoral Research and Educational Programs

Human Resource Development

Industry

Challenges, Budget, and Information

② Hub for Industry-Academia Collaboration

Dissemination of Information and achievements

Establishment of Social Cooperation Programs, Corporate Sponsored Research Programs and the Others

③ Hub for domestic and international collaboration

Domestic universities, research institutions, relevant government ministries and agencies, and local governments

Collaboration with Overseas Research Institutions

Examples of UT-FloWIND Activities (1/2): Simultaneously Addressing Technical and Social Challenges

The Bottlenecks Faced by Conventional R&D in Cutting-Edge Technology

First, we will research, develop, and refine cutting-edge technologies to make them ready for societal implementation. Then, we will scale them up and proceed with societal validation. However, at that time, the projects may stall due to **challenges related to social acceptance, sustainability, or institutional and policy issues.**



Building and Implementing Floating Offshore Wind Energy Systems pursued by UT-FloWIND

We set a target of manufacturing and installing 15 GW of wind turbines (750 units of 20 MW each, or 1,000 units of 15 MW each) (at peak, 3 GW annually (150 units of 20 MW each, or 200 units of 15 MW each)) for a floating offshore wind project in 2040 and, from the early stages, we will carry out our initiatives based on a policy of addressing simultaneously the following issues;

- **Technical Challenges (Cost, Reliability, etc.)** and
- **Social Issues (Social Acceptance, Coexistence with Nature, Local Communities, and Society; Energy Policy, Ocean Policy, Economic Security, etc.)**

Examples of UT-FloWIND Activities (2/2): Developing and Expanding Cooperation Area

The Relationship Between the Competitive Area and the Collaborative Area

In a free-market economy, “healthy competition among private companies” serves as the driving force behind innovation and sectoral development.

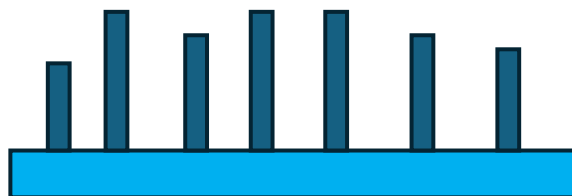
However, initiatives focused solely on “competition” tend to exacerbate divisions between organizations and across technological fields and, in fields that encompass a wide range of technologies, such as floating offshore wind energy and related technological fields, it is difficult to foster collaboration, nurture talent, and drive development.

As a result, there will be a multitude of small-scale, scattered achievements.

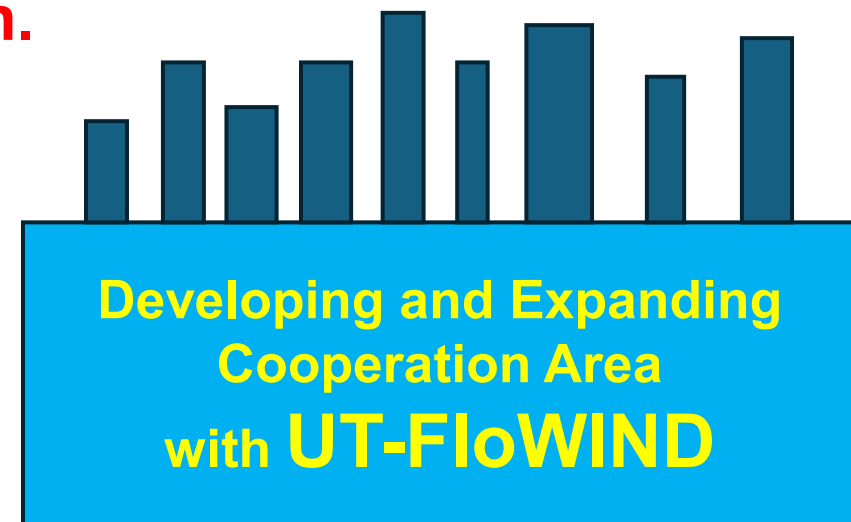


UT-FloWIND, as an academic institution, will act as an intermediary and collaborate with private companies and other organizations. It will then foster and expand areas of collaboration.

Competitive Area



Cooperative Area

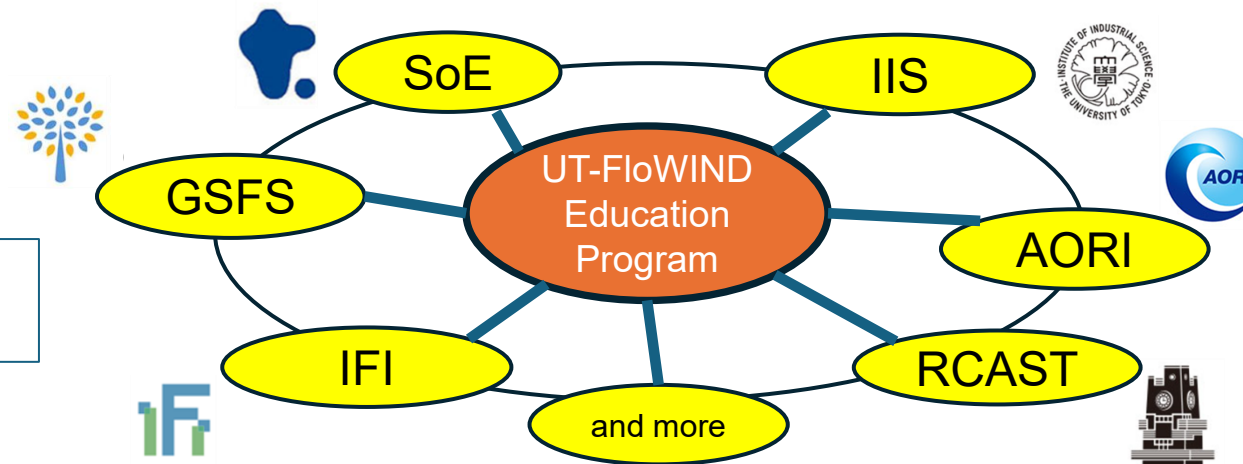


Make the competitive area taller, thicker, and wider

Development of the Next Generation of Leaders

- We provide joint supervision by multiple faculty members to master's and doctoral students and aim to develop them into highly skilled, interdisciplinary professionals.
- We are launching an interdisciplinary educational program featuring a structured body of knowledge and engaging educational content.
- We implement of project based learning, lifelong learning and reskilling.

Overview of the Development of Highly Specialized Professionals



Domestic Partner Organizations

FLOWRA, FLOWCON, etc

Overseas Partner Organizations

France, Taiwan, United Kingdom, Norway, Netherlands etc.

Lecture Program

- Certificate Program
- Internship (Domestic and Overseas)
- Collaboration with Ocean Alliance
 - UT-FloWIND covers engineering and environmental issues

Degree Program

- Interdisciplinary themes, Joint-advisory system
- Collaboration with industries (FLOWRA, FLOWCON, etc.)
 - Working professional with Ph.D
 - Doctoral research projects with industries
 - Corporate Internship

Research Projects Led by Visiting Researchers from the Professional World

- Challenges facing businesses and society



Strengthening Domestic and International Collaboration

- Many organizations and activities related to research and education exist already both domestically and internationally
- As an open organization, we will continue to expand our network both domestically and internationally
- We will strengthen our educational and research collaborations with other countries and enhance our ability to share our findings and, thereby, will increase our international recognition and secure major research projects.

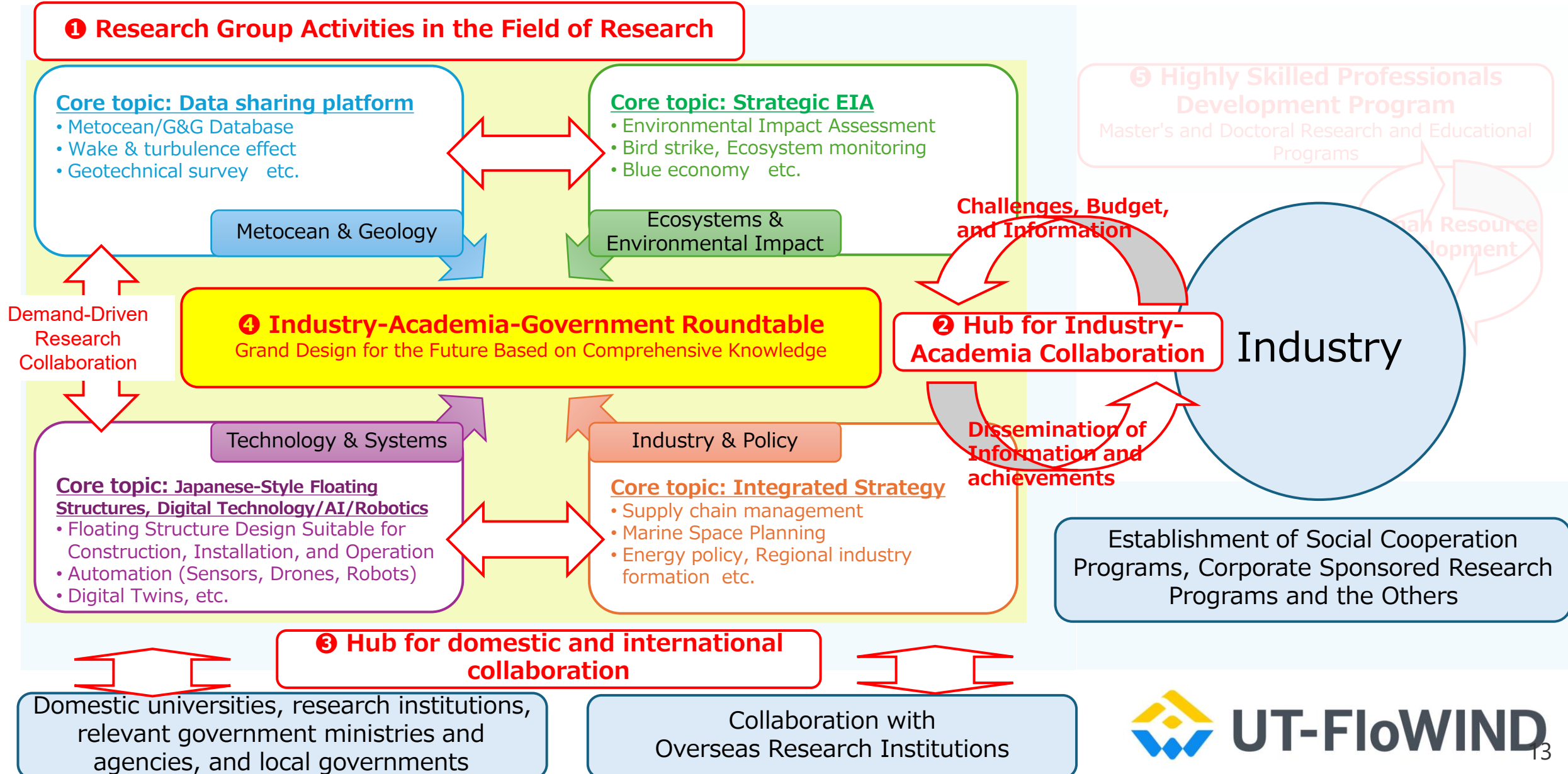


FLOWRA and FEM(France Energy Marines)
visited UT-FloWIND (7 April, 2026)



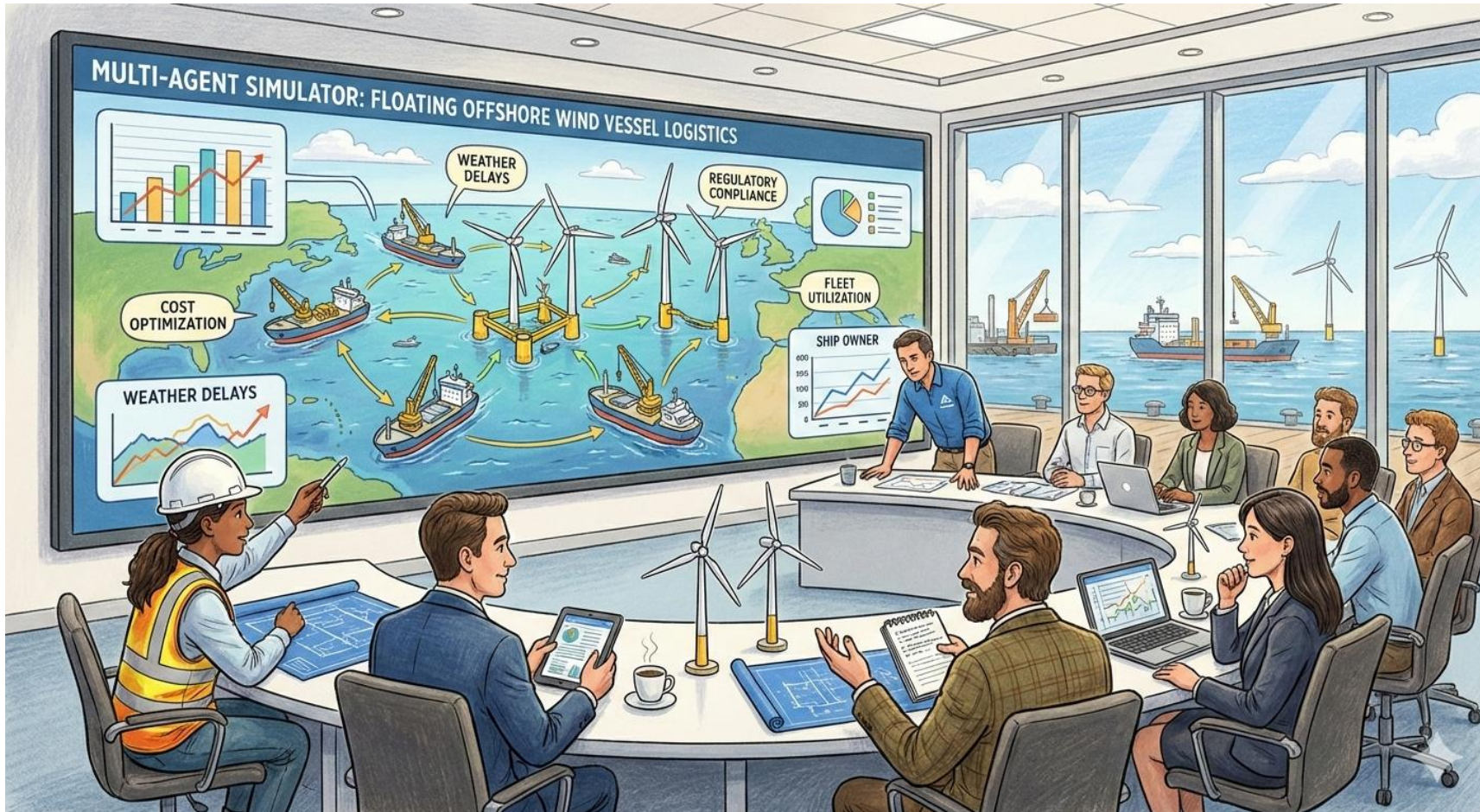
National Taiwan University, T-STONE, and TIER
visited UT-FloWIND (13 April)

④ Industry-Academia-Government Roundtable Grand Design for the Future Based on Comprehensive Knowledge



A Collaborative Framework for Tackling Major, Ambitious Challenges

- Co-creation among industry, academia, and government to develop a “grand design” that integrates the entire system from a bird’s-eye view
- In-depth discussions on specific issues
- Proposals to society for the creation of new industries



Thank you for your kind attention !

Looking forward to collaborating with you towards
establishing Carbon-neutral and Resilient Society via
Floating Offshore Wind Power.

e-mail: flowind@edu.k.u-tokyo.ac.jp

<https://fwind.k.u-tokyo.ac.jp>

