

Universities as Catalysts for Open Science and Sustainable Future

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[Brief background]

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 OIST is the third university Dr. Markides has led as President and CEO, following Chalmers University of Technology in Sweden and American University of Armenia. She was Chairman of DTU in Denmark and a member of several company boards. A former Chair Professor of Analytical Chemistry at Uppsala University, she supervised over 30 PhD graduates and published 300 scientific publications. She is Elected Member of the Royal Swedish Academy of Engineering Sciences (IVA) and the Royal Swedish Academy of Sciences (KVA) and contributes to the Nobel Prize in Chemistry selection. She earned her doctorate degree from University of Stockholm in Sweden.



Our world is currently facing diverse and pressing challenges - over 40 countries and regions are presently in active armed conflicts, civil unrest, or violence*¹, highlighting that overly polarizing politics does not work for problem-solving towards the sustainable future of humanity. Universities are not exempt from such turbulence. In response, universities must act as a trustworthy stakeholder protecting the core values of higher education and in sync with civic society. More importantly, universities must proactively embrace a new role as catalysts for Open Science, unlocking global, national, and local solutions through multilateral collaboration and science diplomacy.

Catalytic incentives are needed for the three essential roles of universities: scholarship and knowledge creation in research and education, nurturing academic talent and future leadership, and translating discoveries into practical knowledge for dissemination and applications. By utilizing the power of digital platforms and generative AI and defining interactive strategies, universities' role will enhance and become essential for realizing true sustainable and resilient solutions.

Open Science goes deeper than a technical framework and introduces a cultural shift in collaboration for the macro community which includes academia, industry, and civic society and integrates across global, local and national opportunities. When universities provide creative incentives from diverse sources to foster and catalyze open science with interdisciplinary and inter-stakeholder interactions, breakthrough discoveries from the labs and open innovation with industry for pre-competitive research will more

easily find pathways to converge and generate transformative societal impact.

At Okinawa Institute of Science and Technology (OIST), we catalyze open science and open innovation for a sustainable future. Built on an interdisciplinary, department-free model (see figure), OIST's 93 faculty-led research units foster excellence, agility, and exploratory collaboration across disciplines, supported by high-trust funding with a rigorous international post-evaluation. Beyond research, OIST integrates open science practices and mindset with innovation and outreach infrastructure—spanning collaborative physical and intellectual spaces, global visiting programs, entrepreneurship support, and real-world testbeds—to translate knowledge into responsible societal impact. By embedding the model of catalytic Open Science, OIST demonstrates how universities can align research, education, and partnerships to accelerate novel scientific discoveries and address complex challenges. Universities of the 21st Century invite society to participate and benefit through informed and trust-building engagement with the opportunities and responsibilities of rapidly expanding knowledge-based ecosystems.

*1 : Countries Currently at War 2026

