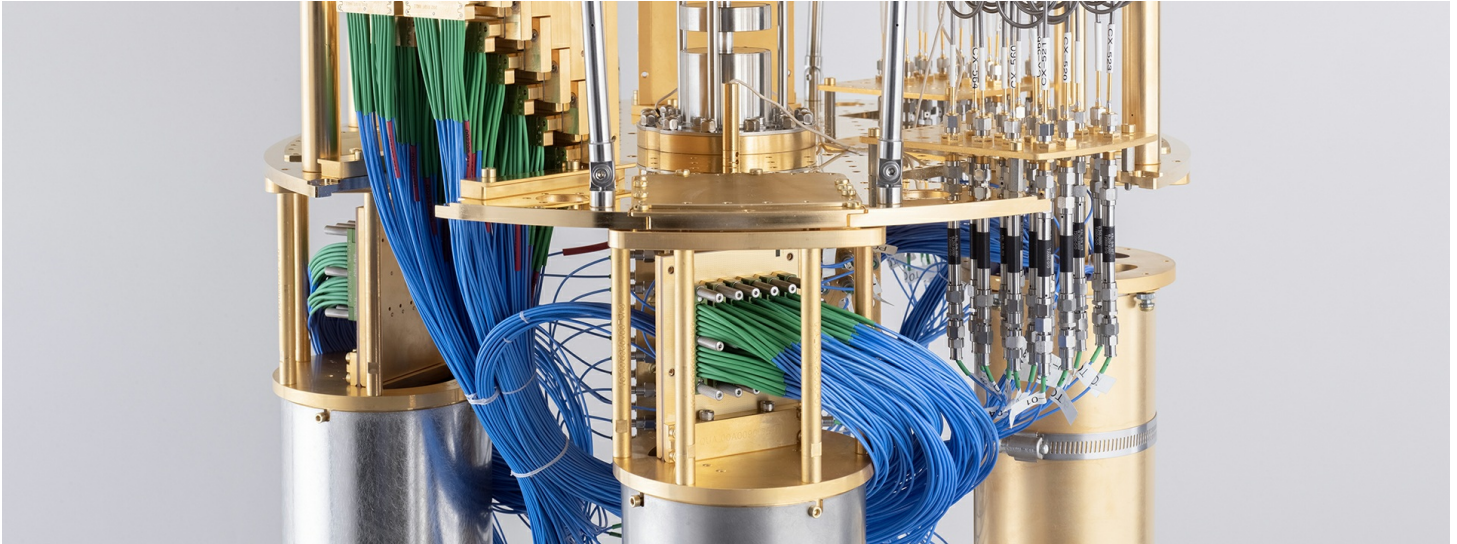


## IBM and Top Universities to Advance Quantum Education for 40,000 Students in Japan, South Korea, and the United States

Keio University, The University of Tokyo, Yonsei University, Seoul National University, and The University of Chicago and IBM to collaborate on preparing the future quantum workforce



TOKYO, Dec. 13, 2023 [/PRNewswire/](#) -- Today, IBM (NYSE:[IBM](#)) announced the company intends to engage with Keio University, The University of Tokyo, Yonsei University, Seoul National University, and The University of Chicago to work together to support quantum education activities in Japan, Korea, and the United States. IBM intends to deliver educational offerings, in combination with contributions from each of the participating universities, to advance the training of up to 40,000 students over the next 10 years to prepare them for the quantum workforce and promote the growth of a global [quantum ecosystem](#).

[Quantum computing](#) offers a different approach to computation which may solve problems that are intractable today. A skilled quantum workforce is critical to growing the quantum industry that will lead to economic development through leveraging quantum computing technology. Currently, people trained and skilled in quantum computing are needed as more higher-education and research institutions, national labs, and industries adopt quantum computing. To address the increasing demands of a growing quantum workforce, IBM and the five universities in Japan, Korea, and the U.S. intend to collaborate on the education of new and future generations of quantum computing users.



*Pictured L-R: Rahm Emanuel, U.S. Ambassador to Japan, Darío Gil, Senior Vice President and Director of IBM Research, Professor Kohei Itoh, President, Keio University, Yun Duk-min, South Korea Ambassador to Japan. (Credit: US State Department)*

This international initiative may include materials for educators from broad disciplines of science and technology such as physics, computer science, engineering, math, life sciences, and chemistry departments. To prepare for today's era of quantum utility, and the coming era of [quantum-centric supercomputing](#), the universities and IBM are focused on preparing a workforce capable of using the latest quantum computing technologies for scientific discovery and to explore industry applications that create new value in specific domains.

IBM intends to participate with the universities to develop a robust quantum curriculum to teach the next generation of computational scientists, who will be able to use quantum computers as a scientific tool. And all parties involved, whether individually or collectively, have the resources to engage in educator training, course material development, and community-driven educational events, including mentorships, joint summer programs, exchange programs and distinguished lecture programs.

"This monumental trilateral collaboration between IBM and some of the world's leading universities in the U.S., Japan, and South Korea, is a significant step forward in quantum education, ensuring our continued technical leadership, and epitomizes the spirit of international cooperation and technological progress that are essential in today's interconnected world. By fostering



a robust quantum workforce and supporting groundbreaking research, we are not only enhancing academic excellence but also contributing to economic development and technological innovation on a global scale." Rahm Emanuel, U.S. Ambassador to Japan.

"Since the Camp David agreements, cooperation between Korea, the U.S. and Japan has expanded to various fields such as the security, economy, high-tech, health and cyber. I believe there is a true call for collaboration between the three countries, especially in high-tech fields such as quantum computing. Today's announcement of the plan to train human resources and establish a research and industrial ecosystem in the quantum field will serve as a meaningful starting point for the trilateral high-tech cooperation. And I trust this will bring about substantial benefits for the people of the three countries through more investment and job creation." Yun Duk-min, South Korea Ambassador to Japan.

"Keio has been a pioneer in quantum research and education for more than 20 years. Now is the right time to rethink how we train the scientists and engineers for careers in this growing field, and we are excited to work with IBM and with other top universities in the creation and use of the next generation of educational materials. Blending our online courses with hands-on exercises using IBM's materials will improve recruitment, the rate of learning, and retention among our 'quantum native' students." Professor Kohei Itoh, President, Keio University.

"Among the various research fields, quantum computing, which excels at calculating equations containing many complex combinations, is expected to play a key role in the future of an advanced information-oriented and knowledge-intensive society and has been one of the most important fields that we emphasize at UTokyo, and we believe it very important to train the quantum professionals of tomorrow, quantum natives. Therefore, we aim to foster quantum natives and develop 'human capital' that will lead quantum research in social implementation, industrial applications, and academic fields, by promoting education on quantum computing throughout the entire university. The education program starts with first-year undergraduate students, using actual quantum computing equipment, including the state-of-the-art IBM Quantum machines, even with those new to quantum mechanics. It extends to senior undergraduate and graduate courses in sciences, engineering, and information science by implementing educational programs that are seamlessly organized through undergraduate and postgraduate courses. In this collaboration in quantum education among the universities in the U.S., Japan, and South Korea, we will make use of our respective strengths to contribute to the further promotion of quantum education and the solution of social issues." Dr. Teruo Fujii, President, The University of Tokyo.

"With the goal to create a robust quantum computing ecosystem, Yonsei University plans to introduce IBM Quantum System One for the first time in Korea in 2024. This collaboration is anticipated to significantly contribute to the foundational framework of both domestic and international quantum computing ecosystems. Simultaneously, it should play a pivotal role in the training of experts and the facilitation of cutting-edge research within the quantum computing domain. The collaboration with IBM is poised to synergize with Yonsei University's existing prowess in education and research, yielding a combined effect that will propel the development in the field of quantum computing." Professor Seoung Hwan Suh, President, Yonsei University.

"Seoul National University is at the center of quantum science and technology in Korea, with over 30 groups working on the core problems of broad scientific and technological issues. More recently, we have been working to build a stronger research community at the SNU campus by bringing them together under a single organization. This new organization will lead our efforts in this fast-developing and vibrant field of quantum science and technologies. Our collaboration with IBM and four other affiliated universities in Korea, Japan, and the U.S. will boost our efforts. We look forward to working with IBM in the coming years." Professor Hong Lim Ryu, President, Seoul National University.

"The University of Chicago was an early pioneer of the field of quantum engineering, and was the first university in the U.S. to award graduate degrees in this emerging area of technology. With other partners in the Chicago region, UChicago has strived

to develop a vibrant ecosystem for quantum technologies that is attracting companies and investments from around the world. These developments have underscored the need for a talented workforce. The University of Chicago is excited and proud to partner with IBM, and to build on its long-standing ties to Keio University, Yonsei University, Seoul National University, and The University of Tokyo, to deliver world-class educational programs that will prepare thousands of students for jobs and opportunities in quantum information sciences." Paul Alivisatos, President, the University of Chicago.

"With the recent demonstrations that quantum computers at a scale of more than 100 qubits are capable of being used as scientific tools to deliver insights reaching beyond leading classical approaches, we have an even greater need to educate today's students to join the growing quantum workforce. This effort intends to provide Keio University, the University of Tokyo, Yonsei University, Seoul National University, and the University of Chicago with IBM's latest and most advanced quantum education materials is a crucial step toward exploring useful quantum applications." Darío Gil, Senior Vice President and Director of IBM Research.

## About IBM

IBM is a leading provider of global hybrid cloud and AI, and consulting expertise. We help clients in more than 175 countries capitalize on insights from their data, streamline business processes, reduce costs and gain the competitive edge in their industries. More than 4,000 government and corporate entities in critical infrastructure areas such as financial services, telecommunications and healthcare rely on IBM's hybrid cloud platform and Red Hat OpenShift to affect their digital transformations quickly, efficiently and securely. IBM's breakthrough innovations in AI, quantum computing, industry-specific cloud solutions and consulting deliver open and flexible options to our clients. All of this is backed by IBM's long-standing commitment to trust, transparency, responsibility, inclusivity and service.

## MEDIA CONTACTS




Yohei Kawakami  
IBM Japan Communications  
[Yohei.Kawakami1@ibm.com](mailto:Yohei.Kawakami1@ibm.com)

Soo Na Ryu  
IBM Korea Communications  
[snryu@kr.ibm.com](mailto:snryu@kr.ibm.com)

Chris Nay  
IBM Communications  
[cnay@us.ibm.com](mailto:cnay@us.ibm.com)

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