September 1, 2021

Quantum Strategic Industry Alliance for Revolution (Q-STAR)

Establishment of Quantum Strategic Industry Alliance for Revolution (Q-STAR)

-Aims to promote industry leadership in promoting quantum industries-

The Founders' Association of the Council for New Industry Creation through Quantum Technology was formed on May 31, 2021 to advance preparations for establishing an industry council to promote initiatives in quantum technologies. Today, the 24 companies of the association, at their general meeting, formally established the council under a new name, the Quantum Strategic Industry Alliance for Revolution: Q-STAR.

The quantum age is now approaching and expectations are growing worldwide for the realization of safe, secure lifestyles and a better society. Japan aims to position itself as a quantum technology innovation-oriented nation, and to create new industries through services that leverage its strengths in materials, devices, measuring technologies, computers and communications, simulations and other technologies. Q-STAR will contribute to this with global leadership in the promotion of activities that advance science and technology in this new era, and by promoting Japanese industry and strengthening international competitiveness.

Q-STAR will invite the participation of diverse industries that support its objectives and initiatives, and will collaborate with industry, academia, and government in promoting initiatives that apply new technologies, and establishing related technology platforms. Q-STAR's concerns include reassessments of basic principles and laws related to quantum technology, carrying out surveys and making recommendations on its applicability and on necessary industrial structures, systems, rules, etc. Q-STAR will also aim to establish a globally-recognized platform that will promote collaboration with other organizations around the world working in quantum technology.

Outline of Q-STAR:

Name: Quantum Strategic Industry Alliance for Revolution

Established: September 1, 2021

Form of Establishment: Voluntary association

Steering Committee Members:

Satoshi Tsunakawa, Representative Executive Officer, President and CEO, Toshiba Corporation (Chair)

Takeshi Uchiyamada, Representative Director, Chairman of the Board of Directors, Toyota Motor Corporation

Nobuhiro Endo, Chairman of the Board, NEC Corporation (Vice-Chair)

Hiromichi Shinohara, Chairman of the Board, Nippon Telegraph and Telephone Corporation (Vice-Chair)

Toshiaki Higashihara, Director, Representative Executive Officer, Executive Chairman & CEO, Hitachi, Ltd. (Vice-Chair)

Takahito Tokita, Representative Director, CEO and CDXO, Fujitsu Limited (Vice-Chair)

Masayuki Waga, President & CEO, Mitsubishi Chemical Corporation (Vice-Chair)

Members of Q-STAR: 24 companies (random order)

ITOCHU Techno-Solutions Corporation (CTC)

SBS Holdings, Inc.

Canon Inc.

JSR Corporation

Sumitomo Corporation

SOMPO Holdings, Inc.

Dai-ichi Life Insurance Company, Ltd.

Dai Nippon Printing Co., Ltd.

Daiwa Securities Group Inc.

Chodai Co., Ltd.

Tokio Marine Holdings, Inc.

Toshiba Corporation

Toppan Inc.

Toyota Motor Corporation

NEC Corporation
Nippon Telegraph and Telephone Corporation
Hitachi, Ltd.
Fujitsu Limited
Mizuho Financial Group, Inc.
Mitsui Sumitomo Insurance Company, Ltd.
Sumitomo Mitsui Financial Group, Inc.
Mitsui & Co., Ltd.
Mitsubishi Chemical Corporation
Mitsubishi Electric Corporation

Main activities of Q-STAR:

(1) Investigate and research trends in quantum technology
Investigate and research general trends in quantum technology, and share information among top management within industry

(2) Investigate, research, and propose industrial applications of quantum technology
Investigate and research applicability in multiple fields

(3) Investigate and examine quantum-related technologies
Investigate, examine and share information on materials and devices required for quantum technology

(4) Investigate, plan, and make proposal for required human resources
Investigate, plan, make proposals and exchange opinions on how to develop the human resources needed to make full use of quantum technology

(5) Investigate and examine systems and rules
Investigate and examine necessary information on intellectual property and standardization, ethics and trust required for the implementation of quantum technology

(6) Collaborate with quantum-related organizations in Japan and overseas
Cooperate with other organizations, both domestic and overseas, working in quantum-related areas, in order to promote Q-STAR's objectives

(7) Others
Raise public awareness, make policy recommendations, etc.

Activities of the Subcommittees:

Q-STAR will identify areas to investigate in information and communication technology (quantum computing, quantum cryptography, etc.), basic technologies (materials, devices, etc.), important application areas (quantum materials, quantum biology/ medicine, quantum biotechnology, quantum sensors, quantum AI, etc.), human resources, systems and rules, etc., and establish further subcommittees as necessary.

- **Subcommittee on Quantum Wave and Quantum Probability Theory Applications**

  Tasked with exploring the creation of new industries using quantum amplitude estimation and optimization. The objective is to create industries with the potential to become mainstays in various areas while also spanning multiple industries, including the financial sector, which has a close affinity with these technologies.

- **Subcommittee on Quantum Superposition Applications**

  Tasked with taking a broad view of the systems, services, and businesses created by the application of quantum superposition, the most important capability of quantum computers. It will also examine changes in existing industries and industry structures that will result. By collaborating with users and vendors to draw a new image of society, the aim is to create new industries that will become future pillars and mainstays of industry, and that span multiple industries.

- **Subcommittee on Optimization and Combinatorial Problems**

  Tasked with using quantum-inspired computing technology (Ising Machine) that almost instantaneously selects the optimum solution from among an enormous number of combinations to solve diverse problems facing industry in areas including real-time prediction, efficiency, and optimization.

- **Subcommittee on Quantum Cryptography and Quantum Communications**

  Tasked with examining business use of quantum cryptography communication, a technology already available, and aim to open up a future pioneered by communications that guarantee information-theoretically security.

# # #

Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.
