



Quantum STRategic industry Alliance for Revolution

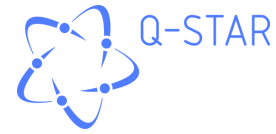
Q-STAR

**Q-STAR** (Quantum STRategic industry Alliance for Revolution) was established in Japan in 2021 to create new industries and business opportunities based on quantum technology.

Our members are formed by various business sectors from large corporations to startups, small and medium-sized enterprises and academic institutions.

**Q-STAR** is determined to proactively collaborate with organizations in diverse fields globally and across different industries and business fields to develop the quantum technology-related business in the future.

## From the Chair



As international competition in the quantum industry intensifies, expectations of the contributions of quantum technology to the society, the economy, and the environment are increasing. In Japan, it is highly expected that incorporating quantum technology throughout the socioeconomic system will integrate with conventional technologies, create opportunities for industrial growth and solve social issues.

The Quantum Strategic Industry Alliance for Revolution (Q-STAR) was established in Japan on September 1, 2021. Full-scale activities as a general incorporated association began on May 23, 2022. Our purpose is to develop quantum technology towards its future implementation in society, enhance public interest and contribute globally as an opinion leader in the industry.

We aim to build a society where quantum technology is used naturally and shift swiftly to quantum technology by industry-government-academia collaboration. Furthermore, given the current global economy, we will promote quantum technology globally in order to accelerate development and implementation of quantum technology. Q-STAR aims to not only to contribute within the country but also overseas alliances for developing quantum technology and its implementation in society.



**Taro Shimada**

**Chair of Quantum Strategic Industry  
Alliance for Revolution**

Representative Director  
Corporate Officer, President and Chief Executive Officer  
Toshiba Corporation

# About Us



Quantum Strategic industry Alliance for Revolution

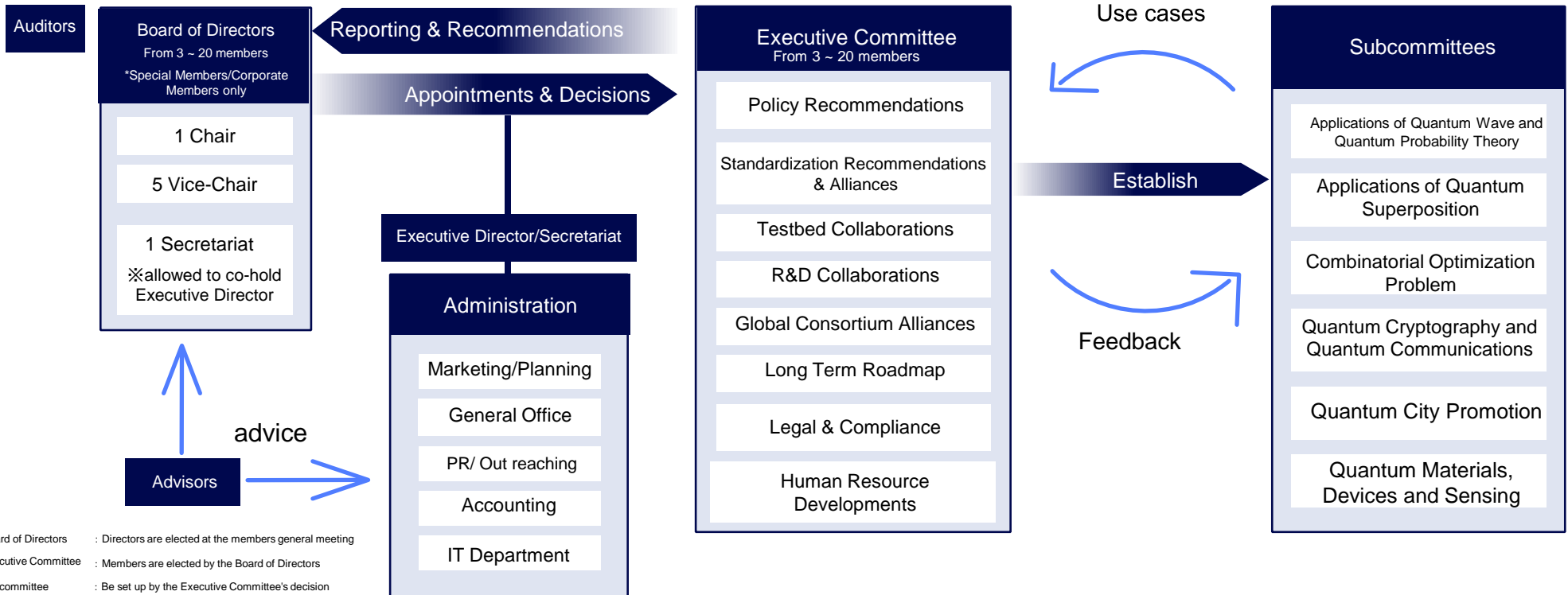
Established: May 9, 2022

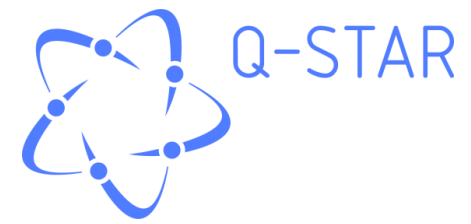
Form of Establishment: General Incorporated Association

Purpose: Creation of quantum-related industries and businesses

## Management Structure

The Executive Committee investigates trends in quantum technology and promotes its industrialization. The subcommittees discuss and manage the usage of quantum technology.





## Board Members

**Chair**      **Taro Shimada**  
Representative Director  
Corporate Officer  
President and Chief Executive Officer  
Toshiba Corporation

**Vice-Chair**      **Nobuhiro Endo**  
Executive Advisor  
NEC Corporation

**Vice-Chair**      **Hikomichi Shinohara**  
Executive Advisor  
Nippon Telegraph and Telephone Corporation

**Vice-Chair**      **Toshiaki Higashihara**  
Director, Executive Chairman,  
Representative Executive Officer  
HITACHI , Ltd

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

**Director**      **Yasuji Nagaya**  
Chairman  
Chodai Co., Ltd

**Director**      **Hideharu Maro**  
Representative Director President & CEO  
TOPPAN HOLDINGS INC.

**Director**      **Nobuhiko Koga**  
Chief Officer, Frontier Research Center,  
Chief Executive Officer, Toyota Central R&D Lab. Inc.  
Toyota Motor Corporation

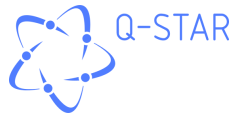
**Director**      **Satoshi Miki**  
CEO, Founder  
Fixstars Corporation

# Our Progress

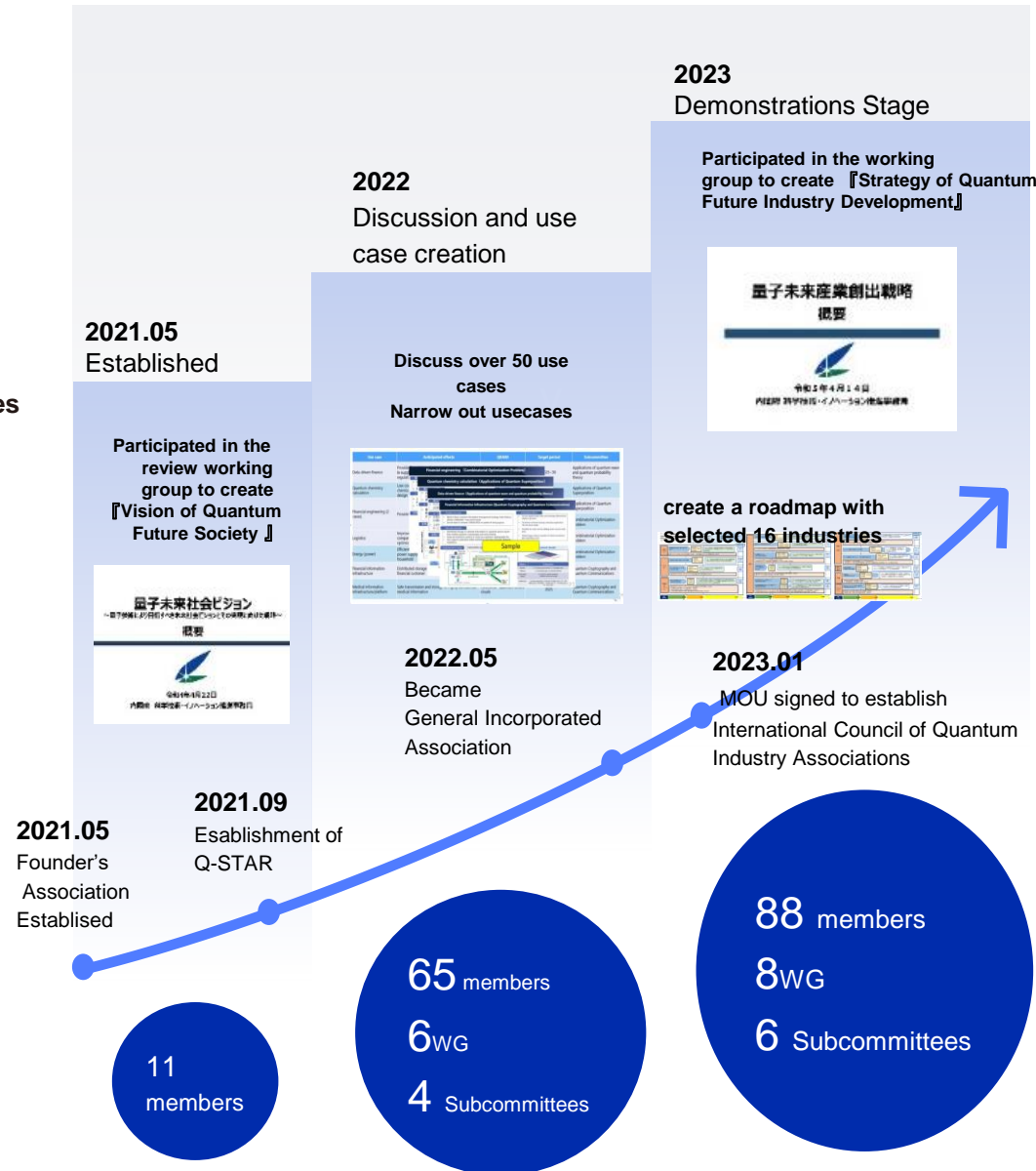
## Q-STAR Activities

Our mission is to create new business applying quantum technology in mid-long term. We promote cross-industry and cross-business initiatives from global perspectives.

- 1 Updating information on the latest research of Quantum Technology**  
 Sharing information about the latest research of Quantum Technology among industrial executives.
- 2 Investigating and suggesting applications for Quantum Technologies**  
 Investigate multiple industries to apply Quantum Technology.
- 3 Examining quantum-related technologies**  
 Discussing and sharing information about necessary materials and devices for Quantum Technology.
- 4 Researching, planning and suggesting ways to develop human resources related to Quantum Technology**  
 Discuss on how to develop human resource related to Quantum Technology.
- 5 Validating the System and Rules**  
 Clarify necessary rules for intellectual properties, standards, morals, and Corporate forms in order to implement Quantum Technology into society.
- 6 Collaborating with quantum-related organizations in Japan and overseas**  
 Cooperate with national/international committees in order to promote Q-STAR's objectives.
- 7 Other**  
 Raise public awareness, make policy recommendations, etc.



## History of Q-STAR



# What we are currently doing

## Subcommittee Activity

We are planning and promoting the activities of the subcommittee with the aim of industrialization in 2025.

### Applications of Quantum Wave and Quantum Probability Theory

Tasked with exploring the creation of new industries using quantum amplitude estimation and optimization, starting with the financial sector, which has a close affinity with these technologies.

We welcome those who are willing to discuss with us the creation of industries that will become pillars of the industry or industries that span multiple industries.

### Applications of Quantum Superposition

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 envision a future society, the aim is to create new industries that will become future pillars and mainstays of industry, and that span multiple industries.

### Combinatorial Optimization Problem

Tasked with using new computing technology (Ising Machine, i.e., quantum annealing technology or quantum inspired technology) to solve various problems facing industry (by almost instantaneously selecting the optimum solution from among an enormous number of combinations in areas such as real-time prediction, efficiency and combinatorial optimization).

### Quantum Cryptography and Quantum Communications

Tasked with examining the business use of quantum cryptography communication, an already available technology. We welcome those who are willing to discuss with us a future pioneered by communications that theoretically guarantee information security.



### Quantum City Promotion

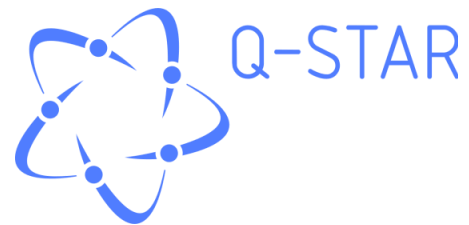
Tasked with exploring cases of use related to social infrastructure development that is intended to implement quantum technology from multiple perspectives; conducting in-depth research; and through demonstration experiments, creating new industries and achieving practical implementation, both domestically and internationally.

### Quantum Materials, Devices, and Sensing

Tasked with unleashing the tremendous power of quantum materials, devices, and sensing techniques, we will forge industries' collaborations with academia. We welcome those who are willing to find out new applications of these quantum-related technologies.

## Working Groups

- Policy Recommendations Working Group
- Standardization Recommendations & Alliances Working Group
- Testbed Collaborations Working Group
- R&D Collaborations Working Group
- Global Consortium Alliances Working Group
- Long Term Roadmap Working Group
- Legal & Compliance Working Group
- Human Resource Development Working Group



Contact

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