

TOHOKU UNIVERSITY

# New Industry Creation Hatchery Center





Greeting from the Director of NICHe

## We promote models for academic-industry collaborations that promote practical application of research findings.

The New Industry Creation Hatchery Center (NICHe), established in April 1998, is the first extensive industry-academia collaborative research center of Tohoku University. In order to meet the demands of society, the most important mission of NICHe is to contribute to the creation of new values, innovative technologies, processes, and products by promoting cutting-edge and advanced researches of Tohoku University in conjunction with a strong industry collaboration. To achieve this objective, selected industry-oriented research projects have joined NICHe from across Tohoku University, and specially appointed staff, including the URA (University Research Administrator), strongly support and promote the projects. Currently about twenty projects are in progress, including an advanced geriatric behavioral neurology project, a food biotechnology innovation project, an innovative development of supercritical processes, and development of advanced semiconductor sensor and devices with a super clean facility. Active and successful projects have resulted in the establishment of approximately fifteen venture companies.

The major infrastructure of NICHe consists of the main building (completed in February 2000), a Fluctuation Free Facility for New Information Industry including a Class 10 super cleanroom (November 2001), Hatchery Square (March 2002), and the NICHe Annex (March 2010); and we can provide a large dedicated research space, a high-performance information network, and a highly managed security system for all projects.

The annual amount of external funding earned by all projects of NICHe has reached more than two billion JPY. R&D planning functions, aimed at putting research results to practical use; research integrity management, such as dealing with conflicts of interest and security; and R&D support, such as appropriate fund management, have been established. We are continually improving and enhancing the system for more effective management.

NICHe celebrated its 20th anniversary in April 2018. In January of 2021, former director Professor Fumihiko Hasegawa was awarded the 70th Kahoku Cultural Award for "his great contribution to the Tohoku region industry by establishing an industry-academia-government collaboration." Following this honor, NICHe received the Innovation Net Award 2021 (Minister of Education, Culture, Sports, Science and Technology Award) in June 2021 for "Providing an industry-academia collaboration model to promote the practical application of research seeds and practicing social implementation through contribution to reconstruction from the Great East Japan Earthquake." We are delighted that the achievements of the past twenty years have been highly evaluated both inside and outside the university. At the same time, I have renewed my determination to work harder than ever to implement the research seeds in society.

Tohoku University was first named a Designated National University Corporation by the government in June 2017, together with the University of Tokyo and Kyoto University. In response to the expectations of Japanese society, Tohoku University is making various efforts to become a "world-class research university". As the global battle for hegemony over a wide range of research fields is expected to intensify, there is no doubt that the implementation of concrete results by Tohoku University's research seeds will be in strong demand by society. In order to promote and regenerate the Tohoku region, where the demographic shift of a declining birthrate and an increasingly aging population is most serious, I believe that one solution is for our university to assume leadership in the local community. In other words, the university will take a two-pronged approach, combining a "global" with a "local Tohoku area" focus. Within Tohoku University, NICHe must play a key role for this two-pronged approach to be successful. That is, planting and nurturing "new value" created from cutting-edge researches in the local area will have to be a newly defined mission of NICHe after more than twenty years since its establishment. This is in alignment with the idea of a "connected university" outlined in the Tohoku University Vision 2030, proposed by our President Dr. Hideo Ohno, which we are diligently striving towards implementing.

The Sendai City subway Tozai-line / Aobayama station opened in December 2015, making this research center a great location at the entrance to the Aobayama Campus of the University. As the 3GeV-class synchrotron radiation facility, scheduled for the first beam in 2023, is near-completion, I believe there will be even more opportunities for you to make use of this research center.

We look forward to your continued understanding and support. See you at Aobayama campus.

July, 2021

Director Prof. **Tetsuya Nagasaka**  
New Industry Creation Hatchery Center

## NICHe's Missions

NICHe is one of the inter-Department institutes for education and research in Tohoku University.

Our Mission is to respond to the needs of society by creating new technologies and products, as well as exploring new uses and industries for these creations. Original and cutting-edge research is carried out in collaboration with industry.

NICHe is a research center providing solutions for the problems of industry and society by cooperative research projects based on our university's potential.

### NICHe Guideline for Project

1. World Leading Research 2. Goals and Timeframes 3. Large Scale Research Endeavours 4. External Funding

- Research Spaces with Ensured Confidentiality\*
- Planning of Collaborative Research (fund procurement, support for start-ups, clerical work)
- Concentrated Research Environment (free from teaching and administrative duties)

### Management of Collaborative Research

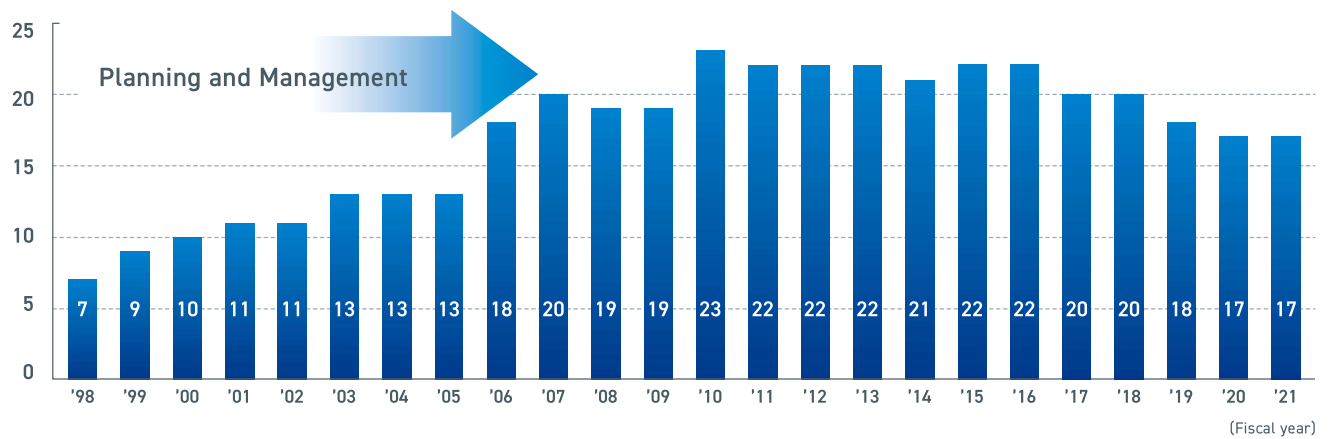
#### \*Confidential Information Management

NICHe's buildings and areas are under strict entry and exit control to protect research and business confidentiality.

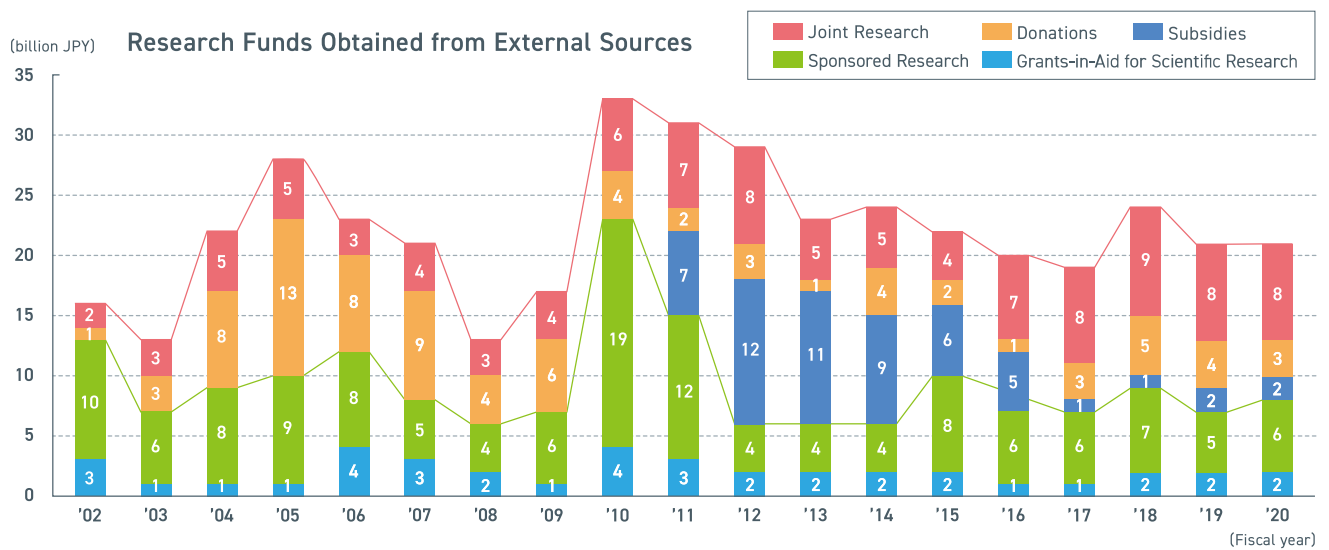
## History of NICHe

Organizations and Facilities within TOHOKU University	Year	Events in Japan
New Industry Creation Hatchery Center (NICHe) Tohoku Techno Arch	1998	Act on Technology Transfer Promotion (TLO Act) (The Promotion of Technology Transfer from Universities to Private Business Operators)
	1999	Act on Industrial Revitalization (Japanese Version of the Bayh-Dole Act)
NICHe Main Building	2000	Industry Technology Enhancement Act (Deregulation on Side Job: Academic Discounts on Patent Fees)
	2001	Reorganization of the Central Government Ministries and Agencies
Fluctuation Free Facility for New Information Industry Hatchery Square	2002	
	2004	Incorporation of National Universities
Business Incubator, T-Biz *A Facility of Organization for Small & Medium Enterprises and Regional Innovation, JAPAN	2007	
NICHe Annex	2010	
Miyagi Reconstruction Park (in October) *Research Center for the NICHe Next-Generation Mobility System Project	2011	Great East Japan Earthquake
Under One Roof *Concentration of industry-academia collaboration organizations scattered	2018	
Aobayama Science Park	2020	

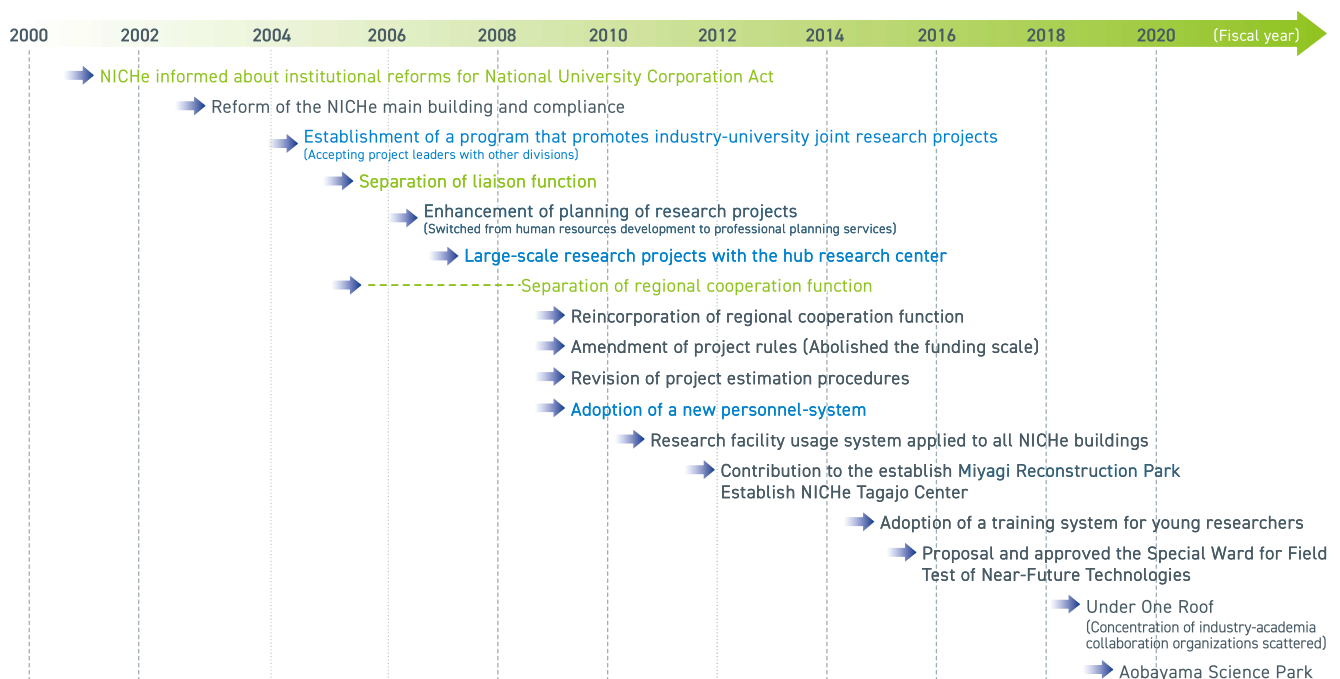
## Number of Project



## Research Funds



## History of NICHe



## Facilities and Access

NICHe has four research buildings on the Aobayama Campus of Tohoku University.

01

### New Industry Creation Hatchery Center

Main Building



#### OUTLINE

The main building, built for industry-university joint research, has six-stories with a total inside space of 4,600 m<sup>2</sup>. The first floor is allocated to the Planning and Development Division and administration. The second to sixth floors are allocated to research projects. Entry to and exit from each floor are monitored 24 hours to secure research confidentiality.

#### FEATURES

Geothermal heat pump system is installed for CO<sub>2</sub> emission reduction and energy saving.

02

### Fluctuation Free Facility for New Information Industry



#### OUTLINE

This facility was created in order to bring about a leap forward in technological advances for Japan's semiconductor / flat panel display field. The creation of this facility was supported by those in the industrial world who agreed with the "New Semiconductor / Display Industry Project" developed by Tohoku University. The facility contains six stories and 6400 m<sup>2</sup> of indoor space.

#### FEATURES

In order to realize ultra fine processing and high precision measurement at a nano-meter level, this facility offers control to variants such as the detection of contamination, monitoring power-supply voltage fluctuations and other fluctuations such as power supply voltage and minute vibrations while maintaining thorough energy conservation measures. This facility is available for use from planning, designing and manufacturing for the conducting of tests in a consistent manner. From lower level one to the fourth floor there are two clean rooms with clean spaces (605 m<sup>2</sup> and 692 m<sup>2</sup>), Professor's rooms and conference rooms on the fifth floor and the sixth floor contains CAD equipment, a measurement and evaluation room as well as a free space for researchers.

03

### New Industry Creation Hatchery Center

Annex



#### OUTLINE

This facility was constructed by a grant from the Ministry of Economy, Trade and Industry under the title of the "2008 Grant for Public Facilities for Promoting the Attraction of Enterprises to Regions." To put the outcomes of research to practical use quickly, researchers from the university are engaged in research activities in collaboration with parties from large companies and small and medium-sized enterprises (SMEs), especially from domestic SMEs aiming to be global niche players.

#### FEATURES

To conduct large-scale research activities, each floor (446 m<sup>2</sup> for research spaces) has no partitions. Partitions can be erected when required. Entry and exit management are thoroughly maintained by keeping record to ensure confidentiality and to avoid unauthorized entry or contamination of research information. (Five-storied building with total area of approx. 3,500 m<sup>2</sup>)

04

### Hatchery Square



#### OUTLINE

Hatchery Square was opened in September 2002 as a facility to foster research projects that specialize in the development of ventures with research results of the University as their basis. Creating university-originated ventures is the main objective of the facility.

#### FEATURES

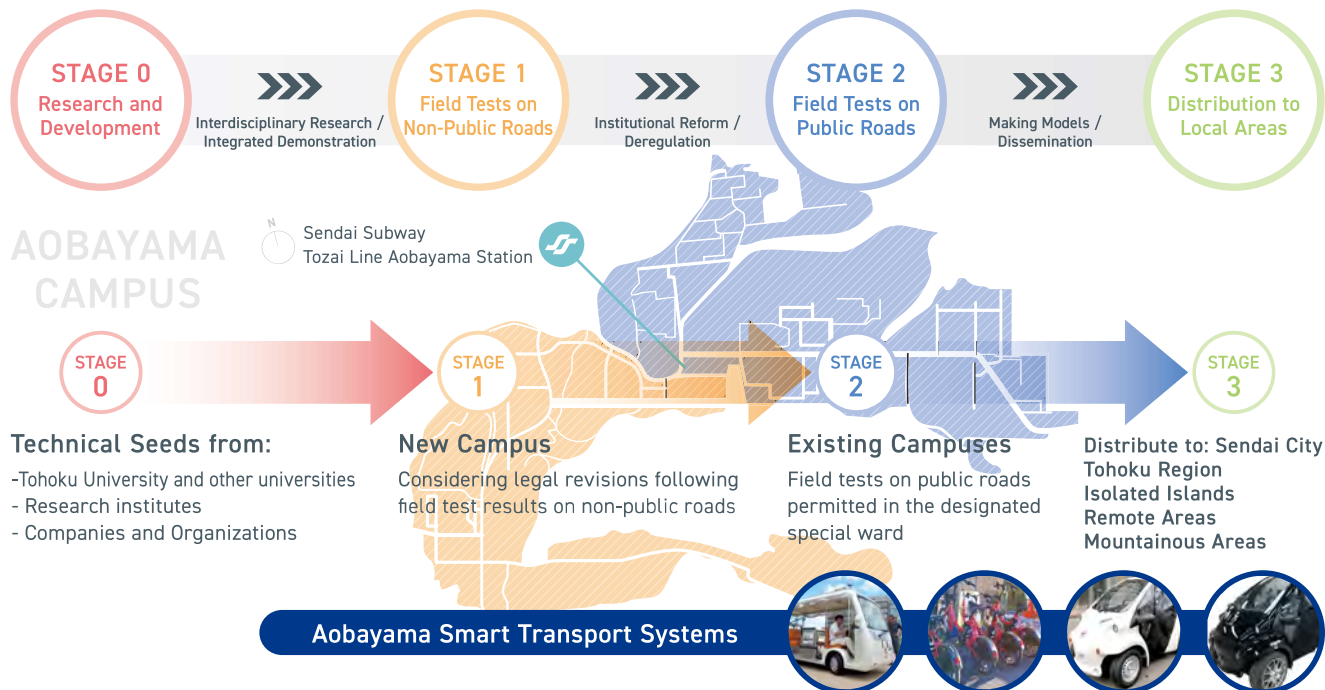
This steel-framed building consists of two-stories with an area of approximately 1,000 m<sup>2</sup>, accommodating R&D offices, meeting rooms and a common space. The meeting rooms and common space are available for use around the clock as common rooms for tenants. Since the facility is open 24 hours, ID cards are required for both entry to and exit from the doorway and each office room for security reasons.

## Special Ward for Field Test of Near-Future Technology

**Aobayama New Campus Vision** : Showcase of cutting-edge technologies on Aobayama campus.

**Aobayama Smart Transport Systems** : Concept of the Special Ward for Field Test of Near-Future Technology

Designated by the national government as the Sendai City 'Social Innovation Creation Special Ward', one of the special zones for regional revitalization (national strategic special zone) (2015)



## New Industry Creation Hatchery Center (NICHe)

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### Subway Tozai Line

Time / 9 minutes, Fare / 250 yen.

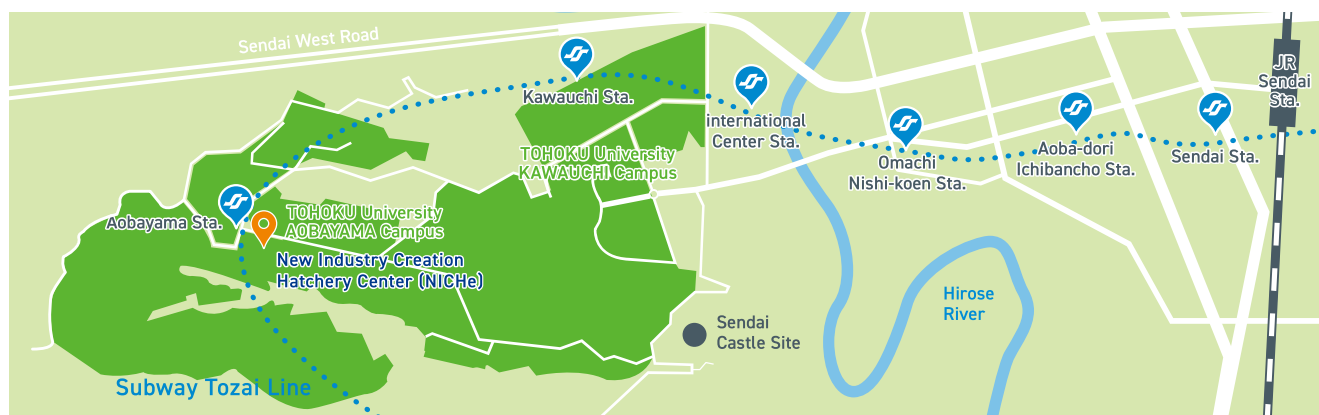
From "Sendai" station, take the Subway bound to "Yagiyama Zoological Park". Get off at "Aobayama" station.



### Taxi

Time / 20 minutes, Fare / 1,700 yen approx.

Taxi's available to NICHe from Sendai Station.





NICHe has supported the establishment of more than 30 venture companies.

The list is representative venture companies.



Tohoku-Micro Tec CO., Ltd.

Idea International



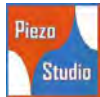
Research Institute for Technology Management Strategy Co.Ltd.



C & A Corporation



Material Concept, Inc.



Piezo Studio, Inc.



Ball Wave Inc.



Sendai Smart Machines Co., Ltd.



Super Nano Design Co., Ltd.

Professor Emeritus.com

General Incorporated Association Japan  
Geriatric Behavioral Neurology Institute



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