

Engage Ecosystem Ambassador Report

Rein G. Bentsdal
Liv Nordal

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1.

Shenzhen

Background for visit

We traveled to China to participate in trade fairs and explore the market for our hardware music product, while gaining first-hand insight into the ecosystem.

Shenzhen was chosen specifically to:

- learn more about electronics manufacturing and production processes
- visit factories and understand how hardware is developed and scaled
- gain insight into certification requirements for electronic products
- build relationships with manufacturers and potential partners

During the visit, we observed the exceptional speed of product development, enabled by a highly integrated supply chain and close collaboration between stakeholders.

We also gained insight into the strong support from government and infrastructure, which significantly lowers barriers for hardware innovation.

A key takeaway was how open, helpful, and collaborative the ecosystem is, with companies and actors willing to share knowledge and support early-stage ventures.



Why Shenzhen?

Global Hub for Innovation and Hardware

- Shenzhen, established as China's first Special Economic Zone in 1980, has transformed from a small fishing village into a global technology and innovation hub with a population of over 17 million and a GDP comparable to that of a small European country.
- The city is widely recognized as "Silicon Valley of Hardware" and is home to leading technology companies such as Huawei, Tencent, and DJI, which contribute to a highly dynamic and innovation-driven ecosystem.
- Shenzhen has one of the highest levels of R&D investment globally, with approximately 5 percent of its GDP allocated to research and development, and it consistently ranks among the top cities in the world for patent filings.





	Shenzhen	Trondheim
Area	~2,000 km ²	~322 km ²
Relative size	—	~6× smaller
Population	~17+ million	~220k

Silicon Valley of Hardware

Shenzhen is the global hub for electronics manufacturing, often called the "Silicon Valley of Hardware," producing an estimated 90% of the world's electronics. It features a robust ecosystem for rapid prototyping, component sourcing, and mass production, specializing in smartphones, drones, IoT devices, and EV components. Key areas include Huaqiangbei for components and major manufacturing zones for OEM/ODM services.

Key Aspects of Shenzhen Electronics Manufacturing:

- **Rapid Prototyping & Iteration:** Known for its ability to turn concepts into products quickly, making it a hotspot for startups and tech innovators.
- **One-Stop Supply Chain:** The city provides a comprehensive ecosystem where chips, PCB boards, casings, and sensors can be sourced and assembled in close proximity.
- **Major Products:** Consumer electronics, drones, LED technology, mobile phones, smart wearables, and electric vehicle (EV) components.
- **Manufacturing Types:** Strong OEM (Original Equipment Manufacturer) and ODM (Original Design Manufacturer) capabilities for global brands.



2.

Southern
University of
Science and
Technology
(SUSTech)

Southern University of Science and Technology (SUSTech)

The Southern University of Science and Technology is a public research university founded in 2010 in Shenzhen, China, as part of a national effort to reform higher education and build world-class research institutions.

- Located in Shenzhen (often called China's Silicon Valley)
- Established to experiment with new education models and innovation-driven development
- Rapidly growing, with 10,000+ students and strong global rankings

南方科技大学地图

Campus Overview



SUSTech
campus 4,5x
bigger than
Gløshaugen
NTNU



Innovation as a Central Mission

Innovation is a part of SUStech's core mission:

- The university explicitly aims to “transform knowledge into useful technology”
- Strong focus on applied and industrial research, not just theory
- Close alignment with societal and industry needs

The university culture emphasizes:

- Problem solving
- Real-world applications
- Commercialization of research



3.

Innovation at
Sustech

Innovation at Sustech

The innovation ecosystem at SUSTech is largely organized around the **School of Innovation and Entrepreneurship**.

This school functions as a central hub for entrepreneurship, innovation education, and industry collaboration.

At the same time, innovation activities are not limited to one school, but involve multiple faculties and disciplines across the university.

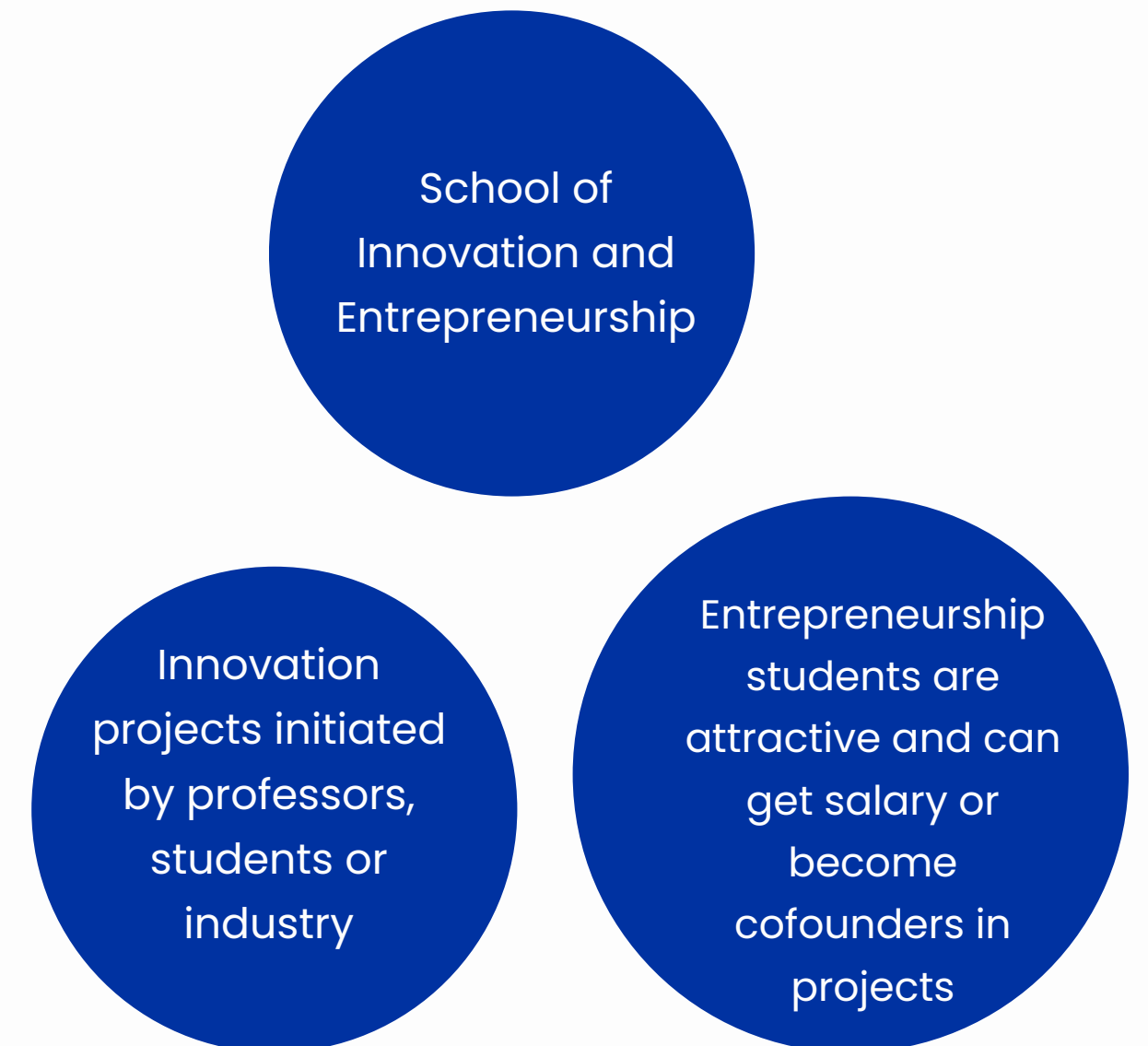
Innovation projects can be initiated by:

- Students
- Professors
- Research environments or industry

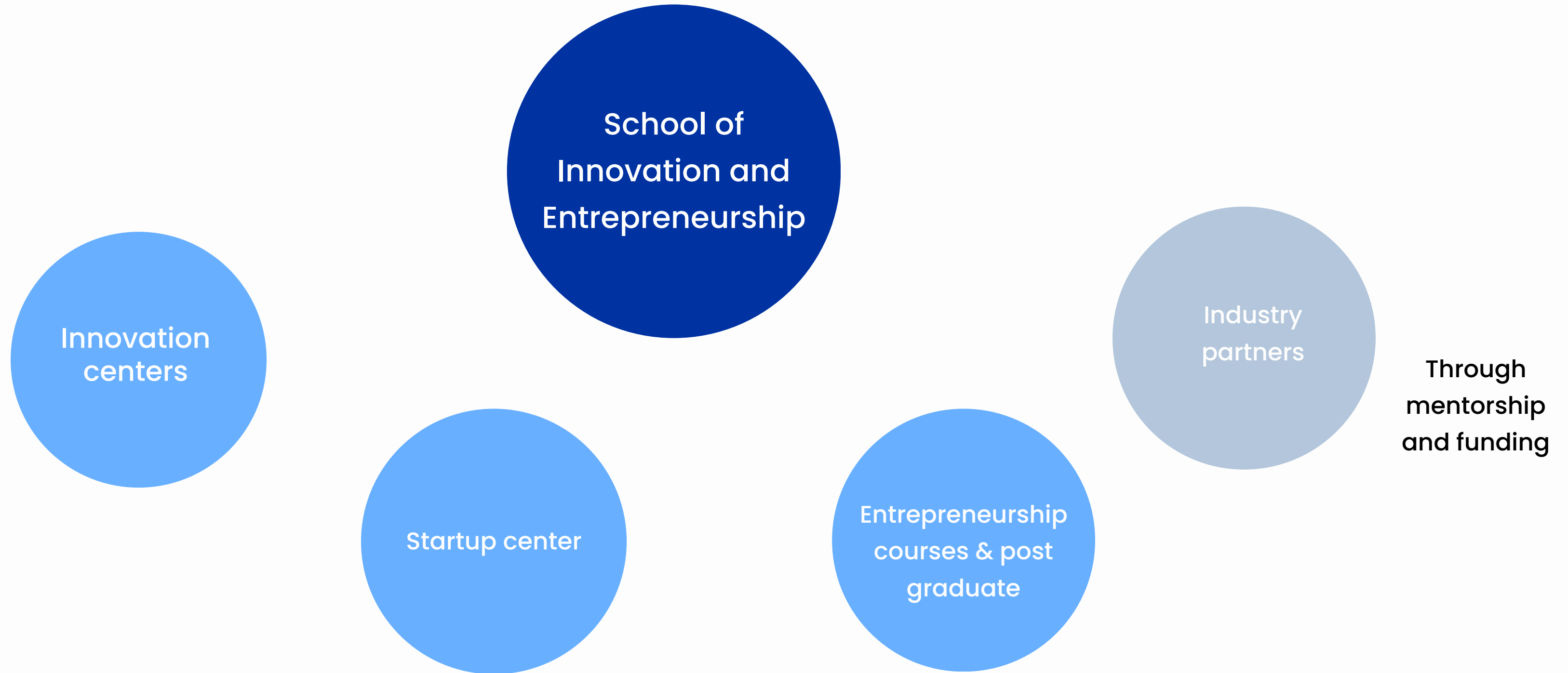
Professors often involve students in research and innovation projects.

Entrepreneurship students are particularly attractive in such projects and may:

- receive payment for project work
- become co founders in startups



Innovation Ecosystem



Organizations & Innovation centers

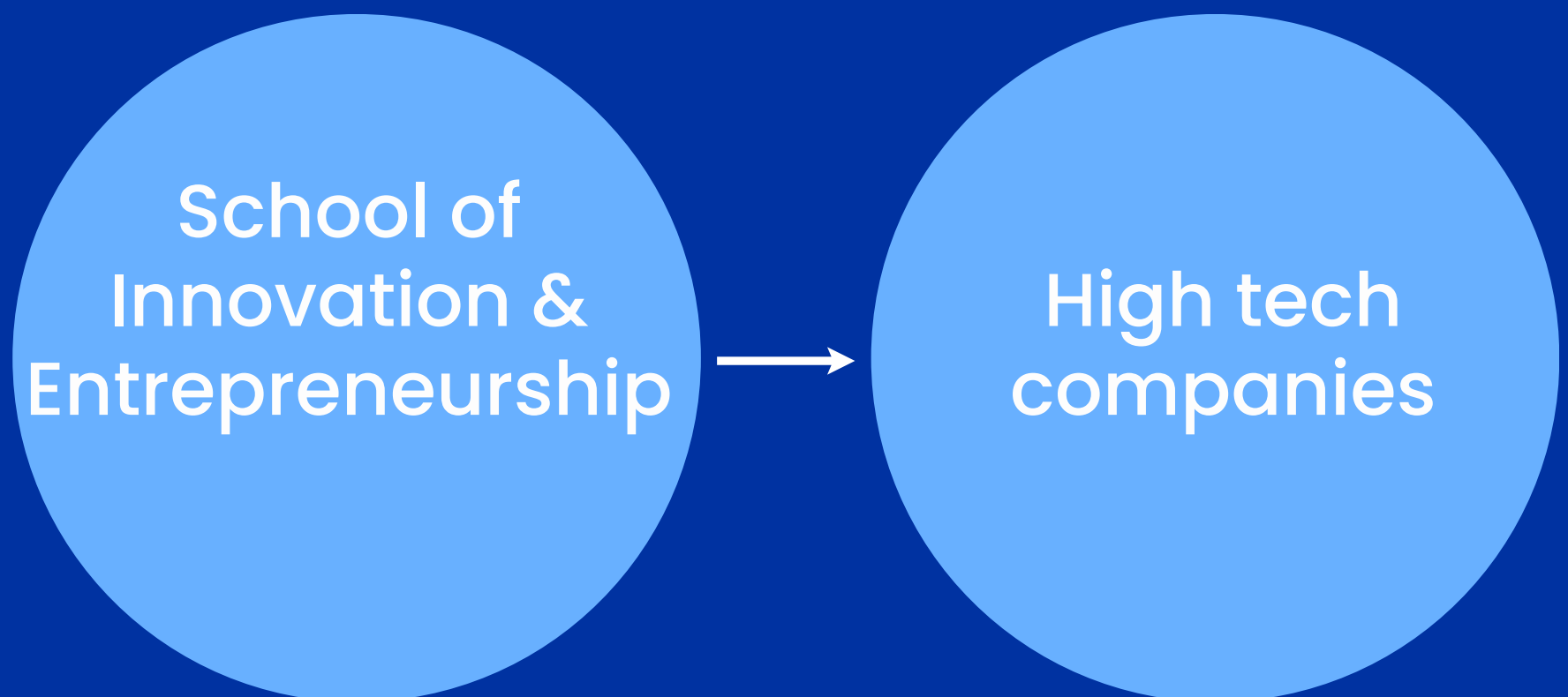
School of Innovation and Entrepreneurship

SUSTech's main unit for innovation and entrepreneurship

Responsible for:

- entrepreneurship education
- innovation hubs
- entrepreneurship training
- CTO training
- linking the university and industry

Acts as a "bridge between university and high tech enterprises"



School of Innovation and Entrepreneurship

Faculty & Network

- 18 core professors
- 42 affiliated professors (from other departments and international universities)
- 482 industry mentors/professors (experienced business mentors from companies like Huawei, DJI etc)

Infrastructure & Partnerships

- 2 Engineering Research Centers (energy + UAV technology)
- 18 university & enterprise joint labs
- 29 off campus practice bases (like Shenzhen Gas Group Co., Ltd., Shenzhen Orbbec Technology Co., Ltd., Shenzhen BGI Genomics Institute, and Shenzhen Kuang-Chi Institute of Advanced Technology)

Development Focus

Expanding into central experimental platforms for:

- Clean energy
- Aerospace technology
- Advanced materials

988 Master of Engineering students trained (since 2017)

School of Innovation and Entrepreneurship

Post graduate program
(Similar to Entreprenørskolen)

- Established in 2017
- Focus on innovation and entrepreneurship, using:
 - Interdisciplinary courses
 - Applied research projects
 - Strong scientific training
- It recruits master's students from a wide range of fields, including engineering, natural sciences, and technology (e.g. electronics, biology, materials, automation, UAVs).

Entrepreneurship Courses

- Offers around 20 Entrepreneurship courses for all students at SUSTech across fields

988 Master of Engineering students trained (since 2017)

Innovation centers

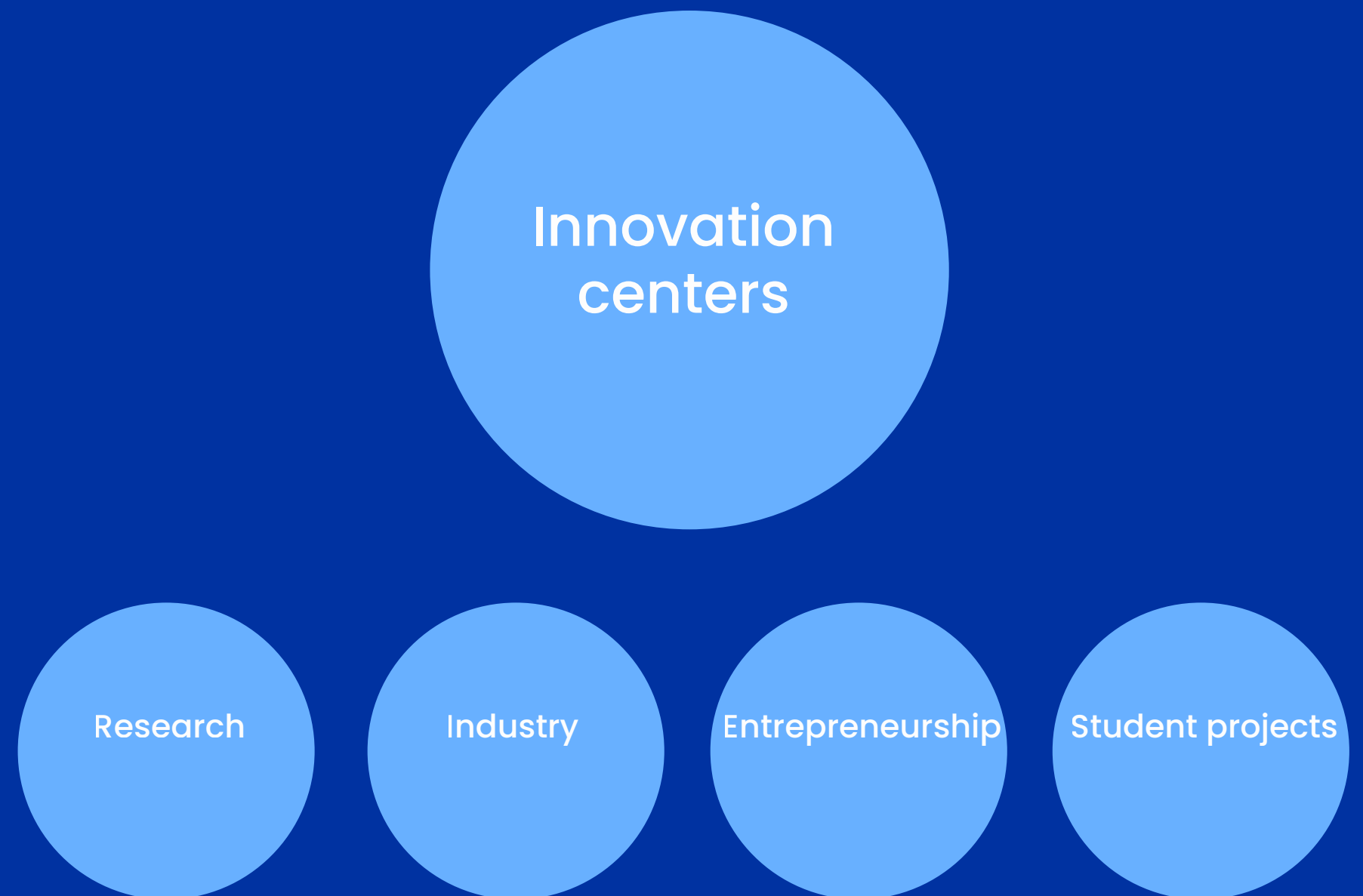
Innovation centers

The school has established several Innovation Centers and Research Institutes:

- Clean energy
- Aerospace technology
- Solid state battery materials and devices
- Cell and gene therapy
- Science and art integration

These centers connect:

- Research
- Industry
- Entrepreneurship
- Student projects



Startup center



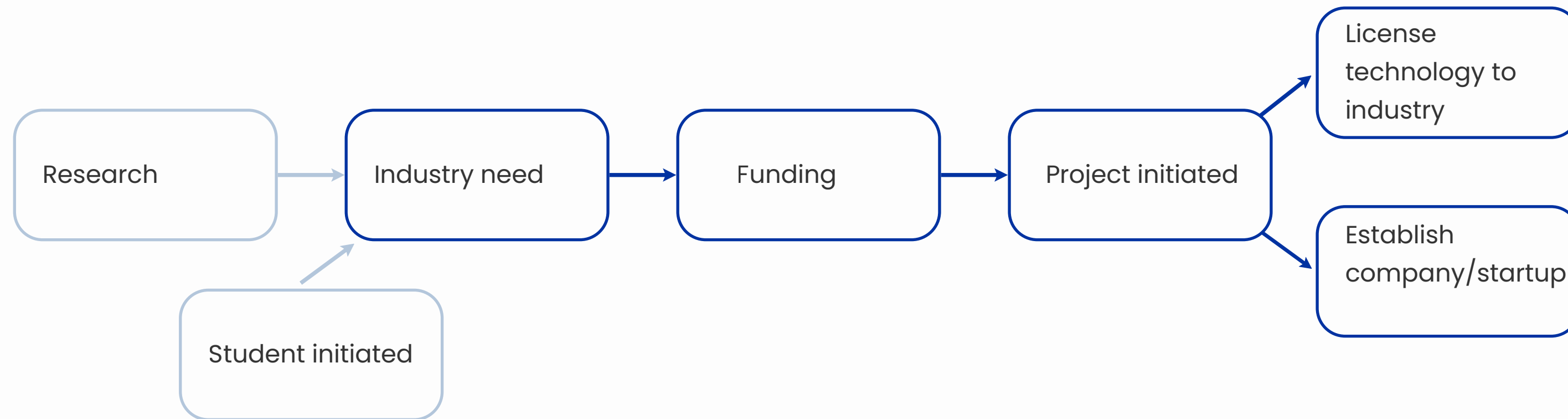
The Student Entrepreneurship Center provides four key platforms:

- Education & Training: Courses, lectures, and training to build entrepreneurial skills
- Development: Competitions and project selection, linking research to student startups
- Support: Mentorship and access to incubators, investors, and industry resources
- Showcase: Platforms to present projects and foster an entrepreneurial community

Linking the Institutes together:

- The School of Science
- The School of Engineering
- The School of Life Sciences
- The School of Medicine
- The Center for Humanities and Social Sciences
- The School of Business
- The School of Innovation and Entrepreneurship

Standard innovation process



The innovation process usually stems from an industry that has a need or problem. After this, an innovation project is initiated. It can also begin with research and finding an industry need, but most of the research is based on technical/societal needs. Furthermore, students can initiate projects; these are often linked to industries (like idea day at NTNU), or they can establish their own project. However, without a strong industry need, it is difficult to obtain funding.

Students & Innovation

Students can develop innovation projects based on real industry problems.

The university offers:

- entrepreneurship courses
- entrepreneurship environments (Startup center, like grunderbrakka/ES)
- mentoring and supervision (VC network, mentorship through industry executives)
- collaboration with industry partners

Projects must secure funding from industry or investors at an early stage.

Projects that do not receive funding are often terminated early.

Financial contributions in the ecosystem

Innovation projects are often funded through:

Industry

Companies may fund projects that solve their technological challenges

Venture capital

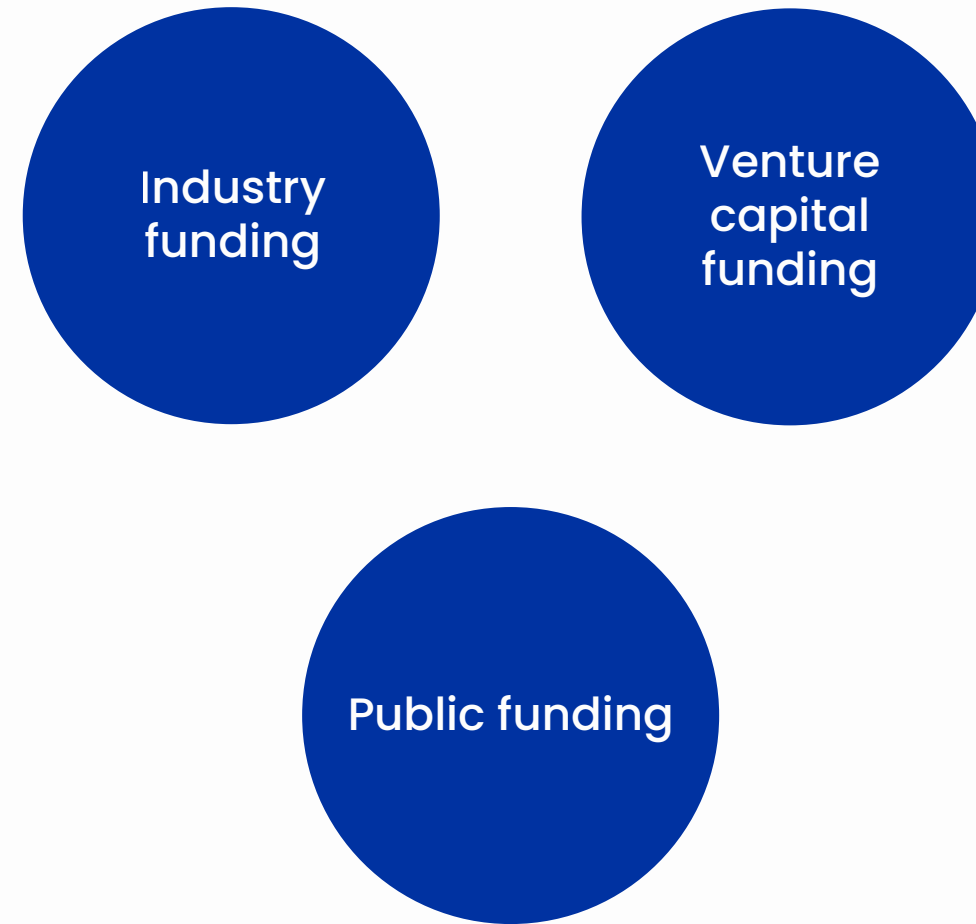
Typically enters at a later stage

Soft funding

Public funding exists, but competition is high

Projects often need to secure funding in the initiation phase.

Projects without funding are often discontinued.



R&D Funding

\$230M

Annual research funding at SUSTech

\$23B

Annual R&D investment in Shenzhen

Around 80% government funded in research and R&D (rest from industry & others)

4.

Comparison
Sustech &
NTNU

Comparison NTNU & SUStech

Category	NTNU	SUStech
Governed/Owned	Student driven (bottom up)	Mostly Top-down, professors/faculty/TTO initiates project, but students can join and become co founders, or initiate their own projects from industry needs
Industry focused	Low/medium industry focus, NTNU is somewhat more technical/Engineering	High industry focus, Engineering, electronics, and solving problems for the industry (More like SINTEF)
Industry collaboration	Medium (research clusters, centers, labs etc.)	High Tight collaborating with the industry SUStech provides problem solving, R&D, labs etc. industry provides funding, mentoring, manufacturing
Student driven	High	Low-Medium Not student driven, but students can initiate projects and become co-founders with professors

Comparison NTNU & SUStech

Category	NTNU	SUStech
Funding	Soft funding opportunities for students/professors/TTO	Funding from industry, public or VC. More Corporate VC and VC
Mentoring	Students are mentoring through Spark	Professional business executives mentors projects and are involved in Entrepreneurship courses
Entrepreneurship courses	Entrepreneurship courses across diciplines	20 entrepreneurship-related courses possible to take for all students across diciplines
Collaboration between faculty and students	Low Professors/faculty are not collaborating with students in innovation projects	High Professors/faculty collaborates in innovation projects with students. Students are attractive and wanted for projects.

5.

Recommendations

Recommendations from SUStech

01

Integrate industry problems into early-stage student projects

- NTNU should have tighter industry connection. More “Idea day” but for all the students at NTNU. It could be very fun and engaging for students to solve real industry problems and helpful for the industry as well.

02

Strengthen professor-driven innovation with student involvement

- Encourage professors to actively include students in research and innovation projects, to connect research commercialization with student learning.

03

Network with investors and industry

- Mentoring roles: Having experienced mentors from the industry
- Tighter network with investors

04

Even more entrepreneurship into technical education AND student innovation across disciplines

- Entrepreneurship could be more integrated into engineering and science programs through mandatory projects or interdisciplinary courses (like Venture Cup, Ingeniorstigen etc.), rather than remaining optional.
- Students could be more involved with innovation projects/startups across disciplines (Something like Eksperter i team, but like a startup course could be fun & useful!

Shenzhen & Collaboration Opportunities

01

Leverage Shenzhen as a hardware and prototyping hub

- NTNU could establish partnerships that allow student startups to prototype and test physical products in Shenzhen, where the full electronics supply chain is accessible.
- NTNU TTO can also gain from having fast prototyping, access to advanced labs and manufacturing

02

Develop exchange programs focused on innovation and startups

- Create programs where NTNU students can participate in exchange programs (for instance, at SUSTech) and gain exposure to rapid prototyping and scaling cultures.

03

Establish joint innovation programs or labs

- NTNU could partner with SUSTech or innovation centers in Shenzhen (e.g. SUSTech) to create joint programs, enabling cross-border teams working on real industry problems.

Direct suggestion from our contact person

1. The Industry Partner (Norwegian Hardware Startup)

Their Struggle: They have a PCB design or a mechanical part. They need 10 working prototypes, but Norwegian prices are too high, or there is simply no factory that can do it.
Their Need: Access to Shenzhen's component markets and manufacturing speed.

2. SUSTech (The Hardware Gateway)

Our Role: We don't just do R&D; we provide "Manufacturing R&D."

What we help with:

Sourcing: Our local network helps find the specific motor, sensor, or material they need at a good price.

DFM (Design for Manufacturing): SUSTech engineers can review the Norwegian design and tweak it so that it can actually be built by a machine.

Prototyping: We use SUSTech's labs to build the first working batch for them, de-risking the process before they invest in a full factory run.

3. NTNU (The Design & IP Hub)

Their Role: They remain the owners of the core idea and the high-level design.

Benefit for them: They can now tell their startups, "We have a partnership in China that helps you build your product." This makes NTNU's incubator/innovation arm much more attractive and effective.

For NTNU Professors: "You can now apply for Norwegian research grants with a built-in 'commercialization partner.' You tell the grant committee you aren't just publishing a paper; you are building a physical prototype with SUSTech that a company can actually use."

For NTNU's Technology Transfer Office (TTO): "You have PhD students spinning off companies. Their biggest risk is manufacturing. Let us host them for a summer at SUSTech. They can learn to build their product here, fail fast, and iterate cheaply, rather than burning cash in Europe."

For Norwegian Startups: "You keep the IP in Norway, but you use our Shenzhen connection to build the product 10x faster and cheaper."

6.

Contacts

Contacts

Anji Li

Medical Technology Transfer Manager
School of Innovation and Entrepreneurship
medtechtransfer@143.com

In general:

<http://ie-school.sustech.edu.cn/>

The school of Entrepreneurship and Innovation at SUStech is overall responsible for innovation and is the most useful institute to start with.