This paper is based on results from the project “Study of successful innovation and establishment of high-tech industry in Tromsoe region”. The focus of this paper is the collaboration between research and educational institutions and the industry as several of the innovation and high-tech companies are based on research projects.

The paper gives an overview of theories of innovation system and discusses innovation and related terms from a technological viewpoint. From the top-level the national and regional innovation systems are based on governmental policy on several areas: industrial policy, research and educational policy, tax rates on high-risk investments and funding of new industries. Relevant statistics showing demand for better funding of research and new industries are presented.

On the medium-level the theory of clusters is applied, where the research and educational system is important for establishment of high-tech industry. Establishing new industry from research projects, participation in projects (researchers, academic staff and students) developing new products, production processes or improvement of those, and supplying the industry with skilled employees are all-important.

On the lowest level are the conditions for the individual entrepreneur. Even a successful establishment can ruin the entrepreneur because of taxes on shares, and when there is demand for new capital, the original owners share are reduced and they loose control of the company. New investors often demand full control and buy out the original owners for a very low price, and the entrepreneur is often the looser in such an agreement. A lot of things can be done to improve conditions for entrepreneurs, for instance providing better funding, less tax on shares and a safety network for entrepreneurs.

The paper gives a short history of research and industry in Tromsoe. Successful establishment of high-tech industries can be traced back to research institutions (for instance the 75 years old Aurora observatory, the Tromsoe satellite station and the university). Benefits and drawbacks of the location in the far north of Norway (at 70 degree latitude) are discussed. Selection criteria and examples of successful companies are presented and some of the entrepreneurs are interviewed. We also give examples of the innovation process and establishment of the companies.

A section describes what the engineering education in Tromsoe does to stimulate innovation and entrepreneurship, and what can be improved (courses in innovation and entrepreneurship, offices for new companies established by new engineers, students running companies as a part of the curriculum, Norwegian networks (InnovationNet) for academic staff to upgrade competence and exchanging experiences).

The traditional Norwegian industry has been based on production of raw materials, based on natural recourses and/or cheap hydroelectric power (i.e. production for aluminum and silicon). As for export, fish is the second largest export article (after oil). The industry has downsized and emigrated over the last years, and a lot of industrial workplaces are lost. This gives a high demand for innovation and entrepreneurship resulting in the establishment of successful high-tech industry, a process where the engineering educations must participate.