

Country Without a Functional Innovation System Is Lost



Sven-Thore Holm — Founder of IDEON Science Park, CEO at Technology Transfer Foundation, Lund

Being a founder of IDEON Science Park, could you please tell how it all started?

We started in 1983 in a medieval city of Lund because it is a scientific center of Southern Sweden with a huge university with 45 000 students and 7 000 people involved as teachers and researchers. In a tiny city with only 110 000 people everything is very much about knowledge, innovation, industry, science, new companies, economic development. From the very start we involved major Swedish industries like Alfa Laval, Tetra Pak, Gambro, AstraZeneca.

Around that time, the Skåne region suffered from recession, and a large number of basic industries such as shipbuilding and textiles, were hit by closures. We had the best shipyard in the world – Kockums, but it could not compete with the Koreans, so it was shut down, together with several other enterprises.

At that time I was responsible for environmental control in connection with industry. The government said: “Since you know something about our industry, we would like to see you as a manager of a new thing there. We are going to develop a brand new industry based on science, technology and knowledge in general generated by the Lund University”. The purpose was to take advantage of the expertise that existed at the University and to create new growth companies with local ties, thus increasing the employment level in the region. Inspiration was taken from the USA where similar activities had been successfully operated for some years. The concept was adapted to Swedish conditions and the work on creating the first science park in Scandinavia commenced. The site was chosen adjacent to Lund’s Faculty of Engineering and, starting in September 1983, the first five companies moved into Ideon. It was rapidly growing because there were a lot of people with bright ideas and each year we were adding about 20 new companies. During its first 27 years, more than 800 companies have operated at Ideon Science Park, 76 per cent of them have, over the years, had some kind of close connection with Lund University. The survival rate has been excellent and, in during almost three decades only about thirty companies have had to close down.

Then we started to do this in connection with other universities as well. In 2005 it was all transformed to a national

company “Innovation Bridge” which now has its headquarters in Stockholm. Innovation system is really a part of a brand new infrastructure. It’s more valuable than highways and motorways, and things like that. I usually say that a country without a functional innovation system is lost.

What government agencies are responsible for innovation policy in Sweden?

Within the government it is the Ministry of education and research – they are heavily involved and they set the budget for it. Then we have agencies like VINNOVA and the other one, the Swedish Agency for Economic and Regional Growth – Tillväxtverket which deals with small and medium size companies. We have universities, institutes and, of course, our industry. “Innovation Bridge” is dealing with commercialization.

The problem is to explain to high-level politicians what’s the difference between inventions and innovations. Inventions in most cases are scientific findings with no value. Innovations come when you have it on the market, when you earn some money or somebody is using the results of the research. And suddenly you have a value for society or for business. To turn inventions to innovations – that’s now my business.

How can that be turned into economic growth? We have been dealing with this for two decades, trying to learn what works and what doesn’t work. We have been around the world several times trying to follow what people are doing in other countries. The first step is to acknowledge that a full scale innovation system is a vital part of modern infrastructure. I’ve been to Russia several times. I tried to convince your colleagues which proved not easy. Take the Skolkovo project: you are trying to attract foreign investors, Microsoft and companies like that. While here in Sweden we are turning our own efforts into research and development, so that our own companies could go global.

Nobody in my neighborhood here owns a single Russian product. It doesn’t exist though it could. So, the problem for Russia is that you have no system to turn your own knowledge that is brilliant into globally traded products. Instead of attracting already existing foreign companies you should concentrate on developing your own ones. That must be a political commitment on federal, regional, local levels, and they must play the same game simultaneously, in the same direction with the same goal, and it must be run on a professional basis.

What should be the starting point?

We have created what we call innovation chain here starting with feed stream. You have to have some feed into the system, you have to have some professional coaching, some soft financing, patent licensing, equity – things like that. And feed stream in our country starts with increasing of the entrepreneurial spirit to get more people to think in terms of doing more than they usually do. Creative thinking starts with education. In a traditional schooling system the mind will more or less be spoiled. They tell you “Read this, do that calculation!” The imagination just disappears. We teach creative thinking in fourth grade here to get the mind going. In remote areas we use Internet. Then at the college level we have national and regional competitions for students in

creation of true business plans. I'm a chairman of Swedish Venture Cap system. This is a competition, which starts in September and goes for a year until June next year. Yearly we involve about 1000 teams each consisting of 2 to 5 people. And we are engaging all 40 universities of the country. During the last 10 years we have educated more than 30 000 people and now we see almost 6 000 brand new companies coming out of that. And even if they didn't start a company it was still good for their future whatever they are doing.

And, of course there is a need to establish financial structure for scouting inventions on the university level. You need to know who is doing what and why, whether there is a commercial potential. You have to organize a TTO – Technology Transfer Office. You have to hire people with industrial background. Then we come to physical structure. We have in Sweden a national incubator system. In incubators potential entrepreneurs find professional business and education support to turn paperwork, a business plan into a working company. And this would take from 6 months to 5 years depending on what type of company you are trying to establish. In most cases incubators are located in science parks because when startups leave an incubator they can grow and expand there, hire more people and in few years some of them would even outgrow it and move out.

Then you have to have a financial toolbox to support it all. We have an opportunity of getting grants, but first you need to verify scientific findings: is there a commercial potential, is the technology working, who is going to run it, is there a market? A lot of money so far comes from government. We have soft loans for startups and we have early stage equity where we buy parts of a company. If you are doing this properly you will have a manifold payback, so it's not a cost but an investment.

I see Skolkovo as an investment project. And I would like to see Russian people to invest and to be invested in there. When we were at a Global Forum there was a person from Israel and he just stood up and said: "I would like to thank the former Soviet Union and Russia for one million people that have been expelled because they are the engine of our economy". And they are skilled, well-educated and entrepreneurial people. They could have done this in Russia but where is the mechanism? I know that feed stream in Russia is good, your education is great, people are great, but the coaching needs be improved.

What is the role universities play in innovation process?

Well, there is legislation here, which tells universities that they have three tasks: education, research, and distribution of knowledge. They have to package things for the benefit of the science. I'm hired by a university, and we have a huge project which we call "Experts for hire". So, the university is going to be turned into a major consultant organization of 9 faculties, so that we can sell people from 9 faculties to industry, to the society in general. For the first time we found the way to distribute all the knowledge inside a university on a commercial basis.

What are the latest trends in the Swedish innovation policy?

The latest trend is that the government at this very moment has started a new agenda called "The new innovation strategy of Sweden". It's a matter of collaboration between ministries of education, industry and finance. This will be launched in December this year. The purpose is to further improve the national innovation system even though we are considered to be one of the most innovative countries in the world.

What helps and what hinders the development of the innovation system?

One of the problems which goes around the world is the lack or scarcity of private capital in the early stages because people are afraid to invest too early. It must be a part of a national policy to do that. Our structure of venture capital is that you are investing in 10 projects and within couple of years half of your investment is gone down the sewer together with the projects. You are lucky if two or three will pay their own cost. And you are even luckier if one or two will pay back. In China such things are impossible because Asian mentality does not accept failure. But in venture capital business it's normal that you fail here and there, and return all your losses in one or two cases of success.

How important are science and technology parks?

I would say that such parks are important, and Sweden has about 38 or something innovation parks around the country. I'm talking of the kind of the innovation parks like Ideon involving different companies. They are meeting places to get people together, to create the crossroads where people with different backgrounds meet – lots of people who never knew each other before. They meet, they talk, they start planning together.

What is your forecast for the development of the innovation system in Sweden?

Innovation will be a core political theme. Sweden is not living on oil or metals. The development of this country is based on sophisticated industry and products with a high added value. That must be interesting for Russia which is now trying to turn from an economy based on commodities to the one much more based on R&D, and we are looking forward to future Russian products which we could buy as easily and cheap as Chinese.

What research and technological achievements may assure a breakthrough in the years to come?

I think the major investment is around the European Spallation Source (ESS), which is a major investment in the world. It is the name of a materials research facility for scientific research using the neutron scattering technique. The facility will be built in Lund, starting in 2013 and is expected to open in 2019 and to be fully operational in 2025. Research on materials will be done as part of the scientific front line in energy, telecommunications, manufacturing, transportation, information technology, biotechnology, and health. ESS is a multibillion investment project and it is going to become ten times more powerful than facilities in the US and Japan and it will provide the users with a 100 times better experience than present day neutron sources. From that a lot of new inventions will come, and innovations, and companies and in the end economy. And in connection to that Lund will establish a scientific city like Skolkovo based on these major investments and will let start hundreds and thousands of small companies based on national investments in education and research. Tradition of the city is to stay on a frontline of the knowledge.