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# From Science Park to Science City - how Mjärdevi Science Park gets to the next conceptual level

WORKSHOP 1

STPs, science cities and urban strategies

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MJÄRDEVI SCIENCE PARK - SWEDEN

# From Science Park to Science City - How Mjärdevi Science Park gets to the next conceptual level.

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## 1. Executive Summary

*This presentation describes how the well-established Mjärdevi Science Park in Linköping, Sweden, is evolving from being a strictly geographical phenomenon to becoming a science park function for a significantly larger area than the original science park zone.*

*Mjärdevi Science Park AB, the management company owned by Linköping Municipality that handles development activities in the park, is now implementing the park's "soft values" in the neighbouring innovation environments.*

*This is initially intended to strengthen the cluster and the potential for the various development companies to recruit new talent and maintain their level of expertise for future development.*

*The students at Linköping University are a key target group in this context and internationalisation is a key tool.*

## 2. Background

2.1 The city of Linköping, by virtue of its strong business sector within the aircraft industry, was the birthplace of the Swedish computer industry in the early 1950s. Since then the city has gone on to become an international hub for a variety of technologies and application areas linked to ICT, but strong clusters have also developed within fields such as medical technology, cleantech and digital engineering. Linköping has a population of around 150,000, while the regional population (East Sweden) is approximately 500,000. Linköping as a municipality is expecting to reach population figures of 200,000 within the not too distant future. The various initiatives described below should be viewed from this perspective.

Linköping University was established in the late 1960s and now has more than 27,000 students spread over four campuses: two campuses in Linköping, one in the nearby city of Norrköping and one (mini) campus in Stockholm. The university has four faculties - Institute of Technology, Arts and Sciences, Health Sciences/Medicine and Educational Sciences, and focuses in particular on progressive ICT areas such as Signal Processing, Image Processing, Automatic Control, Thin-film Technology and Sensor Technology.

Mjärdevi Science Park opened in 1984 - the result of a close collaboration between the business community, the municipality and academia (Triple Helix). The park currently consists of 260 companies with around 6,000 employees. Companies hold world-leading positions within fields of expertise and application such as medical technology (visualisation, image processing), mobile broadband, vehicle safety, aviation (particularly unmanned aerial vehicles) and IPTV. Everything is held together by top-level expertise within integrated and complex systems.

The park is located roughly 5 km from the city centre, next door to the largest of the university campuses and also adjacent to several other development sites.

The board of Mjärdevi Science Park AB, the management company, includes representatives from the municipal executive board, the university management and major corporate representation. Triple Helix there too. The property ownership is completely separate from the management company, which works on the "soft" values of the park.



The geographical area of Mjärdevi Science Park (MSP, 2012)

2.2 The park experienced very positive development and growth from its start in 1984 until 2001, when the international crisis within the IT sector resulted in a substantial reduction in investment and commercial growth. Over the space of three years (2001-2003) the number of employees at Mjärdevi fell by around 30 %. Since 2004, however, growth has been very good and the number of companies and number of employees now "peaks" every year.

Some very well-known companies (Ericsson, Autoliv, Motorola, Sectra, Saab, IFS, Infor, Philips, and others) have contributed to this, together with sustained efforts from Linköping Municipality and Linköping University in strengthening the park's development potential along with systematic work to develop the local and regional innovation system. There is also a focus on commercialising research at the university and supporting students who want to start up their own companies.

### 3. Challenge

The major, and perhaps most essential, factor for growth is provision of expertise. Linköping is certainly an attractive city in which to live and work, but it's not a big city. Linköping is also a very attractive city for setting up high-tech companies (largely due to the university), but if provision of expertise cannot be safeguarded, then the city may lose its power of attraction.

Many students leave the region at the end of their studies, for a variety of reasons. One reason is that they see better career opportunities in a bigger city, perhaps even abroad. Another reason is that students who begin studying at the university not having grown up in the region (roughly 70 % of the students come from other parts of Sweden or from other countries) know very little about the economy in Linköping and the challenging jobs available.

Most students live in a residential zone adjacent to (within walking distance of) the university's main campus, or in actual campus accommodation. During the 4-5 years they spend studying here the campus and their accommodation are their central focus. They live in a peculiar "bubble". The rest of the city's attributes therefore go unnoticed. Not even Mjärdevi Science Park makes much of an impact on their consciousness.

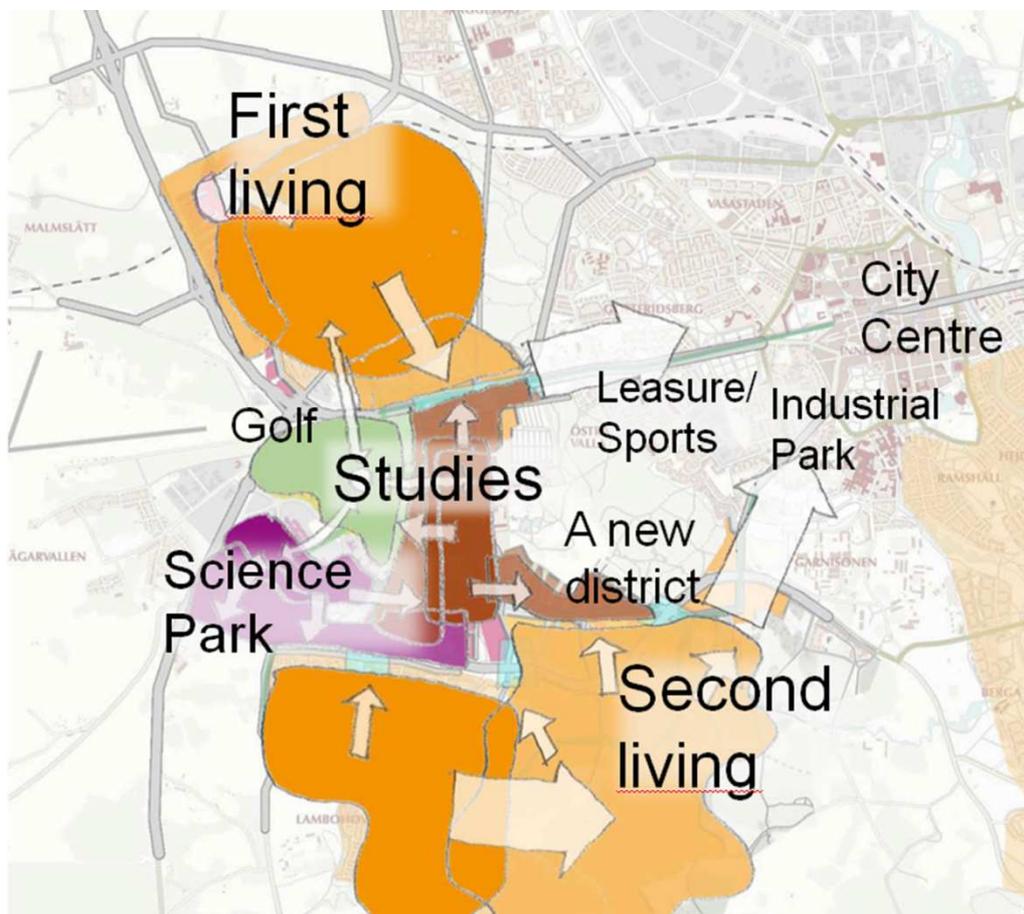
Changing this situation is a major challenge and at the same time a huge opportunity. Getting more students to remain in Linköping/the local region after completion of their studies is an important issue from the perspective of provision of expertise. Currently around 30 % of the students remain in the region, but that is not enough. In the past we have relied too much on hope; the hope that after a few years in Stockholm, London or some other big city, students would return to Linköping once starting a family became a priority. But we don't get enough of them moving back.

### 4. The next generation of Mjärdevi Science Park - students

4.1 This fact served as the background for an initiative launched by Mjärdevi Science Park AB a few years ago: together with property owners in the area, the innovation office at the university and the municipality's office for commercial development, a concept was developed, as a "skunk work",

entitled "Science City - the new Linköping", with the subtitle "how to create a new resident". A number of workshops were held to discuss the central issues of growth and how to work towards safeguarding companies' future provision of expertise at a local level. The concept document describes a future scenario where large parts of innovative Linköping are merged to form a single unit employing the science park concept, with close collaboration between the business sector, academia, politics and civil society (quadruple helix), as its central working and development method. There is tremendous strength in this concept given that all positive forces (development parties) are participating in the process.

The underlying idea is to create a city with functionalities that make it more attractive in the eyes of students and other talent. The concept document was not popular among all groups, since it was developed slightly outside the ordinary decision-making structures. The politicians were immediately positive, but the planning groups undoubtedly thought that we were rather troublesome. However, 2-3 years later, we can now assert that our efforts have borne fruit. Everyone in the municipality is now working to realise these ideas. These very words also serve as the municipality's motto: "Where ideas become reality".



Source: MSP, How to create a new resident (2013)

4.2 Over the years we have noticed that despite the fact that we are right next door to the university's main campus, the students have difficulty "finding" us. We have realised that, together with the business community, we need to be more visible on campus and take more of an interest in the students at an earlier stage. We have also stated that we are aiming to attract the workforce of the future, so a board aged 50+ is perhaps not the optimum group to handle this particular issue. We have therefore established a number of new initiatives to attract students to a greater extent than before to Mjärdevi Science Park. This includes appointing a shadow board made up of students. The shadow board will work on the same agenda as the main board. This will give the students a good insight into the park and the park organisation's governing model. The shadow board is headed by the chairman of the main board. This ensures transfer between the students' discussions and

views and those of the main board, which is very welcome, since these discussions often result in completely different conclusions. The main board considers the views from the student board with great openness and respect. At first the students were sceptical about the significance of their input, but we have clearly shown that they are helping to make a difference.

The students were initially recruited for a 1-year period, but we have now decided that we will recruit for a 2-year period and replace four board members each year. We are looking for students from all disciplines: we have medical students, economists, engineers and political scientists. In return, they gain sound experience in board-level responsibility to add to their CV.

4.3 One year after establishing the shadow board we also launched an ambassadorial group made up of students. Since the shadow board deals with strategic issues relating to the park, we decided that we also needed a group working for us on campus in more practical ways. They are known as Mjärdevi Science Park ambassadors. In return for their efforts they receive training in presentation and communication techniques.

4.4 Another example of activities we have instigated to raise awareness among the students is lunch seminars on campus. We simply bring along representatives from a particular company and invite the students to lunch and a presentation about the company's activities. This has proved very popular. After all, you can't go far wrong with a combination of information and free food. We manage 6-8 of these seminars per academic year.

4.5 In addition, we have expanded our collaboration with the student unions and the various student departments, organisational affiliations for students at the university, which enables us to reach the students with invitations to all activities in the park.

## **5. The next generation of Mjärdevi Science Park - interlinking of innovation environments**

5.1 A few years ago politicians in the municipality decided to hold an urban planning fair in Linköping in 2016. When looking for a suitable location for a new city district, an area was identified fairly quickly, and probably with inspiration from the 'Science City' concept document, adjacent to the university's main campus and Mjärdevi Science Park, for building the new district and where future housing, research, education and the business community can come together.

This was exactly what we needed to be able to take the Science City concept forward and further develop Mjärdevi Science Park. The municipality's plans gave us new impetus and a large-scale opportunity for implementation.

5.2 As additional background to this, the board of Mjärdevi Science Park AB had for some time been discussing what could be done to better integrate the park with the campus. This discussion was based around the perceived need to make it more natural for researchers, students and lecturers to get involved with companies in the park. The thesis we employed is "more university in Mjärdevi and more companies on campus". The discussion resulted in the board instructing the park management to involve surrounding organisations and companies in the park, to invite them to become part of the park.

***We have abandoned the idea that Mjärdevi Science Park is purely a geographical location. This takes us from having been a strictly geographical zone to being a functional zone. From geography to function.***

We are currently in discussions with a number of research institutes that are established on Campus but feel great affinity with Mjärdevi. We have also incorporated the nearby golf course into the park.

5.3 In parallel with this we have taken on the task of developing soft values for Wahlbecks business park, a traditional business park with certain specific high-tech elements, located on the other side of the campus from Mjärdevi. The property owner there wants to develop the park into something more than just four walls, a roof and a floor. This is a long-term development project, and we will

initially be working to implement science park-type functions, profile the zone as high-tech and also working to integrate the two essentially different environments more closely with one another (Wahlbecks and Mjärdevi); in the long term we will also be working to integrate Mjärdevi with other innovation environments in Linköping. One of the benefits of this work is that we are securing an even more substantial foundation for development initiatives and that through closer positive relations with many more companies we can work to stimulate new development partnerships and new business. We have gained extensive experience from developing processes for commercial networks/clusters within a variety of technical areas/sectors.

5.4 This project will see Mjärdevi Science Park AB operating activities supporting enterprise and innovation on both sides of the campus and also certain activities on campus. We are also acquiring more financial muscle, which is definitely needed, as such work is generally organisationally weak in Sweden.

The major value to this "roll-out" of the science park concept is that we gain a completely different means of coming into contact with new talent, talent that, if correctly handled, can be attracted to companies to boost local and regional growth, but also increased scope for constructive networking with more companies.

## **6. The next generation of Mjärdevi Science Park - the optimum arena**

6.1 Many of the companies in the park work intensively to strengthen relations with the university as an organisation and with the students. They do this through guest lectures on various courses at the university and through invitations for study visits. However, few companies have a long-term strategy for contact with students. Students often begin to take an interest in the last few months before final exams, when they are mentally already looking to their next location, their next workplace.

6.2 Consequently, there is a great need in the park for a meeting place, a creative arena for interaction between students and companies, but also between companies. A neutral arena where a variety of activities, events, projects, open innovation, releases and much more can be developed and conducted. Therefore in autumn 2013 we started up creActive Mjärdevi, a multi-arena for this and more. We have succeeded in attracting financing from companies, the municipality, the region, the university and also national support organisations that follow what we do with great interest.

6.3 One exciting element of creActive will be Demola, a Finnish concept now being rolled out in Sweden. The business community submits project ideas, which are worked on by multi-disciplinary student groups. The company can then buy back the results, and the students receive academic credit. This is exactly the type of reality-based training that students are calling for. We have high hopes of this programme, which also provides a way for the university to gain a footing in the park.

6.4 Other exciting elements of creActive include a design-related venture, which offers great potential, with several interesting projects in progress, and the arena will play an important role in the exchange between different players and in knowledge building.

6.5 However, the arena is also an essential element of the cohesion from the "rolled-out" science park, an affiliation in context.

## **7. The next generation of Mjärdevi Science Park - keys to success**

7.1 In the work accomplished to date and that still ahead of us, to fully establish the next generation of Mjärdevi Science Park, we have identified a number of key issues that, in our case, have been, are and will be crucial to our success.

The first key is a **culture of innovation**. As a matter of course, we must have a tolerant attitude to the various pitfalls of innovation and entrepreneurship. Working to implement a networking culture where interaction between professional parties and new talent is a part of the development process

is obvious, but in order to succeed in this we must all have an open mindset and a large measure of curiosity. We must also ensure possibilities for testing technology and services in differing contexts.

7.2 The second key is **innovation environments**. It is essential to realise that there are innovation environments and connections in a variety of places. We have universities and other academic environments. We have science parks and incubators, and we have numerous innovative companies and organisations in the community in general. The trick lies in linking up the various innovation environments to achieve optimum results. This requires respect and far-sightedness.

7.3 The third key is **power of attraction**. We must attract knowledge and talent. Over the past 10-15 years we have undergone a paradigm shift, from a situation where the workforce migrated to the companies to the current situation where certain knowledge is so central to companies' development that it is necessary to migrate to, or establish new subsidiaries/development units, where the expertise and talent can be found. In this type of situation the concept of quality of life takes on huge significance. Housing, child care and education, culture and leisure pursuits, spousal employment, infrastructure and much more. But it's also about attractively-designed environments. The conceptual ideas behind Googleplex, for example, advance the status of both design and function.

7.4 The fourth, and perhaps most well laid-out, key to success is **internationalisation**. Swedish high-tech companies are quick to enter the international arena. The reason for this is quite plain: the Swedish market is simply too small and at the same time there are plenty of successful examples to aspire to, probably close at hand. We are also seeing an increasing number of foreign-owned companies setting up in Mjärdevi Science Park. This is often due to a merger with, or acquisition of, an existing company. Many of the large global companies have gained a footing here in this way.

We are active ourselves in a variety of international contexts, to see and learn, but also to teach and create new contact channels and open unfamiliar doors for our companies. However, we also open doors at home for international partners. The business community requires constant renewal and internationalisation is an important part of this process.

We also maintain a large international collaboration with interesting nodes in a variety of countries. This is our way of utilising IASP as an organisation and the huge network provided by the organisation. IASP allows us to connect and link up to the world!

7.5 The fifth key is **interaction**. Linking up academic environments with the political system and the business community in a variety of ways is a matter of course for many people, but it still needs to be implemented. Since they have a wholly different logic in some respects, this can sometimes require a great deal of patience. However, there are also the various levels to be linked, i.e. the local and regional levels must be linked up with the national and international.

Regions in various parts of the world connect with each other for exchange of experience and knowledge transfer.

In our world, linking up with colleagues in different parts of the world is a natural part of the science park project, dependent on what values and opportunities we want to provide for our companies.

## 8. Conclusion

With these different pieces in place, it's now up to us to orchestrate the Science City. To ensure that the Science Park of the future develops not only in the physical location of Mjärdevi Science Park, but more as a science park function for a wider area with identified high-tech and innovative profiles viewed in a framework where the management team of the science park becomes a driving force together with a number of colleagues from the regional innovation and business community.

By working in close cooperation, not only with businesses, academia and government, but also with "civil society", we create a new platform for innovative solutions by shortening the "distance of understanding".

***The new innovative cities and regions are a dynamic mixture of research, education, work and living. All built upon the principles of science parks: interaction and networking between academia, politics and business.***

***This is what we call the evolution of science parks.***