

December 2018

Author:
Zeno Winkels
UIA Expert



The Urban Lab of Europe !

The FED project Journal N° 3

Project led by the city of Gothenburg



**ENERGY
TRANSITION**



The FED project

With this project, the city of Gothenburg aims to develop, demonstrate and replicate a novel district level energy system, integrating electric power, as well as heating and cooling. This solution embraces and enhances the use of technologies such as PVs, heat-pumps and energy storage into a larger system. To overcome the main challenges, the proposed solution contains advancements in system development and operation, business logistics, legal framework as well as stakeholders' acceptance.

The FED solution consists of three cornerstones:

FED demonstrator area – The selected demonstration is located at a campus with about 15 000 end-users. It has a well-balanced set of property owners, energy infrastructure, and users, including prosumers as well as buildings with different needs and usage profiles. The area is exempted from the law of concession for electricity distribution, providing the opportunity to test and validate a local energy market. The prerequisites to optimize the use of primary and secondary energy using intermediate storage are well developed, as they are for generation, storage and distribution.

FED System solution – Our solution will optimise the use of low-grade energy to replace primary energy. Adding fossil-free energy sources while optimising different buildings usage profiles; one building's energy needs will be balanced with the surplus of another. Intermediate storage, fundamental to be a success, consists of heating storage in the building's structure, an innovative cooling storage using phase changing material and batteries for electricity. An ICT service will host the local market and provide the connection to the outside world of spot prices and weather forecasts. The smart agents connect and trade within the system that provides the flexibility to support future volatile energy markets

FED Business solution – Create new sustainable markets. The success of FED depends on cooperation and energy exchange between several stakeholders. To make it happen, a local energy market creating business value for each stakeholder will be developed.

Partnership:

- Göteborg Stad – City of Gothenburg
- Johanneberg Science Park AB - Public/Private Company
- Göteborg Energi AB - Public Company / Local energy utility
- Business Region Göteborg AB - Public Company for business support
- Chalmersfastigheter AB - Private Company and local property owner
- Akademiska hus AB - Private Company, national property owner
- Chalmers University of Technology - Academia
- RISE - Research Institute
- Ericsson AB - Private Company in ICT

Table of Contents

1. Executive Summary	5
2. Project update	6
3. Science Parks and innovation ecosystems	9
4. JSP & FED & conclusion	13
5. Interviews	18
6. Learning points and next steps	23

1. Executive Summary

At two thirds of the project timespan, the FED project is in a healthy state. 2018 was a year of commissioning and testing and except for some minor delays targets were met and one can expect to see the FED system fully operational in spring 2019.

It was clear at their visit to the project in June 2018 that the UIA Permanent Secretariat was impressed to see the process applied in Gothenburg. Here Johanneberg Science Park (JSP) has the lead and brings the partners together at project (operational) level, uses a steering board for the project itself. This 'spider in the web' function, with a board of project-participating, but also other large local institutes, comes natural to JSP and I want to show why that is the case.

This situation avoids the UIA identified challenge of "Integrated cross departmental working" in municipalities with regards to innovation uptake. It describes a barrier, often originating in silo-thinking between departments, or organisations.

A large part of this journal explores this institutional answer to the desire to have innovation ecosystems. The conclusion is that an advanced science park contributes to an advanced innovation ecosystem and can be well equipped for some leadership roles that are often taken by municipalities as is the case in most UIA projects. By using the consensus model in its board and by taking the lead in a unified mission (the FED project) JSP and the municipality of Gothenburg avoid silo-thinking between departments and partner-organizations.

2. Project update

Where does the FED stand autumn 2018?

The project-plan for the FED -at two thirds of the project in 2018- foresaw a very busy year with the commissioning and testing of the FED system as two highlights on the agenda. The commissioning is not limited to the energy-hardware such as the

power plant, solar cells, heat pumps and energy storages but also includes the digital connections via control systems, smart agents and the platform for trade.

Progress

My impression of the progress the teams are making is good. There's a new project lead that is introduced to the project and the earlier one is still working in the system so no experience is lost at all. Since partners and WP-leaders meet every fortnight, using a traffic light coding to reveal areas of concern the overview of the project is very clear. Over the year we have seen videos produced of the progress, using a journey-style of communications so that observers can follow the project and its implementation. The list of presentations is already more than 50, (partners present in their own networks) although the officially formulated recommendations will be shared when ready, in 2019. This shows the effort of all the partners to raise the interest and professional public's interest in the FED.

Akademiska Hus is the partner that invests in most of the heating equipment and its Gantt-chart for 2019 impressed me when I visited in the spring of 2018. At the moment of writing all commissioning is going as planned. This means that the new boiler is being installed, that

solar panels are being placed on roofs and that detailed delays and operational issues take up extra time, but nothing extraordinary at all. The measurement control system version 1.0 and 2.0 is installed and implemented, after the autumn it will be ready for integration and implementation of the full FED Energy and measurement and control system.

If the FED system comes into place, the agents need to be programmed and the SCADA systems of Akademiska Hus and Chalmersfastigheter need to be changed to integrate the events in the FED market. It took a lot of effort by all partners to describe the specifications that were essential for the coding done by Ericsson, of course. Due to some staffing problems, eventual delivery will be postponed to the end of 2018. In the meantime JSP has already started inviting companies that have an interest in developing and demonstrating technologies for producing, storing and dealing with electricity, heat and cooling to show themselves and their possibilities.

Supervisory control and data acquisition (SCADA) is a control system architecture that uses computers, networked data communications and graphical user interfaces for high-level process supervisory management, but uses other peripheral devices such as programmable logic controller (PLC) and discrete PID controllers to interface with the process plant or machinery. The operator interfaces that enable monitoring and the issuing of process commands, such as controller set point changes, are handled through the SCADA computer system. However, the real-time control logic or controller calculations are performed by networked modules that connect to the field sensors and actuators.

The SCADA concept was developed as a universal means of remote access to a variety of local control modules, which could be from different manufacturers allowing access through standard automation protocols. In practice, large SCADA systems have grown to become very similar to distributed control systems in function, but using multiple means of interfacing with the plant. They can control large-scale processes that can include multiple sites, and work over large distances as well as small distance.

Boys, Walt (18 August 2009). "Back to Basics: SCADA". Automation TV: Control Global - Control Design.

A lot of progress has been made in the field of energy storage with the building control systems being installed, as well as the simplified building control systems with an existing cooling tank. The

PCM (phase change material) cooling is coming along nicely with the new building as are the new servers, to manage it all.

Challenges

Previous Journals in this series have used a table recommended by the UIA. It lists 7 common challenges and experts are advised to report on them in the journals.

These are:

1. Leadership for implementation
2. Public procurement
3. Integrated cross-departmental working
4. Adopting a participative approach
5. Monitoring and evaluation

6. Financial sustainability
7. Communicating with target beneficiaries.

In the period for this third journal the project was very focussed on commissioning which has strict rules and procedures, but apart from operational, few challenges that relate directly to the second challenge which is more in play when an innovation cannot reach a market since it is not tendered, or excluded.

Previous Journals considered the barrier of **Integrated cross departmental** working very low, reporting:

The integrated cross-departmental working is a challenge identified in many UIA projects but not necessarily in the FED project. This is merely the case because many of the tasks & responsibilities of the – for example – landlord, of the tenant and of the energy supplier are legally assigned to the single organization rather than residing under one administration which could have been the case in earlier stages of development. One may argue therefore that some of the challenges found under the leadership list will have similar characters as other projects identify under integrated cross-departmental working.

It was clear at their visit to the project in June 2018 that the UIA was impressed to see the process applied in Gothenburg. Here Johanneberg Science Park (JSP) has the lead and brings the partners together at project (operational) level,

uses a steering board for the project itself. This ‘spider in the web’ function, with a board of participating, but also other large local institutes, comes natural to JSP and it became a topic of our talks why that is the case.

This is an interesting topic and so are the different roles science parks can take and have taken in the past. To relate this to the introduction of innovations (science parks, steering by the municipality, multiple stakeholders) can be relevant and perhaps a role model in the light of the Paris agreements and innovation uptake we need in Europe.

The following chapters will set out why JSP in its particular role, in its particular innovation ecosystem delivers a solution to the challenge in Gothenburg¹ and hence forms a solution to challenge 3.

¹ Choosing this content does break the journals as a series a little bit, but I think it will help us grow our understanding about challenges when implementing innovations.

3. Science Parks and innovation ecosystems

What are science parks?

First of all, a science park can also be called a “university research park”, “technology park”, a “technopole”, or a “science & technology park”. It can be defined as being a property-based development that accommodates and fosters the growth of tenant firms and that are affiliated with a university (or a government and private research bodies) based on proximity, ownership, and/or governance. This is so that knowledge can be shared, innovation promoted, and research outcomes progressed to viable commercial products.

Proper Science parks differ from high-technology business districts in that they are more organized, planned, and managed. They differ from science centres in that they lead to commercialized products from research. And they differ from industrial parks which focus on manufacturing and from business parks which focus on administration.

In 1969, [Pierre Laffitte](#) founded the [Sophia Antipolis Science Park](#) in [France](#). Laffitte had travelled widely and developed a theory of “cross-fertilisation” where individuals could benefit mutually by the exchange of thoughts in many fields including culture, science and the arts. The world’s first university research park started in the early 1950s near [Stanford](#)

[University](#). Another early university research park was Research Triangle Park.



Pierre LAFFITTE in 1973. Photo ENSMP

Lafitte has defined it as “the bringing together, within the same location, of high-technology activities, research centers, companies, universities, and financial institutions. Contact between these entities is promoted in such a manner as to produce synergies from which new ideas and technological innovation can emerge, and therefore trigger off the creation of new companies.”

What is the role of science parks and innovation?

Areas of innovation, of which science, technology and research parks (STPs) are a highly specialised

type, play a key role in the economic development of their environment. Through a dynamic and

innovative mix of policies, programmes, quality space and facilities and high value-added services, they:

1. stimulate and manage the flow of knowledge and technology between universities and companies
2. facilitate the communication between companies, entrepreneurs and technicians
3. provide environment that enhance a culture of innovation, creativity and quality
4. focus on companies and research institutions as well as on people: the entrepreneurs and 'knowledge workers'
5. facilitate the creation of new businesses via incubation and spin-off mechanisms, and accelerate the growth of small and medium size companies
6. work in a global network that gathers many thousands of innovative companies and research institutions throughout the world, facilitating the internationalisation of their resident companies

The Swedish Model

SISP (Swedish Incubators and Science Parks association) have identified two parallel actions to ensure that the potential of Swedish STPs to become efficient central nodes within Swedish regional and national innovation support systems is fully realised. These actions are:

1. To assist managing authorities and policy-makers to better comprehend how STPs can better contribute to attracting new investment to regions and supporting regional economic growth objectives, and
2. To assist their member STPs to work both effectively and efficiently in the wider roles proposed

To this end, SISP has secured the backing of the Swedish Government Innovation Agency VINNOVA that will support SISP and its members to explore and develop efficiency and effectiveness mechanisms. The program, called Innovation Excellence, aims to spread knowledge and good practice to develop processes, methods and tools that will in turn lead to Swedish STPs becoming influential and integrated regional nodes of the innovation system. The central concept draws upon the systematic non-prescriptive

management approach of the EFQM Excellence Model⁴⁵ but adjusted to STP industry specific conditions and challenges as well as the general maturity stage of Swedish STPs.

Further reading....

Peter Drucker's book, "Innovation and Entrepreneurship", is a goldmine of insights into how innovation can happen: locate an opportunity, analyze local strengths, assess the community's receptivity, maintain a focus on a simple central idea, and exercise leadership.

Following Drucker, many attempts have been made to structure the thinking about the dynamics of innovation and the process of forming technopoles and ensuring their sustainability, but very few educational initiatives have taken a broad cross-border approach and set challenging goals.

At the centre of the implementation programme which ran from 2012 to 2014 is a peer review system. STPs join a group of four peers and each in turn is assisted by the other three STPs to appraise its current processes and outputs. Initially the programme was to be piloted with just a few members but most have already joined with the intention of achieving an excellence accreditation from 2014 onwards. This programme is supported by workshops, role model case studies and best practice STP processes that communicate mechanisms by

which STPs become an integrated and effective contributor to the local innovation ecosystem.

SISP report that the methodology is:

- Increasing member knowledge and understanding and leading to faster development of cooperation between STPs with other innovation actors.
- Leading to a better collective picture of what a science park is which will in turn serve as a solid ground for an excellence declaration or accreditation.

Knowledge economy

Science parks are elements of the infrastructure of the global “[knowledge economy](#)”². They provide locations that foster innovation and the development and commercialisation of [technology](#) and where governments, universities and private companies may collaborate. The developers work in fields such as [information technology](#), [pharmaceuticals](#), [science](#) and [engineering](#). Science parks may also offer a number of shared resources, such as incubators, programs and collaboration activities, [uninterruptible power supply](#), [telecommunications](#) hubs, reception and [security](#), management offices, [bank](#) offices, [convention center](#), [parking](#), and internal transportation.

Science parks also aim to bring together people who assist the developers of technology to bring their work to commercial fruition, for example, experts in [intellectual property law](#). They can be attractive to university students who may interact with prospective employers and encourage students to remain in the local area.

Science parks may be designed to enhance the quality of life of the workers. For example, they might be built with sports facilities, restaurants, crèches or pleasant outdoor areas. Apart from tenants, science parks create jobs for the local community.

What is an Innovation Ecosystem?

Moving innovations from discovery through to commercialization involves numerous actors, often including academic researchers, small businesses, the investor community, and commercial industry. At one end of the spectrum – academia – there is a heavy

concentration of government investment in fundamental research. At the other, in the commercial marketplace, there is a much higher level of industry investment in direct product development. In between lies the so-called Valley of Death, where many potential innovations die

² <https://www.iasp.ws/ref.aspx?id=8513&action=show>
http://www.eib.org/attachments/country/plan-and-manage-a-science-park-in-the-mediterranean_en.pdf
[http://publications.jrc.ec.europa.eu/repository/bitstream/JRC108285/final_conference_report_science_parks\(1\).pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC108285/final_conference_report_science_parks(1).pdf)

for lack of resources needed to develop them to a stage where industry or investors can recognize and exploit their commercial potential.

Crossing the Valley of Death requires a complex interplay of relationships along the innovation spectrum. Common approaches include developing formal vehicles for collaboration, such as nondisclosure agreements and memoranda of understanding, or creating opportunities for actors to circulate among different entities through visiting-scientist or postdoctoral programs, sabbaticals, or consultant arrangements. Additional vehicles for promoting interaction – topical conferences, cross-disciplinary institutes, or centres of excellence – create the intangibles of the innovation ecosystem, improving the odds a venture (i.e. a successful crossing of the Valley of Death) will succeed.

When discussing the evolution of science parks, the emergence of Areas of Innovation (Aols) should be mentioned. These Areas of

Innovation are projects that have much in common with STPs, and yet present significant differences. Aols are defined as places designed to attract entrepreneurial-minded people, skilled talent, knowledge-intensive businesses and investments. They do so by developing and combining a set of infrastructural, institutional, scientific, technological, educational and social assets, together with value adding services, thus enhancing sustainable economic development and prosperity with and for the community.

Aols can be regarded as an advanced evolution of the STP concept, trying to satisfy not only the needs of companies and universities to collaborate, but also of cities, which, for this purpose, could be considered as the civil society or, if you prefer, the fourth element of the quadruple helix. The Aol concept will enable many existing STPs to reinforce their relevance by becoming a crucial leader in the development of a new type of cities or the renovation of derelict urban areas.

4. JSP & FED & conclusion

Set up Johanneberg Science Park

Johanneberg Science Park was established in December 2009 by the Chalmers University of Technology Foundation and the City of Gothenburg to create better conditions for regional sustainable growth, based on the activities currently conducted within Chalmers University of Technology at Campus Johanneberg in Gothenburg, Sweden.

The Science Park primarily supports development of activities within the disciplines of Urban Development, Environment, Energy, Materials and Nanoscience.

Legal, size, history, partners

The partner network now consists of the City of Gothenburg and Chalmers University of Technology together with AB Volvo, Bengt Dahlgren AB, Förvaltnings AB Framtiden, Göteborg Energi, HSB, MölnDala Fastighets AB, Peab AB, Riksbyggen, Tyréns AB, Skanska,

EU projects

The list of 5 EU-funded projects –excl. the FED– that are active at the moment speaks for itself:

SmartUp Accelerator, Celsius 2.0, INDU-ZERO, IRIS and SCORE show that the value from innovation-perspective is being recognized.

Most relevant seems the CELSIUS 2.0 that will be a knowledge hub for cities, businesses, energy-companies and academia on the topic of district heating. Part of the funding comes from EIT Climate-KIC. EIT Climate-KIC is a European knowledge and innovation community, working to accelerate the transition to a zero-carbon

Mission statement JSP (website):

We co-generate innovations for a society that is good for people and the environment. We bring together academia, society and a variety of large and small companies. Together we run national and international innovation projects and test solutions for future challenges.

Wallenstam, White Architects, Akademiska Hus, Chalmersfastigheter, Västra Götalandsregionen, West Sweden Chemicals and Materials Cluster, and more than 150 small and medium-sized companies.

economy. With the CELSIUS project (Smart Cities EU-funded FP7 2013-2017) the city of Gothenburg wanted to work more specifically in knowledge transfer and development, policy issues, networking, business development and reducing climate change.

INDU-ZERO - designing a factory for energy renovations Energy renovated building in Alingsås.

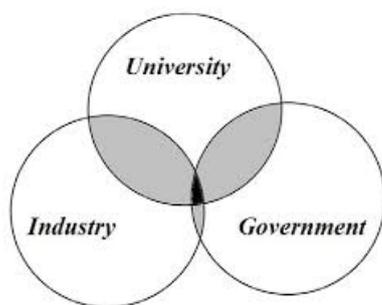
Renovation packages towards energy neutrality are to be the solution for quick and inexpensive sustainability improvements of existing homes.

Johanneberg Science Park and Building Future Institute are the two Swedish partners in new collaboration between six countries in north-western Europe. The project will take three years and organisations from the Netherlands, Belgium, Germany, United Kingdom, Norway and Sweden are partners.

IRIS is a five-year EU project starting 1 October 2017. Within IRIS, it will find and test new solutions for urban development within energy, mobility and ICT. In total, 43 players from 9 countries collaborate. Johanneberg Science Park

JSP in an advanced innovation ecosystem

Generally speaking, JSP is a science park. However, not all science parks manage so many international projects. Furthermore, the level or responsibility the municipality of Gothenburg outsources seems rather high. How come?



Triple helix, Etzkowitz & Leydesdorff, 1995

To answer this question we need to look at developed innovations systems and how they function. You will see that to reap the benefits of triple helix innovation systems as described by Etzkowitz & Leydesdorff, you need to have the different players aboard and committed. You cannot just say as a municipality: go and do innovations. Furthermore, innovation systems

coordinates the project on behalf of the City of Gothenburg.

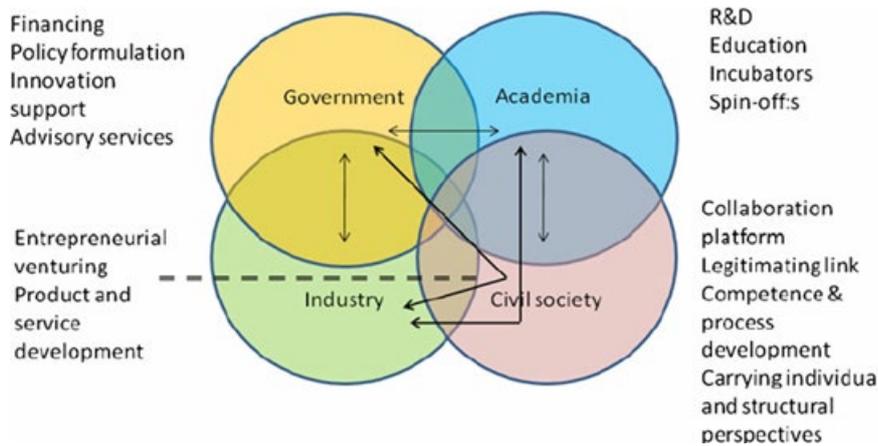
SCORE, open data. Nine cities around Europe, with Amsterdam at the forefront, will collaborate in SCORE – SMART CITIES AND OPEN DATA RE-USE. The project involves opening up data, lowering the thresholds for collaboration between companies in different countries, and pushing for the development of new innovative solutions and common standards for EU countries. This will lead to accelerated digitalisation in Sweden.

have developed and the role of citizens is growing. This is also the case in the energy field where citizens that own solar panels, or electric cars with valuable batteries, suddenly become producers of energy, or storage capacity. So the triple helix evolves in a quadruple helix.

Lukas Hohmann has been writing about this³ and he concluded:

The Triple Helix Model, established by Etzkowitz and Leydesdorff, is a model, which copes with different forms of university – industry – government interaction. It reacts on the rising uncertainty and ignorance in society, which are results of the developments towards a knowledge society. The defined organisational frameworks they illustrate, shall be evaluated with regards to their usability in the context of Smart Governance – a type of governance, which demands new, intelligent democratic structures as a foundation for a new way of governing society. Triple Helix constellations in the nanotechnological industry and in the context of different forms of security in society show that

³ Hohmann, L., 2016. To what Extent Is the Triple-Helix-Model of Etzkowitz & Leydesdorff of Use for the Implementation of Smart Governance? – an Analysis Referring on Implemented Triple Helix-Constellations. *Glocality*, 2(1), p.2. DOI: <http://doi.org/10.5334/glo.7>



Lindberg et al, 2014

these structures are a useful instrument to generate intelligent solutions on certain societal problems. With regard to Smart Governance, Triple Helices are able to increase the intelligence of democratic structures and parts of their

processes. In contrast, they lack influence on metarules. The capitalisation of knowledge is an influencing factor, which prevents a more general implementation of Triple-Helices.

The role of JSP in the FED

Considering that JSP has been around since 2010 and that the Swedish innovations system can be considered one of the best in the world, we start to understand why it is not unnatural for JSP to be in the lead of multiple innovative projects. Even UIA projects that are normally lead by the local municipality seem just as well in place at JSP. They are simply in the middle of the system that can take innovations further and have immediate access to partners in a clear project leading role.

Take the 4 points that Dutch research Institute TNO describes as the cornerstones of Innovation Ecosystems:

1. Interconnections and networking between participants:

Base of an innovation ecosystem is a network of participants in which strengths of all participants can be combined. Working together will stimulate development of innovation.

2. Sharing and creating knowledge and technology:

Knowledge and technologies are developed and shared within the innovation ecosystem. Partnerships between the participants create new knowledge and technologies.

3. Diversity in financial sources:

New sources of financial support can become available based on connections between partners in the innovation ecosystem.

4. Boost for business climate:

The improved relationships will boost the business climate and create new commercial initiatives. This will have a positive influence on both economy and wellbeing of society

Taking a look at these 4 points it is clear that the interconnecting and sharing of knowledge under point 1 & 2 (interconnecting and sharing knowledge) are the daily business of JSP, in fact

much more than they are for the city due to other priorities. The third and fourth point (diversity in financial resources and boosting the business

Conclusion

It is well documented that Sweden likes the consensus model of decision making. There can be meeting after meeting until everybody is aligned⁴. My feeling is that the board of JSP, with its steering power on the organisation itself can be seen from that perspective. By being inclusive with the full board committed, also to projects in which the individual company has no stake(s), the consensus on the desirability of the outcome of certain projects grows and in fact extends over natural borders by those companies that are not project participants.

Another element of large (but local) organisations working together in an EU project is that it lifts them out of their normal relationship and supplies the possibility to strengthen each other on a set of well-defined goals. Unlike 'normal' projects in which they have often worked together the project-rhythm of the proposal is basically applied from the outside, and hard to alter. The lead of the project knows this and steers the partners outside the day-to-day considerations to the defined goals. This -by the way- can also be a political motive for two reasons. The first one is not applicable here but a long term project can see to the realisation of targets longer than an elected local government is in place⁵.

The second political motive is that using JSP as a lead, as a spider in the web, the Municipality avoids silo-thinking in its own departments, and also avoids that the organisations remain in their silo-thinking. After all, the project is now

climate) are of course at the heart of the FED project, so it makes all sense in the world for JSP to play its part.

not 'owned' by one department, it is led from the outside and connects to any department needed. The navy-seals in the USA have made considerable progress to avoid silo-thinking in their missions⁶, and although I agree the FED-mission is less life threatening, it is good to see how the innovation ecosystem in Gothenburg has already incorporated their conclusions to:

1. Create a unified mission
2. Work towards achieving a common goal
3. Motivate and incentivize
4. Execute and measure
5. Collaborate and create

- these conclusions a common and you see them in most literature on silo-think, normally with added comments on remuneration of personnel-

Recapturing the Gothenburg situation as described I would argue that the last two points (4&5) and possibly the first entail the FED project but that the common goal and motivation are very much the continuous process going on at Johanneberg and personified by Johanneberg Science Park. This conclusion may prove that JSP can be a great, natural choice of project-lead in projects with the same typology, which is also testified by the list of EU-projects they are engaged in.

Of course the main winner here is the municipality, or the public if you want. By making

⁴ Olle Wästberg, Director-General of the Swedish Institute, <https://www.thelocal.se/20090121/17064>

⁵ Discussion with Rik Grashoff, alderman city of Delft, NL, boardmember EnergieCites 2003-2006

⁶ <https://www.inc.com/brent-gleeson/5-ways-to-destroy-the-pesky-silos-in-your-organization.html>

a relative small investment in the science park, it creates consensus over a list of organisations that it would never be able to manage, if the system did not exist. How else would a housing company come into contact with a project on driver-less vehicles, or how would a car company learn about solar panels on an inhabited Living Lab⁷?

Due to its embedding in an advanced innovation ecosystem it becomes more and more logical and attractive to have JSP coordinate action and projects between the partners in the system.

⁷ <https://hll.livinglab.chalmers.se/>

5. Interviews

Director Mats Bergh found time –on short notice!– to help me out here and let me take the liberty to show you his views on the embedding of innovation at the city level through JSP. We go through a list published in 2013 of 6 traits of successful science parks:

1. Operate careful tenant selection policies
2. Selectively prioritize the newer knowledge-based technology industries
3. Engage with the knowledge base (primarily universities and public research organizations)

4. Engage cooperatively with other public and private sector actors
5. Own and/or operate one or more business incubation schemes
6. Provide professional business support and innovation services designed to increase the depth and extent of innovation-led and knowledge based business in their region or locality as well as within their park.

Interview



Mats Bergh

Hello Mats. How does one end up being the director of a science park, what career choices to make?

Hello Zeno and thank you for interviewing me on these matters. To answer this shortly, I'll rather say yes than no when presented to an opportunity to meet a new challenge. Also, before this position I have had the opportunity work in both public and private sectors as well as from a university so I had a good feeling about what the challenge was all about. The profile of the new science park and the chance to make

a real contribution regarding societal sustainable development made it quite easy to accept.

Do you agree with that list from 2013 and do you think some other characteristics need to be named?

I think the list still is a good summary of key science park functions but it is always a balance between what is kept within the science park itself and what is delivered through partnering with others. Usually I describe the science park community as a training facility where we work together between different sectors to break world records. In that context we need to have the right training staff (science park personnel), the best arena (infrastructure and other tools) and the best partners using and developing the community (the partner network). To make the most out of these opportunities I would also like to add trust and curiosity to the list. You need to be open to value knowledge from others and also to be open to use that in order to improve your business.

How important do you think are science parks in the innovation eco-system?

I think science parks are very important components in the eco-system. Used in the right way they are a tremendous source for gathering information and competence as drivers for innovation.

Do you consider the municipality still to be the main driving force?

All partners, regardless if they represent private business, academia, public authorities or municipalities, are of equal importance to form the science park eco-system. To have the municipality as a strong driver with the purpose

of having the science park being a part of city development is of course a very strong foundation to rely upon. This is of same importance now as when we started the science park 8 years ago.

Are their limits to growth for a science park like JSP and where do you see them?

As we use to say, the sky is the limit and only our own imagination restricts us for achieving the impossible. In terms of size of the organisation, we should have the adequate size and resources to fulfil our partners' expectations on us. The most important with our science park is the feeling of being a part of the JSP family. If that feeling can be preserved I see no limits for growing the size of the science park in the future.

Interview



*Gunilla Åkerström,
City of Gothenburg.*

Responsible for Gothenburg City Innovation Program and leading and coordinating the City's innovation work. The program identifies three long-term goals and five strategies for Gothenburg's City Innovation Initiative and contains more than 30 concrete actions to be carried out in 2018-2019.

Purpose: to increase Gothenburg City's capacity to be innovative in our organization, in collaboration with other sectors of society, but also to increase our ability to contribute to a strong innovation system in the Gothenburg region. The program also aims to create structured

work with innovation within Gothenburg City's entire activities.

Gunilla, hello! Did you work with JSP before the FED project started?

No, not me personally, but there have been others from the municipality (City hall) who have been working with JSP.

Was it an easy decision to have them run the FED project for you?

Yes, JSP have skills and competence in the energy area and the right conditions for managing the project in collaboration with relevant partners.

I truly believe that our role as a municipality is changing and we have to be a more active actor in the innovation system. We have to promote Gothenburg as an arena for developing, testing and disseminating innovative products, services and approaches. In order to develop the core business of the City of Gothenburg, it is essential to have a strategic and systematic approach to innovation work.

The purpose of the City of Gothenburg Innovation Programme is to increase the capacity for innovation in the City of Gothenburg's own administration, in collaboration with other sectors of society, but also to increase our ability to contribute to a strong innovation system in the Gothenburg region.

Interview



Lars Bern, area manager innovation, Business Region Gothenburg

Lars works as the area manager innovation for the Business Region Gothenburg which is a very active participant in the FED project. Business Region Gothenburg aims to create favourable conditions for trade and industry throughout the entire region by offering knowledge, contacts and arenas for collaboration. Business Region Göteborg is responsible for business development in the City of Gothenburg and represents thirteen municipalities in the region.

Dear Lars, I am glad you can help get an overview. How many science parks do you actually have in the Gothenburg area?

There are three science parks in Gothenburg; Johanneberg, Lindholmen and Sahlgrenska. Johanneberg, as you have described, has a focus on urban development, chemistry, materials and energy. Lindholmen hosts the big automotive

Do you think there can actually be a limit to what you as a city may want to outsource on topics like this?

Yes, there is definitely a limit. The city must steer the wheel and see to the accomplishment of results based on its own mission and strategic goals and common objectives. We are the one who has to prioritize and take the risk.

and transport cluster, ICT, media and games while Sahlgrenska focuses on life science and health care. The City of Gothenburg is part owner in these three science parks and share that ownership mainly with Chalmers and industry partners. In the case of Sahlgrenska the Gothenburg University and Region Västra Götaland are also part owners. As we speak, there are plans on establishing a fourth science park with focus on social themes in society. Let us come back to how and when.

It seems that some of the activities from a business region overlap with those of a science park. What are the areas where you can really strengthen each other?

From a strategic perspective, I think we all are striving for growth and job creation, attracting companies and talent to our region. As the city's representative for industry relations, we are becoming more long term oriented and a vision where industry sectors have the best fit and optimal overlaps to continue to grow and develop. More and more projects are hosted and managed by the science parks on appointment by the City. That builds project experience and we can add the opportunity to market the initiatives and what the region offers to delegations and professional study visits. Together we also build more knowledge and development into testbeds

where both technology and business can evolve in collaboration. Finally, there is a mutual internationalisation goal where we try to provide opportunities for companies to scale up and connect with export opportunities.

Interview



*Rolf Bastiaanssen,
Bax & Company*

On their landing-page, Bax & Company states: we are a leading European innovation consultancy. We help corporate directors, entrepreneurs and policy makers to create, execute and manage cutting-edge science and technology enabled initiatives that deliver substantial societal, environmental and economic impact. Since the company works EU-wide, I have a chat with Rolf Bastiaanssen, who can share his vision on the value of business parks in innovation-uptake.

Hello Rolf, nice to meet you. I understand that BaxCompany helps industrial and academic institutes innovate and in particular in large international project, funded by the EU? Is that correct or only half the story?

Hi Zeno, I can live with such introduction. We take a mostly European view to the innovation market, and connect advanced players to accelerate R&D and innovation processes, and that also covers large-scale testing in science parks or piloting in real life. And often those initiatives get a boost through significant European funding. Half of the FED partners are involved in projects we support,

Do you think there can be an optimum size of a business park?

My personal opinion is that it shouldn't too big or to too broad. Personal relations and focus build trust and a common ground to meet and explore.

in the areas of energy and smart grids, open data, autonomous mobility, and others.

Now, as you know I am looking into business parks as innovation-carriers. Do you work a lot with science parks and can you perhaps make some observations over the hypothesis that they grow consensus add an advanced speed by having heterogeneous boards?

We work with dozens of collaborative entities across Europe, from networks, to development partnerships and of course science parks. Science parks, as relatively stable public-private collaborations, offer very deep exchange of information and expertise. On topics of shared interest, that does lead to consensus and joint commitment of required resources. But it does require all participants to be flexible; as there is no single owner. Public bodies need to understand that industry requires a market model based on scale. Industry often needs to be reminded to open up to working with SMEs and 'not invented here' solutions, which add value but also complexity. Good science park boards have mastered the art of balancing interests for everybody to move ahead.

For complex, collaborative projects such as energy networks, the heterogeneity of collaborations should improve feasibility perhaps more than it accelerates. The collaborative setting almost automatically generates in the earliest stages of project development a holistic debate on system design. Public-private board members will

constructively challenge each other over options for the public policy framework, the end-user interests, technology models, financial structure and governance systems.

That is in marked contrast with publicly lead initiatives. We support cities across Europe in exploring infrastructure upgrades, and often there is limited 'reality check' on how to carry forward ambitious projects in a sustainable, financially responsible way ☹️ and those projects get stuck later on.

Do you see geographical differences in the set up or functionality in science parks in Europe?

What we do see is a trend for science parks to move outside their traditional boundaries

of conducting applied research, also covering innovation and early stage business development. There is more focus on exploiting the IP and expertise generated – linking policy ambitions, the shifting ambitions of talented innovators, and the expectations of industrial stakeholders.

When looking at the development of capex-heavy initiatives like energy grids, science parks are well positioned to bring an initiative from validation to early stage commercialisation. A relevant example is the Green Energy Park in Brussels. Starting off as an on-campus micro grid for testing new technologies and services, the concept has morphed more into a 'living lab' approach that will branch out based to cover industrial and residential clients based on market conditions.

6. Learning points and next steps

This journal shows how an eco-innovation system can function and how the uptake of complex projects with stakeholders engaged through a science park may be a preferred option, if such an environment has been created. The interviews support this in various ways.

One of the main learning points is that it takes an effort from all partners involved to set up a smart grid in a situation with existing networks, energy producers, energy users and very often particular buildings – or cars – having a hybrid character in that grid. Some of the hick-ups that are normal in large projects, such as planning problems, staff unavailability, delivery delays etc. may need adaption from partners and this very possible in situations where shared goals are well formulated. I believe this is the case in the FED project. The FED system that also sees to labelling agents with their specific profiles and demands & opportunities basically makes a systemic

innovation in a system that has started to evolve since the beginning of the 20th century in the area of Johanneberg, with Chalmers University of moving there in 1937.

The next steps for the project are of course the full implementation of the FED system and then adding more and more agents and units. There has been a notable shift in attitude from the partners lately. They were all focused on getting things started, but now focus is shifting to also look ahead and calling on the need for planning of how to run the system during spring. This is interesting and nice to see.

The upscaling strategies are incredibly relevant. It has so far not been easy for smart-grid projects to grow outside their initial geographical boundaries and in 2019 the FED wants to lay out a vision how to accomplish this. I expect this to be part of a next journal or Zoom-in.

Urban Innovative Actions (UIA) is an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. Based on article 8 of ERDF, the Initiative has a total ERDF budget of EUR 372 million for 2014-2020.

UIA projects will produce a wealth of knowledge stemming from the implementation of the innovative solutions for sustainable urban development that are of interest for city practitioners and stakeholders across the EU. This journal is a paper written by a UIA Expert that captures and disseminates the lessons learnt from the project implementation and the good practices identified. The journals will be structured around the main challenges of implementation identified and faced at local level by UIA projects. They will be published on a regular basis on the UIA website.



Urban Innovative Actions

Les Arcuriales
45D rue de Tournai
F- 59000 Lille

+33 (0)3 61 76 59 34
info@uia-initiative.eu
www.uia-initiative.eu

Follow us on **twitter**
@UIA_Initiative
and on **Facebook**.