



Aarhus IT city of Katrinebjerg

Results of the REDIS Implementation Lab, Aarhus, 30/9 – 2/10 2009

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<http://urbact.eu/thematic-poles/growth-and-job-creation/thematic-networks/redis/presentation.html>

1. Introduction

The city of Aarhus is a member of the REDIS-project, an EU-sponsored exchange programme of eight cities that have the ambition to use their science base as a driver for local economic development. Aarhus has developed the IT city of Katrinebjerg. Over the years, Katrinebjerg has gradually been developing from a rather ordinary business park to a powerful cluster of ICT research institutes and companies.

In the context of the programme, in September/October 2009, Aarhus hosted an Implementation Lab, a method that helps to audit a project using the expertise of project partners from different countries. A delegation of the partner cities paid a 3-day visit to the city and made a critical assessment of the development of Katrinebjerg. The audit focused on three themes: 1) the management of the area; 2) Branding and marketing and 3) support for start-ups and SMEs. But more general aspects of Katrinebjerg covered as well, including the Masterplan and the public space.

The first day of the implementation lab informed the partners in more detail on the development of Katrinebjerg. A number of local stakeholders delivered presentations and presented their views to the audience. During the second day of the lab, the audience was split into three working groups, where each group was a mix of foreign and local participants/stakeholders. The groups analysed the three issues mentioned above were discussed and analysed.

This report contains the outcomes of the implementation lab. First, for readers not familiar with Aarhus and the IT city of Katrinebjerg, it sketches the background and nature of the development (section 2). Next, it summarises the views, visions and ideas that were developed during the implementation lab: in general, on marketing& branding, area management, and support for SMEs and startups.

2. Background to IT city of Katrinebjerg

Aarhus is Denmark's second city. It is part of the region of Mid-Jutland. It has app. 300,000 inhabitants and a large student population of app. 40,000 . The information technology sector is a key economic priority for the city, and the city has considerable strengths in this respect, both in business and research. To further build on this, the city is developing the 'IT City of Katrinebjerg'.

The Katrinebjerg area (150k m2) is located North West of the historic city center, between the Campus area and the city center. Thus, it is not an isolated 'science city' campus style, but rather forms an integrated part of the urban fabric. It is a run-down neighborhood in full transformation towards a 'world class environment' for IT firms.



The IT City of Katrinebjerg – Vision 2011

Already, it hosts a significant number of research institutes and IT firms, and in the next few years, it is to be further transformed into a leading IT center. It should attract research institutes and entrepreneurs, and function as an incubation site for new ideas and firms. The idea is to excel in particular fields in pervasive computing, and user involvement in innovation. The area should function as a catalyst for the entire region of Central Jutland (and the region strongly supports its development). For this purpose, agents are located in various cities and towns in this region, that should seek to link the research, business and students base in Katrinebjerg with companies in the region.

The ambitions for the area are substantial. The Master Plan 2011 outlines that Katrinebjerg will be the core of the Greater Aarhus area for being:

- An international power house for IT based business development, IT research and IT courses
- A world class innovation environment, driven by the Katrinebjerg innovation model, in which innovation is created between users, firms and researchers



- A center for Pervasive Computing in Northern Europe

Civil officers in the city planning department have created an ambitious mainly architectural vision 2011, which includes a park on top of an existing shopping mall. This vision has been created as part of efforts to strengthen and develop the physical identity of the Katrinebjerg area. The vision does not carry the official stamp of the city of Aarhus.

Development stage

The area is in a full redevelopment process. It started off in 1999, when the idea and vision of the IT city Katrinebjerg was born in a working group under the regional IT council. The area was (and still is) a mixed business area with a variety of functions. There is a large shopping mall, and a wide variety of business is located there. Many companies are in the lower segments, such as car repair shops, manufacturing establishments etc, and these sit next to very modern knowledge based companies (many active in IT). Of relatively recent date are the buildings of the Alexandra Institute (2004) and The Department of Computer Science (2004) and INCUBA Science Park Katrinebjerg (2006/stage one 10.000 m² and 2009/ stage two 3.400 m²) (where around 80 mixed sized firms are located, among others a Google R&D department). These glass and steel buildings form a sharp contrast with run-down buildings and firms, and because of this, the area yet lacks a clear identification as 'IT city'.

However, the 'IT component' of the area is strong and getting stronger. The university is expanding in the area (from the adjacent university campus), and has concentrated all its IT research and education (both from the Sciences and the Humanities faculties) in the Katrinebjerg area, so now, the area is home to 1,800 full time IT students. In the near future, the area will be further redeveloped: the university (through a foundation) has bought substantial plots of land, and the IT department of the School of Engineering will soon be located in the area. Importantly, Bang and Olufsen has located a R&D department from Struer in the Katrinebjerg area: 'having a department in Katrinebjerg enables us to recruit competent employees within the environment and establish unbureaucratic research partnerships. It is pragmatic, fast and efficient' (Peter Petersen, Chief Technology Officer, B&O).

The area has received considerable local and national media attention, and despite its early development stage it has managed to develop a high profile. However, the scale of the IT city is still limited and the transition of the area is far from complete.

Key players and stakeholders

As said, Katrinebjerg is a mixed area. The main stakeholders are the University of Aarhus, some private developers (that own a variety of plots and real estate in the area), the Alexandra Institute, the Incuba Science Park (both co-owned by the university), the Central Denmark Region, The Municipality of Aarhus, IT-Forum, and the Engineering College of Aarhus.

Alexandra institute (a model for public-private research collaboration)

The Alexandra Institute (AI) is a key player in the area and driver of the area's development. It bridges the gap between private firms and public research. It is a 'matchmaking' institution with strong experience in managing research projects. The AI organizes the co-operation between private firms and local research expertise. For private firms, the AI opens the doors to research labs and competences. Typically, its projects are 50% financed by companies and 50% by the AI. Projects range from PhD projects to prototyping new projects, but the main strength of AI lies in the involvement of end users in the development of new IT products or services. Its projects bring in a

mix of technological and behavioral expertise, and typically involve users. A team of two people always leads projects: a researcher and a business representative. The AI is managed by a board of nine directors, six from the private sector and three from public R&D organizations.

The AI appears to be a very good model of bringing public research and private firms together and jointly create innovation. Also, it acts as a spider in the web in Katrinebjerg's development: the institute has an interest in developing a very strong IT cluster in Katrinebjerg, as its constituents and main clients are located there.

Content wise, the AI focuses on 8 areas in which it has particular strengths. The institute has proved to be very successful in developing innovative projects, mainly in pervasive computing but also in other applications. Some success factors can be identified. The first is leadership: the 'founding fathers' of the AI are leaders in their field, they have large networks, and manage to attract resources and develop projects. Second, the AI is able to set up projects very fast and efficiently, thanks to its rapid decision making processes, and this is crucial in IT where technological progress is fast and 'time is money'. The AI operates all kinds of research funds in an efficient way. Unlike in many other research funding organizations, the time between project application and approval is very short, thanks to a progressive project model: simple and fast application procedures, simple contracts, quick decisions (enables by close links between management team, that sees the proposals first, and steering committee, that gives the final go), and a small group of well-connected key people that can recognize whether a project is worthwhile or not.



Project example 1

The intelligent iBall, now marketed by the company Goalref, is an example of an innovation process in which the Alexandra Institute and researchers from the department of computer science at the University of Aarhus have been involved. The Goalref technology enables e.g. football or handball referees to make the right decision in controversial goal calls. This is achieved by providing referees with clear (visual and/or acoustic) realtime signals whether the ball has passed the line or not. The iBall will e.g. be used at the world championship in Handball in Croatia 2009.



Project example 2

The Interactive Hospital is a research project between Medical Insight, the Hospital of Horsens, the Department of Computer Science at the University of Aarhus, and the Aarhus School of Architecture. The main focus of the project is to investigate how pervasive computing technology can be designed to help clinicians interact with medical data in relations to surgery. Special focus is on supporting the surgeon to access medical images from PACS systems while preparing for a surgical procedure and while operating in the operating room. A secondary focus is to support the cooperation between the operating surgeon, the rest of the surgical team, and clinical experts situated outside the operating room. The research questions addressed are /multi-modal interaction/ with large display surfaces, /context-awareness/ during surgical operations, and enabling /social awareness/ amongst co-located and distributed clinicians.

The AI was founded in 1999. But before that time, Aarhus already had a major national Centre for Information Technology, funded by the federal government. But its leadership considered it a good idea to develop a more 'local' center, to reduce the dependence on decisions taken in Copenhagen and to create a more stable organization with local roots. AI has the legal form of a limited company. The shares are in the hands of the IT Association Alexandra, which is owned by the university, private companies, and public authorities. Members of the association pay an annual fee,



in return for a number of services. Most of its members are located in Katrinebjerg. The AI has expanded fast, from two employees in 1999 to more than 60 in 2008.

In 2008 AI has become recognized as technology service institute, by the state. This will yield basic funding and gives new opportunities for expansion.

University of Aarhus and its Centre for Pervasive Computing (CPC)

The university is a critical player in the area: it has concentrated all of its IT research (in Humanities -media and communication- and Sciences) in Katrinebjerg. Without disregarding the others, the Centre for Pervasive Computing (CPC) department is the most important institute in the area. Its research focuses on the gradual integration of information technology in every aspect of human life, and studies its possibilities and effects. This rapidly expanding research field is promising (the next 'big thing?') and Aarhus has world-class expertise in it. The CPC was spearheading what has been going on in Katrinebjerg: they were the first, back in the 1970s, to work with companies and users (though this was not appreciated at that time).

The university fully backs the development of Katrinebjerg and has been very supportive. It considers the area as one for expansion of the campus, and wants to build maximum flexible offices to cater for shifts in student numbers and research orientation. But some other players in the area (the Alexandra institute, for instance) need more dedicated types of facilities and laboratories.

INCUBA science park

Incuba Science Park is a limited company - where shareholders include both private and public companies. It owns three science parks in Aarhus. One of them is located in Katrinebjerg, and it is dedicated to ICT related companies. Its building is brand new and has all the up-to-date facilities for leading IT firms. It is now home to around 80 firms, many of them research-based.

Other stakeholders

There are other stakeholders as well. They can be divided in two groups: those with a direct interest in developing Katrinebjerg as science city (as they are directly involved in ICT), and those with other interests. The many IT firms in the area belong to the first group. For them, being in a strong IT cluster has advantages: it is good for their visibility and reputation, and it is easier to connect to networks and expertise of 'neighbors'. The IT forum is an important and active organization in this respect. It unites a large number of IT companies in the region (not only Aarhus but Mid-Jutland), and plays an important role in organizing knowledge transfer between the scientific institutes in Aarhus and companies in Aarhus and the region. The IT forum also brings together IT firms and local/regional policymakers.

The Innovation Lab deserves some extra attention. This company acts as a 'switchboard' between high tech IT research and the corporate world. It is a result of a cooperation between TDC (the largest telecommunications company in Denmark), AI, the former Aarhus County and City of Aarhus). The company advises firms how new IT discoveries may affect their business models. They scan the globe for new IT developments, and communicate possible implications for society and business. Being in Katrinebjerg, a research rich environment with strong corporate links, is an asset for this firm.

A second group of stakeholders are private property developers. Their prime interest is not to develop a nice IT city but to have the highest possible returns on investment. Since the redevelopment of Katrinebjerg took off some years ago, property values have gone up very fast, and property developers have acquired land and real estate (by buying out local companies). One of the first initiatives in the development of Katrinebjerg had in fact inflationary consequences. It was the



city council approval of a new district plan for the area which allowed higher building density and higher buildings - to accelerate the transformation of the area from industry to knowledge quarter. Also, as said, the university (through its research fund) has been active in acquiring property, with inflationary consequences. Some landowners have sold already, and some still wait for the best bid hoping for further prices increases. The property developers want to develop high rises as this generates a higher yield. In 2007, the city council approved a new high-rise building policy. Several areas was pointed out where high-rise buildings could be allowed – and a part of the Katrinebjerg area is one of these areas.

Managing the area

The first ideas (back in the late 1990s) were developed by a handful of enthusiast influential people from the University of Aarhus and the corporate sector. They involved politicians from the municipality and the county to join the efforts. It was an informal group, without common institutional base, that, through its energy and influence, managed to push forward the Katrinebjerg project.. And still, almost a decade later, there is no formal organization that steers the development of the area. It is the individual leadership in the key organizations that drives its development.

There are formal structures that carry the development as well. The first is the Regional It-council – a strategic forum in the field of ICT (goal setting/developing business development strategies/action plans) established in 1999 with members representing it-companies, research & education and public authorities - chaired for many years by the Aarhus County mayor and the mayor in Aarhus. Second, as mentioned earlier, the Katrinebjerg project was born in a working group under the it-council – a group that has existed since 1999 and which has been behind the development of the first Master Plans and now plays the role as Local support group Aarhus in the Redis Project.

The municipality plays several roles in the area. It facilitates discussions among key stakeholders, it works on branding (through its Internet sites and otherwise), it sets the legal margins for the area, and is responsible for masterplanning and district plans. Its influence is of course restrained, as none of the property in the area is owned by the municipality but by other actors. However, strategic relations are quite good, and this model has worked relatively well. In late 2006, the Katrinebjerg Working Group mentioned above created a Masterplan 2011, with an outline of the ambitions for the area until 2011. The Masterplan 2011 is not a municipal plan – the masterplan is “owned” by the it-council and the partnership behind the Katrinebjerg project –where of course the city of Aarhus is one of the key partners.

Four ‘areas of initiative’ are discerned: local, regional, national/international, and marketing, profiling and communication. *Local actions* include strengthening the physical identity of the area, reinforcing/facilitating/expanding IT research/business/education, realizing a project hotel, developing social/recreational elements, and tourism. *Regional actions* mainly involve the setting up of networks and collaborative projects in the Central Jutland region; *National/international activities* involve setting up a ‘visit service’, facilitating international exchanges, R&D projects, conferences, support for investors, and lobbying nationally and internationally. Finally, the Masterplan expresses the intention to better *organize the marketing* of the area, among other things by aligning the marketing work of the individual firms and institutes that are located in Katrinebjerg.

It is an open question whether the realization of all these ambitions and action plans can be achieved without some kind of formal organization. On the strategic and visionary level, it was sufficient to have commitment of a few leading people and organizations, but it may be more



difficult (or less efficient and effective) to realize all the daily ‘executive’ tasks that derive from the Master Plan without some institutional umbrella.

In the beginning of the process, political leaders were highly interested in the area, and substantial public support went into it. Meanwhile, however, political attention has spread towards other areas, such as the development of an energy cluster (energy and climate change being quite ‘hot’ political topics), and the redevelopment of docklands and other areas. This carries the risk of lower political commitment for the Katrinebjerg area in the coming years, whereas the development of the area has actually just begun. A core challenge will therefore be to keep the area on the agenda and to make sure that the public sector remains committed to develop the area into a world-class IT city.

Competition issues

Katrinebjerg competes on several levels for several functions. First, the competition for IT companies and high-profile corporate IT research departments is global, or at least European. Here, Aarhus has to compete with a number of other cities, and Katrinebjerg –if developed further- can be an asset. Until now, the establishment of foreign firms in Katrinebjerg was the result of personal decisions by people with ‘Aarhus roots’, but to really develop as an international IT hotspot, more critical mass and a stronger international IT profile is certainly needed. The lack of international air connections is a bottleneck. Nationally, we have already noted that Aarhus does well in attracting R&D departments and IT firms.

Second, Aarhus (and thus also Katrinebjerg as part of it) competes to attract the ‘best brains’. Increasingly, this competition is not only domestic but getting international. The key asset of Aarhus is its good university (and some departments are even excellent). It is unrealistic in the short run, however, that Aarhus can compete with top players like Cambridge, Oxford or Boston. The city lacks the absolute top research in breadth and depth, and does not have an outspoken multicultural/international research and business environment. Nevertheless, many young bright people like to live and work in Aarhus. To remain attractive for this group, the city needs to continue to invest in quality of life (nice neighborhoods, high quality cultural facilities and other amenities). Also, it could help if Aarhus would develop sharp-branded and top-quality environments for working and living. Katrinebjerg has the potential to develop into such a high-profile area that is attractive for these groups, but much needs to be done.

Finally, within Aarhus and its region, Katrinebjerg faces competition as well. It is not the only possible location for IT firms, there are many more in the region. With the development of the port area, some firms may prefer that environment in the future. The city needs to develop a vision on how to brand and develop the various locations and parks in the city, to create a balanced mix. This is not easy given the fact that it does not have all the power to steer spatial development.

Key challenges

Based on the analysis made above, a number of key challenges have been identified by the leading stakeholders:

- How to create critical mass and international credibility as IT hub. Derived issues are how to get more IT firms, educational activity and research activity there
- Keeping political momentum. How to avoid politicians losing interest and redirect their attention (and funds) to other areas? There is a risk that the development of Katrinebjerg will be stuck halfway.
- Managing the area. Until now, strong interpersonal network between leaders (in research and business) have done the job and kept the area ‘going’. It is questionable whether this



model will continue to work well: especially the realization of the ambitions for the Masterplan 2011 demand substantial co-ordination and ‘practical work’ for which an umbrella organization could be a solution.

- Organizing support for smaller and medium sized IT firms that do not naturally connect to world-class research. The AI does a good job in connecting world-class firms to research, but smaller IT firms often have different, more genuine needs of support.
- The nature of the area. Is Katrinebjerg to be a world class IT working area (but: ‘dead’ after working hours’), or a mixed and lively area with different functions including leisure and housing (not just for students)? Some argue that the lively inner city is close enough and caters for the leisure demands of the workers; others plea for a full-fledged mixed approach. Related to this is the question what ‘physical identity’ will Katrinebjerg have or need, and the implications are for urban planning. The dominance of the university (and its related institutes) carries the risk of over-emphasizing just the universities’ needs in the development of the area.
- Steering private property developers/owners in the right direction. How to make sure (by creating incentives, legal action, planning or otherwise) that they will develop their parts of Katrinebjerg in such as way that the ‘concept’ of the area will be strengthened?



3. Results of the implementation lab

During the implementation lab, three groups of 10-15 people each reflected on the further development of Katrinebjerg. The groups consisted of a mix of local people (knowing the local situation well), and project partners from abroad. The following observations, suggestions and recommendations were made during the Implementation Lab¹:

General:

- ❖ The co-operation between university and business is very well organized; it is an example for all the REDIS partner cities.
- ❖ The area currently lacks identity as IT city. On the outside, it is not visible that you are in a world-class IT cluster.
- ❖ The quality of public space leaves much to be desired.
- ❖ The buildings are fine and up-to-date, but there is little cohesion between them.
- ❖ The area lacks liveliness; there are hardly any bars or restaurants.
- ❖ It is questionable how many people know Katrinebjerg in Aarhus (let alone in Denmark or even internationally).
- ❖ Some participants note that the shopping centre currently has little functional or physical integration with the area. This could be changed by allowing the owner of the centre to build something on top of the centre that is related to IT or research.
- ❖ Katrinebjerg seems to be somewhat 'inward looking'. Insiders (those working in the key institutes in the area) know what's going on and where to go, they know each other well, personal networks are strong. But for outsiders, newcomers or SMEs it is not that easy to plug in.
- ❖ There was discussion on the status and the quality of the Masterplan. Some expressed doubts on the location of the landmark building, and consensus grew that the top of the shopping mall is the appropriate place for it.
- ❖ Some connectivity deficits were identified. The connection to the airport is not straightforward. A direct connection may be impossible but it makes sense to have more clarity how to get to Katrinebjerg from the airport.
- ❖ Internally (in Aarhus) there is currently no signposting or any other visual reference to Katrinebjerg. This does not help to make the area identifiable and known among the general public.
- ❖ Over the last decade, Katrinebjerg has been successful to achieve its goals: attracting more ICT activity and people to the area. There may now be a need to re-invent Katrinebjerg and set new ambitions. One could be to broaden the scope from information technology to a wider technology focus, because ICT is embedded in almost everything.

Reflections and suggestions on Branding and Communication

Katrinebjerg is little known as IT hotspot among citizens of Aarhus, let alone in Denmark and abroad. The area lacks identity and visibility, and currently, it is not part of the 'mental map' of Aarhus. The group suggested to create and improve 'mental connections' related to Katrinebjerg. They introduced the metaphor of the story: Katrinebjerg should be a continuing and interesting story to be told, and to which people can relate and can be part of. In practice, this can be done through numerous measures:

- ❖ Create connections between buildings and facilities. This can be done by a consistent signing system and routings in the area.

¹ note that the statements are a collection of personal observations and suggestions – and not necessarily a common opinion and conclusion of the group



- ❖ Create a distinct design for public space, and apply it consistently. The consistency in the design of the campus can be an inspiration for Katrinebjerg.
- ❖ Improve the website to make virtual connections between locations
- ❖ Dress the area with flags, boards, or with projections from the inside of buildings to show what's going on inside buildings. Use technological applications in public space to make the area more 'sexy'.
- ❖ Apply co-branding techniques. Stimulate companies in the area to associate themselves with Katrinebjerg. For example they could label their R&D as 'from Katrinebjerg'.
- ❖ Given the high quality and image of the university of Aarhus (it is in the global top-100 and top-20 in Europe), it makes sense to link the Katrinebjerg brand to the brand of Aarhus University, rather than developing it as completely new and independent one.
- ❖ A brand reputation is best enhanced when committed individuals spread the word in their personal networks. Use students, employees, researchers from the area as brand ambassadors. It could be considered to organize science and IT-related events in Katrinebjerg (local, national and internationally oriented) to improve mental and emotional ties to the area.

Reflections and suggestions on SME and start-up support

The firms and institutes in Katrinebjerg are technologically sophisticated, and research-oriented. It is still a relatively small club, in which social networks are important vehicles for information and knowledge exchange. For outsiders, it is not easy to find their way. The same is true for SMEs that may not have the level of technological sophistication of the main Katrinebjerg club members, or for start-ups. This group suggested some ideas to improve the situation.

One suggestion was to create a one-stop-shop for SMEs and start-ups. This would be the point of entrance for any SME from outside, that considers to locate to the area, or intends to do business with a firm in Katrinebjerg. The one-stop-shop should be a desk of 1-2 well-informed persons, and financed by all stakeholders. People in the desk should have personal connections to all the institutes in Katrinebjerg.

Moreover, to increase the transparency of Katrinebjerg, it is needed to make visible what the area has to offer in terms of firms, institutes, technologies and products. Some kind of web-based catalogue could do this job. That would improve the networking opportunities of both firms inside and outside the area.

Reflections and suggestions on area management

It can be concluded that so far, the 'informal' and light organization of Katrinebjerg has worked fine. Informal leadership has been effective and successful. But it is questionable whether it will work in the future as well, as a number of key challenges are ahead.

One problem is the limited terms of reference of the current working group. There are no hard targets, and there is little 'implementation power' when the informal leaders in the area decide that things have to be done. Moreover, the current leaders are not professionals in the fields of area



management, development and branding. With the growth of the area and the ambition to become world-class, a more professional approach would be helpful. At the same time it is essential to nurture the effectiveness of the current informal networks and not create a bureaucratic management system.

With this in mind, the group developed two suggestions.

- ❖ The ‘light option’ is to create a ‘Katrinebjerg Club’, run by the core partners in the area. Members pay a membership fee, and this money is used for collective action in the area. Make explicit what the group should achieve collectively. Make sure there is implementing power to do what is needed. This can be done by creating a small implementing company with professional competence.
- ❖ A more heavy option is the creation of a joint area-based development company, with substantial land and real estate assets, including for example the Katrinebjerg-based assets of the University and plots of land owned by the city. The company should be given clear goals. Arrangements can be made to re-invest profits in the area (for example by developing new real estate, or by improving public space, or stepping up branding efforts). Profits may come from increases in land prices (they have gone up substantially over the last decade), real estate values and office rent yields, or participations in firms. The organization should be professionally staffed.

Apart from the suggestions described above, this group developed the idea to set up a multidisciplinary city secretariat that serves all the knowledge quarters. The IT city of Katrinebjerg is not the only knowledge cluster in the city. There are similar clusters (eco-food, healthcare, KB, energy, sports/events) with similar needs for effective area management and development planning.

A dedicated ‘science quarter’ secretariat would help to professionalise the planning and development of the knowledge clusters in Aarhus, and make policies more integrative. The secretariat would function as a connection point and integrator of the many city departments that deal with the development of areas like Katrinebjerg (relevant departments are urban planning, economic development, transportation, to name a few). It would help to translate good practices and ideas from one site to the other. Moreover, the secretariat could give each cluster a ‘face’ in the municipality, and function as an interface between city and communities of practice in the area. It is critical to staff it well and make sure it has access to the decision power.