Mistra Urban Futures Report
2019:2 – part II

MISTRA URBAN FUTURES

Mapping of co-creation for social-ecological sustainability in the Stockholm Region

A report from Mistra Urban Futures Stockholm Node

Johan Larson Lindal

Contents

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Introduction

This appendix presents all processes identified during the mapping process as described in Part I. The first section, *Selected processes*, presents the 26 processes deemed particularly interesting for investigation having therefore undergone interviews as well as further reading and analysis as presented in the *Methods* section in Part I. The second section, *Other processes of relevance*, presents processes that were particularly interesting but, due to missing criteria or other reasons, were not selected. The third section, *Other identified processes*, presents the remaining processes found during the mapping that were deemed interesting but did not meet enough selection criteria in order to be further investigated.

Selected Processes

BAGARMOSSEN

Bagarmossen Smartup
http://bagarmossensmartup.se/
Bagarmossen Resilience Centre
http://www.bagarmossenresilience.se/
Bagiska Veckan
https://bagiskaveckan.se/events/list/?tribe_event_display=past
Local Life
https://about.locallife.se/

Type
Citizen-driven local development process.
Keywords
Resilience, urban gardening, permaculture, retrofitting, local life, safety, public spatial development, business development, gentrification, co-working space, sharing economy, social capital.
Location
Bagarmossen, Skarpnäck city district, south Stockholm.
Engaged partners and stakeholder groups
Stockholmshem, local residents, local SMEs, KTH, Smart Retro Innovation Demos Helsinki, Bagarmossen Folkets Hus, non profit associations, City of Stockholm/Skarpnäck City District Administration, SIDA.
Funding
Stockholmshem.
Duration
2014–2018; Bagarmossen Resilience Centre from 2016 onwards.
SDGs
10, 11, 12, 16.

CHALLENGES

In 2009, the area of Bagarmossen along with the whole city district of Skarpnäck was considered an uneasy and unsafe part of Stockholm in several regards. For example, many interviewed residents perceived the district centre square as intimidating. *Skarpnäckslyftet*, a collaborative effort by the police, the local city district, housing companies, and various youth and social workers managed to increase the average perception of safety in the area during the next 5 years. However, in order to stabilise this recent positive development, more proactive local work was considered necessary by the public housing company Stockholmshem with regards to public safety in particular and with regards to social as well as economic sustainability in general. Many residents still requested more viable and diverse public spaces with access to organically grown food and social activities. The local

non-profit organisations such as Folkets hus – a public facility for meetings and activities – had become increasingly unable to meet the current demands from local residents.

GOOD PRACTICES & SOLUTIONS

With key actors in and outside Stockholmshem having experience from the previous development project *Hållbara Hökarängen* (Sustainable Hökarängen) 2011-2015[1], also in south Stockholm, Bagarmossen has access to substantial knowledge regarding the implications of utilising local initiatives and knowledge. Thus, Bagarmossen Smartup was conducted between 2014 and 2018 with three focal areas – creating a living area centre, urban gardening, and creativity & entrepreneurship. The Bagarmossen Resilience Centre (BRC) followed in 2016 and is still a key actor in the on-going sustainable development of the local area.

Involving the local residents proved quite challenging to achieve in practice. Residents were at first reluctant to the notion of external projects meddling in local affairs. Moreover, a certain fear of gentrification processes was present. Both the Bagarmossen Smartup office and later the BRC (established in the same house) were therefore used as meeting points, enabling residents to visit and discuss local issues when willing, rather than being confronted by consultants or top-down experts aiming to "solve" their challenges.

The economy is a lasting challenge for the locally driven initiatives. As the development of Bagarmossen proceeds, more and more ideas arrive at the forefront waiting to be realised, either proposed by residents or other key driving actors. Yet there are insufficient joint resources and a lack of shared vision among the involved actors for promoting all ideas or for prioritising and selecting them according to a guiding principle.

Two of the constant guiding principles for Bagarmossen Smartup were to only sponsor initiatives that were able to support themselves financially after the conclusion of the project and to only use local knowledge and resources whenever possible. The Smartup project was viewed as a means for reaching a desired outcome of long-term safety and sustainability. The outcome was mainly evaluated according to the perception of safety among responding local residents.

During the Smartup project, two researchers – one from KTH and one from Smart Retro Innovation Demos in Helsinki – followed the city development process and exchanged knowledge with the project leaders. Bagarmossen became one of three chosen testbeds for sustainable solutions and was presented in Smart Retro's speculative future history scenario in three parts.

Practices supported by the Smartup project included the opening of second hand clothing shops and bicycle workshops and creating opportunities for grocers and other entrepreneurs in the central square. A bicycle mechanic kiosk was installed at the square in

[1] Elfors, Susanna. 2015. Hållbara Hökarängen - en dokumentation av ett utvecklingsprojekt. Stockholm: Molin & Sorgenfrei.

2015 to promote sustainable transport and local craft professions by offering accessible repair facilities and classes on how to repair one's bicycle at home.[2]

The BRC was founded in 2016 by Susanna Elfors of KTH with a PhD in sustainable development together with local social entrepreneurs. The founding followed the ambition of promoting resilience and sustainable transition in a local context. It serves mainly as a co-working space and education hub for local sustainability, e.g. by giving permaculture classes to individuals. It is maintained as a co-operational society for commercial purposes. The BRC's strategy has since been to cooperate with actors commanding more resources, with the BRC providing specialised expertise on sustainable development to already existing projects and processes.

In collaboration with KTH, Bagarmossen Folkets Hus, City of Stockholm, Emmaus second hand enterprise, and Runö Folkhögskola, the pilot project Local Life was tested in Bagarmossen along with several other areas nationally and locally. Local Life is a digital concept for sharing economy and aims to reinforce social capital mechanisms by facilitating sharing practices between neighbours and residents in the same area. The BRC was coordinating the pilot insofar as they reached out to residents on social media in order to create commitment for the project, as well as following up the outcome of the project with interviews and surveys among residents to investigate whether their levels of interaction had increased or not.

"Skrubben" is a sharing platform initiated by a local resident and tested within the Local Life project. Skrubben functions as a loaning wardrobe (Swedish: *lånegarderob*) that enables residents to exchange clothes in a local shop.

Bagiska Veckan was introduced in 2017 as a week of entertainment and educational activities with the purpose of promoting the UN SDGs. This initiative was co-managed and funded by the Swedish international development organisation SIDA together with Andreas Sidkvist from the BRC and co-developed with the City of Stockholm.

OUTCOME & OPPORTUNITIES

Stockholmshem owns roughly 75% of the buildings in the centre of Bagarmossen, enabling them to take action on a broad scale. This is an exceptional advantage because a diversity of private and public landlords would have demanded another approach and partnership constellation.

After the Smartup project, Bagarmossen's residents experienced a safer and more stable environment compared to the early 2010s and willingly contributed on their own accord to various sharing, cultivating, and social capital-building efforts. Stockholmshem's goals for increased perception of safety for 2018 were met or exceeded already by 2017.[3] The prerequisites of the area – including a committed population, a socially aware public housing company with a strong presence, and key individuals and organisations moving

[2] http://www.bagisbloggen.se/cykelverkstad-bagarmossen/ Accessed 25 June 2019.

[3] Tenant enquiry in 2017, Stockholmshem.

matters forward – have shaped this development and should be considered outstanding within the region and essential to the outcome.

The BRC is constantly developing and producing ideas for future local sustainable development, one of which is *allotek*, which can be translated as "omnibrary", a sharing centre for things and resources. The municipality is interested, but the BRC would have to become a non-profit association in order for this to happen.

LESSONS LEARNED & RECOMMENDATIONS

As entrepreneurs, the members of the BRC try to work according to the three rules of economic gain, values, and competence. If an idea will generate income while not compromising one's core values and if the issue is situated within one's area of knowledge, it is worth developing. Bagarmossen Smartup owed much of its success to being receptive and focussing on providing space for local initiatives: "[Bagarmossen Smartup] is a successful project and we owe that to us not being locked in the idea of how we are supposed to do things, but rather being perceptive and listening".[4]

BAGARMOSSEN	Level of involvement	Contribution
City of Stockholm (Skarpnäck district)	Co-producing	Problem formulation
SIDA	Informing	Financing, regulations
Local residents	Co-producing	Problem formulation
Bagarmossen Folkets Hus	Co-producing	Problem formulation
KTH	Informing	Local entrepreneurship education
Local SMEs	Co-producing	Problem formulation
Stockholmshem	Co-producing	Problem formulation, organising, interaction platform
Smart Retro Innovation Demos	Informing	Local entrepreneurship education
Bagarmossen Resilience Centre	Co-producing	Problem formulation

Sources:

2018. Interview with Tobias Lind, business developer for Stockholmshem and project manager for Bagarmossen Smartup.

2018. Interview with Andreas Sidkvist, co-founder of the Bagarmossen Resilience Centre and project manager of Bagiska Veckan.

Elfors, Susanna. 2015. *Hållbara Hökarängen - en dokumentation av ett utvecklingsprojekt*. Stockholm: Molin & Sorgenfrei.

Stockholmshem. 2014. *Operational Plan Bagarmossen Smartup - tillsammans för en levande stadsdel.*

[4] "[Bagarmossen Smartup] är ett framgångsrikt projekt. Och det är tack vare att vi inte har låst upp oss i hur vi ska göra, utan [vi är] lyhörda och lyssnar in". Interview with Tobias Lind, Bagarmossen Smartup. 2018.

C/O CITY

https://www.cocity.se/

Type
R&D project for improving tools of assessing ecosystems services in urban environments.
Keywords
Ecosystem services, green infrastructure, green building certification, construction policy advocacy.
Location
Norra Djurgårdsstaden, northern central Stockholm.
Engaged partners and stakeholder groups
AlbaEco, Chalmers University of Technology, GIB, City of Malmö, LÄNKA Consulting, NCC, Science Partner, City of Stockholm, Stockholm University (Stockholm Resilience Centre), Sweden Green Building Council, U&WE, White arkitekter, WSP.
Funding
Vinnova: 13 856 240 SEK.
Duration
2011–2017; continuing as an NGO platform from 2018.
SDGs
11, 15.

CHALLENGES

Ecosystem services (ESS) are functions within the ecosystem improving or sustaining the well-being of mankind. Among these services are pollinating insects, leisure from green areas, and purification of water and air. Green infrastructure refers to various areas and connections of natural life and wildlife contributing to maintaining these services.

Difficulties of ESS being included in city development processes, as well as the fact that biodiversity was greatly discussed within city development without mentioning the human benefits of this diversity, triggered the launching of C/O City. Connecting ESS to the development of green infrastructure in the building process would therefore create better conditions for sustainable urban development. The newly developed area of Norra Djurgårdsstaden (also featured in this report) became the central location of the project, and the development of the area invited a range of R&D projects to enhance its sustainable features. The C/O City project was carried out in three stages, beginning with a pre-study conducted by U&WE, a consultancy bureau promoting socially and ecologically conscious enterprises. This was followed by the City of Stockholm carrying out the main work during stage 2 and then presenting and promoting the results during the last stage.

GOOD PRACTICES & SOLUTIONS

The project nurtured a co-creative approach between the participating actors, although citizens were not part of it at any stage. The approach used no explicit tool or method to

achieve its co-created solutions but employed the collaboration consultancy firm LÄNKA as facilitators during kick-offs, seminars, and for general process support.

As mentioned above, the three stages activated different partners. Whereas U&WE provided expertise on the variety of relevant actors, projects, and already existing businesses working with social and environmental innovation, the public servants from the City of Stockholm provided the main expertise on planning and construction processes. The Sweden Green Building Council, a non-profit organisation, provided a vast network of construction companies and building certification systems for implementing ESS as a relevant part of these systems. However, a conscious strategy from the start was to co-produce knowledge, and environmental and other relevant expertise from researchers and U&WE as well as the operational expertise of the municipality and construction actors were integrated during the course of the project. Participatory dialogue was likewise consciously *not* included; the results from the project would, instead, serve as a tool for facilitating future participatory dialogue processes, particularly within city development and construction programmes.

OUTCOME & OPPORTUNITIES

C/O City managed to include the concept and evaluation of ESS into the programme of Citylab, a certification system for sustainable housing created by the Sweden Green Building Council. The Excel-based tool *Grönytefaktor för allmän platsmark (GYF AP),* used for quantifying the values provided by different types of green areas, was also introduced into the green certification process and presented in a report. C/O City decided to continue operations as a non-profit organisation through the digital platform *Hållbar stad* beginning in 2018.

Moreover, several public authorities and municipalities now have ESS included as part of their mission. On a broader level, C/O City has substantially contributed to spreading knowledge about ESS to various societal sectors, including private business, building companies, non-profit organisations, and policymakers.

“ESS” is a social-ecological concept, making it more suitable for sustainable urban development than the hitherto more commonly used “biodiversity”. The concept has virtually exploded in recent years and is rapidly becoming a general guiding variable used in the context of city planning.

LESSONS LEARNED & RECOMMENDATIONS

Communicating the concepts of ESS and green infrastructure in a pedagogical manner was a great challenge. Lack of willingness to be influenced by others proved too significant an obstacle for one of the actors who left the project in its third and final stage.

Existing legislation constituted another stepping stone when, for example, building green roofs (due to fire risk). Promoting the modification of policies thus became an additional part of the project.

Devoting one year almost exclusively to discussion concerning objectives, vision, and principles was worthwhile, though demanding a firmly held belief in the fundamental idea of the project. Getting researchers on board is also vital to such projects. The project was

successful because the stakeholders managed to achieve a shared goal, with each actor having an interest in promoting the project.

Having different actors sitting "on the same side of the table" for once was empowering with regards to the objectives of C/O City. Such collaborations between construction companies and municipalities are fairly unusual, but these created a level of mutual understanding that proved essential for the project's outcome.

C/O CITY	Level of involvement	Contribution
City of Stockholm, Environmental Department	Co-producing	Organising, producing GYF AP, policy dialogue
City of Malmö	Non-active	
Stockholm Resilience Centre	Co-producing	Research
Chalmers University of Technology	?	?
Science Partner (RISE)	?	?
LÄNKA Consulting	Co-producing	Facilitating, process design
U & WE Consulting	Co-producing	Organising, facilitating
NCC	?	Construction knowledge
WSP	?	?
White arkitekter	?	?
AlbaEco	?	?
Sweden Green Building Council	Co-producing	Construction certification systems

Sources:

Interview with Christina Wikberger, project manager of C/O City, City of Stockholm Environmental Department. 2018.

C/O City. 2018. *Grönytefaktor för allmän platsmark 2.0.*

DATASMART

http://www.begripsam.se/uppdrag-projekt/datasmart/

Type
Product development project for increasing digital accessibility for cognitive functional variations.
Keywords
Functional variations, digitalisation, Internet use, equality, smart urban development, accessibility.
Location
Stockholm; various locations.
Engaged partners and stakeholder groups
Access Lab, Begripsam, City of Stockholm Social Services, cognitive pedagogues, Funka, Haja Applikation, HSO (Central Organisation for Handicap Organisations) Stockholms stad, individuals with functional variations, Jobbtorg Stockholm, KTH, PRO (National Organisation of Pensioners), RSMH (National Organisation for Social and Mental Health), Verdandi.
Funding
Vinnova: 1 754 900 SEK.
Duration
2017–2019.
Connected processes on-going from 2013 onwards.
SDGs
9, 10, 11.

CHALLENGES

According to the annual investigation *Svenskarna och Internet* (Swedes and the Internet), an overwhelming majority of the population seemed to experience little or no difficulties using the Internet and its various tools. However, it turned out that the SCB did not sufficiently include people with functional variations, which led the investigation to conclude that almost no one experienced difficulties as a result of those variations. According to functionality NGOs, their members experienced severe difficulties in using Internet tools, suggesting that contemporary Internet and smart technology design favours normative functionalities in society, thus effectively excluding a large proportion of the population (up to 15–20%). Even a smaller percentage suggests a substantial challenge in terms of democracy and possibilities for a transition to smart and energy efficient urban development.

In order to confront this challenge, new tools needed to be developed because no actor had previously been concerned with designing for various physical and cognitive functionalities. Actors from functionality NGOs and Stefan Johansson, a PhD from KTH and founder of the accessibility specialist start-up company Funka teamed up to address this issue together with Begripsam and the development company Access Lab. Begripsam had evolved as a project funded by Arvsfonden and Konsumentverket 2013–2016 and had

mapped and framed the problem as viewed by the target groups.[5] Begripsam then evolved into an NGO and a private company working with cognitive accessibility. The commonly agreed objective between these actors was to design prototypes of products or services facilitating Internet participation among certain target groups of individuals with functional variations. Chosen target groups were cognitive variations and visibility due to especially challenging conditions with regards to using the Internet. The DataSmart project was then initiated in 2017.

GOOD PRACTICES & SOLUTIONS

DataSmart initially conducted a data collection and then proceeded to developing data visualisations. Individuals of the stakeholder groups have been involved in testing prototypes all through the course of the project. However, because individuals within the target groups are unable to test prototypes due to their cognitive functions, alternative forms of visualisation have to be employed. Thus, various cognitive pedagogues are being hired to facilitate the testing process, one notable example being theatre-like scenarios of exposing target groups to the prototypes. Metaphors have also proven to be a successful alternative pedagogic tool. Thus, knowledge is created jointly regarding what works for the target groups.

Another issue being managed in DataSmart is democracy within the stakeholder constellation. The target group suffers from obvious limitations in exercising influence over the process, putting firm demands on Begripsam and the other designer actors to make efforts to empower them. Target group participants lack reading and writing skills, but they can make choices on, for example, which colour schemes to use in prototypes. The guiding principle has been to let target groups make decisions whenever possible if this serves the common objectives. Complete democracy and co-creation, however, is deemed unachievable in this process. At this point, the process has potentially been more time and resource consuming due to the particular preconditions of the target groups, but had they not been sufficiently included in the design process the end results would risk being inapplicable.

Social interaction such as joint meals, as banal as it might seem, proved to be crucial for enabling cooperation among the participants for various reasons; target group members are usually lacking in money and therefore risk going hungry, which would affect their capacity for participating, whereas the designers involved revealed – at least initially – a strong prejudice towards working with the target groups. Joint meals and other forms of interaction substantially mitigated these conditions and the designers renounced much of their previous scepticisms towards working with individuals who were notably different from the norm.

[5] https://www.funka.com/vara-uppdrag/forskning-och-innovation/arkiv-forskningsuppdrag/begripsam--funka-fokuserar-pa-kognitiv-tillganglighet/ Accessed 20 June 2019.

OUTCOME & OPPORTUNITIES

The data collection phase generated the insight that about 40% of people with functional variations experience difficulties using the Internet. One reason why previous enquiries did not satisfyingly generate this insight turned out to be that questions were posed in a way that individuals with certain cognitive diagnoses were unable to understand and to answer.

DataSmart has subsequently designed two user-friendly and iteratively tested products for gathering data from the target groups regarding their Internet use. Discussions with KTH Innovation regarding the scaling up and commercialisation of these products are currently on-going. Moreover, the data collection phase has suggested that corresponding errors are being made when statistically investigating various issues other than functionality and Internet use, demanding more initiatives similar to DataSmart.

LESSONS LEARNED & RECOMMENDATIONS

Stefan Johansson from Funka stresses the importance of curiously exploring a diversity of methods rather than attaching oneself to one designated method. Furthermore, self-reflection and self-critique is a fundamental part of DataSmart's process, for example, with regards to participation; are the stakeholders really involved or are only certain groups or individuals able to use the tools with which the process is carried out? The answer needs to develop out of a co-creative process and be re-evaluated regularly as one tests the various phases of the process in iterative loops. It may be seen that one actor is given considerably less time or resources than others, and providing the means of influencing the process and its decisions to those with little resources is key to achieving lasting results for the end users and to realise the main objectives in a project such as this. This in turn requires less conventional ways of operating, i.e. experimenting. The level of involvement consciousness expressed in DataSmart is likely due to the participants having such unalterably asymmetrical prerequisites and resources.

DATASMART	Level of involvement	Contribution
Access Lab	Co-producing	Product development
Individuals with cognitive functional variations	Co-producing	Testing, user influence
Functional rights NGOs	Co-producing	Problem formulation, target groups
KTH	Co-producing	Technology
Cognitive pedagogues	Co-producing	Pedagogics, facilitating
Funka	Co-producing	Problem formulation, product development
Begripsam	Co-producing	Organising, facilitating

Sources:

Interview with Stefan Johansson, PhD KTH and consultant Funka. 2018.

DECODE - COMMUNITY DESIGN FOR CONFLICTING DESIRES

http://www.decodeprojektet.se/

Type
Research project for designing participatory processes in urban development. National platform for applied research.
Keywords
Evaluation research, applied research, interdisciplinary research, process design, process support, construction certification systems, participatory dialogue, co-design, interdisciplinary service design.
Location
Based at KTH, research conducted in all participating municipalities of which five are within the Stockholm Region.
Engaged partners and stakeholder groups
KTH, Konstfack College of Arts and Design, Stockholm School of Economics, RISE, SWEDESD (Uppsala), Stockholm University, Södertörn University, Gothenburg Research Institute, Stockholm Centre for Public Sector Research.
Tyréns Architect's Office, Älvstranden Utveckling.
Sweden Green Building Council.
The Public Art Agency Sweden, National Board of Housing, Building and Planning.
8 municipalities: Norrtälje, Järfälla, Täby, Stockholm, Upplands Väsby.
Outside the Stockholm Region: Gothenburg, Sorsele, Uppsala.
Citizens and city districts.
Funding
Vinnova:
2014–2016: 9 100 000 SEK.
2017–2019: 17 521 000 SEK.
Tyréns:
2014–2016: 1 500 000 SEK.
2017–2019: 2 500 000 SEK.
Own resources
2014–2016: 10 000 000 SEK.
2017–2019: 30 000 000 SEK.
Duration
2012–2019.
SDGs
5, 10, 11, 16, 17.

CHALLENGES

Participatory urban planning processes are gaining more and more relevance in municipal decision-making as the Stockholm region grows. With increasing demands for housing projects, the needs of various social groups need to be taken into account so as not to

increase segregation. Decode's mission is to develop mechanisms in participatory processes for balancing power relations and conflicts of interests.

Civil servants and politicians experience ambiguity regarding the ownership of these types of issues. Relations between municipalities are furthermore structured by complex power dimensions, sometimes aggravating attempts at wider collaboration. Meanwhile, most urban development projects are conducted according to default standards, without bringing in new perspectives.

Decode was launched in 2012 by Björn Hellström (then at Konstfack College of Arts and Design) together with researchers from various other disciplines, Upplands Väsby municipality, the Sweden Green Building Council (SGBC), and Tyréns architectural firm. The initial purpose was, based on the above problem formulation, to develop methodologies for facilitating cross-sectorial and cross-disciplinary collaborations in urban development with a particular emphasis on realising social sustainability goals. The SGBC became a particularly essential partner during the course of the project due to them already having created Citylab Action, an educational programme for urban development processes. Citylab is a certification tool for sustainable construction, and Decode is the managing part of Citylab's process-management education.

GOOD PRACTICES & SOLUTIONS

Since its inception, Decode has been driven by two principles: interdisciplinary methodological development and conscious process design. Together, these principles imply a loosening of disciplinary, professional, and sectorial affiliation between participants in order to break up "silos". Emphasis lies less on contributing to particular fields of knowledge and more on designing the process of urban development for increasing social values for the users.

The above founding partners jointly agreed on emphasising qualitative perspectives rather than quantitative perspectives in pursuing these principles. There was from an early stage a general agreement among the participating actors on a well-defined fundamental norm from which the project's work would emanate. Such a common vision might be difficult to achieve among so many actors, especially concerning a politically sensitive issue such as social sustainability, but Decode managed to find the common denominators of the project group. Although working in different fields, the participants share similar outlooks on the issues of urban development. "We have been a few steps ahead", says Björn Hellström, as a rather large group has had the opportunity to work in the same way within the project.6 Extensive iteration of project work has also been mentioned as an important asset in this process, which, naturally, requires its due time. A much-needed strength of the project was therefore the stable funding received from Vinnova during successive phases.

Five aspects are seen as essential process-leading factors in need of a conscious strategy, namely organising the project, collaborating within the project, participation (i.e. dialogue

[6] "Vi har legat lite före". Interview with Björn Hellström 2018.

and consultation with citizens), communication, and innovation. Regarding the innovation aspect, the objective is never to create innovation per se, but to structure environments and conditions enabling innovative solutions to emerge.

OUTCOME & OPPORTUNITIES

The knowledge produced by researchers within Decode has been directly applied to the certification system of SGBC's Citylab. This has provided the certification and education processes with fresh insights into which variables and issues to consider in participatory urban planning. Currently, 17 different research initiatives have been launched and are being published as reports, popularised science (e.g. short films), articles, etc. The idea is that current urban development projects should take advantage of the results of Decode.

Moreover, high level decision-making is a prioritised target for Decode's results. Of the projects within Vinnova's Challenge-driven Innovation that have acquired funding for phase 3, all have been working in one way or another with policy development at a high level, and Decode is no exception to this.

Other observable results of Decode include extended and much-needed contacts and meetings between different municipalities. A network of inter- and transdisciplinary urban developers has emerged. "We have created a large…spider's web", Hellström concludes.[7]

A total of 17 different research studies have been initiated, and the results of the researchers' investigations are all incorporated into the CityLab certification system. This means that sustainability research is directly applied in city development processes.

LESSONS LEARNED & RECOMMENDATIONS

"I don't believe in one method called *co-creation* ... but I think that the methodology could be a form of co-creation, although then it is about using several different methods."[8]

A clear insight is that urban development projects lack general "stop rules"; there is no way to ultimately and definitely solve a social problem, rather, one needs to go over them time and time again in order to manage them.

Citylab Action and the Sweden Green Building Council in general have been important indicators of the continuous progress, and by using the certification system as a way of testing the relevance of Decode's overall results and its research processes the project outcomes have likely been rendered more meaningful and societally useful than they otherwise would have. However, the certification system in itself has proven to be a sometimes blunt tool for practical problem-solving in local contexts, being at times far too generalising instead of locally embedded and also insensitive to many of the inherently qualitative issues of social sustainability.

Dependency on individuals has been a clear experience throughout the project. Whenever certain participants have been replaced, it has required a considerable effort bringing new ones in, not only as employees, but also as committed and driving spirits. The

[7] "Vi har bildat ett stort … spindelnät". Interview with Björn Hellström 2018.

[8] "Jag tror inte på en metod som kallas samskapande ... men jag tror att metodiken kunde vara ett samskapande, men då handlar det om att ha flera olika metoder". Interview with Björn Hellström 2018.

driving spirit dependency is particularly obvious within the participating municipalities, and if matters turn towards *business-as-usual*, progress risks faltering.

Various forms of higher education could be positively affected by specialising in the interdisciplinary methods used by Decode, such as design practices and mind-sets in urban development processes.

It is particularly difficult to manage a coherent design strategy for urban development processes. The complexity of these processes poses severe obstacles for working as a team, and Decode has rather preferred to work with a pluralistic perspective and multiple strategies for dealing with the various cases that participants have brought forward instead of choosing one single strategic approach.

DECODE	Level of involvement	Contribution
City districts	Co-producing	Testbed
City of Stockholm	Co-producing	Testbed
Göteborg	Co-producing	Testbed
Järfälla	Co-producing	Testbed
Norrtälje	Co-producing	Testbed
Täby	Co-producing	Testbed
Upplands Väsby	Co-producing	Testbed
Uppsala	Co-producing	Testbed
Sorsele	Co-producing	Testbed
The Public Art Agency Sweden	Co-producing	Problem formulation
National Board of Housing, Building and Planning	Co-producing	Problem formulation
Citizens	Co-producing	Problem formulation
Gothenburg Research Institute	Co-producing	Applied & Action research
Konstfack	Co-producing	Problem formulation
KTH	Co-producing	Applied & Action & Artistic research
RISE	Co-producing	Problem formulation
Stockholm School of Economics	Co-producing	Action research
Stockholm University	Co-producing	Applied & Action research
SWEDESD	Co-producing	Applied & Action research
Södertörn University	Co-producing	Applied & Action research
Tyréns	Co-producing	Problem formulation, Testbed & Business development
Älvstranden utveckling	Co-producing	Testbed
Sweden Green Building Council	Co-producing	Problem formulation, construction certification systems

Sources:

Interview with Björn Hellström, project manager of Decode, KTH School of Architecture. 2018.

Decode's presentation at seminar "Stadsutveckling & design för motstridiga önskemål" in Stockholm. 17 May 2019.

DIGITAL DEMO STOCKHOLM

https://www.digitaldemostockholm.com/

Type
Innovation partnership platform hosting demo projects and think tanks.
Keywords
Digitalisation, public sector innovation, healthcare, elderly care, resource efficiency, water management, youth centre, smart cities, business innovation.
Location
Openlab, KTH, north central Stockholm; on-going demos in various parts of the region.
Engaged partners and stakeholders
Openlab, KTH, Scania, ABB, Ericsson, Skanska, Vattenfall, City of Stockholm, Stockholm County Council, Telia.
Funding
Partners' co-funding; projects funded separately.
Viable Cities:
Energy Efficient Healthcare: 3 487 000 SEK.
Vinnova:
iWater: 1 520 000 SEK.
TechTensta: 300 000 SEK.
Safe and user-centred healthcare and social care in home environments: 500 000 SEK.
Smart Locks: 900 000 SEK.
Duration
2016–onwards.
SDGs
3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 17.

CHALLENGES

The public sector of Stockholm and Stockholm County needs new forms of partnership to manage some of the most urgent challenges of today and the approaching future decades. Increased pressure on health services, a diminishing supply of fresh water, and an increasing percentage of elderly are a few examples of problems that public actors can no longer handle on their own. In order to secure a socially and ecologically sustainable city, technological solutions need to be developed using a combination of academic, commercial, and practical knowledge. Digital Demo Stockholm (DDS) was initiated by KTH and the two major public actors in the region, the City of Stockholm and the Stockholm County Council. The purpose was to generate innovative solutions to societal problems using digital techniques and to establish lasting structures for trans-sector partnerships in the region.

The companies involved – of which many were already established partners of KTH and its education programmes – had a particular interest in accelerating digital innovations in order to demonstrate these to their many visitors from all over the world. Stockholm, with its relatively small population, is itself not an important market for any of the companies, but rather is an exhibition arena for global investors.

GOOD PRACTICES & SOLUTIONS

Forming a think tank consisting of partner representatives, DDS decided to match its demos against an already existing challenge-driven inventory of societal challenges in the City of Stockholm. These challenges were broken down into workshops during which a number of possible demo projects were picked out. The industrial partners assumed a project managing role for each demo and then applied for funding from Vinnova's R&D programs. Openlab supported DDS with a process manager, using Design Thinking as a chosen methodology for creating innovative solutions. Testing, evaluating, refining, and re-testing is thus a regular process throughout the DDS operations and its demo projects.

"*DDS ... is more like a big learning process than it is a project*"[9]

DDS is heavily dependent on commitment from the leadership. Being a cross-sectorial collaboration, it demands more of its participating individuals than it would if run by only one actor. The steering group has to be ready to intervene in case there is no progress.

The procurement of innovative products and services faces obstacles from Swedish legislation. To tackle these obstacles, DDS appointed a policy council with the specific task of clarifying the necessary legal, operational, and commercial frames in which the partners need to operate.

OUTCOME & OPPORTUNITIES

In 2018, DDS had six on-going independent demo projects: iWater, Tech Tensta, Smarta lås (Smart Locks), Smarta trafikljus (Smart Traffic Lights), Safe user-centred healthcare and social care in home environments, and Energy Efficient Healthcare. The results have been tested and presented, for example, in May 2018 at Openlab.

LESSONS LEARNED & RECOMMENDATIONS

Each participating actor needs to acknowledge the benefit they gain from the partnership. Municipal politicians need to understand the value of them achieving political leverage from innovation within DDS; business leaders need to see that they attract investors even though not achieving direct gains from the process; and researchers need to appreciate the relationships and networks that they build during the process.

[9] "Digital Demo är mer som en stor lärandeprocess än det är ett projekt". Interview with Johan Schuber, DDS. 2018.

DIGITAL DEMO STOCKHOLM	Level of involvement	Contribution
Stockholm	Co-producing, consulting, informing	Problem formulation, steering
Stockholm County Council	Co-producing, consulting, informing	Problem formulation, steering
Residents	Informing, consulting	Testing
KTH	Co-producing, consulting, informing	Problem formulation, idea formulation, steering
ABB	Co-producing, consulting, informing	Idea formulation, product development, steering
Skanska	Co-producing, consulting, informing	Idea formulation, product development, steering
Ericsson	Co-producing, consulting, informing	Idea formulation, product development, steering
Scania	Co-producing, consulting, informing	Idea formulation, product development, steering
Telia	Co-producing, consulting, informing	Idea formulation, product development, steering
Vattenfall (publicly owned company)	Co-producing, consulting, informing	Idea formulation, product development, steering
Openlab	Consulting, informing	Organising, facilitating, meeting forum, Design Thinking, SCRUM

Sources:

Interview with Johan Schuber, co-founder of Digital Demo, KTH. 2018.

Interview with Sara Araya, project manager of Digital Demo, Openlab. 2018.

Zika-Viktorsson, Annika. 2018. *Digital Demo Stockholm: en studie av interorganisatorisk samverkan kring samhällsutmaningar och digitala lösningar*. KTH.

DIVERCITY

https://www.theoryintopractice.se/divercity

Type
Process and policy development project for joint building ventures.
Keywords
Joint building venture, process design, participatory planning, Step Dialogue, urban development policy, construction policy, idea-driven building.
Location
Stockholm.
Engaged partners and stakeholder groups
Alsikebolaget, Nils Söderlund Architects, Boverket, Coompanion, Ekobanken, Föreningen för Byggemenskaper, City of Gothenburg, inobi, KTH, City of Malmö, omniplan, Orust kommun, Region Gotland, RISE, Röd arkitektur, City of Stockholm, Theory Into Practice, Uppsala Municipality.
Funding
Vinnova: 7 587 641 SEK.
Duration
2016–2020.
SDGs
3, 5, 8, 9, 10, 11, 12, 16.

CHALLENGES

Current Swedish housing construction is a complex process, usually spanning at least 3–4 years, involving municipalities and a handful of building contractors at the very least but, perhaps the most delicate, requiring the participating construction companies to co-finance the process long before the first buildings have been erected. Alternatives to this system are rarely tested, which risks jeopardising the well-needed acceleration in sustainable construction over the next decades for the rapidly growing Stockholm region. Moreover, although housing might indeed be satisfyingly built, the procured companies might be less keen to secure a diverse and equal community and functioning local services for the residents. When comparing Sweden with, for example, Germany, where alternatives such as joint building ventures (Swedish: *byggemenskap*, henceforth JBV) are prominent, there is a perceived need for experimenting and developing policies concerning housing and construction in order to improve the prerequisites for a just and sustainable city.

JBV is a model in which users – the intended residents of a house or neighbourhood – participate in the planning process as a co-operative society and exercise influence over all or most of the decisions. They are currently rare in Sweden and are also largely unknown to the banks that can fund them. Individual co-operative societies usually lack sufficient funds and organisational stability to be regarded as reliable project partners from the perspective of Vinnova. Instead, the Society of Joint Building Ventures (Swedish: *Föreningen för byggemenskaper*) is the coordinating actor of the Divercity project initiated in 2016. The goal of the project is to create leverage for more JBVs in Sweden, using their co-operative

societies as testbeds while experimenting with construction process design and construction policy development.

There are several indicators as to why JBVs are worth strengthening. If end users are included from the start, their commitment to the constructed neighbourhood is stronger, promoting a socially sustainable area. Moreover, because end users share the costs of materials and processes, JBVs are more likely to contribute to resource-efficient construction and longer-lasting materials and thus have greater potential for sustainable buildings. Furthermore, JBVs potentially constitute an addition to democratic participation in urban development.

GOOD PRACTICES & SOLUTIONS

"*What we seek to achieve requires several actors*".[10]

Co-creation between architects, urban planners, joint building venture co-operatives, and researchers is a fundamental feature of the process. The project has 18 organisations participating altogether, and the various stakeholder groups had hitherto had limited understanding of one another, which demands a conscious process design in order to guide each actor towards a common vision. Several workshops have been conducted to foster a common view of the challenge, and the funding application was written collaboratively. There is also a regularly maintained ambition to involve stakeholders – the co-operatives – on the same terms as project partners in the co-creation process because they are formally asymmetrically involved due to Vinnova's requirements.

There is, moreover, a generally accepted view among the participants that a process needs to be framed by a particular methodology. In order to facilitate co-creation, the Step Dialogue is used, a process design allowing several spaces for reflection individually and in groups, gradually aiding the participants in becoming more conscious about their common core values guiding the process and their main objectives.

During step 1, a process description was developed, providing an initial overview of what needs to be done in order to realise a construction project with JBVs. The description is partially used as a supporting tool for architects, often unaccustomed to working with JBVs, but primarily for the municipalities to better understand their own operational conditions. The description covers core issues for the project, such as regulations excluding JBVs and important steps included in construction processes. It is used as a basis for step 2, in which the JBVs become testbeds for trying out various solutions and evaluating the JBVs' potential for sustainable urban development, while municipalities are experimenting with policy labs. RISE is responsible for these policy labs as well as evaluating the JBVs and their role in sustainability aspects, whereas researchers from KTH are conducting

[10] "Det vi vill uppnå kräver flera parter". Interview with Karin Kjellson December 2018.

evaluation research, for example jointly with the City of Stockholm. One notable case is the city's pilot project Fokus Skärholmen, in which one land assignment is designated for testing a JBV project.

Divercity uses a bottom-up perspective in which different working packages deliver output to a steering group assigned with the task of developing and spreading jointly created knowledge within the project.

OUTCOME & OPPORTUNITIES

The main long-term potential for the project, if successfully conducted and scaled, is a systemic change of Swedish housing construction policies, in which end users participate and influence the process on a broader scale than previously known.

LESSONS LEARNED & RECOMMENDATIONS

The constellation and choice of participating actors is crucial and needs to be consciously thought through, with particular regard to achieving a satisfying breadth of expertise. Involving the National Board of Housing, Building and Planning (*Boverket*) gives Divercity the credibility it needs, the member-governed bank Ekobanken provides the financial perspective, and Coompanion contributes their expertise on and experience from all forms of co-operative organisations.

Utilising these different sources of knowledge separately needs to work in parallel to establishing a common ground between all actors, as well as each part acquiring a driving force on its own as a result of appreciating the common benefits of the project.

DIVERCITY	Level of involvement	Contribution
Boverket	Co-producing	Problem formulation, idea generation, policy development, testing
City of Malmö	Co-producing	Problem formulation, idea generation, policy development, testing
City of Gothenburg	Co-producing	Problem formulation, idea generation, policy development, testing
City of Stockholm	Co-producing	Problem formulation, idea generation, policy development, testing
Orust	Co-producing	Problem formulation, idea generation, policy development, testing
Region Gotland	Co-producing	Problem formulation, idea generation, policy development, testing
Uppsala	Co-producing	Problem formulation, idea generation, policy development, testing
Föreningen för byggemenskaper	Co-producing, consulting	Organising, problem formulation, testing
KTH	Co-producing	Problem formulation, action research
RISE	Co-producing	Problem formulation, policy lab, research
Alsikebolaget	Co-producing	Problem formulation, idea generation, testing
Nils Söderlund Architect Firm	Co-producing	Problem formulation, idea generation, testing
Coompanion	Co-producing	Problem formulation, idea generation, testing
inobi Architect Firm	Co-producing	Problem formulation, idea generation, testing
omniplan	Co-producing	Problem formulation, idea generation, testing
Röd Arkitektur	Co-producing	Problem formulation, idea generation, testing
Theory Into Practice	Co-producing	Facilitating, problem formulation, idea generation, testing
Ekobanken	Co-producing	Problem formulation, investment, financial advice

Sources:

Interview with Karin Kjellson, communications manager of DiverCity, architect at Theory Into Practice. 2018.

DiverCity. 2017. *Slutrapport steg 1.*

ELASTISKA HEM (ELASTIC HOME)

http://kodarkitekter.se/projekt/elastiska-hem/

Type
Innovation and research project exploring diverse forms of shared living and shared economy in local housing areas.
Keywords
Architecture, housing innovation, sharing economy, shared living, user-centred design, service design, design fiction, social capital, behavioural change.
Location
BoKlok: generic places in urban-adjacent locations.
Stena: Vegastaden, Haninge, south-east of Stockholm.
Telge: Södertälje, south-west of Stockholm.
Engaged partners and stakeholder groups
Bio Bo, BoKlok Housing, Bo Tillsammans, Boverket, City of Stockholm, Ebab, Ericsson, Fastighetsägarna Stockholm, Hyresgästföreningen, Igeia Health Labs, Kairos Future, Kollektivhus Nu, KTH (Architecture, Green Leap), Stena Fastigheter, Stiftelsen Tryggare Sverige, Södertörn University, Telge Bostäder, Trygg-Hansa, Usify, Vitec.
Funding
Vinnova:
2016–2017 (Step 1) 482 000 SEK.
2018–2020 (Step 2) 9 909 680 SEK.
Duration
2016–2020 (not including planned step 3).
SDGs
7, 10, 11, 12, 16.

CHALLENGES

Sweden needs to reduce consumption, energy, and material use while managing an alarming housing shortage, while simultaneously preventing non-voluntary loneliness and fostering strong social capital in growing cities. One particular challenge is the high percentage of single households, especially prevalent in Stockholm. For architects who are used to being assigned contracts for conventional housing construction with isolated single households, this challenge might appear out of their reach. Kod Arkitekter decided to initiate Elastiska Hem as a way of exploring alternative housing solutions in a society demanding increased sharing in terms of living and consuming. The home is a powerful base from which to perform experiments of sustainable lifestyles, and architecture is an important tool for achieving this. As architects, Kod Arkitekter are used to co-creating their results with other professions, but the user's role – i.e., that of the resident – is seldom emphasised in their daily work. Because new innovations are needed to overcome today's complex housing challenges, the Elastiska Hem project was deemed a productive response to Kod Arkitekter's experiences of frustration over status quo procedures in construction, planning, and housing design.

GOOD PRACTICES & SOLUTIONS

Elastiska Hem is considered a user-centred and co-creative process focussing on using a large variety of knowledge and experience to develop and test prototypes iteratively with and for the individuals who are supposed to inhabit the new housing areas developed during the project. Consciously designing this process entails letting go of much of the otherwise centrally conducted project management, instead spreading responsibilities and power over the process to a number of working packages, each with its own participating and steering actors, albeit not independent of the project. Service designers were chosen as participants at an early stage in order to achieve as user-centred a perspective as possible.

The process itself, out of perceived necessity, has been rigorously structured from the beginning, and the methodology has been explored along the way. No existing concrete methods have been tested; rather, tools have been utilised according to the needs of project participants and users. Testing various methods is considered part of the process. However, a substantial part of the methodology so far could be directly found in Design Thinking and various design process tools. Also, scenario sketching and design fiction methods are utilised.

Prototypes and results will be employed in three different cases operating on three different societal levels – the structural level, the area level, and the neighbourhood level, which ensures that the project's potential for societal impact is more easily realised. Keeping up to date with news and innovation in housing policies is key, and the participating company Kairos Future is conducting strategic business planning on a national and international level in order to bring as much knowledge as possible into the process.

OUTCOME & OPPORTUNITIES

"*One should not underestimate the importance of the home in building social networks*."[11]

The vast scope of Elastiska Hem enables it to have an impact in several complex societal challenge areas – lack of housing, reducing consumption, loneliness and mental health – as well as strengthening social capital in local areas. The economic perspective is also somewhat present, and it is already suggested that 10% of the population wants to share more within their housing context, which suggests that there is a market ready to scale up the outcomes and models created during the project. There is also a possible step 3 in the funding programme, in which the housing companies would be willing to expand the results into larger prototypes and actual buildings and apartments ready for people to move in to. However, there is no ambition to influence existing housing legislation, but rather to utilise the given system in order to change behaviour and habits of living.

[11] "Man ska inte underskatta bostadens vikt när man ska bygga sociala nätverk". Interview with Åsa Kallstenius 2019.

LESSONS LEARNED & RECOMMENDATIONS

The challenge-driven innovation programme of Vinnova is considered a valuable asset because it allows for greater creativity regarding problem formulation. Also, the UN SDGs provide a common language and set of concepts created for working with the given issues. These are two of the more structural mitigating factors.

On a more operational level, an important prerequisite for Elastiska Hem is to approach actors with the ability to understand the reality of the user. Instead of focussing on organisations, it is important to consider the individuals working within these organisations because the co-creation process is always heavily influenced by particular personal thoughts, competences, and chemistry.

The administrative aspect might be less obvious, but is nevertheless an obstructing factor; it is a “horror scenario” for any project manager to coordinate the economy of such a diverse project. However, because Elastiska Hem is a pre-defined, carefully structured process, this significantly helps the coordinating effort. To have 60 individuals working in a randomly on-going process would be unlikely to yield valuable outcomes, says Åsa Kallstenius, project manager.

SOURCES:

Interview with Åsa Kallstenius, architect at Kod Arkitekter, project manager of Elastiska Hem. 2019.

ELECTRICITY

HAMMARBY SJÖSTAD 2.0
http://hammarbysjostad20.se/

Type
Open innovation platform and economic association.
Keywords
Energy efficiency, mobility, environmental urban zones, tech innovation, sharing economy, digitalisation, housing associations, strategic partnering, citizen participation, systems shift, eco-governance.
Location
Hammarby Sjöstad, south-east central Stockholm.
Engaged partners and stakeholder groups
Civil society: Global utmaning, Sjöstadsföreningen.
Research organisations: KTH, RISE, IVL, Energiforsk.
Public sector: City of Stockholm Environmental Department, Invest Stockholm.
Public companies: SEK, Vattenfall.
Businesses: IBM, Intel, Skanska, Siemens, SBAB, Volvo, Nissan, E-On, JLO Invest, DEFA, Bengt Dahlgren, Enstar, Envac, Hertz, Imek, Infranode, Länsförsäkringar, Charge Amps, Saab, Renault, ABB, Innenco, L&T, NetPort, Xeric, STIK, Teyi, Taxi Stockholm, Veidekke, HSB, Sweco, CyclEurope, BoTrygg, Stockholm Cleantech.
Architect firms: Tengbom, White, Atrium Ljungberg.
Other: Teknikföretagen, Riksbyggen.
Funding
Member organisations.
Duration
2014–
SDGs
7, 9, 11, 12.

CHALLENGES

The area of Hammarby Sjöstad has a long history of sustainable urban development. Reinvented as a sustainable best practice in Stockholm in the 1990s, it was long acknowledged as the best example of promoting sustainable waste and heat management. The *Hammarby Model* (Swedish: *Hammarbymodellen*), the fundamental concept for planning the area through eco-governance (reduction and re-usage of energy, water, and waste), is considered a promising component for Swedish service export. However, in recent years, a local self-image of having reached far enough has been challenged due to increased demands and higher sustainability goals. Calls for scaling up innovative sustainable efforts led to ElectriCITY (EC) being founded as an economic association in 2014 by Allan Larsson, an experienced driving individual in several sustainable urban development processes, along with other individuals living in Hammarby Sjöstad. The

initial purpose was to promote sustainable energy use by organising citizens through the many local housing associations, constituting approximately half the local population.

EC became a partner to Sjöstadsföreningen, an umbrella organisation for 50+ housing associations in Hammarby Sjöstad. Subsequently, EC was established as a collaboration platform for innovation between companies, academia, and civil organisations. *Hammarby Sjöstad 2.0* was launched by EC as a process for improving local conditions for sustainable living and system transformation through eco-governance and collaboration across sectors, with high environmental requirements similar to those of other urban development projects. The overarching ambitions are system transformations in energy, mobility, and circular economy realised through a diverse number of projects, including the testing of a sharing economy, efficient energy and transport management, and more sophisticated clean technology innovation. As Stockholm has committed to reaching the Paris agreement's 2050 goals already by 2040, EC has committed to locally exceed these requirements in Hammarby Sjöstad as a frontrunner example, reaching the Paris goals already by 2030.

GOOD PRACTICES & SOLUTIONS

Through strategic partnership, EC, Sjöstadsföreningen, and the housing associations have been able to attract some 40 different actors from industry, public administration, invest companies, technology innovation, and research.

Since the 1990s, the main approach for Hammarby Sjöstad has been to conduct mission-driven innovation, in which clear objectives, time plans, and a joint effort are fostered. The innovation process is thus rendered more substantial and powerful. This fundamental strategy is being refined and developed further within EC. The mission-driven approach serves as a structure or framework for enabling sustainable co-creation as it drives processes into selecting relevant participants from concerned sectors then works towards various specific goals on a systemic level with the overarching objective of a climate neutral area in 2030. The many sub-projects then co-create according to their own prerequisites and objectives.

EC functions as a platform, testbed, and urban living lab for testing of a wide range of sustainable solutions, with individuals working and living in the area as everyday users. The solutions are developed, provided, tested, and/or evaluated by actors from academia, civil society, public administration, and the private sector in collaboration with the housing associations of Sjöstadsföreningen. EC thus functions as a matchmaking actor, distributing relevant actors to the associations, and a co-funder of activities initiated within the process of Hammarby Sjöstad 2.0.

OUTCOME & OPPORTUNITIES

"What we do is not that … innovative, it is common sense … obviously, [this is] how things should be done. But there is, like, nobody who thinks about that."[12]

EC encompasses an exceptionally large spectrum of activities and projects, all of which share the fundamental ambition of improving the quality of life for local residents while securing a sustainable future. The main focus areas are energy, mobility, and digital infrastructure, with a selection of activities and initiatives listed below.[13]

Main areas:

System transformation in energy

- *Mapping of energy use* has been a fundamental component for raising local awareness. The Stockholm Environmental Department (*Miljöförvaltningen*) contributed this mapping to EC in its initial stage.
- *Energy at Home (Swedish: Energi hemma*); an initiative co-funded by Naturvårdsverket for increasing energy efficiency and promoting greater investments in private homes and associations through knowledge, idea exchange, and inspiration.
- *Solar panels testbed*
- *Geothermal heat exchanger in about 20 housing associations*
- *Climate steering for decreased power requirements*
- *Strategic partnerships for increased investments*
- *Urban living lab for future energy systems*
- *E2B2*; a project platform conducting big data analysis for energy efficiency and a virtual forum for knowledge exchange between housing associations.[14]
- *Matchmaking between cleantech companies and international stakeholders*.

System transformation in mobility

- *Charging electric cars at home*; an initiative co-funded by Naturvårdsverket for increasing the density of charging stations for electric cars with the goal of having 1,000 active stations in local parking garages by 2020.

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[12] "det vi gör är inte så … innovativt, det är sunt förnuft … [det är] klart att man ska göra på det här sättet. Men det är liksom ingen som tänker på det." Interview with Richard Dahlstrand 2018.

[13] http://hammarbysjostad20.se/andra-projekt/ Accessed 4 June 2019.

14 https://www.e2b2.se/forskningsprojekt-i-e2b2/stadsplanering/big-data-analys-foer-energieffektivisering-av-stockholm/ Accessed 27 February 2019; https://www.e2b2.se/forskningsprojekt-i-e2b2/tjaensteutveckling/virtuellt-forum-foer-kunskapsutbyte-i-bostadsraettsfoereningar/ Accessed 27 February 2019.

- *Electric car pools at home*
- *Policy lab for accelerating electrified traffic* (initiative with Energiforsk)
- *All taxis electrified by 2025;* residents in housing associations in Hammarby Sjöstad are invited to support Taxi Stockholm's transformation to electric vehicles by only ordering electric taxis.
- *Bussplan Stockholm;* together with ABB, InfraNode, Siemens, Volvo, Scania, and Vattenfall, EC works to promote electric buses in all of Stockholm County. It has now been scaled up on a national level as Bussplan Sverige with Energiforsk as project managing actor.
- *Digital meeting room*; instead of flying to attend meetings, e-limousines pick up and drop off attendants to meetings that are held in Hammarby Sjöstad with high resolution technology and high performance bandwidth. Thus, attendants save time and experience improved quality of life while abstaining from unsustainable travel.
- *Framework agreements*; instead of each housing association purchasing its own particular basic services (such as heating and facility management), all housing associations join together to purchase a particular service from the same supplier. This creates leverage for issuing demands for more sustainable procedures.
- *Coordinated sustainable transports*; about 15 housing associations are coordinating deliveries to reduce the number of transports, while promoting transformation to renewable vehicle energy.
- *Strategic partnering*; 13 housing associations jointly demand a service from a supplier while the supplier states their required profit. As far as both demands are met, other costs are shared within a common project of service delivery.

Snyggt & Tryggt (Nice and Safe)

An initiative for local safety measures, among others involving Nattvandrarna (voluntary night-walking groups).

Sharing Cities

A sharing economy testbed.

EC is also a partner in, among others, the sustainable urban innovation programme Viable Cities founded in 2017.

Because a large portion of the Stockholm region's housing stock currently consists of housing associations[15], the EC model for local commitment has potential for expanding to other parts of the city (Reimersholme, Gamla stan) and other cities (Trollhättan,

[15] Länsstyrelsen i Stockholms län. Rapport 2011:21. Läget i länet. Bostadsmarknaden i Stockholms län 2011. 40.

Jönköping). Although seldom being as organised as Sjöstadsföreningen, housing associations have a good starting point for expanded collaboration in many areas. In any case, the solutions being tested are generalisable and often considered for export. Thus, if successful outcomes from EC were to spread on a larger scale, it could have massive implications for the realisation of Agenda 2030 (for example, regarding energy efficiency and carbon emission reduction) in and outside of Sweden.

LESSONS LEARNED & RECOMMENDATIONS

The key to driving sustainable development has in the case of Hammarby Sjöstad been to organise oneself into larger contexts. The overarching mission driving the innovation process, i.e. the clear and highly ambitious environmental goals exceeding those of the City of Stockholm, has contributed substantially to results and the innovation process.

Housing associations are characterised by low commitment and a passive trust in the free market. Generally, holding a position on an association board is considered a necessary evil or duty rather than an important mission. Furthermore, association boards outsource facility service delivery in order to save time and responsibility. This has, among other things, led to inefficient housing and facility management. By bringing associations together in strategic partnerships, commitment can be kindled and harnessed to improve local quality of life and continuity in association management. ElectriCITY is thus an example on how to utilise the potentials of local commitment for accelerating sustainable development.

All pilots and tests of solutions need to be financed, not only with in-kind contributions, but also with facilities and equipment. This is a constant challenge that also problematises the open question of ownership. Companies have a traditional linear production procedure, in which they ultimately engage lawyers to establish certain exclusive rights over products or services and control of communication. Such routines need to be modified in joint projects.

ELECTRICITY	**Level of involvement**	**Contribution**
City of Stockholm Environmental Department	Co-producing	Co-organising, problem formulation
Sjöstadsföreningen	Co-producing	Co-organising, matchmaking, testbed participants, facilities, steering, problem formulation
KTH, RISE, IVL, Energiforsk	Co-producing	Co-funding, product and service development and testing
Businesses	Co-producing	Co-funding, product and service development and testing
ElectriCITY	Co-producing	Co-funding, coordination, matchmaking, strategic cooperation, problem formulation, objectives
Other	Co-producing	Co-funding, product and service development and testing

Sources:

Interview with Allan Larsson, founder and senior advisor at ElectriCITY. 2019.

Interview with Richard Dahlstrand, project manager at ElectriCITY. 2018.

Svane, Örjan & Angeliki Evliati, Maria. 2014. *Förnya en ny stadsdel: Vad kan vi lära oss av medborgarinitiativet i Hammarby Sjöstad?*. Stockholm: US AB.

ENABLE STOCKHOLM: FLATEN LAKE

Type
Research project. Local branch of the EU project "Enable: Enabling Green and Blue Infrastructure Potential in Complex Social-Ecological Regions".
Keywords
Green infrastructure, blue infrastructure, equality, recreation, wildlife protection, systems thinking, resilience assessment, citizen science.
Location
Lake Flaten, south Stockholm.
Engaged partners and stakeholder groups
Stockholm University/Stockholm Resilience Centre, Skarpnäck city district, residents, voluntary organisations (sports & recreation), café owners and other local SMEs.
Funding
Swedish Environmental Protection Agency.
German Aeronautics and Space Research Centre, Germany.
National Science Centre, Poland.
The Research Council of Norway.
Spanish Ministry of Economy and Competitiveness.
Total budget: € 2 540 309.
Stockholm budget: 5 097 074 SEK.
Duration
2017–2019.
SDGs
3, 10, 11, 14, 15.

CHALLENGES

Urban areas undergoing substantial changes and restructuring pose challenges regarding how to navigate natural resources in relation to local residents. The Stockholm case of the EU-funded research project Enable investigates the prerequisites for optimising the value of green and blue infrastructure in the rapidly changing area of Lake Flaten. The largest nature reserve in Stockholm since its founding in 2005, the Flaten area has been in a transition phase for the past few years. This has called for an investigation into how nature is being (and could be) used for recreation as the surrounding society gradually changes while still maintaining its rich ecological qualities. In order to produce this knowledge, local stakeholders are approached on a broad level, although each actor participates on its own terms.

The project is largely focussed on gathering data and knowledge about the specific conditions in Flaten and subsequently sharing these results within the larger Enable project (in which Stockholm's Flaten is one of six cases in different cities). Thus, the results are mainly meant to provide value for the future development of Flaten Lake and are not generalisable. However, the methods evaluated during the process will be potentially applicable in a larger context, as well as certain aspects of the research results.

GOOD PRACTICES & SOLUTIONS

The research process is designed to entail testing of a participatory resilience assessment adapted to an urban context. Thus, the project is both a learning process regarding the issues stated above as well as a meta-learning process, i.e. an exploration of participatory research methods. Knowledge is co-produced with researchers, public servants, individuals, associations, communities, and other stakeholders around Flaten Lake through a work package of citizen research, workshops, enquiries, and follow-ups and regularly updating participants while preserving results along the way. Each phase is designed so that all participants are able to give feedback on a personal level, largely avoiding group-based evaluation (and thereby risking consensus).

Obstacles for co-creation between actors often appear in the form of time, and voluntary organisations and individuals cannot always show up during the same hours as public servants and researchers. There are also numerous latent and active conflicts between some of the participating stakeholders, whether related to the project or not. Some participants are public servants and architects responsible for designing new local construction projects and are likely to receive critique when encountering local residents: "When things are being built, someone will always be displeased about it."[16] This creates a tension that needs to be taken into account so as not to jeopardise the overall objectives.

To logistically manage a chequered group of stakeholders with diverse schedules, interests, and resources, discussions are conducted parallel to one another and never with all stakeholders present at one single time. However, the leading actors have made sure that stakeholder groups inform one another regularly so that everyone has access to the same information. Furthermore, several different processes are designed to be going on simultaneously, thus enabling diverse forms of involvement. Although the research process has been prepared in advance, some aspects of the process are being altered according to needs along the way because not all prerequisites of all stakeholders can be foreseen.

A quite different potential stepping stone for the future application of the results is the fact that no decision-makers have been part of the project, hence there is a lack of a policy-driving aspect. This has not been a definite decision, but rather a consideration due to limited resources.

OUTCOME & OPPORTUNITIES

As mentioned, the main outcomes are aiming at an academic context – mainly producing articles presenting project results – and less towards a policy-development process.[17] However, having managed to bring so many local residents, businesses, and activities on board throughout the research project might potentially increase locals' interest and commitment in developing the lake and nature reserve. Moreover, the process's learning outcomes might be acknowledged as a substantial basis for future action-oriented research

[16] "När något byggs är alltid någon missnöjd". Interview with Erik Andersson 2018.

[17] See for example: Andersson, Erik & McPhearson, Timon. 2018. "Making Sense of Biodiversity: The Affordances of Systems Ecology". Frontiers in Psychology vol 9 no. 594; Schwarz, Nina et. al. 2017. "Understanding Biodiversity-ecosystem Service Relationships in Urban Areas: A Comprehensive Literature Review". Ecosystem Services vol. 27. Pp. 161-171.

processes aiming at bringing in practitioners for producing knowledge for sustainable cities.

As part of the project, a review article published in 2017 highlights the apparent knowledge gap between decision-making for enhancing urban ecosystem services through green infrastructure and biodiversity and ecosystem services relations, stating that there is still little empirical evidence to suggest that biodiversity is substantially strengthened by urban ecosystems services.

LESSONS LEARNED & RECOMMENDATIONS

Far from surprising, dialogue takes its toll on the schedule. Having diverse groups working with a common vision is a "continuous headache", requiring continuous discussions and re-formulating of objectives and boundaries and coordinating different points of view into a coherent process. One notable example is the systemic perspective not being embraced or even fully comprehended by all actors because many instead choose to apply an issue-specific perspective. On a higher level, coordinating an international co-creative project requires proactive communication structures. Co-creation is considered not to work well in large group meetings; instead, bilateral dialogues are held between managers of the six different projects.

There is a danger in trying to generalise one's results. In a case study like this, it is more reasonable to assume that the outcome will be a rather particular one and, in this case, efforts should be focused on developing the Flaten area: "We are trying to work against the scientific illusion of things being generalisable."[18] Thus, each of the six case studies has relative autonomy regarding problem definition and methodology. This is also a reason why Agenda 2030 has not been explicitly part of the problem definition even though the SDGs cover the issues being investigated in Enable.

ENABLE	Level of involvement	Contribution
Stockholm: local city district administration	Co-producing, consulting, informing	Problem formulation, data collection
Local residents	Co-producing, consulting, informing	Problem formulation, data collection
Local associations	Co-producing, consulting, informing	Problem formulation, data collection
Stockholm Resilience Centre	Co-producing, consulting, informing	Organising, facilitating, research, evaluation
Local SEs	Co-producing, consulting, informing	Problem formulation, data collection

Sources:

Interview with Erik Andersson, coordinator Enable, Stockholm Resilience Centre. 2018.

[18] "Vi försöker jobba mot den vetenskapliga illusionen om att saker ska vara generaliserbara". Interview with Erik Andersson 2018.

eROAD ARLANDA

https://eroadarlanda.se/

Type
Innovation project for testing electrified roads.
Keywords
Electrified roads, urban mobility, clean energy, sustainable transport, logistics, technology innovation, demonstrator.
Location
Arlanda and Rosersberg, Sigtuna Municipality, north of Stockholm.
Engaged partners and stakeholder groups
Elways, PostNord, Vattenfall, Airport City Stockholm, Swedavia Airports, NCC, Kilen Krysset, ABT, E-Traction, DAF, Cosmo Truckcenter, Gävle Container Terminal, Training Partner, First Hotels, Sandströms Electricity Firm, SMM Dulevo, Frost Production, VTI, KTH, The Swedish Transport Administration, Bilprovningen, Sigtuna Municipality, City of Stockholm.
Funding
80 000 000 SEK.
The Swedish Transport Administration, Vinnova and the Swedish Energy Agency funds 60% and partners fund the rest.
Duration
2016–2020.
SDGs
9, 11, 13.

CHALLENGES

Roughly 10% of Swedish annual CO_2 emissions emanate from the transport of goods. The Swedish government has set a goal of fossil fuel-independent transport by 2030. However, road-bound transport is expected to increase by 59% by then. The challenge rests on providing new sustainable means of supporting the growing number of transport vehicles. One innovative technique enabling this ambitious prospect is the construction of electrified roads. Today, electrified vehicles are dependent on large batteries due to the small number of charging stations. If the vision of an electrified Swedish main road network is realised, batteries can be made much smaller and thus more sustainable because charging batteries at stations will become largely obsolete for vehicles using the main national and regional highways.

eRoad Arlanda tests an electrified road in order to create knowledge needed for a national implementation of this solution. The test road connects Arlanda Airport with Rosersberg logistic area, a distance of 10 km of which 2 km are being electrified. The main vehicles using the road are larger trucks transporting goods, mainly from the state-owned main Swedish postal service PostNord. A large number of participating organisations contribute in various forms to the outcome of the testing area.

With so many actors involved, the consortium is dependent on structured co-operation and joint vision. This is in turn to some extent dependent on personal chemistry and

individual engagement. Also, functioning regulations and standards for partnerships such as e-Road Arlanda are not yet sufficiently explored, leaving many questions unanswered.

A different form of challenge is the fact that potential customers are not demanding electrified roads, partly since it is an innovation and therefore unexpected, and partly for reasons unknown. This has proved a challenge for the mind-set of many of the actors involved because they need to firmly believe in the potential of the solution even without customers considering it.

The concept of innovation procurement poses a challenge due to its complexity and lawyers of NCC, for example, are still having difficulties fully understanding what it means. Moreover, future financing is not completely secured because high speed trains are currently receiving more attention regarding funding on a national political level.

GOOD PRACTICES & SOLUTIONS

The Swedish spearheading actors of e-Road Arlanda were Gunnar Asplund of Elways and the large construction company NCC. While Elways was the main innovator and developer of the electrified road technology itself, they lacked resources needed to test the roadway, which was supported by NCC.

After the Swedish Transport Administration procured the innovation of electrified roads from Elways, the prospect took on more large-scale proportions and a consortium was established for developing a test project of electrifying a longer portion of a road. The Dutch company E-Traction was an important actor in this regard because they provided the truck that was first used, whereas the company ABT was given the main responsibility for the group of vehicles. Together they used their expertise to prepare the tests.

Sigtuna Municipality leased the road used for testing, previously mainly used by the police.

With many of the main actors being heavily business oriented, the idea of integrating the customer's perspective into the collaboration project is ever-present. Equally important and common knowledge to most of the actors are the aspects of risk-taking, uncertainties, multi-organisational partnership constellations, and complex problem-solving. These prerequisites significantly aid the progress of e-Road Arlanda. With NCC being the main organising part, their experience and stability in leading projects and multi-organisational partnerships is well needed, apart from their more obvious knowledge on related material aspects such as asphalt and roads: "The facility itself is not rocket science".[19] The Swedish Transport Administration serves as the main steering and guiding part, but the operations themselves are managed by the various actors according to their specific expertise.

OUTCOME & OPPORTUNITIES

Regardless of the final assessment of the test road, the opportunities for scaling up are already relatively clarified. If 5000 km of the most trafficked roads and highways – out of a total of roughly 20 000 km of roads in Sweden – were to be electrified, CO_2 emissions from

[19] "Det är ingen rocket science med anläggningen i sig". Interview with Hans Säll 2018.

heavy transport is estimated to be reduced by 50%. Furthermore, the new technology would be integrated into existing infrastructure, a welcomed cost-saving procedure. Safety for drivers, cyclists, and pedestrians alike is believed to be further enhanced by e-roads, particularly when combined with autonomous vehicles.

LESSONS LEARNED & RECOMMENDATIONS

In a consortium of such a variety of actors and routines, it is especially necessary to be precise and clear when formulating ideas and statements. When dealing with a large spectrum of competences, it is essential to try and remain a specialist and not act as a general expert. Keeping the consortium well functioning is key because innovation projects tend to attract the attention of naysayers and sceptics, and allowing the partnership to suffer or funding money to run out could mean a backlash from outside disrupting the progress and perhaps even halting the very implementation of the innovation itself. For similar reasons, keeping a good relation and dialogue with key public authorities is essential because the success of the project is dependent on their approval.

Patience is considered another virtue to technology innovation because testing processes require unusual amounts of time before generating productive outcomes, and every step taken needs to be verified: “Expect the unexpected”.[20]

An important lesson learned is that Sweden traditionally puts much faith in the vehicle industry, with large companies like Scania and Volvo. However, due to their primary interest in selling as many of their old models as possible before they become out-dated, they were not considered as partners in e-Road Arlanda. Instead, infrastructure and transportation actors were the ones mainly approached.

[20] Interview with Hans Säll. 2018.

EROAD ARLANDA	Level of involvement	Contribution
City of Stockholm	Co-producing	IT infrastructure
Sigtuna	Co-producing	Funding
Swedish Transport Administration	Co-producing	Procurement, funding
KTH	Co-producing	Research
VTI	Co-producing	Research
ABT	?	?
Cosmo Truckcenter	?	?
DAF	?	?
Elways	Co-producing	Technology, idea generation
E-Traction	?	?
First Hotels	?	?
Frost Production	?	?
Gävle Container Terminal	?	?
Kilen Krysset	?	?
NCC	Co-producing	Organising, IT infrastructure
Sandströms Electricity Firm	?	?
SMM Dulevo	?	?
Training Partner	?	?
Airport City Stockholm	?	?
Bilprovningen	Co-producing	Car driving, testing
Postnord	Co-producing	Founding, problem formulation
Swedavia Airports	?	?
Vattenfall	?	?

Sources:

Interview with Hans Säll, project manager of e-Road Arlanda, NCC. 2018.

FYRKLÖVERN

http://www.upplandsvasby.se/bygga-bo-och-miljo/byggprojekt/fyrklovern.html

Type
Local urban development process.
Keywords
Construction, development, participatory planning, participatory dialogue, sustainability evaluation, Upplands Väsby.
Location
Upplands Väsby, north-west of Stockholm.
Engaged partners and stakeholder groups
Construction companies, local residents, Upplands Väsby Municipality.
Interdisciplinary sustainability expert group from research, construction, and architecture.[21]
Funding
Upplands Väsby Municipality.
Duration
2010–
SDGs
11.

CHALLENGES

Upplands Väsby has roughly 45 000 residents and is a fairly stable municipality that, for various reasons, experienced a decline in construction in the 1990s and onwards, preventing the municipality from growing in concordance with the rest of the Stockholm region. These conditions, coupled with a slowly increasing risk for social problems and unrest, led to measures being taken by the centre-right political majority for altering the housing stand considerably. The public housing company Väsbyhem was to a large extent sold to private companies in order to promote a greater diversity of residents and choices of housing. The Fyrklövern area was a natural choice for a new development project in which different forms of new apartments could be constructed. Altogether, some 2 000 apartments will be built by 14 different construction companies. The main objective for the project is to densify, renew, and refine an already existing city centre.

GOOD PRACTICES & SOLUTIONS

In order to reach the lofty ambitions, external consultancy was acquired, as well as a participatory dialogue process called Väsby Labs. This developed into an experimental, co-creative process involving citizens, construction companies, architects, politicians, private sector, schools and preschools, students, and other actors in a series of workshops, of which

[21] Senior experts from Gehl Architects, Jernhusen, KTH, Stockholm Resilience Centre, Sweco, Utopia arkitekter.

one took place in the middle of the city mall. The process resulted in a steering committee coordinating the future work with the Fyrklövern project.

Interestingly enough, although the municipality produced a ready plan for development, no construction companies were committed to accept it for various reasons, including high prices and Väsby being regarded as too peripheral. In order to overcome this stalemate, the working committee decided to proceed with the 54 most promising ideas from Väsby Labs and develop them into a "menu" for potential contractors. The contractors would select which ideas they would be willing to realise and at what cost. This system resulted in 15 land assignment deals during 2014, allowing the municipality to proceed with planning operations.

An external jury of seven experts from academia, architecture, and construction assessed the various propositions from the contractors in an iterative process in which each proposition was reworked in several steps. The jury assigned points to each proposition, with each point reducing the cost per square meter by 1 SEK.

OUTCOME & OPPORTUNITIES

The various involved stakeholders have experienced surprisingly little disagreement over the issue, and the project has attracted much attention from various directions. Fyrklövern is regarded as a potential for maintaining a diverse community by inspiring new income groups to move into the area.

LESSONS LEARNED & RECOMMENDATIONS

Construction companies, and to some extent architects, however skilled and experienced, lack creativity regarding many aspects of the construction process. They turned out to be surprisingly standardised in their idea formulations during the project. For future prospects, alternative stakeholders would be interesting to try out, such as joint building ventures, in order to inspire more diversity.

The point-based system proved valuable to all involved because it ensured a richness in the construction plans that otherwise would have risked getting lost along the process, as was often the case in previous experiences. The point-based system empowered the municipal civil servants in their dialogue with the contractors because these had agreed to develop the area in a certain way that they later had to follow up accordingly regardless of their financial considerations.

Fyrklövern	Level of involvement	Contribution
Upplands Väsby	Co-producing	Problem formulation, organising, funding
Local residents	Co-producing	Problem formulation, idea generation
Expert group: KTH, SRC	Co-producing	Idea generation, evaluation, expertise, selection process
Construction companies	Co-producing	Idea generation, construction
Expert group: Gehl Architects, Jernhusen, Sweco, Utopia Architects	Co-producing	Idea generation, evaluation, expertise, selection process
Housing companies	Co-producing	Idea generation, construction

Sources:

Interview with Alarik von Hofsten, project manager of Fyrklövern. 2018.

GROW SMARTER

https://vaxer.stockholm/tema/hallbara-och-smarta-losningar/growsmarter/

Type

EU Horizon 2020 *Smart Cities and Communities* project. Local testbed and housing restoration project.

Keywords

Energy efficiency, housing restoration, zero fossil fuel emission, smart city, transport, mobility, lighthouse cities, EU, Horizon 2020, testbed.

Location

Valla torg, Årsta, south Stockholm.
Slakthusområdet, south Stockholm.
Lighthouse cities: Stockholm, Cologne, and Barcelona.
Follower cities: Cork, Graz, Porto, Suceava, and Valetta.

Engaged partners and stakeholder groups

Grow Smarter EU:

Owner and coordinator: City of Stockholm Environmental Department.
Public sector: City of Barcelona, City of Cologne, City of Cork, City of Graz, City of Porto, City of Stockholm, City of Suceava, City of Valetta, KVB (Kölner Verkehrs-Betriebe).
Private sector: AGT International, Ampido, Anteverti, Cambio Cologne, Carrier, Cellnex Telecom, Cenit, DEWOG (Deutsche Wohnungsgesellschaft), Endesa, Envac, Fortum, Gas Natural Fenosa, i2Cat, IBM, Insero, L&T, Network of Automotive Excellence, Nissan, Rhein Energie, Schneider Electric, Skanska, Stockholm Exergi, Transport Malta, Urbis UP.
Academia: Barcelona Supercomputing Center, IESE Business School, IREC Energy Research Center, KTH, The Urban Institute.
Inter-governmental: ICLEI Local Governments for Sustainability, REC (Regional Environment Center for Central and Eastern Europe).
Public company: Stockholmshem.

In Stockholm:

Carrier, City of Stockholm Environmental Department, Envac, Fortum, KTH, L&T, Local housing cooperative in Valla, Mobile Bike, Skanska, Stockholmshem.

Funding

Horizon 2020: € 250 000 000.
Private companies: 30%.

Duration

2015–2019.

SDGs

7, 9, 11, 13.

CHALLENGES

Following the Paris agreement in 2017, cities all over Europe have set similar corresponding goals for sustainable development, including a heavy reduction of fossil fuel emissions. By 2040, the City of Stockholm aims to become fossil free and the world's smartest city, next to its general ambition to be a city "for everyone".[22]

Stockholm has been reducing its fossil fuel emissions since 1990. Realising the ambitious goal of zero emission is, however, steadily becoming more challenging because previous achievements can be classified as "low hanging fruits". Reaching zero emissions requires both innovative and large-scale adjustments of housing, transport, and infrastructure systems.

Many cities launch innovative sustainable urban development programmes to solve these issues, such as Norra Djurgårdsstaden in Stockholm (as, in previous decades, Hammarby Sjöstad). To accelerate this effort, however, cities experience a need to team up with industrial actors in targeting the already existing housing stock. Stockholm's building boom during the 1960s generated many apartments that are now in need of renovation, as is the case in other European cities. Grow Smarter (GS) was initiated in 2015 by the Environmental Department of the City of Stockholm to use the opportunity renovate existing buildings and areas into models for more energy efficient, smart, and sustainable communities. These models are then meant to support a "Full roll-out in European cities" of successful solutions.[23]

Project manager Lisa Enarsson at the City of Stockholm Environmental Department has previous experience from a similar pilot project in Järva (*Hållbara Järva*) in north-west Stockholm. Together with Jonas Eriksson, contributing previous experience in EU development and a holistic perspective, a 1.5 year long EU funding application process began and eventually yielded a substantial sum for a 5-year project. The project involves partner cities Cologne and Barcelona because they share a similar outlook and problem formulation.

The goals of GS include creating 1,500 new work opportunities in Europe while reducing energy use and greenhouse gas emissions by 60% in each testbed area.

GOOD PRACTICES & SOLUTIONS

> "*We at the [Stockholm] Environmental Department … are driven towards bringing Stockholm into a more sustainable future – even though we don't have any resources! We are not the ones building houses … Therefore, we are rather good at applying for money*."[24]

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[22] Stockholms stad. 2018. Översiktsplan för Stockholm. Stockholm: Åtta45, 16.

[23] Interview with Lisa Enarsson. 2018.

[24] "Vi på Miljöförvaltningen … vi har ett driv med att vi vill föra Stockholm mot en mer hållbar framtid - men vi har ju inga resurser! Det är inte vi som bygger hus… Därför är vi ganska bra på att söka pengar" Interview with Lisa Enarsson. 2018.

A local housing cooperative in Årsta participated in testing solar panels and an energy measuring device designed to reduce housing electricity use and costs. Members of the cooperative shared their experiences and the value provided by the solutions within GS with other residents and cooperatives in the area, for example, during GS's "Recycling Day" event.

Although Stockholm did not join this initiative, Cologne introduced a *community reporter*, meaning a local citizen reporting on the progress of the solutions being tested.

It is also important to note that the EU commission has been a target for GS because part of the project has been to try to scale and spread its good practices. A policy-driving aspect has been central to the project, possibly contributing to its success.

OUTCOME & OPPORTUNITIES

> "*What we do is not 'rocket science', but rather doing all parts at the same time, that is both [that we] supplement insulation, change windows, check the ventilation system, get a system together, and [adjust] heat pumps to recirculate the heat … Not just taking one part by itself if you are going to reach the whole way up to 60% [emission reduction]*."[25]

GS has generated a package of 12 "smart solutions", divided into the main areas of low energy districts, integrated infrastructure, and sustainable urban mobility.

Examples of solutions include:

- Low heat loss windows.
- Isolating water pipes to reduce heat loss.
- Recycling drain water.
- Energy-efficient apartment lights.
- Energy-efficient elevators.
- A logistics centre to reduce transports.
- A "leaving home button" reducing energy output in apartments.
- Outdoor lights dimming in response to human presence, also turning off completely during low-activity hours of the day.
- Sustainable Delivery: all deliveries are stored in a designated room in every house, which recipients can enter using a unique code through an app.

[25] "Det vi gör är inte någon jätte-'rocket science' utan det är bara det att man gör allihopa delarna samtidigt, det är både tilläggsisolerar, byter fönster, tittar på ventilationssystemet, får ihop ett system och värmepumpar för att återvinna värmen…Att man inte bara tar en del om man ska nå hela vägen till 60%." Interview with Lisa Enarsson. 2018.

- Cameras and sensors anonymously monitoring movement during large-scale events at the adjacent Tele2 Arena in order to improve available data for event attendants when searching for efficient travel home.
- Providing traffic priority to organic fuel-driven trucks.
- Smart traffic solutions: a device informs drivers of private cars which speed they should maintain in order to avoid having to stop for red lights.
- Improved infrastructure for electrified cars.
- Developing a universal sign for e-car charging, bicycle rental, and organic fuel stations.

GS is being scaled, and 12 similar projects are now initiated, coordinated, and collaborating throughout Europe. This may be due to GS demonstrating its solutions in many cities and exhibitions across Europe.

LESSONS LEARNED & RECOMMENDATIONS

GS is the first example of the Environmental Department working this closely together with private companies. The project has thus evolved into a learning process, discovering synergies between these sectors. Furthermore, IESE Business School has provided many companies with new insights from a scientific, interdisciplinary point of view. It is noted and acknowledged, however, that the project overall lacks much of a social approach, although this is not completely overlooked.

The fact that the project early on had access to a substantial amount of funding seemingly made it appear more credible to partners, partially explaining the high number of participating actors in the process.

However, with some solutions having been successful, new challenges have arisen in their wake; an example has been the newly installed heat-saving windows being unable to relieve the outside windows of frost during the long and cold winter, thus reducing visibility and light inflow.

Another example of the challenges of producing solutions within a wider and complex system is that of waste management. Envac introduced a new local waste management system using bags of different colours separated optically in order to increase efficiency of waste sorting. However, the nearest waste management station with the capacity of optically sorting these bags is currently located in Eskilstuna, approximately 110–120 km from Årsta. This naturally calls for introducing equivalent stations closer to the local area, which is currently being looked into.

Initially, some protests occurred due to the announcement of rent increases in the area. While the local rents were indeed substantially lower than those of other adjacent areas, and the renovation in itself being the main reason for the raise (rather than the GS project), this might have contributed to a reluctance towards participation in GS on behalf of local residents.

GROW SMARTER	Level of involvement	Contribution
City of Stockholm	Co-producing	Organising
Housing cooperative in Valla	Informing, consulting	Testing, feedback
KTH	Consulting	Evaluation
Carrier	Co-producing	Technology
Envac	Co-producing	Technology
Fortum	Co-producing	Technology
L&T	Co-producing, consulting	Technology, controller
Mobile Bike	Co-producing	Technology
Skanska	Co-producing	Technology
Stockholmshem	Informing	Facilities

Sources:

Interview with Lisa Enarsson, project manager of Grow Smarter Stockholm, City of Stockholm Environmental Department. 2018.

GRÖNA SOLBERGA (GREEN SOLBERGA)

https://www.gronbostadstockholm.se/grona-solberga/

Type
EU-funded testbed in a local area for sustainable housing.
Keywords
Circular economy, public housing, surface water, waste management, testbed, urban gardening.
Location
Solberga, south Stockholm.
Engaged partners and stakeholder groups
Grön Bostad, Stockholmshem, local residents, cleantech SMEs, IVL.
Funding
Grön Bostad: 3 000 000–3 500 000 SEK per year (approximately). A substantial part of the funding comes from the IVL foundation.
Duration
2018–
SDGs
6, 9, 11, 12, 13, 15.

CHALLENGES:

Housing accounts for roughly 40% of energy use in Sweden, making apartment and facility renovation and innovation an essential prerequisite for reaching SDGs 6 and 11. Moreover, many urban areas in Sweden are facing increasing risks of flooding from heavier rainfalls due to climate change.

The current standard procedure when launching a testbed is to address particular residences and almost never local communities as a whole. This was partly the reason why the Solberga Testbed, labelled by its organisers as "The most living testbed in Sweden", was launched in February 2018 by IVL and Stockholmshem, funded by the ERUF platform Grön Bostad.

The main objective of the testbed is to promote better management of stormwater, surface water, and waste. Companies and researchers are invited to join the testbed for experimenting with new solutions and behavioural change for reducing energy use in various contexts while contributing to a viable area and its social value. Grön Bostad wishes to improve the environmental management conditions in Solberga while attracting private and public actors as well as citizens to keep the process going, hopefully by far outliving the project itself.

GOOD PRACTICES & SOLUTIONS:

Using a smaller community for trial-and-error activities with the possibility to fail repeatedly is considered crucial for a successful testbed. Therefore, creating good relations with the residents is key, thereby creating acceptance for a quantity of ideas to be tried out in their daily life. Companies wanting to be a part of the trials are also a welcomed feature.

Residents are invited to participate in test projects such as urban gardening and surface water management through workshops and casual activities. Stockholmshem is known to house many environmentally committed tenants, further facilitating the on-going work of the testbed.

OUTCOME & OPPORTUNITIES:

Of the solutions tested, notable examples are surface water being diverted into urban gardening use and reducing smell in local waste management in order to facilitate placing waste collecting stations closer to residents. Surface water, which puts significant pressure on water treatment systems, will be led through specially designed drain pipes instead of down the general municipal drainage system. Preserved in local facilities, it will be utilised in hydroponics (water-only gardening) managed by the urban gardening company Kretsloppsbolaget. The smell-reducing technology is provided by the waste management company Bioteria. In a longer perspective, the organisers hope to contribute to an enhanced circular economy in the area. The project is open for new cleantech companies as long as they want to be included, with Stockholmshem also harbouring hopes of appealing to the social aspect as well as the ecological, for example, involving the residents in urban gardening, thereby improving social trust and community in the area.

LESSONS LEARNED & RECOMMENDATIONS:

Involving citizens can be difficult because they do not possess the same time schedules and possibilities as other involved actors, but it is particularly necessary to foster good relations with them as well as with housing owners. Being allowed to fail with experiments occurring in their own environment requires a high level of trust and understanding.

Collaborative projects cannot be written, and they need to be conducted and tried in practice just as much as they need to be prepared and planned. This might be obvious to many, but in academia it is hardly commonplace.

GRÖNA SOLBERGA	Level of involvement	Contribution
Local residents	Consulting	Testing, feedback
IVL/Grön Bostad	Co-producing	Organising, problem formulation
Cleantech SMEs	Co-producing	Developing products and services
Stockholmshem	Co-producing	Facilities, coordinating residents

Sources:

Interview with Johan Strandberg, project manager of Grön Bostad, IVL. 2018.

Gröna Solberga workshop at Stockholm Urban Forum. 2019.

HÅLLBARA LEKMILJÖER (SUSTAINABLE PLAY ENVIRONMENTS)

https://digifys.csc.kth.se/

Type
Testbed project for transforming urban playgrounds into digitalised, sustainable, user-friendly green play environments.
Keywords
Digitalisation, children, outdoor play, play environment.
Location
Huddinge, south of Stockholm; Vårby gård, south-west Stockholm.
Engaged partners and stakeholder groups
Balder housing company, Children, Hags, HIQ, Huddinge Municipality, Hälsoträdgården, KTH, NCC, Nordic Parks, Prisma Tibro, SLU, Uppsala University, Urbio AB, Örebro Municipality.
Funding
Vinnova:
(Pre-study) 500 000 SEK.
(Step 2) 3 073 595 SEK.
(Step 3) 3 777 000 SEK.
(Pre-study, Step 4) 500 000 SEK.
New project 10 097 140 SEK.
Duration
2013–2022.
SDGs
3, 9, 10, 11.

CHALLENGES

Planning a city with its children in focus is becoming an increasingly compelling incentive in sustainable development. This has resulted in criticism of the predominating design of playgrounds for children. The archetypal playground consists of one or a few swings, rubber asphalt, and tools and structures for play. Research on outdoor play, however, shows that such playgrounds have a low play value compared to environments that are more nature-like and with more abundant resources for play. The trend today is to down-prioritise play environments close to homes and schools in favour of play parks located farther away. This makes everyday play hard to access for children, being especially problematic for children with special needs. Moreover, it produces unnecessary strain on environmental functions in an urban environment in need of more efficiently used green spaces, as well as paying little or no mind to the proximity of dangerous traffic. In fact, interferences in playgrounds prevent the creation of lasting qualitative play value for children. Thus, the concept of "playground" (Swedish: *lekplats*) is gradually being replaced by "play environment" (Swedish: *lekmiljö*). The project Digitala och fysiska lekmiljöer/Hållbara lekmiljöer i staden has, in various steps since 2013, elaborated on how

to innovate these environments by bringing together relevant housing and construction companies, municipalities, landscape architects, playground designers, researchers, and local children in testbeds in which the natural environment is utilised in combination with digital components for better outdoor play value.

GOOD PRACTICES & SOLUTIONS

Digitalisation and utilisation of existing natural conditions are guiding factors in the process, thus allowing for more green spaces and ecosystem services. The constellation of partners has been involved in a hands-on manner, often engaging physically with the environment themselves by working collaboratively on-site. Thus, all stakeholders have viewed the consequences of their ideas in real environments, helping them to screen some of the less constructive prototypes. Children, naturally, have been involved as the chief evaluating actors regarding play value together with the partners. Digital tools have been integrated into the natural environment, using sound and light effects to inspire play with natural materials.

Local actors have had a substantial role in shaping the outcome; for example, in Vårby gård, a stigmatised low-income suburb of Stockholm, the local housing company Balder helped create commitment among local children in formulating their challenges and possibilities. Children were temporarily given cameras for documenting their everyday lives and expressing their needs and wishes regarding playing opportunities.

The project has gone through several phases, during which some actors have been brought in and others have stepped out. Prisma Tibro was brought in by the project manager Eva-Lotta Sallnäs Pysander at KTH who realised that the company produces exactly the kind of robust materials for outdoor equipment that the project needed, but for a totally different kind of product.

OUTCOME & OPPORTUNITIES

Apart from producing a buyer's competence guidebook (Swedish: beställarkompetensguide), the project has established a new area of competence within KTH as a coordinating actor and a new business model among playground designers, architects, and housing companies has emerged. The concept of play environment is gradually becoming more accepted among the partner organisations and potentially on a broader national level.

LESSONS LEARNED & RECOMMENDATIONS

Designing the dialogue process has been a key concern because traditional dialogue meetings with target groups and stakeholders do not work well enough in this type of project. Asking people, including children, what they wish for in their playgrounds is not an efficient way of creating the optimal playing environment because these questions tend to produce archetypal answers. Instead, one needs to focus on asking different questions about children's concrete experiences and habits of play in a specific setting, observing children's behaviours and responses to play environments, and experimenting iteratively in order to

evaluate what creates positive prerequisites for play as an activity. Research shows that play is intense and that children exhibit a browsing behaviour in archetypal playgrounds and that play is more long-lasting and engaging in natural environments. Combining the engaging mechanisms in digital play with known benefits of play in an environment with vegetation, terrain, and natural materials can create innovative play environments with a high play value that are accessible to children in their everyday contexts.

It is interesting to note the generational differences inherent in the process, as younger architects and planners are generally devoted to the idea of natural playing environments whereas older generations are more used to the notion that children only feel safe to play in traditionally designed and secluded spaces. However, enthusiasm is not sufficient if the still rather radical and disruptive principles in the project are going to become commonplace in policies and construction operations. The positive outcomes need to be effective enough but also comfortable enough to uphold in order to be lasting and sustainable.

An essential starting point has been a common goal among the project partners. With regards to the co-creative process, it has proved vital to the project that all actors are involved not merely as decision-makers or in discussions but in the actual operations occurring on-site. Vinnova's Challenge Driven Innovation programme states the need for concrete product development showing alternatives to existing solutions, thus encouraging physical engagement in the creation process among all participants. This creates an understanding of one's own role in the larger creation chain, trust in the process, and confidence in the jointly created vision. Team building has been fostered through hands-on working procedures and site visits rather than just meetings. Commitment cannot be successfully created unless an actor has been present in shaping the physical result with other actors. Moreover, the steering committee has been dedicated, which is considered a main prerequisite for success. Sending a representative to convey messages is insufficient, and direct contact needs to be established between coordinators, steering committee members, and driving spirits within the various organisations.

All things considered, fostering a buyer's competence among municipalities and other clients of children's outdoor play environments is considered one of the key effects with the potential for transforming outdoor play environments for more sustainable urban development.

HÅLLBARA LEKMILJÖER	Level of involvement	Contribution
Huddinge	Co-producing	Materials, idea generation, prototyping
Örebro	Co-producing	Materials, idea generation, prototyping, development of procurement support tools
Children	Co-producing	Evaluation, testing, data collection, problem formulation
KTH	Co-producing	Organising, problem formulation, research, idea generation, prototyping, user evaluations
SLU	Co-producing	Problem formulation, research, idea generation, user evaluations user evaluations
Uppsala University	Co-producing	Problem formulation, research, idea generation, prototyping, user evaluations
Balder Housing Company	Co-producing	Problem formulation, local knowledge, test bed
Hags	Co-producing	Problem formulation, materials, idea generation, prototyping
HIQ	Co-producing	Materials, idea generation, prototyping
Hälsoträdgården	Co-producing	Materials, idea generation
NCC	Co-producing	Materials, idea generation, building
Nordic Parks	Co-producing	Materials, idea generation, prototyping
Prisma Tibro	Co-producing	Materials, idea generation, prototyping
Urbio AB	Co-producing	Materials, idea generation, prototyping

Sources:

Guide – skapa lekmiljöer med högt lekvärde. (Buyer's competence guidebook written by the project team)

Interview with Eva-Lotta Sallnäs Pysander 2018.

Back, Jon, Heeffer, Caspar, Paget, Susan, Rau, Andreas; Sallnäs Pysander, Eva-Lotta; Waern, Annika. 2016. "Designing for Children's Outdoor Play". *Interactive Public*, DIS 2016, June 4-8. Brisbane, Australia.

LEADER STOCKHOLMSBYGD

http://www.leaderstockholmsbygd.se/

Type
EU regional development project and non-profit organisation for rural and peri-urban development.
Keywords
Rural development, archipelago, local business innovation, sustainable food production, sustainable fisheries, affordable housing, ecosystem services, LEADER method.
Location
Office based in Norrtälje, north of Stockholm; operations anywhere partners and stakeholders are located.
Engaged partners and stakeholder groups
Municipalities: Östhammar (outside of Stockholm County), Norrtälje, Österåker, Värmdö, Haninge and Nynäshamn.
Local SMEs, local residents, local non-profit organisations.
The Swedish University of Agricultural Sciences (evaluation and internships).
Funding
EU Social Fund (ESF): 2 000 000 SEK.
EU Agricultural Fund for Rural Development (EAFRD): 34 000 000 SEK.
EU Maritime and Fisheries Fund (EMFF): 10 000 000 SEK.
Duration
2014–2020.
SDGs
8, 9, 11, 12, 14, 15.

LEADER is a method for rural development elaborated in the 1990s, but it is also useable in urban areas. The leading principle is to make local communities participants in developing their future. A specific area or region can choose to become a LEADER area, of which there are currently 48 existing in Sweden. Each area has a central office to which local cross-sectorial development and innovation projects can apply for funding and support. An earlier LEADER development project in the Stockholm Region, UROSS (Utveckla Roslagen och Stockholms Skärgård, "Developing the Roslagen Area and the Stockholm Archipelago") 2007–2013, effectively utilised LEADER and confirmed its potential for creating local participatory initiatives and hope for the future.[26]

CHALLENGES

The Stockholm archipelago, with its roughly 30 000 islands (of which about 200 are inhabited), together with the vast rural areas surrounding the city comprise a substantial part of the Stockholm Region. The archipelago alone hosts around 3 million tourists every

[26] http://www.uross.se/ Accessed 13 February 2019.

year. Much of the region's wildlife, green areas, cultural heritage, and nature reserves are located in these areas. Although sparsely populated, with a total of 113 991 stable residents in 2014, of which only 7 348 lived on the islands all year round, the countryside and archipelago together comprise around 5% of the total regional population.[27]

However, these areas are generally overlooked when addressing major social and ecological sustainability challenges. Tourism has dramatically raised estate prices, especially in the archipelago. Establishing stable Internet connections is still a challenge in most areas. The large local fishing business is challenged due to previously unsustainable catches. Unemployment is relatively low in the archipelago (est. 2.5% in 2014) but dramatically higher in the inland rural areas (est. 17% in 2011). The access to public services in the Stockholm archipelago is generally considered to be as equally difficult as in some remote northern parts of Sweden (Norrbotten). Out of the 50 Swedish islands regarded as depopulated in 2013, 22 were located in the Stockholm Region.[28] In sum, the residents of the archipelago and rural areas of Stockholm are in need of empowerment in order to strengthen their own local businesses as well as creating feasible and sustainable living conditions.

LEADER Stockholmsbygd was initiated in 2014 as a development project and non-profit organisation envisioning "an archipelago and a countryside in which local initiatives, interacting with the surrounding world, develop sustainable and attractive societies, spreading hope for the future."[29] It was approved in 2016 by the Swedish Board of Agriculture, meaning that LEADER Stockholmsbygd was officially one of 48 approved LEADER areas.[30]

GOOD PRACTICES & SOLUTIONS

Priority efforts for LEADER Stockholmsbygd are the development of a local community attractive to visitors *and* inhabitants, promoting local foodstuffs and markets, creating a good environment, and increasing sustainability. One aim is to further diversify the local community and its actors through increased collaboration around the distribution of local products and services, logistics, and marketing. This will also entail increased knowledge exchange and new meeting forums among the actors and with the surrounding world. Finally, a particular goal is to increase local knowledge about ecosystem services and sustainable development in order to strengthen the biological diversity of the land and sea in the concerned areas.[31]

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[27] "Lokal utvecklingsstrategi för LEADER Stockholmsbygd: Lokalt ledd utveckling 2014-2020"

[28] "Lokal utvecklingsstrategi".

[29] "Lokal utvecklingsstrategi."

[30] Swedish Board of Agriculture, "Godkända leaderområden". http://www.jordbruksverket.se/amnesomraden/landsbygdfiske/lokaltleddutvecklinggenomleader/lokaltleddutveckling20142020/godkandaleaderomraden.4.37e9ac46144f41921cd21299.html Accessed 22 Aug 2019.

[31] "Lokal utvecklingsstrategi".

The project/non-profit association functions mainly as a central resource of support for locally initiated projects. These projects are able to apply for funding and are supported in this process. Approval of funding depends on a set of criteria as a broader benefit to the LEADER area, including a locally-based approach and participation, collaboration with other stakeholders and sectors, and last but not least contribution to one of four focus areas (smart villages, tourism, local food production, or marine/nature conservation). Once approved, projects can receive investment funding as well as network building support because LEADER Stockholmsbygd has knowledge about potential collaborators.

LEADER Stockholmsbygd explicitly states a desire to promote cross-sectorial collaboration and diversity and synergies between stakeholders.[32] In 2014, 13 *bygdemöten* – meetings with local neighbourhoods – were held, in total attracting around 140 participants. Participants included fishing associations, SME associations, neighbourhood associations, environmental activists, sports clubs, women's associations, farmers, and local branches of Naturskyddsföreningen (the Swedish Society for Nature Conservation). During each meeting, a SWOT analysis[33] was undertaken to guide the discussions about needs and possibilities for future efforts. Potential initiatives included increased local food production, tourism development, local investment companies, more rental apartments, and recreational activities.

LEADER professionals are the target group of a particular academic course offered by the Swedish University of Agricultural Sciences (SLU), in English "Innovation – coaching innovative processes".[34]

OUTCOME & OPPORTUNITIES

The whole area has a rich tradition of voluntary associations, family and small-scale businesses, and social entrepreneurs. A certain self-made mentality pervades the area and its people. Instead of public meeting spaces, the civil society offers the most scenes for dialogue and community.

Also, being a close neighbour to Sweden's largest urban centre does provide certain opportunities that can be exploited further. As tourists are already numerous, an increased profiling of locally and organically grown foods could be further marketed to the environmentally aware urban consumers or to attract visitors. Further use of digital marketing is considered especially beneficial to these areas.

Being a more niched, entrenched, and accessible project partner to stakeholders, LEADER Stockholmsbygd has an advantage over other EU funds.

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[32] "Lokal utvecklingsstrategi" p. 17.

[33] SWOT stands for Strengths, Weaknesses, Opportunities and Threats, and is used to calculate factors affecting or arising from the particular project using it.

[34] https://www.slu.se/centrumbildningar-och-projekt/radnu/kurser/InnovationLeader/ Accessed 10 August 2018.

LESSONS LEARNED & RECOMMENDATIONS

Because the project attempts to grasp a diverse and wide area, the conditions for enabling local initiatives vary significantly. For example, the level of commitment and resourcefulness usually decreases with proximity to urban areas because responsibility is expected from other actors rather than the local community.

Due to budget restraints, LEADER Stockholmsbygd does not have the capacity to create a common platform for the different initiatives to meet and exchange knowledge.

Lack of investment for local initiatives is common. As mentioned in the above section, local investment funds are framed as a general alternative to applying for investment from larger actors.

The younger generation is generally considered difficult to engage, partly due to the perceived lack of future possibilities, and the main challenge in this regard is not work opportunities per se, but rather the lack of accessible societal services and housing.

Involving a sufficiently large number of local actors is key, and a well-balanced mix of required expertise is usually present in most areas.

Balancing the local and global aspects is particularly difficult. Local residents need a stronger sense of community while achieving stronger bonds with and openness towards the rest of the world. If this is not achieved, matters will not move forward.

LEADER STOCKHOLMSBYGD	Level of involvement	Contribution
Swedish Board of Agriculture	Informing	Regulation, steering, financing
Norrtälje	Co-producing, consulting, informing	Financing, local support of initiatives
Österåker	Co-producing, consulting, informing	Financing, local support of initiatives
Värmdö	Co-producing, consulting, informing	Financing, local support of initiatives
Haninge	Co-producing, consulting, informing	Financing, local support of initiatives
Nynäshamn	Co-producing, consulting, informing	Financing, local support of initiatives
LEADER Stockholmsbygd	Co-producing, consulting, informing	Organising, financing, network building support, policy dialogue
Local civil associations	Co-producing, consulting, informing	Organising, producing, policy dialogue
Local residents	Co-producing, consulting, informing	Organising, producing, policy dialogue
SLU	Informing, non-active	Evaluation, internships, education, formally not part
Local SMEs	Co-producing, consulting, informing	Organising, producing, policy dialogue
Farmers, fishers	Co-producing, consulting, informing	Organising, producing, policy dialogue

Sources:

Interview with Susanne Ortmanns, operational manager Leader Stockholmsbygd. 2018.

Lokal utvecklingsstrategi för Leader Stockholmsbygd: Lokalt ledd utveckling 2014-2020.

Swedish University of Agricultural Sciences. ”Innovation – att coacha innovativa processer”. Course description. https://www.slu.se/centrumbildningar-och-projekt/radnu/kurser/InnovationLeader/ Accessed 13 February 2019.

Swedish Board of Agriculture, “Godkända leaderområden”. http://www.jordbruksverket.se/amnesomraden/landsbygdfiske/lokaltleddutvecklinggenomleader/lokaltleddutveckling20142020/godkandaleaderomraden.4.37e9ac46144f41921cd21299.html Accessed 13 February 2019.

LIFE IP RICH WATERS

http://extra.lansstyrelsen.se/lifeiprichwaters/sv/om-rich-water/Sidor/default.aspx

Type
Collaborative project for restoration and development of Lake Mälaren.
Keywords
Eutrophication, Lake Mälaren, river, water quality, management plan, water pollution.
Location
Northern Baltic, Lake Mälaren, central-east Sweden, including the Stockholm region.
Engaged partners and stakeholder groups
Academia: IVL, SLU.
County Administrative Boards: Dalarna, Kalmar, Norrbotten, Stockholm, Södermanland, Uppsala, Västernorrland, Västra Götaland, Örebro.
Municipalities: Heby, Katrineholm, Sollentuna, Stockholm, Strängnäs, Upplands Väsby, Uppsala, Västerås, Västmanland, Älvkarleby, Örebro, Östhammar.
Other public actors: Havs & Vattenmyndigheten, Hjälmarens Vattenvårdsförbund, Jordbruksverket, MälarEnergi, Mälarens Vattenvårdsförbund, Nyköpingsåsarnas Vattenvårdsförbund, Vattenmyndigheten norra Östersjön.
Private sector: Bioremed, Ecopelag, Julmyra Horse Centre, Lantbrukarnas Riksförbund, Wessman Barken vatten & återvinning.
Funding
EU LIFE IP: €9 736 678.
Total budget: €30 030 380.
Duration
LIFE IP Rich Waters: 2016–2024.
SDGs
14.

CHALLENGES

Because many climate-related challenges occur across regional and local borders, there is a great need for cross-regional collaboration in managing these challenges, possibly evolving into cross-sectorial partnerships and co-creative processes. The Swedish government funds monitoring of Lake Mälaren, the country's third largest lake that runs through three counties, including Stockholm. This assignment is aligned with the national water commission (Swedish: *vattendirektivet*). The concerned county administrative boards are responsible for this procedure through the collaborative organisation called the Water Protection Union of Mälaren (Swedish: *Mälarens vattenvårdsförbund*). During 2012–2013, the Union put additional pressure on municipalities around Mälaren to initiate water improvement measures because sufficient monitoring data had been obtained. The regional project *Mälaren - en sjö för miljoner* was initiated in 2013 and coordinated by the Union. During this process, an intensified collaboration between county administrative boards and municipalities occurred, eventually leading to the joint application for EU funding for the LIFE IP Rich Waters (henceforth Rich Waters) project because the many stakeholders shared an interest in collaborating further around improvement of the vast lake and

exchanging their knowledge. The main objectives of Rich Waters are thus to improve water quality while improving collaboration structures among the stakeholders.

As a large project with 35 participating organisations of various size and with different interests, it has quickly become obvious that improvements and success cannot be measured in a standardised way. This poses a substantial challenge because the EU requires reports on which social-ecological aspects are being taken into account in the project. Ecological aspects are, furthermore, more easily monitored than others.

Instead of standardising monitoring and procedures within Rich Waters, the large network of municipalities is used for creating various sub-projects into which particular stakeholders are enrolled. These projects aim to become best practice references for use on a national scale with regards to water quality improvement, capacity building, research, method development, and technology development. The results are, therefore, put forward to be included in the official guidelines for water quality operations of the Swedish Sea and Water Agency (*Havs- och Vattenmyndigheten*).

GOOD PRACTICES & SOLUTIONS

Because Mälaren encompasses such a vast area and range of issues, having a broad approach has been the fundamental strategy, producing a potential for large-scale impact as well as substantial challenges, for example, regarding coordination. Partners are involved in a seemingly isolated way in the sense that their respective expertise is utilised in a framed and targeted manner, i.e. where it is deemed most effective, rather than exploring various alternatives along the way. SLU and IVL, for example, are targeting water areas that are difficult to monitor, thus developing sensors with adapted monitoring capacity. They also collaborate in developing monitoring tools for dealing with eutrophication issues in relation to Mälaren.

The private cooperative association Ecopelag is testing mussel farming in the Stockholm archipelago as a way of improving water quality and biodiversity. Julmyra Horse Center was involved at a later stage because the equestrian industry plays a substantial role in eutrophication processes. Thus, several sub-themes are engaged on a broad scale, each with its own actor responsible for knowledge exchange during the project. Because participants attend the same meetings and forums, all have access to the same knowledge generated within different sub-processes, and, consequently, this knowledge is processed into guidance for future management of Mälaren.

OUTCOME & OPPORTUNITIES

The first phase of Rich Waters received feedback urging them to more clearly demonstrate the project's potential for scaling up on a national level in correspondence with national water directives. The broad knowledge gathered during Rich Waters will be used for spawning new projects. New networks of reciprocal learning have sprung out from the collaboration, not the least between county administrative boards. Further collaborations and partnerships are considered as a productive future step. For example, the project has resulted in a desire to shape future research questions and initiate new collaborations with

academia and other processes regarding the needs of Mälaren and the involved stakeholders as well as eutrophication and water quality in general.

LESSONS LEARNED & RECOMMENDATIONS

The strategy of the preceding project *Mälaren - en sjö för miljoner* was to create a collaboration enabling project development, eventually leading to Rich Waters. Thus, a more holistic approach to protecting and developing Mälaren was made possible through committing and integrating various sectors and forms of knowledge because this led to funding being granted from the EU. The utilisation of diverse sources of expertise has also been essential due to environmental toxins being such a vast and complex area that no single expert group can possibly hope to create lasting impact on its own. Co-creation, in some form or other, is thus currently a desired way of operating among the concerned actors.

To enable a co-creative and collaborative process, actors must learn about one another. Even the different county administrative boards lack sufficient knowledge about their respective operations and experiences. There is always a vagueness during the first gatherings, but ultimately leading to clarity regarding who should be collaborating with whom.

Researchers, public authorities, and private companies all seem to come into the process as a natural consequence during this phase.

It is, however, hard to monitor the effects of co-creation in the sense of what might have been different if these actors had never gotten to work together. The reflective process becomes one more of "story telling"[35] and less of concrete facts.

Among factors facilitating co-creation are, naturally, access to resources such as funding and time. Having participants interacting in informal forums and assemblies for a long time before formal collaboration begins is a significant supportive condition. Some projects will nevertheless be difficult to keep together due to personal differences, with certain individuals becoming particularly committed and others perhaps being more unsettled regarding their role. The important lesson for Rich Waters is to let these processes continue regardless because productive outcomes are usually eventually obtained from such processes.

LIFE IP RICH WATERS	Level of involvement	Contribution
County Administrative Boards	Co-producing	Problem formulation, research idea generation
Municipalities	Co-producing	Operational knowledge
Public authorities	Informing	Steering, requirements
IVL	Co-producing	Idea generation, testing, research idea generation
SLU	Co-producing	Idea generation, testing, research idea generation
Private businesses	Co-producing	Specific operational knowledge, idea generation, testing

[35] Interview with David Liderfelt 2018.

Sources:

Interview with David Liderfelt, project manager at LIFE IP Rich Waters, Västmanland County Administrative Board.

MATLUST

https://matlust.eu/om-matlust/

Type
EU regional development project for sustainable food production.
Keywords
Public meals, sustainable food production, integration, employment, SMEs, business development, food innovation.
Location
Based in Södertälje south of Stockholm, though including all of Stockholm County and allowing 10% participation from the rest of Sweden.
Engaged partners and stakeholder groups
Matlust: Södertälje Municipality, local SMEs, KTH, Saltå kvarn, Acturum Biovation, Södertälje Science Park, Destination Södertälje, chefs.
Funding
Total budget: 57 000 000 SEK.
European Regional Development Fund: 28 500 000 SEK.
Duration
2015–2020.
SDGs
12.

CHALLENGES

Södertälje Science Park emerged as a consequence of huge medical producer Astra Zeneca in 2012 choosing to phase out its vast research operations based in Södertälje. To not lose its well-educated workforce and to maintain a positive growth rate in the area, the local governance wanted to promote the science park by investing in new business categories. Södertälje Municipality is mostly known for having a large first and second-generation immigrant population and for its industrial legacy. However, the area also has a tradition of ecological farming, foodstuff production, and foodstuff research spanning much of the 20th century. One of the municipality's objectives was therefore to add another brand to the area, i.e. sustainable food production. Already in 2001 Södertälje municipality had taken a political decision to use public meals as an instrument for sustainable development, which later led to a cooperation with the research project BERAS (Baltic Ecological Recycling Agriculture and Societies). Södertälje Municipality decided to initiate the Matlust project as a part of the Södertälje Science Park.

GOOD PRACTICES & SOLUTIONS

Matlust has engaged numerous local SMEs in accelerating and innovating their production using locally grown foods. One of them began to re-cultivate the more or less forgotten *gråärtor* ("grey peas"), similar to chic peas, which were subsequently used for making falafel. Hen meat, primarily used for animal fodder but well suited for human meals, was

also introduced in a pita roll named *Södertäljerullen* (the "Södertälje Roll") developed by famous chef Mattias Dahlgren of Grand Hôtel.

On the social level, Matlust has to a limited extent managed to introduce unemployed local residents to their food SMEs and also given them job opportunities for making rolls at promotional events. Different kinds of local SMEs usually consist of either mainly immigrants or mainly Swedes, but through Matlust they have been given the opportunity of meeting one another more frequently than before. The independently running Södertälje project Map 2020 provided the connection of unemployment assistance to Matlust.

Lean methdology is being used through KTH Leancenter as a tool for developing the operations of participating SMEs. Lean is a re-structuring of operational procedures that considers the individual's knowledge and values when creating new workflows and a more efficient work environment.

The degree to which individual residents and citizens have been made co-creative participants seems to have been limited. The food is being tested in school kitchens, kindergartens, and care centres with participants reporting their experiences of the food through enquiries, and each SME functions as a testbed with a certain level of creative freedom to explore meals and foodstuff, with researchers analysing these testbeds. Researchers have also been interviewing roughly 30 of the participating SMEs and produced a report in 2018.

OUTCOME AND OPPORTUNITIES

Matlust's vision for future prospects is to establish Södertälje as a regional node of knowledge in food production and sustainability, engaging actors from all societal sectors. Using the results of Matlust and the public meal as a starting point, they hope to be perceived as a good regional and maybe nationwide example of sustainable production. A stated possible next step is to expand into the whole Mälardalen Region.

Scaling up innovative ways of more resource efficient and socio-ecologically sustainable food production might have considerable lasting impacts on the climate. Because most public meals are provided to children, this creates the possibility of educating future generations on how to produce food in new and sustainable ways.

LESSONS LEARNED & RECOMMENDATIONS

The amount of available resources makes all the difference. Matlust has had broad political support and prospects of funding on local, regional, national, and even EU levels, which contributes to explaining their wide and largely successful impact. In addition, local legacies and inherited knowledge have contributed greatly. This means that they have had an ample selection of experts on the issues in question, such as consultants. Matlust considers consultants to be a valuable asset because they themselves have not had all the expert knowledge on food production, especially regarding the process level. A healthy balance between employees and hired experts is advised. As a project lasting 5 years, the aspect of future funding and continued efforts is a pressing matter. The ownership is also a difficult question. It is not self-evident that Södertälje Municipality would be the most relevant partner steering the process of establishing the area as a node for sustainable food

innovation. If the local governance would still be the major leading (and funding) part, the question of what is in it for the taxpayers demands a concrete response.

MATLUST	Level of involvement	Contribution
Local SMEs	Co-producing	Food products, food testing
Chefs	Co-producing	Food production knowledge late stage, food testing
Saltå kvarn	Co-producing	Food production knowledge early stage
KTH	Consulting, informing	LEAN
Acturum Biovation	Consulting	Research
Södertälje Science Park	Co-producing, informing	Guiding objectives
Södertälje	Co-producing	Project owner
Destination Södertälje	Co-producing	Organising and Marketing
Diet Unit , Södertälje	Consulting	Product testing
Local residents	Co-producing, consulting	Food testing, workforce

Sources

Interview with Agneta Grunnlid, project manager of Map 2020, Södertälje Municipality. 2018.

Interview with Helene Nordlund, project coordinator of Matlust, Södertälje Municipality. 2018.

Observation at Matlust's seminar and demo during Almedalen Week, Visby. 2018.

MO-BO

https://www.theoryintopractice.se/mobo

Type
Living lab, testbed, research and design project concerning architecture for sustainable mobility.
Keywords
New Normal, business model, process design, Transition Management.
Location
Upplands Väsby, north-west of Stockholm; Slakthusområdet, south Stockholm.
Engaged partners and stakeholder groups
KTH, LaTERRE, local residents, SLU, Theory Into Practice, Trivector, Upplands Väsby Municipality, Uppsala Municipality, Urbio AB.
Funding
Vinnova:
2017 (Step 1): 498 000 SEK.
Viable Cities:
2018-2020 (Step 2): 4 999 334 SEK (total budget with in-kind 9 265 000 SEK).
Duration
2017–2020.
SDGs
3, 5, 8, 9, 10, 11, 12, 13, 14.

CHALLENGES

Mo-Bo is a project attempting to solve the challenges of juxtaposing sustainably built housing with a sustainable transport system in which fewer vehicles carry more residents and resources are used in a more efficient way. Contemporary architecture – the "Normal" – is considered insufficient to meet the challenges of sustainable mobility and housing because it still puts private car driving at the centre. Thus, for example, parking lots are still highly prioritised in construction and design processes, obstructing ambitions of transitioning to sustainable housing policy and practice. With Mo-Bo, the coordinating actor Theory Into Practice wishes to explore and develop the "New Normal" housing concept of expanding resource-efficient transport capacity while tending to the needs of residents.

GOOD PRACTICES & SOLUTIONS

With KTH/SLU and Trivector providing qualitative and quantitative evaluation, respectively, the living lab and testbeds will be spaces of experimentation for one year of the project. Among other procedures, the travelling habits of residents are measured at regular intervals, steering documents such as development contracts are developed and tested, and different practical solutions are tested in the housing testbeds, including shared economy models and digital innovations. Spaces and functions are designed according to

mobility needs, green value, and desired behavioural change among residents. The developed architectural models are then to be spread and scaled up to substantially influence and alter the current housing policy, thus changing "Normal" into "New Normal". The theoretical framework for this is Transition Management, a structured process of change in which three levels are considered: *niche* (innovative environment), *regime* (the status quo of social and technological practice), and *landscape* (societal values). In order to influence the regime level, Transition Management strengthens the niche through active reflection and joint activity within the project partner constellation. For example, Learning History is used as a reflecting tool. Thus, the operational process is pre-designed on a detailed level, attempting to address the issue from a holistic perspective.

For the KTH researchers, Mo-Bo is less of a challenge compared to previous experiences in which KTH participants have risked becoming too dominant. In this case, with Theory Into Practice leading the process, researchers have a much more designated and limited role, and this means that researchers do not need to focus on enabling co-creation. As designers and architects, Theory Into Practice is considered an experienced actor with regards to co-creating with different sectors and knowledge groups. However, co-creation has not been at the centre of focus or a conscious part of the design.

OUTCOME & OPPORTUNITIES

Because municipalities are a central part of the project, issues of policy development are a priority objective. If the tested solutions are to be scaled and normalised, co-operation of public actors is a necessity. If successfully conducted, the project will launch potential innovative business models and opportunities for mobility.

There are several gains from a social-ecological perspective. For example, as parking lots diminish, the soil surrounding the buildings will be allowed to be thicker, thus enabling further gardening and cultivation. "You cannot separate [social and ecological] aspects from one another in housing."[36]

LESSONS LEARNED & RECOMMENDATIONS

Coordinating the various interests of the actors is key to knitting together the collaborative effort. Researchers have an inherent interest in publishing their work, which has to be met along with the interests of Theory Into Practice, whose main objective remains creating generalisable and sustainable solutions.

Applying for research funding proves to be a complicated matter in multi-stakeholder projects such as Mo-Bo. Organisations rarely receive full or equal financial coverage, with private companies more easily obtaining greater funds. The increasing incentives for researchers to participate in co-creation with other sectors is contradicted by the fact that funding is insufficient. Moreover, working hours are nearly impossible to assess, especially when considering time for developing products or services in innovative processes.

[36] "Det går inte att skilja på dessa aspekter i boendet". Interview with Elina Eriksson 2019.

MO-BO	Level of involvement	Contribution
Upplands Väsby	Co-producing	Problem formulation
Uppsala	Co-producing	Problem formulation
KTH	Co-producing	Problem formulation, qualitative action research
SLU	Co-producing	Problem formulation, qualitative action research
LaTERRE	Co-producing	Problem formulation
Theory Into Practice	Co-producing	Problem formulation, organising
Trivector	Co-producing	Quantitative evaluation
Urbio AB	Co-producing	Problem formulation

Sources:

Interview with Elina Eriksson, evaluation researcher at Mo-Bo, KTH. 2019.

NORRA DJURGÅRDSSTADEN (ROYAL SEAPORT)

https://xn--vxer-loa.stockholm/omraden/norra-djurgardsstaden/

Type
Sustainability hallmark urban development project with R&D sub-projects.
Keywords
Construction, development, ecosystems services, research and development, urban planning.
Location
Norra Djurgården, north central Stockholm.
Engaged partners and stakeholder groups
City of Stockholm, construction companies, researchers, residents.
20 independent research and development sub-projects in the area.
Funding
City of Stockholm.[37]
Duration
2007–2030 (preliminary).
SDGs
3–17.

CHALLENGES

Developing Norra Djurgårdsstaden (NDS), a completely new urban district for 12 000 residents and workplaces for 35 000 people, has been a significant feature of the last two decades of planning in central Stockholm and, naturally, a huge challenge. It was, however, only half-way through the process that the Stockholm City Council in 2009 decided to profile NDS as an internationally competitive hallmark of sustainability, inspired by the previously successful development of Hammarby Sjöstad. This serves municipal marketing purposes while it promotes sustainable and innovative models of urban planning, construction, and development that can be adopted by future projects.

GOOD PRACTICES & SOLUTIONS

Developing a sustainable city district cannot be done by merely assigning the task to the Development Administration at the municipal administration; close co-operation is needed with other departments; construction, housing, and other companies; residents; and academia. A particular organisation was built up solely for working with NDS, with thematic groups of experts breaking down the many different project goals into specific sustainability requirements.

[37] The funding of the project follows the standard procedure model of Exploateringskontoret, in which revenue from land and site leasehold-right sales exceed or equal expenses.

Co-creation of problem definitions and ideas was also present at an early stage by necessity because those involved in the long and complex development process had different experiences, knowledge, vocabularies, and views of the problem, meaning that they needed to develop common frameworks in order to work together. In 2008, KTH conducted a series of *future workshops*, gathering experts and stakeholders around issues such as transport and energy, in order to gain a broad understanding of the challenges and possibilities of NDS. The outcome of these workshops implied a way forward for developing NDS. In 2010, a *World Class Agreement* (Swedish: *världsklassavtal*) was developed by around 100 different actors – including construction companies – regarding NDS.

Again, when revising the NDS's sustainability vision and targets in 2017, a similar process was conducted in which researchers, different city administrations and companies, developers, current residents, and others were involved in working out future challenges and objectives.

Requirements and specifications have been emphasised throughout the project. First, sustainability requirements are set at a high level. Second, from an early stage, the assigned developers have needed to declare their data on a regular basis so that requirements can be carefully followed up. Third, the main incentive for living up to requirements is not, as is usually the case, a fine, but an open declaration of achievements in NDS's annual sustainability reports.

Not wholly unexpected, many developers anticipated a failure to meet requirements; thus, developing sustainability competence became a highly emphasised part of the process at an early stage. *Forum för hållbara lösningar* (Forum for Sustainable Solutions) was initiated in 2012 and has held around 20 events where the materials industry can meet developers to talk about innovative products and businesses. A capacity development programme has been held since 2010 for knowledge sharing between involved actors in construction and sustainable development processes. The capacity development programme particularly demonstrates the progress of NDS, but also generally discusses innovative solutions to building sustainable housing.

While many actors initially showed reluctance to participate, it only required a few to join the competence development process for others to follow and subsequently compete with each other regarding learning about sustainability. The close dialogue with constructors also helped to improve project management's requirement specifications.

NDS works with five overarching strategies, each encompassing the three dimensions of sustainable development:

1) ***A vibrant city.***

Emphasising the public space as an important area for equality and accessibility for all.

2) ***Let nature do the work.***

Harnessing green and blue qualities in improving life quality; for example, laying green rooftops is essential in order to meet requirements.

3) Accessibility and proximity.

Providing proximity to societal services and making fossil fuels as redundant as possible by promoting cycling and walking.

4) Resource efficiency and climate responsibility.

Creating smart management systems of energy, waste, and engaging in a sharing economy. Moreover, a particular centre for re-use and restoration of used materials and goods creates new value for artisanry connected to these practices, thus enabling a form of circular knowledge.

5) Participation and consultation.

Local collaboration within and between neighbourhoods is emphasised through digital and analogue means.

In order to experiment and push boundaries in NDS, R&D projects were welcomed to create innovative solutions with NDS as the testbed. All projects were coordinated by the NDS strategic sustainability group, promoting projects in particular areas of interest to form a balanced and diverse portfolio of outcomes. Projects mainly worked according to triple or quadruple helix models, including C/O City, who developed new tools for assessing green qualities in the built environment.

For the NDS project management, the internal anchoring process of the unusual collaboration forms with construction actors, other cities, and research institutes ultimately took approximately 3–4 years to accomplish; however, the dialogue that has originated out of this process has become particularly beneficial and probably unprecedented for the City of Stockholm. Moreover, the close dialogue format breeds a higher level of respect and understanding due to mutual learning between actors and their objectives, as well as an environment of constructive criticism.

No particular method has been utilised to foster co-creation apart from general project management tools, and managing the chain of ownership by establishing contact higher up in the municipal management structure, and horizontally between departments, has been key to having the right expertise present at as many meetings and forums as possible.

OUTCOME & OPPORTUNITIES

NDS is currently the home of 6 000 residents having successively moved in since 2012.

NDS won the C40 Cities Climate Leadership Group Awards in 2015 in the category of sustainable city district, awarded at the UN Paris Climate Conference.

Through its stringent requirements, NDS has implemented a rich variety of sustainable solutions and more are waiting to be implemented. While apartments will be costly, the new land allocation agreement assigns developers to shaping properties in order to maximise accessibility in public spaces to attract a diversity of citizens.

LESSONS LEARNED & RECOMMENDATIONS

The early stage is crucial for success in terms of co-creating sustainable solutions and knowledge. Aspects in need of particular attention in this regard include clarifying the

objectives and involvement of each actor, working on a strategic level, harnessing leadership, not giving up, having the courage to perform regular evaluations, internal anchoring, revising targets, supporting the creative process, and having a general intuitive feeling of which decisions to make. A particular significance is paid to including sustainable goals from the beginning instead of pasting them onto already existing structures. A challenge hitherto unmanaged in NDS is the continuous documentation and preservation of knowledge generated in the process in order to ensure that it lives on into other projects.

NDS	Level of involvement	Contribution
City of Stockholm	Co-producing	Organising, funding, problem formulation, idea generation, steering
Residents	Consulting	Testing, evaluation
KTH	Co-producing	Problem formulation
Construction and housing companies	Co-producing	Idea generation, construction

Sources:

Interview with Christina Salmhofer and Maria Lennartsson, City of Stockholm. 2019.

Stockholms stad. 2017. *Program för hållbar stadsutveckling. Norra Djurgårdsstaden visar vägen mot en hållbar framtid.* Stockholm: Edita Bobergs.

ODLANDE STADSBASARER (CULTIVATING CITY BAZAARS)

http://odlandestadsbasarer.se/

Type
Business innovation and sustainable food production development project.
Keywords
Urban gardening, unemployment, clean tech, food tech, circular economy, business innovation.
Location
Högdalen, southern Stockholm. The project is also being conducted in Helsingborg and Landskrona in southern Sweden.
Engaged partners and stakeholder groups
Invest Stockholm, KTH, Rågsveds folkets hus, Citycon, City of Stockholm, SLU, local residents, local start-ups, Cleantech Högdalen.
Funding
Vinnova: 4 998 000 SEK.
Duration
2016–2018.
SDGs
3, 8, 9, 10, 11, 12.

Cleantech Högdalen is a cluster of environmental technology businesses in the Stockholm industrial suburb of Högdalen and run as a project and budgetary assignment from the City of Stockholm. It was founded by Tillväxtverket (Board of Enterprises), Vinnova (Board of Innovation), Stockholm Cleantech, IVL, Svensk Solenergi, Science Partner, Högdalsgruppen, and the County Administrative Board of Stockholm. Despite an initial lack of interest from local actors, Cleantech Högdalen managed to establish testbeds such as organic waste management development. Throughout the project, a network of more than 100 private and public enterprises focussing on sustainable energy, systems integration, and energy optimisation has been established.

CHALLENGES

Local property owners in Högdalen prospected for new ways of improving existing buildings in innovative ways. Cleantech Högdalen decided to test indoor cultivation of food products because this concept was largely unexplored in Stockholm. While the promotion of green technologies and local businesses was the main objective, a driving vision was also to create job opportunities for people with professional disadvantages while creating prerequisites for more sustainable food production. Thus, Odlande Stadsbasarer was initiated in 2017, cultivating greens in abandoned facilities in central Högdalen.

GOOD PRACTICES & SOLUTIONS

In 2016, the municipality of Botkyrka had intended, with support from Vinnova, to undertake a pilot study of cultivation in garage buildings, but soon withdrew due to the high estimated costs. Learning by their example, Odlande Stadsbasarer made sure only to use existing and unused buildings in order to keep down expenses. From an early stage, dialogue within the consortium was centred around recognising approaches and operations with positive results and then cautiously scaling these up. Enterprises with sufficient financial capacity would cover their own expenses and risks when overtaking property targeted for growing because it was considered unsustainable to demand this risk to be taken by public actors.

Furthermore, moving from a general business innovation approach to a more particular focus on each involved enterprise proved more feasible. Keeping the main focus of supporting local business and commerce innovation, rather than "improving the world", has also guided the project.

KTH researchers investigated the results with regards to sustainable cultivation, although their portion of the budget was limited to 200 000 SEK.

Participating actors were left free to communicate and promote their efforts, sometimes in isolation and other times in collaboration.

OUTCOME & OPPORTUNITIES

The project established a small-scale underground food cultivation in Högdalen, using and selling its products in local establishments.[38] The entire project in Stockholm and Helsingborg has contributed to employment of 10 people, and 2 have gained employment in Högdalen as a result of the project.

Region Stockholm's Growth and Regional Planning Department has given financial support to Invest Stockholm for investigating whether 10% of Stockholm's food production could be realised in a similar fashion.[39]

Possible scaling up will first include pilot studies of the project that will promote the philosophy behind urban indoor food cultivation and then hopefully evolve into testbeds. Other future plans include the establishment of a local and vibrant co-working space, combining Food Tech and Cleantech.

LESSONS LEARNED & RECOMMENDATIONS

Co-creating innovation-driven collaboration in itself was deemed a considerable challenge by the organising partners, above all the prospect of creating something previously unexplored. Coordinating the consortium demanded high levels of openness and letting go

[38] https://www.vinnova.se/p/odlande-stadsbasarer.-klimatsakra-arbetskapande-odlingssystem-i-industriomraden/ 24 April 2018.

[39] https://www.sll.se/verksamhet/Regional-utveckling/Nyheter-Regional-utveckling/2018/05/beslut-bidrag-for-okad-stadsodling-i-stockholmsregionen/ Accessed 30 July 2019.

of prestige. The other main challenges concerned knowledge and acceptance. KTH and SLU (and Swedish research in general) had little experience in investigating the concept of urban gardening, even though it is a vital part of many international urban regions such as Singapore. Few actors, public or private, allow for or support progressive development of properties or estates. The public sector is also not considered a frontrunner for innovation in general, which creates a stepping stone for scaling up the project.

Funding agencies such as Vinnova could support projects further, i.e. by using recommendations from previous technological insights. Public social authorities or researchers are the actors best suited for calculating the socio-economical pros and cons of a project such as Odlande stadsbasarer. It is also highly advised to map international urban systems and urban policies in general to see what is going on with regards to sustainable innovation without assuming that Stockholm is at the forefront – which is far from always the case.

ODLANDE STADSBASARER	Level of involvement	Contribution
City of Stockholm, Dept. of Labour market	Co-producing	Labour market issues Employment support
Invest Stockholm	Coordination	Organising, financing, problem formulation, idea formulation, marketing
Rågsveds folkets hus	Co-producing	Cultivation. Employment issues
Unemployed residents	Co-producing	Cultivation
KTH	Consulting	Evaluation research
SLU	Consulting	Evaluation research
CityCon	Co-producing	Facilities for cultivation
Local start ups/tech companies	Co-producing	Cultivation, processing of raw products

Sources:

Interview with Irena Lundberg, project manager at Odlande stadsbasarer, Stockholm Invest. 2018.

Odlande stadsbararer's open seminar and demo in Högdalen October 2018.

RINKEBY (Rinkebyresan; Yalla Projektet & Yalla 2.0)

https://www.byggvesta.se/byggvesta/rinkebyresan/
http://yallarinkeby.se/

Type
Urban development process and co-operative social enterprise (ASF) of catering, kitchen garden and food services.
Keywords
Social entrepreneurship, city district development, sustainable food production, unemployment assistance, democratic enterprise, segregation, integration, gender equality, female empowerment, housing, business development, co-operative business, Rinkebyresan, Yalla Trappan, foreign born, participant influence, limited language skills.
Location
Rinkeby, north-west Stockholm; Vårby Gård, Huddinge, south-west of Stockholm.
Engaged partners and stakeholder groups
Rinkebyresan: ByggVesta, local residents.
The Yalla project: ABF, Berlitz, Blå Vägen, ByggVesta, Coompanion, Ericsson, Familjebostäder, Koncept Stockholm, women in Rinkeby. Huddinge, Sollentuna, Solna, Stockholm and Sundbyberg Municipalities.
Yalla Rinkeby 2.0: ByggVesta, Coompanion Stockholm, Electrolux, World chefs, Svenska kockars förening, Stockholms Samordningsförbund, Studieförbundet Vuxenskolan, Brandwork, Intensivekost, Tillväxtverket, Swedish Employment Agency, unemployed women. All municipalities in Stockholm County.
Collaboration: Yalla Trappan project, Malmö.
Duration
2016-2021.
Funding
Tillväxtverket:
The Yalla project 2 000 000 SEK.
Yalla Rinkeby 2.0 3 404 147 SEK.
Duration
Rinkebyresan 2014-2016.
The Yalla Project 2016-2018.
Yalla Rinkeby 2.0 2019-2021.
SDGs
5, 10, 11, 12.

CHALLENGES

Rinkeby is one of Stockholm's most stigmatised suburbs due to a long-lived legacy and image of unemployment, segregation, violence and crime fastened onto its image. This is as much a long-lived reputation as it is a reality. Unemployment rates are more than double that of the Stockholm average (7,1% in relation to 3%); the average wage is 236 200 SEK per year (the Stockholm average being 363 700 SEK). Furthermore, wages are particularly low for women (the average in Rinkeby-Kista city district being 206 300 SEK), around 57% of the wage of the average Stockholm resident.40 In 2010, Rinkeby was ranked as

[40] http://statistik.stockholm.se/ Accessed 21 November 2018.

having the 4th highest crime report among city districts with low income and education in Sweden, weill above the national average (more than 200 reported crimes per 1000 inhabitants, as compared to the national average number of 125).41

The real estate developer ByggVesta became aware of Rinkeby's socio-economic challenges when planning investments in construction of rental apartments in the area in 2014. This construction process was part of a larger development programme, involving a total of 225 rental units in the area while covering the E18 main road running next to Rinkeby. The company declared that if they were to invest in housing in Rinkeby, merely building and maintaining a stand of apartments was not going to be enough; an investment in social sustainability was likewise necessary.

GOOD PRACTICES & SOLUTIONS

First, Byggvesta conducted a customer survey to residents in Rinkeby reaching around 1000 respondents and made several additional visits to the area to learn more about the needs and wishes of residents. Following that, ideas for a project aimed at confronting local challenges were brought forward from residents. Finally, during Sweden's National Holiday in 2014, residents were able to vote for one of several ideas to be realised with the aid of ByggVesta. There was a strong demand for a new niche for local unemployed women - many of whom have children - at becoming more self-dependent. A majority of Rinkeby's inhabitants have either migrated from or are children of migrants from various countries outside Europe. Ultimately, inspiration was taken from Yalla Trappan in the suburb of Rosengård in Malmö that has similar demographics and socio-economic challenges; the idea was to start a co-operative enterprise of women from Rinkeby cooking and catering food emanating from the countries and food traditions that they have experience from.

ByggVesta hired a project manager and initiated a PPP-style project; funding was granted by Tillväxtverket while Coompanion Stockholm provided expertise in co-operative social enterprises and project management. Local social entrepreneur Blå Vägen, performing education of local unemployed and helping them reach the job market, also added an extra layer of local knowledge about particular challenges and needs of the target group.

ByggVesta itself had a large network of relevant partners for Yalla Rinkeby from the start, facilitating challenges of gaining funding and proper expertise needed for the task. Using these contacts is seen as essential to the conduction of the programme. Coompanion Stockholm , itself a co-operatively owned consultancy firm, specialises in supporting cooperation business, associations (non-profit and economical, work-integrating social enterprises (Swedish: ASF). Among their commonly used tools for this is etableringsanalys (establishment analysis or feasibility assessment). A private language educational company, Berlitz, provided 3 hours of Swedish lessons each week to participants in Yalla Rinkeby, since all the participants have limited language skills, some of the participants did not speak the language at all. Other activities for long term impact include CV workshops, a Swedish-

41 Välfärd no. 3. 2011. "Fler brott i områden med stor genomströmning". BRÅ.

only policy in the kitchen area, practical education in professional kitchen procedures and catering and education in digital tools. Knowledge on sustainable food production, raw foods and healthy living is also added as part of the education, provided by an employee of ByggVesta with expertise in local small-scale cultivation (Swedish: kolonilotter) at Järvafältet green area.

The food production and marketing proved an easy aspect of Yalla Rinkeby: "The food is selling itself".42 Yalla Rinkeby was represented at the local Järva Politikervecka in June (established in 2017), a forum for political, public, private and civil organisations to exchange knowledge and discussions.

OUTCOME & OPPORTUNITIES YALLA-PROJEKTET

A survey aimed at the participants shows that 6 out of 7 goals were met or exceeded expectations. The goal that was not met stated that 30 participants should take part in project activities whereas the outcome was 26.

Statements from participating women show that they experience higher knowledge, empowerment and self-esteem with regards to working life. Furthermore, the project has provided them with a sense of community and social capital amongst each other.

Yalla Rinkeby 2.0 started in January 2019 – a Tillväxtverket funded project in order to expand Yalla Rinkeby. The goal is to be able to train 30 women per year. Furthermore, a Yalla Café will be opened in Rinkeby to reach more customers and increase profit for the co-operative. Another stated goal is to further support ecological values by educating actors within Yalla Rinkeby and promoting local cultivation. The idea is that Yalla Café will be a destination café that attracts all Stockholmers but also a place where Rinkeby women can meet. From a PPP perspective, ByggVesta as a housing organisation has been enriched with knowledge of societal sectors and branches that they hitherto did not possess, e.g. further strengthening their expertise in designing spaces and facilities, but also marketing strategies.

> "*In the beginning, this would seem like an odd business for a housing company ... [but] now many want to work with us!*".[43]

LESSONS LEARNED & RECOMMENDATIONS

The Swedish Employment Agency (Arbetsförmedlingen) is a key actor for initiatives such as Yalla Rinkeby; however, it was a challenge to recruit participants in the start of the project and it is still a challenge to recruit qualified participants, as in participants that really want to have a job. (This is a challenge for all of the ASF, more or less.) A good collaboration with The Swedish Employment Agency is very important in order to secure

42 "Maten säljer sig själv." Interview with Mira Grunewald 2018.

43 "I början var det en märklig verksamhet för en fastighetsägare ... nu är det många som vill jobba hos oss!" Interview with Mira Grunewald 2018.

the long-term business model for projects such as Yalla Rinkeby. Allowing the business model to evolve into a long-term sustainable solution needs to take its time. ByggVesta has more than a 100 year perspective for its property and would be happy to see Yalla thrive alongside that timeline. The dependence on individuals is ever-present in PPPs like Yalla Rinkeby; it is necessary to clarify designated contact persons and their roles at an early stage as well as continuously throughout the process. Commitment is easy to find, consistency less easy; therefore, expectations need to be realistic and clearly expressed, with regards to both partners and participants.

RINKEBY[44]	Level of involvement	Contribution
Municipalities	Co-producing	Problem formulation, organising
Familjebostäder	Informing	Facilities
Tillväxtverket	Informing	Funding
ABF Huddinge	Co-producing	Swedish education, organising
Residents in Rinkeby	Co-producing	Problem formulation, idea generation
Women in Rinkeby	Co-producing	Producing, marketing
Blå vägen	Co-producing	Knowledge on integration, language education and employment processes
Coompanion	Co-producing	Organising, project management, knowledge on entrepreneurship
Electrolux	Informing/non active	Financing (sponsor)
Brandwork	Co-producing	Marketing and brand strategy
ByggVesta	Co-producing	Problem formulation, education, organising, marketing
Koncept Stockholm	Non-active	Financing (sponsor)
Berlitz	Co-producing	Swedish education

Sources:

Interview with Mira Grunewald, project manager Rinkebyresan, ByggVesta. 2018.

https://www.byggvesta.se/byggvesta/rinkebyresan/ Accessed 5 February 2019.

Välfärd no. 3. 2011. "Fler brott i områden med stor genomströmning". BRÅ.

http://statistik.stockholm.se/

https://www.stockholmdirekt.se/nyheter/kvinnorna-startar-kafe-i-varby-gard/repqcu!f7@EmRSn@2joKzhGO7AgxA/ Accessed 25 June 2019.

[44] Yalla Rinkeby 2.0 is excluded here, because the project is only recently initiated.

ROSENDALS TRÄDGÅRD

2000 KVM
http://www.rosendalstradgard.se/2000-kvm-pa-rosendals-tradgard/

Type
Sustainable food production Vinnova-funded project phase 1.
Keywords
Urban food production, global justice, circular economy, transformative capacity, regenerative farming.
Location
Rosendals trädgård, Royal Djurgården, east central Stockholm.
Engaged partners and stakeholder groups
Fryshuset, Liljevalchs, network of experts and researchers, PWC, Rosendals trädgård, visitors.
Funding
Vinnova: 805 000 SEK.
Duration
2018–2020.
SDGs
Primarily: 3, 11, 12; all 17 SDGs are included to some extent.

CHALLENGES

A just global food production regime allows for each human being to cultivate 2,000 square metres of land. Currently, however, the distribution of land is asymmetrical and is focussed on maximising output while minimising cultivation spaces, contributing to nutrition shortage and "welfare diseases" as well as to eutrophication, for example, in the Baltic Sea. Moreover, the debate around farming in Sweden is polarised between conventional versus ecological farming. There is a need for moving the narrative from one of positioning humans as victims and/or perpetrators to a transformative one. 2000 kvm (English: "2000 sq. m.") explores the overlooked concept and narrative of regenerative farming within the just space of 2000 sq. m. in an open environment located at the organic café Rosendals Trädgård. Thus, Rosendals Trädgård attempts to create means for developing both innovative business models and healthy sustainable meals for tomorrow's cities, while re-writing the narrative of sustainable food production and visualising transformative scenarios. The concrete purpose of the project is to develop a sustainable food box out of the cultivation testbed.

GOOD PRACTICES & SOLUTIONS

The team of 2000 kvm are conscious of the challenges emanating from initiating such a project. The design process in itself is rigidly structured. The project does not employ pre-designed methodologies but instead utilises three overarching structures to design and facilitate the co-creative process. First, the project's theoretical starting point is to work

with *Systems Change in Open Networks*, taught within GAIT (Guild of Agents for International Transformation).[45] Many of the involved individuals share experience from GAIT, thus facilitating a common understanding.

Second, achieving a common basic view is prioritised. In order to have a functioning team, utilising official team contracts based on established joint principles is key for achieving an inclusive culture for diverse experiences and epistemologies, as one generally tends to work with like-minded individuals if principles are not outspoken.

Third, a non-coercive principle is emphasised because it is considered necessary for change processes to be voluntary and interactive. People need to be integrated and involved into the change process.

Starting from these overarching structures, methods are designed according to each structure and operation in a flexible way. The same goes for the people involved; depending on which actors are required in a certain phase, the translation of knowledge – and, consequently, the level of ambition – needs to be continuously adjusted.

The concept "Take care of your square" – with regards to global justice and planetary limits – was coined as guidance for everyone involved in testing the 2000 square metre testbed.

OUTCOME & OPPORTUNITIES

As the 2000 sq m food box is realised, the expectation is that it will eventually expand into a commonly embraced concept, complementary to currently acknowledged sustainable diet options. Another expectation is that this will contribute to regenerative farming becoming an alternative to the abovementioned dichotomisation in the current discourse around sustainable farming.

LESSONS LEARNED & RECOMMENDATIONS

Goals of co-creation processes are not likely to be met if calculations do not include time and resources being set aside for developing the co-creative process as an acknowledged practice. Co-creation is dependent on stakeholders "owning the change process not being required to translate their thinking to the concepts of researchers", while the researcher needs to respect the narrative of these stakeholders to be met in the co-creation process.[46] Thus, funders need to put higher demands on these aspects; otherwise, researchers or other project coordinators might end up ruining the transformative process.

Other more general challenges for co-creation for sustainable development are the lack of concepts and vocabulary but equally so the lack of co-creation as a practical craft. Knowledge of these aspects is usually non-existent, even though many prefer and

[45] http://molini.es/es/gait-guild-of-agents-for-intentional-transformation/ Accessed 13 February 2019.

[46] "De som äger förändringsprocessen ska inte behöva översätta sitt tänkande till forskarens begrepp… Att respektera det som är deras meningsbärande 'narrative', och möta det i co-creation." Interview 2019.

encourage working across sectors and diverse stakeholder groups. The reason for this is that there are no professional requirements for initiating co-creation; it is open for everyone.

The creative sector – art, design, and other cultural crafts – is a valuable asset to foster co-creation. However, using artists and scientists together might be deemed unprofessional and even "fudged", and this is a risk that might prevent some actors from enabling full co-creation.

Nature must be present in co-creation processes such as 2000 kvm, either through research, a certain space, or a craft because the work being done refers to a constellation involving both humans and nature.

Using and targeting public procurement as a means of enhancing and scaling results is a proven asset, at least within sustainable food innovation.

ROSENDALS TRÄDGÅRD	Level of involvement	Contribution
Liljevalchs	Co-producing	Communication, arts & design
Visitors	Consulting	Testing
Fryshuset	Informing	Recipient of knowledge
PWC	Consulting	Consultancy
Rosendals Trädgård	Co-producing	Problem formulation, theory, process design
Expert network	Co-producing	Problem formulation, theory, research, process design

Sources:

Interview 2019.

SMART KREATIV STAD (SMART CREATIVE CITY)

https://smartkreativstad.com/

Type
EU regional development project for film in sustainable urban development.
Keywords
Film, moving images, urban development, public spaces, equal opportunity, culture.
Location
Stockholm region, including Gotland.
Engaged partners and stakeholder groups
City of Stockholm, Film Capital Stockholm, individual film creators, KTH, Nacka Municipality, Stena fastigheter, White arkitekter.
Funding
EU & Tillväxtverket.
Duration
2015–
SDGs
5, 8, 9, 10, 11, 12.

CHALLENGES

The film industry in Stockholm is, in some ways, a neglected business, with most of its performers suffering from short-term contracts and low wages. Moreover, the business of distributing films has changed significantly during the last 5–10 years, demanding new ways of exploring deployment of film vis-à-vis audiences. Simultaneously, it is a diverse field of production and co-creation, and it needs to accommodate a vast range of talents and knowledge in order to function. Beata Mannheimer from the regional film foundation, Film Capital Stockholm, realised the potential of this creative industry in transforming the urban public spaces when Tillväxtverket announced their funding programme for regional urban development.

Stockholm has the potential of being a more open and inclusive region by using its public spaces. The challenge from which the project Smart Kreativ Started was, thus: How can film be used to promote sustainable urban development?

GOOD PRACTICES & SOLUTIONS

Prior to the launching of Smart Kreativ Stad, a pre-study was conducted in which actors such as Kista Science City, IBM, game developer Dice, and other stakeholders in the film business were approached. The inclusion of knowledge into the subsequent project was managed so that anyone could apply to the board of Smart Kreativ Stad for funding with an idea for a pilot project, whether as an individual artist or as a team. The project has thus been divided into smaller pilot projects lasting 2–3 years. Finally, a scaling and expansion phase will carry five themes into further implementation, while additionally implementing

the project's outcomes within the organisation of Film Capital Stockholm itself. A participatory researcher has been following the process throughout the course of the project.

OUTCOME & OPPORTUNITIES

To manage working conditions for film creators, a pool for obtaining work opportunities has been realised during the project. The diverse results and knowledge produced during the project are planned to be spread to a wider audience and implemented in urban development processes, thus potentially contributing to a city with improved leisure and safety levels. A number of meeting forums have emerged between citizens of different areas, but also between different societal actors.

LESSONS LEARNED & RECOMMENDATIONS

Breaking perspectives is an important prerequisite for co-creation and collaboration in this type of project. Working in lab formats creates a learning environment for all involved, including the ones leading the process. However, everything cannot and should not be connected all the time; certain processes need to be isolated in order to flourish, depending on the participants and the specific prerequisites.

Regarding urban planning, Smart Kreativ Stad has identified a lack of "soft" and "human" value methods in current standard procedures. Another interesting realisation is that the movie business harbours an inherently well-prepared workforce regarding participatory dialogue. Documentary movie-makers are well used to these types of processes and therefore pose a great potential for future urban development. The movie business, in general, has substantial experience and potential for co-creation between a relatively vast range of disciplines. However, actors in cultural industries are known to often regard themselves as underdogs towards "stronger" actors, such as municipalities and corporations.

Conducting such a complex process entails that communication needs to be shared among several actors, not only the coordinators. Results and progress also need to correspond to actual, established needs, otherwise nothing productive will come out of it. Building trust, in this regard and generally, is a constant challenge, and speaking the same language (as in vocabulary and discourse), agreeing on basic values and problem definitions, and having shared time schedules are crucial prerequisites. The civil sector can be quite fast in decision-making compared, for example, to public organisations, and this demands that every actor works in alternative ways to some extent. A valuable concept mentioned during the interview was *förväntansavklaring* (clarification of expectations), describing an essential process of transparent planning in the early stage of the project.

SMART KREATIV STAD	Level of involvement	Contribution
City of Stockholm	Co-producing	Problem formulation, organising
Nacka Municipality	Co-producing	Problem formulation, organising
Film-makers	Co-producing	Idea generation
Citizens	Consulting	Testing
Research consultant	Co-producing	Participatory research
KTH	Co-producing	First pilot organising
White arkitekter	Co-producing	Problem formulation, organising
Housing companies	Co-producing	Problem formulation, organising
Film Capital Stockholm	Co-producing	Organising, coordinating, problem formulation

Sources:

Interview with Ulrika Bandeira, project manager at Smart kreativ stad & Beata Mannheimer, operative manager at Film Capital Stockholm.

SÖDERTÖRNSMODELLEN (THE SÖDERTÖRN MODEL)

http://sodertornsmodellen.com/

Type
Sustainable urban development policy project and knowledge platform.
Keywords
Open data, visualisation, knowledge-driven urban development, detailed planning, participatory dialogue, public administration, public planning policy development, analytical methods development, ecosystem services, socio-economic analysis.
Location
The Södertörn municipalities, south of Stockholm.
Engaged partners and stakeholder groups
SKL International, Region Stockholm, KTH, Södertörn University, White arkitekter, WSP, Nordregio, Wallenstam, Ecoloop, Skanska, Gapminder, the Gothenburg Regional Municipal Federation, 2050.
The Södertörn municipalities: Haninge, Nynäshamn, Huddinge, Södertälje, Botkyrka, Salem, Tyresö and Nykvarn.
Funding
Vinnova (3 phases): 9 286 000 SEK.
Additional funding (approximately half) by partners.
Duration
2013–2019.
SDGs
5, 10, 11.

CHALLENGES

Sweden's municipalities and regions face the dilemma of building a vast variety of apartments during a short period of time in order to provide housing for its rapidly increasing population, while simultaneously implementing the UN SDGs in order to sustain long-term viability. Municipalities' priorities differ when it comes to urban planning, and none of them can guarantee that (e.g.) ecosystems services and fundamental social needs will be given sufficient consideration in daily practice and construction processes.

Södertörnsmodellen emerged out of a mutual understanding concerning these challenges between an already existing umbrella organisation called the Södertörn Municipalities, representatives from KTH, and committed individuals at White architect firm. Together, they decided to initiate a pre-study that also involved the technology consultancy firm WSP (who participated during phase 1 and 2). The large company Skanska and the public development cooperation organisation SKL International also joined at this first stage. During the last stage of the project, the housing company Wallenstam contributed with a more long-term perspective than that which is generally provided by construction companies. The Gothenburg Regional Municipal Federation and Region Stockholm also entered the project during this phase.

GOOD PRACTICES & SOLUTIONS

Involving decision-makers at an early stage in a workshop format yielded some fundamental insights that would aid the course of the project. It became obvious to the project participants that ambitions for more sustainable urban development were not a main issue, nor was mustering ideas on how to reach this; the main issue was that, for a diverse range of reasons, no one actor had attempted a practical process in which such ideas were to be implemented.

However, there exist some practices in which certain actors or groups within organisations try to alter the status quo of public administration. Because existing planning and construction legislation (Swedish: *Plan- och bygglagen, PBL*) does not allow for rapid sustainable development, other ways of moving matters forward faster have been approached by the municipalities, such as development plans not directly emanating from specifications within PBL (naturally without outright violating the law).

A non-hierarchical structure and a self-critical outlook have from the start been important features of Södertörnsmodellen's internal and external operations. Everyone's voice is equal, regardless of being a researcher, entrepreneur, municipality, or private sector executive. Different idea groups or working groups have been established as centres of reflective discussion regarding the different municipalities' on-going work within Södertörnsmodellen. Also, a form of meta-dialogue with residents was conducted in Flemingsberg, Huddinge, in which residents were asked on which issues they felt a need for addressing the municipality. Participatory dialogue in general has been utilised as a productive tool as well as problematised in order to develop its strengths and mitigate its weaknesses. Consultants from White developed a template aimed at the municipalities to help them reflect on why they were conducting the participatory dialogue and whether it was being used to, for example, increase public trust or to enhance the planning process. "It feels rather 'basic', but there are so many 'basic' things that are not working."[47]

Parallel to this, saving all relevant results digitally on a regular basis is considered important for the outcome of the project. Furthermore, a strategy for achieving a more bottom-up perspective has been the walking tours conducted in some of the areas that Södertörnsmodellen works closely with, to which are invited property owners, municipal employees, decision-makers, and other stakeholders.

One unique aspect of Södertörnsmodellen has been a quite different starting point in relation to ordinary research and innovation; rather than focussing on a topic and pointing towards gaps and needs for new knowledge, the project has targeted the municipal working ground without a prescribed change agenda. Thus, Södertörnsmodellen has identified already existing means for improving many operations rather than inventing new ones and has generally shaped project operations according to the specific needs in each municipality.

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[47] Interview with Lise-Lott Larsson Kolessar 2018.

OUTCOME & OPPORTUNITIES

Södertörnsmodellen has delivered three method packages, namely value-creating, co-creating, and knowledge-driven urban development. Together, they utilise the Södertörn Analysis (Swedish: *Södertörnsanalysen*), a user-friendly, analytical visual tool for providing decision-makers with a deeper knowledge base for urban development. The tool was developed with help from Hans Rosling's Gapminder. Variables within the Södertörn Analysis include mapping of ecosystem services and indicators for socio-economic development over time in a given area. Twelve insights for socially sustainable urban development have also been generated through the project:

1. There is no universal indicator for social sustainability.
2. Increase understanding among decision-makers about local prerequisites.
3. Establish concrete and measurable objectives.
4. Identify physical and non-physical measures that will help realise these objectives.
5. Strengthen collaboration across departments, sectors, and professions through dialogue for improved results.
6. Assess the social consequences of different considered alternatives in planning processes.
7. Continually follow up on objectives versus outcomes. This requires establishing measurable variables.
8. Allow citizens to co-develop solutions by creating forums in which they can answer questions of *how* and *why* without creating false expectations.
9. A space is used by more than just those living in the area; finding the relevant stakeholders requires considerable mapping.
10. Use participatory dialogue, transparency, and communication as tools to create planning value and trust value among citizens. Report on how dialogue has affected the end results in order to achieve and preserve trust between the public administration and citizens.
11. Instead of maximising the level of participation, finding the right form of participation throughout different stages of a planning process is more productive.
12. Gather, save, and structure the knowledge generated from a participatory process.

The produced methods and knowledge are meant to be open to any public, civil, or private actor willing to use them in their ordinary processes. The fundamental idea is to spread these concrete outcomes to other actors and regions, for example, the Gothenburg Regional Municipal Federation (who joined Södertörnsmodellen in the later phase).

LESSONS LEARNED & RECOMMENDATIONS

Many diverse actors and departments in public administration who influence sustainable development factors are seldom coordinated and often lack knowledge about each other's operations. Public organisations might not have data and knowledge collected in a structured way. Although largely possessing a highly educated and skilled workforce, municipalities generally lack a structure for improvement work as the private sector is known to have. Moreover, today's implementations stem from yesterday's decisions, sometimes going back several years or even decades. Civil servant procedures might be virtually cemented, while policy-makers' decisions aim for high levels of innovative sustainable development.

Involving citizens has proven to be a different type of challenge. While there exists an outright will by decision-makers to further involve the opinions and knowledge of local residents, the process by which this is done is currently mainly reactive and not proactive. Moreover, not getting back to people on a matter already subject to public participation might result in decreasing levels of trust in the administrative and political system. In this regard, turning existing participatory governance processes

into an institutionalised proactive dialogue has been a priority for Södertörnsmodellen.

Politicians as a group are particularly difficult to influence due to their dependence on votes every election cycle, and this reality creates a pressure that risks resulting in dispensing with certain crucial decisions for sustainable urban development, or that politicians are difficult to reach in general for actors such as Södertörnsmodellen.

Municipalities have been reluctant to admitting entrepreneurs into the co-creation process at an early stage, whereas entrepreneurs on the other hand are eager to enter the process as early as possible. A commonly shared controversy, however, concerns costs, for example, regarding pre-studies, and assigning these costs to particular actors is a topic not easily agreed upon.

A fundamental lesson has been to approach people where they are operating instead of inviting them to a seemingly alien forum. This way, one can assess what is already in place in a given context such as driving spirits, values, and commitment. A challenge that has arisen from this starting point is that results have been rather difficult to backtrack. Many employees within participating municipalities cannot acknowledge the contributions of Södertörnsmodellen to their particular operations, even though there clearly exists a connection between those operations and the project's contributions.

A general insight regarding the transformation process towards sustainability is that it is mainly composed of projects, which poses a substantial challenge. Individual projects spanning a few years cannot achieve transformation by themselves unless they together contribute to the formation of a greater process. This applies to all forms of societal planning. Of particular interest is the manner in which public employees regard this process because their respective assigned budgets are tethered to specific plans rather than a process, whereas municipalities need to constantly re-evaluate themselves and work with their particular improvement process. The interconnection between project and process is thus of tremendous importance to sustainable urban development as well as society in general.

SÖDERTÖRNSMODELLEN	Level of involvement	Contribution
Haninge	Co-producing	Problem formulation, idea generation
Botkyrka	Co-producing	Problem formulation, idea generation
Salem	Informing	Observing and utilising results
Södertälje	Co-producing	Problem formulation, idea generation
Nykvarn	Informing	Observing and utilising results
Tyresö	Co-producing	Problem formulation, idea generation
Huddinge	Co-producing	Problem formulation, idea generation
Nynäshamn	Co-producing	Problem formulation, idea generation
SKL International	Co-producing	Problem formulation, idea generation
Stockholm County Council	Co-producing	Problem formulation, idea generation
Gothenburg Regional Municipal Federation	Co-producing	Idea generation, service development
KTH	Co-producing	Organising, problem formulation, idea generation
Södertörn University	Co-producing	Idea generation, service development
Nordregio	Co-producing	Idea generation, service development
White arkitekter	Co-producing	Organising, problem formulation, service development
WSP	Co-producing	Service development, idea generation
Skanska	Co-producing	Service development, idea generation
2050	Co-producing	Problem formulation, communication of results
Wallenstam	Co-producing	Service development, idea generation
Ecoloop	Co-producing	Service development, idea generation
Gapminder	Co-producing	Analytical tools, service development
Local residents	Co-producing	Participatory governance processes

Sources:

Interview with Lise-Lott Larsson Kolessar, project manager at Södertörnsmodellen, sustainability manager at White arkitekter. 2018.

Södertörnsakademin, seminar arranged by Södertörnsmodellen in Fittja, Botkyrka. 12 September 2018.

Södertörnsmodellen's workshop at Stockholm Urban Forum conference in Alby, Botkyrka. 28 May 2019.

#URBANGIRLSMOVEMENT

https://www.globalutmaning.se/tankesmedjan-lanserar-urbangirlsmovement/

Type
Participatory public space development project and policy dialogue for feminist urban planning.

Keywords
Feminist urban planning, gender equality, girls and young women, safety, public spaces, city district development, policy dialogue.

Location
Botkyrka Municipality, south-west of Stockholm.

Engaged partners and stakeholder groups
Think-tank Global Utmaning, Botkyrka Kommun, Block By Block Foundation, Changers Hub, Ericsson, Exeter University, FairPlay, Fryshuset, Iteam, Kounkuey Design Initiative, KTH, Kungsvåningen, Mistra Urban Futures, Plan International, RISE, Stockholms Universitet, Södertörns Högskola, UN-Habitat, Uppsala Universitet, White arkitekter, WWF, local and national politicians, local girls aged 14–25, MethodKit.

Funding
Vinnova: 2 100 000 SEK (additional 2 300 000 SEK from Global Utmaning, Botkyrka Municipality, UN-Habitat, Iteam, and Mistra Urban Futures).

Duration
2017–2019.

SDGs
5, 10, 11.

CHALLENGES

Planning a city by considering the needs of its young female inhabitants is acknowledged as a way of creating a more just and socio-economically equal society that works for everybody. Creating prerequisites for inclusive public spaces, where people of all genders, ages, and socio-economic groups are comfortable in spending much of their time, is crucial for creating an including city without segregation. However, Sweden, much like other countries, is still mainly planning its cities based on the needs of the current middle-aged generation and largely without taking particular needs of women into account, while the importance of gender equality and digitalisation for urban planning are being increasingly highlighted. Even though this insight is shared by authorities in Stockholm, few actors seemed to have the experience or insight to apply it in urban planning processes.

Elin Andersdotter Fabre, responsible for the Sustainable Cities Program of the think-tank Global Utmaning, was contacted by some of these actors for advice on the concept of Feminist Urban Planning. This concept has recently made its way into Swedish political discourse, especially with the 2014 election of the centre-left government branding itself as being outspokenly feminist. Realising that knowledge about gender-equal urban planning was yet very much an unexplored area, Elin decided to map good international examples of this phenomenon in order to bring the best practices to Stockholm.

After gaining a sufficient amount of knowledge on the subject, Global Utmaning chose the municipality of Botkyrka south-west of Stockholm as an innovation space for the project because it had an image of being socio-economically underdeveloped and segregated. Global Utmaning and Botkyrka Municipality successfully applied for funding for a public space development project with the objectives of including young girls of Botkyrka as co-creators of innovative solutions to enable an active and secure life within these spaces.

GOOD PRACTICES & SOLUTIONS

A well-established urban development actor, Global Utmaning had a significant network of experienced organisations and individuals from the start. The expert and reference groups include over 20 actors from all societal sectors and with different expert knowledge. Merging these established actors with insights from the participating and very young users created a unique potential for producing new knowledge on urban planning. One notable synergy effect was the experts' input about ecological consequences on the suggestions from the users, enabling a more just and green urban development. "It is easier finding experts within all sectors with knowledge about ecological matters than about social matters, so that part is not a concern."[48]

Rather than hastening to action, the process permitted a long period for investigating and clarifying the needs that actually required urgent addressing. Going through all the relevant SDGs and their challenges and their consequences required considerable time but meant that the remaining work was much more facilitated than it would have been otherwise.

An expert group representing all sectors was involved before the funding had been granted in order to co-create as solid a project as possible: "Co-creation does not start in the planning phase, but rather already during the application for funding."[49] Co-creation and collaboration across disciplines and sectors is considered essential for creating policy and strategy recommendations with long-term systemic effects.[50]

OUTCOME & OPPORTUNITIES

The objectives are expected to be reached in the form of 3D models of public spaces used as starting points for architectural layouts. The implementation is not secured yet because it is the responsibility of the municipality to initiate the construction phase. This, in turn, is dependent on the success of the planned policy dialogue, which is aimed at both national and local governance as well as other relevant actors. The policy dialogue will significantly inform institutions previously ignorant of the concept of feminist urban planning.

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[48] Interview with Elin A. Fabre. 2018.

[49] Interview with Elin A. Fabre. 2018.

[50] Urban Girls Movement. 2017. Detaljerad projektplan Vinnova. 4.

LESSONS LEARNED & RECOMMENDATIONS

Co-creation does not always guarantee commitment, and asking the right questions to the various engaged partners is also important for securing their continued participation. Such questions include “Which method should we use in order to have a good support of the process?”; “How many hours are we supposed to spend on this?”, etc. Asking these questions makes people feel more participating and committed and less like part of a senior advisory group. In co-creating problem definitions as well as solutions, it is important to let go of prestige while remaining empathetic. Enhancing the voice of those with the least resources, i.e. the participating girls, must also be made a priority in order to make sure that the municipality meets its responsibility in implementing their solutions.

The holistic perspective, in which #UrbanGirlsMovement could be considered a key example, is heavily dependent on the constellation of the particular group working with the project. This is also a regard in which co-creation processes fail unless they manage this challenge. Moreover, having the right *people* is often more valuable than having the right *expertise* because commitment is essential to the whole process. This is, as mentioned above, mainly a question of having composed a solid network before co-creation begins.

An extensive inventory of basic needs within urban development projects is of great importance if we are going to reach the 2030 Agenda. #UrbanGirlsMovement has taken a great deal of inspiration from participatory design and planning processes in cities like Nairobi and participatory projects in Kibera, in which the most basic needs such as livelihood or sanitation are emphasised.

#URBANGIRLSMOVEMENT	Level of involvement	Contribution
Global Utmaning (coordinator)	Co-producing	Organising, policy dialogue, administration, communication
Changers Hub	Co-producing	Contact with local girls, expert group
Fryshuset	Consulting	Contact with Changers Hub, expert group
UN-Habitat	Co-producing	Idea generation, problem formulation, methods, facilitation
Iteam	Co-producing	Digital platform for results
WWF	Consulting	Expert group
Local girls	Co-producing	Idea generation, problem formulation
Method Kit	Co-producing	Methods, facilitation
White Arkitekter	Co-producing	Planning knowledge, prototype design
Local, regional and national politicians	Consulting	Decision-making, policy dialogue
Botkyrka municipality	Co-producing	Resources, implementation, planning knowledge
KTH	Co-producing	Action Research
RISE	Co-producing	Action Research
Stockholm University	Co-producing	Action Research
Södertörn University	Co-producing	Action Research

Sources:

Interview with Elin Andersdotter Fabre, project manager at #UrbanGirlsMovement, manager at Sustainable Cities Global Utmaning. 2018.

Urban Girls Movement, *Detaljerad projektplan Vinnova*. 2017.

Urban Girls Movement, *Lab Report 1-3*. 2018.

Urban Girls Movement, *Dagordning planeringsmöte* 15/3. 2018.

URBAN ICT ARENA

http://www.urbanictarena.se/

Type
Platform and open testbed for ICT exploration and development.
Keywords
Mobility, ICT, Internet of Things, tech innovation, 5G, digitalisation, smart cities, Kista Science City, transport, logistics, sustainability.
Location
Kista Science City, northwest Stockholm.
Engaged partners and stakeholder groups
Electrum Foundation with Ericsson, the City of Stockholm, ABB, IBM, KTH, RISE ICT, Region Stockholm, Stockholm University.
Funding
Electrum Foundation.
Sub-project funders include Vinnova.
Duration
2016–
SDGs
7, 9, 11.

A sustainable and connected Stockholm needs an up-to-date digital infrastructure and ICT services that enable not only a decent, but also a pleasant life for its residents. Aspects concerned with this need are, for example, innovative traffic technology and mobility services.

Urban ICT Arena was founded in 2016 by the Electrum Foundation in the well-established ICT cluster of the Stockholm suburb of Kista. Kista is currently the largest ICT cluster in Europe. The guidelines of the Urban ICT Arena's operations are sustainable urban development, future job creation, and accelerating innovation. Urban ICT Arena uses the concept "Not Boring" as an approach and methodology.

> "*We need to achieve an exponential learning curve, but instead everyone sits in a corner re-inventing the wheel*."[51]

A central approach is not setting goals that are too specific, but rather very well-defined needs or issues. Then we can "play around and fail in a small scale" with cutting edge technology while maintaining a vision of a sustainable city. The mind-set is that we cannot know exactly what the digitalised Internet of Things-based society will look like.

Another essential feature of Urban ICT Arena is to strongly consider and involve actual people instead of organisations, for example, the Not Boring 5G Bike was introduced by Petra Dalunde, the chief operating officer of Urban ICT Arena. IT equipment was provided

[51] "Vi behöver åstadkomma en exponentiell lärokurva, men alla sitter på sitt håll och uppfinner hjulet". Interview with Petra Dalunde 2018.

by Ericsson, two students developed its security features, and professor Mark Smith of KTH helped with construction. The testbed consists of four layers – Hardware, Software, Smart Services, and Business Model – with the desire to add a fifth, the Enabling Citizen layer. This last layer is intended to ensure that the value created by digital innovation effectively reaches people living in cities. According to Dalunde, 15% of the process consists of innovation, whereas the remaining 85% consists of organisation and mind-set. The ecosystem of innovation cannot be sustained without enterprises, and without the SMEs and start-ups one only has needs and finances.

NOTABLE OUTCOMES WITHIN URBAN ICT ARENA FOR SOCIAL-ECOLOGICAL SUSTAINABILITY

Because the Arena is still growing, there are numerous projects and prototypes being tested, and several have already made a certain impact on decision-makers.

5G Bike

The 5G bike is essentially a mobile wireless modem, visualising some social and entrepreneurial potentials of the Internet of Things. Anyone can try it out as part of the testbed in Kista.

Autopiloten

Engaged partners and stakeholder groups

Klövern, KTH, Urban ICT Arena, Ericsson, SJ.

Autopiloten is Sweden's first autonomous vehicle to be publicly tested and is available for a short route in Kista between 7 AM and 6 PM.[52]

GCity

Engaged partners and stakeholder groups

First stage: representatives from Stockholm University, ESRI, KTH, Urban ICT Arena, Swedish Cycling Association, cyclists, one private ICT consultant.

Second stage: City of Stockholm, Nacka Municipality, Stockholm University, ESRI, Tidma, Urban ICT Arena.

Funding

First stage: 332 921 SEK (Vinnova). Second stage: undecided.

SDGs

"We still don't quite know which problems will be solved with this solution."[53]

[52] https://www.nobina.com/sv/sverige/nyheter/projektet-autopiloten/# Accessed 23 November 2018.

[53] Interview with Erik Perjons, GCity. 2018.

The project was initiated in 2018 to explore innovative traffic technology and mobility services for alternatives to cars. The first stage resulted in the consortium approaching further stakeholders such as public governance.

GCity explicitly uses Design Science and Action Design Research, methods from the engineering sciences. Design Science is closely related to Design Thinking but differs in that it defines the problem already in the first stage, rather than after initial empathy work. Iterative testing in close contact with municipalities as well as cyclists and car drivers is considered essential for successful results.

One of the key representatives, from the Swedish Cycling Association, unexpectedly passed away during the course of the first stage. This event revealed the project's dependence on personal chemistry and commitment because the association has not shown the same interest since then. Person-based collaboration is indeed a double-sided coin; chemistry determines the outcome to a large extent, but knowledge about each other's particular expertise might also be a great asset to a group, sometimes referred to as a *transactive memory system*.

Starting as a shorter conceptual project with a limited budget and timespan is a good way to form a well-knit consortium and to prepare for more substantial operations. Entering a large project from the beginning can be intimidating for many important societal actors.

Kista Mobility Week
Engaged partners and stakeholder groups
CityMobil2, Drive Sweden, Ericsson, Kista Science City, Nobina, politicians, Swedish Transport Agency.
Duration
25-29 April 2018.

Kista Mobility Week demonstrated various innovations within mobility challenges such as autonomous buses from the EU project CityMobil2 (ended in 2016) in order to highlight the value of collaboration within Urban ICT Arena between ICT companies and public transport administration. The event gathered some 3 000 visitors, including high-ranking politicians such as the (then) Infrastructure Minister of Sweden and the Mayor of Stockholm.

Grow Smarter: traffic monitoring in Slakthusområdet
Engaged partners and stakeholder groups
Facility Labs, IBM, Need Insights.

Grow Smarter used the expertise of IBM for its solutions regarding heavily trafficked areas in its testbed of Slakthusområdet (see separate section on Grow Smarter). IBM developed monitoring solutions together with Need Insights and Facility Labs in order to provide data for increasing efficient pedestrian traffic and reducing car use in the area.

Urban mobility and logistics done differently
Engaged partners and stakeholder groups
Ericsson Research, KTH students, UID students.

Ericsson, together with groups of design and engineering students, developed a safe, sustainable, and human-centred logistics solution. The concept is based on individuals taking it upon themselves to deliver a package sealed within a light, locked box providing live data, thus never getting lost. Boxes are placed at pick-up points, and each distributor can drop them off at particular places along the way to their destinations. Deliveries are secured by contracts between agent and receiver, ultimately eliminating the need for a logistics actor.

Global Goals Lab
Engaged partners and stakeholder groups
Quantified Planet.

The Global Goals Lab is an initiative from the open-data association Quantified Planet with the aim of showcasing examples of sustainable projects and testbeds from around the world.

URBAN ICT ARENA	Level of involvement	Contribution
City of Stockholm	Co-producing	IT infrastructure
Stockholm County Administrative Board	Non-active, informing	Funding
Local residents	Co-producing, consulting	Testing, service or product development
KTH	Co-producing	Research, problem formulation, idea generation
Stockholm University	Co-producing	Research, problem formulation, idea generation
Ericsson	Co-producing	IT infrastructure, problem formulation, idea generation
Telia	Co-producing	IT infrastructure, problem formulation, idea generation
Electrum Foundation	Co-producing	Founding, problem formulation

Sources:

Interview with Petra Dalunde, CEO of Urban ICT Arena. 2018.

Interview with Erik Perjons, project manager at GCity, researcher at Stockholm University Data and Computer Science. 2018.

OTHER PROCESSES OF RELEVANCE

ANTI-BULLERTUNNELN

https://www.uandwe.se/customers/anti-bullertunnel/

Type
Infrastructure innovation project.
Keywords
Noise reduction, urban gardening, urban mobility,
Location
Farsta, south Stockholm.
Engaged partners and stakeholder groups
Chalmers University of Technology, Hallbyggarna Jonsereds, Måns Tham Arkitektkontor, Solkompaniet, City of Stockholm, Trafikverket, U&We, Vindfanan, ÅF-Infrastructure.
Funding
Vinnova: 500 000 SEK.
Duration
2017–2018.
SDGs
3, 8, 9, 11, 15, 17.

The concept of reducing traffic noise by constructing a tunnel covering the highway is not new; however, the technology for constructing it by utilising more sustainable methods and materials is still lacking in many aspects. In Farsta, a six-lane motorway divides the various local green structures such as allotments and housing areas. In order to strengthen the conditions for sustainable local outdoor life, pollution reduction, and increased leisure possibilities, Anti-bullertunneln was initiated by Jens Johansson from U&WE, a consultancy firm specialising in collaboration projects and partnerships for sustainability. Jens's idea is to construct a tunnel covering the Nynäsvägen highway using new technology and new materials enabling a time and resource-efficient construction process.[54] It is important to note, from a co-creation perspective, that the process has been driven by one individual gathering relevant expertise to experiment with a pre-decided issue using a pre-

[54] http://byggindustrin.se/artikel/nyhet/talttunnel-budgetlosning-att-stoppa-buller-26361# Accessed 29 January 2019.

decided technology field. Nevertheless, the cross-sectorial process allows for new knowledge to take shape as actors are brought together in discussions.[55]

The tunnel project was granted funding for phase 1, but rejected for phase 2.

BARKARBY

Barkarbystaden III
http://www.barkarbystaden.se/
Barkarby Science Park
https://barkarbyscience.se/

Type
Urban development project and partnership for an innovative platform and testbed.
Keywords
Urban development, societal planning, science hub, innovation arena.
Location
Barkarby, Järfälla municipality, north-west of Stockholm.
Engaged partners and stakeholder groups
Barkarbystaden III: Citylab Action, E-ON, Järfälla Municipality, local residents, local SMEs.
Barkarby Science: Järfälla Municipality, Atrium Ljungberg, E-ON, Järfällahus, NCC, Scania, Skanska, Södertörn University, KTH.
Funding
Järfälla: 1 900 000 SEK (2017–2018).
Duration
Established 2018.
SDGs
11,17.

Barkarby is subject to the currently largest on-going urban development process in northern Europe. The area will receive a new subway connection by 2025, thus requiring large-scale efforts in construction and sustainable solutions. The plan for sustainable development in Barkarbystaden III is described in a "quality programme" co-produced using participatory dialogue and knowledge exchange within Citylab Action and between the municipality, several private actors, and external experts.[56]

The establishment of a collaborative innovation platform for sustainable urban development located in Järfälla was decided in March 2017 as part of the development process. Enabling innovation is a means to realise and strengthen the objectives of each focus area within the quality programme.[57] Researchers will co-create with private and

[55] Interview with Håkan Emilsson 2018.

[56] Järfälla Municipality. 2018. Kvalitetsprogram för Barkarbystaden III: Antagen av kommunstyrelsen 2018-03-05, §21. Pp. 35-36.

[57] Kvalitetsprogram för Barkarbystaden III. P. 38.

public actors to test sustainable urban development solutions, with particular regards to mobility and smart energy; one particular example is a testbed for autonomous vehicles.[58] The idea to form a partnership took shape during Almedalen political week in 2015 or 2016, after which a partnership gradually formed. Barkarby Science was thus realised as a private enterprise in which the expectations of all participating actors were gathered and coordinated by the municipality. Innovative sustainable solutions are considered not only essential for upcoming projects, but equally so in the existing environment. Barkarby Science is intended to become a platform to realise this innovative environment.[59]

CHANGERS HUB

https://www.changershub.se/

Type
Non-profit association and co-working space for inspiring and motivating young talents in disadvantaged urban areas.
Keywords
Suburbs, young people, mentoring, co-working space, Social Recycling.
Location
Botkyrka, south of Stockholm; Östermalm, central Stockholm.
Engaged partners and stakeholder groups
Botkyrka Municipality, local start-ups, local young residents.
Funding
Arvsfonden.
Private sponsoring.
Crowdfunding.
Duration
Established 2016.
SDGs
8, 9, 10.

Changers Hub emerged as a local voluntary initiative at a youth centre in Alby, Botkyrka, a suburb with socio-economic challenges. The main objective was to inspire local talents and help uninspired youth become more motivated to pursue careers and education. Since then, the hub has grown into a co-working space aided by the municipal office and various private companies, offering a wide range of seminars and workshops to exchange knowledge and best practices. The board of Changers Hub still mainly consists of young people from suburban areas, while an additional chapter of the hub has been opened in central Stockholm in order to enable suburban youth to connect with other parts of the region and transcend social boundaries. Social Recycling, a concept developed by Changers

[58] Mitt i Järfälla, "Barkarbystaden får nytt forskningscentrum". https://mitti.se/nyheter/barkarbystaden-nytt-forskningscentrum/ Accessed 9 August 2018.

[59] Interview with Jenny Ångman 2018.

Hub in their project application to Arvsfonden, is a way of integrating two groups in the same area, namely local young individuals having undergone a successful career path and those with less motivation, guidance, and/or opportunity. The principle is to have the second group be inspired by the first.[60] This approach is strategically developed in the context of socio-economically challenged areas and suburbs, in which the majority of residents are born outside of Sweden or face challenges of discrimination due to their parents being born outside of Sweden.

DESIGN FOR SUSTAINABLE CO-CREATION

BACK TO THE LAND 2.0: RECONNECTING URBAN AND RURAL THROUGH FOOD SYSTEMS; 7.5 ECTS COURSE.
https://www.konstfack.se/sv/Utbildning/Fristaende-kurser/Design-for-Sustainable-Co-Creation-75-hp/

Type
Multidisciplinary course.
Keywords
Theory U, food systems, design, sustainable food production, agro-forestry
Location
Konstfack, south Stockholm. On-site teamwork in Hjulsjö, Västmanland (central Sweden).
Engaged partners and stakeholder groups
Konstfack University, Örebro University, Hjulsjö village community, students, designers.
Funding
Konstfack.
SDGs
11, 12.

As an innovative way of creating and managing sustainable food systems through creative disciplines, Konstfack University college of Arts, Crafts and Design coordinates an international course consisting of creative methodology learning integrated with real life testing of solutions. The course teaches and uses the *Theory U-process*, a model developed at MIT for transformative leadership in organisations. The fundamental statement on which the theory is based is that the inner and deeper mechanisms of leadership are a "blind spot" and need to be discovered. The process consists of five stages: *co-initiating*, *co-sensing*, *presencing*, *co-creating*, and *co-evolving*. Co-initiating means to build common intent and engagement through dialogue and listening to other participants' wishes. Co-sensing is an observing stage in which relevant places and stakeholders are approached, listened to, and analysed. Presencing is the problem-formulating stage in which the process connects its observations to its initial inspiration and will. Co-creating is a prototyping stage of

[60] Interview with Victoria Escobar. 2018.

designing solutions in real life situations. Co-evolving means achieving impact on a macro scale, in this case by reaching out to the particular organisation as a whole.[61]

The first half of the course consists of individual preparatory work, followed by an on-site, collaborative workshop series lasting one week. During the second half, students share their insights and co-create with the local stakeholders and other actors such as leading international and national experts.

eGOVLAB

https://egovlab.eu/index.php/en/

Type
Testbed and policy lab for digitalised governance and sustainable urban development.
Keywords
Digitalisation, participatory governance, smart cities, ICT, open innovation, open data, applied research.
Location
Stockholm University, Department of Computer and Systems Sciences, Kista, north-west Stockholm.
Engaged partners and stakeholder groups
Stockholm University.
Funding
Duration
SDGs
9, 11, 17.

eGovlab is a part of the Computer and Systems Sciences at Stockholm University. As a testbed and open innovation platform, eGovlab focuses on developing governance processes through digital and participatory approaches. It has thus developed a six-step methodology for co-creation and open innovation with stakeholders. eGovlab is part of about 20 different Interreg and other international or EU projects within the core themes of *anticipatory and adaptive governance*, *public service redesign*, and *smart & sustainable communities*.

[61] The Department of Design, Interior Architecture and Visual Communication (DIV). 2019. ”Design for Sustainable Co-Creation”. Course syllabus; http://www.backtotheland.se/ Accessed 29 January 2019.

FRONTRUNNERS FOR SUSTAINABLE INNOVATION

https://www.kth.se/samverkan/partnerskap/exempel-pa-samverkan/open/frontrunners-for-sustainable-innovation-1.810266

Type
Vinnova-funded innovation project targeting SMEs in the Stockholm region for sustainable innovation.
Keywords
Innovation procurement, market dialogue, smart cities, SMEs, science parks.
Location
Openlab, KTH, north central Stockholm.
Engaged partners and stakeholder groups
Kista Science City, KTH, Openlab, Södertälje Science Park.
Funding
European Regional Development Fund.
Duration
2018–2020.
SDGs
4, 5, 8, 9, 11, 12.

The Frontrunners for Sustainable Innovation project is a collaboration between the science parks in the Stockholm region, including KTH and Openlab, with the goal of fostering new channels for digital, environmental, and life science SMEs to expand their operations and leverage. Examples of such channels are market dialogues between stakeholders regarding particular issues and demands as well as innovation procurement. High importance is given to promoting digital services and products such as open data and IoT. By providing the involved science parks as testing and demo environments for relevant SMEs, the project aims to create better structures for sustainable innovation in the Stockholm region.

FÖRNYELSELABBET

https://www.fornyelselabbet.se/

Type
Policy lab for user-centred design of societal services aiming for social sustainability.
Keywords
Policy lab, new arrivals, user-centred design, systems design.
Location
SVID, Södermalm, central Stockholm. Various lab contexts throughout the Stockholm region and in cities throughout Sweden.
Engaged partners and stakeholder groups
Local administration, local residents, Ministry of Social Affairs, new arrivals, SKL (SALAR), Stiftelsen Svensk Industridesign (SVID), The National Board of Education (Skoloverket), UNHCR northern Europe.
Funding
SKL, Ministry of Social Affairs, Since 2018 The National Inheritance Fund (Arvsfonden).

Duration
2015–
SDGs
3, 11, 16, 17.

Förnyelselabbet was founded with a mission to work with user-driven innovation in order to meet complex social challenges, shaping methods and processes for this in working first on the reception of new arrivals in Sweden in autumn 2015 and onwards. Operations include mapping of user needs and inclusion of stakeholders according to context. Users provide a substantial part of the background to problem formulations and analysis. The lab as a concept is valued highly because it allows for small-scale experimentation in multi-stakeholder innovation. Förnyelselabbet has furthermore established various smaller lab contexts of user interaction in several municipalities in and outside the Stockholm region in order to enhance the capacity of local stakeholders for working with social sustainability.

HAGASTADEN

STOCKHOLM SCIENCE CITY
https://ssci.se/
https://hagastaden.se/

Type
Intermunicipal urban development project and life science partnership.
Keywords
Urban planning, life science, healthcare, intermunicipal collaboration, science cluster, public transport, green certification, green area development, waste management.
Location
Haga, north-west central Stockholm/Solna Municipality.
Engaged partners and stakeholder groups
City of Stockholm, City of Solna, New Karolinska University Hospital, Karolinska Institutet, Akademiska Hus, Locum, The Swedish Traffic Agency, Stockholm Science City Foundation (managed by Karolinska Institutet, Stockholm University and KTH), construction companies.
Funding
Investments amount to approximately 70 000 000 000 SEK by the different partners.
Duration
2007–2025 (with shorter sub-projects within this frame).
SDGs
3, 4, 5, 9, 11.

With Stockholm growing rapidly and new housing demanded, largely overlooked and underused areas still exist close to the urban centre. One such area is Haga, in part consisting of a large green area (Hagaparken) and in part the vast Karolinska University Hospital complex including the adjacent health science university of Karolinska Institute. It is also the border zone between the municipalities of Solna and Stockholm, hitherto mainly used as a highway cluster.

Because the healthcare system and life science fields will face tremendous challenges in future decades due to a rapidly ageing population, with increasing amounts of multiple diagnoses requiring decades of treatment, the needs for further research and innovation on this matter are dire. Stockholm already has a vast cluster of health science research, innovation, and education in this area, pointing to the potentials of further expanding this cluster.

The huge Hagastaden development project is guided by "Vision 2025", seeking to create the largest centre for life science in the world. Most of the 100+ life science enterprises operating in Stockholm would now be located close to, or choose to relocate to, the area of Hagastaden.[62] The project assembles three of the largest universities in Stockholm into a life science cluster with 50 000 workplaces while building mixed forms of housing for 6000 people and developing adjacent parks and green areas. The two main highways running through the area will be built into tunnels to minimise sound pollution. The innovative waste management system is inherited from Hammarby sjöstad.

Several parks and recreation areas already exist nearby, such as the widespread Hagaparken, Bellevueparken, and Karlbergsparken. These will now be connected through Hagastaden and made considerably more accessible. One of the buildings is the first to ever achieve the highest rate of the green building certificate BREEAM, "Outstanding".[63] The new park of Norra stationsparken will be a slim, long park with considerable proximity to cafés, shops, and restaurants.

A new underground station will be built in the centre of Hagastaden, as Stockholm County Council is constructing a new subway line going from Odenplan in west central Stockholm to Arenastaden in Solna, approximately 5 km, planned for 2019–2015.[64] This will promote public transport in favour of less sustainable transport and will further connect diverse city districts and municipalities.

Art, intertwined with architecture and landscape, plays a significant role in the shaping of the new living area. Emanating from the concept of life science and "the cornerstones of life", the objects and milieus created are meant to reflect Hagastaden's scientific image. This was made through the 2014–2015 project ArtResLab Hagastaden, in which researchers and artists co-created outlines for Hagastaden by exchanging knowledge about each other's fields.[65]

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[62] Stockholm Science City, "Hagastaden.se". https://ssci.se/sv/aktiviteter/hagastadense Accessed 9 August 2018.

[63] Stockhoms stad, "Hagastaden". https://xn--vxer-loa.stockholm/omraden/norrmalm-hagastaden/ Accessed 9 August 2018.

[64] Stockholms läns landsting, "Gul linje till Arenastaden". https://www.sll.se/verksamhet/kollektivtrafik/aktuella-projekt/Nya-tunnelbanan/OdenplanArenastaden/ Accessed 9 August 2018.

[65] Stockholms stad, "Konstnärer och forskare möts i Hagastaden". http://www.stockholmkonst.se/aktuellt/konstnarer-och-forskare-mots-pa-artreslab-i-hagast/ Accessed 9 August 2018.

Hagastaden has had limited involvement of residents and civil actors in the planning process, the exceptions being certain dialogue meetings and a hackathon with students coordinated by Sweco.[66] Instead, it has focussed on a cross-sectorial collaborative process.

HISS - HÅLLBART, INNOVATIVT OCH STRATEGISKT STYRELSEARBETE (SUSTAINABLE, INNOVATIVE AND STRATEGIC BOARD WORK)

https://www.vinnova.se/p/hiss--hallbart-innovativt-och-strategiskt-styrelsearbete/

Type
Vinnova-funded business development project for integrating sustainability into the work of private company boards.
Keywords
Business innovation, board work, business development, sustainable management
Location
Engaged partners and stakeholder groups
2050 Consulting AB, CEOs, IMIT Research Foundation, private companies, private sector expert group.
Funding
Vinnova: 1 565 600 SEK.
Duration
2018–2020.
SDGs
5, 9, 12.

Having considerable experience of sustainable business development and communication, consultancy firm 2050 initiated a study of how CEOs and private companies integrate sustainable goals into their respective operations and businesses. Recognising the various challenges of organisational approaches to sustainability, the project harnesses innovation as a means for empowering sustainability managers and organisations as a whole to accelerate sustainable procedures and goals within their respective business models. In the long term, HISS hopes to develop models for organisational development that are feasible in both the public and private sectors.

[66] Interview with Lars Ström 2018.

HÅLLBAR UTVECKLING 2022 INITIATIVE™

https://www.hallbart.nu/delmal-2022/

Hållbar Utveckling is a platform offering education and knowledge exchange about sustainable development, particularly targeting SMEs, larger companies, and public institutions. It was founded in 2012 by CEO Helena Lindemark. One notable initiative from Hållbar Utveckling is the *2022 Initiative*™ in which they invite organisations to participate in a planned 2022 manifestation of the 50-year anniversary of the first UN conference for sustainability, held in Stockholm in 1972. The 2022 Initiative aims to promote further matchmaking between users and problem-solving actors and networking between actors working for achieving the Agenda 2030 SDGs.

KONSTEN ATT SKAPA STAD (THE ART OF CREATING CITIES)

https://www.nacka.se/stadsutveckling-trafik/konsten-att-skapa-stad/

Type
Urban development platform for artists and public sector and private actors.
Keywords
Arts & design, partnership, place-making, knowledge exchange.
Location
Nacka, south-east of Stockholm.
Engaged partners and stakeholder groups
Artists, construction companies, Nacka Municipality.
Funding
Nacka Municipality.
Duration
2018–
SDGs
8, 9, 10, 11, 16.

Nacka Municipality hosts Scandinavia's only employed urban creator. This is part of their ambition to use art and design skills in enhancing social-ecologically sustainable values of public spaces, for example in terms of attractiveness, diversity, inclusion, energy efficiency and safety. By bringing artists into co-creation with civil servants and private actors such as construction companies, the municipality hopes to achieve a higher level of citizen participation in urban processes.

MISTRA SAMS

LIVING LAB 1: FUTURE PLAYING RULES OF EVERYDAY TRAVEL
LIVING LAB 2: NEAR WORK, SMART MOBILITY
https://www.sams.kth.se/se

Type
Transdisciplinary research programme for sustainable urban mobility.
Keywords
Mobility, accessibility, transport, Mistra, living lab.
Location
KTH, north central Stockholm.
Engaged partners and stakeholder groups
Botkyrka municipality, City of Malmö, City of Stockholm, Ericsson, FRAC/Hertz/Sunfleet, K2: The Swedish Knowledge Centre for Public Transport, KTH, local residents, Lund University/IIIIEE, Openlab, Samtrafiken, Savantic, Scania, Swedish Transport Administration, Transformator Design, University of Karlstad/SAMOT, VTI: Swedish National Road and Transport Research Institute.
Funding
The Mistra Foundation for Strategic Environmental Research: 40 000 000 SEK.
Duration
2016–2020.
SDGs
8, 9, 11.

Mistra SAMS (Sustainable Accessibility and Mobility Services) is a transdisciplinary research programme and platform for investigating obstacles and opportunities regarding the transition to sustainable transport, mobility, and accessibility in urban environments. Through two on-going living labs in Stockholm, participating residents contribute in testing apps and other ideas for changing the conditions for urban travelling, for example, in order to increase the amount of travelling outside regular rush hours.

NATURE BIZZ

https://www.sh.se/forskning/var-forskning/forskningsdatabas/forskningsprojekt/naturebizz

Type
Interreg-funded business and regional development project for micro enterprises in rural and peri-urban areas.
Keywords
Business innovation, natural resources, green businesses
Location
The Stockholm region: Roslagen, north of Stockholm.
Engaged partners and stakeholder groups
Goda Gotland, Lantmännens Riksförbund, local micro enterprises, Pärnu College (EST), Region Gotland, Satakunta University of Applied Sciences Pori (FIN), Södertörn University, University of Tartu (EST) Vidzeme University of Applied Sciences Riga (LV).

Funding
EU Interreg:
Duration
2018–2020.
SDGs
9, 12.

The term "green enterprise" has particular connotations in Sweden, denoting a business in which natural resources are the primary focus of operations, such as honey, cultivation, food stuffs, and forestry. The Interreg project Nature Bizz – Business and Wellness from Green Economy Growth aims at supporting growth and capacity among green micro enterprises in the Baltic region. Södertörn University is the main partner in the Swedish context, working with businesses north of Stockholm and on the island of Gotland. A main challenge is that knowledge about green micro enterprises is insufficient. The main operations consist of developing professional education and capacity building for accelerating the sustainable business models of the enterprises according to local user needs, together with stakeholders such as local and regional governance, enterprises, trade organisations, and researchers. Supporting these small actors has particular implications for the survival of peri-urban areas, ecosystems and, in the longer term, sustainable urban living.

NATUREN PÅ LIKA VILLKOR (NATURE ON EQUAL TERMS)

https://www.studieframjandet.se/stockholms-lan/artikelsida/samarbeta-med-oss/naturen-pa-lika-villkor/

Type
Non-governmental project supported by municipal, county and county administrative board funding for enabling equal access to Stockholm, nature, and outdoor activities.
Keywords
Functional variations, nature exploration, equal opportunities, NGOs, outdoor activity.
Location
Various locations within participating municipalities.
Engaged partners and stakeholder groups
Afasiföreningen, citizens with functional variations, consultants, Epilepsiförbundet, Hjärnskadeförbundet Hjärnkraft, Nature guides of Greater Stockholm, Naturföretaget, Naturskyddsföreningen, Skogstur, Stockholm County Administrative Board, Stockholm County Council, Storstockholm, Studiefrämjandet, WillUt.
Municipalities: Botkyrka, Haninge, Järfälla, Salem, Sigtuna, Södertälje, Tyresö.
Funding

Stockholm County Council.
Stockholm County Administrative Board.
Municipalities.
Target group grants from municipalities.

Duration

2015–onwards.

SDGs

3, 10, 11, 14, 15, 16.

Individuals with functional variations are, still, in many ways excluded from nature areas and nature exploration, although experiencing nature and green areas is considered a fundamental human right. Studiefrämjandet, a citizen-driven educational institution, co-initiated the application for funding for "Naturen på lika villkor" with NGOs Naturskyddsföreningen and Hjärnskadeförbundet (the Brain Damage Society) because they realised that they shared certain problem definitions and visions for change. Further into the project, an associate of the Stockholm County Administrative Board accidentally learned about the project and became spontaneously intrigued by it after initiating a meeting with the coordinators from Studiefrämjandet the Administrative Board joined in as a funder and supporter of Naturen på lika villkor. Thus, the project has been cross-sectorial from the start. The project has since spawned a series of joint walks and events for promoting the expanded use of nature among the target groups, thus exploring ways of empowering and inspiring the various groups.[67]

NORDIC BIO

https://www.bioinnovation.se/projekt/nordicbio/

Type

Innovation project for sustainable textile materials and waste reduction.

Keywords

Healthcare, textiles, waste, waste reduction, material innovation.

Location

Stockholm County.

Engaged partners and stakeholder groups

Cellcomb, Fiber-X, Pure Waste Textile, Swerea IVF, Wargön Innovation, VTT Technical Research Centre of Finland.

Related: Biorock (2018–2019)

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[67] Interview with Katrin Jones Hammarlund & Sofia Arnsten. 2018.

Cellcomb, Högskolan Borås, Organoclick, Region Stockholm (SLL), Re:Newcell, UMV Coating, Wargön Innovation.

Related: WargoTex Development (2018–2020)

Berendsen Textil Service, Björkå, Circle Economy, Emmaus, Forbo Flooring AB, Högskolan Väst, KappAhl, Lindex, The Loop Factory, Myrorna, OP Teknik AB, Ragn-Sells AB, Re:newcell, Röda Korset, Science Park Borås/Re:textile, Sellhelp AB, Swerea IVF, Sörab, TEKO, Texaid, Trollhättan Energi AB, Uddevalla Energi AB, Varner, Vänersborg Municipality.

Funding

Vinnova: 1 150 000 SEK.

Duration

2018–2021.

SDGs

3, 9, 12.

Nordic Bio is run by the development programme Wargön Innovation and aims to explore re-usage of textiles in healthcare to prevent waste. The textile sector produces substantial amounts of waste every year in Sweden, but only a minor percentage is recycled or re-used. Applying research results from VTT in Finland and material production expertise from Cellcomb, Nordic Bio aims to experiment in using new materials and processes for reducing waste while contributing to the healthcare sector becoming more sustainable. Having Region Stockholm as a partner is crucial in realising this objective.[68]

OPENLAB

https://openlabsthlm.se/

Type

Public-academic collaboration platform for societal innovation in the Stockholm region.

Keywords

Design Thinking, agile working methods, public sector innovation, user research, innovation platform.

Location

KTH, north central Stockholm.

Engaged partners and stakeholder groups

Founding partners: City of Stockholm, Karolinska Institute, KTH, Region Stockholm, Stockholm County Administrative Board, Stockholm University, Södertörn University.

Other stakeholders: Students, Stockholm residents, social entrepreneurs.

Sub-projects involving diverse civil, private, academic and public actors: Frontrunners for Sustainable Innovation, Mistra Urban Futures Stockholm Node, Digital Demo Stockholm,

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[68] Interview with Magnus Fransson. 2019.

Mistra SAMS, Green Viz Lab, EIT Health, Verklighetslabbet, Medborgarkontoret, Matlaboratoriet.
Digital platform for citizen's participation in innovation: Utveckla din stad/Develop Your City.

Funding

Founding partners.

Duration

2013–

SDGs

11.

Founded in 2013, Openlab is intended to be a neutral environment bringing together stakeholders involved in the following four selected challenge areas concerning the Stockholm region: sustainable urban development, healthcare, an ageing population, and education. Although hosting many different activities, such as a co-working space for social entrepreneurs, a makerspace, a conference area, and an organic café, Openlab's core operations consist of external process management and creative facilitation of innovation projects and a Master's course (15/7.5 ECTS). The course involves students from the four partner universities in creating solutions together with the public sector and residents for improving living conditions using Design Thinking and agile (SCRUM) working methods. Openlab also educates professionals in Design Thinking methodology in order to foster innovative capacity in the region.

PRODUKTIONSLYFTET

https://www.produktionslyftet.se/

Type

Professional training and organisational development platform.

Keywords

Business development, SMEs, Lean production, sustainable working environment, industrial innovation, economic growth, resource efficiency, evaluation research.

Location

Nationally and regionally located. In the Stockholm region: Södertälje, south of Stockholm.

Engaged partners and stakeholder groups

SMEs, KTH, IF Metall (Swedish Steel Trade Union), Teknikföretagen (Association of Swedish Engineering Industries), RISE IVF, Luleå University of Technology, Jönköping University, Chalmers University of Technology, Mälardalen University, CIL (Centre for Information Logistics), Mid Sweden University, University of Gävle, IUC Syd, Gothenburg Technical College.

Funding

Tillväxtverket (Swedish Agency for Economic and Regional Growth):
2008: 2 400 000 SEK.
2009–2010: 2 400 000 SEK.
Vehicle programme: 2010-2013 2 500 000 SEK.

2011–2014: 7 110 000 SEK.
2014–2016: 5 000 000 SEK.
Pre-study 2016: 200 000 SEK.
2016–2018: 7 000 000 SEK.
2017–2019: 21 000 000 SEK.
Produktionslyftet 4.0, 2018–2020: 2 000 000 SEK.
Vinnova:
2007–2010: 24 400 000 SEK.
Method guide development, 2009–2010: 100 000 SEK.
Conference 2011–2012: 20 000 SEK.
2010–2013: 24 500 000 SEK.
Experience exchange programme 2013–2014: 200 000 SEK.
2013–2015: 25 320 000 SEK.
2014–2017: 24 000 000 SEK.
Development programme 2017–2019: 2 000 000 SEK.
KK-Stiftelsen
2007–2010: 24 400 000 SEK.
2010–2014: 24 500 000 SEK.
Duration
2006–onwards.
SDGs
8, 9, 12.

Produktionslyftet (English: *Production Leap*, PL) was initiated in 2006 by the trade union IF Metall and the engineering industry association Teknikföretagen, starting with the presupposition that Swedish industries are in need of more efficient solutions and better coordinated procedures in order to endure and to profit from the transition to sustainable production. Initially targeting enterprises of 50–249 employees, PL was launched as a nationwide 18-month professional coaching and educational programme. Subsequently, Chalmers University of Technology has developed a 7.5 ECTS course ("Lean Production") especially designed for participants of the PL programme in collaboration with the other participating educational institutions. Another 7.5 course on sustainable leadership ("Lean Ledarskap") developed at KTH Lean Centre was later added to the programme. PL moreover attempts to expand its use of digital solutions and shorter education periods in order to adapt to the needs of SMEs.

Different development groups contribute methodology and educational aspects. A package of presentations, materials, and educational stages was established to give access to a standard for each node and coach. LEAN was the main method chosen not only for the programme but internally as well, meaning that the involvement of employees is central to PL's approach. The employees and management are ultimately supposed to work together to implement new methods and working philosophies gained from PL's education.[69]

PL moreover contributed to the launching of the Matlust project in Södertälje.

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[69] Interview with Johanna Strömgren. 2018.

RE:TROUT

https://projects.interreg-baltic.eu/projects/retrout-116.html

Type
EU development project for restoring waters and fisheries in the Baltic sea.
Keywords
Fisheries, archipelago, local business development, peri-urban development.
Location
The Stockholm region: Haninge, south-east of Stockholm.
Engaged partners and stakeholder groups
Swedish: Haninge Municipality, KTH, local fishing associations, local tourism companies, Stockholm County Administrative Board.
Foreign: Baltic Environmental Forum (EST), University of Tartu (EST), NGO Estonian Fishing Tourism (EST), Kurzeme Planning Region, Institute of Food Safety (LV), Animal Health and Environment – "BIOR" (LV), Ventspils Regional Municipality (LV), Klaipeda University (LT), Fishery service under the Ministry of Agriculture of the Republic of Lithuania (LT), National Marine Fisheries Research Institute (PL), Tourist Association "Northern Kashubia" (PL), Baltic Marine Environment Protection Commission HELCOM (FIN).
Funding
EU Regional Development Fund: € 2 620 136.
Duration
2017–2020.
SDGs
8, 11, 14.

As peri-urban and rural communities are struggling to maintain quality living conditions while simultaneously facing substantial ecological challenges, many ecosystems services, such as fishing, are gaining increasing amounts of attention. Haninge Municipality participates in the Baltic project Re:Trout to realise its approach of restoring the often-depleted trout resources in creeks and streams (most notably the Vitsån creek) while empowering peri-urban stakeholders, both commercial and non-profit, in order to re-vitalise the peripheral parts of the municipality. Fostering sport fishing in a commercially and ecologically sustainable way is the main challenge for the project. Project partners are sharing best practices as a way of promoting the shared outcome, the long-term ambition being more sustainable and jointly coordinated fishing tourism in the entire Baltic region. By bringing fishing associations and tourism companies into the discussion, Haninge hopes to foster new relationships, knowledge, and progress in keeping its archipelago and rural areas vibrant.

SVERIGE BYGGER NYTT

http://sverigebyggernytt.eu/

Type
EU-funded labour market diversity and development project.
Keywords
Workplace diversity, gender mainstreaming, new arrivals, Swedish Employment Agency, Logical Framework Approach.
Location
Based at the National Employment Agency office in central Stockholm. Operating in all of Stockholm County.
Engaged partners and stakeholder groups
Swedish Construction Business Organisation, City of Stockholm, City of Solna, Installatörsföretagen, Fastighetsbranschens utbildningsnämnd, BYN Stockholm Gotland, Byggnads Trade Union Stockholm Gotland, the Swedish Employment Agency.
Collaboration:
Grön BoStad Stockholm (KTH).
Sverige bygger ut (Solna, Stockholm County).
En Byggbransch för alla (Byggnadsförbundet).
Funding
EU Social Fund (ESF): 29 996 023 SEK.
Duration
2016–2019.
SDGs
8, 9, 10, 11, 16.

The construction business is largely homogeneous, and most of its employees are white, Sweden-born males. The sector has a vast demand for new manpower in the near future, and if this need is to be met recruitment must reach other societal groups than the current one. Currently, hitherto marginalised groups such as new arrivals and women have felt reluctant to pursuing a construction career for various reasons. The main objective of *Sverige Bygger Nytt* is to enable employment of people of diverse social backgrounds within the Swedish construction industry. The Swedish Employment Agency was considered the most suitable owner of the project after an early workshop using the Logical Framework Approach, a toolkit used by the UN and the Swedish Development Agency to deconstruct a problem and build a solution. During the course of the programme, more accessible entry into the construction industry has gradually been realised for participating individuals.

SÖDRA SKANSTULL

https://whitearkitekter.com/se/projekt/sodra-skanstull-masterplan/

Type

Urban construction and development process.

Keywords

Connectivity, mobility, pollution, urban cultivation, cultural heritage, gentrification, goal conflicts, urban planning, social environment analysis, cultural environment analysis.

Location

Skanstull, Södermalm city district, south central Stockholm.

Engaged partners and stakeholder groups

City of Stockholm (with White arkitekter), Folksam (with White arkitekter), Skandia fastigheter (with the 2BK architect firm), Aspelin & Ramm (with White arkitekter), Trädgården (with Gustav Appell arkitektkontor), local residents, local sports and leisure associations, local SEs, the Swedish Civil Contingencies Agency (MSB).

Funding

City of Stockholm.

Duration

2011–onwards. Construction is planned to commence in 2019.

SDGs

3, 7, 11, 15, 16.

Skanstull South is evolving into an area with reduced barriers for interaction and sustainable transport, while the pollution from surrounding traffic routes is being mitigated by positioning new buildings such that the backsides of the buildings are facing towards the roads. The Eriksdalsbadet swimming centre and the Trädgården music and arts hub are being supported and developed because they are deemed valuable meeting points for youth and people of other ages from all of south Stockholm, connecting residents from different areas and districts and helping to foster inclusion.

For the overall urban scheme, the city engaged three architectural firms in a parallel assignment. The best ideas were moulded together into the final concept (by one of the three firms). The different stakeholders were then asked to invite their own architects to pursue their projects within the overall framework. Thus, commitment from all stakeholders was secured. Meanwhile, local residents and civil and private organisations were involved in formulating needs and ideas for future development. Parts of Skanstull South belong to the civil defence infrastructure, which gives The Swedish Civil Contingencies Agency (MSB) an important say in its future use.[70]

[70] Interview with Krister Lindstedt. 2018.

VERKLIGHETSLABBET STUREBY

https://www.verklighetslabbet.se/

Type

Vinnova-funded living lab for elderly care innovation.

Keywords

Elderly care, Stureby, Design Thinking, co-design, digitalisation, municipal work, service design, social service innovation.

Location

Stureby, south Stockholm.

Engaged partners and stakeholder groups

Municipality of Enskede–Årsta–Vantör, City of Stockholm (Stureby Nursing Home), elderly persons, Karolinska Institute, local employees, Openlab, relatives of elderly, students.

Funding

Vinnova: 5 000 000 SEK

Duration

2017–2019 (with continuation afterwards).

SDGs

3, 8, 9, 10.

Stureby Nursing Home is a platform for innovation through Reality Lab, which currently includes 120 students from different professions, but a majority not from the area of medicine and care. This supports collaboration with the residents, their relatives, municipal employees, and researchers. With the hybrid organisation Openlab providing Design Thinking methodology and student teams for innovation, the elderly residents are given a key role in shaping their environment. Other forums for co-creation are workshops planned with different themes and challenges. This opens up for stakeholder groups normally not involved in elderly care, which in turn puts particular demands on coordination, trust-building, and understanding.[71]

[71] Interview with Susanna Bjälevik. 2018.

VIABLE CITIES

http://viablecities.com/

Type

Strategic innovation programme for smart sustainable cities.

Keywords

Smart cities, digitalisation, strategic innovation programme, testbed, urban living lab, lifestyle & consumption, urban planning, mobility & accessibility, integrated infrastructure.

Location

KTH, north central Stockholm.

Engaged partners and stakeholder groups

KTH.

Funding

Vinnova.
Swedish Energy Agency.
Formas.

Duration

2017–2020; planned operations until 2029.

SDGs

Viable Cities (VC) is a strategic innovation programme co-funded by several large agencies and hosted by KTH. It aims to support research and innovation for smart sustainable cities, emphasising its role as catalyst for collaborative efforts between different sectors in Swedish society. It also fosters commitment and participation from citizens and urban dwellers through urban development and digitalisation. Sustainable innovative solutions are developed by VC within the following four focus areas: lifestyle & consumption, planning & built environment, mobility & accessibility, and integrated infrastructure. These developments are supported through the following five themes: testbeds & living labs, innovation & entrepreneurship, funding & business operations, steering, and intelligence, cyber safety, & ethics. The programme today hosts some 50 participating organisations from all sectors.

VC's incentives are both local, national, and international, and its successful solutions and models are meant for large-scale implementation and export.

ÅRSTASKOGEN

https://bevaraarstaskogen.wordpress.com/

Type

Protest campaign, urban development project, research project.

Keywords

Civil protest, ecosystem services, connectivity, green infrastructure, affordable housing, cultural heritage, policy dialogue, nature reserve.

Location
Årsta, south central Stockholm.
Engaged partners and stakeholder groups
Local residents, Bevara Årstaskogen, Municipality of Freiburg, The Ecology Group, Stockholm County Administrative Board, The Swedish Society for Nature Conservation, The Swedish Environmental Protection Agency, The Swedish National Heritage Board, Stockholm County Council, City of Stockholm, Swedish University of Agricultural Sciences, construction companies.
Students from Stockholm University (multidisciplinary master's thesis published in 2018).
Funding
Voluntary, crowdfunding.
Duration
2017–
SDGs
11, 15.

Årstaskogen is a more than 150-year-old forest covering 57 acres in the Årsta area just south of Södermalm in central Stockholm with particular ecological significance to the city, hosting many endangered animal species and plants. In June 2017, the City of Stockholm Development Administration (Exploateringskontoret) approved a report suggesting an altered border of the Årsta Forest Nature Reserve. Simultaneously, the City of Stockholm was planning the construction of 800–1000 apartments in the area outside these altered borders. This was the starting point for the protest network *Bevara Årstaskogen* ("Preserve Årsta Forest", BÅ). *BÅ* uses petitions, crowdfunding, traditional and social media exhibitions of the issue, and dialogue with high-level decision-makers in order to gain the attention and influence needed to preserve the nature reserve. For example, students of Stockholm University published a thesis on the subject. In January 2018, the City of Stockholm announced its decision to make Årsta forest an official nature reserve, which was not deemed sufficient by BÅ and other critics. A petition in June 2018 gathered 13 834 signatures according to the website. The Centre Party of Stockholm's (then) political opposition announced the preservation of Årstaskogen as an election issue before the September 2018 local elections in the City of Stockholm, in which the party grew three-fold.[72]

The main issue concerns the construction of apartments in what is considered a precious green area in south-central Stockholm; these apartments are also estimated to have high rental prices. Thus, local social and ecological values are perceived by *BÅ* to be under threat from an inconsiderate public administration. Instead, the initiative recommends making the nature reserve more accessible, e.g. by laying down pathways and putting up signs, as well as generally prioritising building more affordable rental apartments instead of launching expensive construction projects on previously untouched land.

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[72] https://bevaraarstaskogen.wordpress.com/ Accessed 20 June 2019.

OTHER IDENTIFIED PROCESSES

These processes were identified as interesting during the mapping process. Due to not meeting a sufficient number of criteria, they were not further approached or analysed. They are categorised here according to the societal sector of the coordinating and/or initiating actor. There are also particular sections for open platforms, co-working spaces, and specialised consultants working with sustainable co-creation.

PUBLIC

1. ÅKERSTRÖMMENS VATTENVÅRDSSAMVERKAN (ÖSTERÅKER)
2. BIODLING (HANINGE)
3. BREDDEN (UPPLANDS VÄSBY)
4. CITIZEN COMMUNICATION PLATFORM - STADEN I MOBILEN AB
5. CLARITY
6. DEVELOPMENT OF CENTRAL DANDERYD
7. DRÖMTORGET (UPPLANDS-BRO)
8. EXPERIO LAB (STOCKHOLM)
9. FAIRTRADE CITY (SIGTUNA)
10. FOKUS SKÄRHOLMEN
11. GUSTAVSBERGSPROJEKTET (VÄRMDÖ)
12. HÅGELBY GÅRD (BOTKYRKA)
13. HEMMESTA SJÖÄNG (VÄRMDÖ)
14. HYDROLOGISK RESTAURERING AV SÖDERTÖRNS AVRINNINGSOMRÅDEN (SÖDERTÄLJE)
15. IDÉSLUSS I STOCKHOLM
16. INNOVATIONSPLATTFORM HÅLLBARA STOCKHOLM (STOCKHOLM)
17. JÄRFÄLLA ECO OUTDOOR ARENA
18. KONSTEN ATT SKAPA STAD (NACKA)
19. KYRKSJÖN - ÅTGÄRDER FÖR EN LEVANDE VÅTMARK (BOTKYRKA)
20. LOMMARSTRANDEN (NORRTÄLJE)
21. MORAÅN (SÖDERTÄLJE)
22. NACKAS SOLKARTA (NACKA)
23. ÖDIS - ÖPPNA DATA I STOCKHOLMSREGIONEN (STOCKHOLM)
24. PLAN PÅ ÖSTERSJÖNS HUS I VAXHOLM (2011)
25. SAMORDNAD VARUDISTRIBUTION (SÖDERTÖRN)
26. SEGERSÄNG (NYNÄSHAMN)
27. SIGTUNA STADSÄNGAR
28. SKL INNOVATIONSGUIDEN
29. SKOG FÖR ALLA I ROSLAGEN (NORRTÄLJE)
30. SLL INNOVATIONSFONDEN (THE REGION)
31. SMÅ MUSSLOR MED STORT VÄRDE
32. VÅRT SOLLENTUNA 2040: “DESIGNA DIN EGEN PARK”
33. STOCKHOLM DIGITAL CARE (STOCKHOLM)
34. SVARTSJÖVIKEN (EKERÖ)
35. TÄBY PARK
36. TÄLJÖ STRANDÄNGAR (ÖSTERÅKER)
37. TESTCENTER FÖR FORDON (NYKVARN)
38. TRAFIKLAB (STOCKHOLM)
39. UNGDOMSKOMMISSIONEN (STOCKHOLM)

40. URBAN LEARNING (STOCKHOLM)
41. VÄRMDÖ ARCHIPELAGO TESTBED
42. VI ÄR CYKLIST (RESSMART)
43. WÄTTINGE (TYRESÖ)

ACADEMIC

1. 4BOARDS AI
2. ARTS (SU)
3. AVSTRESSADE UTEMILJÖER (SLU)
4. BIOEKONOMI 2.0 BÄTTRE VALORISERING AV RESTSTRÖMMAR (IVL)
5. BIOTOPDATABAS SÖDERTÄLJE (SU)
6. CENTRUM FÖR HÅLLBART SAMHÄLLSBYGGANDE (KTH)
7. CONSUPEDIA (KTH)
8. DELAD DESIGN OCH ÖPPNA DATA (IVL)
9. IDÉUTVECKLING FÖR TILLGÄNGLIGA OCH INKLUDERANDE ÖPPNA DAGVATTENLÖSNINGAR (RISE)
10. INTERAKTIV PLATTFORM FÖR SAMHÄLLSSYSTEMTJÄNSTER I ÖVERSIKTSPLANERINGEN
11. KTH GLOBAL DEVELOPMENT - GLOBAL UTVECKLING GENOM UTMANINGSDRIVEN UTBILDNING
12. KTH LIVE-IN-LAB (KTH)
13. NATIONELL SAMVERKAN MELLAN INNOVATIONSPLATTFORMAR FÖR HÅLLBARA ATTRAKTIVA STÄDER (RISE)
14. NORRTÄLJE - TESTBÄDD DRICKSVATTEN (CAMPUS ROSLAGEN)
15. NYA BELÄGGNINGAR FÖR HALKFRIA CYKELVÄGAR UR ETT HELHETSPERSPEKTIV (VTI)
16. REINVENT (SH)
17. RESURSEFFEKTIVITET OCH CIRKULÄR EKONOMI (INGENJÖRSVETENSKAPSAKADEMIEN, IVA)
18. SHARP – PRE-STUDY (KTH)
19. SMARTA GATOR (KTH)
20. SOLAR TESTBED (RISE)
21. URBAN DIGG (KTH)
22. URBAN ICT “SMART CITIES” SUMMER SCHOOL (KTH)
23. VERCITY NACKA (NACKADEMIN)

PRIVATE

1. ACTIVITY BASED CITY
2. ALDC PARTNERSHIP - THE NEW ALGORITHM
3. HÅLLBAR MOTORBRANSCH
4. JOHANNAS STADSODLINGAR
5. MICRO ACTION MOVEMENT
6. PANTAPÅSEN
7. SCANIA SÖDERTÄLJE: HÅLLBARA MOBILITETSLÖSNINGAR
8. SKOLGÅRDSLYFTET NACKA
9. SÖDRA STAMCYKELBANAN
10. THE AGENDA 2030 COMPASS
11. TRAFIKUTREDNINGSBYRÅN AB
12. INNOVATIV PARKERING 2015-2018

CITIZEN/CIVIL

1. ASFALTBLOMMAN
2. BOODLA

3. DEMOKRATIODLING
4. ERSTAVIKSBÄCKEN NACKA
5. GODA GRANNAR
6. ORTEN ODLAR
7. QUANTIFIED PLANET
8. SUSTOPIA
9. SVENSKA KYRKAN - SOCIAL INNOVATION
10. TECH FARM
11. THE GOOD TALENTS

OTHER/MIXED

1. HUSBY SQUARE - FEMINISTISK STADSPLANERING
2. KDI ROYAL DJURGÅRDEN
3. ÖSTRA SVERIGES LUFTVÅRDSFÖRBUND
4. RUM FÖR DEMOKRATI
5. SVEALANDSKUSTEN.SE
6. SWELIFE
7. THE GOALS
8. UPPKOPPLAD BYGGPLATS

FORUM & CO-WORKING SPACE

1. A-HOUSE
2. CHANGERS HUB
3. EKSKÄRET
4. FÄRGFABRIKEN
5. GO-TO-TEN
6. NAV SWEDEN
7. NORRSKEN
8. OPENLAB
9. REGLAB
10. SMARTA STÄDER
11. SNITTS

EU INTERREG PROJECTS

1. BALTACAR
2. BATSECO-BOAT
3. BLASTIC
4. CISMOB
5. COAST 4 US
6. ERUDITE
7. HEAT
8. HIGHER
9. SEABASED
10. SMART MARINA

JPI URBAN EUROPE PROJECTS

1. E-INFORM & ENLIGHT
2. INTEGRCITY
3. IP-SUNTAN

CONSULTANTS AND SPECIALISTS IN SUSTAINABLE CO-CREATION

1. 2050

2. CODESIGN RESEARCH STUDIO
3. COOMPANION
4. DIALOGUES
5. FUTURE CITY GAME
6. LÄNKA CONSULTING
7. METHODKIT
8. OPENLAB
9. THE LIGHTSWITCH
10. U&WE
11. USIFY

LIST OF SOURCES AND REFERENCES

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2. Björn Hellström, project manager Decode, KTH School of Architecture.
3. Christina Wikberger, project manager C/O City, City of Stockholm Environmental Department.
4. David Liderfelt, project manager LIFE IP Rich Waters, Västmanland County Administrative Board.
5. Elin Andersdotter Fabre, project manager #UrbanGirlsMovement, manager Sustainable Cities Global Utmaning.
6. Elina Eriksson, researcher Mo-Bo, KTH.
7. Erik Andersson, coordinator Enable, Stockholm Resilience Centre.
8. Erik Perjons, project manager GCity, researcher Stockholm University Data and Computer Science.
9. Erik Stenberg, Grön Bostad, KTH School of Architecture.
10. Eva-Lotta Sallnäs Pysander, project manager Hållbara lekmiljöer, KTH.
11. Hans Säll, project manager e-Road Arlanda, NCC.
12. Helena Nordlund, project coordinator Matlust, Södertälje Municipality.
13. Håkan Emilsson, consultant U&We.
14. Irena Lundberg, project manager Odlande stadsbasarer, Stockholm Invest.
15. Jenny Ångman, interim CEO Barkarby Science Park.
16. Johan Schuber, co-founder Digital Demo, KTH.
17. Johan Strandberg, project manager Grön Bostad, IVL.
18. Johanna Strömgren, coordinator Produktionslyftet, Head of LEAN Center KTH.
19. Karin Dahlström, project manager Nature Bizz & Anna Nyquist, PhD and communications manager Nature Bizz. Department of Economics Södertörn University.
20. Karin Kjellson, communications manager DiverCity, architect Theory Into Practice.
21. Katrin Hammarlund, project manager Naturen på lika villkor, operational developer Studiefrämjandet & Sofia Arnsten, assistant Naturen på lika villkor, Studiefrämjandet.

22. Krister Lindstedt, project manager Södra Skanstull, White arkitekter.
23. Lars Ström, architect City of Stockholm, Hagastaden development project.
24. Lisa Enarsson, project manager Grow Smarter Stockholm, City of Stockholm Environmental Department.
25. Lise-Lott Larsson Kolessar, project manager Södertörnsmodellen, sustainability manager White arkitekter.
26. Lukas Smas, Stockholm University Department of Human Geography.
27. Magnus Fransson, project manager Nordic Bio and BioRock, Wargön Innovation.
28. Matilda Fjäder, project manager Åkerströmmens vattenvårdssamverkan, Österåker Municipality.
29. Mira Grunewald, project manager Rinkebyresan, ByggVesta.
30. Petra Dalunde, CEO Urban ICT Arena.
31. Richard Dahlstrand, project manager & Allan Larsson, founder and senior advisor ElectriCity, Sjöstadsföreningen.
32. Sara Araya, project manager Digital Demo, Openlab.
33. Sara Borgström, researcher ARTS, KTH.
34. Stefan Johansson, PhD KTH and consultant Funka.
35. Susanna Bjälevik, project manager Verklighetslabbet Stureby, City of Stockholm.
36. Susanne Ortmanns, operational manager Leader Stockholmsbygd.
37. Tobias Lind, business developer Stockholmshem and project manager Bagarmossen Smartup.
38. Towe Holmborn, coordinator LIFE IP Rich Waters Norrviken branch, Sollentuna Municipality.
39. Ulrika Bandeira, project manager Smart kreativ stad & Beata Mannheimer, operative manager Film Capital Stockholm.
40. Victoria Escobar, co-founder Changers Hub.
41. Zahra Kalantari, Stockholm University Department of Natural Geography.
42. Åsa Kallstenius, architect Kod Arkitekter, project manager Elastiska Hem.
43. Åsa Romson, sustainability expert IVL.

The remaining 9 respondents are anonymous.

Observations

- Decode's presentation at seminar "Stadsutveckling & design för motstridiga önskemål" in Stockholm. 17 May 2019.
- Matlust's seminar and demo during Almedalen Week, Visby. 4 July 2018.
- Odlande Stadsbararer's open seminar and demo in Högdalen. 10 October 2018.
- Södertörnsmodellen's and Gröna Solberga's workshops at Stockholm Urban Forum conference in Alby, Botkyrka. 28 May 2019.
- Södertörnsakademin, seminar arranged by Södertörnsmodellen in Fittja, Botkyrka. 12 September 2018.

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Mistra Urban Futures strives towards Realising Just Cities which are Accessible, Green and Fair.
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MISTRA URBAN FUTURES
Postal address: Chalmers University of Technology, SE-412 96 Göteborg, Sweden
Visiting address: Läraregatan 3, Göteborg, Sweden
www.mistraurbanfutures.org

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