ARTTECH IN THE ØRESUND REGION

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Innovation Actors in the Øresund Region

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The partners conducting the work have consisted of a team from the Danish Design Centre in Copenhagen and Malmö University in Malmö.

The Danish Design Centre team:
• Anne Dorthe Josiassen, Head of Design and Innovation
• Christina Melander, Senior Project Manager
• Maria Hørmann, Project Manager
• Susanne Schenstøm, Graphic Designer, Architect MAA
• Lasse Damgaard, Project Assistant
• Meik Brüsch, Project Assistant
• Frederik Bækgaard, Student Assistant
• Tanja Bisgaard, Consultant

The Malmö University team:
• Gunnel Pettersson, Senior Lecturer and Artist
• Kristina Lindström, Senior Lecturer and Artist
• Peter Lövschall, Business Developer
• Åsa Ståhl, Senior Lecturer and Artist

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Preface

We would like to thank the Interreg Øresund Committee for co-financing the work that has gone into the making of this report.

The partners conducting the work have consisted of a team from the Danish Design Centre in Copenhagen and Malmö University in Malmö.

The Danish Design Centre (DDC) is an independent, government-funded organisation established in 1978. DDC’s focus in relation to the design community and business sector is on collecting, communicating and testing knowledge about the main factors that influence design and how design can continue to be a driver for innovation and growth in the future.

Since 2012, the DDC has been working to develop and communicate new design solutions resulting from cross-disciplinary processes involving close cooperation with businesses, designers, researchers, scientists, artists and authorities both nationally and internationally. The aim is to strengthen society’s capacity through design and – in a contemporary way – to carry on, enhance and renew the Danish design tradition. At the same time, the DDC is collaborating on a number of international projects looking at the future role of design in innovation, sharing the results digitally across the globe. This project is an important contribution to DDC’s role as a knowledge hub that disseminates information on new trends and development to the creative industries in Denmark.

The School of Arts and Communication, K3, is a department at Malmö University, with more than 900 students and approximately 75 employees, where traditional scholarship and academic knowledge is combined with artistic methods and practical skills. In teaching and research, art, technology, design and communication converge in new and innovative ways.

At K3 there is a well recognised community of practice-based researchers that has a long history of both participating in and shaping fields like participatory design, co-design and collaborative media – all with a special focus on issues of democracy.
Closely connected to K3, the MEDEA collaborative media initiative has since 2007 grown to be one of Malmö University’s internationally recognized research centres. Recently a related research centre on the theme of Internet of Things and People (IoTaP) has also been established.

Several of the current research projects are thus characterised by collaboration with stakeholders outside K3, such as businesses, NGOs, cultural institutions and other research partners. This is for example done through Living Labs.

This project is important to K3 partly since it is one of the institutions that educate future actors in the emerging field of arttech. Furthermore K3 has research interest in arttech, especially related to issues of democratising innovation.
Project purpose

The challenges faced by society today are becoming increasingly complex, affecting companies, organisations as well as the public sector. Developing new solutions is also becoming more complex, involving cooperation and partnerships with many companies and organisations that each have their specific skills and competencies. Innovation is taking place in different ways today compared to just a decade ago.¹

Innovation is taking place in communities, labs and in new types of partnerships with people that have skills that complement each other, and where competencies within the areas of creativity, technology and user understanding are merged in multidisciplinary teams.²

Some of these new ways of innovating is found within arttech where creative competencies partner up with technological skills, and form partnerships and communities where innovation takes place in new ways.

The purpose of this project was to get a better understanding of how these arttech communities and partnerships are characterised, and how widespread they are in the Øresund Region.

For the Øresund Region to remain prosperous, it is important to ensure the best conditions for innovation to take place. One of the ways to do this is to ensure the right conditions to strengthen the innovation potential in arttech.

Arttech can be seen as an eco-system that consists of several actors, and for it to be strong and well functioning, all the different actors must be present for the innovation potential to be harnessed. This project has taken a look at what the arttech eco-system looks like in the Øresund Region, where it has its strengths and where it can be improved. Suggestions have been made as to how the region can strengthen the arttech eco-system to ensure innovation will flourish in the future.

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¹ New Nature of Innovation, FORA, 2010
² New Innovation Actors, DDC, 2014
Method

Arttech can be interpreted as persons, communities and companies working within a range of different areas spanning from software and hardware development in combination with creative competencies, to designers and other creatives working together with technology competencies.

In order to get a better understanding of what arttech is and how big the arttech eco-system is in the Øresund Region, we have conducted interviews with a range of people within the arttech community. The examples we have found are illustrated as case studies throughout the report.

We have conducted semi-structured and conversational interviews with stakeholders from the arttech environment as well as participatory observations, conducted both in the setting of a drop-in-workshop in Malmö and a series of visits to communities and companies (For an in-depth description of the drop-in workshop in Malmö, please see appendix 1). Furthermore, a large sum of reports, articles and other written material has been examined through desk research. Altogether, these approaches have pooled together a dense material of notes, photographs, sketches, graphs, statistics, video and audio recordings, that has allowed for rich descriptions and analyses across the spectrum of qualitative and quantitative insights.

We particularly want to emphasise how important the visits to the various communities, meeting places and companies have been in forming joint experiences and references for this collaboration across the Øresund Region. The visits have also made marks on how this report is written in the sense that we use cases and particularly significant stories from those cases as part of our argumentation.

We would like to thank all the people who enthusiastically have shared their insights, thoughts and ideas with us, and helped us get a better understanding of what is taking place within arttech in the Øresund Region.
List of persons interviewed or contacted during this project (in alphabetical order):

- Carla Cammilla Hjort, ArtRebels
- Christian Liljedahl, Illutron
- David Fellah, Designit
- Emma Arfelt, Founders House
- Erik Starck, Malmö Startup Studio
- Enrique Allen, Designers Fund
- Eva Wendelboe Kuczynski, MEDEA
- Heather Martin, Smart Design Barcelona
- James Haliburton, Topp
- Jamie Allan, CIID
- Jacob Balslev, Rokoko
- Katherine Gibson, Aarhus University
- Karolín el-Jaleb, Arabic game, Media Evolution
- Kenneth Larsen, Keystones
- Livia Sunesson, Magnus Torstensson, Erik Sandelin and Nicklas Marelius, Unsworn Industries
- Michael Thomson, Workz
- Mikal Hallstrup, Designit
- Mårten Öbrink, Minc
- Peter Berggren, Malmö Startup Studio
- Oyuki Matsumoto, STPLN
- Sean O’Connor, Smart Design Barcelona
- Simona Maschi, CIID
- Vanessa Carpenter, Illutron and Delta
- Zeenath Hasan, Mitt Möllan
- Zenia Francker, Founders House
- Everyone who participated at the workshop at Mitt Möllan.
How to read this report

Chapter 1 seeks to explore and define arttech and the innovation potential through a series of case examples from the Øresund Region as well as international examples. The Øresund Region’s potential for harnessing artech is described by taking a look at the existing skills and competencies within the region, and how they can benefit the private as well as public sectors by creating innovation and prosperity. A first attempt at evaluating the size of the arttech companies in the Øresund Region also describes their unique combination of skills and ways of working.

Chapter 2 takes a look at what competencies are used within arttech and where these types of competencies and skills are fostered within the Øresund Region. Formal institutions such as universities and schools are described, as well as less formal organisations such as underground communities and maker spaces. The chapter also describes how arttech is being used by other industries and large companies to develop new solutions and innovation.

Chapter 3 takes a look at what is required to ensure the development of the competencies and skills within arttech. A range of meeting places within the Øresund Region are in place and offer offices spaces, incubators, labs and events that nurture and strengthen arttech. The chapter also takes a look at the possibilities of access to capital and the importance of role models to show the opportunities and possibilities within arttech.

In chapter 4 an overview of the arttech industry in the Øresund Region is given in the form of an ecosystem – describing the different elements that must be in place for it to be well functioning. In addition a range of initiatives are suggested that can be implemented in the region to contribute to the development of a strong arttech ecosystem.
Executive Summary

The Øresund Region is a strong economic region where successful global companies already are located. But for the region to remain prosperous and wealthy, it must look ahead and continuously ensure an environment that is attractive to the business community as well as the citizens.

Innovation is taking place in different ways today compared to just a decade ago. The complex challenges faced by society today, affect companies, organisations as well as the public sector. Developing new solutions requires cooperation and partnerships with many companies and organisations that each have their specific skills and competencies within the areas of creativity, technology and user understanding.

These new ways of innovating is found within arttech where creative competencies partner up with technological skills, and form partnerships and communities where innovation takes place in new ways and in multidisciplinary teams.

Arttech should not be defined too narrowly. ‘Art’ refers to the creative competencies, and are founded in the arts, design, interaction design, music and a range of other creative skills. ‘Tech’ refers to the competencies necessary to be able to use the various new types of technology surrounding us today, ranging from software and hardware development, using 3D printers and robots, to working with biological materials. And in some cases even develop new technology. Arttech combines these skills and competencies.

Arttech fosters innovation by merging different mindsets and groups of people in new ways. Technology has become accessible to everyone, and placing it in the hands of creative people, has resulted in new ideas that are beneficial for the creative sector as well as other industries and the public sector. Some of these new ideas are turning into start-ups, thereby creating jobs and prosperity for the region. The ideas are also being used to provide innovative solutions to large, established companies to ensure their competitiveness, and public sector organisations to ensure an efficient public sector.
However, while arttech holds a great innovation potential, it also consists of elements where actors question what happens in society, and might in some extreme events be a challenge to democracy.

**The arttech ecosystem**

A first overview of the arttech actors in the Øresund Region gives the impression of an ecosystem with some strong areas. The strong presence of the creative and technology competencies demonstrate that the region’s innovation capabilities are significant. There is already a movement taking place where the competencies and talents are starting up new companies and working together with incumbents as well as public sector organisation. Persons interviewed for this study see the Øresund Region as a start-up scene which is just as successful as some of the best start-up areas globally.

The building blocks for fostering arttech competencies in the Øresund Region seem to be in place. There are several good universities, institutes, schools and courses that offer students the first and basic skills within creativity and technology. And there are also a lot of students that are interested in attending the courses – arriving from all over the world. However, some of the people we have spoken to within the arttech communities feel that it is hard to keep the students in the region once they have graduated. They are often headhunted to prestigious companies around the world, and feel that there are not similar opportunities for employment in the region. Other students who want to start their own company, often have problems finding the appropriate network and funding to make it possible for them to stay.

The underground consists of several communities that interact with each other as well as with other actors such as schools, local heroes and start-ups. While members of the underground play an important role in fostering arttech competencies through experimentation and play, they also contribute to employing the competencies by arranging events and establishing more formal meeting places such as labs and incubators.
The buzzing underground in the region is an important platform for fostering the competencies needed to turn good ideas and projects into new solutions, services and projects that can be used by private customers as well as large companies and the public sector.

There are a lot of good opportunities for individuals in the Øresunds region to find a space to sit and work or experiment with their ideas in a lab. The underground is vibrant and there are a range of events and meeting places allowing people to meet and play. But there seems to be less opportunities that nurture start-up companies and help them grow. In Copenhagen there are a lot of maker spaces that are informal and that have been established by the underground communities. There are also lot of office spaces and labs that are privately run, but when it comes to more formalised settings and programs such as incubators, there are not very many targeting creative start-ups. In Malmö, the municipality has supported several office spaces, meeting places and incubators within the arttech communities, thereby providing good conditions for entrepreneurs to grow their ideas into start-ups.

During our project we have also observed that the communities, meeting places and events within arttech consist of a rather homogenous group of people. People who do not fit within the stereotype are often scared away and choose not to participate within the communities, resulting in a loss of diversification and most likely creativity. Furthermore, when engaging these communities in hackathons and similar events aimed at creating solutions for the public sector, they might not necessarily represent the group of people that have a stake in the topic, which could be reflected in the type of ideas that are developed.

When it comes to financing the new arttech ideas and start-ups, the region is less well positioned. There seems to be financing available for the early stages of new companies. But when the start-ups want to expand, there is not sufficient capital available. Companies that want to raise large amounts of capital have to go abroad to places like Silicon Valley.

Another element within the arttech ecosystem that seems to need strengthening is the awareness and involvement of local heroes. Demonstrating what popular and well-know role models have achieved.
Suggestions for growing a strong arttech ecosystem

Some of the building blocks for creating a strong ecosystem in the Øresund Region are in place. For the region to work together towards creating the same results on either side of the Øresund, it is necessary to work towards a common vision and create initiatives for the region as a whole.

In an international perspective, the Øresund Region with its Nordic culture and values, is attractive to people within as well as outside of the arttech community who are looking for work or to establish a new company. The start-up culture allows the founders of the company to focus on their ideas and give them more time to experiment and try different ideas than in e.g. Silicon Valley where key employees and investors are looking for results after three months of showing an interest in a start-up company. The region allows for a quality of life where work can be combined with family life and spending time with friends.

With these unique characteristics in mind, we suggest a range of initiatives to enhance the arttech ecosystem and ensure the continuous growth and development of the competencies in the region. The goal with these suggestions is to test them out through experiments and pilot projects in the region to find out whether it makes sense to implement them as permanent initiatives. The goal is to run a three years project where all the initiatives can be tested.

Seven initiatives are suggested:

1. Arttech cluster organisation for the region

It is suggested to establish a cluster organisation for a limited period of time – e.g. for three years during which a project in the Øresund Region can test the cluster concept and develop a business model presenting how it can be self sufficient after the project is completed.

The cluster organisation will be responsible for communication, arranging events, networking, collecting new knowledge and so on within the arttech cluster.
2. Lab for Social Experiments – Arttech Experimentarium
It is suggested to make a place where arttech can unfold by enabling different competencies to meet and experiment and develop new possibilities. Such a place should develop new cross-disciplinary talents that come together to create new radical solutions, and have access to the newest technology and science – either inhouse or by working together with partners.

The arttech experimentarium will be a place not only for professionals, but also open to the public. At this place the actors can organise public engagements with science and technology events. This form of events would benefit from the skills and tools, machines and materials that are gathered at the experimentarium.

Such a place can be established as a lab or a house that is open to everyone, and that is run by the arttech communities in the region. A range of different partnerships can ensure access to the newest technology, equipment and knowledge.

3. Connecting incubators
It is suggested to create a network of incubators, labs, makerspaces and underground communities that would benefit from meeting each other.

Such a network of arttech incubators and communities in the Øresund Region can create events, camps and networking sessions where start-up companies within the region can meet.

Furthermore, they can arrange meetings between the start-ups and established companies or public sector organisations that want to tap into the ideas offered by the start-ups and communities. And the network of arttech incubators and communities could work together with different types of funding companies to help start-ups attain the growth capital they require.
4. Access to finance for arttech

Three initiatives are suggested to improve access to finance for arttech.

*Finance for start-up companies:* It is suggested to create a competition for ideas on how new types of financial sources could be established to cater to the needs of arttech, and invite the actors within the different communities to participate.

*Finance to get across the ‘valley of death’:* It is suggested to create an initiative that can help arttech companies from their start-up phase to a growth phase. This could be done by establishing a new type of fund in cooperation with existing funds.

*Mobilising Business Angels:* It is suggested to create a Business Angel network and fund focusing on arttech companies. Cross border networking events between BAs in the entire region will be tested out, and cross border portfolios will be presented to the BAs at investor events.

5. Diversity at events

There are already a range of successful events in the Øresund Region. But many events such as hackathons or start-up camps do not attract a diversified group of participants. If the organisers of these events want to receive a range of different ideas and solutions, they must also ensure that different types of people attend.

It is suggested that a set of guidelines is developed by a group of representatives from the arttech communities. The guidelines can be tested out during the project period by organising a number of events funded by the project, or by public or private partners.

6. Local Heroes

Local heroes are important role models for aspiring entrepreneurs, creatives and tech nerds. Telling their success stories might help motivate others to take the big step and start their own company.

It is suggested to create an event where well know artists and technologists participate and demonstrate how they are able to develop something together.
7. Affordable office spaces

In all creative metropoles, there are enclaves where creatives cluster together, that have a specific atmosphere and cheap rent. These areas enable informal meetings to take place between a range of different people that work in the area. There is life created by people meeting at all times of day, and events and happenings taking place in the evenings.

It is suggested to establish a team during the project period that works together with the different municipalities in the region to develop a long term plan of how to ensure there are always affordable office spaces available for the creatives and start-ups.
People do not communicate by themselves. If I need art-competencies I would not know where to go. I do not know the companies, I do not know the small creative co-working spaces and I do not know the art-world. That is why it could be great with an intermediator where people can go, if they want an overview of the arttech environment.

Emma Arfeldt, artandtech.dk
ARTTECH AS A NEW DRIVER OF INNOVATION AND TRANSFORMATION
The Øresund Region is a strong economic region where successful global companies already are located. One of the reasons is Medicon Valley, one of the most successful medico clusters in Europe. But for the region to remain prosperous and wealthy, it cannot rest on its laurels, but must look ahead and continuously ensure an environment that is attractive to the business community as well as its citizens.

Medicon Valley has been able to create a successful ecosystem where universities, large companies and venture funds all play an important role. The universities offer world class courses and research to attract talent from anywhere in the world; the medico companies operate in English enabling any nationality to be employed; and there are a range of venture funds and other sources of capital for new companies to establish themselves.

However, the Øresund Region has faced economic growth of only 6 percent during 2000–2009. This is lower than the European average of 13 percent, and significantly lower than comparable regions such as Stockholm County, where growth was 30 percent, and the Helsinki region, where growth was 24 percent during the same period.³

Looking ahead, the Øresund Region must consider where the future innovation capabilities can be found. If the companies in the region want to remain innovative and competitive, they must ensure they have the right talent and competencies available. One of the conclusions from the 2014 Global Innovation Index is that “improving skills is one of the most important ways to fuel innovation, productivity and economic growth, and to improve social welfare as well as equality in a society.”⁴ At the same time, the region must ensure the right framework conditions for new companies to establish themselves – start-ups within the region as well as companies from abroad.

As solutions are becoming more complex and users are demanding easy to use products, many established companies are finding that the competencies they need can not be found in-house or even via consultancies. The Øresund Region is already experiencing an increased demand for skilled jobs, and labour shortages can be seen in industries such as the welfare and health sector, education and ICT.⁵

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⁴ http://www.globalinnovationindex.org/content.aspx?page=gii-home
Arttech – a fusion of skills

The increasing complexity of society affects companies, organisations and public sector institutions. Developing new solutions requires innovation to take place in new ways, with new types of competencies, and in new types of partnerships.

The industrial age contributed to new ways of working and new professions at the time, as well as a desire and opportunity to continuously improve living standards and strive for economic growth. In recent years, global challenges such as climate change, resource scarcity and excessive waste are playing a part in changing the way growth is defined, and new skills and professions are emerging in a world that is moving from the industrial era to a digital age.

Within the creative industries, a new trend is already on the way where creatives are learning new skills as well as working in cross-disciplinary teams together with tech savvy partners.

Arttech is the combination of skills and competencies within creativity and technology, that come together in meeting places with access to materials, tools and technologies. This new way of working together in cross-disciplinary partnerships is driving innovation and benefiting the private sector as well as the public sector.

Arttech should not be defined too narrowly. ‘Art’ refers to the creative competencies, and are founded in the arts, design, interaction design, music and a range of other creative skills. The types of competencies that are important in order to create new solutions include design thinking, user understanding, and the ability to look at problems from a different angle. ‘Tech’ refers to the competencies necessary to be able to use the various new types of technology surrounding us today, ranging from software and hardware development, using 3D printers and robots, to working with biological materials. In some cases new technology is developed. Arttech is thus a combination of these skills and competencies.

The arttech mindset is based on the creative and artistic way of thinking and looking at problems. They often begin the innovation process by considering
what problem needs to be solved, and then develop the relevant solution and technology, always keeping the user in mind. As opposed to more traditional tech start-ups that develop a technology and then try to find what problem they can solve with it. These new types of start-ups are considered design-led start-ups, and often have a set of values that are different from what we are used to seeing in many other start-up communities. They are driven by a wish to make society a better place by developing sustainable solutions to solve grand challenges, and are less motivated by profit and growth.\(^6\)

As the director of the app-development company Cape Copenhagen says about the people who work in the company: “The employees are cycling (spelt) hippies like myself who do not need to find a parking space. It has not been difficult to find employees, even though we do not have high salaries. A gaming developer could find work in e.g. Saxo Bank with a salary that is three times as high. But the salary is not that important if you can work with something that is fun and in the right surroundings.”\(^7\)

Arttech is in other words not only a means for artists and creatives to express themselves, but it is a way of working in cross-disciplinary teams to identify problems, deliver ideas and solutions relevant to society as a whole. It is also worth mentioning that arttech might be an opportunity as well as a challenge to business as usual in terms of growth, innovation and job opportunities, since many actors within the field challenge how and with whom knowledge, information and technology is shared, used and accessed.

Our research has also shown that arttech is not only about innovation or solving predefined, grand challenges. Arttech also has the potential of articulating problems, generating debate and questioning business as usual.

*Heml.is* is an example of this. Founded in 2013 by Leif Högberg, Linus Olsson and Peter Sunde (who also co-founded *The Pirate Bay*), the mission of Heml.is is to make private communication private again.\(^8\) They have created a messaging app where nobody can listen in – not even Heml.is. It works like any other messaging service;

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\(^6\) *New Innovation Actors: Design and Technology in the Interest of Society*, Danish Design Center, 2014

\(^7\) http://politiken.dk/oekonomi/ECE2264830/boom-i-kreative-job-i-koebenhavn/

\(^8\) https://heml.is/
It is very obvious to me that Malmö has a better start-up community than San Francisco does. The designers in Silicon Valley have a lot of talent, but the intent is different from Malmö. Here what drives designers is the love of design, which in return is why we create great design.

James Haliburton, Topp
only your message will be deleted from Heml.is’ server once the message has been delivered. Furthermore, Heml.is is primarily free to use and is an open-source software.

‘Hemlis’ is the Swedish word for ‘secret’, and started as a reaction to the leak from Edward Snowden. It highlighted the need of a messaging service that cannot be under surveillance by companies and governments. Thus, Heml.is is both innovating the messaging service and creating awareness of a societal issue.

**A brief history of arttech**

Combining art and technology is nothing new. In the late 1960’s and onwards the collaborations between artists and engineers organised as Experiments in Art and Technology (EAT) pioneered the field, seeing engineers facilitate artistic projects such as in the Bell Lab Projects. At the same time, there were counter movements such as Fylkingen and Electronic Music Studio (EMS) in Sweden, that involved developers from Saab, artists and composers, and where the communities organised themselves so that users more widely had access to the production facilities.

EMS also explicitly recognised their role as artists and engineers as part of societal change, acting with a critical and constructive drive. The new technologies at the time were used to figure out how one could live and understand the world.

Contemporary arttech practices, products, collectives and meeting places are kin with earlier attempts to combine art and technology and share similar concerns and conflicts. At the same time the pre-conditions are different, for example, in terms of what societal problems that are registered, what technologies are at hand and how skills are distributed.

**Arttech in the Øresund Region**

The Øresund Region accounts for 27 percent of the combined GDP of Sweden and Denmark. However, it is still thought that the region has an unexploited potential.

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35 percent of the population has a higher education, which is above the national average in both Denmark and Sweden and approximately 150,000 students are enrolled at the region’s 11 universities and higher educational institutions. Furthermore, the region is ranked 10th of 232 European regions regarding the amount of employees in knowledge-based industries.

The creative industries as a whole, is one of the largest industries in Copenhagen with about 140,000 people employed, representing 15 percent of the employed workforce. A study made of the creative competencies in Skåne, based on the definitions used by Richard Florida, show that the share of creatives amount to 19 percent. Even though the two studies use different methods to determine the number of creatives in the region, they still show that the region employs a large share compared to other types of industries and compared to other regions.

James Haliburton, CEO at Topp, has located his company in the region for that particular reason:

“Being a design studio in Skåne is fantastic. I think there is one of highest concentrations of UX [User Experience] designers in the world in Malmö. It is very obvious to me that Malmö has a better start-up community than San Francisco does. The designers in Silicon Valley have a lot of talent, but the intent is different from Malmö. Here what drives designers is the love of design, which in return is why we create great design.”

However, there are different specialisation skills within the region. Within high-tech service production, that accounts for almost 50 percent of the jobs in the region, the Southwest of Skåne has four times the amount of people specialised within natural science and technical research and development, compared to the average of Denmark and Sweden combined. While the Capital region has three times the amount of people specialised in social sciences and humanities research and development.
This can be recognised by Peter Berggren from Malmö Startup Studio, who works on connecting start-up companies with new business opportunities:

“Our clients are very tech-oriented, and we have a very good technological foundation. However, we have a problem finding the creative talent (in Malmö) for our technological clients.”

The high concentration of creative workers with different specialisation indicate a potential for creating a platform for increased interaction between the national regions in the Øresund Region, bringing together creative and technology competencies.

Arttech companies and communities often work with new technologies such as virtual reality techniques and immersive technologies, making it possible to create new types of experiences. But artists working with technologies are not limited to what is widely considered the ‘new’. Rather, the new could be understood as new relations of what was already there, and new relations that make new usage or patterns possible.

**The innovation potential in arttech**

Arttech fosters innovation by merging different mindsets and groups of people in new ways. Technology has become accessible to everyone, and placing it in the hands of creative people, has resulted in new ideas that are beneficial for the creative sector as well as other industries and the public sector. Using the most relevant technologies on whatever challenge, sometimes requires looking at things from a different perspective, breaking old habits. Arttech can offer new ways of looking at problems and come up with new types of solutions.

Some of these new ideas are turning into start-ups, projects and communities. The ideas are also being used to provide innovative solutions to large, established companies to ensure their competitiveness, and public sector organisations to ensure satisfied citizens and an efficient public sector.

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18 Interview with Erik Starck and Peter Berggren at Malmö Startup Studio.
We need the technology, and are still developing it, but we want to open it up. So we are planning to start a crowdfunding campaign and go open source. We want to make all our code publicly available, and invite all the makers to join us, to create and explore stuff with us.

Jakob Balslev, CEO, Rokoko
An example of an arttech start-up is *littleBits* from New York that is founded by Ayah Bdeir who is an artist as well as an engineer. She has developed small electronic modules that easily click together, giving anyone the possibility of building whatever they can imagine – ranging from a thermostat for your home or a watering device for your plant – or merely just to have fun as if building with bricks. In just two years, the company has grown to 30 employees with sales of several hundred thousand units in 2013.

**CASE: littleBits**

littleBits is a New York based start-up company founded in September 2011 by Canadian interaction artist and engineer Ayah Bdeir. littleBits’ mission is to make it possible for everyone – not just experts or engineers – to become inventors by putting the power of electronics in the hands of everyone.

littleBits modules are small circuit boards that each have a special function (light, sound, sensor, switch on/off button, socket, pulse, motor etc.) and that click together with magnets in chosen circuits and simplify the development with sophisticated electronics. The company has a clear goal to move electronics from late stages of the design process to its earlier front-end stages.
littleBits also develops programs for teachers and educators around the world to incorporate the modules into the instruction and teaching of electronics and prototyping.

littleBits is born out of the Maker Movement and is a so-called open source library with over 60 electronic modules making endless combinations possible. All of LittleBits’ designs are publicly available so that anyone can see, use and adapt them to their needs.

Until today littleBits has won 20 national and international prizes. The company consists of 30 employees and sold hundreds of thousands of units in 2013 in 60 countries. The units are sold in sets ranging from US$ 99-199.

http://littlebits.cc/

Another successful arttech start-up story is the presentation software, Prezi, from Budapest. It was founded by an artist who coded the first version of a presentation software, and who joined forces with two developers to turn their ideas into a product that could be used by others. Within five years, Prezi has grown from 3 people to 180 employees in 3 countries.

CASE: **Prezi**
Prezi is a presentation software, where you have one big virtual canvas that you can zoom in and out of; like a big map, where you put up your ideas, text, videos etc.

Prezi was created 10 years ago by well renowned media artist Adam Somlai-Fischer who with his artistic approach programmed and created a visual presentation tool for his own use. It was never Somlai-Fischer’s intention to create a business. Prezi was officially established in 2009 by co-founders Adam Somlai-Fischer, Peter Halacsy and Peter Arvai and with support from Kitchen Budapest* and Magyar Telekom.

* http://kitchenbudapest.hu/#/
From being 3 people 5 years ago Prezi now employs 180 people from 30 different countries and has besides the headquarter in Budapest offices in San Francisco and Korea. In those 5 years it has received several international awards, has more than 30 million users worldwide and more than half a billion Prezi presentations available on their website.

Prezi has its headquarter in a 100 year old telephone exchange central in the heart of Budapest and even though it would be easier to run the company from Silicon Valley, Fischer insists on staying in Budapest. In that way he can support and help other creatives and Budapest start-ups and therefore the headquarter also functions as a meeting place and conference space for the creative art and tech community.

The Danish Investor Sunstone Capital has invested in Prezi.

Source: http://prezi.com, Interview with Adam Somlai-Fischer by Henrik Føhns, Harddisken P1, Danish National Broadcasting Corporation

Within the Øresund Region there is a range of start-ups coming out of the incubators and underground communities. Hövding is a start-up coming out of the incubator Minc in Malmö, where a range of other arttech start-ups are based. The idea was developed by two industrial designers while completing their final exams at the
University of Lund in 2005. They developed a new type of cycling helmet consisting of a collar with an airbag inside, which is worn around the neck, with sensors that track the movement of the cyclist. If the cyclist has an accident, the collar inflates, protecting the entire cranium. They have been able to raise about SEK 85 million in capital and launched their product on the market in 2012. Today they are 20 employees in the company with backgrounds from industrial design, mathematics and electrical engineering as well as airbag experts.

CASE: Hövding

Hövding was founded in 2006 by industrial designers Anna Haupts and Terese Alstins. They wanted to find out what it would take for adults to start using bicycle helmets. They started by asking a range of people what they wanted from a helmet.

They discovered that many people wanted to use a helmet, but not at any cost. People wanted their helmet to ‘look good’, ‘be small enough to put in my pocket’, and ‘invisible’. The word invisible led them to the idea of Hövding.

They worked together with mathematicians to track the movements of cyclists when they have an accident. By looking at several hours of footage of real bicycle accidents and crash tests, they gathered all the data in an algorithm. They developed a sensor in the collar that tracks the movement of the cyclist and inflates if the cyclist shows a movement of having an accident.

To ensure that the collar does not inflate due to sudden movements, they also developed an algorithm that tracks movements such as picking up something you have dropped on the ground, or running up and down a flight of stairs.

The Hövding collar is scored as being the safest bicycle ‘helmet’ by far when compared to the traditional ones. For the first time in the bicycle helmet industry, someone has taken a new look at the problem and solved it by taking a different approach and using different types of materials.

Hövding has received several awards, one of them is the INDEX: Design to Improve life Award in 2011.

http://www.hovding.com

A more recent start-up is the Danish company Rokoko. The company was started by two students from the Danish Film School, who began experimenting with the coupling of animation and live acting, at that time calling their company Cinema dell’Arte. Their curiosity led them into collaboration with an engineer, and together they developed a suit with transmitters and sensors, enabling interactive theater shows.

Based on the technology and knowledge from Cinema dell’Arte, they founded Rokoko and are now working on developing specific products such as an interactive tool that makes it easier for autistic children to communicate with therapists as well as interactive advertising tools for public spaces.
CASE: **Rokoko**

Cinema dell’Arte was established in 2011 by Jakob Balslev og Petter Madegård, and was given its new name, Rokoko, in 2014.

By hacking and reusing transmitters from cellphones, Rokoko has been able to engineer a low cost motion capture animation technology and develop a theater concept in which the stage performers via the specially designed suits, live-feed animated characters with movement and sound.

The actors wearing the suit appear as animated figures in real-time on a screen in front of the audience, making it possible for the actors – as well as their animated avatars – to interact with the audience during the show.

The founder and CEO Jakob Balslev now employs eight people from as diverse backgrounds as engineering, acting and business and is looking into hiring an anthropologist to help understand how different groups of people react to different types of animated characters.
“We need the technology, and are still developing it, but we want to open it up. So we are planning to start a crowdfunding campaign and go open source. We want to make all our code publicly available, and invite all the makers to join us, to create and explore stuff with us.”

Jakob’s ambition for Rokoko is not to scale up as a technology company, selling a specific piece of hardware. Rather, his goal is to develop a versatile and flexible platform of services around their motion capture technology, which is being developed on an open source basis.

Cinema dell’Arte entered the Creative Business Cup in 2013 and was awarded a monetary prize of DKK 10,000. Rokoko is participating in Danish Tech Challenge in the autumn of 2014, with the possibility of winning DKK 0.5 million.

http://rokoko.co/

A different type of arttech company is Topp in Malmö. They offer strategic design services and prototyping, using a multidisciplinary approach, combining competencies from interaction-, concept-, industrial-, motion- and visual design as well as user research.

CASE: Topp

Topp is a start-up design company located in Malmö. Topp work with companies and organisations that are concerned with what they call ‘emerging technologies and behaviour’ in complex cross-industry spaces such as ‘the internet of things’ and home automation.

In an interview with one of the founders, James Haliburton, he tries to define the cross-industrial space in which Topp is operating: “The unique skillset that we cultivate, is in fact the ability to take a design repertoire and apply it to something unknown.”
“Mobile defined an approach to ecosystems and platforms, coupled with a focus on user experience that hadn’t really been matured in other industries in the same way. So what is happening now is that we are seeing other industries – medico, consumer electronics, automotive – all trying to replicate what happened in mobile. But more interestingly, they are trying to integrate into these spaces, which is why you see this matrix of different industries coming together. That is really the space that we are addressing. This intersection between different industries and more importantly, the intersection of different behaviours of people, and trying to address human needs across these spaces.”

Since 2013, Topp has doubled its staff, now counting 16 people, and is in business with companies like Samsung. When explaining why Malmö was chosen as a location for Topp, Haliburton says he believes Malmö has one of the highest densities when it comes to skilled user experience designers per capita in the world.

Source: Interview with James Haliburton, Co-Founder Topp
http://www.toppstudio.com/

**Arttech as an ingredient in solving grand challenges**

By taking a different view on complex problems such as the grand challenges facing society, arttech can contribute to developing radical and systemic innovation.

One example is Studio Roosegaarde in the Netherlands. The studio consists of a group of creatives, designers and engineers that work in their social design laboratory with projects that are meant to create awareness regarding sustainability. They develop their own technology on projects, and work on projects such as the Smart Highway that aims to make the roads safer and more sustainable, and The Smog Free Project that aims to create awareness about air pollution.

To Roosegaarde this is all part of how art can contribute to environmentalism, and how design is not just about making chairs or tables, but about ‘improving life and science’. ²¹

At the moment, Roosegaarde’s team of experts are collaborating with the Mayor of Beijing to create the cleanest park in the city. Furthermore Beijing Design Week have from 2014 launched a 3 year collaboration for a Smart City, including a Smog Free Park.

**CASE: Studio Roosegaarde**

Studio Roosegaarde is an artistic and social design laboratory opened in 2006 by the Dutch artist and inventor Daan Roosegaarde. The team consists of creatives, designers and engineers and is based in Waddinxveen, Netherlands. In 2011 Roosegaarde opened a second location in Shanghai in China.

Studio Roosegaarde’s multidisciplinary team works in the intersection of art, new media and emerging technologies and creates public site-specific art installations and interactive designs that explore the dynamic relation between space, people and technology.

The studio is known for projects such as the Sustainable Dance Floor that generates electricity when you dance on it; Smart Highway that is an interactive highway with embedded technology that can visually communicate when the road is slippery, charge your electric car as you drive, and generate electricity for its own lights; and the Smog Free Project that is an ‘electronic vacuum cleaner’ that literally cleans the air and sucks out the smog particles.
With ‘Smart Highway’ Roosegaarde won ‘Best Future Concept’ at the Dutch Design Awards in 2012 and the INDEX: Design to Improve life Award in 2013.

http://www.studioroosegaarde.net/info/

Another example of how the different environments within the arttech industry have a wish to participate in offering solutions for some of the grand challenges, is the Land Art Generator Initiative.

Feeling the urge for society to adapt to new forms of energy, the initiative which was born in the USA, has a goal to create awareness of possible solutions as well as inspire and educate citizens, the business community as well as the public sector responsible for providing energy solutions.

**CASE: Land Art Generator Initiative (LAGI)**

With the phrase ‘Renewable energy can be beautiful’ artist and designer Elizabeth Monoian and architect Robert Ferry founded LAGI in 2009 to bring together artists, architects, scientists, landscape architects, engineers and others to integrate art and interdisciplinary creative processes into the conception of sustainable design solutions and renewable energy infrastructure.

The core in LAGI is their biennial design competition. It is an open, global design competition where art installation ideas are required to capture energy from nature and cleanly convert it into electricity to provide power to the surrounding city. It has to be safe and enjoyable for the viewing and interacting public, be constructable, must respect the natural ecosystem on the site and be aesthetically beautiful.

In 2010 the LAGI competition was situated in Dubai, in 2012 in New York City and in 2014, LAGI is running its third competition in Copenhagen with hundreds of multidisciplinary teams from all over the world submitting their ideas.

http://landartgenerator.org/

In the Øresund Region there are examples of artech companies and communities working with the public sector to develop solutions for some of the complex problems faced by the cities. In 2013 the city of Copenhagen wanted to implement a new Intelligent Traffic System (ITS) that could help solve the congestion challenge as a result of 1,000 new inhabitants moving to the city every month.

Facilitated by the Danish Design Centre a group of specifically chosen people were brought together, including representatives from the artech community, to discuss the congestion challenge faced by the city. The group consisted of designers and creatives who spent the day discussing how to define the problem. Instead of taking the defined challenge at face value, they took a step back and sought to reframe the problem. Only once the problem is defined appropriately, is it possible to start developing solutions. As a result of the ChangeWorks session, the city of Copenhagen engaged in eight private public innovation (PPI) projects with different consortia, where many of them include artech start-up companies.

CASE: ChangeWorks at the Danish Design Centre

In 2013, the Danish Design Centre (DDC) worked together with the Municipality of Copenhagen when they wanted to procure new Intelligent Traffic Solutions (ITS). DDC brought together a team of people with a range of different competencies. Among them were academic experts on the built environment and traffic, architects, engineers, designers, artech start-ups and citizens of the city of Copenhagen.

The group’s task for two days was to discuss what challenges Copenhagen as a city faces in relation to the increasing amounts of cars and bicycles. During the ChangeWork session, challenges such as “how can the roads in the city be used for different purposes during different times of the day” were identified.

Instead of going ahead with the planned procurement of ITS, the Municipality decided to engage in public private innovation (PPI) projects with eight different consortia. The consortia received funding from one of the public funds belonging
to the Agency for Business, and were able to test and pilot their ideas. Some of the ideas include using the roads for cafés at certain times of day, and providing real-time data to travelers on what method of transport is faster – bus, bike or car – for a specific journey.

During 2014, these eight consortia are completing the pilot projects based on their ideas generated during the PPI process. The municipality will invite for calls for proposals during the autumn/winter of 2014.

The consortia that have participated in the PPI work, have gained insights into the challenges facing the municipality. The time invested in the projects will be useful for the companies when they want to develop smart city solutions in the future – an area where many cities globally are demanding solutions.

Source: Interview with Iben Hansen, DDC
When the city of Malmö wanted to discuss with the citizens what Malmö could look like with less traffic on the streets, the city approached Unsworn Industries, an interaction design and innovation company in Malmö. Based on ideas from citizens, they visualised a future city, showing specific examples of places in the city with new cycle paths or pavements. The visualisation can be seen through a Parascope, a set of binoculars that allows you to experience the future environment.

**CASE: Unsworn Industries**

Unsworn Industries is an interaction design and innovation studio based in Malmö, founded in 2008 by Erik Sandelin and Magnus Torstensson. The company now has 9 employees with various technical, artistic and creative backgrounds.

Unsworn Industries operates as an exploratory and thoughtful enterprise fuelled by an ongoing curiosity of people and a sense of care for the world we all live in. They believe in combining an experimental and innovative practice and in using technology to accommodate human needs, desires and behaviour.
One of their projects is the parascopes, developed for the Street and Parks Department of Malmö City, to work as a platform for giving shape to and fleshing out some suggestions on how to reduce car traffic in Malmö. The Parascope resembles a scenic viewer binoculars but instead of showing the here and now, it gives you an experience of the future environments displaying several visualisations of how things might be in the future in that particular place.

Unsworn Industries has gained an international reputation as pioneering designers, artists and educators and has made projects, products, systems and services all over the world.

http://www.unsworn.org/
Chapter 2

FOSTERING ARTTECH COMPETENCIES
Arttech competencies are found in either cross-disciplinary teams or hybrid persons. The teams and persons are able to deal with complex problems, and their way of approaching the problems enable them to find solutions that are highly innovative.

The creative skills that form part of arttech, can be obtained by formal training at a university or institution for design, interaction design, arts, architecture, film, music, theatre or similar. The more technical skills are attained at a university or institution with technical subjects such as engineering or programming. Teams or people possessing arttech competencies have a combination of these skills. Sometimes the skills can be spread out among different people in a team or a company, and other times the skills can be found in one person.

In some design consultancies, such as Designit in Copenhagen, they refer to these types of people as X-shaped. Moving away from the T-shape person, where a person has an expertise in one particular area, but still allowing them to collaborate with others, X-shaped people have expertise in several areas, enabling them to handle several different types of jobs while working in a team. In consultancies such as Smart Design in Barcelona, they encourage employees to continue educating themselves so they can become X-shaped.

However, arttech competencies are not only achieved through formal training and education. For the creative industries, and in particular the arttech community, the underground plays an important role in bringing together creatives, technology nerds and hybrids, to experiment and play with new ideas. These underground communities are created from the bottom up, driven by passionate artists, technologists and entrepreneurs.

22 Interview with David Fellah and Mikal Halstrøm, Designit
23 Interview with Heather Martin and Sean O’Conner, Smart Design
Education providing competencies

There are a few universities and schools in the Øresund Region that provide students with some of the skills and competencies that enable them to become multidisciplinary within the areas of art, design and technology. One example is the School of Arts and Communication, K3, at Malmö University.

CASE: School of Arts and Communication, K3, Malmö University

The School of Arts and Communication, K3, is a department at Malmö University, with more than 900 students and approximately 75 employees, where traditional scholarship and academic knowledge is combined with artistic methods and practical skills. In teaching and research, art, technology, design and communication converge in new and innovative ways.

K3 runs more than 9 programs and about 30 courses on design theory, media and communication studies, visual communication, interaction design, graphic design and a number of practical courses on various kinds of media production.

An explicit aim at the start of the school in 1998 was to combine theory and practice, which still is the case.
Teaching and research at K3 is often done in collaboration with external actors. One example is the Living labs that have been run by researchers in close collaboration with the city of Malmö and NGOs in and around Malmö. These collaborations and others have been incorporated in the teaching curriculum.

http://www.mah.se/k3/english

At the Copenhagen Institute of Interaction Design, CIID, focus is placed on teaching cross-disciplinary competencies to the students who attend the courses. Even though they are a small, and relatively new institution, they are globally known, and receive thousands of applications yearly for the 25 spaces available. The one-year course is open for students of any educational background to attend.

CIID offers the students an integrated entrepreneurial design environment, maker space workshops, a faculty and highly professional staff to work together in an international, multicultural and multidisciplinary studio environment. As a benefit for the students CIID attracts a diverse selection of international visiting faculty who are regarded as experts in their fields.

More than half of the students are employed after graduating and the other half start up their own business during the school year. Furthermore, students as well as faculty members from CIID often participate in the underground communities in Copenhagen and Malmö.

CASE: CIID

The Copenhagen Institute of Interaction Design (CIID) was founded in 2006 by a group of designers from the Italian Interaction Design Institute, Ivrea. Coming from the USA, UK, Italy, India and Israel they wanted to create a world leading institute of interaction design in Copenhagen. The goal was to bring together inspirational international faculty, diverse students, clients and partners from all around the world to create an energetic and collaborative design culture.
CIID is a private institute that now encompasses a world-renowned and award-winning education (recently listed as one of the world’s top 25 design schools, by Business Insider Magazine and moreover voted as the second best design education in Europe), a cutting edge research group and an award-winning consultancy.

Creative thinkers
Fine Arts
Architecture
Visual Communication
Fashion Design
Graphic Design
Product Design
Industrial Design
Game Design
Interaction Design
Typography
Photography
Journalism

Technical thinkers
Media Engineering
Mechanical Engineering
Network Engineering
Physics
Innovation Theory and Methods
International Political Economy
Psychology
Sociology
Material Technology
Computer Science
Electrical Engineering
Mathematics

Cross-disciplinary design practitioners who work in teams
Creative technologists are key

The education programme at CIID admits 25 students every year from all around the world out of a pile of thousands applicants. Each student pays DKK 100,000 in tuition fee to attend CIID.

http://www.ciid.dk
In addition to K3 and CIID it is worth mentioning the Interactive Institute Swedish. The creation of Interactive Institute Swedish originated in an initiative from the IT group of the Swedish Foundation for Strategic Research (SSF) in the late 1990’s. New technology invaded people’s homes and workplaces fast, and since all these new devices and systems were going to be used by basically everyone, the need to involve more competencies and perspectives in this development became quite evident. In 1997, a number of proposals were made and submitted to this group by Swedish universities and university colleges.

From 1999-2004 Michael Thomsen (today partner and development director at Workz in Copenhagen) acted as head of research at the Interactive Institute. He explains how the institute to a large extent tried to create research and development in the field between art and technology. In addition, he highlights a model that he used as a framework for the research project at the institute developed by Rich Gold, and presented in the book ‘The Plenitude – Creativity, Innovation, and Making Stuff’.

Art and science are characterised by being introverted and searching for the truth, and the designers and engineers are extroverts and are searching for what will work. One might say, that the artist paint a picture, and says, “Look! Isn’t is beautiful?” whereas the designer says “Is it good enough? Will this meet the needs?” – there are always an outside world to be approached. Art and science are financed by its Maecenas, and evaluated by their equals – their peers. And design is financed by its clients and evaluated by its customers.

It is in the field between these different approaches and mind-sets that new ideas are brought to life. When Michael Thomsen was with the Interactive Institute he found the artist presence in the research teams of great value. Among others because they have a habit of challenging and breaking the boundaries, which most often is very healthy to any projects or teams dealing with new content.
CASE: The Interactive Institute Swedish

Today the Interactive Institute Swedish is a private experimental IT & design research institute with 8 studios across Sweden focusing on information and communication technology, interaction design, and visualisation. The institute employs 55 people and operates in 8 Swedish major cities with a head office in Stockholm. In percentage
The Interactive Institute is funded by: National research funding 42%, national and international industry 33%, governmental funding 15%, EU project funding 10%

"The Interactive Institute is a truly unique initiative, which focuses on aesthetics and creativity by combining artistic development with research in design and technology. In addition, it is a real-life experiment in the organization of cross-discipline research combining art, design, anthropology, computer science, interaction design, ethnography and many other disciplines."

Staffan Truvé, Chairman, Interactive Institute Swedish

The institute use the latest technologies, user insight knowledge and creative approach in creating and offering user experiences and expertise in interaction design, visualization, user behaviour, sound design, games and entertainment. Their results, services and products are developed in close collaboration with industry and society, exhibited worldwide, and brought out to society through commissioned work, license agreements and spin-off companies. Both Mindball and DigiWall are spin-offs out of the institute.

http://www.tii.se/
http://www.mindball.se/
http://www.digiwall.se/
In addition to the more specialised universities and institutes, there are a range of other universities and schools in the Øresund Region such as The National Academy of Digital Interactive Entertainment (DADIU), The Technical University of Denmark (DTU), The IT University (ITU) etc.

While the universities and schools in the region seem to be of a high standard, many of the institutions that have a more creative focus, such as within design and architecture, do not focus on skills related to entrepreneurship and how to start a business of your own. Those types of courses are mainly found at the technical universities and business schools.24

**The underground – new competencies driven by passion**

Open source hardware and software, such as Arduino, and platforms for sharing code and exemplars, has made technologies more accessible and easier to do it yourself or together. In line with this we can also witness an opening of production and an interest in sharing economies such as commons.25

This development has fuelled the hacker and maker movements, bringing together various types of people who want to have fun and try out new technologies and ideas. Simultaneously, the development has resulted in people working together in new ways, forming new types of partnerships that are based on openness and trust. Access to technology, knowledge and partners has also made it possible for new solutions to be easily distributed and used – allowing start-ups and underground environments to develop new products and solutions that can easily reach users and customers. As a result, what goes on in the underground has an impact on the rest of society and the business community.

The underground is vital for creative industries. Here the participants are passionate creators who stimulate competencies and use them in new ways. The underground consists of staff from the educational sector, students, entrepreneurs and other types of independent workers and artists. They have their own places where they meet to

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24 Inkubator med fokus på Arttech, Dansk Design Center, 2014
experiment with new ideas and technology, and their work often has no other purpose than to test things out and have fun. These underground environments are driven by the passion of individuals, and provide a space for people to learn and develop new competencies. What takes place in the underground cannot be learnt anywhere else.

In the Øresund Region there are underground places such as Illutron, Labitat, PB43, Science Friction and Forskningsavdelingen where members of the different communities get together to ‘play’ but where they also work on projects and installations that are exhibited.

CASE: Illutron

Illutron is a collaborative interactive arts studio in Copenhagen that explores the realm where art and technology meets. The studio was formed in 2007 by a group of artists, performers, programmers, electricians and musicians, who bought an old industrial barge placed in the South Harbour of Copenhagen.
The two primary values that the place is driven by is “to create a community around creative, artistic usage of technology, and to build an open platform where people could explore driven by their own curiosity”. The work that is carried out at Illutron is done both individually and collaboratively.

Illutron has both free-for-all activities such as ‘Open days on the barge’ where anyone is invited to come and learn new skills, but also member exclusive activities aimed at enhancing the community and developing specific projects. While most of their work seems to be guided by curiosity rather than making a profit they also do work on commission such as interactive installations for the Roskilde Festival.

In 2014 they received financial support from the municipality of Copenhagen to help pay the rent of the space for their barge.

http://illutron.dk/

**CASE: Science Friction**

Science Friction is an Art and Technology studio, workshop and gallery situated in Nørrebro, Copenhagen. It was founded in December 2011 by a group of six international artists, practitioners and technologists and ever since, Science Friction has developed into a solid Danish ‘Arts and Technology’ platform with global reach and local impact. The studio exists to create local and international opportunities for the creative investigation of the technological hardware of culture and passes across contemporary art and design culture, as well as Do-It-Yourself (DIY) and hacker cultures.

Science Friction’s studio space is reconfigured as a pop-up exhibition venue, an occasional performance space, and a laboratory for the production of new works. Each member of the Science Friction team brings something particular, through established and evolving networks, expertise and interests spanning contemporary art and curatorial practices, design, scientific investigations, creative cultures, electrical experimentations and software engagement.
One of the prime movers of Science Friction is Canadian born Jamie Allen who has been involved with emerging technologies as a designer, researcher, artist and teacher for over 12 years. Allen is Senior Researcher at both the FHNW Institute of Experimental Design and Media Cultures (Critical Media Lab) in Switzerland, and the Copenhagen Institute of Interaction Design (CIID).

In 2012 Science Friction was awarded a grant of DKK 150,000 by the Danish Arts Foundation to establish their new exhibition space.

http://www.sciencefriction.dk/

CASE: Labitat

Labitat is part of the international hackerspace movement that offers an environment for open and democratic sharing of knowledge. In five years, Labitat has grown to approx. 900 members where 100 of them are paying members. Labitat is situated in Copenhagen and currently have equipment for woodworking, welding, electronics work, 3D printer etc.
Several of the core Labitat members have been invited to be a part of ideation processes in public/private partnerships where the essence is to work on future challenges together with a business minded multidisciplinary team. They add value to brainstorm- and innovation processes as their approach to solving challenges are radically different than the ‘business mind approach’.

Based on similar foreign initiatives that have demonstrated successful results Labitat are working to create an extension of Labitat to a public research institution and an incubator under the same roof. The physical areas have been expanded to include the ‘Biology Garage’ as well as a prototype and design workshop, in addition to the already existing workshops.

The people who are members of the different communities of the underground, are often connected to educational institutions, start-ups or other organisations within the creative and arttech industries. This can also be seen in the Øresund Region, where projects and partnerships involve different communities and organisations, within Copenhagen and Malmö, but also between the two cities.
**Arrtech providing innovation for industry**

While new competencies are being fostered and developed at schools, universities and in the underground, large companies are finding themselves challenged by a lack of those competencies. They are not developed in large corporate environments, and the large companies often do not know where to look for the people that possess these new competencies.

The large pump manufacturer Grundfos has realised that it is necessary for them to work and experiment in new ways. One of the former CEOs, Nils Due Jensen, says “Grundfos realises that it is necessary with external competencies and partnerships to develop new sustainable water solutions, and that the partnerships will have to be with different types of disciplines previously not necessary and with no tradition of being employed in our company.”

The CEO and founder, Bent Jensen, of Danish manufacturing company Linak would also like to work with companies that have different competencies than the ones found in his own company. But as he says “if there are companies experimenting with using technologies in new ways, we would like to work with them. But how do we find them, when we do not even know if they exist?”

The large companies that want to access arttech competencies through consultants, can no longer approach the same type of consultancies they have been using for years – management consultants, design consultants and so on do not have the competencies sought after by the large companies.

One attempt at creating such a new type of consultancy is DELTA’s IdemoLab north of Copenhagen. They work with interaction design and use electronics to create a range of solutions such as equipment for patients with back problems to ensure they exercise in the correct way or an intelligent pillbox to remind people to take their medication at the right time of day. One of the founders of Illutron, Vanessa Carpenter, was asked to join the new Lab.

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26 Interview with Niels Due Jensen, Chairman of the Board, Poul Due Jensens Fond
27 Interview with Bent Jensen, Linak
CASE: **IdemoLab (DELTA)**

Located in SCION – a science and technology park in the vicinity of the Technical University of Denmark (DTU) – DELTA is a technological institute certified by the Ministry for Research, Innovation and Education. DELTA’s main services is to test, measure the quality and improve products prior to their marketing.

IdemoLab is a department within DELTA that provides customers with advice on product refinement based on insights from a specific kind of design research called ‘Electronic sketching’. Electronic sketching is a user-participatory method that applies the electronic building blocks, IdemoBits, developed by IdemoLab.

IdemoBits can be used by persons without any prior knowledge of electronics and programming to form circuits that take up specific functions. This way, IdemoBits provides a plug-and-play method for engaging manufacturers and end-users in a hands-on and co-creational exploration of ideas.

An example of a product that this approach has resulted in, is the Intelligent Pillbox. The pillbox knows if you have taken your pills, and emits a warning if you haven’t.

[http://www.delta.dk/dk/Forr-omr/emerging-business/idemolab/elektronisk-skitsering.page](http://www.delta.dk/dk/Forr-omr/emerging-business/idemolab/elektronisk-skitsering.page)
In addition, DELTA is funding and equipping the Open Electronics Lab at the creative office space, Republikken, giving DELTA access to the creative people on site. An employee from DELTA spends two hours a week mentoring the creative entrepreneurs, hereby enabling DELTA to follow what goes on within the creative communities.

To be able to have access to the creative and technology competencies, some large companies are approaching arttech communities that are part of the underground. In Copenhagen, the hackerspace Labitat was approached in 2013 by Novozymes that were hoping to get new ideas by getting different competencies involved in their work.

Labitat received DKK 100,000 in funding from Novozymes to expand the workspaces and establish a DIY (Do-It-Yourself) bio-laboratory named the ‘Biology Garage’. The laboratory is an open creative space where anyone with an interest in natural science can meet, play and share their ideas, thoughts and inspiration.

Labitat says about the ‘Biology Garage’: “We hope to foster a culture of citizen science with biological focus and to develop knowledge, tools and software that are available for people to develop solutions based on their personal, local and specific needs. Our aim is to assist local associations, forward-thinking industrial partners and citizens in creating awesome biological projects.”

In general, Labitat is experiencing a growing external interest in the ‘hackerspace’ and Novozymes financial contribution to realise the ‘Biology Garage’ is an expression of an industry that sees possibilities in playful testing, creativity and open source knowledge sharing as a method of future innovation – even outside its own company walls.
Grundfos realises that it is necessary with external competencies and partnerships to develop new sustainable water solutions, and that the partnerships will have to be with different types of disciplines previously not necessary and with no tradition of being employed in our company.

Nils Due Jensen, former CEO, Grundfos
NURTURING ARTTECH
Arttech talents are a curious breed who are constantly experimenting, developing themselves and evolving their competencies. They thrive in environments where they can meet new inspiring peers, and participate in stimulating events where they can socialize with experts in various fields of knowledge.

Nurturing these talents and competencies is key to creating a successful arttech industry and surrounding ecosystem, and is the reason why we have focused our attention on how well the meeting places are functioning and the access to capital.

Driving forward the development that takes place in the underground are often people we call local heroes. These persons might be successful entrepreneurs and artists that are admired in the community, and that have created successful start-ups, events or other initiatives. Local heroes play an important role in nurturing arttech talents and motivating them to start their own companies by being role models. They are interested in seeing their local community develop, and often invest their own funds in new projects, taking on the role of business angels and mentors, as well as being active at events and in local politics.

For ideas and project to turn into new companies, a financial infrastructure must be in place in the region. As with any type of entrepreneur, finding funding in the early phases is hard. There are only a few funds that specialise in investing in creative start-ups in the region. However, according to some of the persons interviewed, it is not the early stage funding that is the greatest barrier. When a start-up company wants to grow and expand beyond the region, that often requires large sums that are difficult to raise within in the Øresund Region.
The playground for arttech – meeting places

Meeting places play a significant role in developing talents and competencies by creating spaces where cross-disciplinary teams can meet and work on ideas. In our studies we have encountered several kinds of meeting places. They range from incubators, office and studio spaces, restaurants, events, social media platforms, maker spaces and more.

In these different meeting places we can also see how different ways of combining art and technology are performed. It can be that artistic practices travel or are brought into a traditionally technologically driven context, or the other way around. Or that new kinds of spaces are created. In some cases the role of the artist and the engineer is kept separate whereas in other cases skills are merged.

The selection of cases on meeting places, has been based on the criteria that they are not solely physical nor solely virtual/web-based community spaces, but somehow combine the two.

It should be noted that arttech in the Øresund Region is not only done in the Øresund Region, but can also involve actors that move between the Øresund Region and other international meeting places. This means that the arttech ecosystem involves actors based in and moving between various locations.

The examples of meeting places that we bring in are very varied. Several have connections to public institutions, such as partly publicly financed office spaces and incubators. However, there are also those that put forward themselves as ‘independent’ meeting places and there is a privately owned property developer with a food court, shops, studio spaces and events.

The following section is divided into office space, events, networks, and incubators.
Office spaces, maker spaces, hacker spaces and labs

Maker spaces and hacker spaces are community-operated workspaces where people of common interests, often in technology, computer science, machining, digital or electronic art and communication, can meet, socialise, collaborate and work on projects and ideas.

The presence of these spaces open up for the possibility to let everybody – without focusing on educational requirement – get access to facilities that gives them freedom to research, create and realise ideas, outside established research institutes. And these types of spaces are open to people with any scientific background.

Scientific knowledge on biology and genetics is growing at a fast pace. More and more focus is put on the huge innovation possibilities and business potential there is in this area and many believe the way forward in an increasingly cross-disciplinary area is through collaboration. Yet finding a biotech lab outside of a university lab or high priced industrial commercial space has until now been impossible and most initiatives in for instance the hacker space scene are mainly within IT and hardware.

BioCurious, founded by creatives and scientists in Silicon Valley, changed this by establishing a bio-lab for anyone to use.

CASE: BioCurious

The non-profit bio-hackerspace BioCurious was established in 2010 by six highly educated, renowned creatives, bio-scientists, molecular biologists, business and research people who all had the same dream; that innovations in biotech should be accessible, affordable, and open to everyone and be put in the hands of makers, creators with the passion required for innovation.

Placed in Sillicon Valley in California, BioCurious is a community biology lab for amateurs, inventors, professionals, entrepreneurs, and anyone who wants to experiment.
The lab offers a complete working laboratory and technical library for entrepreneurs to cheaply access equipment, materials, and co-working space. Furthermore, BioCurious is a meeting place and an event space for citizen scientists, artists, hobbyists, activists and students, and offers classes and workshops in biotech.

http://biocurious.org/

In the Øresund Region there is a large amount of different types of spaces where freelancers and start-up companies can find place to work, or conduct experiments in labs.

Places like Startup Village CPH, Republikken, Media Evolution City, Stpln and Mitt Möllan are inhabited by a range of different creatives as well as people from the arttech communities.

Bioprinting is printing with biological materials. BioCurious have built their own functioning bioprinter from a couple of old CD drives, an inkjet cartridge, and an Arduino.

Photo: Patrik D’haeseleer
CASE: **Startup Village CPH**

Startup Village CPH is a new start-up hub based in four historic warehouses on Islands Brygge in Copenhagen. It is a privately financed initiative, housing the largest concentration of start-up companies and communities in Copenhagen – currently counting between 30 and 40 companies. Among these are established start-ups such as Vivino, Opbeat, Graduateland and Autobutler. Also situated in the historic warehouse is Founders House, one of the driving forces in establishing Startup Village CPH as well as launching a new community for artech (artandtech.dk). Founders House itself is a shared workspace by invitation-only for tech start-ups in Copenhagen.

[http://trendsonline.dk/2014/05/21/talented-entrepreneurs-create-new-hub-startup-village-cph/](http://trendsonline.dk/2014/05/21/talented-entrepreneurs-create-new-hub-startup-village-cph/)

The office space Republikken is well aware of the huge business and innovation potential for future entrepreneurs to implement electronics in their projects and were keen to be able to offer a lab for its residents. Together with DELTA’s Idemolab, they established the Open Electronics Lab at Republikken.

CASE: **Republikken Open Electronics Lab**

Established in 2005 and situated in the heart of Copenhagen, Republikken is an office community and co-working space for creative entrepreneurs. Besides office space, Republikken also have a fully equipped prototype makers space with laser cutters, CNC millers, 3D printing facilities etc. The Republik School offers courses in for instance marketing, project management, machine courses at the workshop etc.

Republikken is privately run and all residents pay a monthly fee based on their use and need for office space and facilities. Republikken’s vision is to lower the cost of prototyping, by giving DIY access to machines and makerspace facilities, while at the same time creating a culture where knowledge is shared between professional creative freelancers.
Republikken and IdemoLab at DELTA, Danish independent technology company, teamed up to establish the ‘Open Electronic Lab’ which opened in September 2013 and is a place where the residents (and people from the outside, if paying a fee) can explore the world of electronics, learn Arduino*, play with IdemoLab’s IdemoBit system (an easy to use, no-programming-required toolkit to get started with electronics) or join the Open Electronic Lab workshops.

* Arduino is an open-source electronics platform based on easy-to-use hardware and software. It’s intended for anyone making interactive projects. http://www.arduino.cc/

http://republikken.net/

In Malmö, Media Evolution City do not only facilitate workspaces, but also arrange a range of different kinds of events such as book launches, a yearly conference called The Conference, Arabic Game Jam and after work events in their restaurant.
CASE: Media Evolution City (MEC)

Media Evolution City is a collaboration between Media Evolution (a membership-based network of actors from the media industries in Skåne and Blekinge, southern Sweden, involving businesses as well as educational institutions), the property developer Wihlborgs, Region Skåne and the City of Malmö. MEC is an office hotel for media industries, located in the former harbour area of Malmö next to the office of the Swedish Television.

The main purpose of MEC is to create conditions for “growth and development in the media industry by bringing them together”. Furthermore they bring forward knowledge exchange and diversity of small and big companies as crucial.

To accomplish this they rent out office and meeting spaces, they house a restaurant, host events and organise a yearly conference. The office spaces available range from an open office landscape, an office that can host about four people or customised offices for specific companies.

http://www.mediaevolutioncity.se/
Stpln is a makerspace situated in a newly developed area in the former harbour area of Malmö. The space is open to the public and offers several facilities for producing and creating things and making cultural events. The facilities and infrastructures that they provide are primarily the kind of resources that most people do not have at home, because they are too expensive or take up too much space.

CASE: **Stpln**

Stpln was opened in 2011 after several years of prototyping how to use the space, and arranging festivals, music events and hackathons.

What Stpln is today has emerged out of several years of trying out different models for sharing, negotiating what kind of activities it should facilitate and so on.

At the moment there are six recurring activities at Stpln: Återskapa which is a “creative re-use and ‘upcycling’ arts- and education center”, Cykelköket which is a “non-profit community bike shop, where you can fix your bike or build a new one from our re-cycled frames”, Fabriken which is a “membership-based makers space with tools and machines for digital production, carpentry and electronics”, HUB:N which is a “free drop in office space” and Textildepartementet and Grupptrycket which both are run as community D.I.Y workspaces.
Most of the events, such as exhibitions, workshops and performances, that are hosted by Stpln are for free. But, as they put it in their website, visitors pay with their time and knowledge. The shared resources at Stpln are thereby both materials, such as tools, machines, the space, and the people who invest their time and knowledge.

Fabriken started in collaboration with Malmö University and has also over the years been in collaboration with the Swedish branch of Arduino, Arduino Verkstad. Apart from membership fees they have also tried out local exchange economy as their financing model.

Stpln was first financed by Fritidsförvaltningen in Malmö and is now primarily financed by Kulturförvaltningen. This financial support requires Stpln to host a specific number of workshops and events for the public, however the municipality does not require Stpln to produce new business opportunities or products. Stpln also earns an income by charging for some events and occasionally they charge a fee for help, materials and services.

http://stpln.se/

Mitt Möllan is a meeting place located in central Malmö and owned by a private property developer, Stena Fastigheter, which also owns the residential housing that is housed on top of Mitt Möllan. They have hired an artist and a curator part-time to work with some of the daily decision-making processes of developing the space conceptually.

CASE: Mitt Möllan

Mitt Möllan is a galleria in a property owned by Stena Fastigheter in Malmö. After several attempts to renew it, this latest version was started in 2011.

A food court is centrally placed in Mitt Möllan, where food is served and where it is possible to attend cooking courses and other events. One of the restaurant owners,
who is also an artist, was supported by the property developer to do outreaching work on food and the local community which is characterised by its connections to many parts of the world.

In Mitt Möllan there are studios for relatively small businesses to rent. Those include a bicycle moving and advertising firm, as well as a graphic design duo working with a risograph, a technology which is used in order for print to have a smaller impact on the climate than conventional technologies.

In the mall there are spaces to rent for shops and alike, which is geared towards locally produced goods. On the rooftop there have been experiments with urban gardening. They invite pop-up stores and events, and regularly host maker’s fairs for local designers. The graduation show for some of Malmö’s design schools took place at Mitt Möllan as well as one of the workshops upon which this report’s findings rely.

http://www.mittmollan.se/

In the Øresund Region hacker spaces are concentrated on using hardware and software to develop their solutions. The nature of the spaces often make them controversial due to their methods, that are not always legal. As a result, some hacker spaces have chosen to name themselves as maker spaces, giving their community a more positive reputation.
The meeting places are not primarily driven by profit, but do also bring forward how they wish to contribute to various goods such as generating growth, enable learning and sharing of knowledge. Related to this wish to contribute to public good is that several of these meeting places are in one way or another interdependent on public institutions.

As part of this public good is often the objective to share knowledge. The focus on knowledge does however not mean that material assets are of no importance. Rather, it can be argued that what characterises these arttech meeting places is a recognition of the close relationship between material assets such as tools, physical spaces to be in, events and the possibility to share knowledge and skills. One example from our empirical data is a graphic designer with a great interest in urban gardening who wanted to do a podcast on this topic. She turned to an actor that was familiar to her: the maker-space STPLN. There she was provided with both coaching and equipment. Yet another example is an artist and member of the Socialist Sunshine Cinema who visited our drop-in workshop at Mitt Möllan. The SSC is an outdoor cinema that uses solar power to redistribute the surplus of light during the day for use at night. The man who visited the workshop, had recently moved to Malmö, and was looking for a skilled person working with solar power to collaborate with and to further develop their concept. His main interest was however not to make money, but to find someone who would be interested in joining and contributing to their community.

**Events**

Events are an important element in making a region attractive for talents and nurturing their competencies. Successful events attract the best talents from all over the world, and if the region can offer interesting work and good living conditions, the seeds for a successful arttech environment are sown.

Looking abroad, the Ars Electronica Festival in Austria in one of the oldest arttech festivals, established in 1979. Initially a biennial event, the Festival has been held annually since 1986. As a worldwide first-mover and ever since its beginning it has put the spotlight on art, creativity and emerging digital technologies bringing together world-leading tech-people, scientists, artist, researchers, renowned
intellectuals, young contrarians and pioneers of the digital revolution to confront a specific interdisciplinary theme in the 5-day Festival. Every year the Festival is an explosion of art and tech knowledge sharing, talks, performances, interventions, workshops, discussions and lots of other activities that carry the Festival beyond the confines of conventional conference spaces and cultural venues and take them out into the public sphere on various locations in Linz.

“The ideas circulating here are innovative, radical, eccentric in the best sense of that term. They influence our everyday life – our lifestyle, our way of life, every single day. The Festival as proving ground, the Prix as competition honoring excellence, the Center as a year-round setting for presentation & interaction, and the Futurelab as in-house R&D facility extend their feelers throughout the realms of science and research, art and technology. Ars Electronica’s four divisions inspire one another and put futuristic visions to the test in a unique, creative feedback loop. It’s an integrated organism continuously reinventing itself.”
Ars Electronica, 2014

CASE: **Ars Electronica Festival**

The festival of art, technology and society, Ars Electronica Festival, saw the light of day on September 18th 1979 in Linz, Austria – one of the main economic centers in Austria and also home to a vibrant music and arts scene.

The festival was founded by the interdisciplinary quintet; editor and TV Journalist (on culture, science, sport and religion) Hannes Leopoldeseder, the musician, composer and internationally acclaimed pioneer in electronic music Hubert Bognermayr, the professor in theoretical physics Herbert W. Franke and the music producer Ulrich Rützel.

Several research institutions such as the University of Tokyo (2008), the MIT Media Lab (2009) or the Japan Media Arts Festival (2009) collaborate with the Ars Electronica and present their work at the festival.
Future Playground/ZeitRaum
ZeitRaum [TimeSpace] is an interactive art installation Ars Electronica Futurelab developed for Vienna International Airport’s new Skylink terminal. It interprets arriving and departing flights in real time. ZeitRaum consists of several individual stations that accompany passengers on the way to their gate. Ars Electronica Solutions recently added From Austria to the World and Drei – Es geht auch anders—gigapixel images of New York alternating with textscape and visuals that react to passengers’ presence. The Airport Wall on display in Future Playground not only links the respective presentation spaces of the Futurelab and Solutions; it also symbolizes Ars Electronica’s successful competence network.

Photo: Stefan Rozporka

Prix Ars Electronica. In 1987 the ‘Prix Ars Electronica’ was established as a yearly competition in three art & tech categories, receiving 700 submissions from around the world in its first year. It has constantly grown and become the world’s oldest and most renowned competition in media art. In 2013 the number of submissions to the seven categories surpassed 4,000.

Ars Electronica Center & Futurelab. The Ars Electronica Center was opened in 1996 and rebuilt in 2009. The center, also called the ‘Museum of the Future’, is a place where all the diverse blends of artistic genres, scientific domains and technological directions are displayed.

In connection to the many exhibition areas, several future labs were established that work with leading universities and private sector R&D facilities.

The Ars Electronica is a cultural, educational and scientific institute of the City of Linz and is supported by Upper Austria, ministries of Austria and private partners.

http://www.aec.at/news/
Pixelache is an electronics arts festival which also inspires participants from the Øresund Region, who travel to Helsinki to take part. Pixelache has a history as a meeting place between art and technology, creatives and science. Some of the people in their network are researchers and artists in one person, others are involved in collaborations between for example software- and hardware developers and artists.

Pixelache is an international meeting place for arttech. Actors in the Øresund Region travel to get together with each other, and develop their arttech practices together with Pixelache. Importantly, in this context it should also be remembered that Pixelache is a mix of an annual festival, expanded through a sort of localised franchising to other areas in the world as well as firmly rooted in Helsinki through year-around engagement with local networks.

CASE: **Pixelache**

Pixelache started as a festival for electronic arts and subcultures in Helsinki in 2002. It has since started an informal educational programme in 2006 in Helsinki, as well as branched out into a network of local Pixelaches in cities such as Paris (Mal au Pixel), Medellín, (Pixelazo), and Istanbul (PixelIst).

On their website their interests are described as: “experimental interaction and electronics; renewable energy production/use; bioarts and art-science culture; grassroot organising and networks; politics and economics of media/technology;
alternative economic cultures; VJ culture and audiovisual performances; media literacy and engaging environmental issues.”

Over the years various Nordic financiers have been important in making it possible for participants from outside of Finland to travel to Helsinki to partake.

http://www.pixelache.ac/

At Transmediale in Berlin, another international yearly festival and meeting place for art and technology, creativity and science, the usual exhibition was exchanged for a hackathon called Art Hack Day in 2014. The concept has departed from its first assembly in California and then been touring in Europe and elsewhere.

The instantiation in conjunction with Transmediale gathered around 100 participants who had travelled from places ranging from the Øresund Region, Brazil and Japan. As a consequence not everybody knew each other, which the organizers tried to deal with by setting up online meetings on various digital platforms before the gathering in Berlin.

CASE: Art Hack Day at Transmediale in Berlin

They describe themselves as: “an internet-based nonprofit dedicated to hackers whose medium is art and artists whose medium is tech.” They are thus inscribing themselves into a hacker ethos and put forward how they work for the public good.

As a meeting place between art and technology, creatives and science, the Art Hack Day is temporary and deliberately concentrated in time, 48 hours. However, the concentration in time was challenged in some comments after the event. Rather, it was put forward, for example under the heading “how to present austerity as spontaneity”.

http://www.arthackday.net/events/going-dark
The Øresund Region hosts a range of events within the arttech sphere. Some of them are local while others are international, attracting large groups of people from all over the world. Some that can be mentioned are Alt_Cph, Malmö Hack Music Festival, Science Festival Copenhagen, The Conference at MEC, Danske Ideer with Singularity University in Copenhagen, and a new DIY festival for arts, technology and crafts called Made2014.

A true arttech event is Alt_Cph which is a point of gathering for underground and established artists and budding creatives, and also includes debates, performances and artist talks. Danish and international art world actors come to Alt_Cph to network, collaborate and swap experiences at a highly professional level.

**CASE: Alt_Cph**

Alt_Cph is an annual fair that has taken place in Copenhagen since 2006. Based on the specific theme of the year participating artists exhibit their work and give visitors a taste of the present initiatives in the art-run scene. The fair is a mix of art, technology and science and presents projects from bioart labs and hackerspaces that delves into objects and inventions from our everyday lives.
Though the Alt_Cph is positioned in the intersection of classic art, experimental art, conceptual art and artech and though more and more of the artists include and experiment with technology, the fair still has a very strong artistic approach and voice. In 2013 the artech collective Science Friction exhibited their project anarcheological’ at Alt_Cph.

Alt_Cph is brought to life by FABRIKKEN* in collaboration with Copenhagen Art Week and the IT-university of Copenhagen. The fair is supported by Copenhagen Municipality and the Danish Art Foundation.

* FABRIKKEN, also known as the ‘FACTORY of Art and Design’ is a production and resource centre in Copenhagen where national and international creatives, artists and designers work, explore and collaborate. http://ffkd.dk/content/factory-art-design

http://altcph.dk/2013/#home

In addition the Arabic Game Jam is worth mentioning as an event gathering different competencies within the field of creative industries and artech. It is a 48-hour game development event, focusing on making games for the Arabic speaking markets within and outside of Sweden.

Malmö and Southern Sweden are regions with a strong and flourishing gaming industry, with impressive game research conducted by Malmö University and with the educational institution The Game Assembly28 fostering new and talented game developers every year. In addition, Malmö is also in some ways a city of untapped resources with a large number of inhabitants with multi-ethnic backgrounds from Arabic speaking countries.

There is a strong gaming culture in the Arabic speaking countries and the Arabic communities in other countries such as Sweden. But there is still only very little production of games taking place in these countries and communities. In that way, combining the gaming industry and the Arabic communities in Malmö provide the opportunity for people with entrepreneurship dreams to establishing themselves in these new and emerging markets.

28 http://www.thegameassembly.com/information/about-tga/
CASE: Arabic Game Jam

The Arabic Game Jam is a 48-hour game-developing event, focusing on making games for the Arabic speaking markets within and outside Sweden. The event takes place yearly in Malmö, Sweden, at K3 Malmö University. The first edition took place in January 2012 with over 50 participants. In May 2014 the third edition of the Arabic Game Jam took place. The event gathers teams of hardcore gamers, game development students (local and international) and professional game designers for a weekend of intense computer/web/mobile game development. During the last three years 48 game concepts have been developed for the Arabic speaking markets. Media Evolution runs Arabic Game Jam with financial support from EU, Tillväxtverket, Malmö Stad and Region Skåne.

http://arabicgamejam.org/

Hackathons often have the public good, just as Art Hack Day points out on their website, as their prime target. As hackathons are also used by more and more governmental bodies that are supposed to work for the public good, this might seem like a perfect match between art, technology and public services where interests converge. In the US, for example, the National Day of Civic Hacking sponsored by the White House, Intel and Google, is continuing a tradition of volunteering for the public good. In these particular hackathons working for the public good involves working with and gathering around big data.

At a hackathon carried out at Medea at Malmö University, Traffic Jam Session, various actors were invited to “change the future of public transportation”. This objective could be seen as a public good. Another way of describing these kinds of gatherings is that they offer a mode of democratising innovation. However, if we compare with the Nordic tradition of participatory design these events are more guided towards young creatives with certain skills than a representation of who has a stake in the topic. The issue of who attended the Traffic Jam Session was also addressed by the organisers by encouraging more women to sign up.

29 See for example how govjam has moved from Australia to Sweden http://usify.se/govjam/
Networks

Networking is considered one of the most important reasons for the success of start-up communities such as Silicon Valley. People meet in informal settings, discuss their ideas, and meet people they would not otherwise meet.

Within the arttech communities, the underground and the events that are held, give plenty of opportunities for networking. But within the communities, people feel that having a reason to meet and network is more beneficial than just showing up at a lab or an event to see what is happening.

In September 2014 a new arttech network was created in Copenhagen. The network is run by a range of partners in the arttech communities in Copenhagen, and received initial funding from the Municipality of Copenhagen as part of their strategy to boost the creative industries and develop world class competencies that will draw talents and companies to the city and region.

CASE: Art & Tech platform: artandtech.dk

The Art & Tech platform was launched in September 2014. It acts as an online meeting place for the arttech-community in Copenhagen, while also hosting real-life events. Their website functions as a virtual bulletin board, on which arttech-related events can be posted.

The platform is run collaboratively between Founders House, Illutron, Creative Business Cup and Delta. These stakeholders have been chosen to run the Art & Tech platform by Copenhagen municipality who is funding the first phase of the platform. Emma Arfeldt, who is in charge of the daily maintenance of the platform, touches upon the need for Art & Tech:

“People do not communicate by themselves. If I need ‘art’-competencies I would not know where to go. I do not know the companies, I do not know the small creative co-working spaces and I do not know the art-world. That is why it could be great with
an intermediator where people can go, if they want an overview of the arttech environment.”

For now, one out of four yearly workshops is planned to take place at Illutron, as well as a series of networking events. They will receive funding from the municipality for a year, after which the platform is supposed to be economically sustainable.

http://artandtech.dk

Bringing together different parts of the art and tech communities will enable new people to meet, and for new ideas to flourish.

**Incubators for start-ups**

In order to create arttech starts-ups, talents must be nurtured. In addition to having access to office spaces and labs, they need access to advisors, networks and mentors that can help them turn their idea into a business opportunity. Founders of new companies rarely have all the competencies needed to establish a successful start-up. And founders coming from creative schools have most likely not received any lessons

30 Interview with Emma Arfeldt at Founders House
on how to become an entrepreneur and start their own company. Start-ups that are serious about growth and have a business potential will receive the necessary help and advice by joining an incubator.

At the New Museum in New York, the NEWINC incubator for arttech opened its doors in the summer of 2014. It might be a bit remarkable that a museum opens an incubator, but in the past decade the New Museum has had a strong focus on new media art and has had collaborative digital partnerships and created exhibitions and platforms for digital art. During this period of tech focus it became obvious to the New Museum that many young technology and artists whose dream is to realise their ideas, lack guidance and network opportunities to reach their goals. Therefore by opening an arttech incubator, NEWINC want to provide these artists with desk space and give them the benefit of mentorship, networking opportunities, business-building resources and a vast amount of knowledge to boost their way to success.

CASE: NEWINC

Launched in the summer of 2014 in the New Museum on the Lower East side in New York, NEWINC, is the first museum-led incubator to open its doors for creative practitioners, artists, technologists and designers working in the areas of art, technology, and design.

Courtesy New Museum, New York. Photo: Dean Kaufman
The incubator is a not-for-profit platform that will provide desk space, resources, events, networking opportunity and a collaborative space for a highly selective, interdisciplinary community of one hundred members to investigate new ideas and develop a sustainable practice.

As a bonus, being situated in the New Museum, NEWINC will be able to work closely together with two other tenants at New Museum: Rhizome, the not-for-profit international arts organisation with their world renowned conference Seven on Seven and the Columbia Graduate School of Architecture, Planning, and Preservation’s international collection lab.

NEWINC is realised by support of the New Museum Board of Trustees, public support by the City of New York through the New York City Department of Cultural Affairs and the New York City Council. The Ford Foundation has provided major support for the artist residencies at the incubator.

http://newinc.org/

Within the Øresund Region there are a few incubators that support arttech start-ups. In addition to providing office space and lab facilities, the incubators also offer mentors, networking opportunities and access to capital in order to grow the companies. The focus of incubators is to develop ideas, projects and start-ups into companies that can grow and become successful providers of their solutions, services or products.

One of the oldest incubators that has focused on arttech start-ups is Minc in Malmö. Minc is owned by the city of Malmö and they receive SEK 5.5 million per year. Since 2005, the start-ups that have moved out of Minc have created 1,100 jobs and generated SEK 1 billion in sales.
CASE: **Minc**

Minc is an incubator and an office space that was established in Malmö in 2003 for entrepreneurs working within and across the fields of media, design, tech and ICT.

Every year 100 projects/start-ups apply to the incubator at Minc, and 10 are chosen. The idea has to be developed enough to see the business potential and for it to be close to market. There are mainly small start-ups consisting of teams and not one-man companies that are admitted to the two-year incubator program. Minc has 8 business developers who have all been entrepreneurs themselves.

Minc provides business development coaching, access to an international network of mentors and experts and access to funding. Minc also arranges events, offers courses, lectures and seminars and has around 9000 visitors per year.

Some of the success stories from Minc include companies such as AlgoTrim that have developed software used in 100 million mobile phones globally, Polar Rose that developed a facial recognition program and was sold to Apple in 2010 for US$ 29 million, and Hövding that have designed the ‘invisible’ cycle helmet (described in chapter 1).

[http://www.minc.se/](http://www.minc.se/)
A more recent initiative is the CIID Nest which was established in Copenhagen in 2013. Based on a growing demand from the graduating students, CIID established the incubator to be able to retain some of the talented students that otherwise would have moved to other cities to embark on their careers as entrepreneurs.

CASE: **CIID Nest**

CIID has a strong focus on entrepreneurship and encourage the students to go out and start their own business. This focus has resulted in the CIID Nest, a project development platform created to support talented designers in taking their innovative projects and ideas forward.

Seven individuals or teams can continue the ‘learning-by-doing’ approach fostered at CIID, and gain value through shared experiences, learnings and collective skills. CIID Nest offers a 5 months pilot phase where it is possible to get support and advice through a community of dedicated mentors, a network of experts, and a series of business development workshops – all along they can also network and attend all events and open lectures CIID offers its student.

**GripHint provides a chance for autistic children to start learning handwriting in a playful way.**

The CIID Nest is supported by Intel, Accelerace at the Science Park Symbion, and the Danish Business Authority.

http://ciid.dk/
Another incubator in the Øresund Region is The Creative Plot at Ideon in Lund. The Creative Plot is a pilot project to see what happens when creative start-ups are placed among tech companies in an incubator. Within the first months, two companies had already gotten together and were working on starting up a new company based on their mutual idea.

**CASE: Ideon, The Creative Plot**

Ideon Science Park in Lund was established in 1983 after IKEA’s founder, Ingvar Kamprad, donated SEK 100 million to build it. Today Ideon houses five different incubators where one of them is The Creative Plot Incubator for culture – and technology start-ups. It was initiated as a pilot project in 2012 by the Cultural and Economic Development departments of the City of Lund, and accepted five companies for the first 12-month program.

The start-ups at The Creative Plot have a dedicated business advisor who ensures that they get to meet other necessary advisors and mentors. The incubator also helps find capital for the companies, where one of the main sources is Business Angel funding.

The meeting places that we have encountered in this project can all be seen as indicators of the shift from an industrial era to what could be described as a post-industrial era.
This shift is for example noticeable in that several of the meeting places are situated in previously industrial areas. In some cases, the meeting places themselves, are important actuators in this post-industrial shift. Several of the meeting places that we have mentioned in Malmö are located in the Western harbour, and are part of making Malmö into a city characterised by creative industries rather than industry. Other examples, such as Illutron, have not been included in such strategies. It is also notable that several actors play with their relationship to the industrial area, for example through using names such as Fabriken and Fabrikken (factory) or Unsworn Industries.

What characterises arttech meeting places in a post-industrial era is however not only that they are located in former industrial areas, but also implies shifts in terms of objectives, desired skills, expected outcomes and more.

The potentialities of the meeting places that we have described are multiple – to connect people, sell things and so on. If we look at some other examples there are also other potentialities such as learning, which Pixelache has somewhat institutionalised, marked by naming the outreaching informal educational branch of their activities Pixelversity.

While Illutron do most of their work in a more or less closed community they also reach out to a wider public through events where the aim is to enable learning and to spark creativity and curiosity. The focus on learning is also present throughout most of the activities at Stpln. For example, Cykelköket offers help, tools and some materials for fixing bikes. But, it is not possible to pay someone to have ones bike fixed. Rather one needs to put own work into getting the bike fixed. It is by the same means that the community is built up. This means that such community economy also builds communities. While the Bicycle Kitchen has become a rather successful concept which is used in many other places, it has also proven difficult for some visitors to grasp, since it is quite a radical break with the usual customer and salesperson relation, where money is the customary resource.
What we can see is that the potentialities of these arttech meeting places are multiple. To some extent they are complementing each other, but at times they can also become contradictory and conflicting. Rather than trying to overcome such potential conflicts and contradictions we would suggest that these tensions are what constitutes the complex entanglements between art, technology, private actors and public institutions that make up arttech meeting places.

Whether the potentialities of these publics are to connect people, sell things, make public goods, formulate issues, enable learning or generate innovation we argue that it is important to continuously ask who is invited and what skills that are asked for. This matters since this will influence whose problems are being dealt with and how. For example, Gregg and DiSalvo (2013) note that there is a tendency in hackathons to offer technical solutions to all kinds of problems, although the problems might be social. Yet another issue in these kind of gatherings is who puts things at risk and what are those risks? In each potentiality there is also a risk – of not getting any new connections, of not getting anything sold, of not getting one’s work recognised, of no innovations being made, of seeing one’s work circulate without being credited and so on.
Financing growth in arttech start-ups

Start-ups in the creative industries are often financed by limited resources in the early stages of a company’s growth. Within industries such as design, architecture, arts and advertising start-up costs are often low, and the owners are able to cover the costs themselves and thereby also keep ownership of their company. Furthermore, financial growth and economic wealth is seldom the core driver of these types of companies. The start-ups often have a different type of business model where openness and knowledge sharing is one of the cornerstones – rather than profiting from patents and copyrights.

A recent example of open source demonstrating how even traditional industries are experimenting with new business models in their pursuit for innovative solutions, is Tesla Motors, whom in June 2014 announced that they will not initiate patent lawsuits against anyone who, in good faith, wants to use their technology.

“Technology leadership is not defined by patents, which history has repeatedly shown to be small protection indeed against a determined competitor, but rather by the ability of a company to attract and motivate the world’s most talented engineers. We believe that applying the open source philosophy to our patents will strengthen rather than diminish Tesla’s position in this regard.”

Elon Musk, CEO, Tesla Motors

Types of financial sources

Potential funding is available from a range of sources throughout the different stages of a company’s life. Some of the traditional examples include financing your own time used working, equity from friends and family, seed investment, business angel funding, venture capital as well as EU funds or funding from foundations and other organisations.

In addition, creative start-ups seem to access funding such as crowdfunding, prizes from challenges and competitions, and in the arttech environments, cultural or artistic grants are also used in combination with other funds to developed ideas and projects.

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31 Risikovillig kapital til kreative virksomheder, 2013, Dansk Design Center
32 http://www.teslamotors.com/blog/all-our-patent-are-belong-you
They make deals close faster. By making it easier for start-ups to give different prices to different investors, they help them break the sort of deadlock that happens when investors all wait to see who else is going to invest.

Paul Graham, co-founder of Y Combinator
See the matrix below for an overview of the different types of financial sources and the text box for a short description.

### The most common sources of finance

<table>
<thead>
<tr>
<th>Source of Finance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootstrapping:</td>
<td>Starting an idea or concept without external capital.</td>
</tr>
<tr>
<td>Friends and Family:</td>
<td>Borrowing money from friends and family to start up an idea or business.</td>
</tr>
<tr>
<td>Seed Capital:</td>
<td>Investment companies that offer investment at the early stages of a start-up, before they sell anything.</td>
</tr>
<tr>
<td>Venture Capital:</td>
<td>Venture capital firms invest in companies with a high potential and expect to get a return on their investment in the short term.</td>
</tr>
<tr>
<td>Business Angel Investment:</td>
<td>Entrepreneurs who invest in new ideas and companies and also offer to become mentors or help the start-up by using their experience and skills.</td>
</tr>
<tr>
<td>Crowdfunding:</td>
<td>Receiving investments from funding platforms such as Kickstarter.</td>
</tr>
<tr>
<td>EU and other types of public funding:</td>
<td>There are a lot of funds available from public organisation such as the EU, Nordic Innovation and national agencies.</td>
</tr>
</tbody>
</table>

### Sources of finance

- EU Funding
- Noncommercial
- Artistic
- Social
- Patronage
- Sharing Economy
- Prizes, Challenges
- Crowdfunding
- Friends, Family
- Angel Investment
- Seed Capital
- Venture Capital

**Note:** The figure is a conceptual framework, box sizes are not statistically based.

Source: Developed by project team
While the traditional investors are available to creative start-ups if deemed investment ready, it can sometimes be difficult for investors to categorise arttech ideas and start-ups and therefore choose not to invest in the company. The founders of arttech company Hövding in Malmö that make a new type of cycle helmets they call airbags for cyclists, say that the message they got from investors was often “We don’t know how to categorise your product – is it IT, Medtech? – sorry we can’t help you.” However, while it has been hard for Hövding to attract capital, they did not give up, and have until today raised SEK 85 mio.

To cater to these new types of businesses, new investment types are emerging minded towards creative ideas that transgress conventional business model, something which is inherent in most arttech companies, given their experimental and multidisciplinary nature and often lack of profit focus.

In Montreal, creative start-ups that join a 12 week accelerator program at FounderFuel can receive funding in the form of a convertible note if they are evaluated as being mature enough for investors. A convertible note is a loan that turns into shares of a company. Instead of paying back the loan with interest, it can be turned into preferred shareholdings of a company. In that way the start-up can put off valuation until later. A convertible note does not give the investors control over the company, and, as Paul Graham, co-founder of Y Combinator (an incubator that offers a 10-week program and provides seed funding for start-ups) says:

“They make deals close faster. By making it easier for start-ups to give different prices to different investors, they help them break the sort of deadlock that happens when investors all wait to see who else is going to invest.”

Convertible notes are a way to help start-ups reach their shorter term goals.

**CASE: FounderFuel.com**

FounderFuel is run by Real Ventures, a $50-million early-stage venture fund that invests in web and mobile start-ups. It is an intensive 12 week mentor-driven start-up program at FounderFuel at the University of Montreal in which participants receive mentoring and funding. FounderFuel is a new way to mentor and fund start-ups and has helped many arttech companies to grow.
accelerator that helps start-ups increase traction, secure partnerships, and get to revenue faster, all in an effort to help raise follow-on funding. They provide seed funding and access to a network of investors (VCs and Angels), experienced entrepreneurs, and top executives. Every year, hundreds of teams apply, and only 20 teams are chosen to complete the two 3-month cohorts.

Each team receives an investment of Canadian $50K in exchange for 6% equity in the company – hardware companies can opt to receive Canadian $100K for 9%. After the 3 months, teams are judged on Demo Day to see if they are ‘venture ready’ and can receive a Canadian $150K convertible note from Business Development Bank Canada Venture Capital.

Twenty-eight start-ups have exited the program thus far; one has been sold and two are out of business. 60% of the graduating teams have raised additional seed money, typically in the range of Canadian $500,000 to $2 million.

http://founderfuel.com

Another financing model for start-ups is corporate venturing. Many large companies, particularly in the USA have set up corporate venturing divisions, with the main goal to follow what takes place in the innovative start-up communities that might be relevant to their company. Within the arttech industry, Google Ventures might be a place to look for investments for start-ups in the Øresund Region with the opening of their European US$ 100 million fund.

CASE: Google Ventures

Google Ventures (GV) is an extension of Google Inc. providing venture capital investment for technology start-ups. Although GV is an arm of Google, it operates independently from Google strategies and makes financially driven investment decisions focusing on fields such as software, hardware, internet, cleantech, biotech and healthcare. GV provides seed, venture, and growth-stage funding and have invested in more than 250 companies, including Uber.
In July 2014, GV established offices in London to direct its new $100 million fund to invest in promising European companies.

http://techcrunch.com/2014/07/10/google-ventures-london/
https://www.gv.com

Yet another method for creative start-ups to receive funding is through crowdfunding platforms. These types of platforms are popular in the US, where millions of ideas receive donations. Crowdfunding is used mainly by creatives to attract funding as well as support for their projects. The largest crowdfunding platform is Kickstarter, which entered the Scandinavian countries in October 2014. In the Nordic region Manymade.org curate projects in the Nordic countries with a focus on art, culture and creative technologies.

CASE: Kickstarter DK

Kickstarter is a web based crowdfunding platform that started in the US in 2009. Since then 7 million people have pledged altogether $1 billion and funded around 70,000 creative projects ranging from the genres of arts and film to design and technology. The ideas and projects receiving funding do not give up equity or ownership in their company. Donors are given other forms of rewards, such as participating in a concert or receiving a CD of the music they have sponsored for recording.

In October 2014, Kickstarter launched in Denmark, Sweden, Norway and Ireland. It has been possible to launch Kickstarter funding campaigns from Denmark up until then, but not without hassle: It required that one of your team members were from the countries already covered by Kickstarter – or that you were able to establish a contact there. From October 2014, project funding and launching will be accessible in these countries, and it will be possible to make and receive payments in local currency.

https://www.kickstarter.com/denmark

Another model for attracting finance, is through the many competitions and events that offer prize money for the winner. The Creative Business Cup is established in Copenhagen, but has become an international event that attracts creative
entrepreneurs from all over the world. In 2013 the Copenhagen based arttech company Rokoko won a monetary prize, giving the opportunity to develop their ideas into a start-up company.

**CASE: Creative Business Cup**

Creative Business Cup (CBC) is an international business concept contest for entrepreneurs in the creative industries. CBC pools together the winners of a large spectrum of national creative business competitions worldwide, and holds an international contest in Copenhagen where participants compete in attaining the title as the world’s best creative entrepreneur.

The first prize consists of a monetary award of US$ 20,000 as well as a mentoring program.

http://www.creativebusinesscup.com

While the Øresund Region might be considered one region, capital seldom flows between the two countries. Investors might be aware of the opportunities not far away from them, but still issues such as different language and culture create barriers for investors.

In Copenhagen there are few investors aimed at the creative industries. One example is Game Invest that have a strategy to invest in the gaming industry.

**CASE: Capnova Game Invest**

CAPNOVA is an investment and development company based in Aarhus, Kalundborg, Viborg, Roskilde and Copenhagen, Denmark. In 2006, a subdepartment of CAPNOVA called Game Invest began focusing on the computer gaming industry.

The Game Invest team is located in Copenhagen, right in the center of the largest Danish game-hub called GameHouse, and a portion of Game Invests Portfolio is
located at GameHouse, making daily contact between investor and company possible. Since 2006 the investments in computer gaming has gradually increased. Since 2006 they have invested in 22 game companies, and through 2013, they invested in 9 new game productions.

http://www.capnovagameinvest.dk

Local Heroes

Local heroes are artists, creatives and tech nerds that have become successful entrepreneurs and who want to encourage other start-ups in their local community to do the same. They play an important role in showing what is possible to achieve when starting your own company, giving new start-ups something they can aspire to while demonstrating that it is possible to become successful.

The founders of the successful start-up company Groupon from Chicago, were offered US$10 million by Google. But instead of selling their company, they enlisted on the stock exchange, stayed in Chicago and used their experience and fortune to develop a new start-up community.

“There are a ton more start-ups in Chicago today than there have ever been, and what’s driving that excitement is that entrepreneurs have seen what happened with Groupon and are motivated to build the next big thing,” say George Deeb, managing partner of Northfield-based start-up adviser Red Rocket Partners LLC.35

“There ten years ago, there wasn’t a strong pool of seasoned entrepreneurs in Chicago who had had successful outcomes – who built up companies and then sold them or brought them public. Today, you have that, and a lot of these folks have stayed in Chicago,” says Mr. Hand, co-founder of FireStarter Fund with more than 40 Chicago tech vets.36

In the Øresund Region there are a few local heroes that form part of the arttech community. One of them is Thomas Madsen-Mygdal from Copenhagen. He has...

35 http://www.chicagobusiness.com/article/20120225/ISSUE02/302259996/chicagos-angels-risk-takers-are-on-the-hunt-to-find-the-next-groupon#
36 Ibid.
My mission is to be the voice of a new world. IT strategies are often about digitising what already exists. I want to use technology to create new models that give individuals the power. I prefer working cross-disciplinary and be involved in many projects at the same time. That is the way to make the biggest difference.

Thomas Madsen-Mygdal
successfully started four companies, and today is also a business angel investor. But instead of considering himself as a businessman, he feels more like a hippie that wants to use technology to make the world a better place: “My mission is to be the voice of a new world. IT strategies are often about digitising what already exists. I want to use technology to create new models that give individuals the power. I prefer working cross-disciplinary and be involved in many projects at the same time. That is the way to make the biggest difference,” he says.37

Madsen-Mygdal is active in developing the start-up scene in Copenhagen and is among other activities, one of the driving forces behind the new network Copenhagen for the win (#CPHFTW) that is working towards creating a strong ecosystem for entrepreneurs in Copenhagen.

Another example is Danish entrepreneur Nikolaj Nyholm who was CEO of facial recognition company Polar Rose, which was based at Minc in Malmö, and was sold to Apple in 2010. He is a business angel investor, investing in companies such as CloudMade, Imity and Polar Rose, and sitting on the board of several start-up companies. In 2009 he joined Sunstone Capital as partner, with the aim of using his skills to continue investing in start-ups, but with access to more capital than he has available privately.38 He also advises companies such as Mojang AB, the makers of Minecraft, that was sold to Microsoft for US$ 2.5 billion in September 2014.39

37 https://www.mm.dk/internet-hippien
Chapter 4

GROWING A STRONG ECOSYSTEM FOR ARTTECH IN THE ØRESUND REGION
Recent research shows that for industries to grow strong, there are several elements that must be in place – such systems are sometimes called business ecosystems. These ecosystems consist of a range of actors that all must be in place for it to be well functioning, and provide access to knowledge, competencies, finance and advisory services. A well functioning ecosystem has an open culture, where the actors know each other and work together in partnerships.⁴⁰

Ecosystems are specialised and vary according to the industry as well as the location.⁴¹ In the Øresund Region there is already one well functioning ecosystem – the biotech industry in Medicon Valley.

In this project we have had a first look at the characteristics of the different parts of an ecosystem for arttech. At the moment there is not a strong ecosystem for arttech in the Øresund Region, but there are a lot of elements that already exist and that have the potential to grow into a strong ecosystem. Knowing what areas are important, and what areas are still weak or missing, will enable us to suggest how the ecosystem can be strengthened.

Based on the descriptions of the different elements in the arttech ecosystem in the previous two chapters, it seems as if an ecosystem for arttech varies slightly from ecosystems in more traditional industries.

For more traditional industries, a strong ecosystem ensure that start-ups have access to knowledge, competencies, capital and advice.⁴² Start-up companies get their talent from universities and existing companies, such as large and successful ones that spin-out new ideas. For the new companies to be able to grow, they need access to risk capital that is invested by competent investors. In addition, the start-ups need advisors to help with growing the company and assisting with issues such as sales, finance and strategy.

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⁴⁰ Økosystemer for nye vækstvirksomheder: Benchmark af Økosystem, 2012, FORA Group
⁴¹ Ibid.
⁴² Ibid.
What really seems to make an ecosystem for start-ups successful, is the presence of dealmakers – a successful entrepreneur, who has become a networker, advisor and investor. According to Ted Zoller, executive director of the Center for Entrepreneurial Studies at the University of North Carolina, the more dealmakers present in an eco-system, the more start-ups will be successful. The dealmakers know what is going on in the start-up communities, and can connect the right people – start-up with mentors, customers or investors. See model of ecosystem in traditional industry.

\[\text{Ecosystem in traditional industry}\]

In an arttech ecosystem start-ups are born out of a different environment. Talents flow from schools, universities and the underground, where an idea is created based on interaction between different types of skills and competencies with the urge to experiment.

Source: Økosystemer for nye vækstvirksomheder: Benchmark af Økosystem, 2012, FORA Group

43 Dealmakers in Place: Social Capital Connections in Regional Entrepreneurial Economies, Feldmann and Zoller, 2010
Start-ups might be part of the underground or different types of communities, and might not have an initial desire to grow. The values of the start-ups in the creative industries are often based on the wish to make a difference and do something meaningful, rather than aim to create a successful company that can be sold off at a high price.

Local heros are important role models, showing how it is possible to create a meaningful company that is successful. They resemble dealmakers, with the added quality of also being role models within their communities. See model of ecosystem for arttech.

A well functioning ecosystem for arttech requires several actors to co-operate, network and exchange ideas. A strong co-existence of the different types of actors is necessary for people to move between the different groups to develop competencies and ideas. Source: Developed by project group
An emerging arttech ecosystem in the Øresund Region

A first overview of the arttech actors in the Øresund Region gives the impression of an ecosystem with some strong areas. The strong presence of the creative and technology competencies demonstrate that the region’s innovation capabilities are significant. There is already a movement taking place where the competencies and talents are starting up new companies and working together with incumbents as well as public sector organisation. Persons interviewed for this study see the Øresund Region as a start-up scene which is just as successful as some of the best start-up areas globally.

The building blocks for fostering arttech competencies in the Øresund Region seem to be in place. There are several good universities, institutes, schools and courses that offer students the first and basic skills within creativity and technology. And there are also a lot of students that are interested in attending the courses – arriving from all over the world. However, some of the people we have spoken to within the arttech communities feel that it is hard to keep the students in the region once they have graduated. They are often headhunted to prestigious companies around the world, and feel that there are not similar opportunities for employment in the region. Other students who want to start their own company, often have problems finding the appropriate network and funding to make it possible for them to stay.

The underground consists of several communities that interact with each other as well as with other actors such as schools, local heroes and start-ups. While members of the underground play an important role in fostering arttech competencies through experimentation and play, they also contribute to employing the competencies by arranging events and establishing more formal meeting places such as labs and incubators.

The buzzing underground in the region is an important platform for fostering the competencies needed to turn good ideas and projects into new companies that can offer solutions, services and projects that can be used by private customers as well as large companies and the public sector.
There are a lot of good opportunities for individuals in the Øresunds region to find a space to sit and work or experiment with their ideas in a lab. The underground is vibrant and there are a range of events and meeting places allowing people to meet and play. But there seems to be less opportunities that nurture start-up companies and help them grow. In Copenhagen there are a lot of makerspaces that are informal and that have been established by the underground communities. There are also lot of office spaces and labs that are privately run, but when it comes to more formalised settings and programs such as incubators, there are not very many targeting creative start-ups. In Malmö, the municipality has supported several office spaces, meeting places and incubators within the arttech communities, thereby providing good conditions for entrepreneurs to grow their ideas into start-ups.

During our project we have also observed that the communities, meeting places and events within arttech consist of a rather homogenous group of people. People who do not fit within the stereotype are often scared away and choose not to participate within the communities, resulting in a loss of diversification and most likely creativity.

When it comes to financing the new arttech ideas and start-ups, the region is less well positioned. There seems to be financing available for the early stages of new companies. But when the start-ups want to expand, there is not sufficient capital available. Companies that want to raise large amounts of capital have to go abroad to places like Silicon Valley.

Another element within the arttech ecosystem that seems to need strengthening is the awareness and involvement of local heroes. Demonstrating what popular and well-know role models have achieved.
Suggestions for creating a strong ecosystem for arttech in the Øresund Region

Some of the building blocks for creating a strong ecosystem in the Øresund Region are in place. For the region to work together towards creating the same results on either side of Øresund, it is necessary to work towards a common vision and create initiatives for the region as a whole.

There are already some elements that make it possible to create initiatives for the entire region. There is a good physical infrastructure connecting the Danish and Swedish sides making it easy to get from one side to the other. However, a barrier mentioned by some of the people within the arttech communities, is the high cost of crossing the bridge.

In an earlier study on creative clusters made for the European Commision, arttech actors express an interest in working across borders. Some of the main reasons mentioned were to gain inspiration and expand their networks, as well as giving entrepreneurs and employees a larger pool of interesting companies to work for and in. They also mentioned that traditional meetings and conferences would not be interesting for them. It is important to keep in mind how creatives, technologists and entrepreneurs work and create cross border collaborations that make sense to them.44

In an international perspective, the Øresund Region with its Nordic culture and values, is attractive to people within the arttech community who are looking for work or to establish a new company. The start-up culture allows the founders of the company to focus on their ideas and give them more time to experiment and try different ideas, than in e.g. Silicon Valley where key employees and investors are looking for results after three months of showing an interest in a start-up company. The region allows for a quality of life where work can be combined with family life and spending time with friends.

With these unique characteristics in mind, we suggest a range of initiatives to enhance the arttech ecosystem and ensure the continuous growth and development.

44 New Cluster Concept Activities in Creative Industries, FORA and Monitor Group, 2010
of the competencies in the region. The goal with these suggestions is to test them out through experiments and pilot projects in the region to find out whether it makes sense to implement them as permanent initiatives. The goal is to run a three-year project where all the initiatives can be tested.

**Arttech cluster organisation for the region**

To ensure the cross border cooperation continues to be successful, it is necessary with an organisation that can take charge and be responsible for communication, arranging events, networking, collecting new knowledge and so on within the arttech cluster.

There are already a few initiatives that have been started up recently with the goal of connecting the different start-up communities – within Copenhagen as well as in the Øresund Region. Thomas Madsen-Mygdal and a range of other actors from many different backgrounds, have established #CPHFTW, Copenhagen for the win, a grassroot initiative with the goal of improving the ecosystem for start-ups in Copenhagen and giving them a common identity. It was felt that the different communities did not communicate and that it was necessary to create a platform where everyone could get together.

“Whether #cphftw means ‘Copenhagen for the win’, ‘Copenhagen for the world’ or even ‘Copenhagen for the women’ is open for anyone to interpret.

Nonetheless, agreeing on a hashtag gave the community a common platform at which the existence of the Danish start-up scene could be echoed out in the world.”

Within the Øresund Region, the organisation Øresund Startup aims to create a sense of community between start-ups within the region.

In addition to having a role of gathering the different creative communities, a cluster organisation can gather information and data that is relevant to share within the different communities as well as companies and organisations outside of those

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45 http://cphftw.dk
46 http://oresundstartups.com
communities. One example could be to create a database on where to find the different kinds of competencies and companies within the arttech environment. This could be relevant for anyone looking for partnerships, jobs or consultants.

An example of such an arttech database was created by Rhizome, a not-for-profit international arts organization in the New Museum on Bowery in New York City, which has created an online database.

EXAMPLE: Rhizome

Rhizome was founded in 1996 by Mark Tribe after having visited the Ars and Eletronica festival in Linz, Austria. He wanted to create an international, online community space for internet art and tech artists which he thought was missing in the art & tech art scene; and as he said: “I thought of it as Artforum meets AltaVista [AltaVista was one of the first web search engines], as a kind of bottom-up alternative to the top-down hierarchies of the art world.”

In 1999 the Rhizome Artbase was founded and contains today more than 2500 art works and projects by artists all over the world that employ materials, software, code, websites, moving image, games and browsers to aesthetic and critical ends.

Rhizome is supported by the New York City Department of Cultural Affairs and the New York State Council on the Arts. Rhizome members pay an annual fee on 30$ and gain advanced access to the website and the ability to use a variety of tools. They furthermore gain full access to the community. University, art schools, art centers and libraries can gain access to the full website & services for an annual fee.

http://rhizome.org/

It is suggested to establish a cluster organisation for a limited period of time – e.g. for three years during which a project in the Øresund Region can test the cluster concept and develop a business model where it can be self sufficient after the project is completed.
Lab for Social Experiments – Arttech Experimentarium

Mixing creativity, science and technology is key to finding solutions to the complex and global challenges of today, conducting societal experiments and finding sustainable solutions. People must meet in new settings where old habits are left at the door and new and untraditional ways are explored.

It is suggested to make a place where arttech can unfold by enabling different competencies to meet and experiment and develop new possibilities. Such a place should develop new cross-disciplinary talents that come together to create new radical solutions, and have access to the newest technology and science – either inhouse or by working together with partners.

Such a place can be established as a lab or a house that is open to everyone, but that is run by the arttech communities in the region and through partnerships can ensure access to the newest technology, equipment and knowledge.

One such example is from Montreal in Canada, where they established the Society for Arts and Technology.

In addition to conducting the activities suggested above, the cluster organisation can be responsible for coordinating and organising the initiatives proposed below.

EXAMPLE: Society for Arts and Technology, SAT

The Society for Arts and Technology (SAT) founded in 1996 in Montreal, Canada is a transdisciplinary centre dedicated to research, creation, production, education and dissemination in the field of digital culture. SAT is a non-profit organization that is more than 90% self-funded through its production, touring and promotional activities.

SAT has research programs in digital visualisation and several laboratories for the development of prototypes and experiments are situated in the building. SAT also offers university level education programs and brings together creators who work...
with digital technologies, foster collaboration among diverse artistic and scientific disciplines, establishes partnerships with industry and post-secondary educational institutions, and promotes its members at home and abroad. Moreover, SAT-sponsored productions have been presented in more than twenty countries and fifty cities worldwide.

Featuring artistic exhibitions and residencies as well as club nights, an exploring Food Lab and performances SAT has since its inception organised and housed more than 1700 events and more than 8000 artists and digital experts has developed and tested new emerging technologies and artistic influences.

An example is a playful experiment that has been a part of pushing the boundaries of digital interaction. SAT set up a concert where two bands played together though being 5000km apart. One band was situated in Montreal and the other one in Vancouver. The bands played in real time and the audience enjoyed the music from whatever city they were in.

A key event is the five day SAT ix Symposium that welcomes artists, researchers, educators, producers and distributors to share knowledge and experience about immersive and interactive technologies and about the art arising from them. It also welcomes broader audiences to world premieres of cutting edge digital works in Society for Arts and Technology’s dome, the Satosphere launched in October 2011 – the first immersive modular theatre, dedicated to artistic creation and visualisation activities. This dome, which is 18 metres in diameter and 11.5 to 13m high, forms a 360-degree spherical projection screen with eight video projectors and 157 loudspeakers.

http://sat.qc.ca/en

Policy during the 1980s in Sweden to encourage the younger generation to get interested in music, has shown significant results. Sales in the music industry amounted to SEK 6.3 billion in 2011, where SEK 1 billion were exports.47, 48

47 http://www.tillvaxtverket.se/download/18.5a5c099513972cd7ea3206d/Summary+Music+Industry+in+Figures.pdf
48 Sales in Denmark were similar in 2013, but exports accounted for DKK 0.5 billion; http://www.lydtapet.net/2013/11/nyhed-den-danske-musikbranche-er-en-milliardindustri/
Social and cultural policy were implemented across several areas of society; school children were motivated to learn to play an instrument, rehearsal venues for pop and rock groups were made available by municipalities and easy access to affordable, good quality technology and widespread technological expertise. Supporting new types of music that were not ‘classical’ has been one of the factors leading to Sweden’s thriving music industry today.\textsuperscript{49}

It is suggested to establish a pilot version of an Arttech Experimentarium in the Øresund Region with the support of the municipalities and the national regions. For the Experimentarium to be attractive, the ideas of which activities it should contain must come from the arttech communities themselves. Only then will it become a place that is used and that can contribute to developing new talents, creating new knowledge, facilitating new projects between established companies, start-ups and the underground communities. And if such an Experimentarium is successful, it will retain successful entrepreneurs and create more local heroes, as well as attract global companies looking for innovative environments.

An Arttech Experimentarium can also create space for the public sector to experiment with innovative public procurement, and work together with arttech communities and start-ups to get a better understanding of the challenges they face and the solutions.

To nourish an arttech literacy, following the legacy of the Swedish music schools, public engagement events with arttech could be held at the experimentarium benefitting from the skills and materials gathered there. One contemporary example of public engagement events in an arttech vein are coderdojos where youngsters can learn how to programme.\textsuperscript{50}

It might be possible to lend a building to the Arttech Experimentarium for e.g. three years, or offer them a lower rent for a fixed period of time. The building can either be one owned by a municipality, a university or another actor within the arttech community that is able to make it available at a low cost for a limited period of time.

\textsuperscript{49} Best Practice Cases in the Music Industry and their Relevance for Government Policies in Developing Countries, 2001
\textsuperscript{50} http://malmö.coderdojo.se/
Connecting incubators

During the visit to Stpln held at the beginning of this project, it came up in a conversation that Stpln does not have much collaborations with other maker spaces: “Most maker spaces are start-ups, which means that they do not have resources to travel and work with other spaces.” Similarly, some of the actors in Copenhagen noticed that there are a lot of underground communities, office spaces and incubators – but they do not know of each other because they never meet.

It is suggested to create a network of incubators, labs, makerspaces and underground communities that would benefit from meeting each other. A similar initiative, KASK Incubator Match, already exists in the Øresund Region aimed at connecting research parks.

**EXAMPLE: KASK Incubator Match**

KASK is a business incubation programme supported by the Øresund committee, aimed at unfolding the growth potential of regional start-up environments in Scandinavia. Pooling together companies from regions in Denmark, Norway and Sweden, the core activity of KASK is the yearly growth programme that sets up 400 start-up companies in networking and matchmaking sessions. The best companies are invited to join a business development course with the purpose of improving their marketability across the three KASK countries.

KASK also runs camps, networking events and coaching programs.

http://www.kaskinkubator.dk

Such a network of arttech incubators and communities in the Øresund Region can create events, camps and networking sessions where start-up companies within the region can meet. Furthermore, they can arrange meetings between the start-ups and established companies or public sector organisations, that want to tap into the ideas offered by the start-ups and communities. And the network of arttech incubators and communities could work together with different types of funding companies to help the start-ups attain the growth capital they require.
The network can initially be funded via project financing, and develop a self-sufficient business model during the time when a pilot test of the concept is running and being implemented.

**Access to finance for arttech**

In the study of which framework conditions arttech companies see as most important to improve, access to finance tops the list. Some of these suggestions have already been made to the Municipality of Copenhagen, and it is suggested to make similar initiatives in the Øresund Region.

**Finance for start-up companies.** Start-ups that have established their first ideas and are ready to move on to the next stage with their company and have an ambition to grow have a hard time finding the necessary funding.

However, in the relatively new area of arttech start-ups, it is difficult to know the specific needs of the companies and which solutions and financial products would suit their needs. Only actors with a deep knowledge of the type of industry and companies within arttech have the necessary understanding. It is therefore suggested to create a competition for ideas on how new types of financial sources could be established to cater to the needs of arttech, and invite the actors within the different communities to participate.

A competition could establish several consortia with a combination of skills that can suggest a range of proposals that are suited to arttech start-ups. The suggestions can be discussed at open dialogues and debate so there is a good base for developing suggestions that can be implemented and work in practice. The consortia can compete to develop the suggestions that are best adapted to the needs, as well as business models that work to ensure a return on the capital invested in the start-up companies.

It is suggest using project funding to run such a competition, and chose a range of consortia that can present various different suggestions. Once one of the models...
has been chosen, project funding can also be used to identify the relevant actors to implement the suggestion and facilitate the necessary meetings for a pilot version to run for a specific number of years. The goal will be to develop a self-sufficient business model during the time of the pilot project.

**Finance to get across the valley of death.** As in other industries, there is a challenge for start-ups companies to go from being a small company with a new business model and a new product, to growing and becoming an established company. This is the stage where many start-ups fail, and fall into the ‘valley of death’.

There seems to be a need for initiatives that can help arttech companies from their start-up phase to a growth phase. In the established venture markets, this is an area that the venture companies are working on, but it does not seem to be taking place within arttech.

Sometimes even established arttech companies are too different for the traditional venture companies to truly understand, and therefore investments go wrong. Many of the venture companies feel that it will take a lot of resources for them to acquire the necessary skills to be able to invest successfully in arttech companies, and they are unsure whether the benefits will outweigh the costs for them.

Therefore it seems necessary to develop a suggestion that can help build a bridge over the valley of death. This could be done by establishing a new fund maybe in cooperation with funds that already exist today.

It is suggested to invite a range of partners to discuss the possibility of creating a new type of fund. Project funding can be used to identify relevant actors, facilitate the meetings and develop a model for such a fund.

**Mobilising Business Angels.** In the Øresund Region, as in the rest of Europe, the Business Angel market is invisible – the Business Angels (BAs) do not belong to a formal network, and invest directly in companies they find interesting. It is therefore difficult for start-ups looking for funding to know they exist.
A recent study of the BA market in Europe, estimates the number of active BAs in Europe in 2010 to be between 170,000-240,000. But the total number is thought to be seven times higher as most BAs are not part of formal networks, but find the companies they invest in on their own.\textsuperscript{53}

In Sweden, the number of BAs that are part of formal networks is 135, of which 57 are active. An evaluation of the BA market in Sweden by the Swedish BA Association estimates there are between 3,000-5,000 BAs. There are several BA networks within different types of industries, and two of them focus on investing in creative industries. The study also shows that the investments are local, and focus on the early and start-up stages, and less on seed or expansion stages.\textsuperscript{54}

In Denmark the number of BAs in organized networks is similar to Sweden, where about 130 are part of formal networks. It is estimated that there are between 200-1,000 BAs in total.\textsuperscript{55} A quick overview of the investment profiles show that one BA focuses on creative industries in Denmark.\textsuperscript{56} Of the three companies invested in, one is from Lund in Sweden.

One example of a Business Angel network aimed at investing in creative businesses, is Designer Fund from the US that consists of 40 BAs with a design background investing in companies where designers are the founders.

\textbf{EXAMPLE: Designer Fund}

Designer Fund was established in April 2011, after 6 months they had invested in 10 start-ups. The mission of Designer Fund is to help designers establish companies that create meaningful impact. This is based on the conviction that designers and entrepreneurs in close cooperation with engineers and business people must take on societal and environmental challenges by means of technology. The funds comes from designers who have taken up the role of business angels, who are each contributing with US$ 50,000 as well as from venture capital companies (Khosla Ventures, North Bridge Venture Partners, Kleiner Perkins Caufield Byers).

\textsuperscript{53} Evaluation of EU Member States’ Business Angel Markets and Policies Final report, October 2012  
\textsuperscript{54} Ibid.  
\textsuperscript{55} http://www.dvca.dk  
\textsuperscript{56} http://blaschimmel.blogspot.dk
Designer Fund is currently managed by the designer Enrique Allen, a former teacher at Stanford Design School, who was also a part of 500 Startups. Designer Fund has a large group of mentors from companies like YouTube, Facebook, Google, Twitter, Path, Flipboard, Pinterest, Cooper, IDEO and Frog.

Designers who have received investment and help from Designer Fund contributes back, either by hiring their mentors as advisors in their companies, by becoming mentors for other designers who are establishing a company or by business angel funding for other companies.

Designer Fund homepage: http://designerfund.com
After 5 Years With Facebook, Ben Blumenfeld Leaves To Beautify The Future At Designer Fund, http://techcrunch.com/2012/08/08/designer-fund/

It is suggested that a similar type of Business Angel network and fund is established in the Øresund Region. Project funding can be used to create a network model where BAs are motivated to join, and learn more about what creative start-ups have to offer. Cross border networking events between BAs in the entire region will be tested out, and cross border portfolios will be presented to the BAs at investor events. At the end of the project period the network must develop a business model where they can become self sufficient.

**Diversity at events**

Large and international events are important for creative metropoles, enabling them to attract creative talent and providing exciting meeting places for people from all over the world. Events inspire people and create new networks that lead to new ideas and even new companies. There are already a range of successful events in the Øresund Region. But to position the region as a hub for creative industries and arttech, it would be beneficial to coordinate events and communicate their existence to a larger audience.
In addition, many events such as hackathons or start-up camps do not attract a diversified group of participants. If the organisers of these events want to receive a range of different ideas and solutions, they must also ensure different that types of people attend, otherwise it runs the risk of for example offering technical solutions to all kinds of problems.

The most successful events are where the attendants feel that there is a reason for meeting. Many of the people we have spoken to would like to network and meet others, but they feel it is more useful if the reason for meeting is to e.g. work on solving a particular problem for a municipality or similar. Issues of ownership and rights to ideas and concepts developed during these kind of events have also been emphasised as big concerns.

It is suggested that a set of guidelines is developed by a group of representatives from the arttech communities. The guidelines can be tested during the project period by organising a number of events funded by the project, or by public or private partners.

**Engaging Local Heroes in the Øresund Region**

Local heroes are important role models for aspiring entrepreneurs, creatives and technologists. Telling their success stories might help motivate others to take the big step and start their own company.

There is not much of a culture in the Nordic countries to boast about our achievements. Some people might even feel uncomfortable about it, such as Minecraft creator Markus Persson. He says that he prefers to stay out of the limelight, and concentrate on developing small games that will not become as popular as Minecraft:

“I’m a nerdy computer programmer who likes to have opinions on Twitter. As soon as this deal is finalized, I will leave Mojang and go back to doing Ludum Dares and small web experiments. If I ever accidentally make something that seems to gain traction, I’ll probably abandon it immediately.”

Finding a way to encourage them to become role models for the future generation of entrepreneurs in a way that they are comfortable with, could create significant value for the young and hopeful.

One example is the Seven on Seven conference in the US, that pairs seven well known artists with seven game-changing technologists to challenge them to develop something new. The conference creates a lot of attention and demonstrates how an artist and a technologist can develop something radical together.

**CASE: Seven on Seven**

Starting in 2010 – what has since become a world known event, Rhizome has annually held the conference ‘Seven on Seven’ where seven leading international artists are paired up with seven international game-changing technologists in teams of two. The goal is for the teams to develop ‘something new’ in one day – an application, a service, social media, artwork, product, or whatever they imagine – and present it for the conference crowd. Seven on Seven can inspire comparisons to a hackathon but the core idea is to set seven interdisciplinary teams together to see what can happen when two people with such different minds, different approaches and knowledge get the possibility to collaborate on out-of-the-blue ideas in 24 adrenaline-charged hours.

[http://rhizome.org/sevenonseven/](http://rhizome.org/sevenonseven/)

It is suggested to create a similar event during the project period to test the concept in an Øresund or even Nordic context. The event can be financed by the project during the project period.

**Affordable office spaces**

In all creative metropoles, there are enclaves where creatives cluster together, that have a specific atmosphere and cheap rent. These areas enable informal meetings to take place between a range of different people that work in the area. There is life created by people meeting at all times of day, and events and happenings taking place in the evenings.
If the area becomes too expensive, the creatives and their start-ups and communities will be forced to move, taking their liveliness with them. This has already happened in many places, such as in Manhattan when the creative environments moved from Greenwich Village to SoHo, and later on to the Meatpacking District. And the same things is about to happen in London’s Silicon Roundabout, the recent enclave of creative and tech start-ups, housing around 10,000 workers.58

It is suggested to establish a team during the project period that work together with the different municipalities in the region to develop a long term plan of how to ensure that there are always affordable office spaces available for the creatives and start-ups.

Appendix

DROP-IN WORKSHOP
Appendix:

**Drop-in Workshop**

During three days we hosted a drop in workshop with various actors involved in arttech, at Mitt Möllan in Malmö. The invitation to the workshop was open to anyone who identified themselves as part of arttech. Those who participated could do so with varying levels of engagement. Some stayed for several hours, some had lunch with us and some stayed only for a few minutes.

The reason for choosing this approach was that it hopefully would allow us to reach people that we did not have in our own networks, that it would enable dialogues between actors that we would not think or would be able of putting together, and that the event in itself would become a way of prototyping a meeting place. The ambition to prototype a meeting place was later on confirmed by one participant who wrote: “Tänkte på hur ni själva skapade det ni undersöker: en ny mötesplats. Var ett värdefullt sammanhang för mig i alla fall och de möten som blev.”

In the space we worked with three walls with the aim of materialising the three main areas for this project: Arttech ecosystem, meeting places and financing models. Each area had some examples and questions attached to them that were further elaborated during the workshop.

The workshop was also a co-articulation and new things became in the composition of the participants together with the materials at hand. For example, when several participants had come with requests for tips on who to contact for this or who to connect with for that, we put up a paper on the wall saying “Kompetens sökes” (competence wanted).

The gathering that we organised at Mitt Möllan, as part of the research for this report, could be called a meta-meeting place, since it tapped into networks and actors in the Øresund arttech field. Importantly, we claim that a meta-meeting place should be characterised by, not only building bridges, but also being temporary and reflective.