Design as Enabler of Social Innovation
- A Swedish perspective

Sara Ilstedt Hjelm, Professor, Product and Service Design, KTH
Pehr Mårtens, Research Coordinator, Product and Service Design, KTH

Kungliga Tekniska Högskolan/ Royal Institute of Technology
School of Industrial Engineering and Management
www.kth.se

This report is written on the commission of the Swedish ESF Council, 2011.
Design as Enabler of Social Innovation
- A Swedish perspective

Content

1. Introduction ............................................. 3

2. Social innovation in the innovation system .......... 4

3. Public sector innovation .................................. 5

4. Design as a tool for change .............................. 5

5. The design methods ...................................... 7

6. Social innovations from a historic perspective .... 7

7. Contemporary examples of social innovation .... 10

8. Conclusion and recommendations ....................... 11
1. Introduction

Our societies are facing grand challenges such as climate change, energy and resource scarcity, ageing, and issues of health, urbanism and social integration. It is widely recognised that technological solutions are not enough to meet these challenges – we also need social innovations. The report "Study on social innovation" states that “Just as the Lisbon strategy for jobs and growth focused on innovation, entrepreneurship and the knowledge-based economy, the new strategy for Europe, Europe 2020, must have social innovation at its centre as a means of simulating a more dynamic, inclusive and sustainable social market economy.”

Humanities, social sciences and management are responding to those challenges with analysis and policy recommendations on an abstract and strategic level. Technological research is creative and produces concrete rearrangements of the functional organization of society, but it lacks the focus on people that make the solutions long term sustainable.

The aim of this paper is to show that design methods can act as a tool to take policies and recommendations into seminal and working schemes. We will show that design offers a set of methods that both are creative and people-centred, capable of doing inter-disciplinary syntheses through iterative prototyping.

There is an increasing awareness that growth and innovation needs a stronger social component that also focuses on wellbeing, inclusiveness and integration. This would also reinvigorate Europe as a successful builder of society and not just economies. But to do this we need to focus all our creative strength and try new paths and methods – design is one of them. As the European commission argues in a communication from October 2010 "Our strengths in design and creativity must be better exploited. We must champion social innovation. We must develop a better understanding of public sector innovation, identify and give visibility to successful initiatives, and benchmark progress.” (our italic)

Today design is widely used and closely associated with product development for business and the market. It might seem strange to argue that this same method can be used to develop society and for social goals instead of commercial. This is however the case. Design has a long tradition of non-commercial application something we will demonstrate with examples where design played a pivotal role in the development of the Swedish model.

But first we will discuss the need for social innovation, the context of the innovation system, relate to the innovation capacity of the public sector and discuss the background of the design methods, the key components used in design for product and service development and show how these tools can be used to enhance user-centred development for social innovation.

---


3 For the examples in this paper we are indebted to the mapping of the area presented in Design för social innovation: ett nytt designforskningsområde, by Anders Emilson to the Faculty of Design at KTH, 2010.
2. Social innovation and the innovation system

The need for social innovation has been expressed – most recently in the New Year Speech of president Barroso\(^4\) – as an important way to meet some of the grand challenges we face such as climate change, ageing society, health issues, inclusive society, and sustainable development.

Social innovation can tackle those challenges in basically two different ways:

- As innovation in public sector, or innovation in the third sector and in businesses related to the public sector. This is sometimes put in the words of a new institutional design of the welfare state.
- As innovation in the sense that products, services, business models or marketing primarily have social goals or the goal to affect people’s behaviours and habits.

There are a few different definitions of social innovation at hand, of which those two are the most frequent:

- anything new that works to meet a social goal
- social innovations are innovations that are social both in their ends and in their means

It could be added to those definitions that a social innovation is an innovation that meets a social need of citizens that is not met by neither the public sector nor the market. It could also be added that a prevalent characteristic of a social innovation is that it is carried by citizens and that a social innovation is based on citizen user participation.

Social investments in the third sector and civil society can be made by the public sector scaling up subsidies to actors such as voluntary organizations of all kinds; it can also be made by businesses in terms of social corporate responsibility, social entrepreneurs, or by philanthropic foundations. When all those different actors are heading towards the same goal we can talk about a social movement, which is the best condition for a social innovation to be sustainable. The social movement that today is showing a strong ability of mobilizing all kind of actors is the environmental movement. We will discuss this at more length in the sections that follows.

Social innovation is needed to meet our most pressing challenges

\(^4\)José Manuel Durão Barroso President of the European Commission Growth and economic governance – orientation debate on energy and innovation, 5 January 2011
The urge for social innovation also has another side. As the EU has organized the supply-side of research through for instance ERA, EIT and ERC, awareness has risen that the demand-side for research are not so well either organized or understood.\(^5\) The demand-driven innovation is an innovation supported by research in order to respond to the market and the society, ultimately the users. To open up the field of social innovation as an area of intervention of EU and member states is implying a rethinking of the innovation system in terms of making it more people-centred.

For a long time there has been a critique of the linear model of the innovation system, i.e. a push model where research is thought of as giving rise to innovations – products and services – that are made useful in society and on the market. Pull models and bottom-up approaches have been presented as alternatives aiming at making science more innovative and relevant to society.\(^6\) These methods have one thing in common: they aim to represent the people and the demand from society, but have not presented a thorough way of involving users. Now the design methods have been “discovered” by the innovation systems thinkers as a more viable alternative.

### 3. Public sector innovation

Central to the discussion of social innovation, as pointed out above, is a disappointment with the lack of creativity and innovative capacity within the public sector. It has been claimed to be overly bureaucratic and over-regulated. In the last decades some member states have introduced New Public Management to promote a more efficient regime. Inspired by methods in the commercial sector the public sector also has been made to follow the rules of management by objectives and results. Arguably, when the goals are put in numbers by a ministry external to the agency this will hamper creativity within the agency, that have not been part of the goal setting process. The constant report and auditing system that follows with it also put obstacles to creativity and new ways of thinking. A study by the British design firm Participle, that aims to innovate public services, shows that + 74% of the social workers engagement with families in chronic crisis was spent on administration – monitoring, tracking, filling in forms, data recording, reporting, creating a paper trail and attending multi-agency meetings.\(^7\) This is not a unique example.

New Public Management also implicates an industrialized view of service production in the public sector that is not fitted to the local society it is put to serve. It does not consider the networks of engaged citizen that could be more effectively involved on the local level in the improvement of public services.

Yet another reason why public sector is lagging behind in creativity and innovation is due to the ever increasing speed of change that characterizes our time. We face new choices about where and how we work, live, travel, communicate, migrate and maintain health almost every day. To cope with this rate of change an organization need to be flexible. Public sector has proven to be stiff and badly equipped to the need of continually adjusting itself to the shifting circumstances.

---


\(^6\) See for example:


\(^7\) From Participle's website 110110, http://www.participle.net/projects/view/3/102/
4. Design as a tool for change

Bruce Nussbaum, former innovation expert at Business week, claimed that "if we are in a transformation crisis then we need to have people who know how to transform" and referred to designers, design thinkers and innovators that works with organisational change in business and society. For many – this is a new way to think about design. The very word “design” is connected to fashion, furniture and style. But design today mainly refers to a set of methods used in product and service development where aesthetics only is a part of a larger competence field. The etymology of the word design comes from Latin designare; to mark out, device, choose. Today design means "to create, fashion, execute, or construct according to plan" (from Merriam Webster). It can refer both to the design of a scientific experiment or to the more artistic "the creative art of executing aesthetic or functional designs". Nobel prize winner and design theorist Herbert Simon wrote 1969, the ground breaking book A science of the artificial that discusses the need of a new science for design that deals with “how things ought to be” as opposed to natural science that deal with "how things are". He had a very wide definition of design claiming that "everyone designs who devices a course of action aiming at improving something.” Since then design has become an efficient tool in product development and towards the end of the century the concept design has expanded to include also interfaces, services and experiences.

In this paper we define design as a method of creating something that people wants to use. By that we mean that design is a creative, user-centred process to develop products and services that are functional, profitable and creates value for the user. These methods can be useful independent of sector and may therefore be used as a tool for change in both business and public sector. But why are design methods particularly useful for handling change in a complex context? Many problems today (such as “the grand challenges”) are so called “wicked problems”, problems with an infinite amount of parameters and possible solutions. A technical/rational method does not work on such complex problems because these methods need more clearly defined problem. Designers are trained to delimit without simplifying and to quickly make qualified judgements. In a classic study, Rittel and Webber showed that while the engineer is problem oriented, looking for a restricted problem to solve, the designers are solution oriented, focused on developing a number of solutions in order to explore different possibilities. Designers therefore, are useful in the beginning of a project, where they freely can explore a space of possible actions and "how things ought to be", while the engineer can take these concepts and define them as "problems" to be solved and turned into a functioning product.

During the 1970’s researcher Donald Schön became interested in how we learn and solve problems in a world of increasing change. By studying how practitioners solve complex problems he found that designers have a particular ability to handle situations with an infinite number of parameters and solutions. Design methods contain key ingredients that make it especially suitable for this: it is user-centred and contextual; it visualizes and develops prototypes that can be used for feedback and iteration. The method has a general structure but also includes improvisations and judgements based on a "library" of previous experiences and similar cases. Schön’s work is still seminal in order to understand problem solving in a world of constant change, and help us understand how design methods can be used as a tool to handle complex development work.

Today, design is an established method in business to create innovative and attractive products that are successful on the market. Business leaders and innovators claim that companies can’t

---

8 [http://www.businessweek.com/innovate/NussbaumOnDesign/archives/2009/01/from_davos-we_are_in_the_midst_of_a_transformational_crisis.html](http://www.businessweek.com/innovate/NussbaumOnDesign/archives/2009/01/from_davos-we_are_in_the_midst_of_a_transformational_crisis.html)
10 Rittel and Webber “Planning problems are wicked problems” in Cross ed. Developments in design methodology, John Wiley, UK 1984
afford not to use design. The main idea behind design for social innovation is that a similar approach can be used to solve large challenges in society such as demographic changes and sustainability.

In the discussion of social innovation and the innovation system there has been a growing interest in a demand-driven and user-oriented perspective which has led to a renewed interest in design methods. Design methods have been taught and theorized mainly at art schools and has thereby not been familiar to academia until lately. As design now is entering the hall of science the usability of design methods has been given visibility to a wider audience especially researchers on innovation. The innovation research and policy community now has invented the neologism design-driven innovation to describe the phenomenon. This is also why design-driven innovation could be understood as innovation made social, in the sense that it is an innovation that is rooted in an analysis of the social situatedness of people's needs, behaviours and resources in a particular context.

5. The design methods

Design methods are based in the design discipline but can also be used cross-disciplinary. They are solution and result oriented, using all the senses in visualizing or giving form to a design proposal – a tactile glimpse of a future possibility. Furthermore the design methods entertain a relationship with the user in a co-creative process that in iterative loops come back to the users to refine and adjust as well as to get new insights.

Following the design consultancy IDEO, we describe the design method as a system of overlapping spaces rather than a sequence of orderly steps. To simplify, there are three spaces to keep in mind: research, ideation, and implementation. The space of research is inspired by the problem or opportunity that motivates the search for solutions, were facts, inspirations and users are being sought out to create the basic landscape of the project; ideation is the process of generating, visualising, and testing ideas, in constant dialogue with users; and implementation as the part that leads from the project stage into people's lives. In an article in Stanford Social Innovation review Tim Brown & Jocelyn Wyatt from IDEO continues:

The reason to call these spaces, rather than steps, is that they are not always undertaken sequentially. Projects may loop back through inspiration, ideation, and implementation more than once as the team refines its ideas and explores new directions. Not surprisingly, design methods can feel chaotic to those doing it for the first time. But over the life of a project, participants come to see that the process makes sense and achieves results, even though its form differs from the linear, milestone-based processes that organizations typically undertake. 13

One key ingredient is prototyping, which is to stage the design concepts in tactile models or environments that can be experienced and tested by stakeholders. This is more important than it might seem at a first glance. Experiencing something at first hand is totally different, and much more convincing, than looking at a drawing, a 3D-modell or reading a text. It involves all senses and past experiences into experiencing future possibilities in the present.

Design methods to conclude, are a number of creative, user-centred methods to develop solutions where several separate often contradictory parts, is shaped into a meaningful whole in the form of a product or a service that people want to use in their everyday life.

We are all aware that these methods have been very successful in the commercial sector creating everything from cars to telephones and websites, but can they really be used for social goals?

6. Social innovations from a historic perspective

That public service has been through times of innovation and design processes are perhaps not widely recognised. Historically, as today, it has been a question of handling big challenges like housing, social service, infrastructure, health and working conditions. These are challenges without simple solutions where business and technical innovation has to synergise with public service and politics to create sustainable products and services. One of the most forceful ways to demonstrate visions for the future is through full-scale exhibitions.

The Stockholm Exhibition\textsuperscript{14} of the thirties is an illustrative example of a design endeavour that became a turning point in the history of the Swedish model creating the social Folkhem (Peoples home). Inspired by a social, political and aesthetic vision, a new world was presented in the form of a prototype of a settlement complex in the scale of 1:1. At this exhibition, ideas for a new architecture, and ultimately a new man, was shown to the public, to politicians and media for the first time. To use a modern phrasing, design concepts were prototyped in full scale to enable feedback and interaction with stakeholders – and the reactions where overwhelming, both positive and negative.

\textbf{The Stockholm Exhibition 1930 showed a new way to live.}

The initiative to the exhibition was taken by the Swedish design agency Svenska Slöjdföreningen (later Svensk Form) – a social movement of some significance\textsuperscript{15} – with its charismatic director Gregor Paulsson together with a number of leading Swedish architects and designers. Their motivation was to introduce the modernistic ideology to the Swedish public and demonstrated how technology and new solutions could solve problems such as housing shortage, hygiene and everyday life. At the stage were architecture in steel and glass, mass-produced apartments with roof terrace and bath tubs, and foldable space-saving furniture. A food cooperative built their first self-service shop “Konsum”. This would not have been possible without the development of the package industry that dosed dairies in convenient containers.

\textsuperscript{14} Paulsson et al. \textit{ ACCEPTERA }, Tidens förlag, Stockholm 1930
\textsuperscript{15} http://sv.wikipedia.org/wiki/Svensk_form
“Tetra-pak” is an innovation that over the years would lead to the largest private fortune in Sweden.

Self service shops were made possible by the growing package industry.

But the exhibition was not primarily about a new style of architecture but about a new way of living. It was about values of life, of a brighter and more rewarding future where progress and technology would create a better world. In focus were not the rich and wealthy, but the ordinary working family and their everyday life. Many design concepts such as the working kitchen and the self-service shop, aimed to facilitate household work so that women would be able to have an employment outside the home. In the years to come Sweden would introduce other innovations leading in this direction such as childcare for everybody, maternity leave, collective housing with a central restaurant etc. It is indisputable that the Stockholm exhibition led the way to and materialized in a convincing way, the development of the social democratic project peoples home (folkhem), and gave it a brand new visual aesthetics.

The social folkhem also located into the center of its physical plan a social innovation: the child health center (Barnvårdscentralen). This gave immediate results in cutting the rates of child deaths, detecting diseases and social problems on an early stage, supporting families in taking care of their children. It also gave symbolic power to a political vision where concern about children was a matter for the state and not only for the individual. The challenge the social folkhem aimed to meet was the problems with public health, poor housing and social unrest posed by slum cities which had followed on fin-de-siècle industrialization and urbanization. The vision was powered by social engineering and the social impact was immense. In the social folkhem designers were involved at all levels. Urban planners, architects, and designers of tools, consumer goods, furniture where engaged to give this vision a tangible materiality. But as it were, it was top-down, and the state knew what was best for the citizens.

7. Participatory and green design

Over the years a critique against the top-down management of society and the social engineering began to appear. In the seminal project Utopia from the late 1970’s researchers and designers co-operated together with skilled workers and trade-union in printing industry in order to co-create new computerized tools for graphic work. These participatory design methods have become immensely successful and are now a well-established tool in all types of design. It is still often referred to as the ”Scandinavian method”. Based on the disability rights movement, inspired by Utopia and financed by the Working life institute (Arbetsmiljöinstitutet), the design consultancy Ergonomidesign, developed aids and everyday items for disabled and elderly based on thorough studies on users and their behavior. Many of their early work such as the bread-knife and the coffee-pot are classic and on display on museums all over the world. Their innovative work helped to raise the quality of life for many disabled and was seminal in the development of the Inclusive design movement. Today, design development which includes the needs of marginalized groups of people is regarded not just as socially desirable but a commercial opportunity.
This last example of socially innovative design takes us to the next step of the Swedish model when it took up the challenge of climate change and an ecologically sustainable society. In a phrasing of the then prime minister Göran Persson in the early 1990’s, it was called the green folkhem. The green folkhem is about a resource efficient society and very much based in an inclusive, bottom-up ideology. It picked up on the ideas of the environmental movement and made it part of the public policy. In a seaside part of Stockholm and former industrial area the model city Hammarby Sjöstad has been created. The town influences the inhabitants to change lifestyles and to be aware of energy consumption, the waste management, facilitating car-pooling and transportation with less carbon footprint. Careful steps are taken to include residents in the discussion and development of the area through information hubs, websites etc. This model city is more than a Living lab of a future to come, but an experiment of dwelling in the city in the making. It exercises profound impact on society as well as introducing new products and technologies some of which already are exported on the international markets.

The environmental movement is influencing many areas of design today, in the households, in the urban space, and in fashion. In the household design can make people more aware of energy use and inspire to a change of behavior has been acknowledged by the Swedish Energy Agency (Energimyndigheten). They have financed design-based research that explores alternative ways to visualize energy consumption in the home based on thorough user studies and critical, creative thinking. The Flower lamp, the Power Aware cord and the Energy Aware clock, shows energy use in real time in order to help people to be aware of and get control over their own energy use. In urban design the environmental movement is inspiring people to grow their
own vegetables in the city, such as food garden in Uppsala and guerilla gardening\(^\text{18}\) in Stockholm. Other initiatives work for a more sustainable fashion and clothing industry such as the design workshop Remake at the Stockholm Stadsmission, libraries of clothing and clothes swapping days. All those projects were recently presented and exhibited in the Museum of Architecture in Stockholm.\(^\text{19}\)

The above examples show that design has a long tradition of social goal and to champion large scale systemic change in society. It is even true that design movements in England, Germany and Sweden, in the mid 19'th century, originated from a social concern rather than from a commercial.

7. **Contemporary examples of design for social innovation**

Today there are a number of forward looking design projects in Europe that picks up on the tradition of participatory design and co-creation in the development of design for social innovation. Below we are discussing some of these initiatives that are working on different levels, such as state policy, regional level, innovation of public service and in third sector engagements. They also have different financial support, ranging from direct government funding, EU research and innovation funding from the Framework 7, funding from municipalities and through collaborations between university and third sector. One trait they share is that they have emerged from entrepreneurs that burn for their issue.

- The 27e region\(^\text{20}\), a French EU-financed design-driven project for innovation of public sector on the regional level, have come up with formula of a sending multi-disciplinary design teams into 3 months “residences” in regions in need of new solutions. The have for example worked to improve high school and universities campuses and renewing health care systems in depopulated regions.

- Participle\(^\text{21}\), a UK-based design consultancy, specializing in design of public service have made project on elder care, families in chronic crises, etc. They are tackling those problem areas in new ways, for instance they base their interventions on collaboration with third sector civil organisations, focusing on the participants resources instead of their need of help.

- Collaborative services\(^\text{22}\) is a catalogue of cases and scenarios developed by the design department of Milan Polytechnic, led by professor Ezio Manzini. It is aimed at social innovation and design for sustainability, exemplified in websites, publications and conferences.

- MindLab\(^\text{23}\), a do-tank placed in government office of Denmark, using anthropological and design methods to work on social reforms in a cross-ministerial fashion. They have worked with issues such as gender division in the labour market, climate change, unemployment faced by young immigrants etc.

- Medea\(^\text{24}\), Collaborative media initiative is based in Malmö Sweden. They have started three living labs co-creating in urban planning and on issues such as integration of youngster and newly arrived immigrant women in the suburbs.

---

\(^{18}\) More about this at http://www.tillvaxt.org/

\(^{19}\) More about this at http://www.arkitekturmuseetlive.se/program.php

\(^{20}\) http://www.la27eregion.fr/

\(^{21}\) http://www.participle.net/

\(^{22}\) http://www.sustainable-everyday.net/main/?page_id=19

\(^{23}\) http://www.mind-lab.dk/en

\(^{24}\) http://www.malmolivinglab.se/index.html
Common for these initiatives is to work bottom-up and start with small changes on a local level that eventually will scale up and lead to systemic changes. Another commonality is that they work with marginalized groups in society and addresses “problem issues” such as long-term unemployment, crime, alienation, gender and ethnicity. All of them have a commitment for sustainability and for the creative competence of the individual to change their circumstances to the better.

The possibility of prospering from all those interventions, and combining them, can of course allow for synergies that will have greater social impact, and eventually lead to systemic change. But to arrive to systemic change it is very plausible, that bigger planning structures of society need to be involved. Promising is that the different European initiatives of design for social innovation already are engaged in a vivid transnational collaboration in the field. Designers from Italy, France, UK, Sweden, Denmark and other nationalities meet to exchange experiences at venues such as the Design for social innovation and sustainability network (DESIS), The Service Design Conference (ServDes), the Service Design Network (SDN) and the Participatory Design Conference (PDC).

There has been some critique against involving designers in social innovation. The most frequent is that designers have poor knowledge of the public sector and that they leave the implementation to others. These issues are vividly discussed within the community as the field matures. Designers, it is argued, has no specialist competence in any field, the public servant and the users are the specialists, the role of the designer is to use their expertise in the process. As for implementation it should always be part of the brief and the design process includes ways to sustain a successful implementation, in companies as well as in public organizations.

9. Conclusions and recommendations

The main conclusion of our paper is that design methods can fill the gap between the levels of policy and practice of social work within public sector and elsewhere in the social area. Through taking on this intermediary role design will reinvigorate public sector innovation capacity involving the surrounding society. Design methods can be a useful tool for social innovation and is worth of trying at a larger scale with programs and instruments to facilitate its realization.

We want to make clear that design should not be seen as a wonder method for social innovation, but a creative tool to complement and support many others. We claim that design methods so far has been too little taken advantage of and that they offer much more as they become more systematically used.

In member states as well as at the European level structures of this kind already exist for business innovation, but with a very few exceptions nothing for social innovation. We need instruments that allow for and are enabling design experimentation that engages and involves collaborations of individuals, local networks of citizens, NGOs, businesses and public sector agencies. Incubators at universities have a role to play, and probably they would benefit from networking with design-driven labs for social innovations located to regions or agglomerations of municipalities closer to citizens.

A program of mutual competence development is also needed. Social and political scientists and public servants of different ranks need to learn from the creative discipline of design. Designers and the design research shall develop its competencies in dealing with societal issues. It will require that designers are given the possibility to field work in tasks in the public sector and also to be further educated in relevant material concerning public sector organization and principles.

As we have pointed out in this paper before: The environmental movement is a social movement that has a privileged role to play, as its capacity to mobilize citizens in a broad and inclusive way is widely recognized. We believe that funding and supporting structures – not least the ESF itself – would gain from considering schemes in the tracks of for instance
sustainability, resource efficiency or environmental awareness in conjunction with the agenda of social innovations. This approach will also help pushing the European economy in the direction of green skills, green jobs and green growth. Furthermore, the issue of the environment is by its very planetary nature logically depending on transnational networks and will therefore support the integration of member states and help create a common ground for an all-European society.

Specifically we have identified a set of targeted tasks where the ESF can make a difference to enable social innovations through design methods:

- Competence development initiatives to educate civil servants and social workers in design methods to foster dialogue with citizens,
- Competence development initiatives to young designers to make internships in social design dedicated design consultancies,
- Networks for social innovation, in public-private-partnership structures allowing designers at universities and in education to contribute (parallel industrial PhD),
- Multi-professional education materials, a toolbox in design for social innovation,
- A database of best practice in design for social innovation with web access,
- Social design studios at regional levels as method resource centers at the disposal to public servants, social workers, citizens, NGO:s and social entrepreneurs,
- Summer design schools in social innovation as small scale pilot projects,
- New funding schemes that support structures of meeting places such as public exhibition venues, public libraries, and public citizen information hubs to present and discuss local social innovations,
- New funding schemes that support structures of voluntary organizations, in all areas, (nature, culture, ethnic, sport etc.) to be seen as bases for social innovation.

And finally, there is one overarching question. In a number of publications catalogues of examples of social innovations have been presented\(^\text{25}\). What is needed now is research that systematizes and penetrates the phenomenon of social innovations. This might go beyond the area of operations pertaining to ESF, but should be a research area of interest to the wider community of innovation research, and is an issue that will broaden the scope of innovation research to include the humanities and the social sciences. To achieve a working agenda of social innovation research the ESF could form alliances with research agencies and foundations. Design research is just one research area that can contribute to bring insights into this emerging field. Nevertheless our conclusion is that the design research might be an area of key importance as it has the capacity to be the intermediary of different disciplines of scientific research and the technological development, as well as between the levels of policy and practice.