

Viewpoint

New design knowledge

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This paper was presented to introduce Changing the Change, an international conference on the role and potential of design research in the transition towards sustainability, held in Turin, Italy, 10–12 July 2008. At the end of the paper is an Appendix which presents the first draft of a 'Design Research Agenda for Sustainability', which was co-generated by participants during the conference.
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Being a designer means being an optimist. Given problems – even the most difficult problems – all we can do is to presume the possibility of solving them. This is not because we do not see difficulties. Designers must be realists. We presume that we can solve problems because we have no alternative. To be designers, we must make proposals, and we base these proposals on the opportunities we meet.

Faced with a world drifting rapidly towards catastrophe, it seems to me that we need this sense of a designer's realism and optimism more than ever. We must see the problems, and we must think that in spite of everything, it is possible to solve these problems. We must find solutions. This is why we are all here today.

I A Conference as Occasion for Research

Changing the Change is a conference for designers and so the spirit of the conference is a designer's realistic optimism. It is based on two main ideas,

which we can call optimistic-realistic. The first is that the change in progress towards a society that calls itself network and knowledge based, yet is still as unsustainable as what we had before, if not more so, can be re-oriented towards sustainability. The second is that the designer community can play a positive role in this necessary re-orientation and that this can be done by building new *design knowledge*.

Therefore, *Changing the Change* is a conference of designer-researchers who gather to discuss the state of the art and to consider how to create new design knowledge. We do so accepting the challenge of a transition towards a network society and a knowledge society while making the transition towards sustainability.

In organising the conference, we have done our best to make it a serious event, properly accredited in academic terms. However, we have also done all we could to avoid a value neutral conference, a conference without values.

More than any other kind of research, design research cannot be separated from the purpose and the social significance of its results. Today, facing

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grave social and environmental problems, we cannot remain neutral. Every research project we start must take a stand. Whatever the specific question, we cannot forget the need to consider our actions as a contribution to the sustainability of the systems in which we work. This involves all the systems for which we are working – environmental, social, economic and even aesthetic.

So this is the first message this conference seeks to communicate. *Today, sustainability must be the meta-objective of every possible design research activity. It should not be a specialised sector along with other specialised sectors as it has been in recent years.*

It is likely that no one would disagree with this statement. Who wants to design and or conduct design research in a way that leads to unsustainability? Nevertheless, we must take the term sustainability for what it effectively means – a radical change in ways of being and doing. From these words, we must move to concrete actions. If we do, things will change.

What would it really mean to bring research for sustainability into every design discipline and all areas of design research? How can we bring design research out of the straits of what green design, ecodesign, and sustainable design have been up to now?

In the face of these questions, *Changing the Change* is itself an occasion for research. Our call for papers was an international inquiry among researchers to see what they are working on. This enabled us to map out what we mean today when we talk about design research for sustainability. It also helped us to map what we are actually doing in the field. The same is true of the invited speakers that we asked to critically outline the shape of these themes in their various regions. Together these became a survey based on the opinions of a select group of privileged interlocutors.

Finally, the conference will involve an open discussion stream starting with a round table and continuing into free discussions. Our goal is to bring important issues into focus. Finally, the conference is an exercise in collaborative creation of possible lines of action that will become a *Design Research Agenda for Sustainability*.

2 *Research and design knowledge*

Much recent discussion on design research focuses on methodological aspects. I would like to focus above all on results with a simple working definition. *Design research* is an activity that aims to produce knowledge useful to those who design: *design knowledge* that designers and non-designers (individuals, communities, institutions, companies) can use in their processes of designing and co-designing.

From here, discussion on the nature and quality of design research can move from a discussion of methods, where it has largely been centered until now, to results. This is the issue of the knowledge that design research has produced, its nature and quality, and therefore ways of getting hold of it.

In terms of content, design knowledge is a collection of different cognitive artifacts with different purposes. These include *visions* to stimulate and steer strategic discussion; *proposals* to integrate into the development of specific projects; *tools* to help understand the state of things and implement design ideas; along with reflections on the sense of what we are doing or could do.

However, the design knowledge we are talking about can also be described in terms of form. It must be explicit, discussable, transferable, and accumulable. It must be knowledge that can be clearly expressed by whoever produces it, discussed by anyone who is interested, applied by other designers, and it must become the starting point that allows other researchers to produce further knowledge.

Starting from the results, it is possible to outline other research methods of various kinds and methodologies that allow us to study them in comparison with one another. Research that produces conceptual and operational tools for designing or research that helps us to understand the nature of what we are designing is research for and on design. We usually conduct this research by adopting methods proper to disciplines endowed with a consolidated research tradition, adapting them to our specific requirements. In the field of research for design, this typically includes ethnography, semiotics, ergonomics and various technological and economic disciplines. In research on design, this often means history, sociology or philosophy.

Conversely, research that produces visions and proposals usually adopts original methods, using tools and skills proper to designer culture and practice for *research through design*. In this case, the research modes are, and must clearly be, different from those of traditional scientific research. Research through design necessarily brings into play a level of subjectivity that would be inadmissible in scientific tradition. Nevertheless, this is not typical 'artistic research', totally guided by the subjective dimension. Design is a discipline that combines creativity and subjectivity with a dose of reflection and arguments on its own choices. The same is obviously true for research through design, with the added factor in this case that the knowledge produced cannot be implicit and integrated in the design but, as we said, it must be explicit, discussable, transferable, and accumulable.

The specific acceptable level of subjectivity in design through research is an open question. We have discussed this and we can continue to do so, but I do not believe that a precise definition of this limit is of such great interest. Going back to where we started, I believe that what is really important are to discuss the results we have achieved case by case and the contribution they

can bring to solving the problems we have to face. Obviously these contributions will be solid if the methodologies we adopt are too.

3 *A context in transformation*

'Every design project is based on good research.' I have heard this affirmation many times in the past to mean that the speaker did not understand why it was necessary to talk about specific, autonomous design research activity. I haven't heard the phrase repeated for some time now. However, I think it is still true and it can be used to assert the necessity of autonomous design research. Indeed, if we update the terms, it would sound something like this: *every good complex project requires good design research.*

In order to justify this statement we must enlarge on the subject a little. I will do so very briefly by taking up the sense of the conference title.

To work as agents for sustainability, designers must take a couple of steps forward in understanding the context in which they are operating. They must understand change already in progress better than they sometimes do. This means the transition towards a network society and a knowledge society. Let's call this *Change 1*. They must understand equally well the change required to re-orient the change in progress towards sustainability. Let's call this *Change 2*.

This is not at all easy. *Change 1* is generating system transformations that require of all social actors to use new ways of thinking and acting with totally new artifacts, organisational forms and designing networks. This includes designers. These changes require designers to rethink themselves, to rethink how they operate and reshape their position in society.

This new operational situation creates the context in which *Change 2* must take place. This is the change that we need to move towards sustainability. This change also concerns systems and this

introduces issues that have never before been faced from commons regeneration to time ecology, from the new nature of communities to the one of places. I shall come back to these later.

The expression *Changing the Change* refers to a profound social, cultural and economic transformation. For this transformation to take place, we require a complex *social learning process*. This process in turn requires an original mix of reflection and creativity, of visionary and concrete thinking, of ability to propose and ability to listen. In short, this requires a diffused designing capability and therefore *design knowledge* that is able to help individuals, communities, institutions and companies to design feasible, sustainable solutions in the social and operational framework of a network society and a knowledge society. By doing this, we can steer the future towards sustainability.

However, this last phrase is too dense and intricate, so I'd like to try to disentangle it. To do so, I wish to go back to our original question. Why do we need autonomous design knowledge and design research? In other words, why do we need knowledge and research that are independent of the specifics of any individual project?

3.1 *Change 1 and change 2*

There are many transformations underway in the production and consumption system in what we have called *Change 1*. The problems that we face in this change tend to grow in size and complexity and the time we have to solve them tends to shrink. This means that we cannot produce the design knowledge we require each time and every time in the traditional way for each individual project. The cost is too high and few projects can shoulder all the costs of design research. Time is too short and few projects can afford a development period as long as the period we require for 'good design based on good research'. It is therefore necessary to develop design knowledge that can be produced in the most appropriate

time and ways, and applied rapidly, when and where needed.

In addition, another factor emerges from the nature of *Change 1*. In the transition towards a network society and a knowledge society, design processes tend to be increasingly distributed between numerous actors differing in culture, motivation and professional development. In these conditions, traditional design knowledge, accumulated in the implicit knowledge of professional designers, is no longer enough.

Too many subjects are involved. They are not in the same place and many are not designers at all. In this case, too, a good design requires good research. However, in this case good research must produce knowledge that we can circulate through the network. This means explicit, communicable design knowledge, transferable to different applications.

We can therefore say that *Change 1* leads to a diffuse demand for new design knowledge. This claim requires two points of clarification.

The first is that the new demand is already visible. Until now, however, it has not often been explicitly stated. In my opinion however, the situation is quickly changing. The most evident signs of this change are the design research activities of recent years that have begun to develop in design agencies and in more clearly design-orientated companies.

The second clarification we need to avoid misunderstanding is that the emergence of an extensive demand for design research is not in itself a good thing. The design knowledge we require is not necessarily oriented in a direction that we can judge positively. Like all of *Change 1*, and like all that concerns the role of design, the design knowledge we generate through new research may be positive or negative.

The question of the transition towards sustainability that we have called *Change 2* is set against this dynamic, problem-laden background. It does not require much imagination to say that this transition also gives rise to an enormous demand for design knowledge. This transition towards sustainability must see the germination and consolidation of a new idea of well being and a new production system that will make it possible to live better while reducing the weight of our activities on the environment. We must also regenerate the physical, social, and cultural quality of places, and the physical, social, and cultural quality of the planet as a whole. All this can be imagined as a great co-creation phenomenon, where different individuals and communities interact in a vast process of social learning and innovation. This process generates, and is itself regenerated by, new design knowledge.

4 Lessons learned and sustainable quality

Nobody can really say what a sustainable society will be like - how people will live and on what residential and production systems their existence could be based. Nevertheless, more than twenty years of discussion and experience have taught us something. Here, I would like to mention three of these lessons. These three lessons seem to me most useful in indicating directions to work along.

- i. *Research on eco-efficiency has been successful, but it has not improved the overall picture.* Current products and services, taken one by one, use far less energy and materials than those of some decades ago. However, no indicator of aggregate consumption (residence, mobility, tourism, etc.) indicates a decrease: even in countries where research on eco-efficiency has been most successful. Overall consumption of environmental resources continues to increase. This clearly tells us that increasing improvements in the current system are not enough. The transition towards sustainability requires

a systemic change. It is not a question of doing what we already do better. It is a question of doing different things in completely different ways.

*There is an emerging demand for **sustainable solutions**. This includes product and service systems that propose different ways of being and doing from those currently dominant, lighter in environmental terms and more favorable towards new forms of socialisation.*

- ii. *Recognising the environment problem is not synonymous with more sustainable choices and behaviour.* The environment problem has recently come into the political policies of many governments. It appears on the front pages of many newspapers and it is evident in the sensitivity of many citizens. However, contrary to naïve expectations, we see that this leads to an explosion of new problems: international tension, financial crises, social problems, and individual fears. In particular, when we observe the expectations and behaviour of people and communities, experience teaches us that the absence of feasible, socially acceptable, and widely recognised alternatives, leads to an increase in the perception of environmental risk that – in turn – generates dangerous ideas and behaviour.

*There is an emerging demand for **visions of sustainability**. This requires scenarios that show feasible, socially acceptable, even attractive, alternatives on different scales for various aspects of people's lives. It is possible to have food with little chemistry and without transgenic products. We can move without cars. We can feel safe without locking ourselves in gated villages. And so on.*

- iii. *The feasible alternatives found so far indicate new qualities.* There are few widely recognised feasible alternatives. However, on a closer

look, in every country in the world there are cases of social innovation that could be seen as significant steps towards sustainability. This includes short food chains, shared residential services, bottom-up urban improvement initiatives, and examples of sustainable territorial management.

In their diversity, these cases have a fundamental characteristic in common. Each one of them compensates for the reduction in consumption of products with an increase in other qualities. These qualities include the quality of physical and social environment with the rediscovery of commons; the quality of capability with the rediscovery of individual and community know-how; or the quality of time with the rediscovery of slowness. These aspects assume different meanings in different societies and places. Nevertheless, their presence in situations so far away from each other makes us think that they may constitute a first set of sustainable qualities. In other words, it is beginning to emerge that the quality of places, of communities, of time, of common assets in general could be the material on which to build every sustainable alternative to the current unsustainable forms of production and consumption.

*A demand is emerging to investigate **new qualities**: design reflections, proposals, and scenarios that investigate basic questions such as the quality of places, communities, commons and time.*

5 An open, collaborative programme

These are a few proposals. They are examples of a direction for our work in changing the change. A vast organised research programme should be developed along lines such as these. For this reason we hope to be able to write the Design Research Agenda we mentioned at the beginning of this talk.

This programme should be something of a novelty in the way it is conceived and conducted. It could

develop a P2P approach, including schools, design firms, and research centers from all over the world. It could be open and collaborative, capable of self-regulation and self-management. It should be a research programme with total freedom.

It is easy to think and talk about all this. Can we actually put it into practice?

We must take the positive, critically optimistic approach of the designers we started with, saying, 'Yes. We can.' This conference can be a first, significant step.

Appendix Design Research Agenda for Sustainability

An open and collaborative programme: *Draft 1* 12/07/08.

Proposal

This *Design Research Agenda* presents some statements, some emerging issues and some promising design research fields and directions for sustainability.

It has two main goals: (1) to outline and progressively consolidate a shared framework for a multiplicity of research activities on design research for sustainability. (2) To trigger new autonomous research programmes that will enlarge and or re-orient the present framework in order to give more coherent programmes and more effective results.

Design researchers who agree with this proposal should orient their on-going activities, or start new ones, in such a way that they can enrich these emerging issues with visions, proposals, tools and reflections.

Doing so, they will participate in the development of an open and collaborative design research programme and, most importantly, in the realisation of an articulated but convergent set of visions and proposals (and of the ideas and tools necessary to better understand and implement them).

This document

The process where this document comes from started with the organisation of the Changing the Change Conference (and the debates that took place between several involved researchers to prepare it) and continued in the discussions and the co-creation activities that took place during the this same conference.

Its possible future evolution will depend, first of all, on the commitment of the conference participants who will agree with its spirit and its present proposals, and moving from here, to all the other design researchers who will also agree with them.

In conclusion, *this document is a draft, and it will remain a draft*: an open artifact to be integrated by the free collaboration of whoever will accept its spirit and the simple rule it proposes.

The document is organised in four sections:

- *Background statements*. These are some general ideas to be shared by those who intend to participate in this co-creation process.
- *Emerging issues*. These are research themes that, at this stage of the process, appear to be potentially relevant to orient a variety of existing or future research programmes.
- *Rules of the game*. These are some simple rules to be followed to participate in this initiative.
- *Basic concepts*. This introduces some working definitions, needed to start a conversation within the community. In the future, these working definitions could be up-graded and new concepts could be added.

1 Background statements

Background statements are some general ideas to be shared by those who intend to participate in this co-creation process.

Sustainability must be the meta-objective of every possible design research activity.

Sustainability is here intended as a systemic change to be promoted at the local and global scale. It will be obtained through a wide social learning process, re-orienting the present unsustainable transformations towards a sustainable knowledge society.

Design research has to feed the social learning process towards sustainability with the needed design knowledge, that is, with visions, proposals, tools and reflections to enable different actors to collaborate and to move concrete steps towards a sustainable knowledge society.

2 Emerging issues

Emerging issues are research themes that, at this stage of the process, appear to be potentially relevant to orient a variety of existing or future design research programmes.

The following ones are the results of the “Emerging issues” exercise that took place during the *Changing the Change* conference (Torino, 10–12 July 2008). Each one of the six proposed *research lines* integrates several topics proposed during the first two days of the same conference and has been discussed in one of its dedicated sessions the last day. The *specific topics* indicated for each one of these research lines is an open list that in the future will be implemented and, if necessary, re-oriented.

2.1 Ways of living

How to generate radical changes in everyday life, orienting them to visions of sustainable life styles? How to promote sustainable qualities, sharing knowledge across geographical distances, cultural differences and disciplinary barriers? How to develop scenarios and convivial tools, through community generation and activation?

Physical and social commons and sustainable qualities

Understanding the ‘commons’: from the physical ones (such as air, water, landscape), to the social ones (such as lively neighbourhood, public spaces, sense of community, perception of safety, social knowledge), to the new ones (such as internet and open knowledge). What makes them exist (what is their ‘glue’)? The people and community recognition of the commons in the definition of a sustainable wellbeing; what media and design can do. How to design solutions capable of generating or re-generating the commons?

Active and collaborative behaviours and the ecology of time

Understanding ‘sustainable wellbeing’: individual vs. collaborative; passive vs. active. Sharing different local knowledge. The sense of personal balance as harmony and contentment. The sense of community as communication, protection, participation, recreation, identity, freedom and generosity. A new sense of time, with the re-discovery of *slowness* as a desirable component, permitting attention to the important things in life.

2.2 Ways of producing

How to promote models of production and consumption based on a sustainable use of physical and social local resources? How craftsmanship, traditional productions and advanced technologies can merge and collaborate in the perspective of a sustainable, distributed knowledge economy?

Distributed economies and symbiotic production

Understanding ‘distributed systems’: from computing to power generation, from manufacturing to the whole economy. Distributed systems and system resilience. Distributed systems, democracy and power shift. Connecting people, places and things: distributed systems and the convergence with the p2p and open source movements.

Local development in the global society

Understanding ‘the local’: local identities and cosmopolitan culture; local economies in an interdependent world. How to design the collective local wisdom. Craftsmanship validation and regeneration. Sustainable tourism and community-based tourism. Local and seasonal food and new food networks. The “Slow food model” and its applicability in other fields. The design role in local and regional development.

2.3 Ways of designing

How can designers become agents for sustainability in a society where more and more people have to take design decisions? What are design’s conceptual and practical tools in an interconnected world where different (i.e. non-western) narratives are emerging? What is the role of schools and universities in this new context?

Designing networks and forming new professional designers

Understanding the new *designer role*: designers as connectors and facilitators, as quality producers, as visualisers and visionaries, as future builders (or co-producers). Designers as promoters of new business models. Designers as catalysers of change.

Design knowledge and design education

Understanding the new *design nature* and developing a new *cultural background*: from products to services and systems, from individual activity to collaboration. New designing networks and new learning networks. Changes in the education priorities and methods. Challenge the barriers to design for sustainability in design schools. Increase the transfer of knowledge between projects and develop new educational resources. Integrate global and local knowledge.

3 Rules of the game

Rules of the game are the simple rules to be followed to participate in this co-creation process. They are:

- To share the background statements and working definitions

- To enter in the digital platform (that will be prepared) the description of their research projects (and, when available, of their results) following a format and keywords system (that will be provided)
- To enter in the platform comments on other research projects, in the spirit of promoting the dialogue between different points of view and the convergence towards the realisation of a more coherent large picture

4 Basic concepts

What follows is a first list of working definitions needed to facilitate the conversation among the researchers involved in this programme's co-creation process.

Sustainable society: a society where all the people and the communities have the same possibilities to live well (that is, to be what they want to be and do what they want to do) in a sustainable way. That is, maintaining their environmental footprint in the limits of the ecosystems resilience, and regenerating the quality of the physical and social commons.

Design for sustainability: everything design can do to facilitate the social learning process towards

a sustainable society. That is, to sustain promising social and technological innovations and to re-orient existing drivers of change towards sustainability.

Design research: an activity aiming at producing knowledge useful to those who design: *design knowledge* that designer and non-designer (individuals, communities, institutions, companies) can use in their processes of designing and co-designing.

Design knowledge: a set of *visions, proposals, tools* and *reflections*: to stimulate and steer strategic discussions, to be applied in a variety of specific projects, to help understand what we are doing or could do. This knowledge has to be *explicit* (to be clearly expressed by whoever produces it), *discussable* (to permit the exchange of opinions among many interested interlocutors), *transferable* (to be applicable by other designers) and possible to *accumulate* (to form a reservoir of design knowledge that could be the starting point for producing further knowledge by other researchers).

For more information visit the conference website: <http://www.changingthechange.org/>