

# Changing<sup>the</sup> **change** **proceedings**

Edited by  
**Carla Cipolla**  
**Pier Paolo Peruccio**

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Changing the Change  
Design, Visions, Proposals and Tools  
Proceedings

Edited by Carla Cipolla (Politecnico di Milano), Pier Paolo Peruccio (Politecnico di Torino)

International Conference  
Thursday 10, Friday 11 and Saturday 12 July 2008  
Turin, Italy

In the framework of  
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Organizers:  
Politecnico di Milano and Politecnico di Torino

Promoters:  
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ISBN 978-88-422-1670-4



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# Everyday Imagination, Practices, Systems

## *Designing with people for systemic change*

Daniela Sangiorgi<sup>1</sup>, Hemment Drew<sup>2</sup>, Monika Büscher<sup>3</sup>

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### Abstract

In this paper we bring together three different perspectives on collaborative innovation: service design, ethnographically informed innovation, and participatory art practice. All three afford important insights into the opportunities and challenges of ‘changing the change’ for a more sustainable future. We focus on the dynamic and complex, ‘systemic’ nature of change and – against the backdrop of our individual practical experiences – explore how we might design on such shifting ground. In this process, we all seek to harness everyday creativity and DIY solutions to design *with* as well as *for* people. Folding this ongoing concern from our individual work into a recently begun collaboration has leveraged powerful synergies for collaborative innovation for more sustainable living and we discuss a planned project.

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<sup>1</sup> Lancaster University (UNITED KINGDOM) – ImaginationLancaster, Lecturer, [d.sangiorgi@lancaster.ac.uk](mailto:d.sangiorgi@lancaster.ac.uk)

<sup>2</sup> Lancaster University (UNITED KINGDOM) – ImaginationLancaster, Associate Director, [d.hemment@lancaster.ac.uk](mailto:d.hemment@lancaster.ac.uk)

<sup>3</sup> Lancaster University (UNITED KINGDOM) – mobilities.lab, Senior Lecturer, [m.buscher@lancaster.ac.uk](mailto:m.buscher@lancaster.ac.uk)

# 1. Introduction

Designing for a sustainable future poses many challenges. There is, on the one hand, a need to be bold; to imagine and 'design' new systems that enable more sustainable lifestyles. On the other, sustainability depends on unpredictable changes in people's daily life practices as well as on how they adapt to, and adopt, new system possibilities (Halpern *et al.* 2004).

Control may seem possible through education, incentives, coercion, (social) engineering and design, but historical studies of systemic change (e.g. Mosley 2001 on air pollution, Worpole 2000 on architecture) show that while these approaches may play a valuable part, if education, engineering, policy or design are 'done *to* people, not *with* them' (Worpole 2000, 68), they fail.

Yet endeavours to design with people face a catch 22. The emergence of new practices happens as part of doing things differently. To enable and study the everyday imagination that underpins this emergence and to fold it into design requires realistic appropriation of (prototype versions of) the system that is being 'designed' (Büscher 2005). A critical mass of technologies, policies, services, infrastructures, etc. must be implemented, not just as scenarios but in some way 'for real', e.g. through experimental implementation of prototypes. This makes for a costly iterative design process that has to fight to resist the momentum of investment in particular ideas. The challenge is to remain able to radically revise ideas – intellectually, creatively, and practically.

In our recently begun collaboration we bring together methodologies from service design, ethnographically informed participatory socio-technical innovation and participatory art practice. We argue that our methodologies can be fruitfully combined to draw people into 'designing' systems and 'change the change'. We aim to leverage the fact that people are already inventing DIY sustainable solutions (Meroni 2007; Willis *et al.* 2007), and to study, encourage and design for emergent future practices.

In this paper we describe how the synergy between these different methods can overcome individual limitations and amplify the benefits of each, while improving the ability to design for sustainable futures. We present and compare experiences that applied the singular methodologies, as well as a planned collaborative research project that brings them together in an experimental way.

## 2. Post-disciplinary collaborations

When Buchanan (1994) talks about 'third order' and 'fourth order' design, he refers to the recent need for design to move where strategic decisions are made in order to be in a position to influence future directions. This means moving from designing single objects (products and graphics) to design action/processes (like services) and systems; moving from end of chain contributions toward upward positions and roles within society.

The complexity of contemporary challenges (climate change, poverty, rising and ageing populations, chronic disease, epidemics, security crises etc.) need a wider perspective and the introduction of aware design decisions and approaches at levels where there is real possibility to influence choices; as Thackara says "many of the troubling situations in our world are the result of design decisions" and "if we can design our way into difficulty, we can design our way out" (2005, 1). This requires a shift from narrowly conceived development to 'design mindfulness' for dynamic complexity: "design responsibility means that designers should be conscious of the fact that, each time they engage themselves in a design project, they somehow recreate the world" (Findeli 2001, 14).

While *scaling up* design is also *reaching out*, meaning that when both the complexity of challenges and the objects of design become bigger, design needs to collaborate with a wider

number of stakeholders and professions. This requires designers to *bring in* design resources and tools to enable 'strategic conversations' among key stakeholders, experts, and creative visionaries (Manzini *et al.* 2004) to co-design future solutions, but at the same time they must also *bring out and develop* creative everyday imagination resources and skills in those who are part of co-designed solutions, so that they can 'change the change' from within and work and live differently.

The role and practice of Design is therefore changing in response to, and in anticipation of, complex demands of contemporary life. In this paper we suggest that there is a need to explore and support this development and to make it more effective in "changing the change".

Instead of a designer centred approach, we are moving toward a 'creativity' and 'design thinking' oriented one that focuses on how can we leverage and align both professional and everyday creative resources and skills to move toward more sustainable forms of life and economic exchange. This trend has begun to foster 'multi-disciplinarity' in research, education and business as a way forward (Cox 2005): multidisciplinary courses of education are recommended as a way to ensure that specialists will have a broader understanding of creativity and of other specialisms and will be able to better collaborate in the future.

With regard to everyday imagination, creativity is increasingly understood as a basic skill inherent in all human activities and people already use this resource in their daily life to improve their life conditions (Meroni 2007). Designers are therefore moving toward working with people to leverage these existing resources and connect them to wider systems and strategies (Thackara 2007; Manzini *et al.* 2003; Burns *et al.* 2006).

In this paper we would like to develop these considerations, because we believe that in order to expand designers' role and influence into contemporary society multidisciplinary and an appreciation of everyday imagination are not enough. Disciplines carve up the world and, by studying different areas (the economy, society, ecology, etc.) from different perspectives, they separate what needs to be understood as a whole. Multi-disciplinarity, at best allows a mutually informing overlap of perspectives. At worst, it gives rise to competing accounts of reality, undermining rather than enabling collaboration. While multi-disciplinarity can facilitate important insights into the dynamic complexities of systems, it does not enable an understanding of systems' lived autopoiesis. We believe that what is required is a post-disciplinary approach. Post-disciplinarity (Sayer 2001) fosters study and intervention as a holistic endeavour. Post-disciplinarity supports groups of people (with a range of expertise and skills) to address complex problems and opportunities. It enables analysis and design to follow connections all the way through and to forge viable new connections, because they are more mindful of the multitude of dependencies. It does not need to lead into eclecticism or, even worse, dilettantism. Post-disciplinary research and design crucially requires collaboration between diverse actors: we do not expect that individuals could or should be able to understand and 'design' systems as individuals. It is important that individuals have grounding in disciplinary and practical everyday skills and knowledge, and that they are able to open up and become mindful to previously unknown or unnoticed phenomena. Post-disciplinary researchers and designers must step outside their box and become mindful of other disciplines' knowledge and skills to a very high degree, enabling them to work closely with experts from that discipline, or experts from particular walks of everyday life. This requires listening, learning, visualizing, arguing, experimenting. Working like this goes beyond collaboration with clearly demarcated responsibilities and knowledges. It allows for sophisticated interferences and synergies that allow groups of people to grasp complex problems more firmly, at multiple points simultaneously, and in ways that are mindful of connections and interdependencies than they could otherwise. What makes this post-disciplinary is that while people maintain their roots in their own discipline, they acquire the skills to 'seriously' work *with* others, not just alongside others.

In this paper we discuss the potential of this convergence for the design of sustainable futures. We will do this by exploring the combination of three experiences and approaches to post-disciplinary design \_ service design, ethnographically informed socio-technical innovation

and participatory art practice \_ to explore future sustainable scenarios in collaboration with people and potential users.

### **3. Service solutions, future laboratories and strange connectors**

In this section we describe our individual experiences in design. These are not mainly in designing for sustainability, which makes it clear that other challenges/opportunities are also multi-dimensional and dynamic and that good design as well as effective appropriation are fostered by post-disciplinary approaches. In this section, we explore how our experience can be transposed into design for sustainability and to 'change the change'.

We argue that our methodologies (see fig. 1) can be fruitfully combined to draw people in and 'change the change'. We aim to leverage the fact people are already inventing DIY sustainable solutions (Meroni 2007; Willis *et al.* 2007), and to study, encourage and design for such (and further) emergent future practices, by combining three different experiences and approaches.

#### **3.1 Service design**

Service designers observe, analyse and interpret markets, current social and technological trends and users' behaviours to identify areas of opportunities for the development of new service solutions for the future. Areas of opportunity are elaborated into overall scenarios that delimit and visualise possible futures. Single service solutions are therefore designed starting from these wider scenarios, as possible manifestations of these platforms. Service solutions are designed in terms of their offering (what the user will be able to do), experiences (how the user will experience the service) and system (who is the supplier and how it is organised). Visualisations like storyboards, videos, maps and moodboards are developed to communicate the service scenarios and ideas back to users and suppliers during an iterative design process.

An example of Service Design applied to developing future sustainable solutions has been the research project<sup>4</sup> developed for the multinational Qfree, the European leading supplier of Electronic Tolling Collection systems. The aim of the research project was to conceive new multimodal mobility services for the Italian market where charging and traceability systems could be profitably used to improve urban and social well-being.

The Electronic Toll Collection (ETC) technology, currently used to collect tolls from the urban mobilities, is based on Onboard Units endowed with a Smart Card. The Smart Card can communicate via microwaves with specific points of transit and is currently adopted for motorway and urban user charging, where vehicles are tolled without the need to pass through specific toll plazas, or reduce their speed. The research project aimed to move from this simple tolling logic, detached from the mobility system and not providing alternatives to users, to a service oriented logic; to use ETC technology as a platform to improve the efficiency of and to integrate the mobility and service system, on one hand, and on the other hand to enable more sustainable behaviours.

The research team has worked on three main interrelated levels - context, technology and users - and have moved backward and forward from analysis to design within real contexts to the visualisation and design of abstract scenarios.

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<sup>4</sup> The project "Intelligent Mobility System Sector Scenarios" was developed from January to May 2007 by a research team from INDACO Department of Politecnico di Milano.

As the Smart Card can be used also as personal card to access various services (public transportation, private cars and services), ETC technology can allow the management of *mobility credits*, where the user can buy, spend and gain credits according to his/her behaviour, in the light of a multimodal mobility scenario. The adoption of such a perspective (practically encouraging and rewarding positive behaviours instead of only punishing the wrong ones) allowed the team to shed a new light on the mobility services that invoke the positive psychology approach (Csikszentmihalyi 1991; Seligman 2002).

Based on this overall scenario the research project has developed 6 *service solutions* for 6 *metacontexts*, that is to say, typologies of emblematic Italian urban or extra-urban settlements with recurring mobility features:

- 1) the metropolis, Milan: Providing multimodal possibilities to integrate public and private transportation;
- 2) the hinterland with a trade fair pole, Rho-Fiera: Access to organized mobility and fair services for exhibitors;
- 3) the historic/productive town, Como: Multi modal mobility system based on the use of green vehicles to access an historic city downtown;
- 4) the skiing area, Alta Badia: Skiing services integration through the ETC system and built-in additional technologies;
- 5) the inhabited natural park, Parco Nazionale delle 5 terre transformed into an harbour scenario, where the system is adopted in the marine sector;
- 6) the Motorway system: Introduction of the ETC system in the motorway adopting a mobility credits model.

### **3.2 Ethnographically informed socio-technical co-realization**

Amongst many other methods, a design orientation towards ethnographically informed ‘co-realization’ (Hartwood *et al.* 2002) comprises two experimental approaches to achieving far future oriented change: ‘future laboratories’ and ‘bricolage’. Future laboratories either bring the real world into the laboratory or take the laboratory into the field. Placing an emphasis on realism, collaboration and experimentation, future laboratories assemble components of the future (e.g. functional prototypes of technologies) and enable people to colonize new socio-technical futures. This encourages people to bring everyday imagination into the process and to explore and shape new practices not only discursively, but also through embodied appropriation and real time habitation in (partial) futures. ‘Bricolage’ goes further, seeking to fold future technologies productively into real world work (Büscher *et al.* 2007 and 2008).

As an example, we have designed and experimentally implemented pervasive technologies (embedded, ambient, and mobile computing technologies) to support improvisation and collaboration amongst emergency response personnel, using ‘future laboratories’ in the emergency training ground at the Aarhus Brandskolen, and through ‘bricolaging’ prototype technologies into real world work at the Tall Ships’ Races in Aarhus in July 2007, where prototypes were used as part of the event management in the command centre. This concrete practical experience enabled the application of everyday creativity – connecting design of technologies with the ‘design’ of future practices. It makes it possible for designers and users to ‘colonize’ rather than just visualize the future.

Pervasive technologies have the potential to support professionals in their effort to collaboratively produce and update their assessment of the situation. This was the premise of our participatory design collaboration. Between 2003 and 2007 we have developed prototype technologies to support professionals, especially police, fire brigade, pre-hospital, and ambulance personnel. This culminated in a prototype of a fully functional ‘assembly’ of technologies during Tall Ships’ Races 2007 implemented in and around the command station at Aarhus harbour.

### **3.3 Art: Strange connectors**

Art offers a set of resources for envisioning social and technological change in a way that is inherently participatory, and for opening up disruptive spaces of play. It escapes the bounds of realism, not through flights of fancy, but through critical imagination and rupture. Such creative practice 'hacks' into different social, professional, technological and institutional situations, often acting as an intermediary or 'strange connector,' linking things in unexpected ways, or linking things one would not expect to be linked. The method involves a process of creative exploratory work involving artists within an interdisciplinary group, with the researcher often in the role of curator, working to 'create context' and to originate new artistic work with the artists that addresses the research questions. Integral to this method is the active involvement of audiences through the public presentation or iterative development of artworks. This method involves working abreast of practices that are contemporary, new and continually evolving, and drawing from them a process or a new way of looking at things.

'Social Networking Unplugged' is an example that focuses on social networking or 'Web 2.0' technologies (flickr, twitter, myspace, etc.). It was a curatorial project on social networking that involved people across Manchester in large-scale art installations and events. It was the first major art exhibition to present a comprehensive and creative look at social networking featuring twenty artworks, each one taking a sideways glance at online social networking and virtual worlds. Here artists have been invited to create offline equivalents of social networking websites such as FaceBook and MySpace so that comparison can be made with the way people socially interact in different scenarios when online and offline. The artworks 'unplugged' these new social spaces in order to take them apart, see how they work, and put them together in new ways. The experiment aimed to advance understanding of online relationship building and social networks, and also to explore how the requirements for social networking tools vary when sat behind a desk at a computer and when roaming through the city. Many of these projects are provocative and challenging. One example was the Rubbing Shoulders project which created an offline equivalent of the 'digital handshake' involving physical touch. This was already transgressive and involved risk. This was increased when a UK Government report highlighting the dangers of social networking to children was published shortly before the exhibition, resulting in front page news stories equating social networking to paedophilia. This provided an opportunity to address challenging issues and the project was adjusted and a version delivered at a local school to explore an ancillary range of research questions, while also serving to intervene into public discussions on the subject.

## **4. Designing with people for systemic change**

These three projects represent different ways of working towards or 'designing' possible futures, to explore opportunities and new technologies with users and companies.

We argue that the synergy between these different methods overcomes individual limitations and amplifies the benefits of each. For example, co-realization depends on realism and is, therefore, costly. It can suffer from path-dependency, where investments made into one solution influence the allocation of future design efforts. Moreover, while these approaches score high on 'designing *with* people', it can be difficult to shape bold visions when immersed in the detail of everyday practice. These limitations can be overcome by introducing methods from service design and art. Design of service scenarios, for example, provides 'systemic' visions of future solutions based on existing needs and trends. It, in turn, benefits from combination with more experimental methods through being able to ground visions more clearly in emergent practices. Art transcends the confines of future visions through critical reflection on the tensions between the kinds of futures we actually want and those we may be creating, and enabling people to colonize these futures experimentally, playfully, critically. At the same time Art is often based on a one off event that provokes critical reflection and engages the public, but lacks in



terms of capacity to collect, interpret and develop a critical mass of ideas, experiences and motivations into solutions that can contribute to 'changing the change'.

As part of our current collaboration we are exploring how to converge these practices in the design of a new project that will take place in the Futuresonic festival in May 2009 as part of an exhibition titled *Through Cracks In The Pavement*. Accepting the hypothesis that human actions are affecting climate change, the proposal is to create precedents for social change through creative, participatory interventions involving artists and experts in the environment, technology, and society. The focus is on urban environments - one type of environment where problems stem from, and where change needs to take place.

A new methodology will be experimentally employed on a range of projects exploring how to harness everyday creativity to enhance environmental sustainability in urban contexts. The objective is to *develop an art event into a platform for participatory service co-realization projects* that are transformational and involve people in making a meaningful difference to the sustainability of their lives.

It will present newly commissioned artworks and future scenarios that through *combined arts and design approaches* will seek to inspire social change and to enhance environmental sustainability. Featured artworks will be participatory, sited in public space, and in an urban context to experiment with technologies and possible future scenarios in an engaging and playful way, enabling ideas, changes and proposals to emerge and be visually recorded.

Ethnographic studies will document the events, reporting the detailed interactions of people with the artworks and scenarios feeding back the design of technologies and services; participatory and service design will provide the context and tools to enable people to experimentally intervene and change the proposed scenarios and express their perspectives through interaction and participation; as well as elaborate results into solutions and possible concrete interventions.

Urban Climate Camp, a workshop involving artists, communities, technologists and environmental experts, will use these experiments as material for discussion and further development of the emerged ideas.

Within the wider art event on climate change, an example of potential participatory service co-realisation projects, will be 'A-mobs: Alternative mobilities for sustainability'. The purpose of this project is to 'design' alternative mobility systems, that is, to co-realize technologies, infrastructures, objects, and practices needed for more sustainable movement within and around Manchester as a typical post-industrial major city. This project will combine exploratory art installations that will work as both creative and participatory interventions (see social technologies unplugged example) and 'service prototypes'; this to generate 'strange connections' that help questioning current mobility patterns and their effects on the environment as well as engaging users to experiment, evaluate and modify proposed service scenarios through ethnographically informed co-realisation processes and tools. The documentation and output of these projects will be elaborated into detailed service scenarios to inform Private and Public sector organisations, that will participate, with the public, as partners, users and co-creators of the alternative mobility system.

This sketched approach draws a direction to improve the effectiveness of designing futures that need to be experimented in field, to evaluate synergies while converging the single methodologies.

## **5. Changing design for Change**

As Alain Findeli reminds (2001) Design have been alternatively associated with Arts, Technology and Science as main sources for education curricula. Design has traditionally been part of 'applied arts' tradition, moving then, with the emergence of the new industrial paradigm, to

a more scientific driven approach (applied science) as promoted by the Hochschule für Gestaltung at Ulm.

The radical changes in the context where Design operates today as well as the inadequacy of the mechanistic model of the traditional design process (from problem identification to solution), ask for a new convergence and a new sensitivity (and maybe for a new vocabulary as well).

In this paper we have explored the potential benefits of converging Design, Arts and Ethnography to improve the way to understand and act within complex systems in order to orient them toward more sustainable futures. We do this acknowledging how Design, Arts and Ethnography are actually already converging in their recent evolutions, moving toward more interventionist and participatory approaches.

Art practice is changing, with many contemporary artists (including those working outside an academic context) adopting participatory and process-based ways of working which are convergent with developments in social-science and other academic research methodologies. The methodology outlined above draws on socially and politically engaged art practices within Media Art, notably 'tactical media,' a critical art practice which departs from Modernist understandings of artistic autonomy and seeks to intervene within specific social and technological processes. And fields such as locative art involve artists in experimentation, which is social and technological as well as aesthetic (Hemment 2006).

Social observation, too, has changed. The most relevant innovations relevant to design have been a move away from 'scientific', quantitative research and theoretical abstractions towards more philosophical, ethnographic, 'grammatical' investigations (Garfinkel 1967; Suchman 2007). Human behaviour is increasingly recognized not as governed by rules and social and material structures, but as performative. People create social and material orders as they live their lives, interact with others, and with their environments. They simultaneously create and orient to social and material rules and structures. Based on more than two decades of collaboration between designers, practitioners and social scientists who study the performance of everyday order, post-disciplinary assemblages of expertise and skill have emerged in socio-technical innovation, computer-supported collaborative work, and participatory design. As design is 'no longer the exclusive province of professional practitioners' and design practitioners recognise the complex dynamics of shaping and re-making whole systems, social science can not only help think through the possibilities of redrawing complex connections but also help to co-realize them (Suchman 2007). Moreover, social science can accompany design with studies of emergent future practices (Büscher 2005). Future Laboratories and bricolage techniques are examples of methods that create possible futures to explore *what might be* and evaluate how the design visions are interpreted and inhabited by users in realistic contexts.

These already existing convergences can be therefore amplified to strengthen the potential of each to use creative and participatory methods and tools to imagine, explore, questioning and experimenting with people possible futures.

This paper is a first platform for us to evaluate and explore these synergies; the coming projects will enable us to implement and evaluate this research direction toward post-disciplinarity as a way to contribute to the "changing the change" movement.

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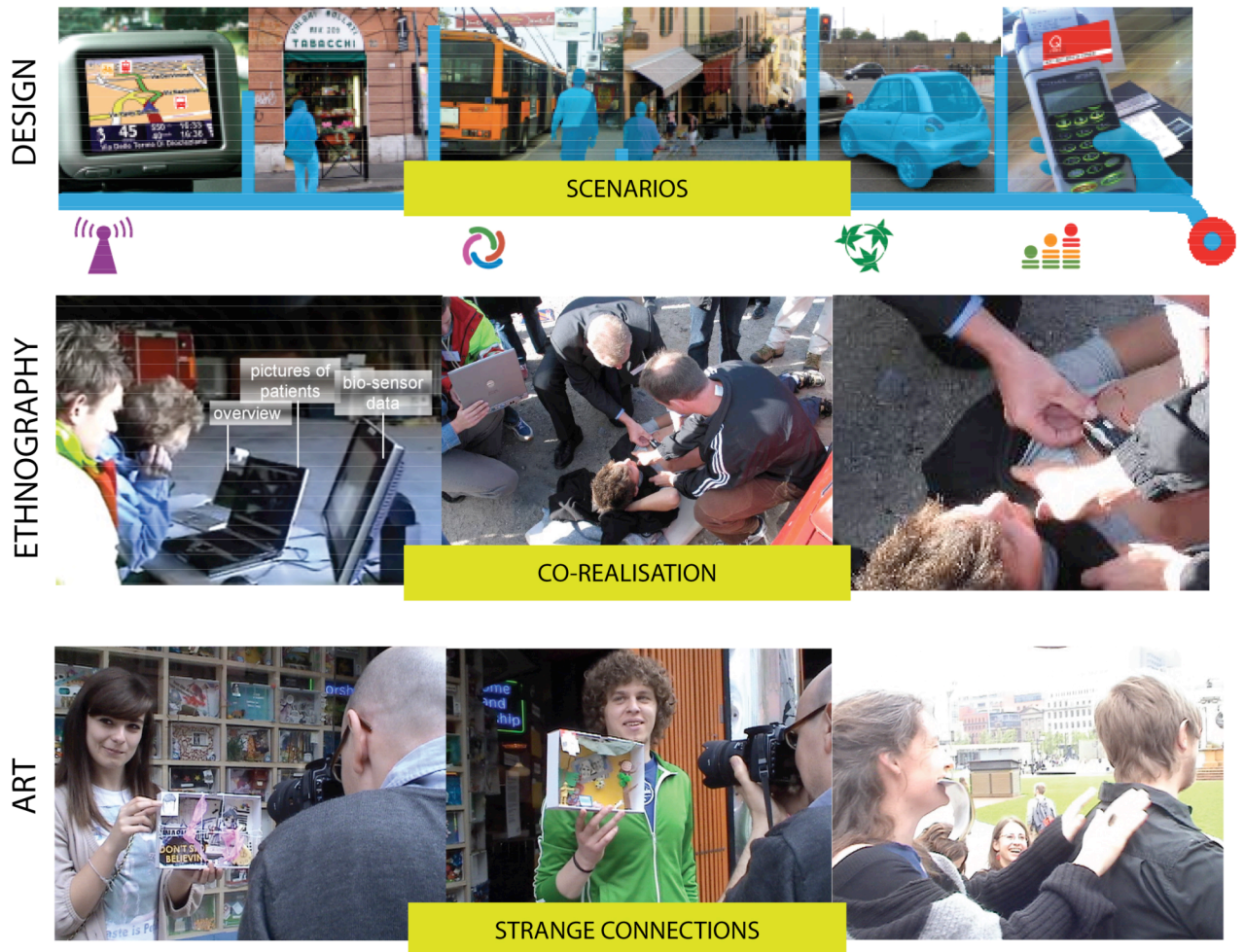


Fig. 1: Images representing the three methodologies from Design, Ethnography and Art: a) storyboard representing one of the six mobility solutions; b) a vision of the future of emergency response teamwork; c) images from the 'Social Technologies Unplugged' event