

A MATTER OF DESIGN

MAKING SOCIETY THROUGH
SCIENCE AND TECHNOLOGY

PROCEEDINGS OF THE 5TH STS ITALIA CONFERENCE 2014

EDITED BY
CLAUDIO COLETTA
SARA COLOMBO
PAOLO MAGAUDDA
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LAURA LUCIA PAROLIN
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Proceedings of the 5th STS Italia Conference***

*Edited by Claudio Coletta, Sara Colombo, Paolo Magaudda, Alvise
Mattozzi, Laura Lucia Parolin and Lucia Rampino*

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TABLE OF CONTENTS

EDITORS' INTRODUCTION	I
An 'Epistemic' Encounter between STS and Design	

SECTION I

Design, Social Innovation, and Cultural Identities

Diachronous Dilemma: representing American hegemony in three centuries of attitudes to design	3
<i>Ted Cavanagh</i>	
Design Practice: Making Beyond Borders	17
<i>Carla Cesare</i>	
'We, L'Aquila': Production and representation of urban space through a social map platform	35
<i>Manuela Farinosi, Alessandra Micalizzi</i>	
The game as social activator, between Design and Sociology: a multidisciplinary framework to analyse and improve the ludic experiences and their social impact	51
<i>Enrico Gandolfi, Ilaria Mariani</i>	
Towards a transnational history of urban design	69
<i>Michel Geertse</i>	
L'approccio storico al design. Stereotipi, aporie, paradigmi (?)	85
<i>Giorgio Giallocosta, M. Cristina Tonelli</i>	
Valorizzazione, fundraising, design: un'innovazione sostenibile per il patrimonio culturale italiano	99
<i>Gianluca Grigatti</i>	
Identità visive generative. Programmare la corporate identity	111
<i>Francesco E. Guida</i>	
Street Furniture and the Nation State: A Global Process	127
<i>Eleanor Herring</i>	
Beyond social innovation: design as cultures active-action	137
<i>Eleonora Lupo</i>	
(Dis)placement of/by Design: Social Construction of Pojang-macha (Re)Designing in Seoul	155
<i>Min Soo-hong</i>	
Cities transformations, social innovation and service design	169
<i>Alessandro Deserti, Francesca Rizzo</i>	
Temporal merging of actantial models of space	185
<i>Gunnar Sandin</i>	
Narrare il Territorio: Dispositivi e Strategie d'Innovazione per gli Spazi Percepiti	201
<i>Giovanni Baule, Daniela Anna Calabi, Sabrina Scuri</i>	

TABLE OF CONTENTS / INDICE

<u>Social Design for whom and what purpose? Community network knowledge, conversation-as-commoning and design research</u>	217
<i>Kaye Shumack</i>	
<u>Otherwise Engaged: designing a post-digital Space of Appearance in Auckland, New Zealand</u>	233
<i>Charles Walker, Dermott McMeel</i>	

SECTION II

Design, Creativity, and Process

<u>A Manifesto of Change or Design Imperialism? A Look at the Purpose of the Social Design Practice</u>	245
<i>Danah Abdulla</i>	
<u>Exploring Model Making: Translating Intuitive Aspects Of Conceptual Models Into Digital Realm</u>	261
<i>Elif Aktaş</i>	
<u>L'immaginazione ludica, un sapere incarnato nella materia</u>	281
<i>Francesca Antonacci</i>	
<u>Doing Stuff with Stuff: Designing for the Everyday Metamorphosis of Collaborative Work Environments</u>	295
<i>Chris Berthelsen, Charles Walker</i>	
<u>Designing the Body of Architecture Through Biological Analogies</u>	311
<i>Fiorenza Gamba</i>	
<u>Are Open Innovation processes structured for disturbance?</u>	329
<i>Jan Eckert, Lukas Scheiber, Peter Schwehr</i>	
<u>Innovative processes for jewellery production</u>	341
<i>Paola Garbagnoli, Maria Vittoria Diamanti, Barbara Del Curto, Valeria Masconale, Maria Pia Pedefferi</i>	
<u>Procedures for Community Based Parametric Design and Making</u>	351
<i>Jason S. Johnson, Alyssa Haas, Guy Gardner</i>	
<u>Smart materials: development of new sensory experiences through stimuli responsive materials</u>	367
<i>Esther Lefebvre, Agnese Piselli, Jenny Faucheu, David Delafosse, Barbara Del Curto</i>	
<u>Participating in infrastructuring. The active role of visitors and curators in museums</u>	383
<i>Teresa Macchia, Lily Diaz, Vincenzo D'Andrea</i>	
<u>The Human Creator as an Interface</u>	395
<i>Sandra Plontke</i>	
<u>Research Through Design: What Does it Mean for a Design Artifact to be Developed in the Scientific Context?</u>	409
<i>Selena Savic, Jeffrey Huang</i>	

<u>D-STEM: a Design led approach to STEM innovation</u>	425
<i>Anne Toomey, Veronika Kapsali</i>	
<u>The 'Makers contradiction'. The shift from a counterculture-driven DIY production to a new form of DIY consumption</u>	439
<i>Alessandro Carelli, Massimo Bianchini, Venanzio Arquilla</i>	
<u>Foretelling and Shaping the Future of Technology: the Role of Communication Designers in the Design of Innovation</u>	461
<i>Margherita Pillan, Marco Spadafora, Annamaria Andrea Vitali</i>	
<u>Break-it, hack-it, make-it: the 'Hack-a-Thing' workshop series as a showcase for the integration of creative thinking processes into FabLab Genk</u>	477
<i>Katrien Dreesen, Selina Schepers, Danny Leen, Kris Luyten, Tom De Weyer</i>	

SECTION III

Digital Media and Knowledge Society

<u>Designing Identities on the Digital Mirrors of Facebook: The Reflection & the Real</u>	495
<i>Zeynep Arda</i>	
<u>Quis Monet Ipsos Monitores? Motivations, methodological issues and techniques for monitoring the controversy on surveillance as a topic in on-line scraped textual data</u>	511
<i>Alberto Cammozzo, Andrea Lorennet</i>	
<u>Affrontare il divario generazionale tecnologico attraverso il gioco</u>	527
<i>Giuliana Catapano, Ilaria Mariani</i>	
<u>From bits to atoms: sensory displays for digital information</u>	547
<i>Sara Colombo, Lucia Rampino</i>	
<u>The Big Data as 'presentification' of knowledge</u>	569
<i>Sabino Di Chio</i>	
<u>Networked and Technological Paradigms of Digital Whistleblowing</u>	583
<i>Philip Di Salvo</i>	
<u>Identità immortali. L'Afterlife digitale come estensione dell'identità</u>	595
<i>Fiorenza Gamba</i>	
<u>Big Data and Nate Silver's Computational Protocols: predictive Analytics and innovative Digital Methods for the Study of the Political Trends. A critical debate</u>	609
<i>Michele Infante</i>	
<u>Towards a typology of materiality/corporeality of music in the digital multimedia regime</u>	635
<i>Stefano Lombardi Vallauri</i>	
<u>Borders. Visual analysis of Cinema's inner dynamics and evolutions. A case study based on the Internet Movie Database</u>	647
<i>Giovanni Magni, Paolo Ciuccarelli, Giorgio Uboldi, Giorgio Caviglia</i>	

TABLE OF CONTENTS / INDICE

<u>Smart Meters as boundary objects in the energy paradigm change: the CIVIS experience</u>	667
<i>Giacomo Poderi, Matteo Bonifacio, Andrea Capaccioli, Vincenzo D'Andrea, Maurizio Marchese</i>	
<u>The materiality of code: Towards an understanding of socio-technical relations</u>	681
<i>Winnie Soon</i>	
<u>Digital literacy e disuguaglianze tra i giovani: oltre le metafore semplificatorie</u>	697
<i>Simona Tirocchi</i>	
<u>Orientare l'analisi. Una semiotica critica e materiale è possibile?</u>	711
<i>Matteo Treleani</i>	
<u>Mobility and the Smart City. Innovative Solutions for Responsive Urban Spaces</u>	725
<i>Marco Zilvetti, Fausto Brevi</i>	

SECTION IV

Aesthetics, Narration and Critical Design

<u>Narratives And The Co-Design Of Spaces For Innovation</u>	743
<i>Anzoise Valentina, Stefania Sardo</i>	
<u>Licções de Salazar [Salazar's lessons] 1938: the role of progress and technology on an authoritarian regime ideology</u>	763
<i>Carlos Bártolo</i>	
<u>Experts, Expertise and Qualitative Judgment in Canadian Architectural Competitions</u>	781
<i>Carmela Cucuzzella, Jean-Pierre Chupin</i>	
<u>Il concetto di sostenibilità nella moda: il caso della lana rustica italiana</u>	797
<i>Monica Cariola, Greta Falavigna, Valentina Moiso, Elena Pagliarino</i>	
<u>Estetiche dei futuri come estetiche dei contrasti. Processi design driven di costruzione condivisa di scenari</u>	813
<i>Flaviano Celaschi, Elena Formia</i>	
<u>The rhetoric and rhetoricality of Bio-Design</u>	829
<i>Marjan Groot</i>	
<u>Chasing The Hobbit. The Cultural Contents Of Mainstream Media Products</u>	847
<i>Luca Guerrini</i>	
<u>Design, scienza ed estetica nei territori dell'innovazione</u>	863
<i>Francesca La Rocca</i>	
<u>The Human Emotional System and the Creativity in Design</u>	881
<i>Marco Maiocchi, Margherita Pillan</i>	
<u>Autarchy: The Making of Dutch Design in Practice</u>	901
<i>Joana Ozorio De Almeida Meroz</i>	

<u>Interferenze digitali. Un'estetica delle pratiche digitali a supporto del discorso di design</u>	921
<i>Elisa Bertolotti, Federica D'urzo, Francesca Piredda</i>	
<u>Design Narratives and Social Narratives for Community Empowerment</u>	935
<i>Valentina Anzoise, Francesca Piredda, Simona Venditti</i>	
<u>Today's culture jamming aesthetics: an investigation to understand the consumption of visual resistance</u>	951
<i>Andréa Poshar</i>	
<u>Unpleasant Design. Designing Out Unwanted Behaviour</u>	975
<i>Gordan Savicic, Selena Savic</i>	
<u>When Human Body Meets Technology: The Designer Approach to Wearable Devices</u>	989
<i>Venere Ferraro, Matteo O. Ingaramo</i>	
<u>Per una sperimentazione materica postdigitale. Oltre i bits, i nuovi atomi</u>	1005
<i>Chiara Scarpitti</i>	

SECTION V

New and Responsible Socio-Technical Paradigms

<u>Anticipating and Responding to Challenges Regarding Digital Technologies and Valuing</u>	1017
<i>Barbara Andrews, David Hakken, Maurizio Teli</i>	
<u>Citizens' veillance on environmental health through ICT and genes</u>	1031
<i>Annibale Biggeri, Mariachiara Tallacchini</i>	
<u>The Corporation and the Panchayat. Negotiations of knowledge in an Indian Technology Park</u>	1045
<i>Elena Bougleux</i>	
<u>From physical to digital. A new way of interaction with an Integrated System of smart appliances</u>	1059
<i>Silvia D. Ferraris, Lucia Rampino</i>	
<u>Grounded Reflexivity: an approach to the polysemy of Responsible Research and Innovation</u>	1075
<i>Robert Gianni, Philippe Goujon</i>	
<u>La valutazione delle prestazioni urbanistiche dei parchi scientifici e tecnologici: alcuni casi italiani a confronto</u>	1089
<i>Giampiero Lombardini</i>	
<u>Digital Makers: an Ethnographic Study of the FabLab Amsterdam Users</u>	1105
<i>Irene Maldini</i>	
<u>Collective decision making on risk management and sustainable manufacturing of nanomaterials and the role of decision support tools</u>	1115
<i>Ineke Malsch, Vrishali Subramanian, Elena Semenzin, Danail Hristozov, Antonio Marcomini</i>	

TABLE OF CONTENTS / INDICE

<u>RECYCLE TOOLKIT. Strategie per il riciclo di aree dismesse</u>	1131
<i>Chiara Olivastri</i>	
<u>In the Interior of Innovation: The FabLab Synthesis of Physical and Virtual Environments</u>	1145
<i>Ricardo Saint-Clair</i>	
<u>Radical Innovation in Urban Development as Making Unfolds Its Potential</u>	1163
<i>Peter Troxler, Gert-Joost Peek</i>	

SECTION VI

Health, Safety, and Wellbeing

<u>The document use as a situated practice in pre-hospital emergency care</u>	1179
<i>Petra Auvinen, Hannele Palukka, Ilkka Arminen</i>	
<u>L'interpenetrazione tra valori e design nell'ideazione, implementazione e funzionamento della rete di Telessaúde brasiliana</u>	1197
<i>Carlo Botrugno</i>	
<u>Una tutela 'by design' del diritto alla salute. Prospettive di armonizzazione giuridica e tecnologica</u>	1211
<i>Raffaella Brighi, Maria Gabriella Virone</i>	
<u>The role of artefacts in the coordination of home care practices</u>	1223
<i>Adeline Hvidsten, Antonalla La Rocca, Thomas Hoholm</i>	
<u>Taking Care of Drivers/Taking Care of Technologies? Tensions and Promises of Advanced Driver Assistance Systems</u>	1239
<i>Oana Mitrea</i>	
<u>Spazi di transizione tra strutture sociosanitarie e città. Condividere funzionalità in ambiente urbano</u>	1253
<i>Valentina Napoli</i>	
<u>Design partecipato e pratiche della sicurezza nei cantieri</u>	1269
<i>Silvia Pericu</i>	
<u>Connective practices in the access of immigrants to healthcare services: The role of the language and cultural mediator as a boundary subject</u>	1283
<i>Paolo Rossi, Mara Tognetti Bordogna</i>	
<u>Improving medical information of blood tests results through the application of co-design</u>	1297
<i>Mónica Santos, Susana Barreto, Katja Tschimmel</i>	
<u>Enhancing Corporeal Boundaries through Technology</u>	1312
<i>Secil Ugur Yavuz</i>	
<u>Il progetto della casa sensibile – Designing the Sense-Able Home</u>	1325
<i>Niccolò Casiddu, Claudia Porfirione, Matteo Zallio</i>	
<u>Organizzare la cura fuori dai contesti istituzionali: il caso dei pazienti anziani con terapie complesse</u>	1343
<i>Alberto Zanutto, Francesco Miele, Enrico Maria Piras, Claudio Coletta, Attila Bruni</i>	

Cities transformations, social innovation and service design

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Cities are nowadays facing disruptive challenges calling for smarter solutions and creating pressure for the public and the private sectors to deliver innovative services better responding to the needs of citizens. Great expectations are put in the Smart City paradigm, but most of the solutions just rely on technologies and are thus far from the urban functioning, people and their daily life. In this framework design is orienting its theories and practices towards a different paradigm, putting people at the centre of the smartness of cities by recognizing the need of developing micro and contextualized solutions that can be subsequently scaled up to achieve larger social impacts (Murray, Caulier-Grice and Mulgan, 2010). The Human Smart City paradigm (Concilio, Deserti and Rizzo, 2014) relies on the capability of the city to realize and scale up intangible infrastructures based on new typologies of partnerships for the development of services. The paper presents this vision by discussing the first results of MyNeighborhood, a European project that is experimenting the HSC paradigm in the development of collaborative services in 4 different European neighbourhoods.

Keywords: Human smart city; service design; complex participatory design; social Innovation

The Human Smart City Paradigm

The world's urban population is expected to double by 2050. By 2030, six out of every ten people will live in a city and by 2050 this figure will run to seven out of ten (World Health Organization, 2014). In real terms, the number of urban residents is growing by nearly 60 million people every year. As the planet becomes more urban, cities need to become smarter and major urbanisation requires new ways of managing the growing complexity of urban living.

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In this context the concept of Smart City (SC) emerged as an innovative modus operandi for the future urban living and as a key strategy to tackle wicked everyday problems and challenges for citizens. Despite the current wave of discussion and debate on the value, function and future of SC, as a concept it resists easy definition. At its core, the idea of SC is rooted in the creation and connection of human capital, social capital and Information and Communication Technology (ICT) infrastructure in order to generate greater and more sustainable economic development and a better quality of life (Directorate General for Internal Policies, 2014). In truth, there are many perspectives on SC: some focus on ICT as a driver and enabler, while broader definitions include socio-economic, governance and multi-stakeholder aspects, such as the use of social participation to enhance sustainability, quality of life and urban welfare. This paper embraces the concept of Human Smart City (HSC), developed in the context of the European Projects *Periphèria* (www.periphèria.eu) and *MyNeighbourhood* (www.my-neighbourhood.eu). A HSC is a city that seeks to address public and societal issues (or wicked and unmet people problems) via ICT-based solutions on the basis of complex multi-stakeholder partnerships, including the same municipalities (Concilio, Deserti and Rizzo, 2014). These solutions are developed and refined through public and collaborative services, or else services that are co-designed and co-produced between citizens and public and private stakeholders.

The HSC approach relies on two main pillars: (i) ICT is only a component of the solutions; (ii) solutions can be seen as forms of social innovation. In relation to the first pillar the HSC approach suggests to overturn the design process of the SC solutions from the dominant paradigm that moves from technology to solutions to the emerging one that moves from problems to solutions considering all the available resources (design thinking approach).

In relation to the second pillar, an overview of the social innovation phenomenon suggests that it primarily takes the form of a constellation of small initiatives generated by creative communities and collaborative organisations (Meroni, 2007). The proposition behind HSC is that these small, local social innovations and their working prototypes can be scaled-up, consolidated, replicated, and integrated with larger programmes to generate large-scale sustainable transformation for which favourable conditions might be created by some strategic actors.

In the following the paper will illustrate the development of this paradigm and the experimentation of the service design methods within the *MyNeighbourhood* project.

The MyNeighbourhood Project

MyNeighbourhood is a EU-funded research project started in January 2013 with the goal of applying service design methods and tools in 4 different European neighbourhoods (in Lisbon, Milano, Aalborg and Birmingham) to identify and support the establishment and the upscale of grassroots and community-based initiatives, through the adoption of a web-based service platform. The project is operating in a typical ICT research area, introducing the idea that advanced participatory design methods can make the difference in the level of innovation of the proposed solutions, since the development process starts from people and not from the available technological paradigm.

MyNeighbourhood is trying to further develop the HSC paradigm by amplifying and connecting existing grassroots social initiatives the 4 different neighbourhoods to show the potentials of connection and collaboration in designing, experimenting, assessing and upscaling smart services. In particular, *MyNeighbourhood* is experimenting the Participatory Design (PD) approach as the most suitable to develop public and collaborative services in 4 different European neighbourhoods, with the aim of building complex partnerships of actors who can co-produce the services (and keep them alive after the project). In this paper the authors will: (i) develop the relation between the *MyNeighbourhood* design framework and the concept of public and collaborative services; (ii) present the *MyNeighbourhood* aims, context of application and process and (iii) describe some of the *MyNeighbourhood* first solutions and discuss them in the light of the above-described HSC paradigm.

***MyNeighbourhood* Design Framework**

MyNeighbourhood design framework can be described by identifying (i) the objects to be designed; (ii) the design approach and (iii) the methodologies adopted to support the design process.

MyNeighbourhood focuses on the experimentation of public and collaborative services. These services are characterised by: (i) a new productive model based on the co-design and co-production of the services through new partnerships; (ii) a series of tangible and intangible artefacts through which the services are conceived, delivered, perceived and used (services blue prints, actors' maps, business models, service touch-points).

With respect to the methodology, *MyNeighbourhood* embraces the Participatory Design approach, supported by service design methods for the

design of the tools and artefacts supporting the service conception and delivery.

Public and Collaborative Services

Public and collaborative services (Baek, Manzini and Rizzo, 2010; Pueri et al., 2013) are the first asset of the *MyNeighbourhood* design framework. They have been defined as new valuable services resulting from a process of co-design and co-production that can take place through new forms of partnership involving citizens, municipalities, as well as other public and private stakeholders, which directly address the challenges that they face in their cities. Collaborative services possess a set of characteristics that the Study on Collaborative Production in eGovernment smart 2010-0075 (European Commission, 2012) has clearly described and analysed through 150 cases from across Europe: '*Not purely bottom up (...); not all about government data (...); applied across all services*'.

Complex Participatory Design

PD is the second asset of *MyNeighbourhood* design framework: the project introduces the idea of PD as the most suitable approach to create the conditions to set up and generate innovation ecosystems where citizens and networks of stakeholders can co-produce solutions in partnership with the public bodies (Binder et al., 2011; Bjorgvinsson, Ehn and Hillgren, 2010; Ehn, 2008; Halse et al., 2010; Hillgren, Serravalle and Emilson, 2011; Ho and Lee, 2012; Light, 2012).

Researchers in the design field (Bjorgvinsson, Ehn and Hillgren, 2010; Brandt and Binder, 2011; Concilio, Deserti and Rizzo, 2014; Rizzo and Deserti, 2014; Deserti and Rizzo, 2011) have argued that when contexts are complex and end-users are not the only stakeholders to be considered, PD is the most suitable approach. In these contexts it can be thus introduced as a way of envisioning possible future solutions by creating strong connections with the network of stakeholders belonging to a place, establishing a long-term engagement with local communities leading to the emergence of new practices and new opportunities for design.

To introduce this notion of PD we refer to Ehn (2008) and Bjorgvinsson, Ehn and Hillgren (2010). Both articles represent a significant contribution to the debate on participatory design since they propose a radical shift in its conceptualization: from the traditional view that considers the object to be designed as a well-defined product or service, and where final users become co-designers (Rizzo, 2010), to a new definition that sees the participation as

the design process for the realization of new long-term partnerships for the sustainability of the collaborative services. In fact what is new in this vision is the object of design from a product to a process of co-design and co-production that transform the social context (a city, a street, a neighbourhood, a square) by facing unmet social challenges. From this point of view the news that participatory design introduces with respect to the tradition of participatory design in planning and urban studies (Sclavi, 2000) are twofold: from one end the notion of participatory design here introduced refers to the construction of partnerships and new business models for innovative services that operate (here the second different) at the micro scale of the city instead of governing decision making processes on infrastructures, policy making, regulations, citizens participation to the political debate.

On the basis of this new notion, we adopt the idea that PD has become a highly dynamic process (Manzini and Rizzo, 2011). Therefore, PD can be something that also includes linear co-design processes and consensus building methodologies (i.e., the most traditional view of participatory design), but goes far beyond them, becoming a complex, articulated and often contradictory process, or else what we call Complex Participatory Design (CPD). Figure 1 (Rizzo and Cantù, 2013) exemplifies the role of design in complex participatory processes: 1) Community building, consisting in the identification of the first network of actors that will take part in the co-design process: the community moves from the recognition of a common problem and seeks to collaborate together to find a solution; 2) Encouraging usage, consisting in the real coproduction of the envisioned solution: in this phase the solution meets the context and PD acts as a continuous open innovation strategy supporting further elaboration in favour of the goodness of the solution; 3) Expanding and adapting, consisting in making the initial partnership larger and stronger by implementing a process of continuous alignment of the different interests of the actors around the solution in order to offer it in a stable way (sustainably of the solution).

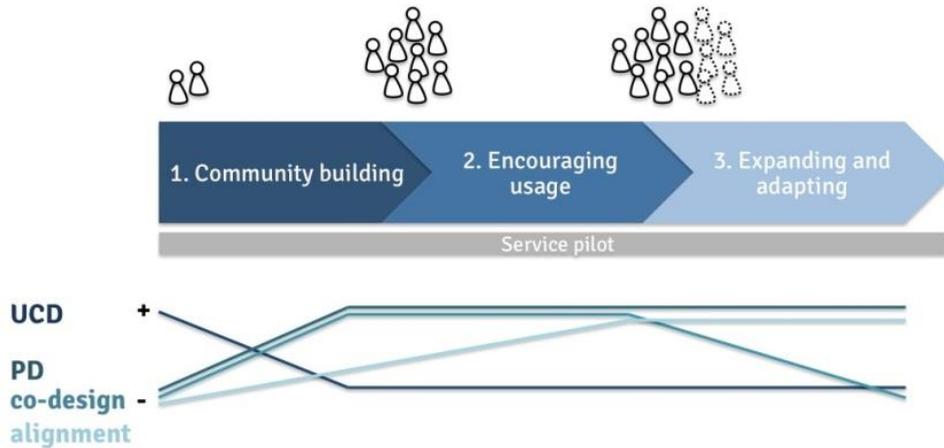


Figure 1. The figure shows that PD works better when, in the development of a collaborative service project, the process moves from the establishment of the first community to the foundation of the final stakeholders' network that will co-produce the service.

PD in *MyNeighbourhood* becomes a complex design process whose object is the realisation of an intangible infrastructure, i.e. a partnership, with local stakeholders to co-produce solutions that address situated challenges. Designers work with stakeholders to identify the emerging needs and to create digital and physical platforms that will enable participation and coproduction, being open to different project development directions and perusing the sustainability of the designed solutions.

MyNeighbourhood build on the peculiar conditions and resources of the local communities engaged in the pilot experiments, providing a platform for engagement that transcends traditional models of co-design. The challenge for is to provide evidence of what can be done beyond the co-design, with a twofold aim: (i) addressing problems of the context; (ii) establishing a long-lasting strategy of innovation for that context. The expected outputs of the experimentation of CPD are:

- The methodologies for the municipalities to manage complex participatory processes, putting together citizens, private and public stakeholders in new typologies of partnership;
- The partnerships focused on collaborative services in the 4 piloting contexts;
- A strategy of continuous open innovation to support the scaling up of the envisioned solutions.

Service Design Methods

Service design is the third asset of the *MyNeighbourhood* design framework. It focuses on (re)designing service processes and service experience, today recognised as relevant drivers of innovation. This new approach – people-centred, design-led and based on projects – is expected to bring to users and providers new expectations of quality of delivery, new business opportunities, new methods and tools to deal with innovation, both in European enterprises and in the public sector (European Commission – Design Leadership Board, 2012).

My Neighbourhood explores the potential of service design tools to support the generation of ideas and the process of focusing entrepreneurial opportunities based on SC-enabled solutions in the pilots' contexts.

The assumption underpinning *MyNeighbourhood* is that service design routinely deal with many of the same issues that new ventures face: involving a wide variety of actors and stakeholders, creating a network of partners, building intangible experiences and outcomes and prototyping and assessing immaterial ideas before any further resources are committed to implementation.

Users orientation and contextualization are at the core of service design, which has recently emerged as the way to introduce a human-centred approach in the frame of SC (Rizzo et al., 2013). If we look at how services are designed and implemented, service design may be defined as a user-centred process meant to understand both the customers' needs and the needs of the other stakeholders involved in the service processes, exploiting this knowledge to design the service interactions (Kolko, 2011).

In *MyNeighbourhood* the Service Design contribution seeks to identify the social and functional relationships that aim to generate prosperous complementarities inside a context and to develop services able to generate social sustainability. This approach led *MyNeighbourhood* to identify the inter-relationships that may improve the quality of life inside the contexts of the project and to develop services able to generate social and relational qualities. The outcomes of this process have been a series of service projects to be piloted in the four neighbourhoods engaging local resources and actors.

MyNeighbourhood Service Design Phases

The development and the experimentation of the services were structured in 5 phases: exploration, sense making, idea generation, service design and piloting.

Exploration

Exploration deals with understanding the contexts where the design action must take place. The context analysis in *MyNeighbourhood* started with explorative activities aimed at identifying local resources. In this phase everything that could help designers to set the starting conditions for the projects was mapped: socio-economic context characteristics, points of strengths and weaknesses of the neighbourhood, entry points, active people and associations, gatekeepers, infrastructures, projects and initiatives.

Sense making

Exploration was slowly transformed into a sense making work, where the rich information collected in the exploration phase was analyzed and interpreted, in order to work out facts, uninspected elements, needs and challenges supporting design phase. The design teams formalized some semi-worked elements: maps of the stakeholders, resources maps, personas, video and pictures from the contexts, people and stakeholders WINS (wishes, interests, needs). In this phase a first hierarchy of priorities was pointed out: issues and challenges to be addressed were extracted and prioritized with respect to the stakeholders' feelings and opinions.

Idea generation

This phase was the first design activity that was conducted in collaboration between designers, citizens, stakeholders and municipalities. It was mainly devoted to working out together and sharing provisional ideas – new activities, processes, systems or touch-points – that could be turned into effective solutions to the challenges listed during the sense making activity. In each of the pilots this phase ended with a set of ideas that were analyzed and selected applying different criteria: the feasibility with respect to the available resources and to the *MyNeighbourhood* larger objectives; presence of a first group of stakeholders interested in entering the phase of service design and in experimenting with the envisioned solutions; potentiality of the idea to be scaled and to have a market; presence of a robust digital dimension with which to experiment FI solutions.

Service design

This phase moved forward the design selected design concepts to what they could become in reality. This phase included co-design activities conducted in strong collaboration with non-professionals from the context and from the municipality. The mixed team developed for each service a set of detailed design elements: the user experience, the service blueprint for front and the back end; the map of the stakeholders that would support the service implementation and delivery, the business model. With these elements the pilots started the service implementation phase.

Piloting

In the pilot phase the developed solution really enters its context to be experimented. Here local players are asked to try and test the solution to report feedbacks and feasibility hints. This phase corresponds to the activation of a prototype, in the form of a real in-place service, meant to test technical, functional and experiential features.

For the sake of brevity in the following we will report the experience conducted in the Milano pilot experimentation until the phase of service design. This article does not report information on the piloting phase, which will start at the end of May 2014.

An Example of the Envisioned Solutions: the Milano Pilot Case

The Milano pilot experiment is taking place in the Quarto Oggiaro neighbourhood, located in the northwest area of Milano, not far from where the 2015 Expo will be located. Here the entire service design process has been conducted thanks to a strong collaboration between the Politecnico di Milano (holding a long tradition in design and in urban planning research) and the Municipality. This mixed design team performed all the activities in the contexts and managed the interactions with the local communities and stakeholders to engage them in the co-design process and in the service experimentation. The first months have been dedicated to exploring and approaching the neighbourhood: the design team started understanding physical aspects of the neighbourhood, the characteristics of its population, its socio-economic dimensions, the main actors operating in the context, the relation between the neighbourhood and the rest of the city and the characteristics of the urban services already offered in the neighbourhood.

After that a period of intensive co-design meetings started. In this phase the design team established 4 different design tables, involving designers, urban planners, people from the Municipality of Milano, representatives of the local associations and people from the neighbourhood. Each table started from a complex discussion on the relevant neighbourhood issues, ending with a list of main challenges:

- regenerating disused and derelict public areas;
- improving social life and inclusion of elderly people;
- preventing school drop-outs and creating job opportunities for young people;
- exploring and testing new potential entrepreneurial opportunities and business models for start-up companies.

Starting from these challenges, the design tables then worked to elaborate four possible service ideas as smart solutions for the framed problems. Out of four, two ideas were selected for the whole development and testing process. In the following we will shortly introduce them.

The Quarto Food service

Quarto Food Club addresses the relevant needs of the quite large community of elderly people living in Quarto Oggiaro.

It is a service that combines the need to deliver food to vulnerable single elderly citizens with that of improving their social life, enjoying a meal prepared with special care and consumed in a sociable condition to relieve their sense of loneliness.

At the same time, the service aims at responding to the second neighbourhood issue of the young people unemployment, exploiting the involvement of the students from the local hoteling schools, who can receive credits for the practical training having the possibility to enter in a real food preparation and catering experience.

Specifically, the service involves two high schools in Quarto Oggiaro where students prepare every week some meals as part of their training for catering and food preparation.

Starting from this resource, the service idea is to deliver these meals to a group of elders living in the Neighbourhood, preparing for the occasion a kind of social space in the schools, where elderly can enjoy the meal together, getting in touch with each other and with the students.

The students will also have benefits from this interaction, as they will receive academic credits while their work will become visible and recognized by real end-users (figure 2).

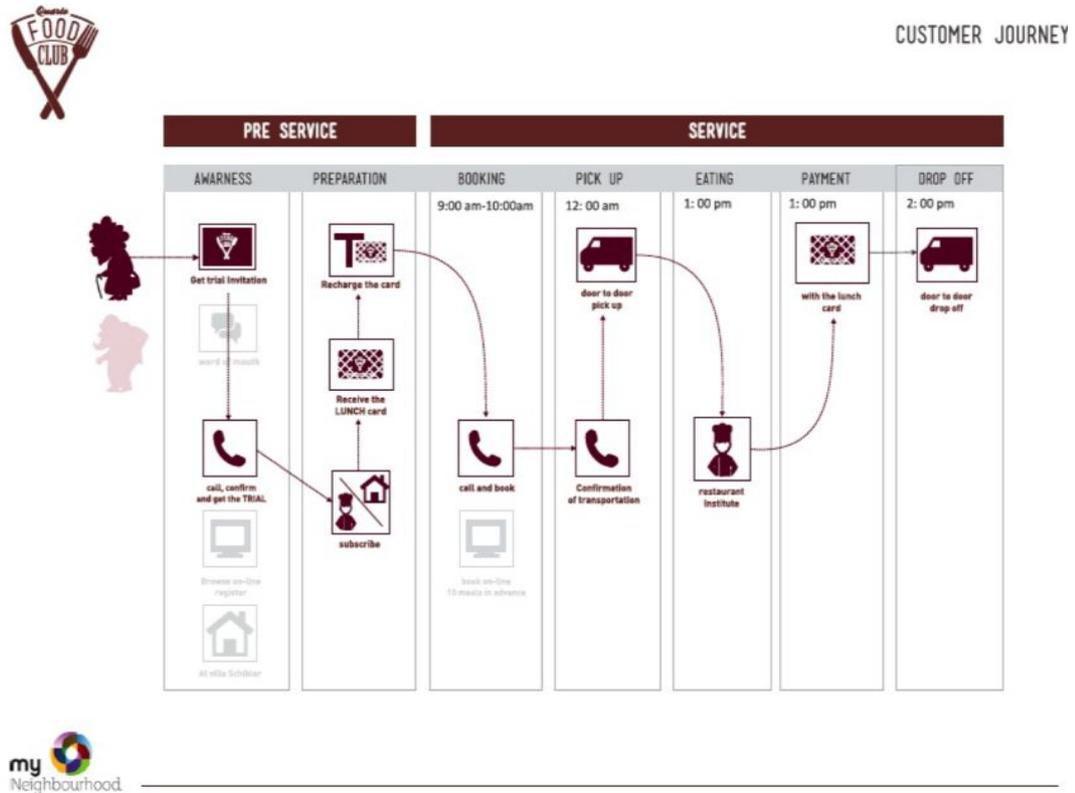


Figure 2 The Quarto Food customer journey.

The implementation of the service required the development of a formal partnership: it will be thus really delivered thanks to the agreement between the professional hoteling schools (providing the food preparation and the venue) and some local associations (providing the contact with elderly people and a van for the transportation from the private places to the school and vice versa).

Through ordinary activities of food processing, students will prepare – from 1 to 3 days per week – meals for the target group. An IT platform will support the process of the booking of the meal and the trip, and a personal rechargeable lunch card will be provided to the users to partially cover the costs of the meal and the service.

The Quarto Gardening Service

Quarto Gardening is based on the same structure of Quarto Food, and consists in a co-designed service that provides the possibility for the

ALESSANDRO DESERTI, FRANCESCA RIZZO

Municipality of exploiting the competences of the students of the Quarto Oggiaro agricultural school to take care of some the green areas in the neighbourhood.

The service is made possible thanks to the agreement between the management of collective green areas (Municipality of Milano and the public institute for Social Housing in Milano) and the local agricultural high school. Through practical training activities, where teaching credits are acknowledged, students will take care of some green spaces in the neighbourhood. A focal point for the experimentation of the service could be Piazza Capuana, the crucial place in Quarto Oggiaro, where the service is planned to start. This choice was made in order to make the impact of the service and the action of the *MyNeighbourhood* project highly visible in the local community (figure 3).

The service goal is to contribute to reducing the expenditure for the maintenance of public green areas, regenerating public spaces and experimenting new opportunities for young people by testing a new business model. The beneficiaries would be both public like the municipality and private, for example the building managers, resident citizens.

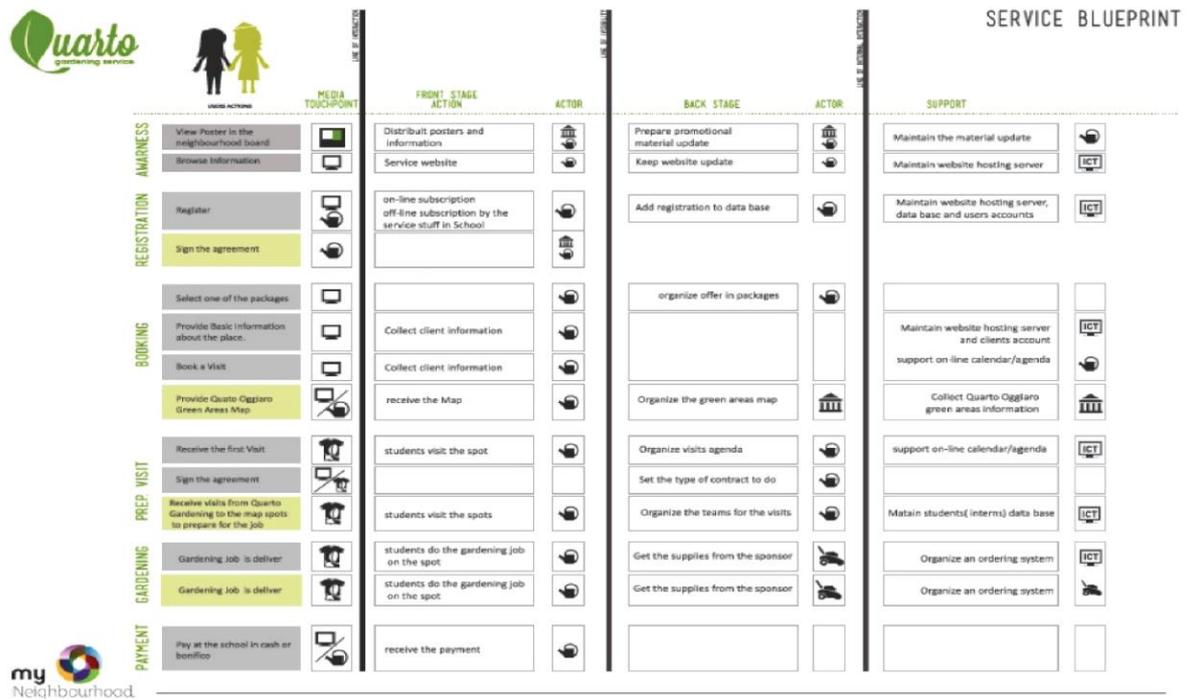


Figure 3 The Quarto Gardening service blue print.

Conclusion

The approach presented in this paper focuses on the construction of a design framework for the development of public and collaborative services in the frame of the HSC paradigm. This paradigm is based on the idea of involving local players in the design process, generating local solutions that can be subsequently transferred and scaled up. The experimentation of this approach is still on-going, but we can draw a few conclusions from the service design phase, taking into account the processes, the tools and the interaction among the subjects that took part in the experimentation.

The bottom-up nature of the people-centred services made clear that in their design and implementation in cities it is fundamental to consider a range of questions bound to their relation with a more strategic level. Are the objectives of the local services relevant, appropriate and aligned with the broader city development objectives? Does the initiative address problems of importance to the city in question? Is the mix of funding, participation, components and characteristics likely to produce the expected outcomes? If possible, it is important to consider larger impacts than just the local ones.

If we want the HSC vision to deserve consideration from the municipalities across Europe and worldwide, as well as from the SC research community, as a way to foster a new more sustainable urban development by developing better services, the experimentation conducted in *MyNeighbourhood* help us drawing a few general conclusions:

1. Complex Participatory Design, as defined above, needs to become an institutional point of view and to be adopted by the municipalities that recognise the need to build new service infrastructures through innovative productive partnerships;
2. Even if the core value of the public and collaborative services resides in the meaningfulness that they can offer with respect to the solution of wicked problems, up to societal challenges not met by the standard offering of public services, to be implemented they first have to deliver value for the partners taking part in the network;
3. Innovative solutions can be built starting from a specific context, but we must find ways to reconnect them to a wider frame to create general urban value. A context-dependent model of urban development appears to offer a structure within which to shape new dynamics between top-down policy

development in the whole cities and bottom-up experiments in the local contexts.

The last point is at the core of the lesson learnt from *MyNeighbourhood*: design-driven experiments with public services become social innovation when they are reconnected to a larger frame, and when the experimented solutions are synergized with others and scaled up. This means that the traditional top-down perspective of the public bodies can be usefully integrated with the capacity of being close to the real needs of citizens that comes from the PD practices, recognizing 'weak signals' and turning them in solutions to be tested, assessed and amplified in connection with a larger vision.

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