PROOF OF CONCEPT

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Service Design Proof of Concept. Proceedings of the ServDes.2018 Conference

Editors: Anna Meroni, Ana María Ospina Medina, Beatrice Villari

ServDes.2018

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ABOUT SERVDES.2018

Service Design can no longer be considered an 'emerging discipline'. Though recent and in continuous evolution, it is now consolidated enough to be assessed and reviewed in terms of effectiveness and impact on economy and society: how far has the logic of services (and of Service Design culture) influenced the different domains of innovation and value creation? How much has this been truly integrated into the innovation process of private and public sectors? How effectively has this been understood, evaluated and discussed? How far have digital technologies and media been influencing service design and delivery?

Initially, Service Design mainly concentrated on the paradigm shift from designing the materiality of objects to focusing on immaterial experiences, interfaces, interactions, and strategies. Thus, for
some decades attention has been paid to the changing role and competencies of the designer, and to the establishment of Service Design as a discipline in its own right, despite its multi-disciplinary approach which includes management, ethnography, sociology, and organizational studies, to mention but a few.

The ServDes.2018 conference aimed at validating, discussing and reviewing the models, processes and practices developed and used in the service design ecosystem, from its academic community to practitioners, companies and organizations at large.

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TABLE OF CONTENTS

Pg.

Track 1: Learning and practicing

Learning and practicing in service design 1
Alessandro Deserti, Anna Meroni, and Bas Raijmakers

The briefing process: Examining the client-consultant relationship through a case 13
Begüm Becermen, Esben Grøndal and Amalia De Götzen

Desis Network: Strategies to advancing systemic social innovation through service design 25
Carla Cipolla

Learning to design in public sector organisations: A critique towards effectiveness of design integration 37
Stefan Holmlid and Lisa Malmberg

Fostering a sustained design capability in non-design-intensive organizations: a knowledge transfer perspective 49
Filipe Lima and Daniela Sangiorgi.

Service design for behavioural change - current state of the discipline and practice in India 62
Ravi Mahamuni, Pramod Khambete and Ravi Mokashi-Punekar

The designer as agent of community 76
Thomas Østergaard

From user-centred to stakeholder oriented service design: Implications for the role of service designers and their education based on an example from the public sector 91
Lorenz Herfurth and Kirsty Sinclair

Working with complexity: A contemporary skill framework for service designers 105
Tamami Komatsu Cipriani and Martina Rossi.

The satellite applications catapult: Design's contribution to science and technology innovation services 117
Alison Prendiville.

Navigating the sociocultural landscape in service design 131
Laura Santamaria, Carolina Escobar-Tello and Tracy Ross.

Exploring the future of consumer retail 152
Jim Budd, Paul Della Maggiora and Florian Vollmer.

A designerly-way of conducting qualitative research in design studies 164
Nina Costa, Lia Patrício and Nicola Morelli.

Making sense of data in a service design education 177
Amalia de Götzen, Péter Kun, Luca Simeone and Nicola Morelli.

Put on your oxygen mask before helping others: Mental well-being in service design 189
Anne Dhir.

The future of visual communication design is almost invisible or why skills in visual aesthetics are important to service design 199
Mark Roxburgh and Jemima Irvin.

Bodystorming: Lessons learnt from its use on the classroom 216
Aguinaldo Santos, Aline Muller Garcia, Milena Carneiro Alves and Emanuela Lima Silveira.

Service design in companies 227
Linda Covino and Alessandro Piana Bianco

A service design experiment in the Municipality of Turin to overcome organisational silos 230

The Designers Italia project - building the community of public services designers 234
Alessandro Deserti, Francesca Rizzo

Track 2: Sharing and collaborating

Sharing and collaborating in service design 237
Marta Corubolo, Daniela Selloni, and Anna Seravalli

Service co-design for the shared mobility sector: A free-floating bike sharing model 252
Silvia Cacciamatta, Francesca Foglieni and Beatrice Villari.

Adapting the design process for different learning styles and abilities 266
Valerie Carr.

Analysis on the utilization of co-design practices for developing consumer-oriented public service and policy focusing on the comparison with western countries and south korea 281
Yoori Koo and Hyeonseo Ahn

Tools for collaborating and interacting in living labs 298
Maximilian Perez Mengual, Julia M. Jonas, Stephanie Schmitt-Rueth and Frank Danzinger.

Civic engagement as participation in designing for services 311
Lara Salinas, Adam Thorpe, Alison Prendiville and Sarah Rhodes.

Co-creation with vulnerable consumers – an action research case study of designing a pictorial language for logistics 323
Stephanie Schmitt-Rüth, Martina Simon, Andreas Demuth, Alexandra Kornacher, Marjan Isakovic, Michael Krupp and Michael Stoll.

The act of giving – sur. A service for sharing and co-producing gifts 338
Giulia Bencini, Kuno Prey and Alvise Mattozzi.

Building trust in relational services: The analysis of a sharing service between neighbours 357
Mariana Freitas and Carla Cipolla.

Understanding generalisability from network-conscious service design projects 368
Tim Overkamp, Martina Čaić, Stefan Holmlid, Dominik Mahr and Gaby Odekerken-Schröder.

Maps as participatory platform: towards to open data and transport service 386
Hyunyim Park.

Service design and human resource consulting: An integrated vision 401
Valentina Auricchio, Martina Rossi, Giovanna Dezza and Pierpaolo Peretti Griva.

Developing recovery oriented services and co-production in mental healthcare: Building-up on existing promising organisational practices 414
Marta Carrera, Daniela Sangiorgi, Francesca Foglieni and Fabio Lucchi.

User perceptions of design games as settings for organizational learning: Case Topaasia 427
Otso Hannula and J. Tuomas Harviainen

Quasi-participatory service design in organizational context: A case study 440
Ravi Mahamuni, Shivani Sharma, Sylvan Lobo, Ulemba Hirom and Pramod Khambete.

Designing tangible tools to support collaboration in the co-design of healthcare services 455
Karianne Rygh.

Integrating empathy and lived experience through co-creation in service design 471
Josina Vink and Anna-Sophie Oertzen.

Collaborative services in the Italian city of Reggio Emilia. The case study of "Il quartiere bene comune - The neighbourhood as commons" 484
Francesco Berni

Track 3: Measuring and evaluating

About evaluation in service design: As it is and how it could evolve 489
Francesca Foglieni, Beatrice Villari, Froukje Sleeswijk Visser

Measuring the impact of design, service design and design thinking in organizations on different maturity levels 500
Tua Björklund, Pia Hannukainen and Tuomas Manninen.

Using the net promoter score to support service design: Digging for gold in customer free-text reports 512
Asbjørn Følstad and Knut Kvale.

ServDeWS: The service design workshop on utilizing multi-viewpoint and diversity of participants based-on human centered approach for R&D specialists 523
Koki Kusano, Atsunobu Kimura and Masayuki Ihara

Mapping design capability of public service organisations: A tool for collaborative reflection 534
Yvonne Yeo and Jung-Joo Lee

A service evaluation in the shared mobility sector: Bitride bike sharing project 550
Silvia Cacciamatta and Virginia Allevi

A service to measure overall adequacy across a banking environment 555
Fabio Poli and Alessandro Zorzi

Track 4: Governing and evidencing

Design craft in Government 561
Marzia Mortati, Jesper Christiansen and Stefano Maffei

The role of service design consultancy in public sector: Inferences from KIBS and service innovation perspectives 572
Adedapo Adebajo.

The stakeholder map: A conversation tool for designing people-led public services 582
Fanny Giordano, Nicola Morelli, Amalia De Gotzen and Judith Hunziker.

Different journeys towards embedding design in local government in England 598
Inbo Kang and Alison Prendiville.

Guiding the welfare state towards a co-creative and explorative mindset: When a crisis is an opportunity 612
Matilda Legeby, Pia McAleenan, Hanna Andersson and Stefan Holmlid.

Co-designing public services with vulnerable and disadvantaged populations: Insights from an international collaboration 629
Gillian Mulvale, Sandra Moll, Ashleigh Miatello, Glenn Robert, Michael Larkin, Victoria Palmer, Chelsea Gable and Alicia Powell.

Service design and the co-production of public policies: The case of RedActiva 631
Cristobal Tello, Carola Zurob, Sol Pacheco and Sebastian Negrete.

Civic Imagination Office as a platform to design a collaborative city 645
Michele d'Alena, Simona Beolchi and Stefania Paolazzi

Includi.MI: Local government and social entrepreneurship for an inclusive city 649
Denise Di Dio

Track 5: Producing, distributing and organising

Service design in open production, distribution and organisation as a discipline facilitating democratic critique? 654
Massimo Bianchini, Venanzio Arquilla, Peter Gall Krogh

Service design in the later project phases: Exploring the service design handover and introducing a service design roadmap 666
Frida Almqvist.

Weaving the threads: Service innovation with textile artisan communities 679
Francesco Mazzarella, Val Mitchell, Andrew May and Carolina Escobar-Tello.

The Coconut Innovation framework: An innovation framework focusing on resources 696
Satoru Tokuhisa.

Municipality as a platform: the case of Manifattura Milano 713
Annibale D'Elia

Track 6: Experiencing and shaping

"Experiencing and shaping": The relations between spatial and service design 717
Davide Fassi, Laura Galluzzo, Oliver Marlow

Service design methods and tools as support to the participatory definition of the meta-design brief of a contemporary integrated campus 726
Barbara Camocini, Luisa Collina, Laura Daglio, Martina Mazzarello and Paola Trapani

Service design principles for organizational well-being: Improving the employee experience through design thinking 736
Marco Di Norcia, Fabiola Bertolotti and Matteo Vignoli

Designing spaces and services. An experimental project for student dormitories: Collective experiences, connected lives and linked places 751
Claudia Mastrantoni, Luisa Collina, Peter Di Sabatino and Laura Galluzzo

Can coworking spaces be built bottom-up? 761
Vanessa Monna, Giuliano Simonelli, Francesco Scullica and Elena Elgani

Design thinking for interior and spatial design: A case study within Politecnico di Milano 772
Ngoc Pham and Davide Fassi

Engagement strategies within co-making environments bridging spatial and organisational design 785
Ricardo Saint-Clair

Dance of designing: Rethinking position, relation and movement in service design 800
Shana Agid and Yoko Akama

Facilitating in service design using desktop walkthroughs 812
Johan Blomkvist and Fredrik Wahlman

Traces as service evidence 822
Spyros Bofylatos

VR service walkthrough: A virtual reality-based method for service prototyping 834
Costas Boletsis

Service+Spatial design: Introducing the fundamentals of a transdisciplinary approach 847
Davide Fassi, Laura Galluzzo and Annalinda De Rosa

Space and service design into educational practice 863
Nansi van Geetsom

Refugees Welcome Italia ONLUS, shaping the new hospitality system 876
Lucia Oggioni,

Starting up communities in housing spaces 880
Giordana Ferri

Track 7: Community and relationship building

New paradigms related to community building and identity in service design: Exploring global and local design initiatives 885
Lisbeth Frølunde, Margherita Pillan, Francesca Piredda

We are brand: Brand co-creation as an engine for new forms of welfare services 896
Matteo Colombo, Elena Enrica Giunta and Paola Papetti.

Service design tools to engage marginalised youth in San Communities of Southern Africa 911
Fabrizio Pierandrei, Silvia Remotti, Tang Tang, Shilumbe Chivuno Kuria and Stefano Anfossi.

Research by design and collaboration in the perspective of post-soviet 'nuclear' town Visaginas –RDCPP-SNTV 924
Alla Pihalskaya.

Service design for community based tourism - The Brazilian case study 940
Priscilla Ramalho Lepre.

Empowering community volunteers through matchmaking services 954
Geertje Slingerland, Ingrid Mulder and Tomasz Jaskiewicz.

Service as a system of participation: A case study of a participatory economy 966
Miso Kim.

A CRX framework and tools to design for relationships in service settings 976
Jan Koenders, Dirk Snelders, Maaike Kleinsmann and Jürgen Tanghe.

Service design and activity theory for the meta-design of collaborative design processes 994
Massimo Menichinelli

Funding service design: Growing service design practice through a grants programme 1009
Laura Warwick, Paola Pierri, Claire Bradnam and Emma Field.

Track 8: Envisioning and evolving

Envisioning and evolving: Future evolution of the concept and the practice of service design 1019
Daniela Sangiorgi, Lia Patricio and Francesco Zurlo

Designing Convivial Food Systems in Everyday Life 1032
Emily Ballantyne-Brodie.

Trendslation – an experiential method for semantic translation in service design 1049
Claire Dennington.

Service design for artificial intelligence 1064
Andrea Gasparini, Ahmed Abdi Mohammed and Gabriele Oropallo.

Constructing an approach to identify service design narratives: Findings of an automated text analysis 1074
Mauricio Manhaes.

Resident autonomy in assisted living facilities: a conceptual framework for transformative service research 1088
Valeria Ramdin, Miso Kim, Rachel Pozzar, Xing Zhou, Yixuan Zhang and Paul Fombelle.

Digital methods for service design experimenting with data-driven frameworks 1100
Roberta Tassi, Agata Brilli and Donato Ricci.

Bridging design-driven and service innovation: Consonance and dissonance of meaning and value 1130
Ana Kustrak Korper, Stefan Holmlid and Lia Patrício.

Service designers, unite! Identifying shared concerns among multidisciplinary perspectives on service design 1144
Maíra Prestes Joly, Jorge Grenha Teixeira, Lia Patrício and Daniela Sangiorgi.

Perceived Action Potential: A strong concept in development 1162
Vanessa Rodrigues, Johan Blomkvist and Stefan Holmlid.

Design the impact 1175
Cristina Favini

Enhancing industrial processes in the industry sector by the means of service design 1179
Giuseppe Attoma Pepe and Peter Livaudais

PhD Special Seminar

The PhD Special Seminar on service design: unfolding a proof of concept 1186
Annalinda De Rosa, Stefano Parisi and Camilo Ayala García

Workshops

From A to BE. Designing the mobility of the future 1205
Antonio Grillo, Antonella Paparella, Giselle Chajin, Giulia Di Gregorio, Michele Armellini, Alessandro and Gomiero, Maria Prina

Data challenges and opportunities in designing for service 1206
Amalia de Go¨tzen, Nicola Morelli, Luca Simeone, Lorenzo Ruggieri, Ilaria Vitellio

Between servitude and collaboration: A service design choice? 1207
Carla Cipolla, Ezio Manzini, Mattelma¨ki Tuuli, Arianna Mazzeo, Lara Penin, Adam Thorpe

The latest words on service design: Talking about books 1208
Lorenzo Imbesi, Francesca Foglieni, Markus Edgar Hormess, Adam Lawrence, Stefano Maffei, Lara Penin, Alison Prendiville, Daniela Sangiorgi, Jakob Schneider, Daniela Selloni, Mark Stickdorn, Beatrice Villari

How service design can drive the digital transformation of the retail revolution 1209
Alessandro Piana Bianco, Linda Covino

Digital transformation through community and relationship building 1210
Francesca Piredda, Caterina Petroni, Simona Venditti, Emiliano Verga

Service design for autonomous driving 1211
Valerio Cometti, Marco Generali, Giacomo Biraghi

Gamification for service design and innovation workshop 1212
Rui Patrício and Rei Morozumi

Humanizing organizations - the pathway to growth 1229
Andrea Augsten, Titta Jylkäs, Rachel Hollowgrass, Marjukka Makela Klippi

Track 6: Experiencing and shaping

The spatial experience of human beings is rooted in architecture and urban planning and finds its exploratory focus in the spatial design discipline, where the transformation and manipulation of a given space deals not only with its perception and transit, but also with the system of actions and interactions that take place in it. Spatial design frequently encounters the redefinition of contemporary life parameters and discloses the new configurations of a changing society: the physical realm enables interactions among people and enhances a sense of shared ownership and the engagement of people with contexts. That is why the design of public and private spaces meets the relational nature of services, in a mutual influence that affects the creation of meaningful social environments.

The track seeks to explore the relationship between service design and the design of physical environments. The main aim is to examine how the systemic logic of service design and its peculiar focus on interactions influence the shaping of spaces, in private as well as in public contexts. Specific issues regard:
- the contribution of service design to the theoretical and operational toolkit of spatial design;
- the respective positioning of service design and spatial design in education and practice, and collaboration between the different practitioners;
- the potential of service design to facilitate the direct involvement of stakeholders (including citizens) in the design of the spaces, and how this can contribute to strengthening long-term relationships between people and places;
- the quality of the experience in the space.

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Service design methods and tools as support to the participatory definition of the meta-design brief of a contemporary integrated campus

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Abstract

Service Design can contribute to Spatial Design not only through data collection from the involved stakeholders and their demands analysis but also through the improvement of methods and tools to engage final users, to trigger interactions among them, to stimulate ways of conceiving and creating new living and working lifestyles and social environments. An especially challenging task emerges from the enhancement of programs and facilities particularly affected by transformations and new configurations of learning and research environments. This paper focuses on the definition of tailor-made methods and tools merging the contribution of Service and Spatial Design for the meta-design development of the new scientific campus of the Università degli Studi di Milano to be built on the former Milano Expo 2015 site.

KEYWORDS: participatory design, community engagement, co-design, capability development, human experience sense-making, multidisciplinary research, learning & teaching environments, higher education facilities, meta-design

Introduction

Background

Service designers are usually in charge of gathering information during co-design workshops with users and various stakeholders so to tailor the design of viable and sustainable services to the emerged needs and desires. Service Design methods take the side of the real users with their hopes and worries: working closely with all stakeholders is a fundamental axiom of the practice. Specific tools can help visualizing and illustrating flows of people, resources, goods, and knowledge within a given system, so to ensure it's functioning as smoothly as possible. Of course, the visual language must be clear and understandable, to be reviewed

and discussed by non-designers in participatory settings (Van Berkel & Bos, 1999). Interactions, relations, and activities are valued more than established typologies of objects and places. Therefore, built-in habits and chronic practices are often deconstructed and questioned, leading to the generation of new solutions that can potentially reshape behaviors, products, places and their arrangements, and eventually transform society. On the other hand, in a participatory framework, designers, donning the hat of the facilitator who helps others to be creative, encourage the involvement of end-users and other stakeholders as co-designers. A side gain of this approach is that co-designers will be proud and take ownership of the process, facilitating an implementation sustainable in the long-term (Sanders, 2013).
What follows is an account of how Service Design methods and tools have been used to define the set of principles, guidelines, and reference rules capable of generating, at a later stage, the layout for an integrated campus of the Università degli Studi di Milano on the former Expo 2015 site. The starting assumption is that a campus is first and foremost a web of connections, relationships and interactions between individuals and groups (Amelar, 2016) that should be eased by the spatial context in which they take place.
The plan of transferring the science faculties of the Università degli Studi di Milano to the new site raised the challenge to envision spaces suitable for current and future forms of interdisciplinary collaboration in research, teaching & learning practices. The Politecnico di Milano has been involved from the outset as the chief consultant to investigate high-level project requirements, desires, and needs for a coherent and efficient organization of the different activities. The outcome was not meant to be translated directly into a preliminary architectural concept of the Campus. Instead, the assignment was about setting both quantitative and qualitative parameters related to spaces and activities as well as to their relationships (Collina, 2005). At a later stage, an organized set of information should be passed onto architectural firms and developers participating to the international competition for the master plan and architectural proposal, in such a fashion to leave room for a flexible interpretation and innovative typological and technological solutions.
The general plan for the Expo 2015 site conversion, managed by Arexpo SpA, aspired to achieve an integrated redesign of the strategic area through the establishment of a "Science, Knowledge and Innovation Park" in line with the vocation of 2015 Universal Exposition to research, education, and sustainable development. For this reason, scientific and technological research institutions, both private and public, were invited to join the design of a vibrant and mutually stimulating environment for collaborative studies and crossbreeding interactions. The scientific faculties and departments of the Università degli Studi di Milano, often scattered in existing buildings no longer up to standard, were in need of renovation to update research infrastructures and laboratories. Therefore, it seemed a valuable opportunity for a radical renewal not only of the spaces and their relationships but also of innovative research and education practices.
The primary goal of the new campus project is to provide the physical infrastructure for cutting-edge scientific innovation and discovery as well as for interactions within and beyond the campus boundaries. Hence, the name of the project "Science for Citizens" underlines the pivotal role of the university to enhance the welfare and health of the whole the society (Chatterton, 2000) thanks to the continuous dissemination of research results, and suggests the idea of a campus with no borders, open and integrated to the city.
A scientific collaboration agreement between the Università degli Studi di Milano and the Politecnico di Milano has been signed to follow up with the following actions:

- to foster base and advanced research;
- to establish strategic partnerships with worldwide academic and industrial partners;
- to develop new interdisciplinary research pathways in response to emerging societal challenges;
- to provide a research-led tertiary education.

In the "Results" section of this paper, we present the outcome of the first phase of the research: a preliminary version of a guidelines booklet (Università degli Studi di Milano, 2017), an urban scale diagram, and concept explorations of the campus layout in the former Expo 2015 site.

The second phase, which is currently ongoing, will result in a revised version of the booklet based on the activities carried out during the co-creative workshops with the campus' users and a relationship diagram.
Finally, we conclude the paper describing in greater detail the envisaged future steps and possible developments of the research.

Research aims

The objective of the research is to investigate how Service Design methods and tools can contribute to the participatory definition of the meta-design brief of a contemporary integrated campus.

Research objectives

The research aim has been articulated in the following goals:

- Reviewing existing design methods and tools with a specific focus on three areas:
    - Strategic Design: specific methods and tools capable of tracing a middle pathway between spaces and services, a sort of third culture suitable to capture the most relevant interactions, whether already in place or desired, to inform the set of spatial guidelines.
    - Participatory Design: co-design frameworks to gain experiential insights and highlight critical issues about daily practices and behavioral patterns in university campuses;
    - Spatial Analysis: methods and tools to achieve an in-depth understanding of the settlement's physical requirements so to achieve rationalization and efficiency;
- Designing and developing tailored design tools to be used during the co-design workshops with the primary users and stakeholders.
- Conducting the co-design workshops.
- Understanding and evaluating the participant experience of co-design as non-professional designers.

The desired outcome of this hybrid service/spatial design approach is to overcome the present physical separation between faculties and researchers, which has generated over the years rigid disciplinary silos, frequently leading to self-referential, narrow-minded attitudes, possibly detrimental for innovation and research advancements.

Methodology, Methods and data collecting

The objective of the research is to investigate how Service Design methods and tools can contribute to the participatory definition of the meta-design brief of a contemporary integrated campus.

Constructivist approach

In this project, we used a constructivist approach according to which reality is socially co-constructed, and it's meaning is the product of the constant interaction between participants' understanding and sense. Previous experiences and knowledge are always at play in filtering the information selected for the development of new concepts and shifts in personal ideas, and points of view are possible and desirable thanks to these interactions. Making judgments explicit is crucial when shaping a complex artifact like "an integrated campus," which is by no means an objective category of the natural world. Designers and participants are engaged

in a continuous process of exploration and bilateral negotiation to determine how the meaning's hierarchy is constructed. Without an explicit agreement about the conceptual architecture, in fact, a productive communication is impossible, and all sorts of arguments can generate at any stage. If in a constructivist approach knowledge is produced through actions and interactions, then the encounter between the facilitators and the participants can be seen as an opportunity for knowledge construction that is meaningful and valid. The use of innovative Service Design tools, as a method of gathering and discussing qualitative information related in this case to highly complex and specialized spaces and equipment, allowed for interactive conversations oriented toward concepts' exploration from different angles and backgrounds (Baule et al. 2007). It also created a safe environment for participants to express themselves in their unique propositions. Through intentionally designed tools, even unexpected ideas were welcomed and discussed, providing valuable in-depth uncensored insights. Unprecedented scenarios of potential participation in joint research, learning or teaching activities emerged during the workshops from personal experiences and individual ideas of the participants.

Recruitments and Participants

Since the beginning, the design team adopted a user-centered method, which led to the definition of different categories of research participants: one Rector and one General Manager, 13 Chairs of the Departments and their 13 delegates, 3 Property Managers, two members of the technical staff, and 14 students were involved.
According to institutional procedures, they were initially summoned by the Property Managers on behalf of the Rector and General Manager and for the following meetings by the design team directly by email.

Quantitative and Qualitative data collection

One of the initial tasks was to review the surface indexes and ratios of the existing fragmented and obsolete campus to achieve the servant spaces rationalization in the current facilities, often proliferated over the years without integrated planning. A benchmark analysis was carried out on the standards of gross floor area per student in the most recent and innovative scientific campuses worldwide. That initial information drove the team to the conclusion that the foreseen criteria for the new complex should be more compact and rationalized to ensure sustainable maintenance costs over the next decades.
The research team engaged participants from a broad spectrum of categories in an iterative process of data gathering, analysis and comparison at the end of which the participants should have been able to distance themselves from the current constraints and start imagining future scenarios with a new mindset.
Distinctive data gathering techniques have been used to obtain information from the different demographics. Quantitative data collection was carried out through surveys and questionnaires while the collection of qualitative data was handled through interviews, focus groups, ethnographic observations and various other tools designed on purpose like, for instance, a set of cards.
The ultimate goal of this activity was to look at the design context through the eyes of the primary stakeholders, to verify the initial project hypotheses and to collate all the information into the meta-design brief of a contemporary integrated campus.
In the preliminary stage of the research, the Executive Team of the Università degli Studi di Milano commissioned a benchmarking to collect the first set of quantitative data related to the science faculties of the future campus. Starting from these figures, the team of architects and designers from the Politecnico di Milano launched an exploratory activity of the existing campus faculties to verify the data and integrate them with qualitative ones.
In the following stage, activities of interpretation, interaction, and comparison were implemented in collaboration with the Property Management team to fully understand the relationship between the different functions of the current campus and the future space requirements, including the issues generated by the buildings decay.

The Department Chairs and their delegates appeared as the main interlocutors for their ability to provide the figures - even though fragmented and in progress - in the most relevant thematic areas of the project: departmental laboratories, didactic laboratories, and didactic classrooms. Forms, developed on purpose, were presented and explained during a joint meeting and then distributed to the Chairs to be completed autonomously with the aid of the department staff.
The research team moved then to a zoomed-in analysis of the different core functions of the campus for which a stronger engagement of the final users of the spaces was highly desirable. The complexity of the system, which comprised people and logistics fluxes from departments as diverse as biology, food science, pharmacology, chemistry, geology, physics, mathematics and information technology, was even enhanced by the dramatic changes caused by the advancements in learning and research methodologies to the spatial design of higher education facilities.
Two kinds of workshop activities were conducted: the first aimed at including students in the design process, the second, more complex, at involving the academic staff in the process of collaborative design.
Students' representatives were gathered in two meetings: during the first, the research team explained the planned activity and their role of spokespeople and intermediaries between the Politecnico research group and the enrolled students. They also asked the participants to fill in diaries to gather more detailed information (Fig. 1). Also, a password-protected Pinterest board was set up to collect pictures of the best case studies of worldwide learning spaces suggested by Erasmus colleagues, along with a visual narrative, to be told through images and shots, of unsolved issues in their experience as students.
The second meeting was called to collect and discuss the information. While the students' representatives had responsibly accomplished the assignment of filling in the notebooks with suggestions also gathered during informal talks with colleagues of different courses, the social media channel revealed unsuccessful probably due to the complicated process of authentication.

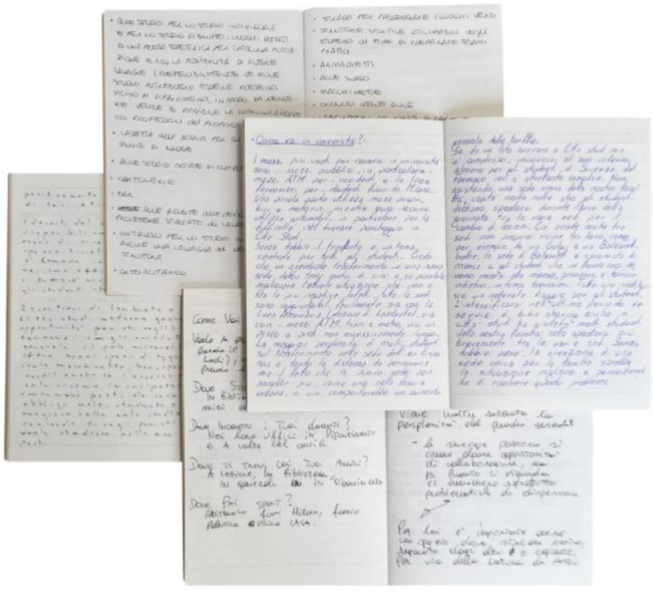

Figure 1 – Sample of the diary notes filled out by the students' representative.

The diaries' notes were then discussed, classified and interpreted during a plenary session with the Politecnico team (Fig. 2).

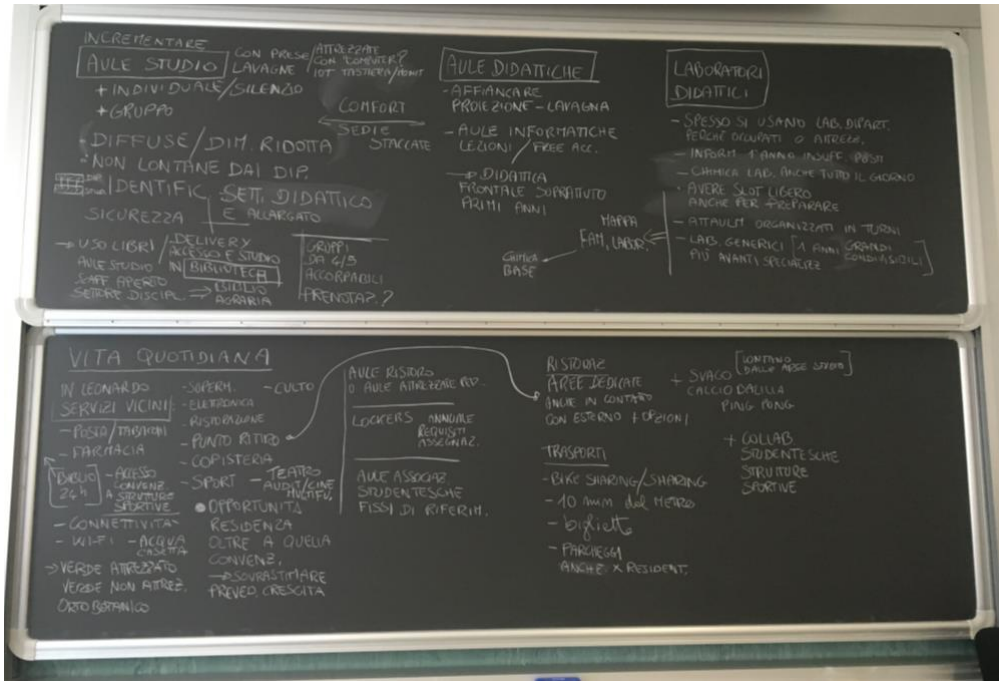

Figure 2 – The plenary session to discuss, classify, and interpret the diaries' contents.

Further qualitative data collection was accomplished through a process of Ethnographic observation of participants in their work context.
Finally, a more detailed account of the cards' method used by the academic staff is given in the following section, due to their relevance in the context of the Service Design discipline.

Cards

The workshop activities planned to involve the academic staff in the design process were organized in four consecutive weeks before the summer holidays. Chairs and appointed representatives from more than one department were invited to focus groups according to the existing or possible multidisciplinary collaborations (Kelsey & Labov, 2013). The general purpose, in fact, was to have them working and reasoning not only on the characteristics of the different laboratories and ancillary related spaces but also on the facilities and services potentially shared among various departments.
The card deck tool has been a support to facilitate interactions and trigger unprecedented conversations between different departments' members (Sanders at al. 2010). Participants were invited to look beyond their current state, creating future scenarios able to shift deep-seated habits and behaviors toward multidisciplinary interactions (Sennett, 2012). The workshops aimed to get an overview not limited to the characteristics of the different spaces but also of the level of adjacency or separation between them. Also, the tool provided the chance to switch roles: non-designers became "professionals of the everyday experience" (Meroni, 2007) with the aid of the Politecnico team members as facilitators; vice versa, designers could step in the shoes of science researchers and professors (Sleeswijk Visser et al. 2005). The card deck tool is not an innovative tool per se: IDEO launched a very successful deck of method cards (IDEO, 2003) to be used during co-creation workshops to trigger suggestions trough signs, images, and questions or to generate new ideas from general insights.
The pack designed for this project though introduces an unprecedented integration of synthetic quantitative and qualitative information in the same format (Fig. 3).

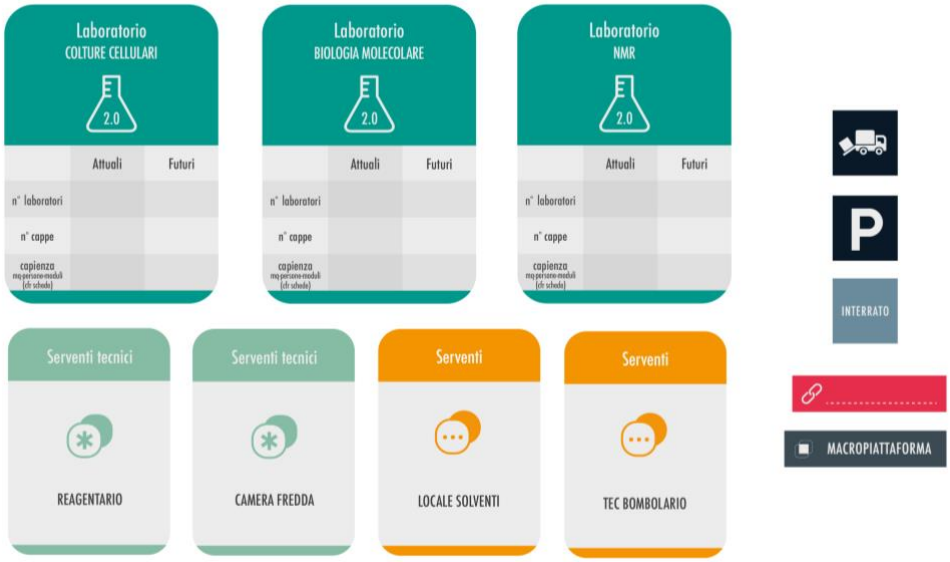

Figure 3 – Sample of the color-coded cards

Three types of spaces are represented through distinctive kinds of cards: research laboratories are color-coded as dark green, ancillary working spaces are light green when nearby the lab, orange if shared by the laboratories of the same level or building.

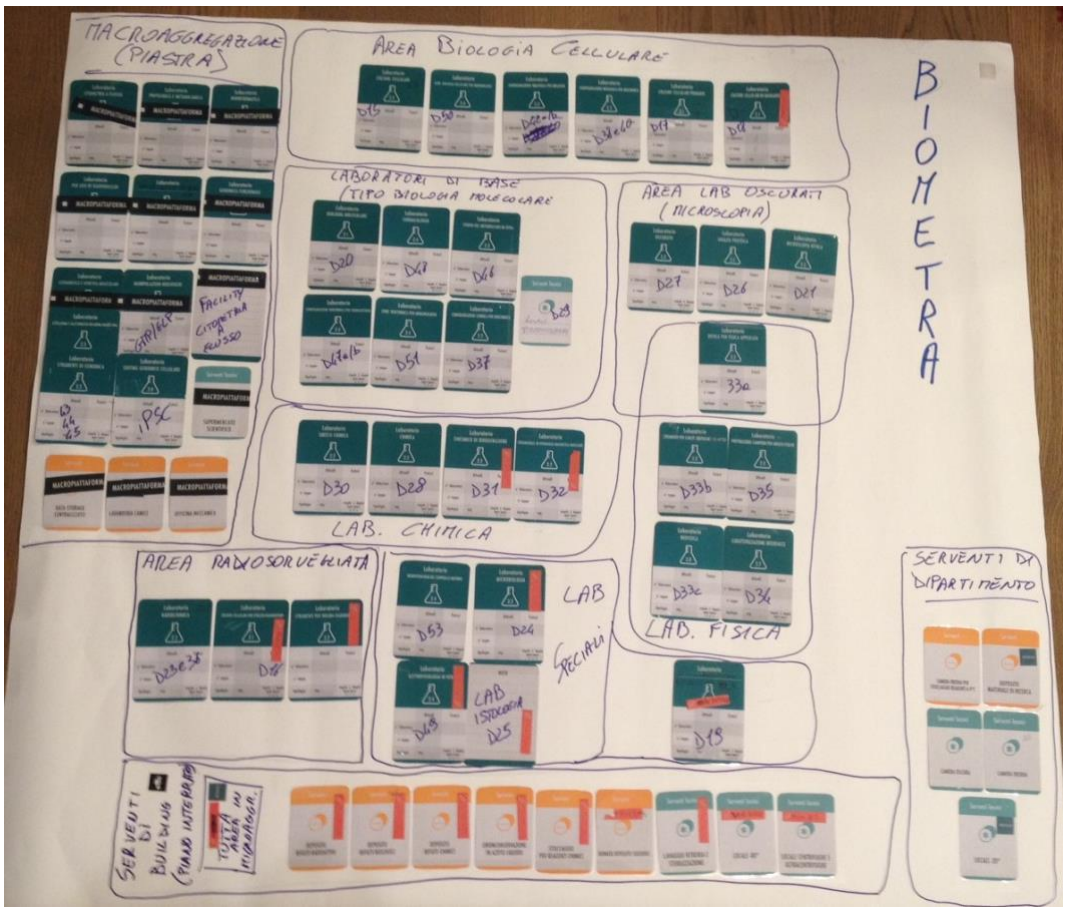

Figure 4 – The color-coded cards clustered by the workshop participants

Each participatory workshop started with a quick preliminary introduction, to give simple instructions and samples of the expected activities. The clustering of the cards into families was then completed during workshops organized autonomously by each department in the following 3-4 weeks. Eventually, a strategic conversation between departments considered similar (and therefore convened at the same time) was started to check some of these could be shared.
Before the beginning of the workshops, a check of the completeness of the card deck led to the decision of providing blank cards for editing or adding new desired spaces in real time. Also, appropriate stickers (Fig. 3) have been distributed to add further indications about the possible location of the area at the underground level, requirements for specific logistics accessibility (e.g., parking facilities), and the degree of potential sharing at the departmental, faculty or campus level.

Results

We provide here a chronological account of the research development that is represented in the timeline below (Fig. 5) with the relative outputs.
The first phase, from February to April 2017, resulted in the completion of the first version of the meta-design tool describing the general concept of the campus, and its physical and social relations with the city. The guidelines were, in fact, to be included in the competition documents for the Arexpo SpA public tender concerning the master planning and development of the broader Expo 2015 Area. This very first edition involved only to a limited extent the actual stakeholders from the Università degli Studi di Milano. It was developed mainly through interviews with specialized international designers and deans, a bibliographical research on the current global debate about higher education facilities, and contemporary innovative case studies.
Furthermore, a first set of forms created on purpose was distributed to the Chairs to gather the preliminary quantitative data related to the academic staff, their mobility habits and the surfaces of research and educational spaces. The fill-in process carried out autonomously in the following weeks was completed by the Departments' Chairs, and the documents were delivered by the end of March.
At the same time, an architectural firm that was assigned with the task of testing the feasibility of the new campus program developed three different areas of the former Expo 2015 site exploring different possible layouts.
A first meeting with the Chairs and the Academic Senate was organized to present and approve the first document.

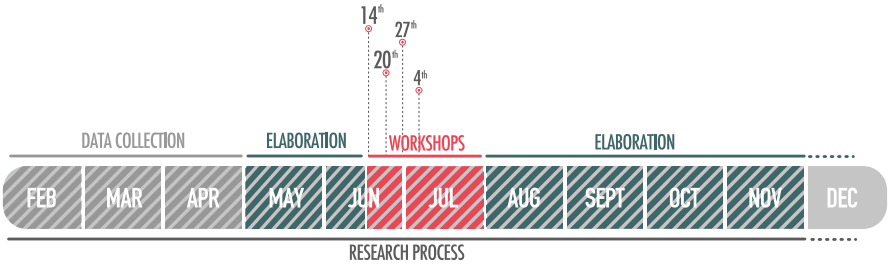

Figure 5 – The Project Timeline

The second phase, which started in May 2017 and is still in progress, will produce the second version of the meta-design tool with the definitive set of requirements for the development of the preliminary design of the campus. During this period the workshops were organized for the application of the cards tool as well as for the presentation of new sets of forms

developed on purpose were distributed to the Chairs to collect new quantitative data concerning the research spaces. The booklet will also include a diagram representing the spatial organization, the shared activities, and services, and the spatial relationships among the buildings (e.g., the degree of adjacency, location above or below the ground, required infrastructure, etc.) that emerged from the workshops and the bibliographic research conducted.

Outcome analysis

The results achieved through the second phase of the research development, albeit still on-going, look promising for the participative approach adopted. The initial goals of rationalising the servant spaces of the existing fragmented research facilities, pursuing and enhancing multidisciplinary approaches and a cross-fertilization in research programmes were reached through the card game tool that triggered a new mindset and innovative projects in the university research staff, even activating "adversarial collaborations" (Kahneman, 2011). The department representatives, though initially baffled but also amused by the apparently childish game, soon acknowledged the potential benefit of using the tool to make tacit knowledge explicit, shared, and negotiated. The open discussion and rethinking of the research methods and practices led to the establishment of new partnerships and activities that can take advantage of the equipment's concentration in a macro-platform characterized by highly specialized areas.

Discussion and next steps

From the benchmark activity conducted on the worldwide standards of gross floor area per student emerged the necessity to develop a coherent system of interconnected services mutually reinforcing through collaborative practices. In the next steps, we are going to collect best practices of university campuses' services combined in networks with the aim of generating a scenario framework for the project.
Through on-field research, the cases collected should be a mix of various characteristics, e.g., service models capable of breaking the discipline silos and fostering multidisciplinary interactions; substituting the ownership of goods with the access to the relative function; being accessible to citizens on evenings, weekends and holidays to avoid the "gated campus" effect.
The data collected will be analyzed and used to build an integrated scenario for the new campus where services can overlap, amalgamate and share resources to create a robust symbiotic network.

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