Public Design of Digital Commons

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ABSTRACT
In this paper we provide a discursive contribution grounded on theoretical concepts, personal experience and reflections on empirical cases. Building on the workshop's description of "world machines", we propose the concept of common as a general perspective to withstand the dominant market rhetoric and digital commons as the institutional arrangements that can support the common. Furthermore, we elaborate on public design as a methodology for designing digital commons and describe the processes of *articulation of matters of concern*, *fostering recursive engagement*, and *enabling sustainability of practice* as relevant for public design.

Author Keywords
Common; Digital commons; Public Design; Matters of Concern; Recursive Engagement; Sustainability of Practice.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
The 2008 economic crisis has boosted an upsurge of interest on innovation and entrepreneurship. In particular, in Europe, several initiatives have sought to promote innovation and entrepreneurship from inside the European Commission. For example, the European Institute of Technology (EIT) was created in 2008 with the mission of addressing "Europe's innovation gap". A large part of these innovation and entrepreneurship initiatives are instantiated as start-up creation.

Only in the last years, more than 25,000 start-ups have been created in Europe (angel.co/europe). In addition, the number of business incubators and accelerator programs, which provide mentoring and financial support for startup creation, has significantly increased since 2008. Most of these programs seem to follow the dominant market rhetoric, as emphasized by the design methods that they

use. For example, the Lean Startup is a popular methodology that claims using a "scientific approach to creating and managing startups and get a desired product to customers' hands faster"[1]. This methodology integrates, e.g., problem finding/solving activities and business model development as paramount milestones on the creation of a startup. Furthermore, one of the commonly used tools is the business model canvas[2], a template which guides potential "startuppers" through processes of, e.g., identification of key partners, value proposition and customer relationship based on market traction and on existing practices of "world leading designers and bootstrappers".

In this context, we sympathize with the critical alternative proposed in this workshop, framed in the form of world machines, i.e., "a new archetype for socio-technical systems drawing together new computational powers with a social agenda of cross-world collaboration in resistance to dominant market rhetoric". Building on this description, in this paper we propose the concept of common, as a general perspective to withstand the dominant market rhetoric, and digital commons, as the institutional arrangements that can support the common.

DIGITAL COMMONS
The concept of digital commons derives from the work of the Nobel Prize Elinor Ostrom, according to whom the commons is a third-way institutional arrangement to manage specific resources, being natural or digital, that is neither the state nor the market, but rather a collective effort of the people directly interested through means that are based on democracy more than on hierarchies [1]. Typical examples of commons related to digital resources are Wikipedia and the various incarnations of Free/Libre and Open Source Software (FLOSS) [5]. In a commons perspective, the legal status of what is managed, for example FLOSS or Creative Commons (CC) licensed material, is entangled into distributed and collaborative managerial practices. Therefore, a digital commons can be defined through two main features: first, a legal protection that refers to the wide spectrum of FLOSS and CC licensing; second, a distributed governance in the management of the interactive artefact.

Under this understanding, the concepts of the common and digital commons are instrumental in framing collaborative

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[1]http://theleanstartup.com/principles

[2]http://howtowriteabusinessplan.com/wp-content/uploads/2012/07/business-plan-canvas.jpg

approaches to socio-technical systems design but, how do we design digital commons? In the following section we elaborate on public design as a methodology for designing digital commons.

PUBLIC DESIGN

The term public design has been mainly used in the fields of architecture, urban planning and service design to refer to design for public contexts. It relates to a kind of design that is socially, politically or environmentally engaged and which might contribute to the formation of *publics*, where publics are understood in Dewey's terms as: "a group of people who, in facing a similar problem, recognize it and organize themselves to address it" [3].

In technology design, the term has been introduced to the community by the work of DiSalvo and Le Dantec [e.g. 8, 4] where technology is used as a tool to articulate issues, contribute to the construction of publics, provide new ways of empowering communities (e.g. homeless community), and stimulate reflection around issues of public interest (e.g. air pollution). Building on DiSalvo and Le Dantec's contribution, we elaborate on public design as a democratic approach to design, which addresses collective matters, and supports or facilitates the creation of publics. Therefore, public design can be described as design *with* and *of publics*. These characteristics might render public design as a suitable methodology for designing digital commons.

In the following sections we introduce three processes that we understand as relevant for public design: *articulation of matters of concern*, *fostering recursive engagement* and *enabling sustainability of practice*. These processes are grounded on theoretical concepts, literature review and reflections on empirical cases developed within our research group.

Articulation of matters of concern

The concept of matters of concern, as opposed to matters of fact, was recently introduced to the HCI community by the elegant work of DiSalvo and colleagues [4]. Coming from Bruno Latour's work in Science and Technology Studies (STS), matters of fact refer to expressions that claim to report objective conditions, whereas matters of concern refer to "highly complex, historically situated, richly diverse" political and social conditions [7].

In Latour's terms, matters of fact can be considered as simplified renderings of existing realities. Under this understanding, matters of fact can only become matters of concern if they are articulated. In our experience, this transformation resembles the process of *problematisation,* which entails identifying, understanding and addressing a specific element that becomes a problem [1]. The interesting aspect of the articulation process is that it allows people to relate and engage to a specific condition and might, thus, facilitate the creation of *publics* [11, 8]. Therefore, the articulation of matters of concern does not only allow people to identify and associate to public issues

but also enables the emergence of new relationships between individuals, resources, and objects. These relationships might motivate the association of people to a specific issue. In the following section, we elaborate on the motivations for association in the formation of *publics*.

Fostering recursive engagement

In 2008, the anthropologist Kelty introduced the concept of recursive publics in the context of free and open source software development and described it as "a public that is constituted by a shared concern for maintaining the means of association through which they come together as a public" [6]. Following this line of thinking, we introduce the concept of recursive engagement, which relates to the practices that allow the creation of recursive publics. These concepts help understand the process of engagement as a collective practice but, which are the individual motivations that prompt people to become engaged to these practices?

The concept of *attachment* has been proposed as a perspective to elaborate on motivations for participation to design projects [8]. According to [9], attachments can be created by means of dependency or commitment. In particular, dependency refers to a relationship that is mediated by an external factor that conditions the motivation for participation; commitment can be understood as a relationship entailing a more active role of people in the decision to participate. Ideally, public design should facilitate the transformation of attachments from dependency to commitment. The practices that support this transformation are related to recursive engagement and are paramount in enabling sustainability of practice, which is the focus of the next section.

Enabling sustainability of practice

Sustainability of practice can be understood as the creation of models, outside the "dominant market rhetoric", which can support the main function of the designed system and maintain the means of association. This is particularly significant in the case of projects granted for a limited period, such as many University ones: one of the most common scenarios is the risk of closing after the funding has expired (for example, as it happens within the EU research funding strategy).

The main focus on knowledge production might have positioned research projects in a disadvantageous position, in terms of sustainability of practice, with respect to initiatives following the "dominant market rhetoric". For example, most of the design tools used in the lean startup methodology focuses on how to support the main practice (e.g. business model canvas) or how to establish communication channels with stakeholders while little research has focused on sustainability of practice of research projects.

DISCUSSION

During the workshop, we would like to engage with questions such as "How do we design for the common?"

"How do we design digital commons?" "How do we engage in public design?" We are bringing our experience and reflections, which have been framed in the context of two large projects in which the three authors of the paper have participated (i.e. Smart Campus 2011-2014; Città Educante 2014-2017). In addition, one of the authors is pursuing a PhD within the EIT, which can contribute with first hand experience on some of the existing innovation and entrepreneurship initiatives in research contexts.

The first project, Smart Campus, was aimed at creating services with and for university students. The design approach evolved throughout time from User-Centered Design, to Participatory Design and Participatory Development [2]. This evolution also involved the nurturing of a sociotechnical infrastructure. Towards the end of the project, the designed artefacts had potential to become a digital common and a few proposals to ensure sustainability of practice were presented (e.g. creation of an association of students). However, these proposals did eventually not succeed due to several, often political, issues. Based on our reflections, the lack of articulation of different matters of concern, especially at the beginning of the project, and unclear attachments of different actors negatively affected sustainability. Nevertheless, this project helped us reflect on implications for further initiatives.

In particular, we are considering these reflections in the context of a second large project, i.e., Città Educante. This project, which is funded by the Italian Ministry of Education, University and Research, aims at developing and implementing new models of social integration, starting from the education system and on the basis of co-creation activities. Within our research group, the project has been instantiated as SpazioD, which is an initiative born with the objective of creating a virtual and physical space for sharing, reflecting and acting around the subject of scholastic inclusion. In particular, SpazioD addresses the needs of people with difficulties in decodifying and/or producing written language (e.g. dyslexia, dysgraphia). The activities within the design process are revealing the extent to which the design needs to be socially and politically engaged. For example, one of the cornerstones of the political program of the current regional government is a trilingual education plan, which directly affects kids with written language difficulties, their families and teachers. Indeed, several grassroots initiatives have emerged as response to the plan. In this context, our activities have been focusing on understanding the context, activating the articulation of different matters of concern and identifying strategies that can foster recursive engagement. These activities are carried out in the frame of three main design interventions aimed to create awareness, mitigate difficulties and reinforce the competences.

CONCLUSION

In our understanding, the public design of digital commons can provide an alternative to existing market rhetoric. This perspective can contribute to the development of alternative models to sustain the main activity and maintain the means of association for which *publics* come together. Under this view, the commons perspective can be instrumental in providing a general frame on how to enable legal protection and collective governance and public design can facilitate the processes of design *with* and *of publics*.

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