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Morelli, Nicola; Götzen, Amalia De; Mulder, Ingrid; Concilio, Grazia

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Editorial: Designing with Data, Democratisation Through Data

MORELLI Nicola^a; DE GÖTZEN Amalia^a; MÜLDER Ingrid^b and CONCILIO Grazia^c

^a Aalborg University

^b Delft University of Technology

^c Politecnico di Milano

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Economic production and distribution processes have become interconnected at an unprecedented rate and have spread across complex networks (Castells, 1996) simultaneously operating in a multiplicity of geographic, social, and cultural markets and contexts (Julien, 2007). This activated a variety of services build upon continuously flowing streams of data, which are gathered, interpreted and processed to provide an offering that is adapted and tailored to the (oftentimes presumed) needs and wants of customers.

On the one hand, this phenomenon touches upon sensitive and alarming areas such as how this massive amount of data allows for the tracking of individuals, groups and even objects at an unprecedented level of granularity (Ciuccarelli, Lupi & Simeone 2014), or how algorithms processing these huge quantities of data are increasingly regulating our lives (O’Neil, 2016). On the other hand, big (and, especially, open) data are seen as an instrument to better control important functions of our life and the inner dynamics of organizations and societies (Ratti & Claudel, 2016) which can be utilized to build more inclusive services and government processes (Townsend, 2013; Dove et al, 2014).

While keeping a critical eye on these emerging issues, data can also be considered a resource, which comes with a set of already configured practices, particularly if we refer to the technical procedures that allow any user to exploit it. It opens a promising role for design enabling social innovation through more participatory and bottom up approaches. These design practices could empower a community of users not limited to public authorities, large corporations or data experts. Indeed, there are few examples that demonstrate the use of data as a new resource for empowering citizens. Designing, however, means to enable citizens to harness opportunities coming from the use of this new resource, and offers a substantial promise for social innovation and democracy.

While analysing the reasons behind the current challenges faced by data, Kalampokis and colleagues pointed out that “gaining access to raw data, placing it into a meaningful context, and extracting valuable information is extremely difficult” (Kalampokis, 2013, p. 99).

In this DRS track 7 papers will explore from different perspectives challenges and opportunities offered by data in a design process.



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The paper by Kun, Mulder and Kortuem on *Data Exploration for Generative Design Research* presents a method that facilitates a learning curve on gaining holistic data literacy, supporting a design approach where digital data, exploration and sense-making of data is part of the process.

Next, Ricci, Brilli and Tassi in their work entitled *Repurposing Digital Methods* for human centered design explore a specific usage of data in the design process, providing a first methodological tool created at the intersection of Digital Methods and Human-Centered Design: data driven personas.

Quinones as well, in his paper *Orienteering Design Through Data: the data-driven design model*, argues for integrating data into the design process to allow easy access to a huge quantity of ideas and information, supporting designers' creativity and innovativeness.

The challenges that data poses to designers are more complex than the ones that are simply related to transforming a dataset or capturing data through scraping online resources. Prendiville et al (2017) discuss the role of design in making sense of data through processes of translation, visualization and persuasion to turn the abstract and intangible nature of data into human-centred services with social and economic value. Furthermore, the authors claim that one of the critical aspects that should be addressed by designers concerns the transformation of data (something highly technical that we all produce every day, though allowing others exploit it) into something that can be understood and consumed by broader communities, possibly making the general public a proactive agent in data formation and use.

In this respect the paper by Chueng-Nainby and Lee on *Transformative Learning: Co-design with Communities' Collective Imagery as Data for Social Innovation* explores a co-design practice which aims to enact social innovation by connecting local communities' needs to global data networks. Low-fi physical tools are introduced to mediate a community shared imagery and a co-design framework within the systemic view of social innovation processes is then discussed at length.

Physical tools are also used in the paper *Data Sensification: Beyond Representation Modality, Toward Encoding Data in Experience* by Hogan, in which they present an emerging form of representation that encodes data in the behaviour, performance, affordances and resulting experience of a data representation, opening up to the new challenges we face with designing the data representations of the future.

When focusing on publicly available data, or open data, they can be regarded as a new commons (Ostrom, 1990; Bollier 2014), with new communities of users and new practices. The question of open data as a new commons (Morelli et al., 2017; Seravalli, 2014) is also currently under discussion in the design community at large. It raises questions to the next role of designers, such as infrastructuring and collaborating to a democratic use of data, even among the non-experts, and promoting practices of service innovation in public and private institutions. Moreover, framing design and innovation policies around the use of open data and to co-create more explicit value propositions for all the different stakeholders has to be further analyzed.

The paper by Dominitz and Persov on *User Empowerment by Design: A New Domestic Electricity Consumption Model. A case study of young urban tenants* discusses a new domestic electricity consumption management system that deals with the democratisation of managing electricity consumption, transferring knowledge and responsibility to the users, as well as enabling conscious and efficient consumption.

The question of data as a means of democratisation is also developed in the paper by Mengqi, Price, Erp and Socha, *Designing with Meaningful Data: Deep Personalisation in the Air Travel Context*. In their work they present a framework to assist organisations to develop a dialogue with customers through personal data, arguing for a democratisation of the traditional business-to-customer perspective.

To conclude, not only this track brings forward the relevance of data in the design process and in particular the value of data as a democratizing tool, but it also emphasises the role of design in supporting a democratic use of open data as a resource. The ever-growing number of products/services that use data and/or produce data requires the definition of a new working area in which it is important to define new operative tools, methods and practices that can create a higher level of integration of data into the design process while at the same time empowering new communities around this resource.

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