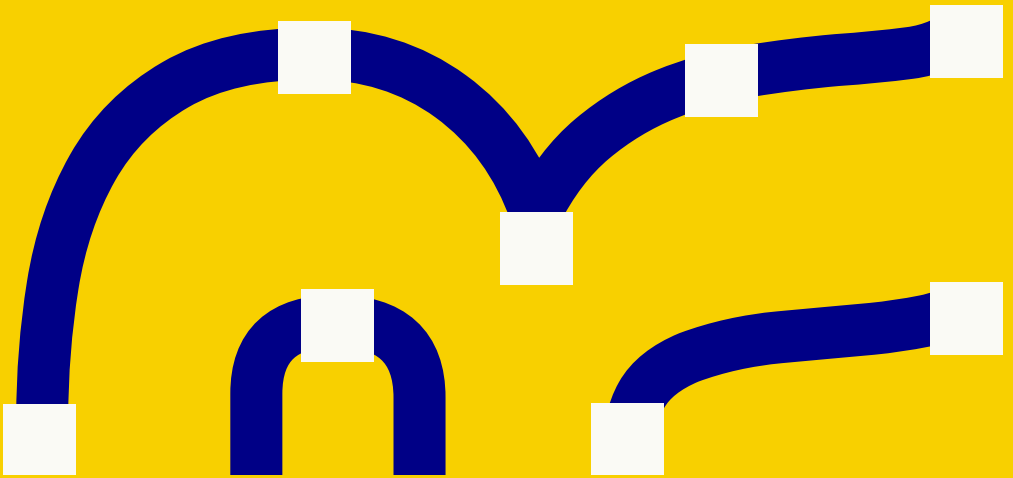


TO GET THERE: DESIGNING TOGETHER

Cumulus Conference Proceedings Paris 2018



Cumulus Conference
Proceedings Series
03/2018 Paris



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Concept for Cumulus
Conference Proceedings
Series was developed in
2018 by Jani Pulkka

Cumulus conference

*To get there: designing
together* hosted by CÉSAAAP
Conférence des écoles
supérieures d'Arts appliqués
de Paris in Paris, France
on April 11–13, 2018.
Conference website:
www.cumulusparis2018.org

Published by Cumulus

Cumulus International Asso-
ciation of Universities and
Colleges of Art, Design and
Media. Aalto University, School
of Arts, Design and Architecture
PO BOX 31000, FI-00076 Aalto
www.cumulusassociation.org

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ISBN 978-2-9565440-0-5 (E-book)
ISSN 2490-046X

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Information design for empowering citizen activism through the use data as evidence

María de los Ángeles Briones

Abstract

Today we are witnessing social changes lead by technology in an unprecedented way. An increasing number of people live in a highly problematic, hyper-connected, open, complex and dynamic world. This context empowers new spaces of encounter and action, allowing people to meet in new ways around common needs that affect their daily life and seek solutions as a group.

New forms of citizenship collectives, DIY citizenship, civic initiatives and communities are having a leading role in the 'city making' and urban transformations worldwide. These actions could be seen as a new citizenship activism in which the emergence of technology democratize the use of digital platforms for connecting and scaling up. At the same time, digital technologies improve the use of data for involving people to adhere to causes and spread the collective action. The use of data in this type of activism is *essentially collective because knowledge and skills become relevant in the context of the group peers* (Milan, 2017). In this context, the relevance of Information Design and visualizations emerges as *the visualizations process and is also, and directly, a tool for community building* (Manzini, 2015).

How to stimulate collaborative practices from design, in a context of data abundance and technological democratization, where a relevant segment of citizenship is acting towards social issues and beginning to use data for these means? Information designers seems to have a key role: to organize information so people can make their own decisions and take effective action. This paper focuses on the role of information designers as amalgamators involved in setting the scene between the direct action and the communicative spheres in citizenship activism projects. Designers facilitate the collective process among diverse actors through design data strategies that mash up the communicative aim of visual artifacts according to the actions that they pursue as well as reaching expected audiences.

This paper explores the role of communication design in projects that seek to empower citizens to advocate for their social issues using data as evidence. How are collaborative practices through data communication happening? Data visualizations among other communication artifacts constitute part of the data activism communication repertoire that citizen activism is starting to incorporate in their ways of doing. Through a case study analysis of 8 projects, this

paper delves in data-strategies behind communicative artifacts that pursue citizen collective action.

Cases are analyzed through a critical approach (Dörk et al., 2013) from its disruptive aesthetics (Markussen, 2013) problem space and spaces of contest (Fuad-Luke, 2009; DiSalvo, 2012) considering their design techniques and design activist methods. The design data strategies identified seek to contribute to the amalgamation role of the designers involved in the communication design of citizen activism projects. Despite the diverse aims and targets of each case, first results attempt to frame the strategies that link the digital visual artifacts and the post-action that they pursue. Lack of documentation on how the cases were build and its subsequent impact are still matters for further design research.

Theme: Conflicts

Keywords: data visualizations, data activism, information design, collaborative communities.

1. Introduction

On April 4, 2016, Chilean President Michelle Bachelet pledged high priority for the construction of a bikeway along the bank of Santiago's Mapocho river. The initiative was first made public in 2011 by Pedaleable, a non-profit and citizen collective that started to organize the biking community in Santiago through non-authorized bike rides along the river's edge and a crowdsourcing campaign for data collection about the most popular and busy biking routes in the city and the poor state of its bikeways. The crowdsourced data was leveraged using mobile phones with GPS technology to trace the flows of bikers and the location, length and quality of the existing bike lanes. Data were visualized into a map using OpenStreetMap, and then published in the collective's website. The data gathered allowed Pedaleable.org to produce substantive evidence on how bikers and citizenship alike asked for better sustainable mobility policies in the city. The data and the visual artifact that represented it were multi-purpose devices: for communicating and engaging and involving citizenship; for achieving dialogue between bottom-up social demands and the authorities; and for empowering the practice of using data as evidence.

Pedaleable.org is one of several current cases that illustrate new ways that citizens are taking action to meet their needs, reshaping both

the virtual and the physical urban space as they bypass the established institutions and authorities' often sluggish decision-making. These new forms of citizenship collectives, DIY citizenship (Ratto & Boler, 2014), civic initiatives and communities received different names in the “city making” (de Waal, 2014) and urban transformations especially in the United States and European countries. These actions can be considered as a new citizenship activism in which the emergence of technology democratizes the use of digital platforms for connecting and scaling up. Digital technologies improve the use of data for involving people to support causes and spread the collective action. The use of data in this type of activism is essentially collective because knowledge and skills become relevant in the context of the group peers (Milan, 2017). In this context, the relevance of data visualization emerges as the visualizations process and is also, and directly, a tool for community building (Manzini, 2015).

From the Information Design point of view there is much to say about the use of data for activism, advocacy and communication. People involved are not always experts in the matters they pursue neither experts manipulating data. There is a gap between them and the data available for turning into a supporting communicational artifacts for their claims. Identifying or even providing a set of guides for future data-activism could contribute to the knowledge of initiatives and advice to non-experts that want to leverage civic initiatives. This paper present 8 communication design strategies using data for activism through seven cases which were selected because of their use of data and digital platforms for activism. This paper is a first effort that pursues to put together the ongoing practices, identifying issues and compiling strategies for future data activism initiatives.

2. Data, activism and design

2.1 Context of data

The digital sphere has profoundly changed the way people access and share information. In the last 15 years the production of data has been exponentially increasing¹ and the most obvious reason is because of technology: as the capabilities of digital devices soar and prices fall,

1 According to the International Data Corp (IDC) the current annual data creation rates 16.3ZB (16.3 trillion gigabytes); they estimate that in 2025, the world will create and replicate a tenfold increase from the amount of data from 2016.

sensors and gadgets are digitizing lots of information that was previously unavailable. Data has gone from scarce to superabundant, bringing huge new benefits and positioning a techno-utopian view in which data are reliable and solid. Quantified self allows people to go through the process of self-knowledge through self-tracking with technology. Ubiquitous technologies also allow people to directly participate in the creation of data engaging with technology in new ways. The collective practices of building openly and without hierarchies on same communicational artifacts are examples on how the democratization of technologies are introducing new actors into the discussion on diverse social claims.

In the other hand, data superabundance led by technological devices carry big issues that are not evident to people². There are no neutral data, neither its manipulation and transformations. Our data is extremely political because it could trigger representations of reality depending on who takes and manipulates them. They are raw material for drawing indicators according to the perspective of those who have them. From these representations of reality, decisions can be made encompassing society or part of it³. Calling to action through data implicates to be aware about data possibilities but also constraints.

2.2. Taking action using data as evidence

Activism is essentially about taking action on a matter seeking for social change. It is usually associated with political actions of protest in diverse

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- 2 Such issues could emerge through questioning the sources: the origin and nature of data or how is been produced; about how is been gathered, stored and aggregated; who and how manipulated it; and what data is freely and openly available. Querying data nature and their manipulation is an active approach to use it.
 - 3 Different initiatives are trying to advocate to awareness in this issues to citizenship. 'The Glass Room' project and 'Exposing the Invisible' are two examples of the work that Tactical Technology Collective performed since 2003 for raising awareness about privacy, digital security and info-activism. The Glass Room' is an installation space that seeks to promote awareness on the use of data. Presented by Mozilla and curated by Tactical Technology Collective, it was first released in New York City (November 2016) and later in London (October 2017). More information at <https://tacticaltech.org/themes/privacy/the-glass-room/>. Exposing the Invisible' is a web platform project who provides investigative tools and techniques for learning through short films, interviews and guides promoting people to uncover hidden information, expose corruption and bring the truth to light. More information at <https://exposingtheinvisible.org/>.

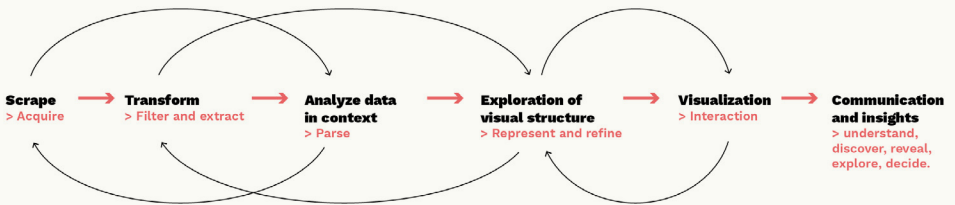


Figure 1. From data to insights. Phases on the process of working on visualizing data. Schema base on Ben Fry’s Seven Stages of Visualizing Data published in his book *Visualizing Data*, 2008. Schema from the author.

areas⁴. This paper consider activism not only in its political connotation, but also in its sense of active, to take action about a certain issue or matter. Taking action entails change, and for this to happen there is the need of information about the social matter of concern, ‘*and much of it involves collective activity*’ (Green, 2016). To take action from information is probably the main goal of communications campaigns on activism. But providing information is not the only way of interacting through activist campaigns. There are multiple paths for articulating information for taking action such as supporters to build up information (i.e. crowdsourcing experiences of individuals on participative maps), or participating communities to follow up how information is (i.e. platforms for crowdsourced reporting and monitoring malfunctioning public service, such as street lighting in bad condition on public spaces inside a neighbourhood community).

Using data as evidence entails a process through diverse phases of the activism communication in which activist are called to take action through it. Nonetheless today’s use of data as evidence is a type of activism itself, in which people engage and empower with causes in new ways. People are not only call to take action after being informed but also during the process of using data (see figure 1). These steps constitute political actions in which designers and activists build up a political statement. From these data and its transformation process into information, it’s decide which spectrum of reality are providing to their campaigns and

4 Despite the diverse areas of political action – such as politics, environment, gender, labour, social justice, economics among others – and of motives or purposes, activism nature is about action: on moving from one point to another, on transforming conditions on behalf of communities’ welfare.

publics. The different phases on working with data constitute political decision facets of the process of building up evidence.⁵

2.3 Role of designers in activism communication

Information design is the practice of giving form to data so that the data become meaningful (DiSalvo, 2012). The process of data to become meaningful to a specific user (see figure 1) entails different phases in which designers have a relevant role. Data themselves are a raw material that could have different origins, nature and types; and could be shaped in diverse ways, becoming a process of political decisions. Those political-design decisions are part of an editorial process in which designers and the involved disciplines, decide which part of reality show for translating complex phenomenon to an audience in their context. The role of information designers should be interwoven with an ethical approach to working with data to ensure the protection and security on people's individual data and the transparency of their design process.

Given the proliferation of non-expert groups⁶ of active citizens using data in their projects, and the pertinent role of information designers working with data, it's relevant to inquire: how could these practices be improved and what is missing? From the Information Design scope there is much to say: even if there already exist efforts for structuring the organic

5 Relevant work is being done on using data as evidence through *Stactivism* and *Data Activism*. *Stactivism* was coined by Bruno and Didier in 2013, puts together statistics with activism; is the use of statistics as a form of action, representing and giving a critical point of view on the construction of realities. *Data Activism* is a term coined inside the 'Data activism: The politics of big data according to civil society' research project based at the Department of Media Studies of the University of Amsterdam. This research identifies two types of data activism: re-active and pro-active data activism. The first one refers to citizens' resistance capacities to civil threats using technology; the second, to citizens taking advantage of the possibilities that data offer (for civic engagement, advocacy, campaigning). See <http://data-activism.net/about/>.

6 Active citizens are not always experts in the matters they pursue; neither experts manipulating data. Even if these new ways of using data as evidence for civic engagement are on an early stage of development, it is relevant to observe and inquiry on how the use of data for this purpose could be improved. Many successful projects on urban reshaping activism that are having an impact in society are not using data in their performance as a design component of their action. This does not mean that the data are irrelevant, but rather that the impact could be increased through new possible actions led by using data.

development of these groups, there is missing a practical and theoretical scope from the lenses of its communication. Identifying or even providing a set of guides for communicating through the use of data for citizen activism could contribute to knowledge of initiatives and advice to non-experts that wanted to leverage future initiatives. The hypothesis of this paper is that bringing together current practices and their identified issues with strategies to develop convincing data communication could improve them and scale their impact. This paper present 8 different design data strategies for exploring ways of narrating and communicating with data.

3. Design Data Strategies case study

For this research it was collected 25 projects that uses data with the intention to raise awareness and outline visions for change represented in diverse ways, not only through visualizations. These projects contained the following characteristics: a) Use of digital platforms and data in its communication design; b) Projects that seeks a social objective; c) Activists behind the projects could be a collective, research group, NGO; not private sector oriented. d) Non-profit projects. They have been systematically organized through the following variables for analysis:

- Introducing context
- type of data and source: official/non-official; digital born; crowdfsource/self produced
- organization mission
- project objective
- user/audience
- Strategies and tactics: physical actions / interventions
- Complementary digital strategies

From analysing the case's variables are distinguish certain cluster (see figure 2). A first cluster is of mobile applications created for engaging citizens with their urban local environment through monitoring and reporting issues⁷. Even these cases comply with the previous selection criterion, they are performing a functional role in reshaping the urban space. A second cluster of bottom up initiatives are located in the border of the spaces of contest between dissent and contest. They pursue a new

7 Issues such as not well illuminated streets, cars parked in bike lanes, among others.

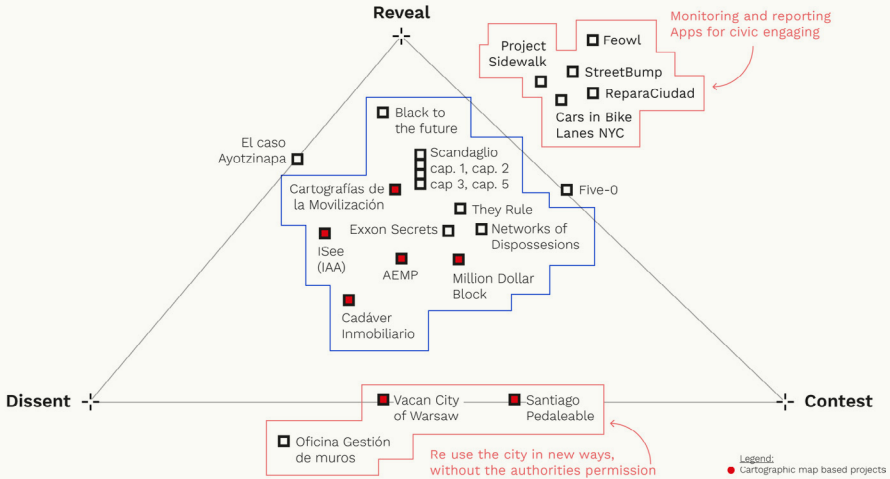


Figure 2. General overview of the 25 former cases and later positioning through the triangulation of dissent, reveal and contest. The 8 selected cases for analysis are positioned inside the triangle. Schema from the author.

use of the urban space bypassing the established institutions and authorities but seeking to dialogue with them for repurposing their environment. These civic initiatives are mostly seeking a practical change in people minds with a strong educative component. These kinds of clusters are relevant and part of trending approaches on civic engagement through the use of technologies. A third cluster is inscribed in the spaces of contest, sharing an agonistic point of view and seeking for a call to action from disclosure, exposing the invisible and opening black boxes on how things work. The design data strategies are based on 8 of these projects, since they are reacting to specific local issues seeking to dissent, reveal or contest⁸ through novel narrative forms with data.

The following table present the selected cases of study⁹:

⁸ In his book 'Adversarial Design', DiSalvo proposed spaces of contest define by three key axes: revelation, contest and dissensus.

⁹ In order to present the design data strategies, recently completed projects were chosen which are a novelty for the research. Despite its ongoing relevance and validity, the One Million Dollar Block (developed by Laura Kurgan from the Center for Spatial Research. More information in: <http://c4sr.columbia.edu/projects/million-dollar-blocks>) project will not be used in the case study as it has been a referent since its publication in 2006.

Project	year	link	Organization
Anti Eviction Mapping Project San Francisco	2013 until date	https://antievictionmap.squarespace.com/	Anti Eviction Mapping Project San Francisco
Black to the Future	2016	https://montera34.com/project/black-to-de-future/	Montera34
Cartografía de la movilización	2016 until date	http://www.cartografia-delamovilizacion.cl/	(individual person)
Scandaglio cap. 1	2016	http://www.offtopiclab.org/scandaglio/molo/	OffTopic Lab
Scandaglio cap. 2	2016	http://www.offtopiclab.org/scandaglio/ancora/	OffTopic Lab
Scandaglio cap. 3	2016	http://www.offtopiclab.org/scandaglio/pedalo/	OffTopic Lab
Scandaglio cap. 5	2017	http://www.offtopiclab.org/scandaglio/baia/	OffTopic Lab

Table 1. Selected cases for representing the design data strategies.

3.1. Method of inquiry (what to look for)

Despite the diversity and uniqueness of each project, common steps are distinguished in the use of data to convert them into communication for taking action. This research seeks to provide insights in the journey of designing communication based with data for citizen activism engagement. These common steps or patterns could unveil design data strategies that give shape to data narratives. In order to identify these common steps or patterns it is necessary to observe two key aspects of each project: their context and the design decisions that shape them.

Context allows to build on meaning and the construction of publics. Local context includes the recognition of the area of intervention and purposes. Intervention areas could be diverse but still if two projects shared the same area of intervention they could have diverse purposes as well and that would totally change their communication and way of achieving their objectives. From a communicational perspective, purposes could be elaborated through communication approaches and techniques (see table 2). These techniques are not exclusive of digital or non-digital being transversal to the means of use and communicative purposes.

Get the idea → expose	Get the picture → explain	Get the detail → explore
Juxtapose	Associations	Making data meaningful
Subvert	Connections	Putting together the facts
Invert	Remedies	Filling in the gaps
Materialise	Correlations	Unravelling connections
Compare	Portraits	Connecting the dots
Contrast	Perceptions	Piecing together the facts
Illuminate	Interactions	Uncovering tracks
Provoke		Working from the ground
Parody		
Intrigue		

Table 2. Communication approaches and techniques, extracted from Visualizing Information for Advocacy, Tactical Tech Collective, 2013. <https://visualisingadvocacy.org/>

On the other hand, the communicative objective is independent of the technique. The communicative objective is intrinsic to the purpose of the group of people who are carrying out the campaign. The technique will be adapted according to the social and cultural context of the group and its audience (see figure 3). The communication objective and technique elaborated in each case correspond to the target of the audiences they want to achieve.

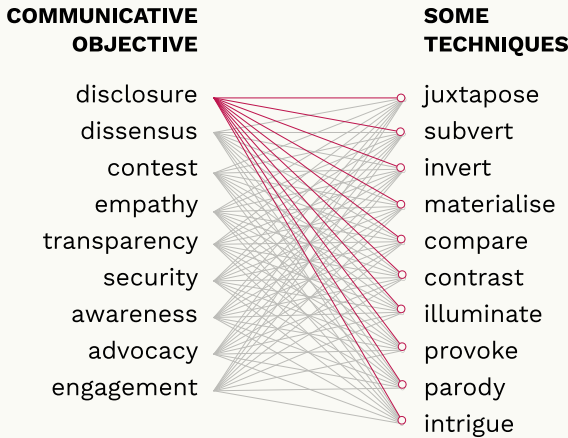


Figure 3. Schema (outline) exemplifying the possible combination between communicative objective and diverse techniques. The technique is adapted to the objective according to the local context of groups and audiences. Schema from the author.

The second key aspect to observe is the design decisions that could be inferred from each project. Working with data and giving it a visual representation involves design decisions on the political process of transforming data (figure 1) into insights: 1) which dataset use and how to work with it; 2) the visual model for representing the data; and 3) how the user would interact with the visual representation of data. Next, it's necessary to delve deeper into these stages of the editorial work that the designer faces when working on the representation of data to make sense of them:

- 1. Dataset:** It is relevant to query the sources and the nature of data, how it was produced, combined and distributed. It is substantially different to work with data digitally born from social media that was scraped against the API policies of the services than working with official census data of past century that was digitized from physical records. Still, both are datasets but with completely different possibilities and constraints. Information is not always available about the sources from which visualizations of them have been built. This is already a design political decision on what to show or not.
- 2. Visual model for representation:** The use of visual standards and variables (Bertin, 1969) bring significance to the data. In this stage, visual translation of data sharply acquire significance through aesthetical decisions. The visual elements chosen define the structure of the visualization, which may vary in its interaction.
- 3. Interactivity:** Through interfaces, the user is able to manipulate variables and explore data, generating new representations based on their interests and desires (DiSalvo 2012, pp28). Designing the visualization of data is not only about representing it, but also about the expressive and animation attributes of it that could provide better understanding of the narration to the user. The interaction possibilities of the visual elements of the representation guides and reaffirms the sense of the narration through clicking, dragging, holding, moving, and highlighting, among other interactive features.

3.2 Design data strategies

Design data strategies are designerly means directed towards the construction of citizen activism engagement using data in an attempt to prescribe a course of action. Each design data strategy will be exempli-

such as type of place, area size, etc. This could be called sterile open data. OffTopic Lab downloaded the data and converted the file to make possible to use it in open platforms. This action allowed them to combine it with other layers of data for free analysing. After this first step, the next question was: What else is it possible to see in these data? Taking Google Street-View images and using the timeline service that they provide, it was possible to dive through time and see how much these abandoned places had changed. By clicking over the years available in the timeline, the user could directly see how places changed through time. Users could bring forth their own conclusions about cases of clear speculation in some areas of the city, especially during the universal exposition Expo 2015.

Through different categories of abandoned places, it is possible to explore detailed information about some of them. The exploration deepness is possible thanks to the investigation performed by the collective that selected areas considered strategic for the analysis and knowledge of the speculation phenomenon in the city. This chapter re-opened the *black box* of the Milan City Hall 'open' data and closed artifacts such as Google StreetView, re-opening data for new possible analyses and queries.

Remixing data

This design data strategy is based on the second chapter of *Scandaglio*. During politician Beppe Sala's candidacy, he promoted the project idea to reopen the Naviglio, the city's underground water canals. OffTopic investigated the meaning of such a big investment in the city. Since this was only a candidate's promise, at the time the research was done there was no data about the characteristics of the project, only certain superficial cost estimates and the trace of the underground canals' location. The big challenge was on how to talk about a project that hadn't started and which were its implications?

The strategy was to take a picture of today's situation to understand the possible future changes. *The purpose of a projection is to make apparent the possible consequences of an issue* (DiSalvo, 2009. pp 53). OffTopic structured a narration with data that could help to take the actual picture of the project at that moment, strategically dividing the route where the underground canals might pass through in four hypothetical areas.

The next step was data extraction from other sources of interest and its subsequent remix: renting prices, public services and commercial services using: *OpenStreetMap* for retrieving geo-referenced data of commercial services; from *Piano Regolatore Territoriale di Milano (PRT)* retrieving

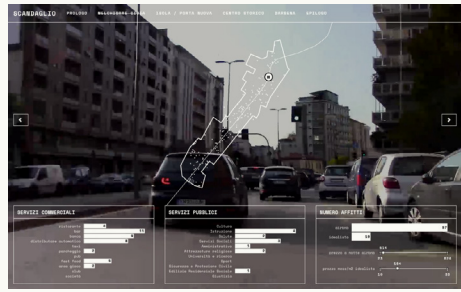
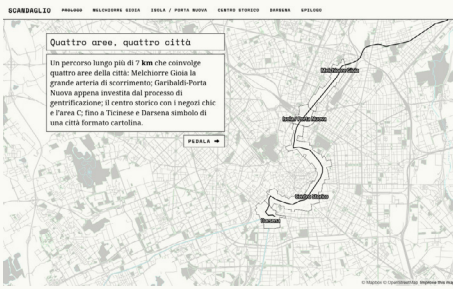


Figure 5. Screenshots from the website project <http://www.offtopiclab.org/scandaglio/ancora/>. The upper image presents the narration structure divided in the four hypothetical areas proposed by the collective; the other image shows the remixed layered interface: geographic layer (map); emphatic layer (background video); and data layer (boxes with commercial and public services and rental indicators). Screenshot retrieved on May 17th, 2017.

data about public services; and scraping a company for buying and renting properties in Milan, and *Airbnb API*, to obtain rent prices as indicators of how each area was valued. The scraping and refining operations related to data were not always linear and needed more interim steps. This is the case of retrieving data from the “public and open” data of *PRT*: data were available in closed tables in PDF format, which was hard to reuse.

The empathic narrative structure in this chapter was one of the main matters. Given that the project was about a promise-project, it was important to appeal to the empathic characteristic of how citizens perceived their city at that moment and its possible future. The user was invited to ride a bike along the route in which the underground canal goes underground. While a user is ‘riding’ it, it’s possible to see three layers on the screen:

- **Map: Geographic layer.**
- **Video: Empathic layer to show how it is and how much the user can recognize the area.**
- **Boxes with indicators: Data layer of commercial, public services and rents.**

Remixing data with empathic and geographic layer allowed the creation of a current reading of the city. The data were collected with a logic of being remixed so to give an integral and not partial idea of how the city is at that present time.

Data anonymization and data macro narratives

These two design data strategies will be presented through the third chapter of *Scandaglio*, which brings a criticism and awareness debate to sensible issues occurring in technologized cities such as Milan: score systems in which citizens have a profile that is constantly measured and evaluated. This chapter took the case of the one of food delivery bikers company operating in Milan. The riders have a type of contract that doesn't protect them properly and works under a score system based on their profile measuring (how fast a bike rides, availability, and score made by the restaurant, among others) in which basically an algorithm gave them instructions to take the food from one spot to another. This could be seen as a very effective work system, but it's completely forgetting about social issues and work rights.

For this chapter, the collective was able to retrieve a very sensible database about the riders. The main idea was to communicate about how this system works, and not to reveal personal individual data of the workers. Data detail not always brings to light the best results. The strategy was to aggregate data in order to present hypothetical cases of two riders using the metaphor of a race. The aim was to face off two possible situations, revealing what it means to be a rider. Through a scrolling interface, the user can control the speed at which time passed during the riders' routes. Beside each rider you can see a "scoreboard" (in allusion to a videogame) in which they are gaining kilometres, the amount of dropped deliveries and the earned money. Users are invited to compare and conclude how tough it's being a rider.

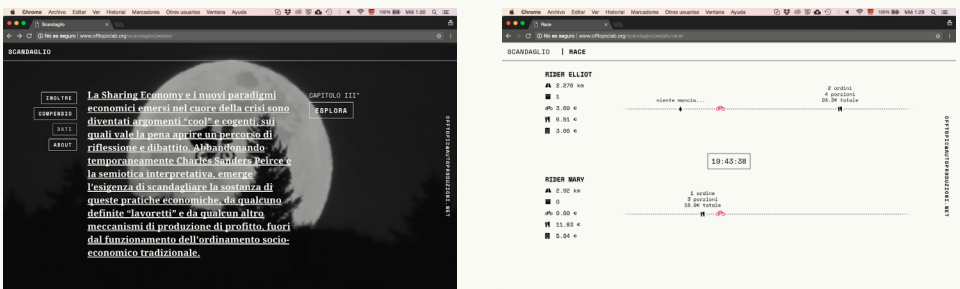


Figure 6. Screenshots from the website project <http://www.offtopiclab.org/scandaglio/pedalo/> retrieved on November 2016.

Micro narratives

The *Tarjetas Black to the Future* project was developed by Montera34 after the leak of expenses performed by the Caja Madrid-Bankia managers using ‘black credit cards’ for their personal expenses during 2007. These cards were opaque for the Treasury of Spain and used money from the public budget. A Twitter bot (@BlacktotheFuture) tweeted every time one of the directors spent money using the black cards 10 years prior. People who follow the account could receive a Twitter notification of one of these stories.

The project’s aim is to reveal the cheekiness of using of black-not transparent money by the authorities through a “in a day like today, 10 years ago” narrative, which helps people to realise the lifestyle and irresponsibility of their actions. Dosing the contents of the leak in a time frequency frame that the audience could associate to everyday life actions, helped to increase their awareness of the crime. The choice of Twitter as the medium increased the “everyday life” perception of a crime that happened 10 years ago as something normal. Instead of analysing aggregated data, Montera34 chose a different approach to data: small data in doses to reveal the silent crime (small data for mini narratives in a single tweet dimension).

Is this a data visualization project? In a way, yes, it is, because choosing Twitter as an output involves visual and interface variables. The leak takes the shape of “another everyday tweet”, appropriating the features



Figure 7. Screenshot of the twitter account @BlacktotheFuture retrieved on January 23rd, 2017.

of the medium. The appropriation of a social communication platform is a subverting strategy that is only possible in the digital sphere. Answering to “how the digital could enhance physical action”, this project is an example of how data take form virtually into our daily imaginary, taking distance from being just “data from the past”.

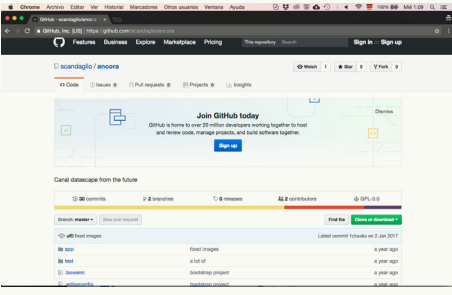
Designing transparency of data

Allowing audiences to explore the evidence for themselves makes it possible to find the sense and meaning of it. This design data strategy is about opening the design decisions behind the editorial work on data. The process of designing transparency of data is different from designing data transparency. The difference remains in the design of a process that will be open and could be replicated by others in the future. Basically, it is designing for others to replicate, to modify – the very core idea of openness. *Scandaglio* has the motivation to be replicated and for this reason it’s an open artefact. Each chapter approaches this strategy explaining the different design decisions step by step through links, images and a cheerful text explanation, also extending and leaving the project’s coding in their GitHub repositories.

Creating visualizations involves a range of decisions about data, representation, and interaction. Making the decision process transparent



Figure 8. Screenshots of the project website <http://www.offtopiclab.org/scandaglio/ancora/#/data> (retrieved on December 2017). The images show different parts of the explanations on how chapter 2 was built and develop. The last screenshot is from the GitHub repository of the project where the respective documentation is available. Screenshots retrieved on May 17th, 2017.



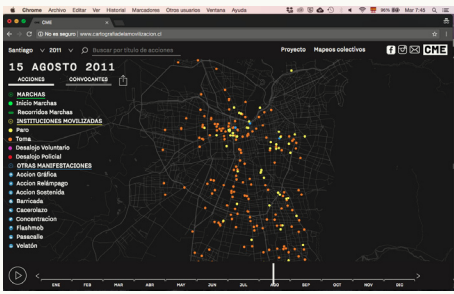


Figure 9. Screenshot of the project website <http://www.cartografiadelamovilizacion.cl/> (retrieved on December 2017) and image of the physical encounter 'Laboratorio de Mapeo Colectivo' held in Santiago de Chile, October 2017 retrieved from <http://www.cartografiadelamovilizacion.cl/mapeos/>.

to the public is a way to establish trust between visualization creators and viewers. Several times users have a hacker instinct, seeking to open *black boxes*, and for the same reason this type of projects should open their own boxes. The *Github* platform is a good example of today's openness and sharing among the developers' community.

Crowdsourcing data

Cartografía de la Movilización (Cartography of educational demonstrations) is a documentary project that showcases on a map all events that happened during Chile's upper education protests in 2011 in the cities of Santiago and Concepción¹⁰. That year high school and university students lead a nationwide demonstrations in Chile, considered by several experts as the most important mobilizations of recent years and one of the largest since the return to democracy after Pinochet's dictatorship in 1973–1990. Students claimed for a reform in the educational system because it promotes private education at high tuition costs and at low-quality levels. The movement was strong enough to bring to the fore the discussion about changing the educational system.

The project invites people to add information and evidence about the different types of demonstration during that period. The map translates analogue processes into a database of happenings, public performances, protests and occupation of public buildings. The project aesthetics is expressive and non-neutral, since they represent the voice of revolution-

¹⁰ The first mobilizations started in 2006 with the "Penguin Revolution" (students are so popularly called because of their black and white uniform).

ary collectives, but it also had the need to deal with academic and political bureaucrats. The map is a strategy itself for narrating the social manifestations of this period.

There are many projects related to the construction of participative maps when referring about mainly crowdsourced data. This case is used as an example of participative mapping because this process makes possible to document the memory of political events in the territory. It is about locating on time and space ephemeral actions that when put together they shed light to the complexity of the upper education conflict in Chile. The project connects with a series of activities that engage people with actual controversies related to the public system and society, such as gender unbalance and violence in the educational system. It is not only about a map and its participative process of construction, but it is also about promoting reflection on new digital and analogue tools through physical encounters.

Data-action

The Anti-Eviction Mapping Project San Francisco (AEMP) is a radical data-visualization, data analysis, and storytelling collective documenting the dispossession of San Francisco Bay Area residents upon gentrifying landscapes¹¹. The mapping is performed by the crowdsourced data collection through an online survey that volunteers compile. In addition, they use official governmental info about landlords and speculators.

Through digital maps¹², oral history work, film, murals, and community events, the project renders connections between the nodes and effects of new entanglements of global capital, real estate, high tech, and political economy. It studies the displacement of people but also of complex social worlds as certain spaces become desirable to such entanglements. The AEMP's interactive maps depict the rise and spread of evictions by

¹¹ California's Ellis Act (decreed in 1980) provides landlords a statutory right to exit the rental housing business. Ellis's Act evictions first ten years were rare, until the late 1990s when property owners in San Francisco Bay began using it to evict tenants. From 2001 Ellis Act evictions peaked in 2001–2003 but remained high until 2008. Between the housing market crash evictions decreased but rose sharply again in 2012–2013 prompting protests and media attention. The collective started mapping evictions in SF Bay Area in 2013 and has continued to do so until today, expanding the project to other areas (Alameda County, California, for instance).

¹² The more than 100 interactive maps are mainly performed using Leaflet and D3 libraries, CartoDB and OpenStreetMap. Besides the map construction, they use Crowdmap.com platform for comments.

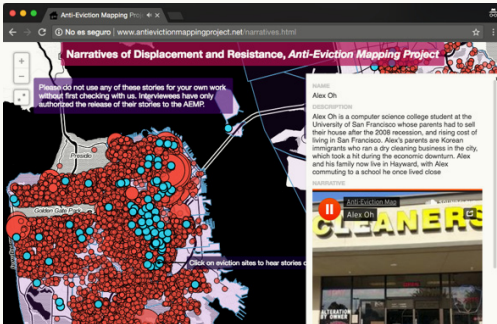


Figure 10. Screenshots of the 'Narratives of Displacement - Oral History Map' (retrieved from <https://www.antievictionmap.com/oral-history-map/>, retrieved on December 2017) and picture from the Clarion Alley Mural Project (retrieved from <https://www.antievictionmap.com/mural-in-clarion-alley/>, retrieved on December 2017).

property owners through time. The user can click on the play button in order to start the timeline animation, which shows a chronological sequence of evictions. Each eviction is represented by an exploding marker having a rhetorical force that is easy to recognise.

As a collective, *they strive to make the often obscured mechanisms of material, cultural, and affective displacement palpable*¹³. The AEMP is an example of how information visualization (through data visualization on maps and data stories), organise collective action and crowdsourced practices to empower citizens through new evidence. The visualisations and use of data allow them to create a space for dissent, reveal and con-

¹³ Extracted from the official website <https://www.antievictionmap.com/about/> retrieved on November 2017.

test, situating the collective as a relevant actor in the conflict of displacement and gentrification.

The AEMP combine three key spaces of action mixing data and stories:

1. Data visualised on maps. These maps are created through the participation of a vast amount of people. They are not only '*dots on a map*'; they are designed with interactions that allow users to explore and analyse what lies in between the dots.
2. Storytelling + data: They are not interested in reducing people to their evictions, and thus instead focus on the intimacies of personal relationships to shifts in spatiality as processes of gentrification unevenly unfold.
3. In the project there is a continuously passing through the spaces of data in the physical space of the city, and of human stories in the digital space of the map. This project is alive in both digital and physical spaces. The integration of both types of aspects (data and human stories) in the same spheres are key characteristics of its success.

4. Challenges and conclusions

This research is a first attempt to draw a framework to guide the construction of possible stories that use data as evidence to promote people's engagement. The cases exposed testify the presence of today's data culture in which access to data, instruments and tactics is within everyone's reach. The non-experts but experienced citizens have at hand the possibility to bring evidence and create spaces of contest. For these means it's necessary to leverage effective communication to improve the debate and dialogue that we could bring to these spaces of contest.

Information design is only one part of the tip of the iceberg; we need to work side by side to leverage better and effective communication to propagate our ideas. The challenge designers, developers, activist – and society in general face – is to bring evidence in meaningful ways so that we can communicate our views. Making good use of data is one thing, but using data in an effective way is quite another.

Other challenges that remain for further research is to leverage methods for measuring the impact of communication designed with data for citizen engagements and monitoring its ongoing process. This research found that most of the explored cases didn't have proper records or infor-

mation about their process and impact on their target audiences. Observing the post effect of these means of communications could allow us to learn much more about good and bad practices. However, the lack of records of processes and the little knowledge or sharing of them and their impact is a challenge that we must alter to open the black boxes of data.

Education in the use of data is a societal challenge that involves all segments and areas of society. From the Information Design arena, that is necessary and urgent, moreover in a society surrounded by data. Nowadays access to data is not an issue, but the challenge is to bring lectures from it, analyses, insights and then transform them into something meaningful. Education on data could be a key factor demystifying the ongoing blind trust on data. In order to take action through data there must exist a close relation between the digital and the physical: engagement and participation cannot merely be digital. They must integrate the physical dimension among civic initiatives participants.

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References

- Agarwal, S. D., Barthel, M. L., Rost, C., Borning, A., Bennett, W. L., & Johnson, C. N. (2014). Grassroots organizing in the digital age: Considering values and technology in Tea Party and Occupy Wall Street. *Information Communication and Society*, 17(3), 326–341. <https://doi.org/10.1080/13669118X.2013.873068>
- Arnstein, S. R. (1969). A Ladder of Citizen Participation. *Journal of American Institute of Planner*, 35(4), 216–224.
- Baek, J. S., Manzini, E., & Rizzo, F. (2010). Sustainable collaborative services on the digital platform: Definition and application. In D. Durling, R. Bousbaci, L.-L. Chen, P. Gauthier, T. Poldma, S. Roworth-Stokes, & E. Stolterman (Eds.), *Design Research Society International Conference* (pp. 123–131). Montreal.
- Bruno, I., Lille, U., & Didier, E. (2014). STATACTIVISM Forms of action between disclosure and affirmation. *The Open Journal of Sociopolitical Studies. Partecipazione E Conflitto*, 7(2), 198–220. <https://doi.org/10.1285/i20356609v7i2p198>
- DiSalvo, C. (2012). *Adversarial Design*. Cambridge, Massachusetts: The MIT Press. <https://doi.org/10.1162/DESI>
- Dörk, M., Collins, C., Feng, P., & Carpendale, S. (2013). Critical InfoVis: Exploring the Politics of Visualization. In CHI 2013 (pp. 2189–2198). Paris, France.
- Fry, B. (2008). *Visualizing Data*. (Andy Oram, Ed.) (2nd ed.).
- Fuad-Luke, A. (2009). *Design Activism Beautiful Strangeness for a Sustainable World*. London: Earthscan.
- Gray, J., Bounegru, L., Milan, S., & Ciucarelli, P. (2016). Ways of seeing Data: Toward a Critical Literacy for Data Visualizations as Research Objects and Research Devices. In S. Kubitschko & A. Kaun (Eds.), *Innovative Methods in Media and Communication Research* (1st ed., pp. 227–251). <https://doi.org/10.1007/978-3-319-40700-5>
- Green, D. (2016). Citizen Activism and Civil Society. In *How change Happens* (pp. 1–21). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198785392.003.0012>
- Lange, M. De, & Waal, M. De. (2012). *Ownership in the hybrid city*. The Netherlands.
- Markussen, T. (2013). The Disruptive Aesthetics of Design Activism: Enacting Design Between Art and Politics. *Design Issues*, 29(1), 38–50.
- Milan, S. (2018). Data activism as the new frontier of media activism. In Goubin Yang and Viktor Pickard (Ed.), *Media Activism in the Digital Age: Charting an Evolving Field of Research* (pp. 151–163). NEW YORK: Routledge. Retrieved from <https://www.routledge.com/Media-Activism-in-the-Digital-Age/Pickard-Yang/p/book/9781138228023>
- Piekarski, K. D. (Ed.). (2015). *Data-Driven Methods for city research and exploration*. Katowice, Poland: Institution of Culture Katowice: City of Gardens.
- Shaw, J., & Graham, M. (Eds.). (2017). *Our digital right to the city. Our Digital Rights To the City*. Meatspace Press.
- Tactical Technology Collective. (2013). *Visualizing Information for Advocacy* (2nd ed.). The Netherlands. Retrieved from <http://www.tacticaltech.org/files/tacticaltech/infodesign.pdf>
- Valsecchi, F., & Gong, M. (2014). Design implications of digital social innovation: A playful approach to analyse cases study dataset. In P. Rau (Ed.), *Cross-Cultural Design: 6th International Conference, CCD 2014* (Vol. 8528 LNCS, pp. 361–372). Switzerland: Springer International Publishing. https://doi.org/10.1007/978-3-319-07308-8_35