

Data remix
practices
from ethno-
graphy to
data visuali-
sation: coun-
ter-mapping
the Rogoredo
open drug
scene

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Master Degree in Communication Design
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[ENG] Humans have used maps to study and represent the world around them for centuries. Throughout history, power structures used them as the primary tools to perpetuate colonialist policies and uphold the status quo. Commonly considered objective and truthful instruments of representation, maps are instead a highly political and interpretable medium. Indeed, cartography, like any other communication medium, can be manipulated, consciously or unconsciously, to control and influence society. With this in mind, a need has arisen in recent years to hijack the traditional role of the map and exploit its languages as a means to advance alternative narratives. Due to the ever-increasing population living in urban centres, cities are becoming places of great diversity and interaction.

[ITA] Da secoli l'essere umano utilizza le mappe per studiare e rappresentare il mondo che lo circonda. Nel corso della storia, le strutture di potere le hanno sfruttate come principali strumenti per perpetuare politiche colonialiste e mantenere lo status quo. Comunemente considerate strumenti di rappresentazione oggettivi e veritieri, le mappe sono invece altamente politiche e interpretabili. La cartografia infatti, come qualsiasi altro mezzo di comunicazione creato dall'uomo, può essere manipolata, consapevolmente o inconsapevolmente, per controllare e influenzare la società. In quest'ottica, negli ultimi anni è nata l'esigenza di dirottare il ruolo tradizionale della mappa e di sfruttarne i linguaggi come mezzi per promuovere narrazioni alternative. A causa del continuo

These differences often create inequalities that can lead to conflict. It is crucial therefore to explore and highlight these phenomena that are usually ignored by mainstream narratives.

This thesis, in particular, explores the use of counter-maps in representing conflict within urban contexts. Specifically, the project focuses on exploring the phenomena that led to the creation and later dismantling of the open drug scene in Rogoredo, Milan. Using an interdisciplinary approach to data collection, the research merges quantitative data collection methodologies with field research methods typical of ethnography. The information collected was then visually translated into two maps. Through the use of languages typical of cartography, the project aims to bring to light new points of

aumento della popolazione nei centri urbani, le città stanno diventando luoghi di grande diversità e interazione. Queste differenze spesso creano disuguaglianze che possono poi portare a conflitti. È quindi fondamentale esplorare e mettere in luce questi fenomeni che di solito vengono ignorati dalle narrazioni tradizionali.

Questa tesi esplora proprio l'utilizzo delle contro-mappe per la rappresentazione dei conflitti all'interno di contesti urbani. Nello specifico il progetto, sviluppato in sinergia con una sociologa post-doc dell'università degli studi Bicocca, si concentra sull'esplorazione dei fenomeni che hanno portato alla creazione e al successivo smantellamento della scena aperta della droga a Rogoredo, Milano. Utilizzando un approccio interdisciplinare per la raccolta dei

view until now ignored and to create awareness of dynamics occurring within the city.

dati, la ricerca fonde insieme metodologie per la raccolta di dati quantitativi con metodi di ricerca sul campo tipici dell'etnografia. Le informazioni raccolte sono poi state successivamente tradotte visivamente in due mappe. Attraverso l'uso di linguaggi tipici della cartografia, il progetto mira a portare alla luce nuovi punti di vista finora ignorati e a creare consapevolezza delle dinamiche che si verificano all'interno della città.

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We live in an era characterised by constant information. In the current scenario, where communication and information sharing are a prominent part of our life, both in the public and private dimensions, media certainly have a central role as instruments for communicating (Calabi et al, 2011)

In particular data has gone from scarce to superabundant, bringing huge new benefits but at the same time new constraints (Cukier, 2010). A radical change has taken place: whereas data used to be considered a technical language for specialists, in recent years, more and more communication channels are using it as an information tool. In particular, maps, with the advent of Internet 2.0 and the spread of GPS, have become a tool used daily by many of the population, both to get around and as a veritable archive of information. By using platforms such as OpenStreetMap or the even more famous Google maps, users have started to use maps to mark places, events and situations actively.

Maps have also acquired a role of collective information exchange and crowdsourcing; think of Google maps' function of reporting traffic accidents or speed detectors. Man, if for centuries accustomed to using the map just as a consultation tool, has become an active and conscious user.

However, is this the case?

Knowing the languages of maps does not automatically mean being able to recognise their limits and hidden po-

tential. The most common opinion is that maps are highly truthful and objective communication tools, yet analysing the historical role of cartography, it soon becomes apparent when this thought is unfounded.

A map is conditioned by the choices made by the author during the creation stages. Moreover, historically, maps have been used for colonialist purposes and to achieve political and economic prevalence. It is a highly political tool, and until a few years ago, it was used exclusively to perpetuate the status quo. At a certain point, however, something changed. The need arose to tell points of view hitherto excluded from traditional narratives and to conflict with the forces in power instead. From this need emerged alternative methods of mapping, which, using the languages of traditional cartography, challenge the dominant communication channels.

However valuable and necessary, these new disciplines bring with them several problems. How can reliable and free information be found in a world where data belong to and are shared by main power structures?

It becomes essential to use interdisciplinary approaches, from computer science to design, anthropology and ethnography, to open up the horizons of research and to be able to question untapped sources. The research methodology, therefore, becomes central within critical cartography projects.

First, this research explores maps' historical role, highlighting their hidden characteristics. Then, criteria and

methodologies for alternative narratives are analysed. Finally, using various projects as examples, the possible role of alternative cartography in narrating conflicts and problems in urban contexts is highlighted. By analysing the methodologies used by the projects examined, possible approaches to deal with inner-city problems are highlighted.

Finally, the project developed by the authors is examined as an example of an interdisciplinary approach to cartography. The maps created explore the reality of the open substance consumption scene in Milan Rogoredo, contextualising it within a political landscape that reacts to the drug issue with repression and violence instead of social policies of support for users.

01

Maps:
power and
graphic
representations

Maps are tools for communication.

Finding a definition of a map is the most efficient way to deconstruct the concept into manageable pieces. However, the first difficulty comes into play: it is extremely difficult to find a univocal and all-encompassing definition of the concept of a map. After all, as will be explored extensively in this chapter, there is no such thing as an official map or a correct map (Lobben et al., 2014). Generic definitions, on the other hand, provide inclusive rather than restrictive perspectives such as that maps are graphic representations for spatial understanding (Barber 2005), a judicious selection of spatial data (Thrower 1996), or expressions of cultural and physical phenomena (Dent 1999). Or as a graphic representation of cultural and physical space. For sure, we can state that when well designed, maps tell their stories effectively and efficiently (Monmonier 1996; Wood 1992). But what makes the map such a handy tool? Perhaps the power is in the representation—the use of graphic space to represent geographic space. Or maybe the power is that maps are used in ways that make them inherently unique, separate from other types of graphics. Identifying how maps are used and the cartographic process might be a more straightforward endeavour than defining what a map is (Lobben et al., 2014).

The textbook *Elements of Cartography* (Robinson et al. 1995) lists five different applications for maps: storing geographic data, providing guidance, measuring and analysing geostatistical data, visualising and summarising geostatistical data, and stimulating spatial thinking.

As just outlined, it is challenging to encapsulate within a single definition what maps are and represent. In the following chapters, the topic will be explored further by analysing the political and social role that maps have played in the construction of modern society. To consistently and thoroughly study the power of cartography, it is also necessary to analyse the approaches and methods of cartographic representation. The following sections will explore the form of maps through the elements and characteristics that constitute them.

1.1 The hidden power of mapping

A long tradition of historical study is a long tradition of historical study that looks at how maps are made, how they evolve over time, and what influence they play in society. The ability of mapping to change social and economic interactions in certain places and times is implicit in this analysis. More recently, studies have focussed on the politics and power of mapping, including

how power is captured in and communicated through maps to assert command and control of territory and socio-spatial relations, how authority is involved in the creation and use of maps, and how mapping practices are used to resist and contest the exercise of power over space. Mapping has been and continues to be an essential tool in nation-building, colonial power projections, and imperial control over remote areas. This is facilitated in part by the

ability of maps to project a consistent representation of territorial continuity. Maps that divide territory according to political authority are a forceful declaration of state sovereignty. They have become so ingrained as a “natural” template that such borders can be found even in maps that declaration of state sovereignty. They have become so ingrained as a “natural” template that such borders can be found even in maps that aren’t expressly political (e.g. weather maps). The symbolic power of cartography to make borders is endlessly exploited in the ‘grand games’ of geopolitics between states, where the maps provided the master image of the nation’s superiority and centrality in global affairs’ (Vujakovic, 2002). The instrumental influence of Western mapping in colonial exploitation, as demonstrated by the erasure of indigenous peoples from colonisers’ maps, is perhaps the most compelling example of cartography’s harmful influence.

1.1.1 Maps are political

However, the concept of map universality should not be misunderstood and mistaken for the idea of integrity and objectivity; on the contrary, maps are highly political. All maps, according to Wood and Fels (1986), Harley (1989), and Pickles (1991), are ideologically loaded and invested with the interests of their authors. This is most obvious in maps used as explicitly propagandist displays, meant to influence people’s perceptions of a particular location or provoke an emotional response to a topic, but it may also be found in even the most apparently innocent maps, such as topographic maps and school atlases. This is due to the fact that all map designers must make a number of choices about content, design, scale, and other factors that have a direct impact on what the map communicates and how it is read. As a result, maps produced by state companies claim a certain authority, express chosen

messages, and incorporate a variety of silences about other data. Several scholars have actively critiqued such maps during the last two decades from a range of perspectives, including feminism and post-colonialism. Deconstructing the map is crucial in revealing the reasons behind the map’s selectivity and demystifying the sources of the signs chosen. Everything about a map’s design is subjective and arbitrary in semiotic terms, yet most people accept this since they perceive current maps as ‘natural,’ having been extensively educated into cartographic sign systems (i.e. a blue line for a river). This has significant repercussions because once certain conventions are accepted as “natural” or “normal,” they risk gaining a repressive and manipulative authority (2001, Harley).

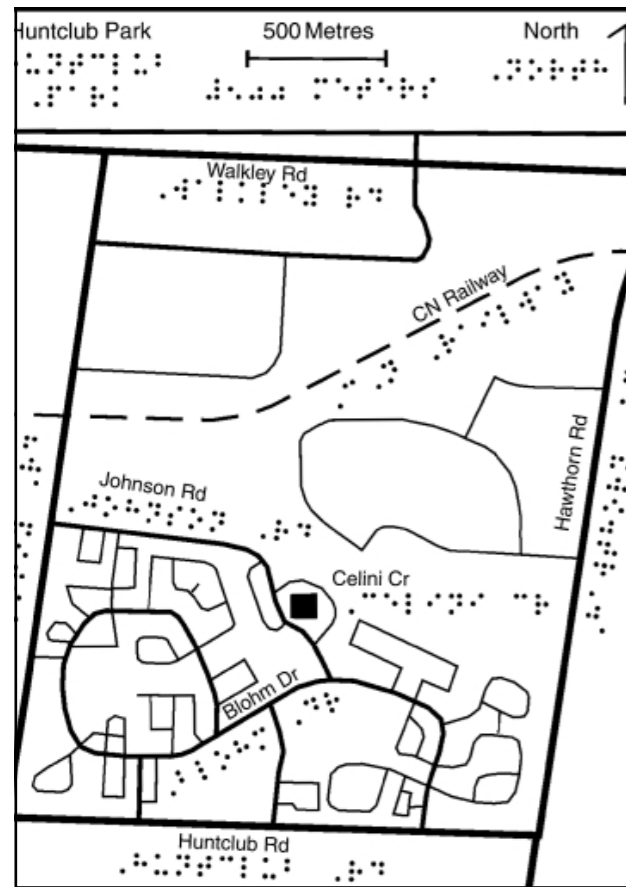
1.1.2 Off-grid voices

Perpetuating traditional and official narratives, maps have often ‘left out’ those parts of the population considered less important and inconvenient to the status quo. Modern cartography’s Cartesian rationalism has been criticised by feminist researchers as a particularly masculinist method of understanding and expressing the world. The ‘god trick’ of a distant and impersonal vision from nowhere, floating some distance above the Earth, where spatial interactions can be completely mastered and manipulated, is used in this mode of thinking. From a feminist perspective, mapping codifies, defines, encloses, and excludes, subjecting the land to a masculine gaze and representation, as Kwan, a famous cartographer, points out. Such an approach assumes that it is possible to capture and process the world objectively and neutrally, as well as to know, dominate, and master it. Other studies have examined how mapping might perpetuate able-bodied stereotypes and map a reality that fails to meet the needs of various disabled communities [Fig. 1] [Fig. 2]

In this context, research has concentrated on ethnicity and the Othering potential of mapping that reflects predominantly white supremacy interests (Winlow 2001), but it has also explored socioeconomic class and age. In the last decades, there has also been a considerable increase in the number of maps in the art world thanks to artists that are challenging alternative space politics by experimenting with cartographic representation standards.



▲ [Fig. 1] Matthews and Vujakovic work on mapping for wheelchair, 1995



▲ [Fig. 2] Gleeson on visually impaired people, 1996

1.2 Visual representation of power

The fact that maps have such power is related, in part, to the fact that they possess some friendly properties. Throughout the Renaissance, Western European cartography changed, incorporating perspectivism and Cartesian reason in order to create a universal system for mapping the entire known globe. This new scientific technique enabled maps to become “immutable mobiles,” (Latour 1992) or vehicles for generating and disseminating cartographic information that fixed particular meanings. Maps took on a familiar and conventional form (in terms of scale, legend, symbols, projection, and so on) as a result of established procedures, and the map became a stable, combinable, and transferable form of knowledge, portable across place and time. Furthermore, cartographic data carried around the world could be accurately understood and usefully applied to update charts of an area or be integrated with other information, even though the mapper was unlikely to have ever visited the place they were mapping. Because maps were mobile, immutable, flat and foldable (and hence easily carried), variable in scale, repeatable, capable of being recombined and layered, and optically consistent and suitable for insertion into other texts, they became progressively crucial. The results were crucial because they contributed to the efficiency and efficacy of small European nations extending their military and commercial dominance over massive indigenous populations from far lands. European cartography became extremely sophisticated in terms of design and power projection over time, including the effective display of statistical knowledge relating to populations (providing a spatial overview of the population as well as territories) and the use of propaganda mapping explicitly intended to create specific views about specific places and reinforcing national and regional identities (Pickles, 1991).

1.2.1 Maps universal language

As previously declared, map representation uses languages that are ‘universal’ in the sense that they are interiorised, and therefore easily understood, by a large part of the population. The reason for this understanding is to be found in the three main characteristics that define a map: *reduced*, *selective*, and *symbolised*.

Reduced refers to the notion that practically all maps are more informative when reproduced at a smaller scale than the phenomenon that’s being mapped. Minimising the size of a spatial phenomenon to a more reasonable one helps the user to navigate through the representation.

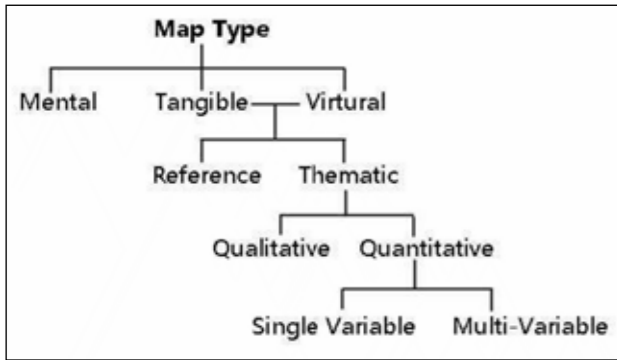
The second term, *selective*, refers to maps that only include elements that are directly linked to the map’s message. Removing all secondary and irrelevant information makes the maps much more readable and intuitive.

The final term, *symbolised*, refers to the concept of utilising a representative symbol to extract the item being mapped. Examples of representative symbols are a star with a circle around it, representing a state capital, or a sign on the front of a bus, indicating a bus stop.

1.2.2 Taxonomy of a map

B.D. Dent, a prominent cartographer, states that maps can first be classified according to the media. He identifies the first three types of maps: *tangible maps*, *mental maps*, and *virtual maps* [Fig. 3]

Mental maps are “developed in our minds over time by accumulating many sensory inputs, including tangible or virtual maps” (Dent et al. 2009). A mental map is a map



▲ [Fig. 3] Redrawn (Dent et al. 2009)

that is stored in a person's mind and reflects how they conceive space. Mental maps do not precisely translate from person to person unless they are converted to a tangible or virtual map or any other form of communication such as speech or writing.

A *tangible map*, such as a paper map, is one that you can hold in your hands. The benefit of physical maps is that they can be simply shared among users and do not require any special devices or software to utilise.

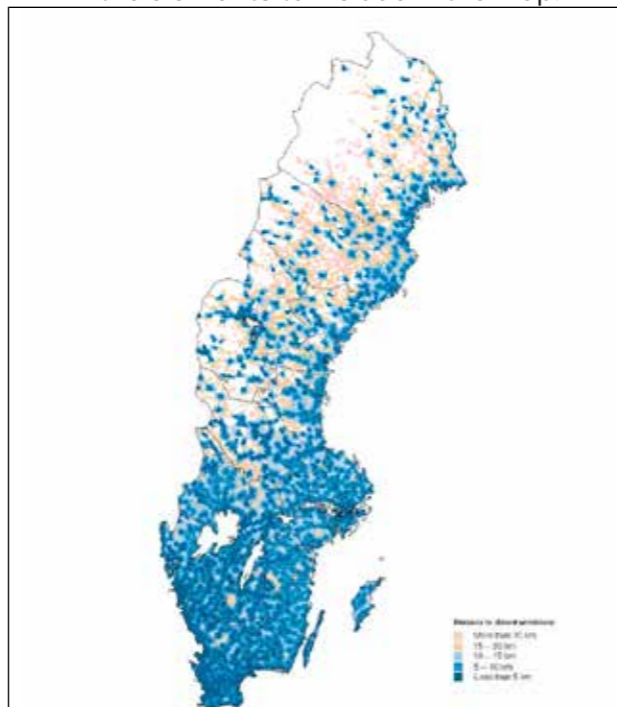
A *virtual map* is any map that is displayed on a computer screen. Virtual maps have the advantage of being quickly updatable, dynamic, animated, and capable of linking to enormous amounts of data such as papers, photographs, movies, and sounds, as well as being easily shared.

Two major categories of maps are identified within the area of maps generated on tangible or virtual media: *reference maps and thematic maps*.

A *reference map* focuses on Geographic features tangibly situated on Earth and

displays location information and identifying information about them. This type of representation is typically not specialised to any one particular use but is instead meant to be used for a wide variety of activities.

A *thematic map* [Fig. 4] emphasises attributes related to a single subject or theme; they typically have a very specific purpose and wish to convey a very specific message related to, naturally, a single subject. These representations focus on a single theme, commonly referred to as an attribute. While most of them focus on a single theme, it is essential to note that they can also display multiple related scenes at the same time. One of the reasons these maps are so helpful is that they display theme patterns across space. Conclusions. Unlike general reference maps, thematic maps are usually very selective in the elements to include in the map.



▲ [Fig. 4] A thematic map showing the Swedish populations accessibility to the closest grocery store, 2004

Reference maps and thematic maps, on the other hand, are used to depict attribute information or data, such as quantitative or qualitative data that cannot be seen directly on Earth (such as income, population, or house prices).

A *qualitative map* is one type of thematic map. This kind of representation doesn't display any quantities or data with magnitude. No mathematical relationships can be drawn from this type of map.

A *quantitative map* is a sort of thematic map which displays numerical data and its fluctuation from place to place. Typically, numerical data is generalised in order to create a more appealing visual product.

1.2.3 Elements that compose a map

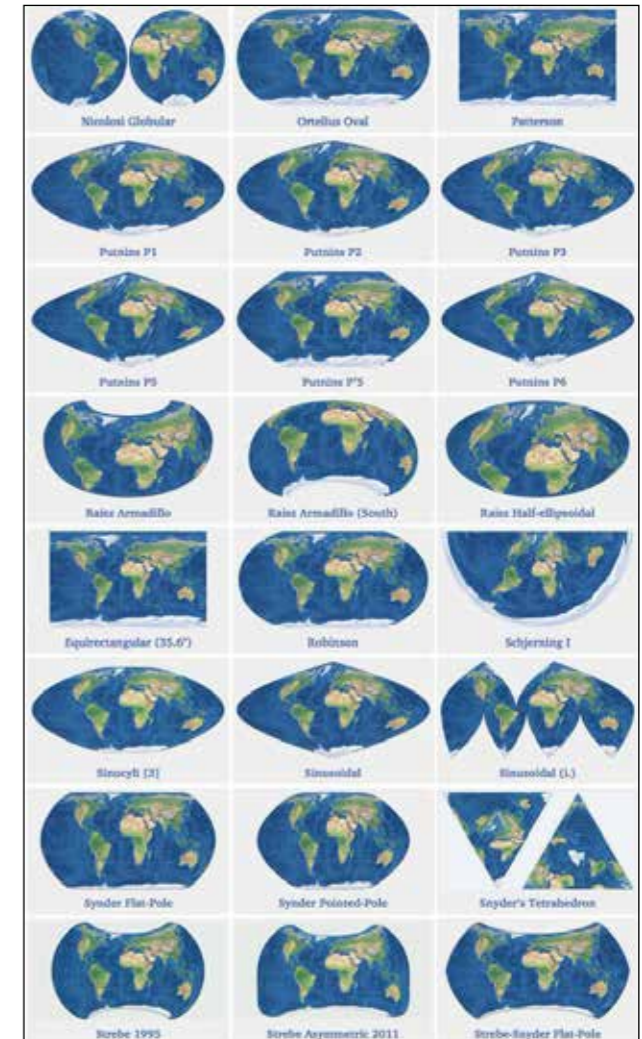
Maps can also be categorised by the main features of maps, such as scale, projection, symbols and grids.

All maps are *scale models of reality*. Most of them are smaller than the reality they represent, and the scales indicate how much more minor. Maps can state their scale in three ways: as graphic scale, as verbal scale, or as a representative fraction.



▲ [Fig. 5] Meme ironically highlighting how scales can be misleading, unknown author

Map projections, which turn the planet's curved, three-dimensional surface into a flat, two-dimensional plane, can significantly alter map scale. The flat map stretches specific lengths and shortens others, causing the scale to vary from point to point.



▲ [Fig. 6] Maps projection collection, map-projection.net

Graphic symbols make visible the features, places, and other locational information represented on the map. By describing and differentiating features and

areas, map symbols serve as a graphic code for storing and retrieving data in a two-dimensional geographic framework.

1.2.4 How to lie with maps

It is fundamental to understand that each of the elements described above, is a potential source of distortion.

They are both the essence and the core of a map, and its limits. In order to help the user see the important features of a map without being distracted, a map must lie. The three-dimensionality and richness of detail of reality are impossible to represent completely and uncensored within reduced two-dimensional models. This is why it is essential that the cartographer makes a series of choices as to which aspects of reality to report. This is where geometry, a fundamental aspect of the map construction process, comes into play, allowing for the hierarchisation of the information to be shown to the user. This consists of five fundamental operations: *selection*, *simplification*, *displacement*, *smoothing* and *enhancing*.

Selection: the first step, of course, is to choose all of the map's features. The term selection refers to the suppression, or non-selection, of most elements. The map author should approach selection with specific goals, which should be met by a well-chosen set of all possible characteristics that could be mapped, as well as map symbols that identify dissimilar features and offer a feeling of graphic hierarchy. Background features that are chosen to provide a geographic frame of reference typically require more visible symbols than features chosen to promote a specific subject for the map. Selecting background details that effectively relate additional information on the maps to the viewer's geographic knowledge and exi-

isting "mental map" generally necessitates more thought and consideration than selecting the map's major features.

Simplification: this phase is necessary to exclude points from a list to reduce complexity and angularity, is especially useful if too much detail was "caught" in the construction of a cartographic database, or if data generated for one size needs to be displayed at a smaller scale.

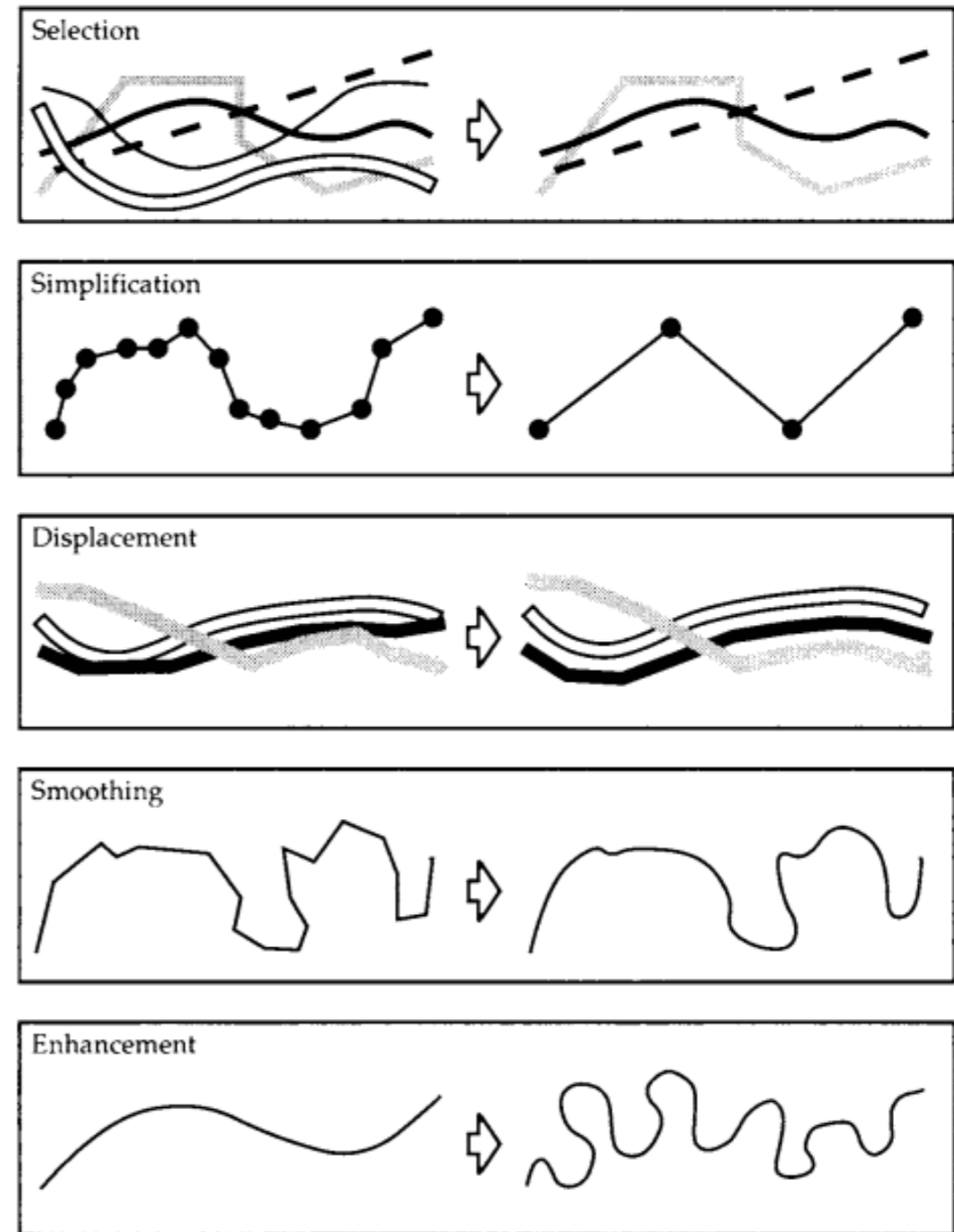
Displacement: by distancing features that might otherwise overlap or merge, displacement eliminates graphic interference. A significant scale reduction, typically results in an incomprehensibly crowded collection of map symbols, necessitating the removal of some features and the displacement of others.

Smoothing: it reduces detail and angularity and may cause some points to be moved and others to be added to the list. Smoothing has the primary goal of avoiding a series of abruptly connected straight line segments.

Enhancing: Enhancement adds detail to map symbols, making them appear more lifelike. Stream lines, for example, could be given conventional meander loops, while shorelines could be altered to look more coast-like. Map symbols that have been enhanced are easier to read and more appealing.

It is not always necessary to do all these operations in order to construct a well-drawn map. They are, however, aspects that both the author and the reader should take into consideration. For the final user, knowing the processes that lead to the creation of a map is fundamental in

order to have an active and critical view of the information one is looking at. The author, on the other hand, must always declare the choices made in order to keep the creative process as transparent as possible.



◀ [Fig. 7] Elementary geometric operations during map construction, Monmonier 1997

02

History of
Mapping
practices
and al-
ternative
narratives

Given the history of mapmaking, as well as its scientific and intellectual traditions, one might assume cartographic and mapping theory to be dormant pursuits with a long-established and fixed approach to thinking about and producing maps. However, nothing could be far from the truth. Cartographic philosophy and practice have changed tremendously over time and space, especially in recent years, as researchers of cartography have adequately proven.

Philosophical thought on the nature of maps is essential because it dictates how we think about, produce, and use maps; it influences our hypotheses about how we can know and assess the world, how maps work, their strategies, aesthetic value, ethics, ideology, as well as what they tell us about the world. Finally, it can also provide us with insights into how we relate to map-making and map-reading. Mapping is simultaneously epistemological and deeply ontological; it is both a method of thinking about the world and a series of assumptions about the world itself. This philosophical gap between the nature of the knowledge that claims to make and the status of the practice and artefact itself is fundamentally crucial to any mapping study.

Cartography has always been seen as a scientific endeavour that aims to represent as truthfully as possible the spatiality and phenomena happening on the planet's surface. The discipline tries to capture these relevant features and their spatial relations and to display them through a map. Mapping seeks the truth and precision, and cartographers' pursuit is to theorise how to better communicate and represent that truth.

Since the late Middle Ages, Western cartographers have been focused on producing truth documents, particularly with the requirement for accurate maps for navigation, fighting wars, and managing property ownership. Only in the second half of the last century began to rise the need for cartography to have an entirely scientific purpose. Although scien-

tific procedures for gathering and mapping data emerged, cartography was still seen as an art due to the cartographer's individual skill and sensibility rather than a science.

Arthur Robinson, a well-known cartographer, attempted to recast, focusing primarily on rigorously documenting map design guidelines, and thinking about the map's final user. His goal was to develop a science of mapping that would result in "map efficacy," or maps that capture and depict relevant data so that the map reader could analyse and interpret (Robinson and Petchenik 1976).

Robinson proposed that an experimental psychology-based approach to mapping might be the optimum method for cartography to earn intellectual credibility suitable for scientific growth. Robinson used an information-processing device model of the mind. The complexity of meaning was simplified to a method focusing on the input, transfer, and output of knowledge of the world. The social context was deemed to be irrelevant; the world existed independent of the observer and maps sought only to map the world. The cartographer was separate from the user and optimal maps could be produced to meet different needs (Perkins, 2009). The cartographer's goals were conventional: to eliminate representational mistakes and improve map effectiveness through excellent design. Thus, research concentrated on topics such as how to represent location, direction, and distance; how to choose information; how to effectively symbolise these data; how to mix the symbols properly;

and what kind of map to distribute. Framed by an empiricist view of the world, cartography's research aim was then to minimise signal distortion in data communication to users. Art and beauty had no place in this functional cartographic universe (Perkins, 2009). Out of this context between the 1960s and 1970s emerged an increasingly sophisticated series of attempts to develop and position cartographic communication models as the dominant theoretical framework to direct academic research (Perkins, 2009). Researchers were driven by communication models to explore beyond a functional examination of map design and investigate filters that could obstruct the encoding and decoding of spatial data (Figure 1.1). The map artefact became the focus of study for researchers with an emphasis on the map's semiotic power rather than its functionality. In 1981, Christopher Board, another cartography researcher, studied how the map could be conceived as a conceptual work as well as a functional model of the world. With cognitive research attempting to understand how maps operated, in the sense of how users received and used the knowledge maps aimed to transmit, attention has focussed on the map reader.

Based on behavioural geography, it was considered that map reading was largely dependent on cognitive structures and processes, and a study was conducted to learn how individuals got to understand the world around them and how they made decisions and choices based on that knowledge. This approach is exemplified in the work of Reginald Golledge (1999), Robert Lloyd (2005) and Cynthia Brewer (Brewer et al. 1997). The map user is imagined as an apolitical receiver of knowledge, while the cartographer is seen as a technician attempting to deliver spatially precise representations that were resulting from laboratory-based experiments that slowly improved cartographic knowledge and methods.

However, by the mid-1980s, the cartography model of communication had lost popularity as an organisational framework for academic research. At a time when data was becoming much more widely available and technology for manipulating and disseminating mapping were also changing dramatically, technological advances made a single authoritative vision of the world problematic. Users could become mappers, resulting in a multitude of possible mappings. Display and printing are separated by digital mapping technology, which removes the limitations of predefined specifications. Over time, conceptual and technological advances in computer graphics, computation, and user interfaces have begun to fundamentally switch the role of the map from a finished product to one in which the map is displayed within a visual toolbox that can be used interactively for exploratory data analysis (typically with multiple representations such as statistical charts, three-dimensional plots, diagrams and so on). This evolving map conceptualization is at the heart of the emerging field of geo-visualisation, which has developed as one of the most important areas of practical cartography research in the last years.

2.1 Alternative narratives

While the powerful role of cartographic power in the state and corporation's social power is undeniable, such dominant mapping is dialectical because it ultimately opens up new methods to resist. The power of the map can be exploited to re-frame the world in the service of progressive values and to challenge inequity, while the state's logo-map can be re-imagined as a powerful symbol in anti-colonial battles. Alternative narratives have always existed, are present throughout history and have been subjects of research in other disciplines (Briones 2019) The repurposing of communication technologies has been part of the activists' repertoire at least since the '50s (Milan, 2013). Alternative narratives can be categorised under terms like open-source urbanism and urban hackers (Sassen, 2011), tactical urbanism (Lydon and Garca, 2015), and city making (de Waal, 2014), among many others.

Power is challenged with resistance and often counter movements wherever it is presented, but until recent years, maps were rarely used to question authority. Moreover, alternative narratives not only tell a story of hegemony but also how power relations work within them (Briones, 2019). Through critical analysis of the subject and its consequences, alternative narratives seek to stimulate audiences' interest in the subject matter they cover. The limits of counter-mapping are perhaps expected, given the need for data, specialised cartographic resources, and expert cartographic abilities. Many of the same tools that enable cartographic surveillance have been applied to new types of counter- and participatory mapping that aim to empower and emancipate people from specific forms of oppression. Increased access to mapping software, new open-source tools, and online services have reduced greatly the level of expertise required to produce professional-looking maps,

allowing anyone to examine official sets of data in new ways and share their own data for investigation.

Many examples of alternative cartography use traditional cartographic signs in their design. By using a language that is now universal and common, it is possible to break down barriers of understanding and convey the message of the map to all people. Alternative narratives use the traditional symbols of the society's elite to criticise contemporary reality. The difference that helps to distinguish these mapping projects as subversive is that they hijack cartography's authority to pose difficult questions by mapping topics such as human rights, violence, inequality, environmental issues, urban conflict and all the other issues that are typically deemed insignificant, inappropriate, or otherwise 'difficult' by mainstream government and commercial cartography and thus left unmapped.

2.1.1 Introduction to Internet, collaborative mapping and mapping 2.0

More recently, internet mapping portals have enabled users to access and interact with growing quantities of geospatial data, such as maps, high-resolution aerial images, and satellite imagery, and to produce their own maps using simple interfaces. Google Earth, for example, is an online platform that allows users to browse, interact with, and edit spatial data as well as share related information including overlays, images, video clips, artwork, and notes. Google Earth also has discussion forums where mappers can discuss issues related to the platform, the data it uses, and data shared by other users. In this way, Google Earth is an example of 'Mapping 2.0,' as defined by Crampton (2009), which is the mapping that is distributed, collaborative, and social. Mapping 2.0 introduces a new type of mapping experience in which participants can take on

the role of authors and material is created collaboratively. This collaboration is a type of 'crowdsourcing,' in which a large number of people give relevant information, usually on a local level. OpenStreetMap, an open-source project that predominantly employs 'community generated' GPS data to give an alternative online mapping system to commercial and state systems, is another well-documented example of collaborative mapping. The produced detailed map database is unique in that it is a wiki (everything is modifiable by anyone) and can be employed in projects without the restrictions imposed by stringent copyright licences, which frequently restrict how government and commercial data can be used. Similarly, there are discussion forums that promote collaboration and debate, and data is available for other people to modify and update (which is not the case with commercial and state data). Mapping 2.0 has political and practical implications since it blurs the line between mapmaker and map user, exposing the partiality of authorship and the ways in which map representation authority must be generated.

2.1.2 Introduction to counter-mapping and critical cartography

Within the literature and practices of an alternative narrative, counter-mapping and critical cartography have to be mentioned. In the following paragraphs, both approaches will be explored extensively Starting with the movements and motivations that gave rise to them and documenting their evolution and more recent developments The practices will be explored both from literature and theoretical research perspective and by emphasising their practical and methodological aspects. Both disciplines, as will be seen in the following, are among those that provoke and advance alternative narratives, and aim to overturn traditional and mainstream ones by engaging with social,

environmental and civil rights issues. Both disciplines will be analysed in-depth for the sake of exhaustiveness, however, as will be seen in the subsequent chapters, this dissertation is primarily concerned with counter-mapping. It is however necessary, in order to analyse the phenomenon of alternative narratives in its entirety, to deal with all the disciplines and methodologies involved horizontally.

2.2 Counter mapping

Counter-mapping is the map-making process whereby communities appropriate the state's techniques of formal mapping and make their own maps as alternatives to those used by governments (Nancy Peluso, 1995). It challenges the cartographic power of spatial modes of urban dispossession and generates tools for collective mobilisation while experimenting with an alternative vision of inhabiting urban space. Through a combination of critical ideas and practices for social change, counter-mapping offers a productive and promising method for grassroots data science projects.

As extensively discussed and outlined in the previous sections, the modern history of most maps and GIS is one of governments programs, such as extending territory, military conflicts, property cadastres, or administering resources. These programs tend to be top-down, with geographic experts analysing data and cartographically informing stakeholders. Instead, counter-mapping employs the instruments of institutional map-making used by government agencies and companies in a situated, bottom-up approach (Dalton et al., 2017)

It is influenced by its context, which includes social dynamics, relations of power, and contextual knowledge, much like any other type of mapping. Counter-mapping, on the other hand, has a unique twist. "any effort that fundamentally questions the assumptions or biases of cartographic conventions, that challenges predominant power effects of mapping, or that engages in mapping in ways that upset power relations" stated Harris and Hazen (2005). The implications of map-based bureaucratic practices and/or culturally determined cartographic conventions have inspired counter-mapping. Counter-mapping, on the other hand, focuses on the "counter-," ignoring the creative, multitudinal fundamental part of

"mapping": counter-mapping combines theory and practice to be useful and productive, a way to open, investigate, and materialise alternative possibilities to the status quo.

2.2.1 Different theories on counter-mapping

Alternative narratives are those that highlight points of view and stories that have never been told by the dominant powers such as governments, mainstream media or corporations. Alternative narratives are raised as a reaction/response to hegemonic power (Briones 2019). They oppose the status quo by giving a voice to those who have always been silenced.

As extensively discussed previously, Maps and GIS technologies are not neutral arbiters of truth, nor containers of political meaning, but rather shape and facilitate the exercise of power in a society (Dalton et al., 2017). Mapping practices, including the use of geographic data, can help produce not only geographic visions, but also associated subject positions, material processes, and social programs such as state-building and capital accumulation (Elwood 2006; Crampton 2010; Wood 2010). Counter-mapping initiatives can take many different forms in different cultural and political situations.

In recent years of research and literature on counter-mapping, three main lines of thought have emerged to explain how it works: counter-mapping as a straightforward tactic for confronting asymmetrical power relations, as a kind of linguistic proposition, and as an intentionally creative, practised social formation (Dalton et al., 2017).

According to Peluso, and later Harris and Hazen, the term "counter-mapping" describes map-making programs for conservation projects with indigenous communities. According to this approach, it is a method for fighting unequal geographical power dynamics and accomplishing local political goals. It bu-

ilds on critical cartography's arguments about maps' political uses in contemporary history to comprehend situations of mapping for indigenous land claims and maintaining or producing new indigenous geographical knowledge (Hirt 2012; Palmer 2012).

Years later, Wood (2010) elaborates Peluso's idea by emphasising how maps function as semiotic spatial propositions that seek to induce agreement, or at the very least consent, from the reader. He works on how counter mapping challenges current, mainstream cartography, as well as its origins and ongoing legacy as a weapon of state authority. Wood's theory has two distinct key points. It first stresses the analysis of cartographic rhetoric in map design. Second, it places mapping and counter-mapping in their historical contexts. According to Wood, the rise of contemporary state governments is intricately related to the development of contemporary cartography's epistemology and political aims, and counter-mapping is a response to those changes. He uses as examples the cultural movement of Surrealism and Dadaism whose artists used maps to twist traditional cartographic expectations.

The last theory examines contemporary phenomena caused by maps. In recent years, not only governments but also single corporations have exploited the power of traditional cartography. Other counter-mappers have attempted to directly conceptualise how counter-maps operate discursively in recurrent processes for specific ends in light of these advancements. Cobarrubias and Pickles (2008) discuss activist collectives' counter-mapping in order to construct space in a different way, disputing public spaces and opening up new citizenship possibilities. Those movements use a Deleuzian distinction between "tracing," or re-presenting and re-producing current situations and knowledge, and "mapping," or truly inventive activities that open up new

possibilities, relations, spaces, and subjects (Deleuze and Guattari 1987, 12). Rather than an either/or logic, such as traditional Cartography vs its critics, this is a proliferation and dissemination process that creates new maps and worlds. Counter-mapping deviates from representational efforts to depict current conditions with this method. The purpose is to map in new ways, producing new worlds of social and material relationships (Dalton et al., 2017).

2.2.2 Good counter mapping practices

As extensively described above, Peluso, Harris and Hazen, Wood, and Cobarrubias and Pickles are all good examples of counter-mapping theoretical relevance and literature. However, it is also a deeply practical discipline, and being so it is fundamental, to those that desire to use maps for social change, to understand its limits, methods and good practices. Below are five good practices and questions the cartographer should ask himself before starting a counter-mapping project.

Keep in mind collaborative mapping

The history of mapping and data is replete with examples of outside experts, even well-meaning ones, coming into a context, redefining it in their terms, and doing analyses for their own ends (Dalton et al., 2017). Effective counter-mapping, on the other hand, is usually a group and collaborative effort. It implies that mapmakers have to be socially active, in particular inside the community they want to map. Even though people are not always the subjects of research, they are the best suited to map the concerns and forms of oppression at work in their own surroundings. Furthermore, individuals that experience a particular context are surely the best to describe its hidden dynamics. Naturally, there are multiple roles in a mapping or data analysis project, but this ethics tends to focus on collaborative

work from one's own situation (Dalton et al., 2017). Even if the project isn't local, it's easier to work in close collaboration with a community and follow its desires to create an environment that fosters mutual learning and respect rather than research subjects and objects. Such contextual work and relationships in data science could provide powerful participatory, egalitarian analyses and outcomes.

Is it always useful to map? What to map?

Maps and data analysis aren't appropriate, nor helpful in every situation. Actually, in some particular contexts, maps and analysis could make things worse. It is always necessary to deeply understand what context is taken into consideration and the limits of the project. Let us consider a project that exposes the difficult living conditions of illegal immigrants from Central America and maps the inhuman methods that these immigrants use to cross the border. However good the intentions, information of this kind would be absolutely counterproductive and risk endangering an entire community. For this reason, the aim of the map should not be to highlight and spy on those who are oppressed but to highlight and unveil the oppression structures. Understanding when to map and when not to map requires expertise beyond cartography. It's necessary to develop a familiarity and sensitivity to the range of political processes, institutions, and subject positions in a context; and an understanding of how a range of possible interventions, including but not limited to mapping or data science, might impact that context.

Realise that you're telling a story

Data cannot speak for itself. There is always a story behind data and while working on a counter-mapping project it is mandatory to keep that in mind. In maps, Wood (2010) makes clear the degree to which a map's design—including the legend, grid, frame, colour, abstract

lines, and statements of locational accuracy—bolsters the map's appearance as expert, objective fact even as that design subtly crafts a propositional narrative by choosing, excluding, and organising data (Dalton et al., 2017). Every map is both data and story, and effective mapping understands this; counter-mapping requires a reflexive examination of how data is generated from a perspective. Attempting to achieve total objectivity is neither feasible nor desirable. The goals of counter-mapping are contextual, rather than striving toward a single goal of relaying geographic truth through a graphical narrative. A map may be the "best" way to communicate a specific point of view from a specific scenario. What that point of view is, what the circumstance is, and what "best" means must all be strategically and contextually examined, both in terms of data and in terms of the social situation. This isn't to say that any information gets into the counter-mapping process. The ethics of counter-mapping practice become considerably more crucial as we move away from a single institutionally defined standard of impartiality. Counter-mapping or other data science involves a high level of attention to the validity of data and analyses, as well as awareness of the limitations and biases, whether they are due to human mistakes, statistical bias, or cultural assumptions.

Think analogue before digital

Counter-mapping includes the strategic application of both digital and social technology, oftentimes drawing on innovations in techniques for social interaction, research, and decision making developed by social movements (Dalton et al, 2017). Non-digital technologies can also benefit from what is traditionally thought of as high-tech. Feathers of Hope, a Canadian network of indigenous kids, use a pen-and-paper Facebook analogue on a physical wall with hand-drawn user profiles to foster

interactions among workshop or forum members. An analogue approach could also help to get closer to a part of the population that would otherwise be excluded. Moreover, as analogue tools are known to most individuals, they can help to implement the storytelling and facilitate the information-gathering phase (see for example the Imaging Homelessness in a City of Care project, considered in the next chapter).

Expose the process

Some counter-mapping projects display all stages of a project, not just the results, to encourage extra engagement, collective analysis, and reflection, facilitating forms of change. Showing the 'meta' part of a project can in fact both help in the practice of other initiatives and contribute to the furthering of literature and the construction of new methodologies, contributing so to the advancement of the discipline. In projects where it is not possible, or at least difficult, to rely on official sources, showing the whole process and the choices made by the investigators is crucial to be transparent and avoid lying with maps.

2.3 Critical cartography

Critical cartography is defined as a one-two punch of theoretical critique and innovative mapping approach. It challenges the traditional cartography linking spatial and geographical information and knowledge with politics and hidden relations of power. Despite the fact that critical cartography became popular in the 1990s, it has to be considered within the context of the evolution of the cartographic discipline as a whole. Cartography as a science began to solidify in the post-war period, while other mapping activities (particularly artistic experiments with spatial representation) flourished. These trends, especially combined with the rebirth of theoretical critiques in the 1990s, call into question the discipline of cartography's relevance at a time when mapping is becoming more prevalent and important.

2.3.1 Why it is critical

The term critique doesn't represent the search for a fault, it's instead an analysis of the assumptions of a field of information and knowledge. Its goal is to comprehend and provide alternatives to the knowledge categories that have historically been used. These categories (assumptions and common beliefs) both shape and allow knowledge. For example, it is commonly considered that successful map design must achieve "figure-ground" separation, despite recent studies on cultural differences in figure-ground perception revealing that non-Western viewers do not react to figure-ground in the same way that Western viewers do (Chua et al. 2005). Critique does not aim to break free from categories; rather, it aims to illustrate how they came to be and what other options exist. Going back to Kant's opera Critique of Pure Reason, he stated that critique is an investigation that involves laying out and describing precisely the claims being made, and then

evaluating such claims in terms of their original meanings (Christensen, 1982). Critical philosophy, according to Kant's essay on the Enlightenment, is one in which individuals regularly and restlessly seek to know and criticise authority.

Michel Foucault, reflecting on Kant's critical philosophy, observed that critique is not a matter of acquiring a body of knowledge, but is rather an attitude, an ethos, a philosophical life in which the critique of what we are is at the one and the same time the historical analysis of the limits that are imposed on us and an experiment with the possibility of going beyond them (Foucault, 1997). Foucault's examinations of how knowledge was produced and enabled through historically particular power relations were inspired by his focus on the historical contexts that make knowledge possible. According to Foucault, power is not a negative force that must be extinguished; rather, it is a more sophisticated idea that emphasises the politics of knowing. Power was spread horizontally in a highly diversified and dispersed manner, rather than emanating from the top of a class system. Furthermore, even though authority had repressive effects, it actually contributed to producing free-acting individuals. There is a real chance of "going beyond" the bounds of rebelling. This creation of rationality, on the other hand, happens nowhere; it is historically and spatially defined. Foucault's sensitivity to geographic and spatial aspects of rationality makes him of particular interest because he shows that many problems of politics require spatial knowledge (Crampton and Elden 2006).

To summarise, critique is a knowledge of politics. First, it investigates the foundations of our decision-making knowledge; second, it investigates the historical relationship between power and knowledge; and third, it resists, questions, and occasionally overthrows our thought categories. It is not necessary for

criticism to be an intentional political project. Political intervention occurs if the way individuals make decisions (based on knowledge) is altered. As a result, criticism can be both conscious and unconscious.

2.3.2 Critical cartography practices

Map experimentation by the creative community, particularly with representation and the map's role in establishing a sense of geographical significance, has been one of the most notable practices. A lot of artists, for example, have investigated how maps are politicised and how mapping may be a political act. From the avant-garde artistic movements of the 1900s with George Braque and Paul Cezanne through the Situationists and "psycho-geographers" of the 1950s and 1960s, such exploitation of the politics of representation has a long tradition. These latter organisations attempted to radicalise urban space by hijacking mapping as part of a political resistance strategy. By presuming that mapping was always already politicised, their "subversive cartographies" generated new spatial configurations. Probably the most notorious and popular example of this movement is The Surrealist Map of the World which appeared for the first time in a special issue of the Belgian periodical *Variétés* in 1929.

Transcending Euclidean space

Guy Debord's book *The Society of the Spectacle* later provides a guideline, stating that everything has become represented and so worthless and that everything is a media spectacle (Debord 1967/1994). This work has left a huge legacy, with the introduction of mapping technology in the late 1980s, which paved the way for a boom in "locative art" and psychogeographical mapping (Casey 2002; Cosgrove 1999, 2005; Harmon 2004). Two artists, Malene Rrdam and Anna Mara Bogadottir, for example, utilised a map of Co-

penhagen to traverse the streets of New York City. They so questioned the commensurability of Euclidean space, a core assumption of modern GIS. Euclidean space is an important part of the scientific value and regularisation of space. Euclidean space's critics, who point to idiosyncrasies, exclusivity, and contingent nature, suggest that not all knowledge can be "scientized."

A people's cartography

If "spectacle" was the aim for some, others adapted mass distribution tools for new purposes, bringing mapping technologies closer to the people. They bypassed disciplinary channels of academic knowledge and control once more, creating a "people's cartography." Open-source mapping, also known as "map hacking," is one of the most powerful approaches. Map hacking is the technique of taking advantage of open-source mapping programs or merging the functionality of two or more websites. It is possible because of the extensible markup language (XML) and application programming interfaces (APIs), that certain exploitations are conceivable. APIs are the interfaces that allow one piece of software to communicate with another. When software is open-source, it allows independent developers to connect it to other software such as Google, Mozilla and others.

2.4 Final Reflection When exploring and analysing both counter-mapping and critical mapping, many similarities emerge between the two disciplines. It is indeed very complex to be able to delineate theoretical and methodological differences between the two approaches. Instead, it is important to emphasise their similarity in terms of both methods and purposes. In fact, they are both practices aimed at challenging and conflicting with the narratives that have been pursued so far, and instead, tell the stories of those who have never had a voice. In the preceding paragraphs, various approaches have been mentioned numerous times, both belonging directly to the world of cartography and not. Among these, it is important to underline open-source, participatory mapping and local design. It is indeed impossible to deal with disciplines such as counter-mapping and critical cartography without encountering these practices. Indeed, it is fair to say that these are two transdisciplinary approaches, which therefore draw on a variety of research fields, including design, computer science, cartography, sociology and urban planning. Whoever decides to start projects to pursue alternative narratives must in fact take into account that he or she must have a background of horizontal knowledge that allows him or her to address the issues correctly and comprehensively. To overturn and challenge the status quo, it is necessary to approach an issue from many different angles.

03

Alternative nar-
ratives
and urban
conflict,
case study
research

Is it possible to use alternative narratives to narrate conflicts within urban spaces?

What methodologies would be better applied to investigate urban conflicts?

3.1 Emerging urban conflict

Cities are complex places, macrosystems within which different realities increasingly interact. As the world population grows and clusters in urban spaces, conflict could probably be redirected to cities. Results from several recent studies provide substantial support for a nascent urban propensity towards conflict – an emerging “urban shift” (Bhavnani, 2019).

The shift could be attributed to various factors. Accelerated economic and social changes could cause instability, inequality and unemployment. This could cause alienation and the articulation of demands that previously would have been unthinkable. Another major factor to take into consideration is criminality, which contributes to human insecurity in cities. Furthermore, urban areas with high population densities are enormous opportunities for different communities in small areas. Recent waves of urban renewal have heightened the difficulties for some sections of the population, increasing the risk of conflict and dissatisfaction.

3.1.1 Conflict urbanism: a new discipline

The word refers not just to the conflicts that occur in cities but also to conflict as a fundamental structural factor of towns, as a means of living and constructing urban space. The increasing urbanisation of warfare and the policing and surveillance of everyday life are examples of the term (Graham, 2010; Misselwitz & Rieniets, 2006; Weizman, 2014), but conflict is not limited to war and violence. Conflict not only destroys

cities but also builds them. They’ve historically been fertile grounds for conflict, disagreement, and dissent. Their inextricably conflictual nature can be seen in everything from neighbourhood boundaries to differences of opinion and status to everyday encounters on the street. Some of the urban conflicts explored, may involve issues related to housing, building speculation and gentrification of areas of the city or law enforcement repression, among others.

3.1.2 Counter mapping for urban conflict

How urban transformations and processes of urban dispossession have developed around the world has been shaped by spatial representations and cartographic conceptions of the city. Community struggles have evolved techniques that subvert spatial representations and propose alternate views of urban life as inhabitants continue to confront, reject, and respond to these modes of reconfiguring urban space. Counter-mapping, a counter-cartographic practice that draws on a long line of collaborative work by critical cartographers, artists, educators, and activists, employs a varied range of mapping methodologies, such as geospatial techniques, data visualisation, storytelling, art, and performance. These counter-mapping processes have resulted in the development of tools for social mobilisation as well as alternative conceptions of present space and its future potential.

3.1.3 Case study selection

The projects considered and illustrated below attempt, using different methodologies and visual languages, to investigate urban conflicts and draw attention to otherwise hidden dynamics.

This chapter is intended to be a collection of various methodologies, design approaches and visual solutions to identify common and uncommon features of counter-mapping applied to urban contexts.

The research started from known collectives and research teams, such as Forensic Architecture, Off Topic lab, and the Center for Spatial research. The research then continued by searching through papers, dissertations and articles dealing with counter-mapping, participatory mapping, alternative narratives and critical cartography. Subsequently, the books ‘This Is Not an Atlas’, which gathers more than 40 counter-cartographies from all over the world, and ‘An Atlas of Radical Cartography’ were used as sources.

Subsequently, a preliminary analysis of the projects was made to select those dealing with mapping conflicts within urban contexts. The choice stemmed from the desire to explore case studies that were highly relevant to the research project theme. Twelve projects were selected to explore and show a broad spectrum of approaches, research methods, outputs, actors involved and clients.

The final paragraphs of the chapter will highlight the similarities and differences of the projects taken as reference. Through a series of visualisations, an attempt will be made to map the techniques and outputs that are most, or least, used when dealing with counter-mapping projects for urban conflicts.

3.2 Million dollar blocks [2006]

More than 2 million individuals are incarcerated in jails and prisons across the United States. A disproportionately high number of them are

from a small number of neighbourhoods in the country's major cities. In certain regions, the population density is so high that states spend more than a million dollars per year incarcerating citizens of single city blocks. When these people are freed and reintegrated into their communities, nearly 40% of them are reincarcerated within three years.

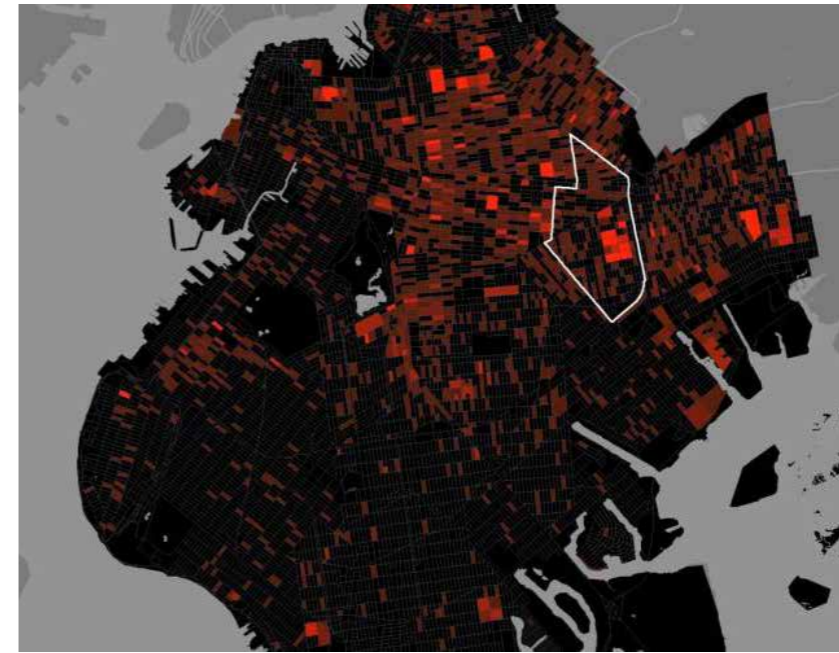
The Justice Mapping Center and the Spatial Information Design Lab (led by Laura Kurgan) collaborated on the project, which uses maps to highlight collected data from the criminal

justice system, including these "million-dollar blocks" and the continuous city-prison movement.

Looking at the maps, it is evident that the criminal justice system has replaced other elements of United States civic infrastructure, such as education, housing, health, and family, in many places, and that public investment in this system has resulted in considerable expenses to other parts of our civic infrastructure.



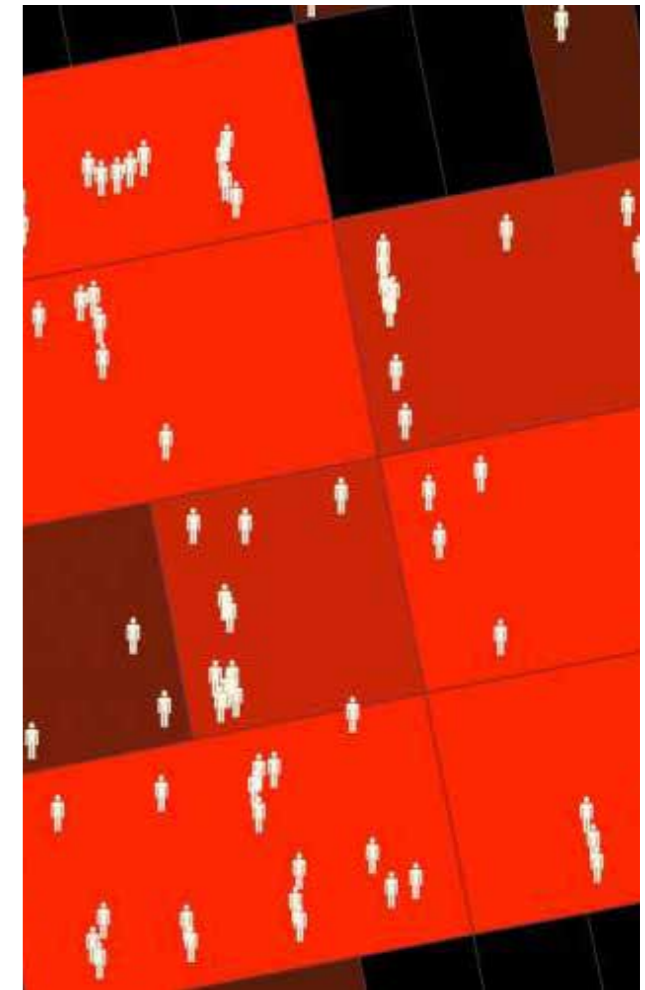
[Fig. 8] Continuous flow of individuals from neighbourhoods to prisons, 2006



[Fig. 9] Isolates with the highest concentration of individuals in prison, 2006



[Fig. 10] Cost to the justice system of each block, 2006



[Fig. 11] For each block the number of prisoners was indicated, 2006

3.3 Imaging Homelessness in a City of Care [2014]

Participatory Mapping with Homeless People Imaging Homelessness in a City of Care is a participatory mapping project undertaken with 30 single homeless in Newcastle-upon-Tyne (United Kingdom) in 2014 by Oliver Moss and Adele Irving, two researchers of the Department of Social Sciences and Languages at the Northumbria University. The project aimed to test a new mapping-based technique, allow single homeless people to comment on local service supply and delivery and educate and challenge public perceptions of homelessness.

The term “single homelessness” refers to adults without children who are not entitled to housing provisions under homelessness legislation in England. Statistics show that rough sleeping has increased by 134% since 2010 and that the presence of homelessness on the streets has provoked conflicting responses. Gifts and donations have increased, and faith-based organisations have become more involved with street homelessness (Cloke et al., 2012). At the same time, media criticism of homeless people’s character and morals has intensified, and punitive reactions to street homelessness are still common. The initiative attempted to both enlighten and challenge popular perceptions about homelessness in this politicised environment.

An innovative approach

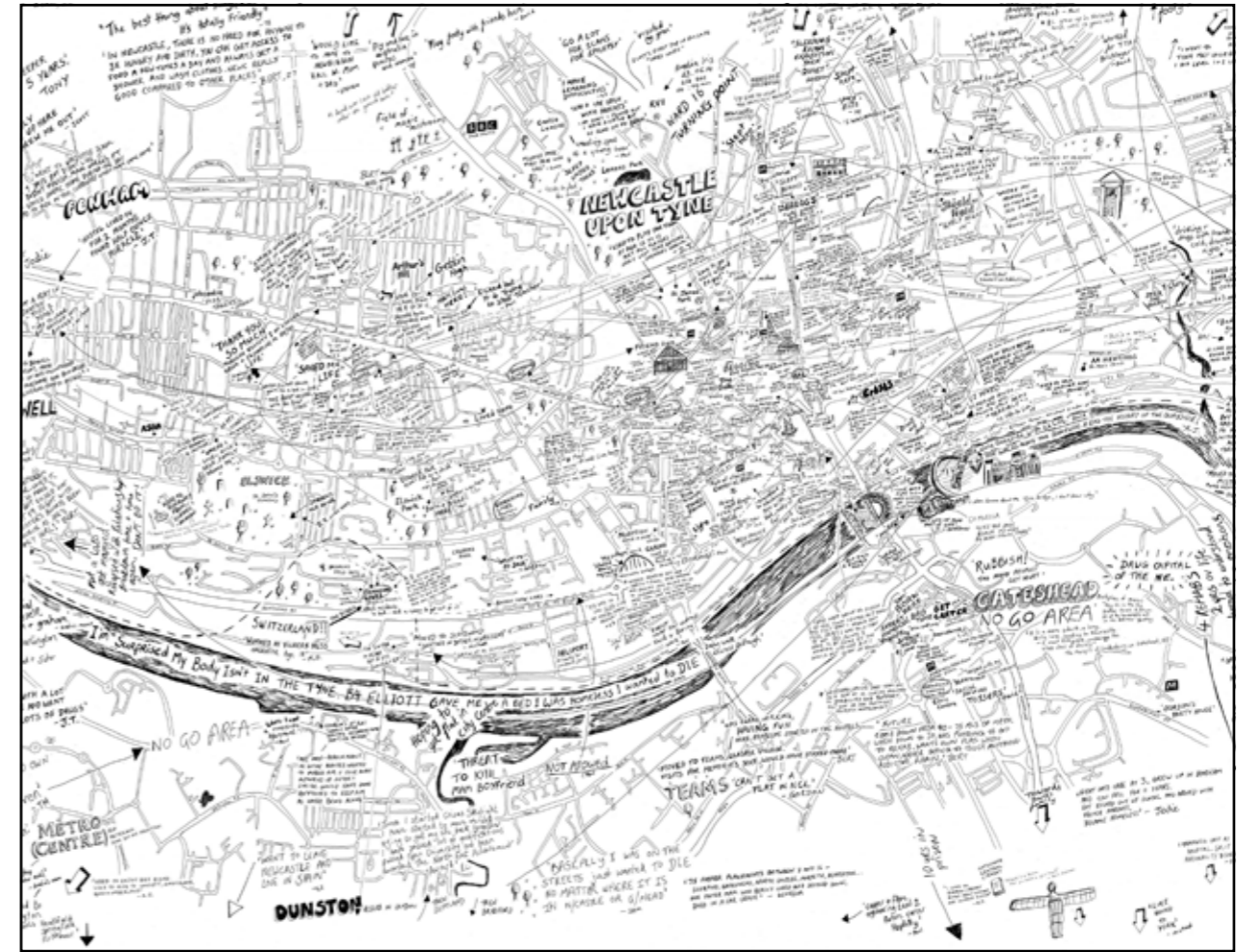
The research and data collection was conducted during six workshops with about 30 homeless people. Participants were given a paper on which they were encouraged to annotate two-dimensional maps of the Newcastle city centre with reflections on the spaces, places and experiences significant to their life courses. The use of maps made it easier to stimulate and bring out participants’ experiences, attitudes and values. As descri-

bed and analysed in the previous chapters, the map language has been used by human beings for centuries, making it one of the most well-known and widespread means of communication even today. Therefore, during the data collection, the researchers used maps to help participants orient themselves and contextualise information within the urban space, allowing them to control the entire process. In addition, given the topics dealt with and the difficult living conditions of the participants, more conventional interview and research methods risked being inefficient. At the same time, the use of maps helped participants reconstruct events and situations.

Results

An artist received the produced maps and created a “composite” image. The goal was to show the participants’ viewpoints in an intentionally lo-fi fashion, in line with their selected and subjective nature.

The composite map depicts a complicated and frequently conflicting combination of practices. First, it underlines the wide range of people’s paths to becoming homeless. Second, the map emphasises the daily obstacles of being homeless on the street and the various survival techniques used in response. Third, it offers a variety of counter-readings of urban areas and shapes. For example, doorways are recreated as social and sleeping areas, while pipes and ducts are depicted to give some warmth and comfort. Fourth, the map displays various behaviours and activities typical of “normal” functioning lifestyles, portraying the participants as fully emotional individuals with a sense of identity, unlike how they are portrayed in traditional narratives. (May & Cloke, 2014). Finally, it displays the city’s wide range of homeless services.



[Fig. 12] Final map showing the testimonies of homeless people collected during the workshops, Lovely JoJo’s 2014

[Fig. 13] Maps detail

3.4 Berlin Besetzt: Mapping squatting movements [2014]

Berlin Besetzt by OrangoTango is an interactive city map that documents the history of squatting in Berlin. The squatting movement has been a hot topic in Berlin's local politics since the 1980s. The movement was first triggered by a growing housing crisis, which led to entire streets of apartments being evicted, leading to their degradation. Following

the fall of the Berlin Wall in the early 1990s, a second squatting wave burst in Berlin, resulting in the creation of numerous self-governed cultural spaces. Squatting has a vital relevance for social conflicts in Berlin even now, and there are hundreds of residential and cultural places that originated from old squats. The project aims to depict this conflict. As the appropriation of urban spaces is the core theme of the movement, its story had to be told visually using space. Berlin Berserker, therefore, became a digital archive and interactive online street map on the history of houses and places squatting in Berlin. The project describes the story of Berlin house squattings as an example of protest movements' self-empowered interventions in urban space and life. The map discusses the reasons for squatting, identifies some of them, and displays what has happened to the created areas ever since. The aim is to portray collective and self-governed spaces to demonstrate political struggles and movements. The map contributes to the political discourse by depicting Berlin's urban area due to space appropriation battles.

Data collection and project methodology

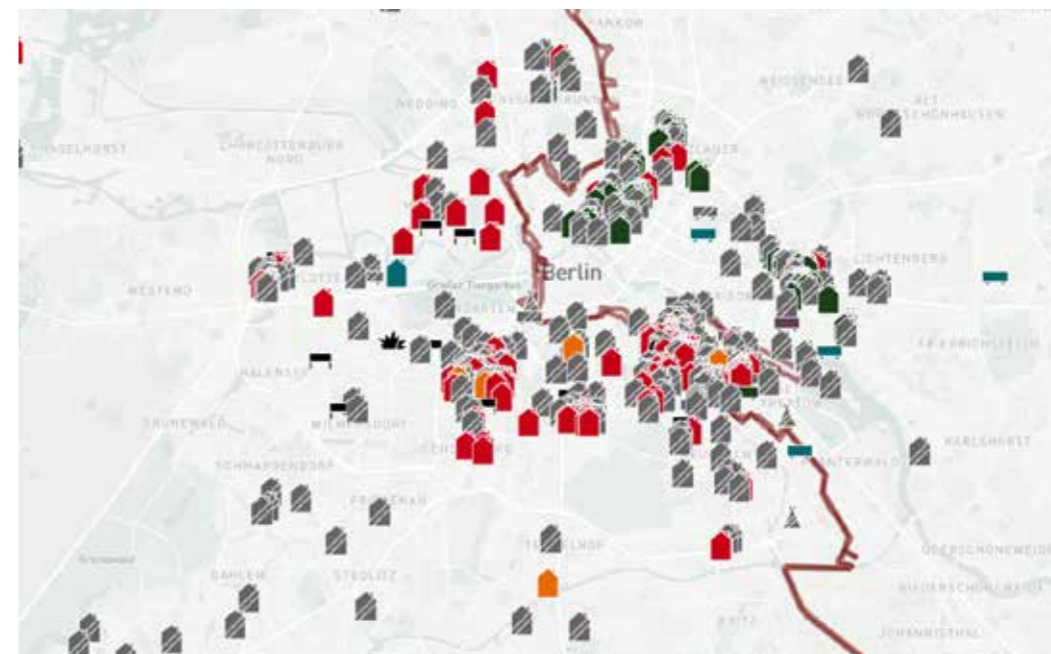
The topic of house squatting in Berlin has been covered only by a few scientific publications, so the data were mainly collected from newspaper articles, in-scene magazines, flyers, journals, and the OrangoTango team's research. As is often the case with projects that cannot rely on official and comprehensive data sources, some documents are incomplete and sometimes contradictory. It took several years of research to close the knowledge gaps in urban and movement history. Most of the documents were provided by two social movement archives in Berlin: The Papiertiger archive and the Kollektivbibliothek Bethanien. The data collected concerns locations and times of the squattings, the history of the single houses and the events of the movement's history. Thanks to the contribution of Umbruch Bildarchiv, the project also uses photographic

material to shed light on the topic. Then a timeline of events was taken from the book *Autonome in Bewegung* (Grauwacke, 2008). Finally, some data were collected doing fieldwork and interviewing activists who participated in the squatting, which helped fill the remaining gaps. The map is a continuous work in progress as the excel tables are regularly updated as the research progresses.

Map construction

The map is built by linking the collected dataset to an Open-street-map. The online map is primarily designed for usage on a home computer. However, a smartphone may also be utilised for exhibitions and individual city explorations. The map's display style allows for a quick overview of hundreds of project spaces and intuitive navigation through a vast collection of thousands of datasets and papers

related to squatting. The project is intended to be self-explanatory, making it accessible to those with no prior experience in mapping. It also provides detailed information for professionals and scientists. The OrangoTango team used a friendly and globally acceptable image language covering a wide range of topics, not just subcultural scenes.



[Fig. 14] Interactive map showing all evictions in Berlin since the 1980s, 2014



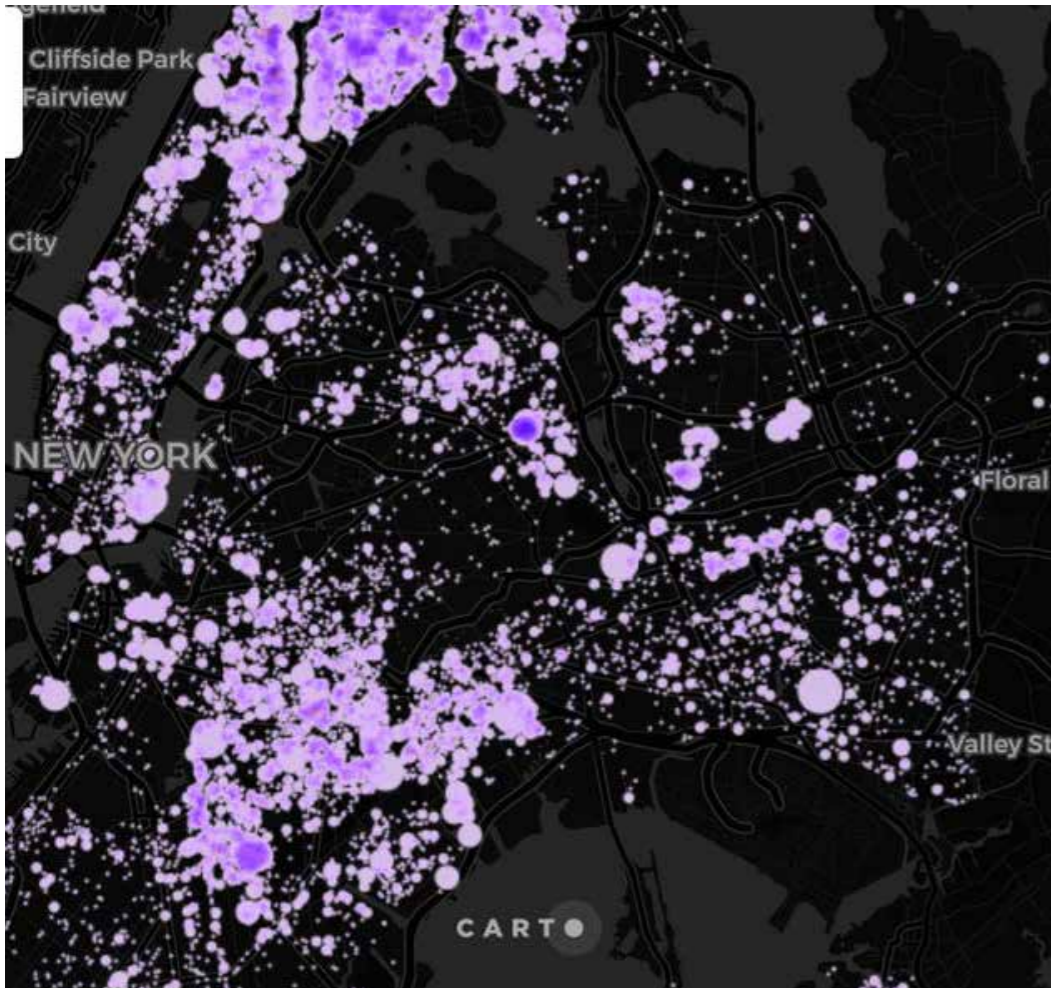
[Fig. 15] The user can click on each eviction to browse it in detail, 2014



[Fig. 16] Photos were used to contextualise the evictions, 2014

3.5 Anti-Eviction Mapping Project [2013]

The Anti-Eviction Mapping Project (AEMP) is a data visualisation, data analysis, critical mapping, and multimedia storytelling collective that documents gentrifying landscapes' dispossession and resistance. The group primarily works in the San Francisco Bay Area, Los Angeles, and New York City, developing digital maps, software and tools, narrative multimedia projects, murals, reports, and community events, among other things. The group researches and visualises entanglements of racial capitalism, techno-capitalism, and political economics while providing instruments for resistance in collaboration with numerous community partners and in cooperation with housing movements worldwide. People's displacement and complex social worlds are critical aspects of the oral narrative history and video work, and strategies of resistance. The project provides tools and disseminates data contributing to collective resistance and movement development while maintaining antiracist and feminist analyses and decolonial methods.



[Fig. 17] Map of eviction cases in the San Francisco Bay Area

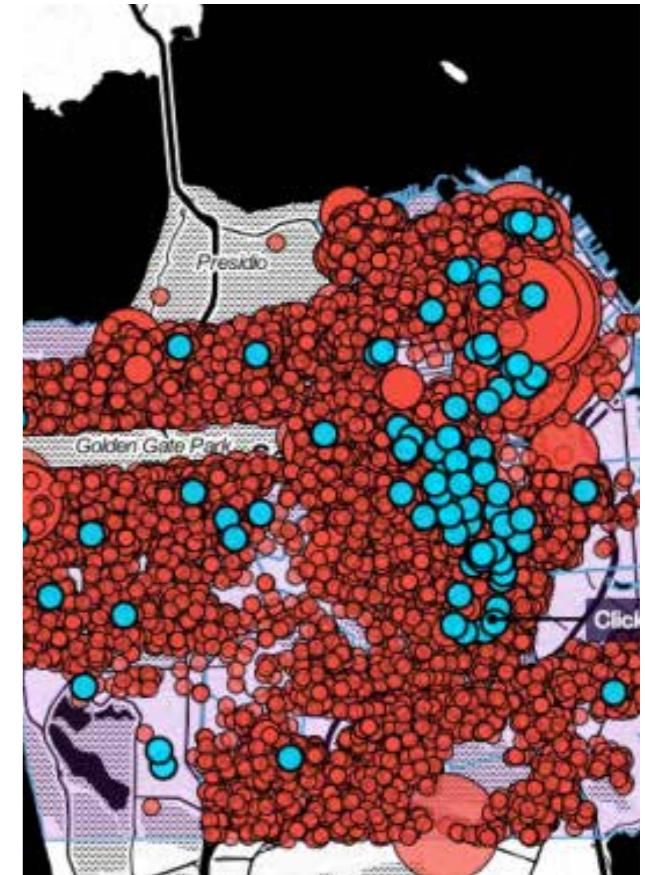
3.5.1 Narratives of Displacement and Resistance

The AEMP started Narratives of Displacement and Resistance in 2014, an oral history project to document deep neighbourhood history and human experiences of loss, change, and resistance. As a result, the group launched an oral history project to emphasise stories that would otherwise be overlooked in qualitative counter-mapping. The idea was to layer narrative data on top of their existing maps, offering insight and analytics that only oral histories could provide.

Output

The final results are both online and offline. In collaboration with the Clarion Alley Mural Project¹, they painted a version of the online version in San Francisco's Clarion Alley. The mural highlights nine of the stories, while the others can be heard by calling a number that is as well painted on the wall. At the time of the release of the mural, many of the tenants featured were still in their homes as a result of direct action. So their stories serve as direct action tools, with methods, inspiration and hel-

pful analytics in fighting displacement. Alongside the release of the mural, an online version of the oral history map was launched. Back at the beginning of the project, the verbal history map contained only 30 interviews, geolocated and displayed upon an interactive interface. The archive of stories has grown, and it contains now over a hundred life stories that narrate gentrification spatial struggles in San Francisco and Alameda counties.



[Fig. 18] Online platform to explore eviction cases in the San Francisco and Alameda area.

[Fig. 19] Eviction map detail

3.5.2 Worst Evictors [2021]

The Worst Evictors project collaborates with the Right to Counsel NYC Coalition, JustFix, and the Anti-Eviction

Mapping Project. The Project displays, through a mixed data collection approach, eviction lawsuits from March 2020 to September 2021. While the issue of evictions was already a major one in the New York area, during the pandemic, the problem intensified, with currently more than 225,000 residents at risk of displacement in New York State. Since the pandemic, large corporate landlords have owned much of the New York housing stock, many of them predatory real estate companies seeking to make quick profits by flipping buildings. To corporations, an eviction can be a means to replace a rent-stabilised family with five market-rate roommates, jacking up profits. The collective created an online map and list of the worst landlords in the area.

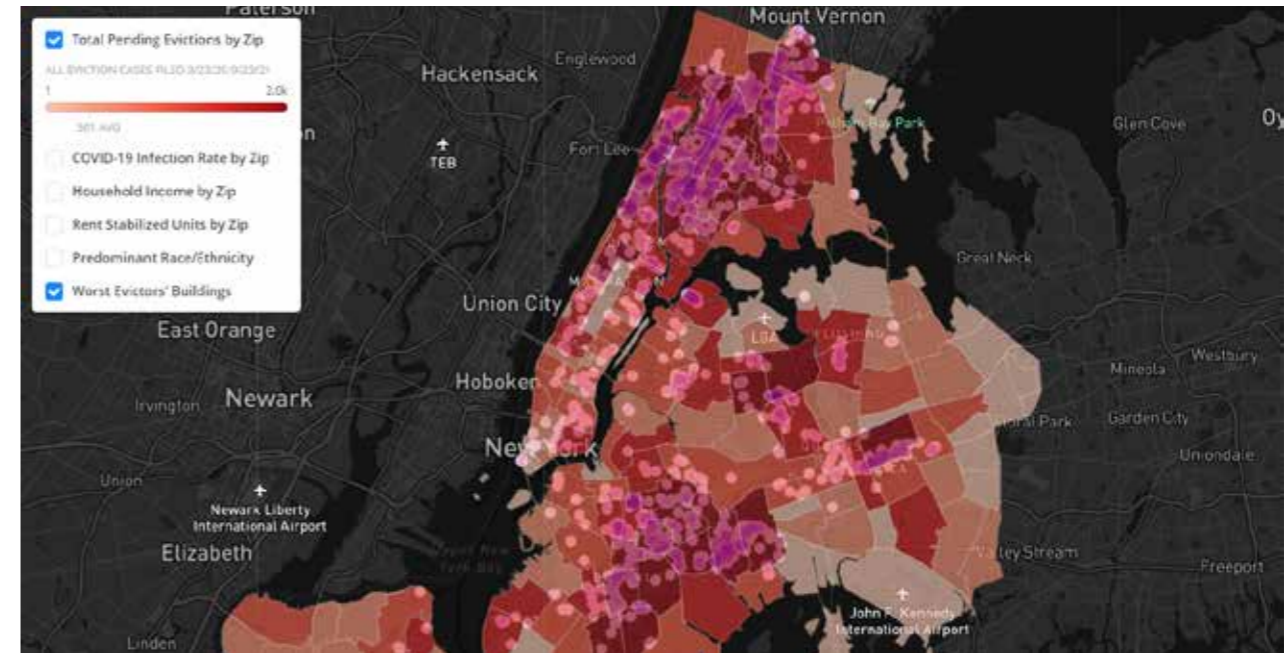
Data collection and project methodology

As said before, the project uses a mixed approach, combining data analysis from publicly available data with on-the-ground knowledge. To create the list and the map, the collective used HPD Registration data to generate a list of buildings (grouped by tax lot) associated with the owner contact. Then they grouped owner contact names that shared a shared registered business address. Using these lists of buildings for each landlord entity, they counted the number of residential eviction cases in NYC between March 23rd, 2020, and September 23rd, 2021, that occurred in those buildings. Some additional datasets were found by matching building records via their borough-block-lot codes. To add more context and narrative information about the landlords, the collective used the press as well as interviews with groups and tenants who lived in the buildings owned by the Worst Evictors.

Output

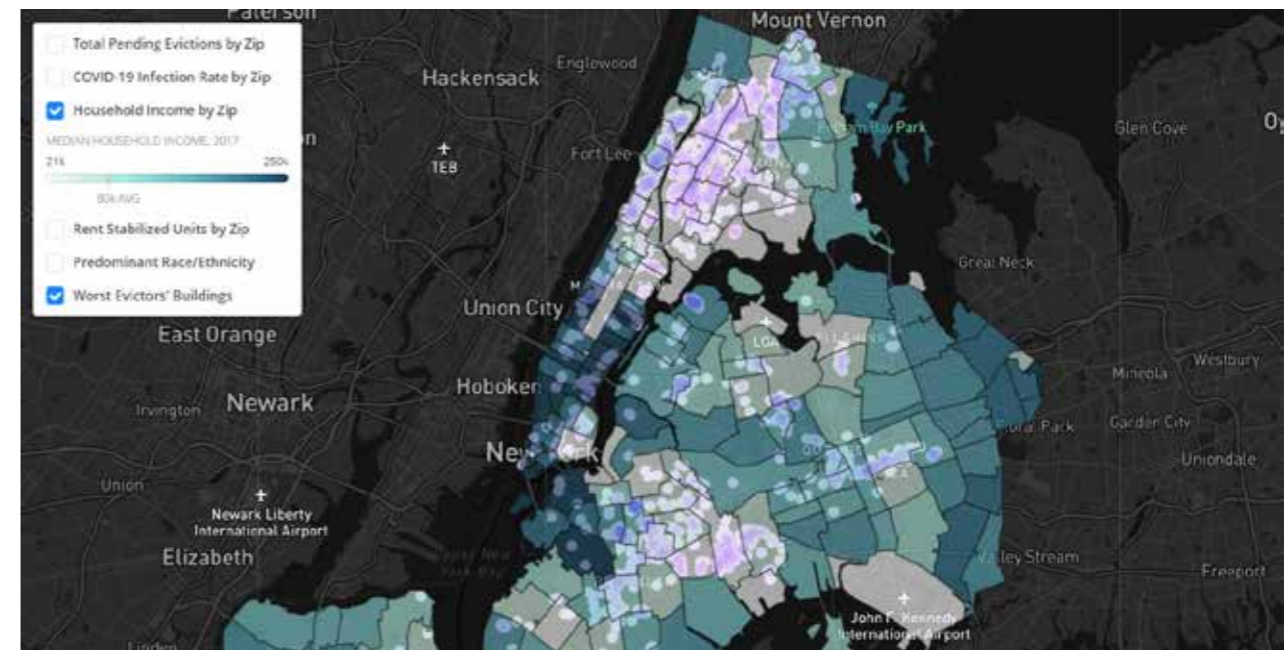
The collected data were displayed in the form of a list and a map. The list contains the 20 worst landlords, ranked according to the number of evictions committed, for each landlord was built a 'portfolio' of his activities. While the list focuses mainly on landlords, the interactive map instead displays geolocalized eviction information. The map allows both to filter evictions by selecting a landlord's name and adding or removing layers of information from the map, including the tenants' ethnicity, the number of covid infections, and the average income of evicted households. This information, displayed in the form of a heatmap and Choropleth map, adds the context needed to tell the stories of those experiencing evictions as well

[Fig. 20] Online list showing the worst evictors, 2020



[Fig. 21] Heatmap showing the amount of evictions in New York City, 2021

[Fig. 22] Heatmap showing the average income of inhabitants at risk of eviction, 2021



3.6 Scandaglio I [2016]

Scandaglio is the first episode of a larger project carried out by Off Topic lab, a political collective whose aim is to analyse the changes taking place in the city of Milan.

This episode, in particular, focuses on the Milanese real estate world, which has always put exclusivity and appearance first rather than citizens. Milan focuses on significant events, including EXPO 2015, on the showcase city, becoming increasingly inaccessible to its inhabitants.

By analysing the history and evolution of various places in the city, it is possible to highlight a system and issues that would otherwise go unnoticed.

Starting from this premise, the project mapped how 180 places defined by a local newspaper as 'degraded and abandoned' have changed in recent years. The research resulted in an explorable online platform that, through Google Street View images, displays a process that began in 2008.

Methodology

Using a mixed technique of digital scraping and manual categorisation, the search started from an online list of Milan's degraded places published in the open data section of the City of Milan website. These spaces were located on a map of the city, making it possible to download the data.

At this point, the spaces were recategorised to create a list that included information such as the address, the condition of the building, a description of the area and the function it was used for (residential, productive, tertiary, etc.). Finally, using an ad hoc scraper, it was possible to download all the Google Street View time machine photos from 2008 onwards.

Output

The result of the investigation is a navigable interactive platform. The sites are divided into six categories: disused areas, military stations, private, public, rural in town and railway stations.

It is possible to navigate individual places, see their location within the city, and visualise their changes through street view photographs within each section.

[Fig. 23] Main areas analysed by the project.



[Fig. 24] Each area can be navigated in detail. Buildings have been collected for each area, and shown on a map.

[Fig. 25] Using the timeline, the user can move back and forth between years.

[Fig. 26] Through the images of Google Street View the user can see the changes over the years, of the buildings considered.



3.7 Scandaglio II [2016]

The second episode of Scandaglio focuses on the issue of reopening the Navigli, Milan's buried canals. During the 2016 election campaign, mayoral candidate Sala focused his proposal on this project.

This proposal would involve a gigantic urbanistic work that would change the way citizens enjoy the city. Different approaches were used for the investigation, from on-site research to digital data collection methods.

Methodology

As a starting point, the research focused on the more physical and analogue part of the project. Therefore, on-site visits were made to all the areas touched by the canal route, trying to describe them visually through a series of video recordings. Instead, regarding the collection of digital data, the collective focused on what could be the secondary and contest information that would help to narrate the city from a social, urban and economic point of view.

The Off Topic collective, therefore, focused on two different types of data: public and private services (PGT Mapping, Openstreetmap) and the real estate market ([Airbnb, Idealista]).

The territorial services were downloaded from the Milan City Municipality website and merged into a single excel file. The result was a dataset containing about 4000 places categorised by type of service (culture, health, administrative services, religious spaces, etc.). Thanks to the free Open-street-map platform, further (even if partial) data were collected concerning the four areas of interest. Next, both the long-term and the short term real estate market were analysed, using the Idealista platform and the data taken from Airbnb. With part of the research, it was possible to extract the number of rentals in the different areas and the cost per m² per month.

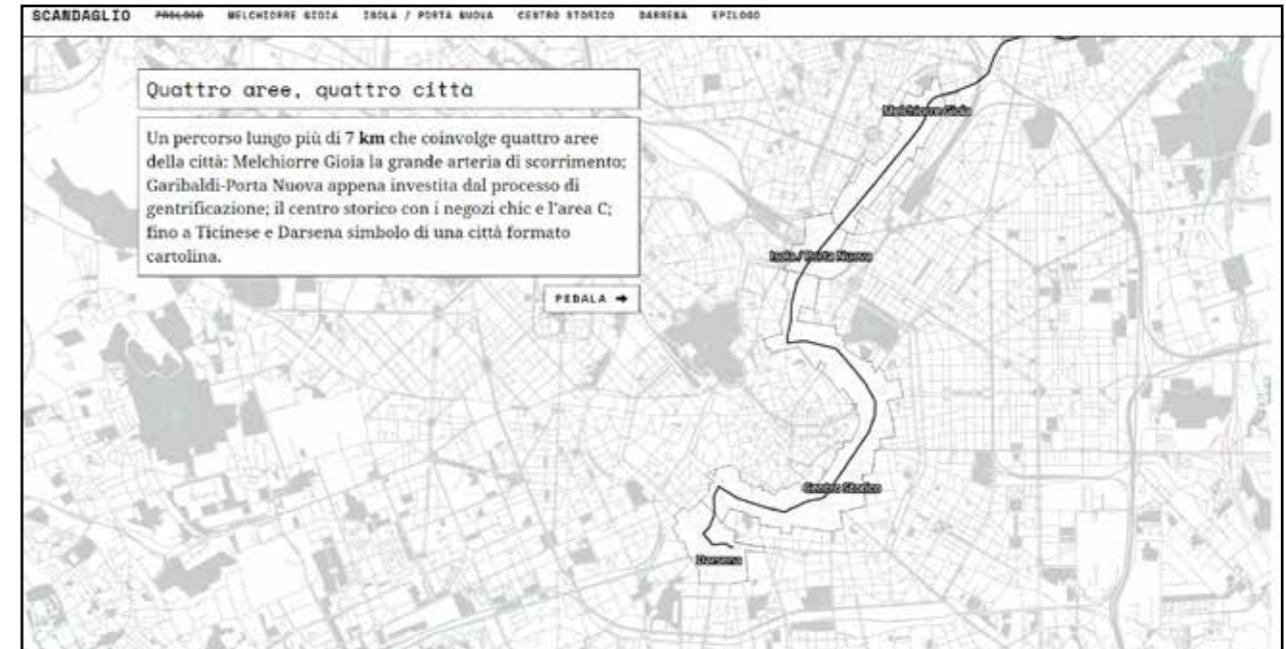
Output

The result of the research is an interactive website that allows users to navigate the four areas impacted by the plan.

Combining different media, including video footage of the affected areas and visualisations that contextualise the neighbourhood, Offtopic could tell the story of these city areas, and the radical changes they would undergo should the maxi-work be approved.

The research sheds light on a project that does not follow the needs and wishes of the city's daily inhabitants but is designed to suit tourists and big investors.

[Fig. 27] Scandaglio II explores the neighbourhoods that would be affected by the works to open the Naviglio canal



[Fig. 28] The map highlights the 'trajectory' of the opening work and the neighbourhoods it affects.

[Fig. 29] The Off Topic team cycled through the targeted neighbourhoods, filming the journey with a video camera. The user can explore the footage and see data about that specific area



3.8 Chicago Million-dollar block [2010]

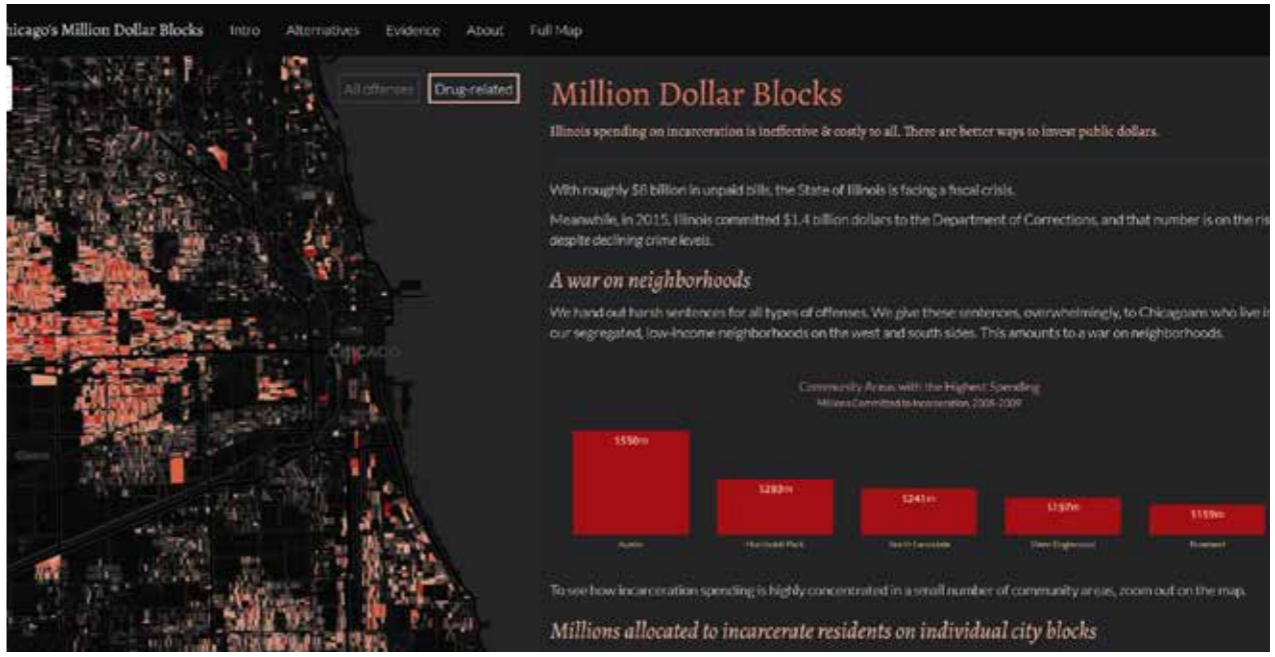
Between 2005 and 2009 in Chicago, there were 851 blocks with more than \$1 million committed to prison terms and 121 blocks with more than \$1 million committed to prison sentences for non-violent drug offences. Furthermore, more than half of all inmates return to jail within three years in Illinois. Moreover, a new study suggests that the prison cycle, or the continuous movement of inmates in and out of jail on Chicago's west and south sides, may increase crime.

Also, the situation has a different impact on each community: the data shows that incarceration has had a particularly negative effect on low-income African-American neighbourhoods.

The Justice Mapping Center developed the project with inspiration from the previous research conducted by the Spatial Information Design Lab on the "Million Dollar Block". The research helped redefine the public conversation surrounding community justice in communities across the country and, several years later, inspired the Justice Mapping Center to replicate the project in the Chicago context. The research highlights how this approach has caused pressure on both the country's economy and the communities from which the prisoners come. The researchers also want to show potential alternative systems to expand the menu of options for public safety. The Chicago Justice Project used the Cook County Circuit Court data to create the map. It includes all adult convictions between 2005 and 2009. The research team gathered information on the type of offence, the length of the sentence, and the offender's residence address for each conviction. They then attempted to calculate a monetary value for each sentence length. The Illinois Department of Corrections spends about \$22,000 per convict each year. The average life expectancy has been used to calculate life sentences. The cost calculation was pretty conservative; the researcher anticipated that all people convicted would only serve their mi-

nimal sentence; the total length of time served could be longer. They only utilised the most severe sentencing for persons who had committed several offences. Significant court and policing expenditures were also excluded.

[Fig. 30] The user can select each block and see its cost to the justice system.



[Fig. 31] In addition to the map, the online platform provides further information on the subject.



[Fig. 32] Map showing the concentration of prisoners on each block in Chicago

3.9 Destruction and return in al-Araqib [2010]

Over the last sixty years, the village of al-Araqib in the northern Naqab desert has been destroyed over 170 times. Israeli

authorities claim that the settlement did not exist before the state of Israel was established in 1948 and that the Bedouin inhabitants are therefore trespassers whose settlements are illegal.

These communities' forced displacement and illegalisation cut them off from infrastructure and erased them from maps. At the same time, land works and afforestation change their land, erasing and burying the material remains and proof of their long-term presence in the area.

Since 2015, Forensic Architecture (FA) has collaborated with the families of al-Araqib to provide historical and legal evidence to support their claims to their land and on behalf of communities across the illegalised Palestinian Bedouin villages on the Naqab desert's northern outskirts.

The ongoing investigation was made possible using various technologies that allowed the FA team to trace the long residence of the villagers. The findings of the research are translated into an interactive digital platform that documents not only expulsion and destruction but also the ongoing life and resistance of the community and whose aim is to support a future legal petition by the al-Tūri family of al-Araqib, to be presented by human rights lawyer Michael Sfard and Carmel Pomerantz.

Methodology

The authors employed non-invasive and transparent technologies to obtain highly accurate aerial photos and maps alongside local Bedouin families (al-Uqbi, al-Tri).

With the help of Zochrot, PublicLab and local families, FA analysed aerial photographs from 1945, three years before the state of Israel was

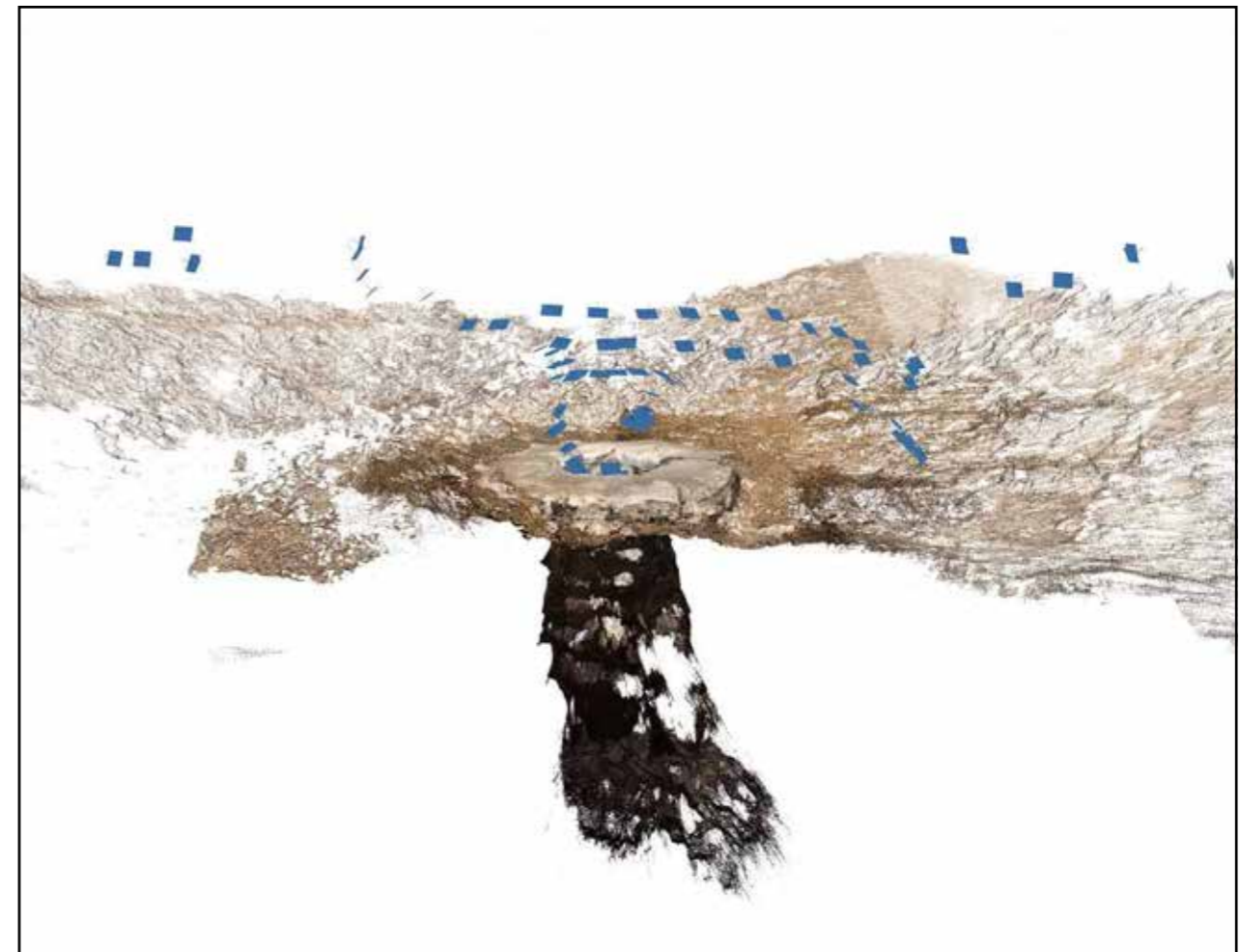
established, and compared them to a current ground level archaeological survey and contemporary aerial images taken from cameras suspended from kites. These comparisons helped establish the historical continuity of the Bedouin settlement.

FA placed small point-and-shoot cameras on single-line kites or helium-filled balloons using methods developed by Public Lab. After that, a protective shell made of a plastic bottle was used to secure the camera to the kite. They walked the area they wanted to photograph while holding the camera in the air and pulled the kite or balloon behind. The outcome is a collection of hundreds, if not thousands, of low-altitude aerial photographs. The photos are labelled and numbered sequentially, and their metadata contains accurate time and data information.

The researchers employed a computational method called photogrammetry to convert these aerial photographs into a digital 3D environment. By comparing several still photos, photogrammetry calculates precise distance and movement values. 'Camera positions' are identified in 3D space using a triangulation method that considers the focal length and other data obtained from the image metadata. Each pixel within the photos produced from those positions is similarly located within the 3D environment. Ground control points (GCP) are used to georeference each segment of the point-cloud model, recording longitude, latitude, and height data. Georeferencing is achieved using a combination of on-camera metadata and previously collected survey data. These pictures, along with other media, data, and testimony, attest to a perpetrated act of violence by linking the history of this local land battle to larger-scale and longer-term environmental shifts and the conflicts that such changes have caused.



◀ [Fig. 33] Aerial filming was done using kites that allowed for a non-invasive approach



▼ [Fig. 34] Digital reconstruction of the area

3.10 Tear gas in plaza de la dignidad [2019]

Tear gas in plaza de la dignidad is an investigation carried out by Forensic Architecture in collaboration with the Chilean medical-activist No+lacrimógenas.

The investigation aimed to analyse and expose the extended use of tear gas by the police during an anti-government demonstration in December 2019 in Chile. The protest became a symbol of police brutality when hundreds of tear gas canisters were used against peaceful protesters without regard for public health. The project questions and analyses the scale of the health risks posed by the police on that day to protesters and residents and the environmental risks.

Using hybrid digital technologies, it was possible to reconstruct the timeline of police repression on that day and articulate them within a small documentary. The investigation supports a charge brought by Chile's Human Rights Commission against the country's military police for using chemical weapons illegally against protestors in the plaza between October and December 2020, resulting in chemical disease and dermatitis.

Methodology

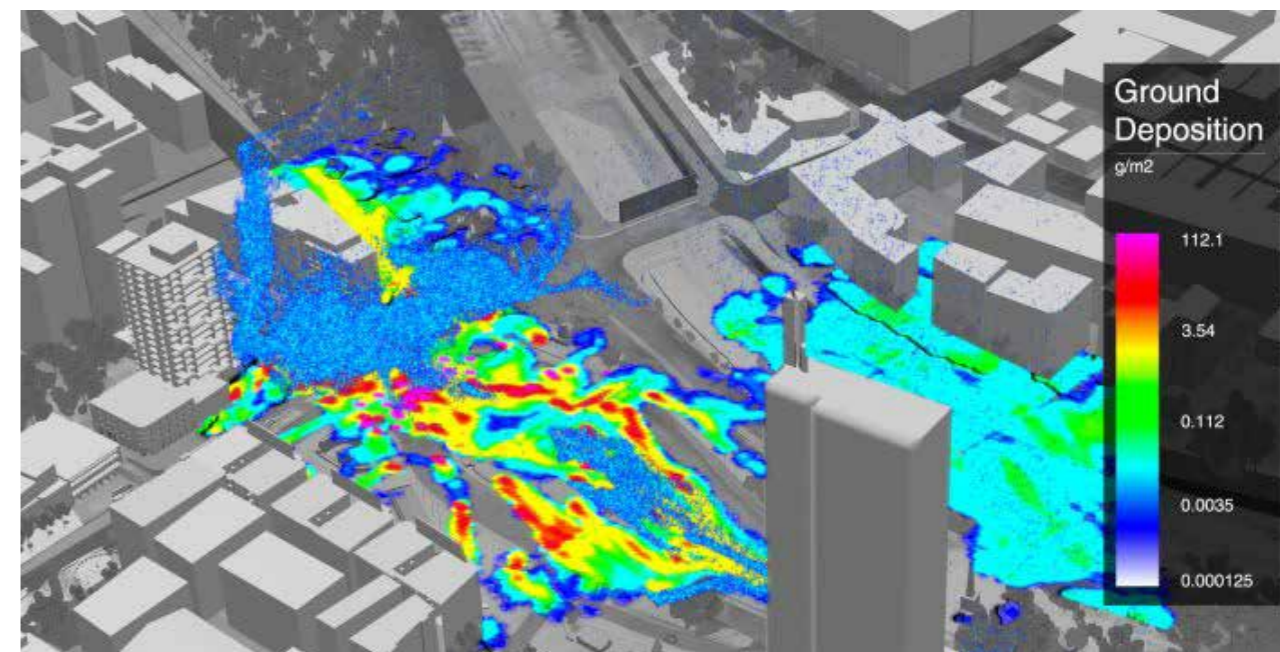
As mentioned above, the Forensic Architecture team used a mixed approach to collect a large amount of qualitative data by reconstructing the events of that day. They mainly used digital technologies such as 3D Modelling, Geolocation, Fluid Dynamics, Synchronisation and Open-Source Intelligence (OSINT). Using a security camera installed on a building near the square, footage of the entire battle was recovered. Through the video footage, it was possible to establish the extent of each tear gas cloud and the approximate position of the canister. With this information, approximately 600 gas canisters were located. With this information, it was possible, with the help of a precise 3D model of the area, to simulate the fluid dynamics of the toxic cloud, taking into account meteorological data such as temperature, wind strength and direction, and air humidity. It was then possible to measure the toxicity levels of the air and the level of contamination of the water in the Mapocho River, which flows close to the plaza and irrigates all

the farm fields south of Santiago.

The research findings show that, for some time during that evening, the concentration of tear gas exceeded forty times the recommended limit, putting the lives of protesters at risk.



[Fig. 35] The FA team used security camera footage to reconstruct the events.



[Fig. 36] Using digital analysis tools, the researchers tracked the amount of tear gas in the air during the clashes between protesters and police.

3.10 Tracing speculation [2019]

An investigation of real estate geographies in pre-and post-crisis Philadelphia, PA.

By the Center for Spatial Research (Columbia University), this project looks into several types of residential property investment that first emerged in the years leading up to the 2008 financial crisis and have since developed. The research, which focuses on Philadelphia, PA, follows the new geographies of real estate acquisitions made by investors who do not intend to reside in the homes they acquire.

The work utilises a mixed-methods approach to determine how houses purchased as investment vehicles were concentrated spatially between 2000 and 2018 and then compares these patterns to the geography of homes purchased as residences.

According to the findings, investors have consistently targeted Philadelphia neighbourhoods with a higher concentration of people of colour and lower incomes. Over this study's nineteen years, it has become evident that investor activity plays a significant role in the Philadelphia housing bubble and is also growing as a percentage of overall purchases and moving into new city areas.

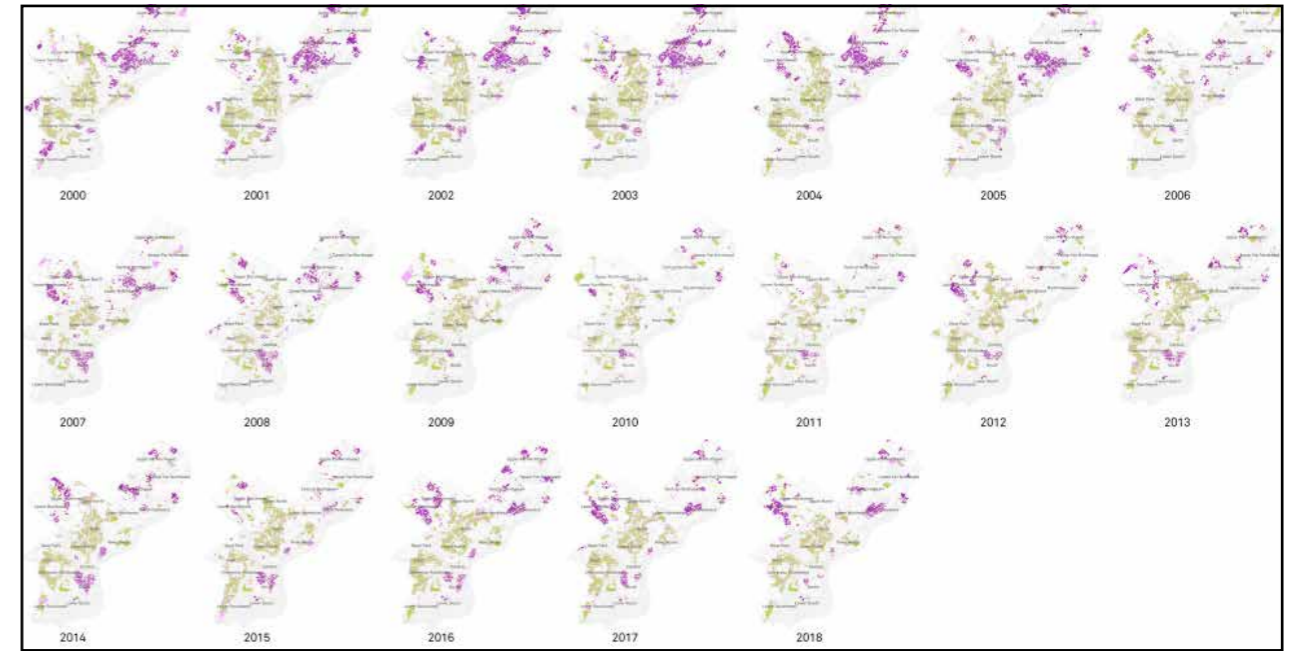
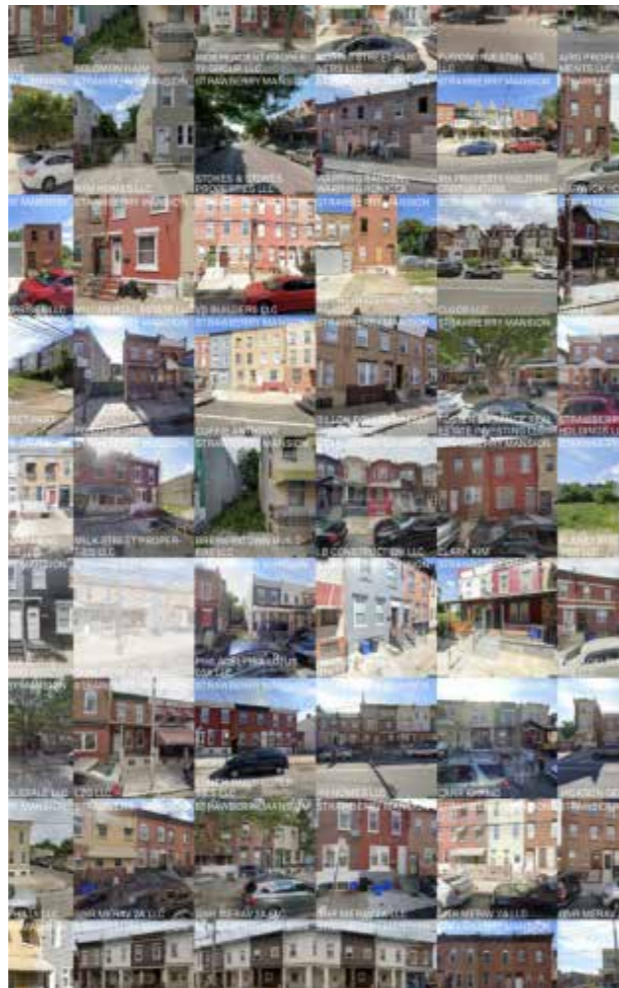
Methodology and results

The project used a mixed-methods approach to look into the spatial patterns of investor purchases in Philadelphia and how the city's community development business perceived this activity.

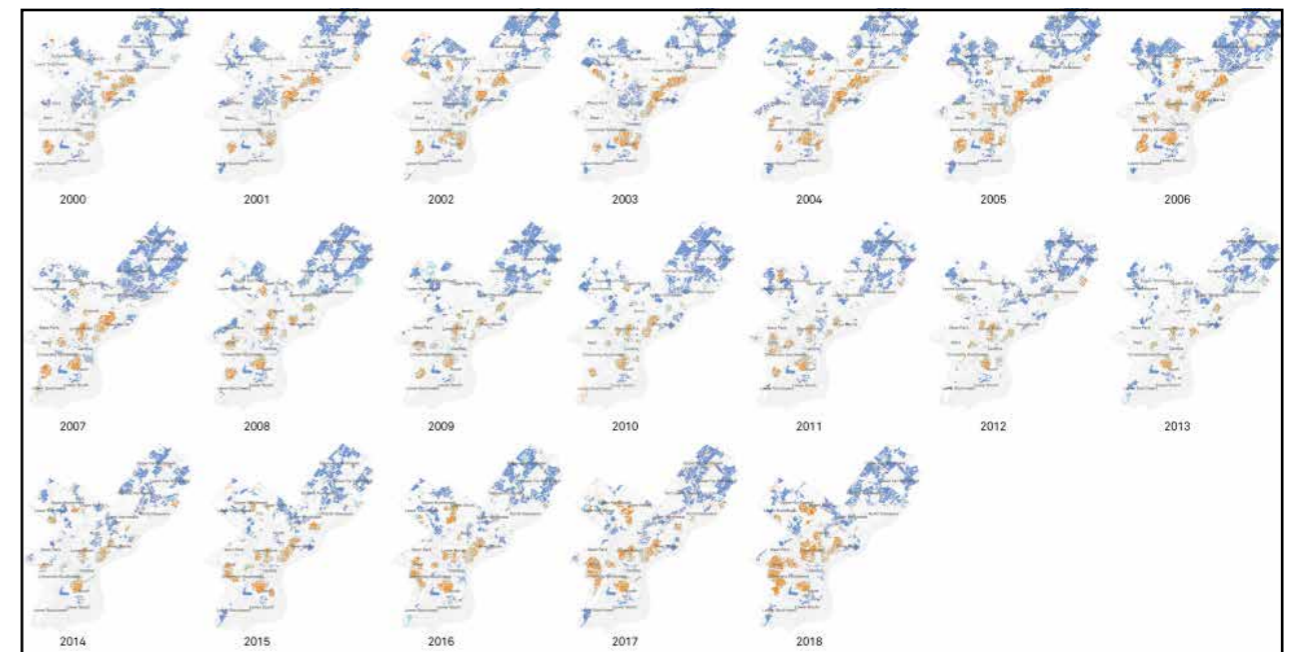
The authors used GIS-based tools to deduce spatial patterns in investor purchases from publicly accessible data on real estate tax transfers and land use from the City of Philadelphia. The research team then conducted four semi-structured interviews with representatives from community development corporations, community financial institutions, and non-profit developers to contextualise

the findings of this spatial analysis and learn about the significant challenges to affordable housing and housing access they face in their work. The research output consists of a series of maps depicting the Philadelphia area that highlights how real estate investment patterns have changed from 2000 to 2018. The visualisations focus on showing information on both property owners and tenants.

▼ [Fig. 37] Some of the images, gathered with Google Street view, of houses bought by investors in 2018.



▲ [Fig. 38] Heatmap comparing owner-occupied houses over the years



▼ [Fig. 39] Heatmap comparing houses bought by investors over the years

3.12 Case study comparison

As seen from the exploration and study of the projects examined, there are many different methodologies for counter-mapping projects.

In the following paragraphs, the similarities and differences of these projects will be analysed, highlighting any peculiarities.

The case studies are analysed and compared concerning several variables: the type of data used, the methods they were collected, the topics covered by the project and the media and the graphs employed.

3.12.1 Type of data used and data collection methods

Concerning counter-mapping projects, there are no guidelines concerning the data type to be used or the methodology with which they are collected. Indeed, most projects

cannot use data from official or governmental sources due to the very critical nature of this type of visualisation. However, there are numerous methods of collecting data, both digitally and through fieldwork.

These include interviews, crowdsourcing, and scraping online information using specific APIs. Each of these methods is highly functional and effective; it is up to the authors to decide, according to their needs, possibilities and skills, which one to use. However, it is necessary to carefully and consciously choose which approach to data collection to use concerning the type of data that needs to be collected.

Type of data means whether the information collected is qualitative or quantitative, so if the data collected is measurable or not.

Categorisation of collection methods

Data collection methodologies were categorised through the information collected in the case study research phase.

The five methodologies identified are described below.

Crowdsourced data: this involves data collected through the active participation of the actors of the context under consideration during group activities.

Field research: this approach involves the research team immersing itself in the context under consideration, but without the data collection generated through interaction with social actors.

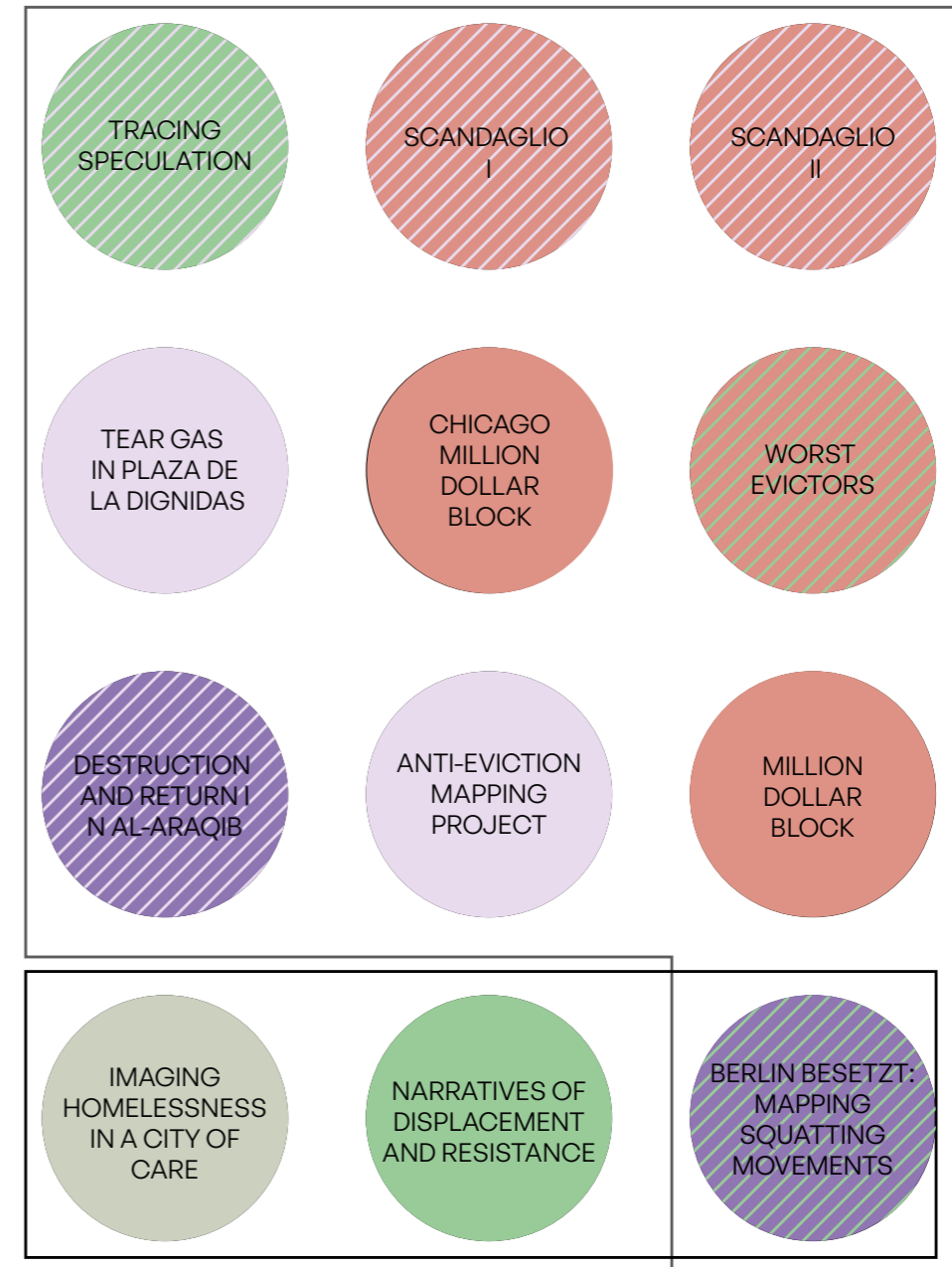
Interviews: this method involves direct, individual interaction with the relevant actors.

Official sources: refer to data already grouped within online databases and available to the public.

Appropriated data: this is information present online, both public and non-public, which is not contained within a defined database but collectable through manual searches or scraping.

Conclusions

As seen from the case study analysis, methods like interviews and crowdsourcing usually lead to collecting qualitative data, while official databases or scraped information are usually quantitative. From the research, it appears that most of the projects use quantitative data as principal sources.



HOW TO READ IT

- Field research
- Interviews
- Crowdsourcing
- Official sources
- Appropriated data

[Fig. 40] Comparison of data types used by case studies versus data collection methods

3.12.2

Topics and subtopics

The case studies examined were also analysed concerning the topics and sub-topics. As described above, significant disparities arise within cities due to their heterogeneous nature. Due to these differences in lifestyle, economic level, and culture of those living in urban spaces, conflicts are likely to arise. However, conflict can take many forms and influence the lives of those who experience it in various ways.

Topics and subtopics definition

Three main topics were identified in the case studies examined, from which five different sub-topics were derived. Each project may belong to more than one topic while being identified by only one sub-topic. The three main topics can be identified as follows:

Human rights: these projects deal with issues that directly impact the lives of social actors

Real estate: these projects deal with urban planning and housing issues, both at the individual and the community level.

Policy: These projects address issues related to politics, regulations and the legal system.

Subsequently, five sub-categories were identified, described below.

Eviction: within this group are all maps that deal directly with issues related to housing, eviction and occupation of real estate.

Real estate speculation: this sub-category contains projects that critically highlight drastic real estate changes within specific

contexts.

Justice system/legal claim: this group includes projects that deal specifically with the justice system, policies and social claims.

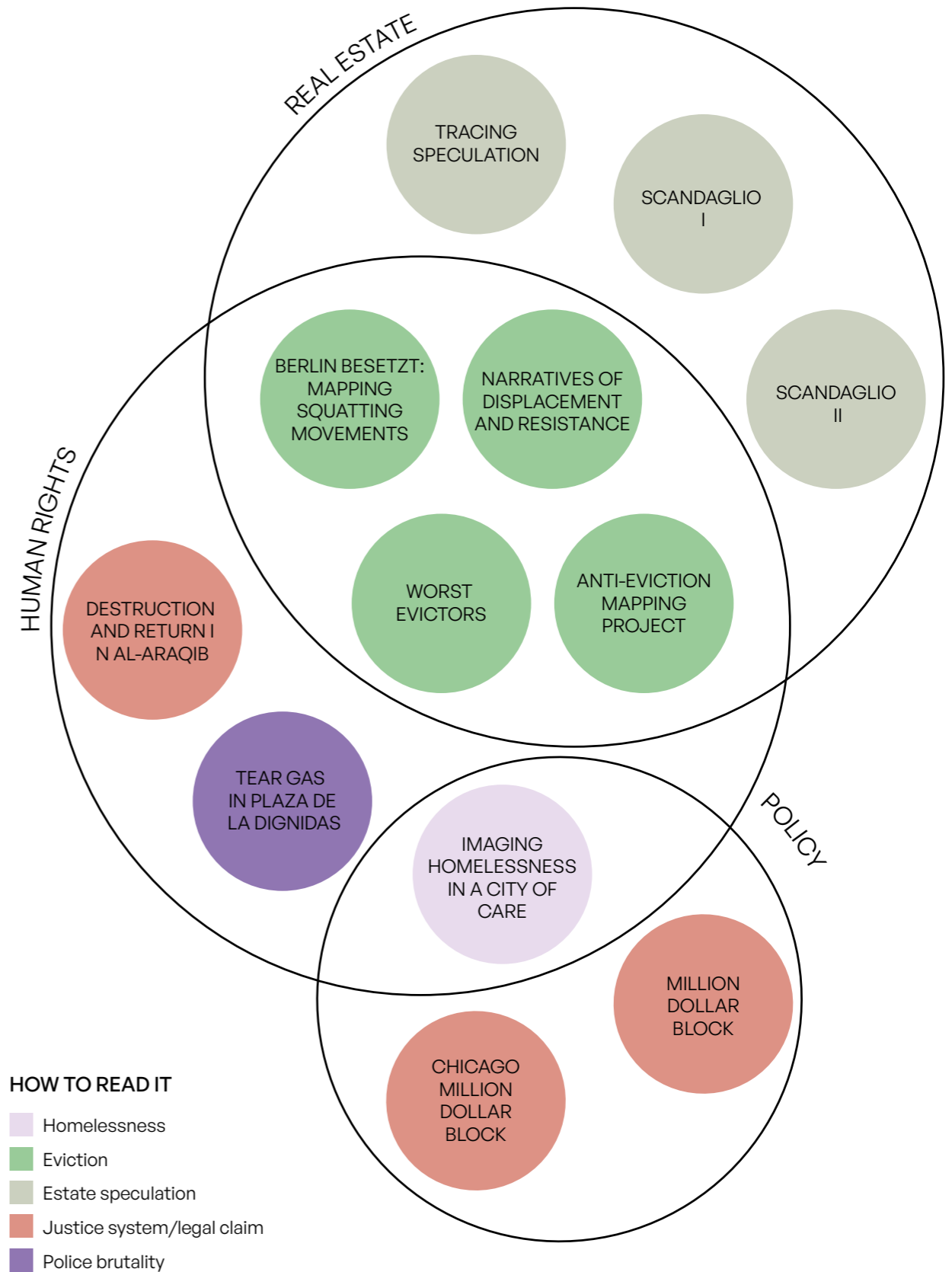
Police brutality: these projects deal with highlighting violent, repressive activities by the police.

Homelessness: Within this category, projects deal with the issue of homelessness and the relationship with the city.

Conclusions

It is evident from the analysis that most of the projects dealing with critical cartography within urban contexts deal with issues related to inhabiting both the public spaces of the city and the individual spaces of dwellings. Many projects deal with the theme of building speculation and eviction, issues that are becoming increasingly frequent within cities. Another recurring theme, often related to those just mentioned, is the violation of human rights. This association highlights how housing issues are extremely human and related to citizens' quality of life.

[Fig. 41] Analysis of the topics and sub-topics addressed by the case studies.



04

Rogoredo

drug scene

project,

methodology

4.1 A conversation about drugs Drugs attract people not only because of their effects on the mind and body, but also because of our perceptions and opinions about them. Psychoactive chemicals, which have been a part of human society and daily life for millennia, have been praised and extensively assimilated while simultaneously being constantly portrayed as harmful and vile, and have been banned all over the world. They are frequently linked to crime, vice, and terror discourses, from local production and usage to worldwide trade. Drugs provoke conversations on bigger societal concerns such as exclusion, deviance, and integration by highlighting difficult questions such as morality and risk, as well as othering and stigmatisation.

People’s perceptions about psychoactive substances are shaped by human history. War, genocide, and colonial regimes, as well as slavery and land and resource exploitation, are among them.

Drugs have also played an important role in the history of labour industrialization and the need to reduce pain and increase productivity. They play an important role in the history of sociability, hedonism, and the political economy of pleasure and entertainment, as well as much more. Complex processes of regulating, outlawing, decriminalising, or legalising the manufacture, trade, and use of these substances are key elements in these histories. On the one hand, despite recent legislative initiatives to control them due to the harm they cause to public health, cigarettes, alcohol, and medications are widely consumed and have created large corporations.

Other chemicals, such as opiates, cocaine, and MDMA, are the subject of ongoing efforts to restrict and eliminate them. Their users, traders, and producers are criminalized and prosecuted all throughout the world and are frequently threatened with institutionalization, incarceration, or even the death penalty. Despite these long-standing trends, there are hints that we are approaching a turning point in psychoactive substance history. While most

global drug policies, such as the “war on drugs,” have centred on punitive – and frequently violent and damaging – measures since the 1960s and 1970s, such “zero tolerance” approaches are now widely considered as unproductive or even counterproductive. Instead, various strategies such as drug checking, “safe use” campaigns, and other forms of harm reduction and prevention are becoming increasingly popular. On a worldwide scale, growing movements such as the International Network of People Who Use Drugs (INPUD) and the International Drug Policy Consortium (IDPC) campaign for drug social justice. Simultaneously, in many nations, efforts to decolonize drug laws are growing, underlining their long connections with discrimination and (post)colonial power and exploitation relations. New campaigns for decriminalisation, such as for cannabis or psychedelics, are popping up over the globe since many of these substances are being (re) discovered for medical purposes. Simultaneously, historically demonised and criminalised drug cultures and histories are now becoming part of cultural industries and touristic landscapes, as well as components of local identities, notably in the “creative industries.” All of these events point to a shift in how various psychoactive drugs are perceived, used, and regulated. They also show how the

policies, regulations, and narratives around drugs, such as those governing their legality and impacts, are historically dynamic, responsive to social power relations, and hence changeable.

4.1.1 About the project

The project ‘Drug (counter) mapping, A collective book project’ was born from the collaboration of three editors, Stefan Höhne, Mélina Germes and Luise Klaus.

In 2021, after collaborating on several international research projects, some of them already dealing with the topic of drugs, they came up with the idea of creating a publication containing contributions from different authors worldwide.

The project consists of the creation of a collective book that deals with the topic of substance use, bringing forward alternative narratives. The book, to be published by the end of 2022, brings together more than 40 different stories derived from the research of dozens of sociologists, anthropologists and researchers. For each story, one or more maps were made by the author or in collaboration with artists,

designers and cartographers.

A multidisciplinary team

The research team was founded in January 2022 by a postdoctoral research sociologist from Bicocca University and DensityDesign to participate in the “Drug (counter) mapping, A collective book project” publication. The main roles in the project are listed here:

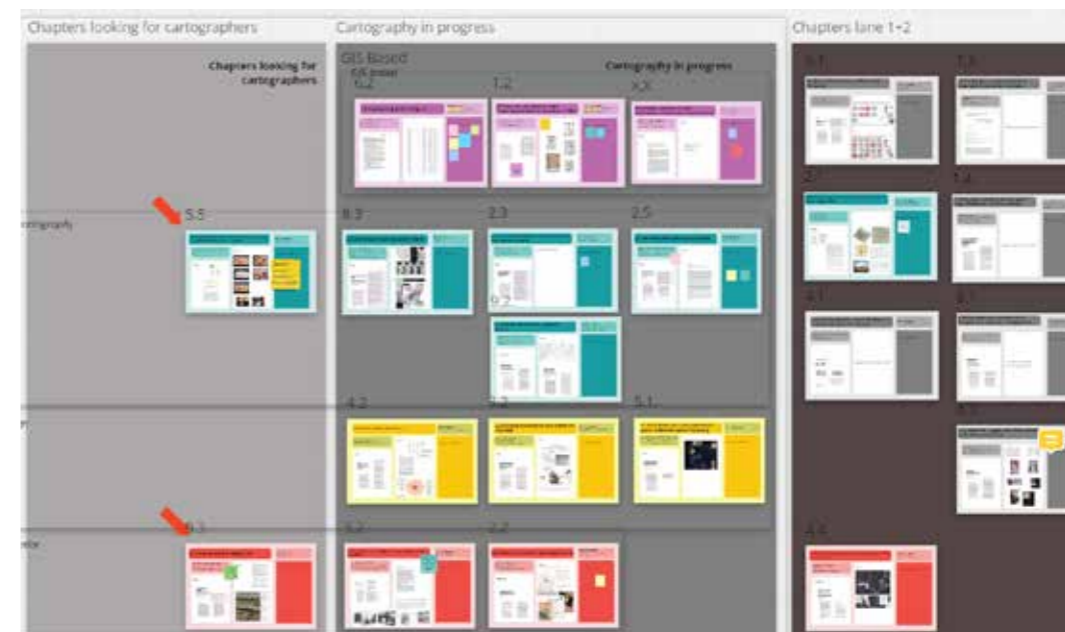
- Sonia Bergamo - sociologist, author
- Maria de Los Angeles Briones - designer
- Francesca Mauri - designer

Sonia Bergamo was in charge of providing information about the Rogoredo context and the life and rotations of users.

The Density team was initially responsible for researching and analysing the other data needed to carry out a complete and coherent narrative and then for translating the information visually into two maps.

Editors guidelines

Having to fit within a broad publication, the editors have provided guidelines to adhere



[Fig. 42] Collaborative project board with the other authors of the book.

to when producing the map. The guidelines are both technical and conceptual. The first includes text length, and page size, while the conceptual one concerns the role of the map and its goals.

The main technical guidelines concern the final output of the visualisations. This must respect the 24x24 cm square format of the book, must also be accessible to the colour blind, not contain tiny text, and be designed for printing format.

Book structure

The book includes nine chapters, and numerous contributors, through which alternative narratives on the subject of drug dealing and consumption are brought forward.

The first chapter of the book explores the difficulties of drug cartography and strategies to reframe or remap them, starting with a plea against the kind of drug mapping that aggravated these concerns. The contributions demonstrate the limitations, prejudices, and technicality of drug maps – as well as how such maps might be used for a significant teaching purpose.

The second section digs into the history of drug use in Europe, with case studies spanning from the early Renaissance to the 1990s, designed to highlight the historical variety of normative and legal contexts, as well as practices, resistances, and arts de faire, and challenging the false dichotomy of harmless (hence legal) vs. harmful (hence illegal) psychoactive substances.

The third part investigates the political economies of drugs, particularly in South America, focusing in on global entanglements and providing a post-colonial un-

derstanding of biochemical or agricultural modes of production. It researches the role of borders, poverty, and state violence in the vulnerabilities of farmers and traffickers caught or trapped in the illegal markets that sustain illegal drug consumption on the other end of the value chain

In terms of chain value, the *fourth section* demonstrates how drug use is about body and mind, self-experience as well as an altered, alternate, or other(ed) view of the world. It highlights how difficult it is to map and visualise what transpires within us, especially when dealing with our innermost emotions and states of consciousness.

The fifth section exposes drug use for partying and pleasure, as well as the many associated landscapes, while also highlighting the limits and paradoxes within pleasure, demonstrating how social class and privilege count, as exemplified by gender issues, the status of night-time economy workers, and the Covid-19 pandemic.

The sixth deals with death and the contributions are more about the role of criminalising and oppressive drug policies than about the use of psychoactive substances as a risky activity.

The seventh part focuses on harm reduction on a global and regional scale. These policies, which were inspired by community-led self-help programs in the past, may appear to be a counterweight to oppressive measures, but they are actually a complement, with the primary goal of reducing risks (such as HIV), harm (such as illnesses), and deaths (by overdose, for example).

The eighth section explores urban conflicts and how drug scenes are spatialized in cities, whether through informal economic actors or police repression. Urban areas are sites of survival for many socially and economically marginalised users and dealers.

Finally, *the ninth section* looks at how communities organise themselves around drug use, focusing on the various ways people try to make sense of their experiences and organise themselves collectively – revisiting notions of care, analysing self-organised consumer rooms, sharing stories and support, and inventing new futures.

The contribution, which will be analysed and described in the following sections, is included in the eighth section of the book, carrying a narrative concerning the conflicting relationship between the city of Milan and the consumers of the open scene of Rogoredo.

4.1.2 What the book will and will not do

As part of a long-running debate on the topic of substance consumption and production, which, especially in recent years, promotes an extremely negative view of the subject, this book aims to overturn the point of view and present new perspectives. With more than forty contributors, from all over the world, the publication intends to highlight aspects that are rarely included in traditional narratives. The purpose is to bring issues such as de-criminalisation, drug policy, and harm reduction into the mainstream debate. It will provide new perspectives on how we perceive and give meaning to drug places and cultures, as well as challenge long-held beliefs and assumptions about this controversial phenomenon. The purpose is also to challenge the dominant narrative and imaginaries regarding

drugs both on a global and local scale. This is not a book that maps drugs! Instead, it explores the practices hidden behind an institutional dataset, the work of the police or the perspective of the inhabitants of a neighbourhood. Mapping drugs is all too easy, it is far more complex, and therefore interesting, to bring forward all the hidden issues that are not talked about and that need to be highlighted instead.

The project maps the police.

It maps emotions.

It maps violence.

It maps death.

It maps pleasure.

It maps relationships.

4.1.3 Some clarity about drugs

In order to be able to describe and explore the project thoroughly, it is necessary to make an up-front introduction to the subject under consideration.

What is meant by drugs? Which substances are taken into consideration? What topics are considered?

Within the book, the term includes a range of psychoactive substances both illegal and legal and, in some cases, prescribed. The same substance can in fact be called a medicine as well as a drug. The difference, in most cases, lies in the legality, or illegality, of the process of purchase and consumption. Drugs is also intended as a collective term. In fact, the topic is explored as a social and political problem as opposed to an individual and personal one. The publication considers both drug practices, consumption, production and sale, and drug-related practices, such as prevention, discrimination, repression, treatment, and illegality. Both are social constructs that derive from social, historical, geographical and cultural contexts.

4.1.4 Why (counter) mapping

It is difficult to portray drugs with an image that does not represent their moral judgement, struggle and danger.

Traditional narratives have carried discourse of polarisation between the Global North and the Global South, personal and public areas, rural and urban areas, or wealthy and marginalised users and have deeply shaped our images on the subject. Drugs raise multi-scalar questions spanning from individual bodies, neighbourhoods, regions, and nations to the global order of our modern world, in addition to popular beliefs.

Mobilities, connections, boundaries, control, and resistance, in addition to scales, are critical themes in the study of drugs.

Cartographic activities play a critical role in these processes.

Drug cartographies usually focus only on blaming global peripheries for the production of drugs, they trace movements between the global South and the global North, map hot-spots of risky metropolitan areas, or map drug epidemic-affected regions.

Authorities regularly utilise “drug maps” to rationalise and drive official interventions, from policing to public health, with the goal of monitoring and criminalising vulnerable people, enforcing borders, or (re)producing stigmatising spatial representations. However, as deeply discussed in previous chapters, while maps are weapons of power, they may also be used as tools of counter-power.

Counter-mapping can be used to intervene in public discussions, as well as a medium for investigation and a space for aesthetic experimentation. It’s a creative patchwork: while some cartographers work with geographic information systems and precise data, others choose to work with items, drawing inspiration from arts and crafts.

Maps describe the territory, highlight positions, distances, spatial distributions, groups,

boundaries. They serve as tools to act on the space: to orient navigations, to mark paths, to plan trips, to explore territories. Or they can be used as design tools: plans for the construction and modification of space (Quaggiotto, 2010). However, positions, proportions, measures, and projections aren’t always relevant. The messages expressed by the tools selected, as well as the perspectives and insights they provide, are more essential.

4.2 Methodology

It is fundamental to highlight the research methodology since it provides critical information regarding the values and assumptions that had driven the investigation, as well as the standards and tools used to gather and interpret information and draw conclusions. Several research approaches were used during the production of this project. The main steps and research methodology will be explored in the following sections. In particular, this chapter will explore all the preliminary work that was fundamental to collecting data, the definition of the hierarchy of information, and the visual construction of the two maps.

This first part will introduce the four main phases of the research: the preliminary study of the context and history of the Rogoredo neighbourhood in Milan, the first explorations of the data necessary to determine the type of narrative to be carried out, the choice of a narrative tone suited to the project objectives, and finally the actual phase of collecting and analysing the selected data.

4.2.1 Context research: Rogoredo Milano

“Territory is considered as the expression of multiple levels of information that cohabit and stratify.” (Calabi et. al, 2011)

The constant exchange of information with Sonia Bergamo, the post-doctoral researcher in charge of the research and drafting of the chapter on Rogoredo, was fundamental at this point in the study. With the information provided by her doctoral dissertation and the research carried out by the design team; it was possible to reconstruct the history of Rogoredo’s open scene by extrapolating its salient moments.

Since this is a project of counter-maps and therefore strongly linked to the context and the hidden relations formed within a given context, this preliminary research phase on the

Rogoredo neighbourhood was fundamental.

Rogoredo neighbourhood

Milan, the world centre of fashion and design, is a northern Italian city and the centre of the Italian stock market, a financial centre known for its upscale restaurants and stores. Rogoredo is a neighbourhood on Milan’s far southeast periphery that has long served as a crossroads between the city and hinterland.

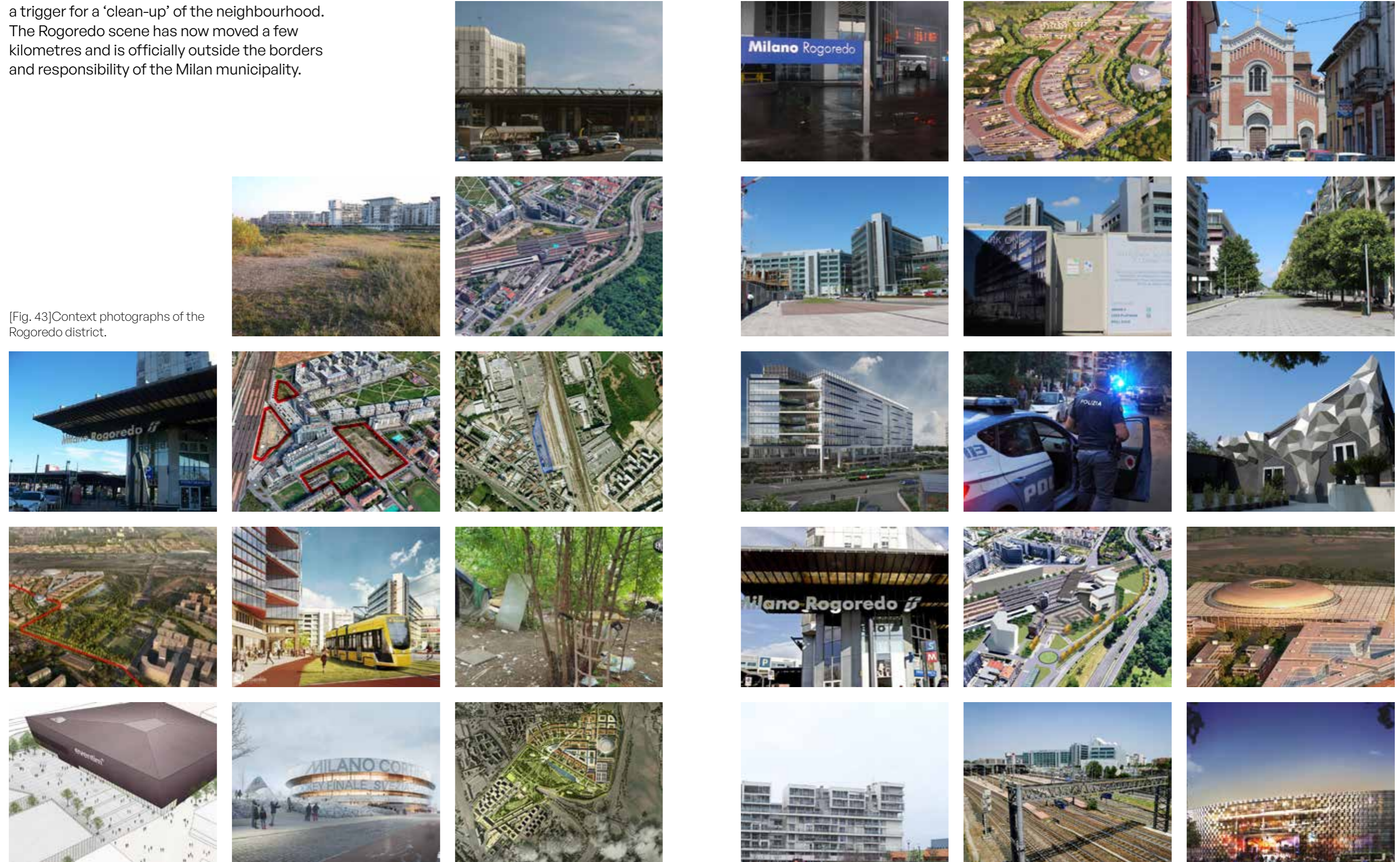
The open drug scene in Rogoredo exploded in 2015, the year of the Milan Expo 2015, which served as a tremendous urban growth driver and marked the culmination of the city’s ‘purification process’. In particular, the municipality has adopted a very strong anti-dealing policy that has led to several conflicts with Milan’s drug scene. The abandonment of a vast green belt area - Porto di Mare - and the hyper-connection of public transit in Rogoredo explain the main conditions that pushed drug users and dealing flows to this location, which is on the opposite end of the Expo site.

On the one hand, a push effect forced undesirables to an out-of-the-way spot on the outskirts of town, while on the other hand, a draw effect attracted 600-700 drug users each day from all around the Lombardy region and beyond. Even before the pandemic, urban renewal and substantial law enforcement activities had fractured and drove the open drug scene out of town.

This process became more pronounced and violent when Milan won the bid to host the 2026 Winter Olympics. In the wake of the policies of renewal and gentrification of ‘decadent’ neighbourhoods already adopted in other districts by the city council, Rogoredo was chosen as the project site for the future Olympic Arena. The nearby abandoned Porta Romana railway terminal will instead host the Olympic Village where athletes from all over the world will reside. This two maxi-opera, along with others that will be investigated later, served as

a trigger for a 'clean-up' of the neighbourhood. The Rogoredo scene has now moved a few kilometres and is officially outside the borders and responsibility of the Milan municipality.

[Fig. 43] Context photographs of the Rogoredo district.



4.2.2 First data explorations

Following the initial research on the Rogoredo contest began a phase of exploration of possible data to be used. During this time, the case studies analysed in the previous chapter were helpful, providing examples of methodologies and data relevant to analysing an urban context. It is worth mentioning the Scandaglio project by Off Topic lab, which also deals with analysing changes and power relations within the city of Milan. It was necessary to question which information, both primary and secondary, could be fundamental and valuable to pursue the project objective. The research also focused on identifying possible data collection methods that would allow the selected information to be gathered. The pre-existing and open-source databases available on the portal of the Municipality of Milan were subsequently explored. This phase was fundamental to begin outlining the limits and possibilities of the project and identifying which narratives to pursue.

4.2.3 Narrative style selection

As already introduced in the previous paragraphs, mainstream narratives on the issue of drugs tend to be extremely one-sided and biased. Two main strands are those adopted by mainstream communication channels when dealing with these issues: a narrative of blame and demonisation of the problem, or a narrative that dehumanises the protagonists and carries on a discussion centred on pity. The project wanted to get as far away from these types of messages by remaining as neutral as possible and letting the information flow through the displayed data. By using the term neutrality, we do not mean a desire to pursue a cold and detached narrative but rather to let the protagonists and the dynamics of the open scene speak through the maps. Therefore, the resulting narrative is rich in

emotion and humanity and succeeds in highlighting points of view that would not usually be represented.

▼ [Fig. 44] Photographs used by the media to describe Rogoredo. Images are also used to demonise the consumer by de-humanising him. The syringe, often in the foreground, is among the most frequently depicted subjects.



4.2.4 Data collection

The research, collection and analysis of data is the central point of the research phase of the project. In the following sections, the data collection methodologies, the types of data used and the hierarchy of information will be analysed and explored in detail. This stage of the research spanned several weeks and was done in strong synergy with Sonia, who was instrumental given the extent of her research. The data collection made use of both digital tools and manual research on portals of the municipality of Milan. From this research phase, it immediately emerged that there was a total lack of information on the topic of substance sales and consumption in Milan. This gap may derive either from difficulty on the part of the institutions in gathering this type of information, given the very nature of the subject or from a genuine lack of interest in studying these issues in depth.

4.3 Data remix practices

From the very beginning of the project, the project team decided to use a mixed research approach, which would take into consideration both qualitative data, gathered by Sonia Bergamo during the interview phase carried out in the open Rogoredo scene, and quantitative data researched and digitally collected by the group of designers.

As will be discussed in more detail in the following paragraphs and chapters, using a mixed methodology, such as the one put into practice in the research phase, makes it possible to overcome specific information gaps that would otherwise emerge when using a univocal method. Moreover, a complex and incomplete reality such as the open scene of Rogoredo needs numerous points of view and information in order to be described and explored thoroughly and coherently.

Finally, as will be analysed below, a mixed approach allows for avoiding some of the typical deficiencies of counter-mapping projects.

4.3.1 Difference between qualitative and quantitative data, why both

Before exploring the phase of research and data collection, selection and analysis, it is necessary to fully understand the research methodology used, its characteristics, potential and shortcomings.

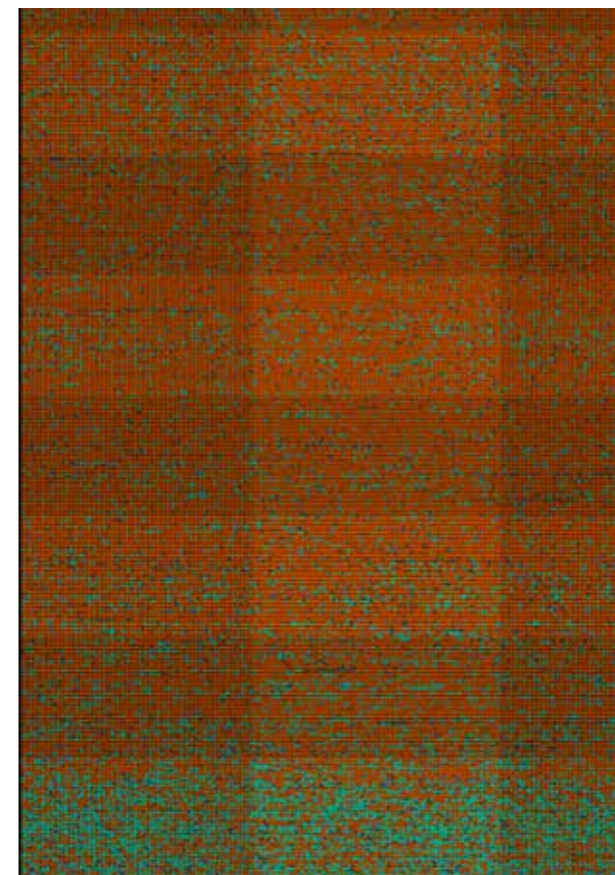
What does it mean to use a mixed approach? What are the main differences between qualitative and quantitative data research? How can such an approach be more comprehensive? Starting from the definition of analysis according to the New Oxford Dictionary of English, it emerges that:

The analysis is the detailed examination of the elements or structure of something, typically as the basis for discussion or interpretation.

The focus is on digging into the “structure” of “things.” What “elements” or “structure” may imply depends on what “something” refers to; there is no clear description of what analysis is provided here. Identifying what analysis might apply depends on the context in which all the terms are employed and the “objects” to which it is directed. Focusing on the term “structure,” on the other hand, part of investigating structure can be trying to comprehend how that structure behaves. This could involve explaining the constituent elements, looking into the details of those components, or analysing their relationship. It was precisely on the need to portray both the individual factors that contributed to the creation of Rogoredo and the relationships between the individuals who daily inhabit this reality that it was decided to take a mixed approach that included quantitative and qualitative data.

Quantitative data

The term “quantitative data” refers to data that can be measured or counted—or, to put it another way, quantified—and assigned a numerical value. This type of information is useful for analysing a huge amount of data with multiple variables. It’s all about the statistics in quantitative research. The collecting and interpretation of numerical data is the foundation of quantitative research. It focuses on measuring and generalising results using a deductive approach. It regards the world as being outside of itself and that there is “... an objective reality independent of any observations” (Rovai et al., 2014). This type of data is usually defined as structured since it can be packed in a database, following predefined models. There are several ways to collect quantitative data, from sourcing online open-source platforms to digital scraping, from fieldwork such as experiments, surveys or detached observations among others.

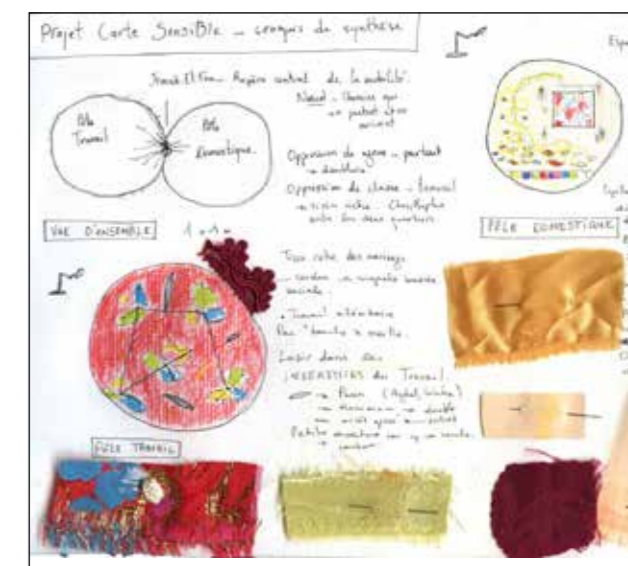


[Fig. 45] Example of a project exploiting quantitative data. The visualisation shows the victims of the drug trafficking conflict in Colombia from the 1980s to today.

Qualitative data

On the other hand, qualitative data is descriptive in quality, and it is expressed in words rather than numbers. Qualitative research focuses on exploring and understanding the meaning individuals or groups ascribe to a social or human problem (Creswell, 2014). Denzin and Lincoln (2005) describe this approach as gaining a perspective of issues from investigating them in their own specific context and the meaning that individuals bring to them. It focuses on drawing meaning from the experiences and opinions of participants, it pinpoints meaning, purpose or reality (Merriam, 2009). This type of data is often defined as unstructured, which means information that either does not have

a pre-defined model or is not organised in a pre-defined manner. Unstructured information is typically text-heavy but may contain data such as dates, numbers, and facts as well. Typically, there are two types of qualitative data: ethnographic and interpretive. Ethnographic data is collected to understand how a group assigns context for an event. While interpretative data is collected to understand an individual’s personal experience and feelings about the event. Both types of qualitative data are often collected through interviews, fieldwork, participant observation, ethnographic research and workshops or focus groups.



[Fig. 46] Example of mapping using qualitative data. The project analyses how women in Marrakech experience the neighbourhood in which they live.

Benefits of using both the approaches

As described above, the purpose for analysing each type of data and the tools required to gain insight from each are different, but the information gained from this particular approach can be complementary and useful to fully describe a phenomenon. A quantitative data analyst seeks to answer objective questions about an event. In contrast, a qualitative researcher would seek to answer subjective questions about the meaning people assign to the same event. Given the complex nature of the reality of Rogoredo, and the type of information needed to fully explore the context, it was necessary to use both approaches. Using a variety of methodologies, the project team can deliver a greater depth and quantity of insight than using a single approach in isolation. Furthermore, rather than limiting research prospects by relying solely on qualitative or quantitative approaches, a mixed-methods strategy allows researchers to study social issues using both words and numbers. It increases the possibility that the project's message successfully reaches the end-user.

4.4 MAP 01: How structural violence produces an open drug scene displacement

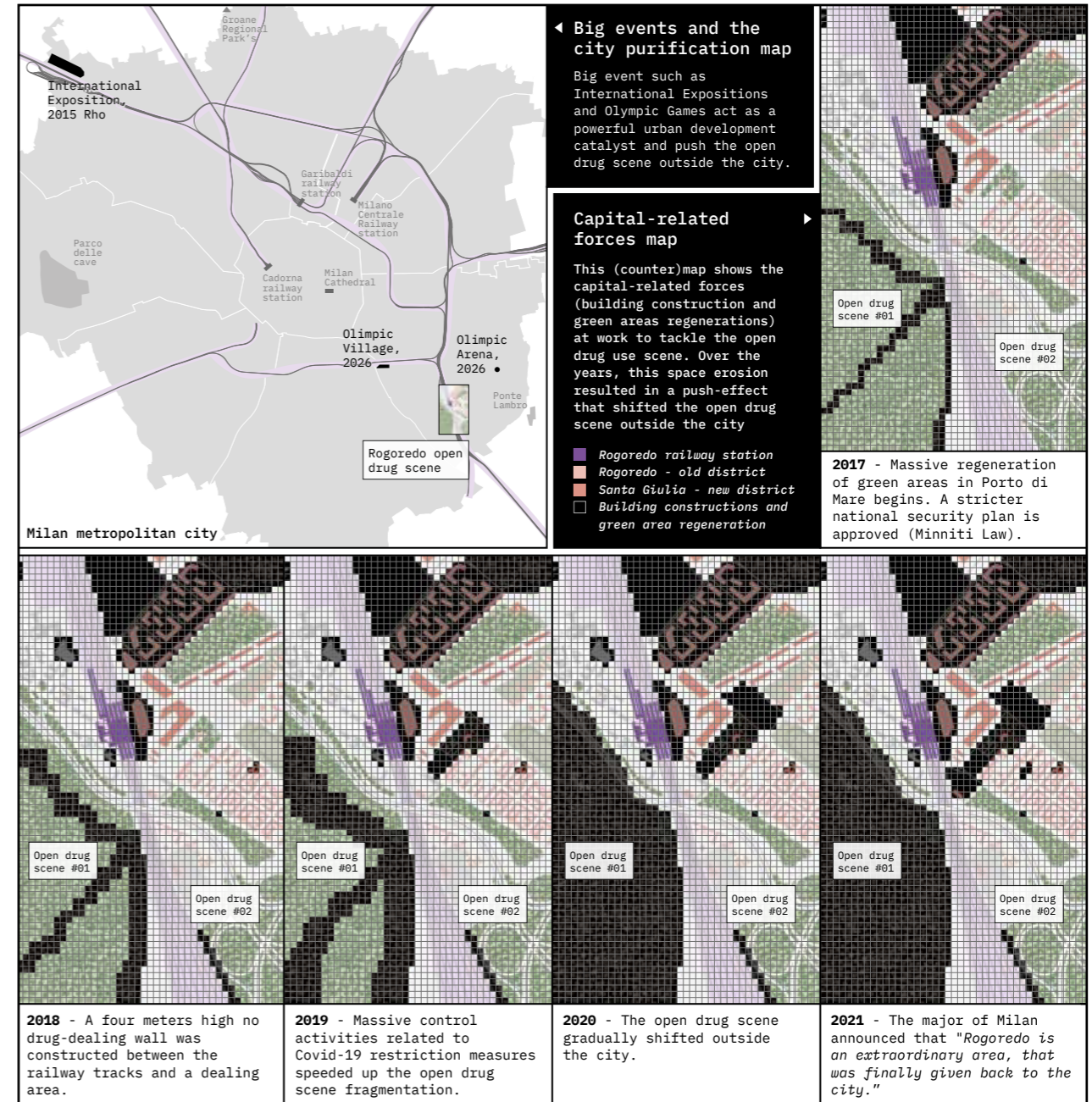
The first counter-map displays the structural violence, and the municipality's policies that produced the Rogoredo open drug scene. After winning the bid to host Expo 2015, a series of 'city clean-up' policies were carried out in Milan. These actions are part of the ongoing plan to make Milan a functioning, international 'showcase city'. Among the main policies implemented for Expo 2015 were a series of anti-smuggling

operations, which pushed sales and consumption to the city's outskirts. The open drug scene flourished on the city's outskirts during the exposition in 2015, drawing almost all of the city's public drug use. The Rogoredo area was then selected as one of the important stages for the 2026 Olympic Games, with the primary goal of revitalising the area. As a result of this endeavour, a massive purification process took place, progressively shifting conspicuous drug use and dealing outside of the city.

The map tries to emphasise these processes while also illustrating certain local capital-related dynamics (such as building construction and green-space regeneration) that attempted to manage drug users' flows and activities. Residents interviewed in 2017 described an open drug scene that was transforming the district's living areas by occupying a piece of empty land.

The open drug scene frustrated the capital-related plans in the area, such as its real estate redevelopment of Santa Giulia - the Rogoredo district's new area - and its (yet unrealized) plans for the Porto di Mare's green area. Moreover, the impacts included falling real estate prices in Rogoredo. The district's upward ambitions generated an inhabitant's identity gap between those living in Santa Giulia and in the old district, the site of the open drug scene.

Municipality's strategies, that aimed to shift outside the city borders, were actuated both with the activities described above, and operations such as the construction of what is known as the no-drug dealing wall, a big wall between the railroad track and one of the drug-dealing areas designed to prevent drug dealers from escaping, the set-up of surveillance cameras and the closing of public fountains in the area. All these activities ended in 2021 when Beppe Sala, the city mayor, announced that "Rogoredo is an extraordinary area that was finally given back to the city".



[Fig. 47] First map resulting from the Rogoredo open scene project.

Data collection

To show the processes described above, particularly in the Rogoredo-Santa Giulia neighbourhood, the research concentrated on quantitative data related to the changes that have taken place over the last seven years in the city of Milan. As will be described in detail in the following paragraphs, the data collection, therefore, focused on analysing the Milanese property sector, the repression activities by the police, the services, both public and private, present in the Rogoredo neighbourhood, the changes over time in the cost of rents (both short and long term), the legacy that expo has left to the city (both from an economic and social point of view) and finally the number of social programmes to support consumers have been carried out in recent years.

Not all of the data collected was then used in the final visualisation. However, for transparency, it was decided to include it in this dissertation, describing the methodologies used to acquire it. In addition, as far as possible, this thesis intends to contribute to and guide those who wish to approach the world of critical cartography. Showing all the hypotheses examined during the project phases, even the discarded ones, could inspire future projects.

4.4.1 Quantitative data: Building area [used]

Through the online blog Urban file, a project started in 2008 aiming to collect and archive all architectural and structural projects in Milan. By entering the queries 'Rogoredo' and 'Santa Giulia', it was possible to find all the major construction projects in the area. All the information on the projects was collected manually through the articles found. A dataset was then built with projects dating back to 2005 (start of construction work on the new Santa Giulia district, designed by Norman Foster) containing, for each building site, information on the date, the name, the type of work planned, the address, the client, and a short description. Not always finding all the necessary information for each piece, a search was conducted for each construction site to fill in the data gaps and confirm the information gathered.

Since the bolg articles are constantly updated, for some areas, it was possible to reconstruct all the construction phases, from the demolition and reclamation of the original site to the start of the construction work and any delays or the conclusion of the work.

The dataset collected constituted the primary information shown in the first map and provides an overview of the transformation and "regeneration" movements that drastically transformed the Rogoredo district.

As will be pointed out in the paragraphs about the visual construction of the map, not all the information collected was brought back into the visualisation. However, it was fundamental for the project's purposes and completeness to build as complete a database as possible on the subject.

[Fig. 48] The dataset was created by collecting data on all construction sites in Milan Rogoredo in recent years.

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[Fig. 49] Articles from the urban architecture blog Urbanfile.

Dataset creato da blog Urban file. Keyword: Rogoredo. Aggiornato 19/03/2022

Data	Cosa	Nome	Dove	Descrizione
2016	Approvazione progetto	Area Connecto Center	Via pestagalli 44	Approvazione progetto
2016	Inizio cantiere (previsione)	Spark 1 e Spark 2		
2016	Presentato progetto	Santa Giulia Nord		
2017	Iniziativa sul territorio	Boschetto Rogoredo	Rogoredo	Riqualificazione del verde, piano qu
2017	Inizio cantiere	Morsenchio- Programma Integrato di Intervento	Via Merezzate /accanto	Intervento urbanistica sociale, allog
2017	Iniziativa sul territorio	Strutture sportive	Via Rogoredo	
2017	Approvazione progetto	Scalo ferroviario		
2018	Inizio cantiere	Stazionedi Posta di Rogoredo	Stazione Rogoredo	
2018	Inizio cantiere	Muro anti spaccio	Via Orwell	
2018	Inizio cantiere	Spark 1 e Spark 2	Via francesco Pizzolpat	Spazi commerciali
2018	Demolizione	Toyoko-Inn	Via Boncompagni 100	Prime demolizioni sul sito
2019	Demolizione	Area Connecto Center	Via pestagalli 44	Demolizione ultimata
2019	Approvazione progetto	Santa Giulia Nord		
2019	Approvazione progetto (ma	Toyoko-Inn	Via Boncompagni 100	Alberghiero

4.4.2 Quantitative data: Police activities [discarded]

The research team also considered that the data on law enforcement actions against consumers and sellers in Rogoredo could be of interest. As no official dataset could

be found, the excel file had to be constructed manually in this case. On the Questura di Milano website, using the search tool, the queries ‘Rogoredo’ and ‘Boschetto di Rogoredo’ were entered, which allowed us to find more than 50 articles containing information on measures implemented by the police. Manually, the information in the articles was collected, and it was then possible to build a dataset containing information on the measurement date, the measure type (DASPO, travel warrant or arrest) and the number of persons involved.

Subsequently, data concerning police raids in the Rogoredo area were also incorporated. Given the tremendous media importance of this type of repressive action, most information was obtained from online newspaper articles from 2017 onwards. The pieces were collected from the online Google news platform by entering ‘Rogoredo’ and ‘Boschetto di Rogoredo’ as queries.

Although extremely interesting and relevant, this information was not included in the final maps as it was fragmentary and incomplete. The data found, in fact, only referred to after 2019, a particularly significant year due to the massive media coverage on the Rogoredo issue. It was later decided to omit this information to avoid telling an incomplete point of view.

▼ [Fig. 50] Dataset created by collecting data on police actions against consumers in Rogoredo.

Dataset creato dal sito della questura. Keyword: Rogoredo. Aggiornato febbraio 2022			
Anno	Mese	Numero di provvedimenti	Tipologia di intervento
2014	Novembre	6	Arresto per spaccio
2017	Dicembre	/	Arresto per spaccio
2017	Marzo	/	Sequestro
2019	Dicembre	2	Arresto per spaccio
2019	Novembre	1	Arresto per spaccio
2019	Ottobre	4	Arresto per spaccio
2019	Settembre	3	Arresto per spaccio
2019	Agosto	2	Arresto per spaccio
2019	Agosto		Inaugurazione nuovo posto di polizia Ferroviaria (POLFER)
2019	Luglio	2	Arresto per spaccio
2019	Giugno	1	Arresto per spaccio
2019	Maggio	81	Persone identificate --> 2 denunce
2020	Dicembre	1	Arresto per spaccio
2020	Settembre	3	Arresto per spaccio
2021	Agosto	41	Divieti di Accesso alle Aree Urbane
2021	Luglio	1	DASPO urbano (linea metropolitana)
2021	Giugno	27	Ordinanza custodia cautelare

4.4.3 Quantitative data: Changes in rental prices [discarded]

The research team also considered data on property rentals and sales in the Rogoredo area.

Through the Immobiliare.it platform, it was possible to visualise changes in real estate prices within the municipality of Milan. The research focused on the Corvetto-Rogoredo district and considered the period from January 2015 to January 2022. In this case, manual data collection was carried out to create a dataset with monthly data on costs per square metre for rents and sales. Although this information could be essential and significant in describing the gentrification processes in Rogoredo, the authors decided to omit it from the visualisation. The increase in property prices, although significant, was however consistent with the increase in prices in the entire metropolitan area. Therefore, it was impossible to establish the influencing factors for this change.

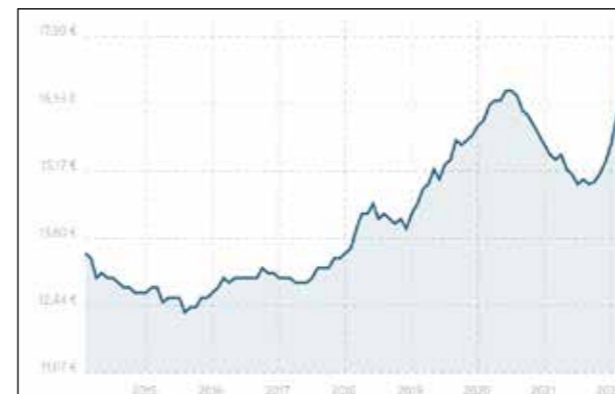


▲ [Fig. 51] Map showing average rental costs in the various districts of Milan.

Evoluzione costi affitti a lungo termine			
Anno	Mese	Milano (€/m2)	Rogoredo (€/m2)
2017	Gennaio	16	13
	Febbraio	16	13
	Marzo	16,1	13,1
	Aprile	16,2	12,9
	Maggio	16,2	13
	Giugno	16,2	13
	Luglio	16,2	13
	Agosto	16,3	13,2
	Settembre	16,3	13,3
	Ottobre	16,5	13,3
	Novembre	16,6	13,4
	Dicembre	16,8	13,4
2018	Gennaio	16,9	13,5
	Febbraio	16,9	13,6
	Marzo	17,1	14
	Aprile	17,2	14,3
	Maggio	17,3	14,4
	Giugno	17,4	14,6
	Luglio	17,4	14,3
	Agosto	17,5	14,3
	Settembre	17,5	14,2
	Ottobre	17,7	14,1
	Novembre	17,8	14,2
	Dicembre	18,1	14
2019	Gennaio	18,3	14,3
	Febbraio	18,3	14,5
	Marzo	18,6	14,8
	Aprile	18,6	14,9
	Maggio	18,7	15,2
	Giugno	18,7	15,1
	Luglio	18,8	15,3
	Agosto	18,9	15,4
	Settembre	19	15,8

► [Fig. 52] Dataset collecting changes in rental costs in the entire urban area of Milan and the Rogoredo district.

▼ [Fig. 53] Average long-term rental trends in Milan Rogoredo district.



4.4.4 Quantitative data: Public services in the area [discarded]

Taking Off Topic Lab's Scandaglio II project as an example, the research also considered data related to public and private services in the Rogoredo area. This kind of information could help understand how

the neighbourhood has changed in the last few years. From the Milan municipality website, it was possible to download a .pdf file containing a list of all the services in the area, subdivided by N.I.L.

Using the free software Tabula, the information contained in the .pdf was converted into a .csv file. The services were then filtered, and only those in the area of interest were considered.

However, the analysis and collection of information regarding the services were immediately interrupted as it was not very complete, relevant and significant concerning the topics discussed.

▼ [Fig. 54] Dataset collecting all services, public and private, present in the Rogoredo district.

Servizi pubblici e privati quartiere Rogoredo. Aggiornato marzo 2022					
NIL	DISCIPLINA	NOME	INDIRIZZO	CATEGORIA	TIPOLOGIA
33- Rogoredo - Santa Giulia	Servizio privato	Milano Succ. 70 - Upg	Via Freikofel, 16	Amministrativo	Uffici degli Enti di produzione di energia elettrica
33- Rogoredo - Santa Giulia	Disciplinato PdS	A2A Calore e Servizi - Teleriscaldamento	Via Manzu' Giac	Infrastrutture tecniche per l'ambiente	Distribuzione energia elettrica
33- Rogoredo - Santa Giulia	Disciplinato PdS	Autosoccorso Rogoredo	Via Monte Piana	Sicurezza e Protezione Civile	Polizia Locale giudiziari
33- Rogoredo - Santa Giulia	Disciplinato PdS	Nido Comunale Via Savinio 9	Via Savinio, 9	Istruzione	Servizi educativi
33- Rogoredo - Santa Giulia	Disciplinato PdS	Via Savinio 9	Via Savinio, 9	Istruzione	Scuole dell'infanzia
33- Rogoredo - Santa Giulia	Disciplinato PdS	Feltrinelli 11	Via Feltrinelli, 11	Istruzione	Servizi educativi
33- Rogoredo - Santa Giulia	Disciplinato PdS	Rogoredo '84	Via Freikofel, 25	Sport	Centri Polivalenti
33- Rogoredo - Santa Giulia	Servizio privato	Sacra Famiglia in Rogoredo	Via Monte Peralt	Sport	Strutture sportive
33- Rogoredo - Santa Giulia	Servizio privato	Consultorio Pediatrico	Via Monte Peralt	Salute	Strutture ambulatoriali
33- Rogoredo - Santa Giulia	Disciplinato PdS	Redaelli	Via Monte Poper	Istruzione	Scuole del primo ciclo
33- Rogoredo - Santa Giulia	Disciplinato PdS	Sottocorno	Via Monte Piana	Istruzione	Scuole del primo ciclo
33- Rogoredo - Santa Giulia	Disciplinato PdS	Scuola Paritaria - Monte Popera	Via Monte Poper	Istruzione	Scuole dell'infanzia
33- Rogoredo - Santa Giulia	Disciplinato PdS	Sottostazione Elettrica ATM	Via Toledo, 0	Infrastrutture tecniche per l'ambiente	Distribuzione energia elettrica
33- Rogoredo - Santa Giulia	Servizio privato	Dr Pediatra Prina Cerai Laura Maria	Via Monte Paralt	Salute	Studi e attività
33- Rogoredo - Santa Giulia	Disciplinato PdS	A.S.D. Arcieri San Bernardo	Via Feltrinelli Ca	Sport	Centri sportivi
33- Rogoredo - Santa Giulia	Disciplinato PdS	Asilo Bianco	Vie Rogoredo, 2	Istruzione	Servizi educativi
33- Rogoredo - Santa Giulia	Servizio privato	Archivio dell' Altaitalia	Via Monte Piana	Cultura	Archivi
33- Rogoredo - Santa Giulia	Servizio privato	Il Sicomoro	Via Rogoredo, 2	Istruzione	Servizi educativi
33- Rogoredo - Santa Giulia	Servizio privato	Forni E.	Via Freikofel, 12	Salute	Studi e attività
33- Rogoredo - Santa Giulia	Disciplinato PdS	Comandi Polizia Locale - Presidi	Via Medea Euge	Sicurezza e Protezione Civile	Polizia Locale
33- Rogoredo - Santa Giulia	Servizio privato	Poliambulatorio Villa Grazia	Via Freikofel, 20	Salute	Strutture ambulatoriali
33- Rogoredo - Santa Giulia	Disciplinato PdS	Poliambulatorio Monte Palombini	Via Monte Palonn	Salute	Strutture ambulatoriali
33- Rogoredo - Santa Giulia	Servizio privato	Pennaglia	Via Monte Palonn	Salute	Studi e attività

4.4.5 Quantitative data: Social programs [discarded]

In order to provide a comprehensive narrative of all the changes and actions that have taken place in Rogoredo in recent years, the authors also collected information on harm reduction and consumer assistance projects.

In this case, data were collected starting with the research carried out by Sonia from 2017 to 2019. For data related to the subsequent years, the research team contacted existing associations and projects to collect more recent information.

Even though it was immediately chosen not to use the data collected since the map's focus was on the forces of capital. However, it beca-

me immediately evident a total lack of interest on the part of the institutions concerning carrying out projects to support drug addicts. In this case, the absence of data was an important data itself that helped to support the thesis that institutions preferred to displace the problem rather than solve it.

▼ [Fig. 55] Dataset collecting all social projects in support of Rogoredo consumers.

Progetti per Rogoredo			
Anno	Nome Progetto	Info	Chi
dicembre 2019	L'unione fa la forza	<ul style="list-style-type: none"> accoglienza residenziale transitoria di persone bisognose di aiuto materiale, finalizzata a stimolare momenti di riflessione propedeutici alla presa di contatto con i servizi ed eventualmente all'avvio di progetti terapeutici sociosanitari individualizzati supporto alle diverse aree di problematicità dei soggetti che vivono in situazioni di dipendenza in fase conclamata. 	
31 gennaio 2019	Progetto Rogoredo	<p>RAFFORZAMENTO DELLE RISORSE IN CAMPO - Dal 31 gennaio, 6 ore al giorno per 7 giorni su 7, saranno presenti, coordinati da Croce Rossa Milano:</p> <ul style="list-style-type: none"> un mezzo mobile attrezzato per il primo soccorso e per piccoli interventi sanitari; un team composto da 4 operatori (sociali e sanitari di Croce Rossa, Comunità Nuova e Cooperativa lotta contro l'emarginazione) nel 'Boschetto'. 	<p>Regione Lombardia - Comune di Milano Municipio 4 AREU ATS Croce Rossa Milano ASST Fatebenefratelli Sacco ASST Santi Paolo e Comunità Nuova Cooperativa Lotta contro l'Emarginazione Fondazione Eris Il Gabbiano</p>
ottobre 2020	Progetto Parchi... Interventi integrati ATS Milano e ATS Brianza - Verso un sistema di intervento regionale	Nel corso del 2020 abbiamo svolto 235 giorni di servizio, dove si sono registrati 307 interventi di natura sanitaria di cui 248 interventi di assistenza infermieristica, a cui nel giugno 2020 si sono integrati 59 interventi medici e sono stati effettuati 54 test rapidi per HIV e HCV. Le persone assistite sono state 207 di cui 191 utenti tossicodipendenti e 16 utenti/passeggeri della stazione.	
aprile 2021	Progetto Parchi... Interventi integrati ATS Milano e ATS Brianza - Verso un sistema di intervento regionale	Continuazione attività 2020	<p>ATS della Città Metropolitana di Milano ATS della Brianza e della Valle d'Aosta Alte Groane, Coop Lotta Nuova, Fondazione Eris</p>

4.4.6 Qualitative data: Satellite images [discarded]

The authors also analysed satellite images to see changes in the neighbourhood.

The Google Earth pro application allows navigating between satellite images of a place

taken in different years.

It was, therefore, possible to collect satellite photographs of Rogoredo from recent years.

Unfortunately, the data collected proved insignificant and inconclusive, so the research team decided to exclude them from the visualisation.



[Fig. 56] Satellite images of the Rogoredo area.



4.5 MAP 02: The making of collective space in Rogoredo's open drug scene

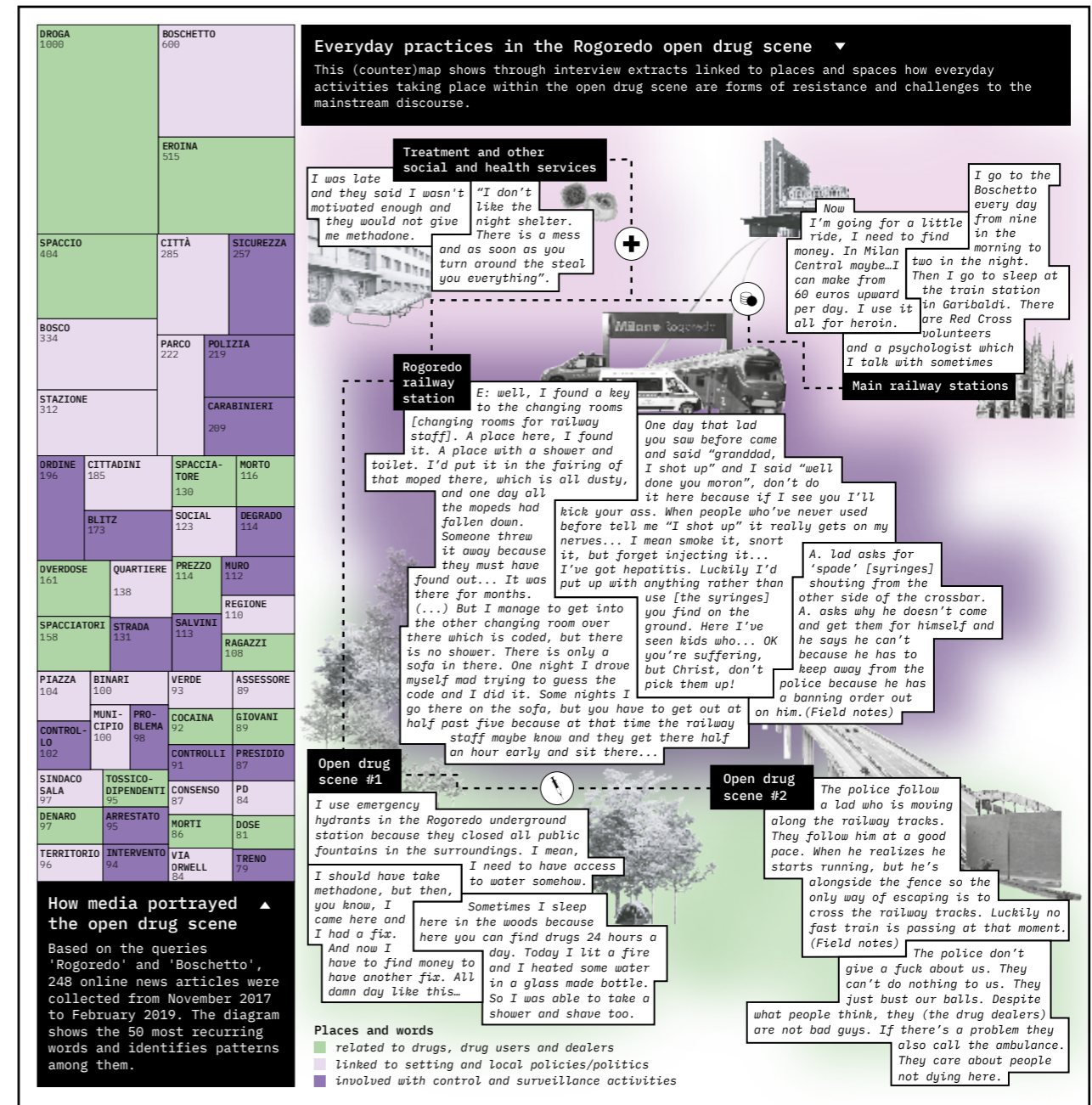
This (counter)map portrays all of the daily actions that take place inside the open drug scene, which are characterised by the exchange of information and reciprocity in the form of negotiations, alliances, clashes, and peace. All of these are expressed as economic and political endeavours. These are various types of resistance and threats to authorities who make life difficult for drug users by stopping, arresting, and confiscating their narcotics, or humiliating them. Aside from their urge not to give up, their

existence is a type of resistance due to the daily routine's relentless repetition. Beggary, drug-related prostitution, the temporary or ongoing occupation of the drug trade, and disobeying expulsion orders and other limitations are examples of illegal street use and existence methods, as well as collective space generating initiatives. Along with the everyday practices that occur in the area, the map focuses on the flows from and to Rogoredo.

There are two very different flows of people: the "traditional workers" that travel to the area due to the big media and entertainment company Sky Italia, and the "Rogoredo users" that move all across the north of Italy, and the centre of the city, to reach the open drug scene. In fact, this particular open scene is called a concentrated one which means that its boundaries are porous like limen cut through by flows, rather than circumscribable entities.

What is known as heroin "microdose," which costs roughly five euros, is a crucial variable in the intensity of these flows. This kind of market amplifies movements across the region and beyond. It also intensifies the cyclical nature of daily routines involving gathering the cash required to purchase a microdose, getting one, using it, and then starting all over again with collecting the funds. Furthermore, the drugs' quality is considered to be very low, resulting in greater use frequency. As introduced before, the informal economy is one of the activities in which the resistance practices are concentrated.

There are different opportunities and figures within the economy of Rogoredo: drug users who act as intermediaries during sex work bargains, those who work for the dealers in exchange for drugs, who sell needles or methadone, and so on. By using the testimonies of those who daily live the open scene reality, the counter-map aims to display the human side of Rogoredo and the lives of those who inhabit it. Those voices are usually left out of the mainstream narratives or, if included, distorted to reiterate the message of hate, violence and pity.



▲ [Fig. 57] Second map resulting from the Rogoredo scene project.

4.5.1 Data collection: ethnographic research methodology

Given the complexity of the research object, the technique chosen to answer the research question is ethnography, conducted through participant observation and in-depth interviews with the social actors who frequent the open scene. To this end, during the initial observation phase, the leading social actors who frequent Rogoredo were identified and differentiated according to the activities they carry out in theirs. The research investigated the practices of interaction between these groups as observable social practices that take place in everyday life through an ethnomethodological theoretical approach insofar as the phenomenon under study is considered to be produced locally by particular people in particular contexts.

Ethnography is a valuable method for this type of research as it focuses on what people do in a public space, not what they think or feel. Ethnography, in fact, refers to the study of people in their natural context or 'field' through data collection methods that capture social meanings and their ordinary activities by requiring the researcher to participate directly in the context or even the activities to collect data in a systematic manner (Brewer, 2000). The fieldwork initially took place alongside professionals from harm reduction services working at the site, the so-called gatekeepers. The public space of the open scene itself was a source of spontaneous data from which it was possible to gather information. During the interviews and observation, the author used the tool of audio recording and the use of photographs, where possible and with the subjects' consent, to collect more data and allow a more accurate analysis. The systematic collection of news articles in local or national online newspapers continued.

Methodological techniques

The fieldwork was carried out from May 2017 to December 2018. The qualitative methodology used included various techniques: semi-structured interviews, in-depth interviews, participant observation and the collection of news articles on the chosen case study. The techniques enabled the collection of the data described in the following sections.

Places of contact

The observation was mainly carried out at the railway station, where the scene was most visible. It should be noted that there was a complex system of lookouts to protect the organisation of the drug dealing, which made it impossible to approach the places of sale without causing alarm. Only in the presence of known Red Cross operators it was possible to go near the trafficking areas but never actually proceed to the sellers. Secondary observation activities were also carried out in Porto di Mare, on short underground and train routes frequented by users to collect the money needed to purchase the substances, and finally in social places in the Rogoredo district, including clubs, bars, and shops.

Identified actors

The people interviewed during the research phase can be divided into two groups: the privileged witnesses, i.e. persons who, due to the particular role they play, possess information that may be useful for our investigation (Losito, 1998) and the social actors, who actively frequent and participate in the activities in the open scene. Following the initial phase of observation and dialogue with the privileged witnesses, it was possible to identify several analysis groups among the social actors of the open scene. These include:

The users of psychotropic substances
The residents of the Rogoredo/Santa Giulia neighbourhood and surroundings
Commuters attending the Rogoredo F.s station
Workers inside the Rogoredo F.S. station
The shopkeepers in the Rogoredo/Santa Giulia neighbourhood
The clients of drug-related sex work
The police
Journalists

4.5.2 Qualitative data: interviews

As described above, the author conducted **42 interviews** for data collection during the months of observation and fieldwork. The interviews can be divided into two macro-groups, those conducted with privileged witnesses, which were carried out during the first exploration phase, and those with social actors conducted at a later stage. The latter are those that the authors used during the construction of the second counter-map.

In-depth interviews were chosen as the interview typology, which made it possible to collect descriptions and interpretations of the subjects' social worlds. Through this type of interview, the researcher can explore the social actors' experiences, motivations and opinions in detail (Rubin & Rubin, 2012). Of the 42 testimonies collected, 31 belonged to social actors. Taking into consideration that the interviewees may belong to more than one of the groups found, it is possible to divide the participants according to these categories:

12 Consumers
10 Residents
5 Commuters
3 Workers within the
4 Clients of drug-related sex work
3 members of the police force

The main techniques used during the interaction with the subjects are walking interviews and map-elicitation. The walking interview mode consists of walking together with the interviewee to primary places of interest. This approach makes it easier to gather geographical information and details on the interactions between areas and subjects. During the interviews, the author used a paper map of the neighbourhood, both paper and digital, to increase the spatial dimension of the testimony. This technique

allows for enhancing the spatial dimension in the construction of qualitative data. Given the difficulty of approaching interview subjects, especially in the case of consumers, the sample chosen is not representative. It includes eight women and twenty-three men contacted mainly directly during the fieldwork. During the construction of the second map, I carried out the selection of the interviews collected by Sonia. The testimonies shown visually within the visualisation are only a small representative sample and were chosen based on the subjects treated.

Within the map, five non-geographical places were identified: the open scene of the “Boschetto”, the open scene of “Acqua”, the Rogoredo station, SERT services and other harm reduction services and other essential railway junctions where users collect money to buy doses. These places represent the users’ everyday life and the main activities they carry out during the day.

The interviews focused on the relationship between consumers and their surroundings and the relationships woven between consumers and other social actors.

Below are the interviews shown on the map, divided by the different locations identified:

Treatment and other social and health services:

“I was late and they said I wasn’t motivated enough and they would not give me methadone.”

“I don’t like the night shelter. There is a mess and as soon as you turn around they steal everything”.

Rogoredo railway station:

“One day that lad you saw before came and said “granddad, I shot up” and I said “well done you moron”, don’t do it here because if I see you I’ll kick your ass. When people who’ve never used before tell me “I shot up” it really gets on my nerves... I mean smoke it, snort it, but forget injecting it... I’ve got hepatitis. Luckily I’d put up with anything rather than use [the syringes] you find on the ground. Here I’ve seen kids who... OK you’re suffering, but Christ, don’t pick them up!”

“E: Well, I found a key to the changing rooms [changing rooms for railway staff]. A place here, I found it. A place with a shower and toilet. I’d put it in the fairing of that moped there, which is all dusty, and one day all the mopeds had fallen down. Someone threw it away because they must have found out... It was there for months. (...) But I manage to get into the other changing room over there which is coded, but there’s no shower. There’s only a sofa in there. One night I drove myself mad trying to guess the code and I did it. Some nights I go there on the sofa, but you have to get out at half-past five because at that time the railway staff may know and they get there half an hour early and sit there...”

“A. lad asks for ‘spade’ [syringes] shouting from the other side of the crossbar. A. asks why he doesn’t come and get them for himself and he says he can’t because he has to keep away from the police because he has a banning order out on him (field note)”

Open drug scene 1:

“I use emergency hydrants in the Rogoredo underground station because they closed all public fountains in the surroundings. I mean, I need to have access to water somehow.”

“I should have taken methadone, but then, you know, I came here and I had a fix. And now I have to find money to have another fix. All damn day like this...”

“Sometimes I sleep here in the woods because here you can find drugs 24 hours a day. Today I lit a fire and I heated some water in a glass bottle. So I was able to take a shower and shave too.”

Open drug scene 2:

The police follow a lad who is moving along the railway tracks. They follow him at a good pace. When he realises he starts running, but he’s alongside the fence so the only way of escaping is to cross the railway tracks. Luckily no fast trains are passing at that moment. (Field notes)

“The police don’t give a fuck about us. They can’t do anything to us. They just bust our balls.”

“Despite what people think, they (the drug dealers) are not bad guys. If there’s a problem they also call the ambulance. They care about people not dying here.”

Main railway stations:

“Now I’m going for a little ride, I need to find the money. In Milan Central maybe...I can make from 60 euros upward per day. I use it all for heroin. “

“I go to the Boschetto (open drug scene) every day from nine in the morning to two in the night. Then I go to sleep at the train station in Garibaldi. There are Red Cross volunteers and a psychologist which I talk with sometimes”

4.5.3 Quantitative data: newspaper articles' most frequent terms

During the entire interview phase, the authors manually collected the texts of 248 online newspaper articles that dealt with the open scene in Milan Rogoredo between November 2017 and February 2019. This analysis made it possible to highlight what sort of narratives were being carried out by traditional communication channels on the topic. During the construction of the maps, this information was also incorporated, and the authors selected the 50 most frequent words. The juxtaposition of the two types of data, the qualitative interviews that through testimonies tell the human side of the open scene, and the quantitative data that shed light on how consumers are perceived, creates a powerful emotional impact and underlines how the two points of view are often conflicting.

Parola	Frequenza
droga	1000
boschetto	600
eroina	515
spaccio	404
bosco	334
stazione	312
città	285
sicurezza	257
parco	222
polizia	219
carabinieri	209
ordine	196
cittadini	185
blitz	173
overdose	161
spacciatori	158
quartiere	138
strada	131
pusher	130
sociale	123
morto	116
degrado	114.1
prezzo	114
salvini	113
muro	112
regione	110
ragazzi	108
piazza	104
controllo	102
binari	100.1
municipio	100
problema	98
sala	97.1
denaro	97
territorio	96
tossicodipendenti	95.1
arrestato	95
intervento	94
verde	93
cocalina	92
controlli	91
assessore	89.1
giovani	89
presidio	87.1
consenso	87

[Fig. 58] The Dataset collects online newspapers' words frequently used to describe the Rogoredo open scene.

4.6 Final thoughts

After describing in detail the methodologies used in the research phase, the types of data collected, and the analyses subsequently carried out on the datasets created, the author considers further reflection on the positive and negative aspects of using both a qualitative and a quantitative approach to be valuable and necessary. Being able to carry out a coherent and complete narrative was undoubtedly the most significant difficulty encountered by the authors throughout the project phases. It was also very complex for the project team to figure out how to reconcile significantly different data, both in terms of the nature of the data and the type of information it contained. However, the quality of the data collected and the depth of the research allowed for the inclusion of numerous viewpoints and themes within the visualisations. This approach, even though complex, allows the research topics to be explored in a way that a single qualitative or quantitative system would not allow.

4.6.1 Critical aspects of data collection

Given the nature of the project and the objectives it had set for itself, the authors encountered several difficulties in gathering information. Concerning quantitative data, finding reliable and complete sources was the greatest complexity. Not being able to rely on official data, either due to lack of access or due to the actual lack of data, the team had to manually search for information and do cross-examination work to verify its validity. In particular, then, the data collection and analysis process is not linear and delineated; the researcher has to continuously modify the initial assumptions of the research, adapting them to the limitations and obstacles encountered.

The project team often had to change the type of information to be included in the visualisa-

tions because it did not work within the narrative or was incomplete. Despite this, all the data, even those discarded, were valuable and fundamental for getting to know the context of Rogoredo and correctly directing the narrative.

Regarding the qualitative data collected during the interviews, the main problems were found in the approach to the interviewees, especially with consumers. This mistrust was often caused by a fear of people unfamiliar with the reality of Rogoredo caused by the insistence of the media and journalists, who for years besieged consumers and then reported a distorted and demonised version of the testimonies. Lack of data is undoubtedly one main point that characterises counter-map projects. This lack of information is such that it becomes the object and focus of research. For those who set themselves the goal of challenging traditional narratives, the question arises as to what causes this lack of information, especially in a world that is becoming increasingly data-driven.

The important thing during the project is to remember that **counter-mapping is not about exhaustivity; it is instead about meaningfulness**. Transparency about data construction, the twists and limits of this particular data, or the lack of information is crucial.

05

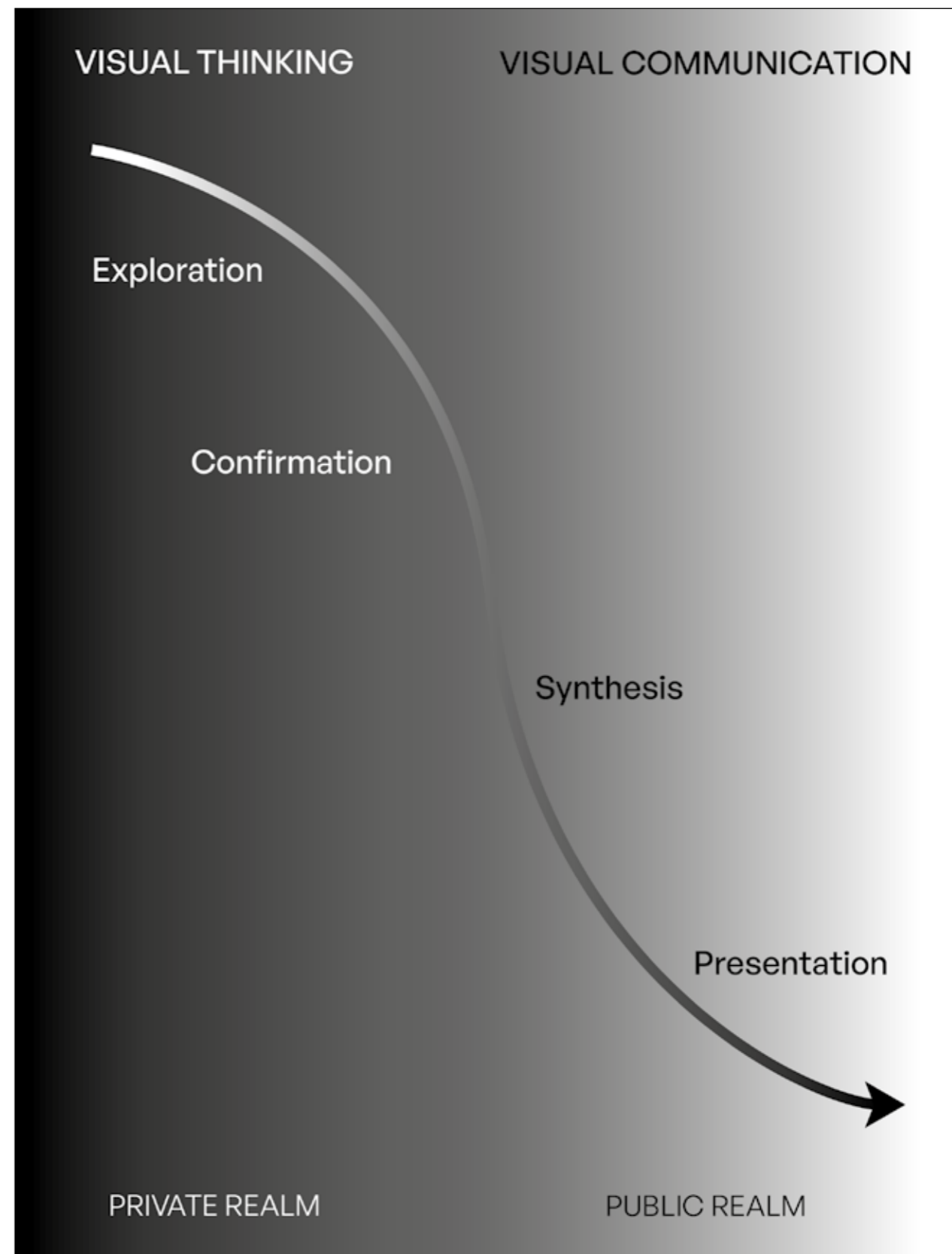
Rogoredo
drug scene
project,
map con-
struction

5.1 The mapping process During the phase of idealisation and construction of a map, it is fundamental for the project's success to consider the fundamental elements and steps that help to build this type of visualisation.

This process is not a rigid set of rules and actions to follow, however, arises from the authors' reflections and the need to map the processes implemented during the map's construction. Even though the process is now presented as a series of linear steps, it is good to keep in mind that the creative process instead needs a more fluid development that allows the authors to "move forward and backwards" through the stages of the project.

The mapping process is composed of several steps; first, the cartographer has to define the goals and purpose of the map, then it is fundamental to decide the map format (printed or digital); later, it is helpful to choose the scale of the map according to the data collected and the aim of the visualisation. It is then recommended to work on the data collected, find a way to abstract and represent them, and finally, the last step is to design the map layout. The following paragraphs will highlight all the choices made that allowed the creation of the two visualisations of the open scene of Milano Rogoredo.

► [Fig. 59] The "swoopy curve": from visual thinking to visual communication curve, DiBiase (1990). *Redrawn*



5.2 Map 01: How structural violence produces an open drug scene displacement

As described in detail in the chapter concerning data collection, this map focuses on highlighting the forces and power structures that determined the

creation of the open scene in Milan Rogoredo and subsequently led to its dissolution. In particular, the map focuses on the neighbourhood's gentrification and redevelopment movements that occurred between 2017 and 2021.

In order to correctly interpret the visualisation, it is necessary to consider the two triggers that could have possibly initiated these phenomena. Expo 2015 brought many changes to Milan, among them policies that attempted to decrease the sale of drugs within the city. These 'clean-up' actions may have led to the formation of a centralised drug dealing zone on the city's outskirts. Subsequently, winning the bid for the 2026 Winter Olympics and the decision to use Rogoredo as the area for the construction of the related infrastructure may have pushed the open scene even further out of the city.

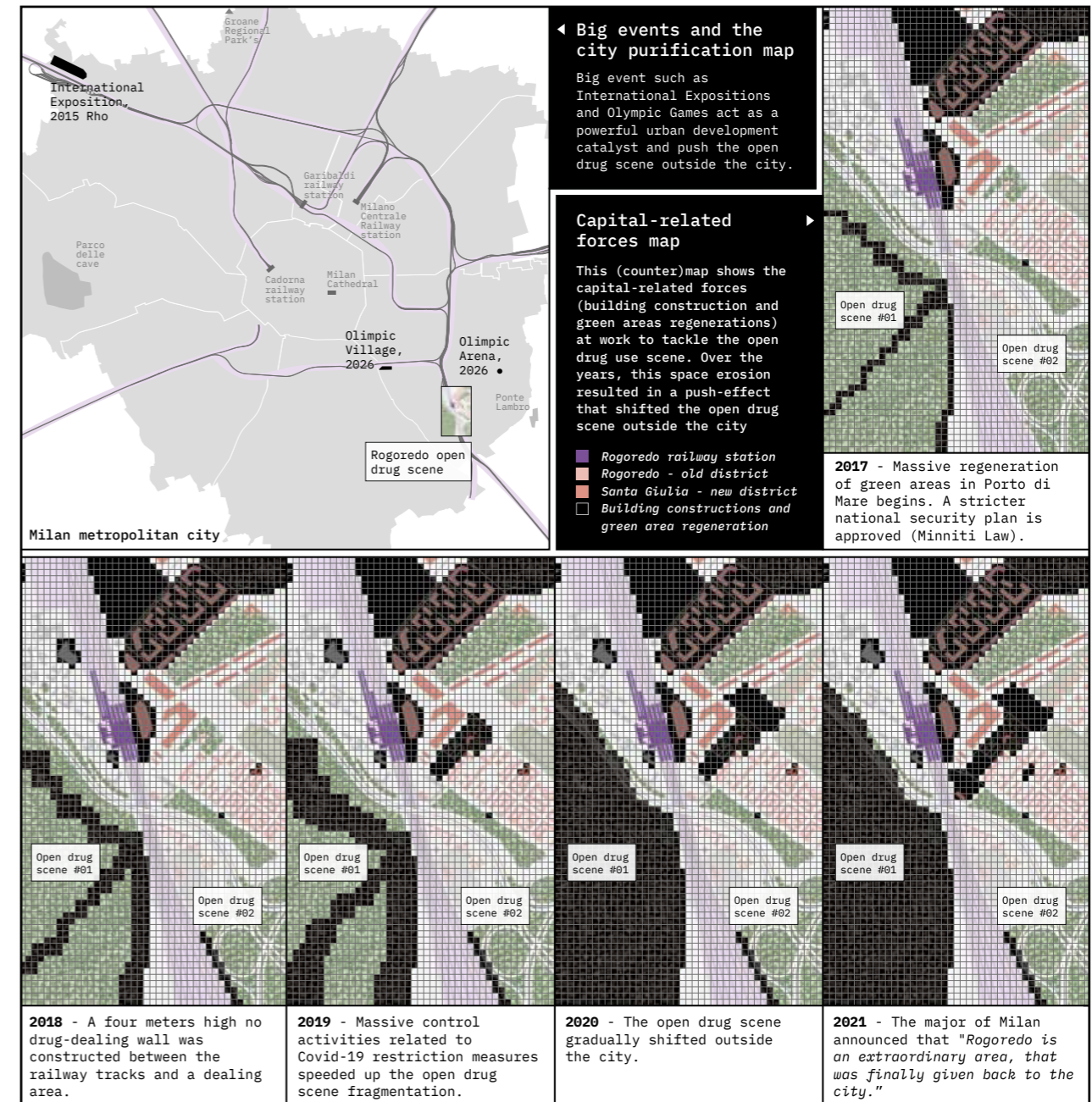
Through a powerful visual metaphor, which will be explored in more detail in the following paragraphs, the map highlights how profound and radical the motions of change that have 'swallowed' the neighbourhood have been. The map uses quantitative data manually collected by the architecture and urban planning blog Urbanfile, which focuses on the building sites and major construction and reclamation works of which Rogoredo has been the protagonist in recent years.

5.2.1 Map layout

The maps were designed and constructed for the paper format to be included in the publication. The size and square proportions of the visualisation were decided per the project editors' guidelines.

Looking at the map, the two main sections that compose it are immediately evident, the map of Milan located in the top left corner and the five Rogoredo visualisations distributed over the rest of the page. The two text blocks make the division between its parts even more evident, introduce the reading and define the boundaries of the maps.

The arrangement of the contents is specifically designed to favour reading in a precise order. Initially, the texts, placed on a black background, capture the user's attention, prompting them to delve deeper into the subject by reading the captions. Next, the map of Milan at the top left contextualises the area under examination concerning the rest of the city and 'critical places' that have influenced it. Finally, the user continues reading through the five maps of Rogoredo, placed in chronological order to lead the narrative.



[Fig. 60] Rogoredo open drug scene first counter-map

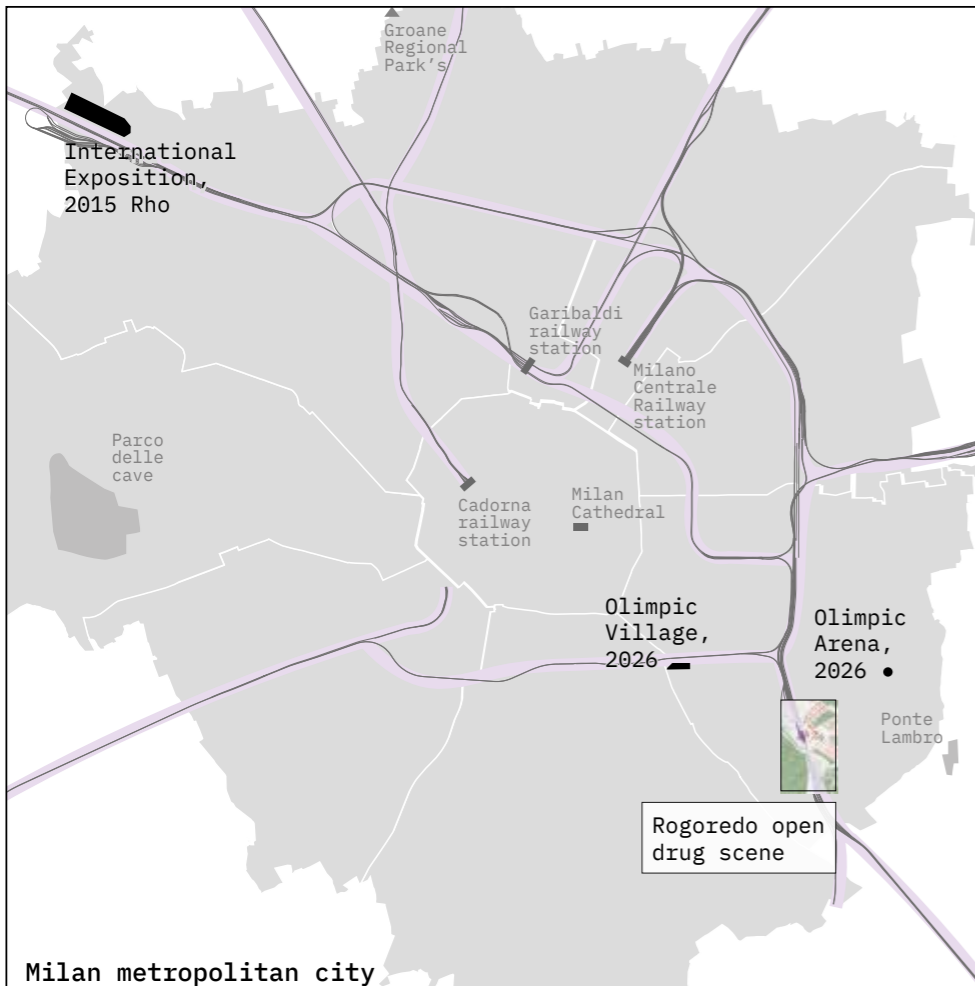
5.2.2 Big event and city purification map

This map helps to define the context in which the Rogoredo open drug scene thrived. It's a graphic representation of the metropolitan area of Milano, displaying geo-localised information regarding major events or places that influenced the rise and the dismantling of Rogoredo. The aim of the map is precisely to highlight the trigger events of the open scene and the main places in the everyday life of those who frequent it.

Map scale and visual style

The purpose of the map scale is to measure linear relationships and distances on the map. Map scale should use a unit of measure that is

appropriate for the audience and its purpose. (Ingram, 2020)
The map has been scaled down to a free scale, which therefore does not follow the values traditionally used in cartography, specially selected for visualisation purposes. This choice stems from the need to show both the entire metropolitan area, as well as some places in the city's hinterland, while at the same time allowing for a level of detail that enables specific places in the city to be visualised



[Fig. 61] Big event and city purification map.

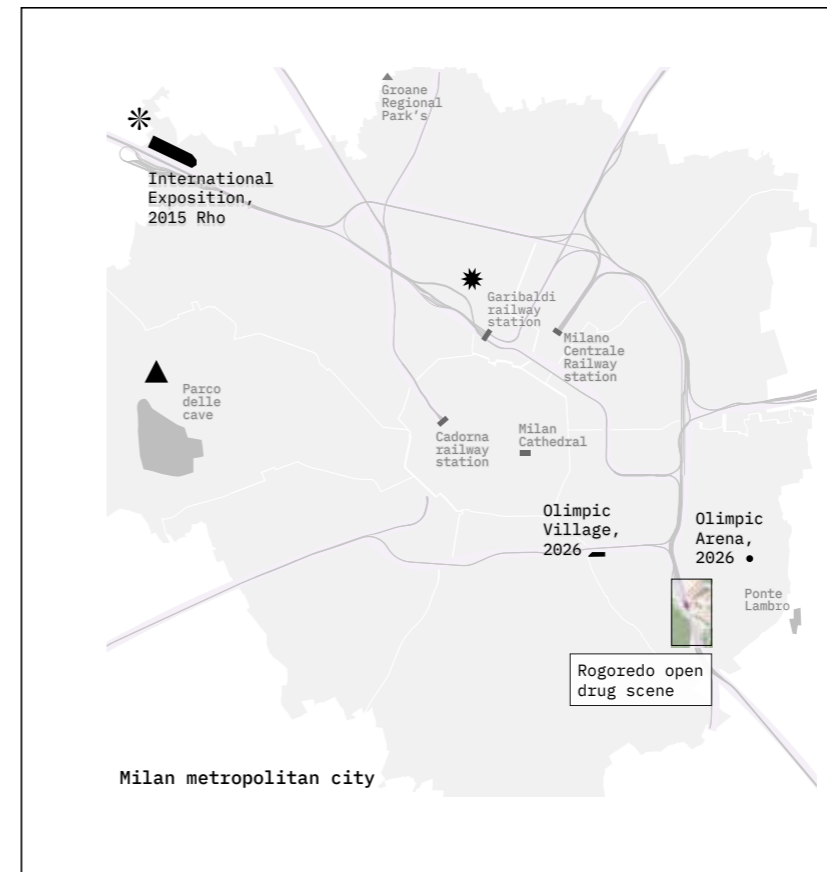
Maps content

As mentioned above, the elements marked on the map were decisive for the open scene in Milan Rogoredo and its inhabitants. The items highlighted in the visualisation are divided into three categories: event sites, transit places, and other venues.

- * The event sites, marked in black, are the area dedicated to Expo 2015 and the two places destined to host the Village and the Olympic arena. Expo, as previously explored, was fundamental in creating the city's cleaning processes that led to the creation of the open scene. Interestingly, the area dedicated to the International Exhibition is located on the other side of the city from the Rogoredo district. The two venues related to the Olympic Games, on the other hand, have led to the need to dismantle the drug zones and

push them out of the urban boundaries.

- ✱ The passing places, characterised by darker grey, are instead the principal railway and metro hubs used by users to reach the open scene or collect the necessary funds to purchase substances. Also highlighted are the main railway routes that connect the Milan area with the whole of northern Italy and are crossed daily by the inhabitants of the open scene.
- ▲ Finally, parks that constitute other major areas for drug dealing and consumption are highlighted in light grey. In particular, since the Rogoredo scene has been dismantled, flows to these other areas have increased.



[Fig. 62] Big event and purification map. Content details

5.2.3 Capital related forces maps

The five maps depicting the reality of Rogoredo are arranged in chronological order from 2017 to 2021 and display the regeneration and gentrification movements that have drastically altered the neighbourhood in recent years. Not being able to demonstrate, with data, the correlation between the exponential increase of building sites and public operas and the dismantling of the open scene, the map only aims to contextualise and explore a phenomenon, leaving the user to draw his conclusions. For this visualisation, it was chosen to use some of the typical elements of traditional cartography, which will be exhaustively analysed in the following paragraphs, wanting to stress the spatial and urban components of the phenomenon. The number of maps (5)

was determined concerning the quantity and quality of the data collected. The beginning of the research dates back to 2017, which was therefore chosen as the first year for data collection, and due to the timing of the project, it was not possible to collect complete data by the year 2022. These five years have also been the most significant in the history of Rogoredo. The anti-smuggling wall has been built, the reclamation of the grove has begun, the pandemic has radically changed the dynamics within the open area, and in late summer 2021, Beppe Sala, the mayor of Milan, announced the complete regeneration of the area. On the other hand, the map layout was chosen both to meet the project's and the press's needs and to facilitate and entice the user to read them.

Maps base layer

The first phase is the selection of data. Selection is when you choose a subset of data that you wish to display on the map. Showing everything would make the map look like a mess. You should choose the level of detail according to the scale. (Ingram, 2020) The authors used the free online software OpenStreetMap to obtain the base map of the Rogoredo area. The portion of the area displayed and the scale were chosen, taking into account the geolocation of the data taken into consideration. Thanks to the platform, it was possible to download a vector .svg file, used later to build and insert the information necessary for the narrative. The map was then "cleared" and simplified to eliminate superfluous elements. Instead, the team decided to maintain visible urban elements taken into account or essential for the context.

The main elements that constitute the base map are:

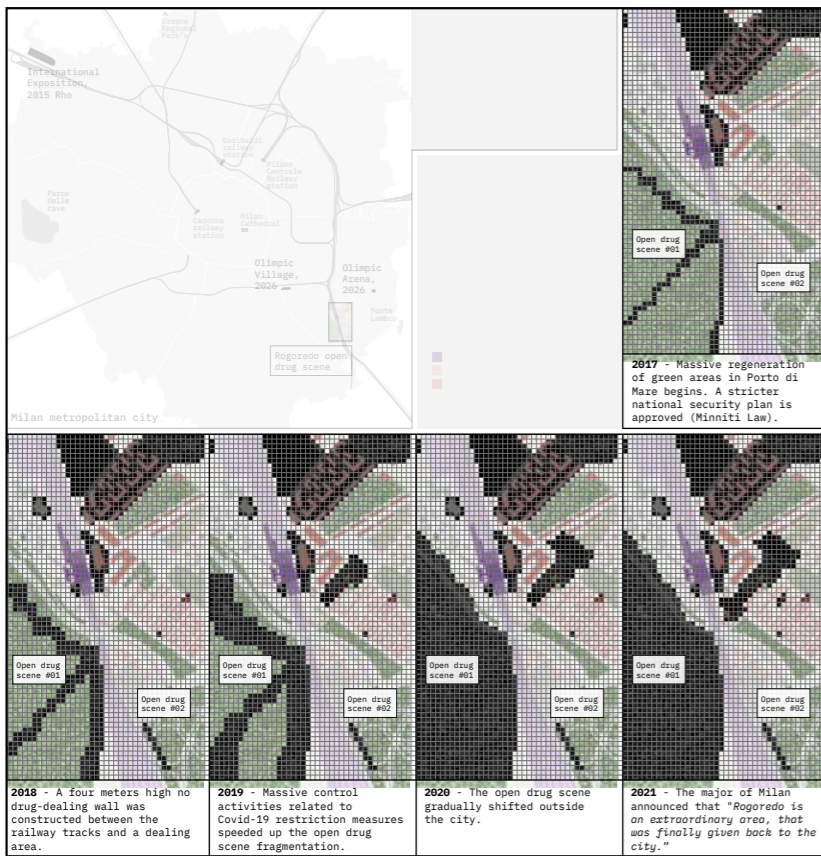
The residential and non-residential buildings represent the heart of the changes in the neighbourhood.

Parks and green spaces are also protagonists of the regeneration works and the principal places of the open scene. The station and the tracks' whole area constitute an essential consumer meeting point and escape route for drug dealers.

The motorway and the road junctions border the other main area for drug dealing and consumption, "water".

Other information, such as street names, identification of places of worship, power stations and many others, have been omitted from the final visualisation as superfluous.

[Fig. 64] Capital-related forces map, base layer details



[Fig. 63] Capital-related forces map, layout.

Use of colour

“Colour is an extremely valuable tool for cartographers. Colour grabs the attention of your map reader and engages them with your map. To maximise the effectiveness of our maps we must employ colour properly. While it is nice to design your map in line with the colour preferences of your audience, general colour conventions should overrule the broader colour preferences.” (Ingram, 2020)

The authors chose the colours concerning the content, narrative purpose, and tone. As described above, the writers wanted to avoid making a narrative focused on the issue of substance consumption but rather denounce policies, or lack of policies, towards consumers. For this reason, visual colour choices were made that did not imply a moral judgement or position.

Choosing colours followed a specific order and progressed by commonality, differences or associations. It was decided not to use the colours blue and blue as they are usually associated with watercourses and seas. The use of red was also avoided as it is a colour loaded with meanings and is usually used to describe negative phenomena.

- In order to follow the rules of cartography and to use language already known to end-users, meadows and other wooded areas were identified with the colour green.
- Since the Rogoredo train station is the central point of the daily flows and action of the area, it was identified with the colour purple, the brightest and strongest in the visualisation.
- The platforms and other transport-related infrastructures were then represented with a lighter tone of purple to highlight

the link between the two elements.

The residential and non-residential buildings were divided into three main categories: the buildings belonging to the Old Rogoredo district, the newly constructed buildings of the Santa Giulia district and other buildings present in the area but not taken into account.

- For the latter, a neutral colour was used to prevent them from being too evident. Two tones of orange were used for the Rogoredo and Santa Giulia buildings, respectively lighter for the Old quarter and darker for the new buildings. In this way, it was possible both to highlight their close relationship and to keep the identity of each area distinct.

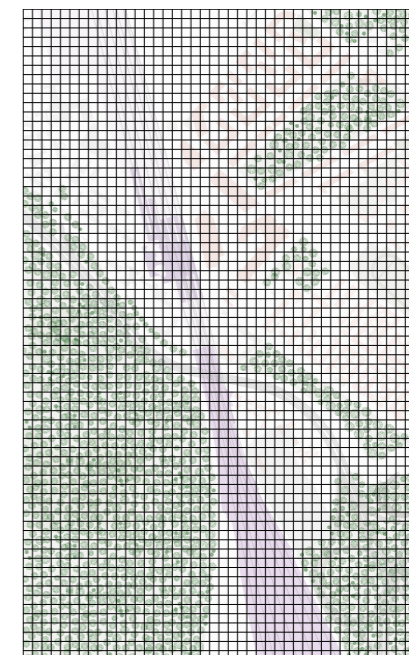
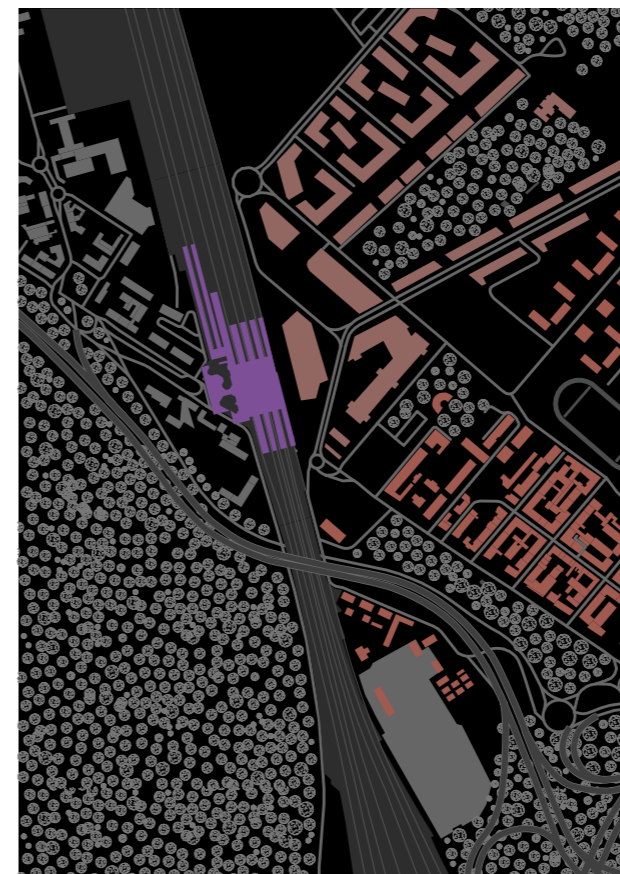
▼ [Fig. 65] Capital-related forces map, colours.



The grid

The characterising element of the visualisation is probably the dense grid covering the entire map. The grid was created to reference traditional cartographic constructions. Using such a strong visual language also arises from the need to divide the Rogoredo area into sectors that could be analysed individually. In the subsequent stages of map construction, the grid allowed the cartographic space to be deconstructed, inserting new visual languages. The size of the grid cells was due to purely functional choices; a compromise had to be found between a highly dense grid that did not allow the reading of the elements in the background and a thicker grid that instead risked transmitting incorrect and misleading information.

▼ [Fig. 67] Capital-related forces map, the use of black as metaphor for gentrification movements.



◀ [Fig. 66] Capital-related forces map, grid.

Black as a visual metaphor

Another characterising element is the strong use of black as an absorbing and totalitarian element.

By using the online open platform OpenStreetMap it was easy to localise on the map the construction sites collected in the dataset. The choice to use black as a metaphor comes from the need to represent the movements of regeneration (and gentrification) as a phenomenon that, by advancing, has eaten away the district, eliminating its identity. In this case, the authors, who have always remained impartial, take a position by giving an extremely negative and critical connotation to the policies undertaken in the area.

The five views highlight how, in just five years, the Rogoredo neighbourhood has been completely transformed.

The regeneration policies include the 'reclamation' activities of the green spaces, which have involved the Grove area.

What emerges from the visualisation is the portrait of a drastic and unstoppable process, which has not been accompanied by social policies and support for individuals.

Textual elements

The authors used short captions to carry the narrative forward. The texts can be divided into two categories: those placed inside the maps, which serve to identify the principal places, and those placed outside the maps, which provide additional contextual information. In particular, texts were included concerning policies and phenomena that influenced the transformation movements of the neighbourhood.

2017 - Massive regeneration of green areas in Porto di Mare begins. A stricter national security plan is approved (Minniti Law).

2018 - A four meters high no drug-dealing wall was constructed between the railway tracks and a dealing area.

2019 - Massive control activities related to Covid-19 restriction measures speeded up the open drug scene fragmentation.

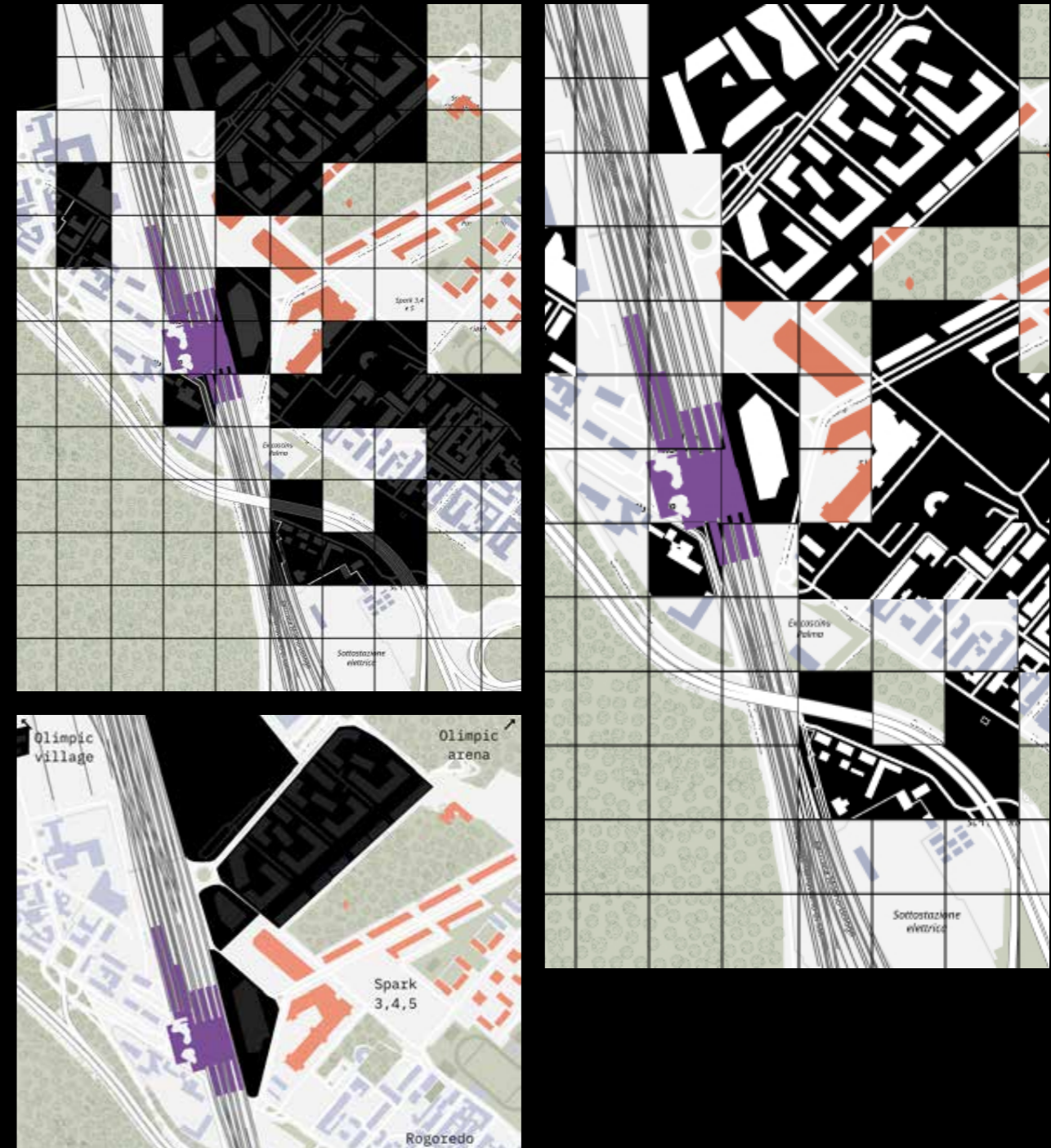
2020 - The open drug scene gradually shifted outside the city.

2021 - The mayor of Milan announced that "Rogoredo is an extraordinary area, that was finally given back to the city."

5.2.4 Challenges encountered during the construction of the map

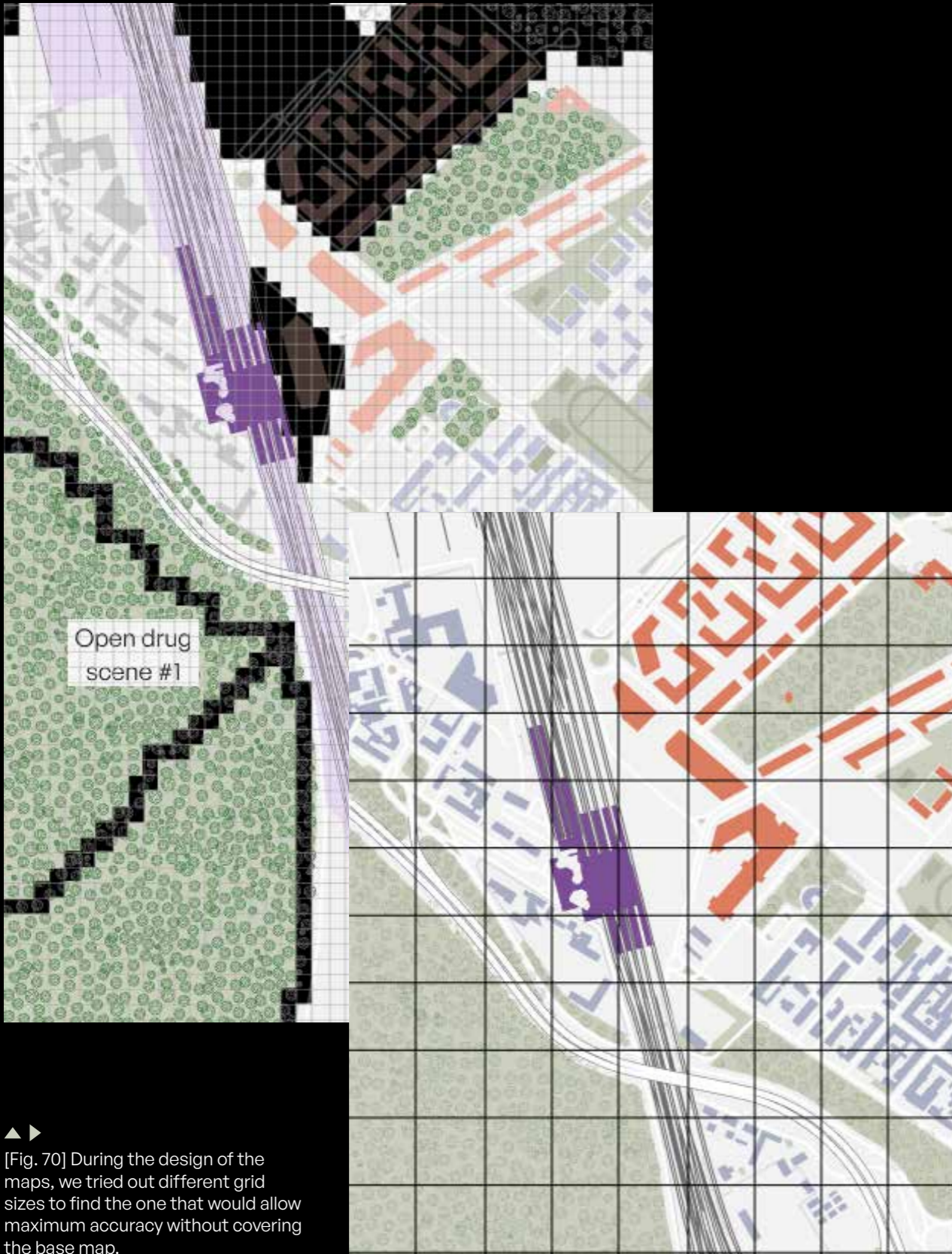
The main difficulty encountered during the construction of the map was to prevent the grid from excessively covering the base map. While increasing the amount of information conveyed, too much detail would have risked being too complex and challenging to read. Conversely, maintaining a low level of detail would have resulted in excessive data loss. It was necessary to carefully choose which elements to bring back and which to eliminate from the background map.

5.2.5 Rejected proposals

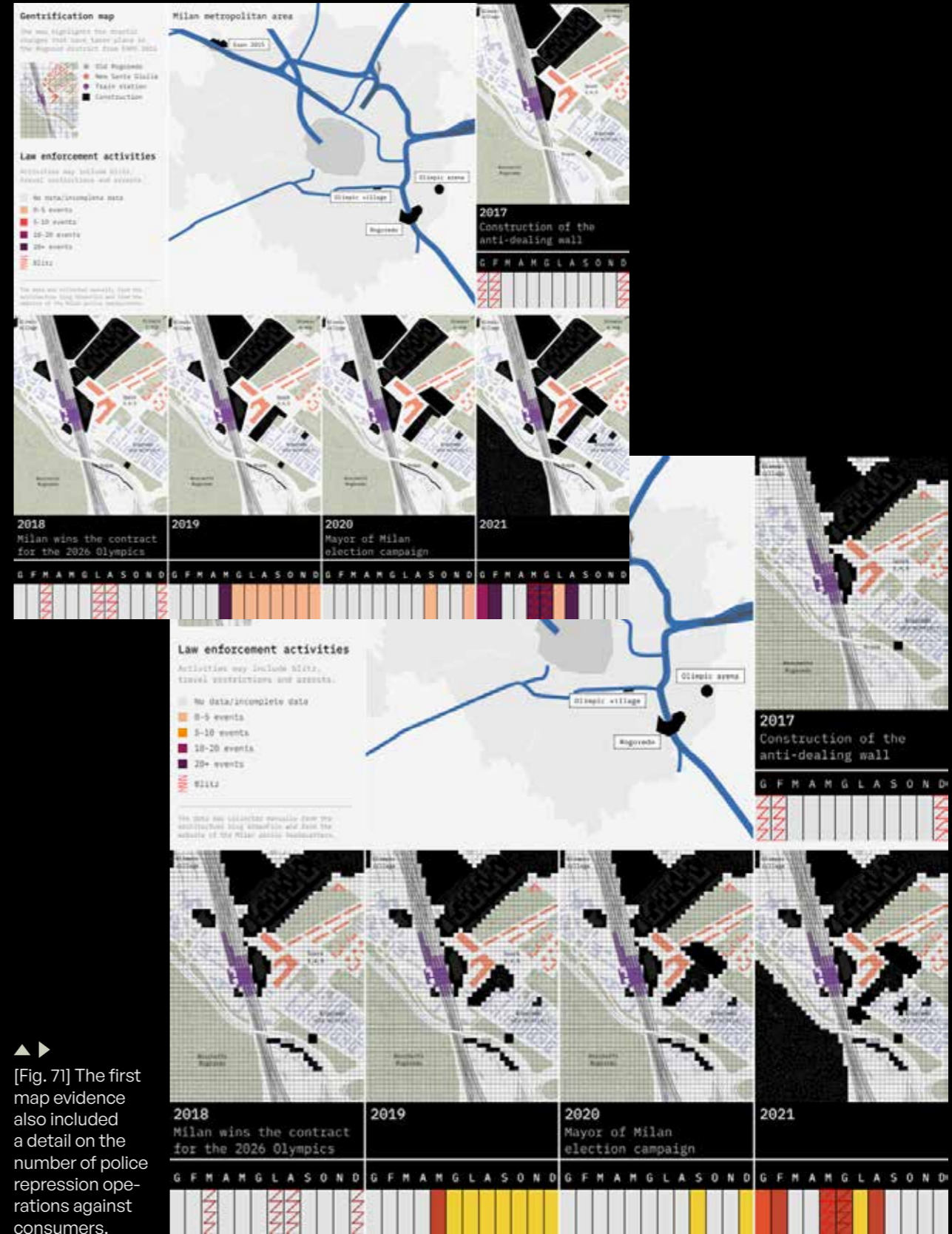


[Fig. 68] Capital-related forces map, textual contents. Each map is accompanied by a text that provides contextual information about that specific year.

[Fig. 69] Old Experimentation with the grid and free forms.



▲▶ [Fig. 70] During the design of the maps, we tried out different grid sizes to find the one that would allow maximum accuracy without covering the base map.



▲▶ [Fig. 71] The first map evidence also included a detail on the number of police repression operations against consumers.

5.3 Map 02: The making of collective space in Rogoredo's open drug scene

This map highlights the daily practices implemented by the inhabitants of the open scene. The visualisation gives voice to the testimonies of those

who inhabit the open scene and the neighbourhood and are usually omitted from traditional communication channels.

At the same time, the map shows two opposing points of view: the testimonies on the one hand and the way the media describe the open scene on the other.

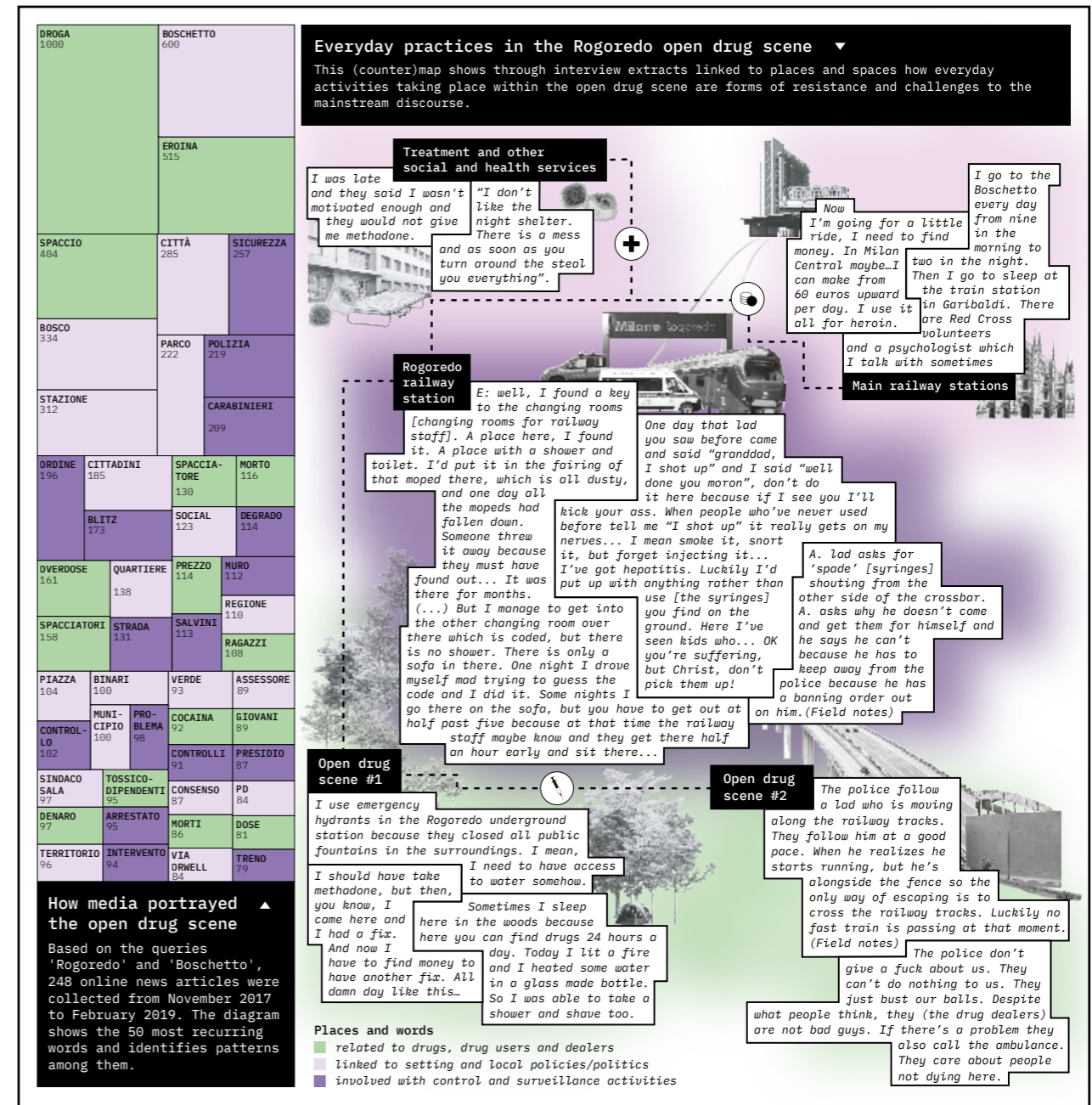
In order to highlight how this phenomenon is human and social but embedded within precise spatial contexts, 'unofficial' places of conflict were represented. These places represent the everyday life of consumers and the daily actions they carry out to survive.

Using photographic language also helped to represent the human side of Rogoredo. If the first map analysed a phenomenon rationally and detachedly, here, we return to reality by humanising it and giving it a new image.

5.3.1 General layout

The authors divided the map into two main sections; on the left, a visualisation shows the words most frequently used by

the media to describe the open-skill phenomenon, and on the right is the main visualisation reconstructing the informal consumer places. The proportions between the two sections are consistent with the other map and follow a common grid. Again, the two map description texts guide the user in reading and delineating the perimeter.



[Fig. 72] Rogoredo open drug scene second counter-map

5.3.2 Everyday practices in the Rogoredo open drug scene map

The map focuses on everyday practices and informal places on the open stage. Through the testimonies, places, situations, relationships and conflicts that would otherwise go unnoticed are reconstructed.

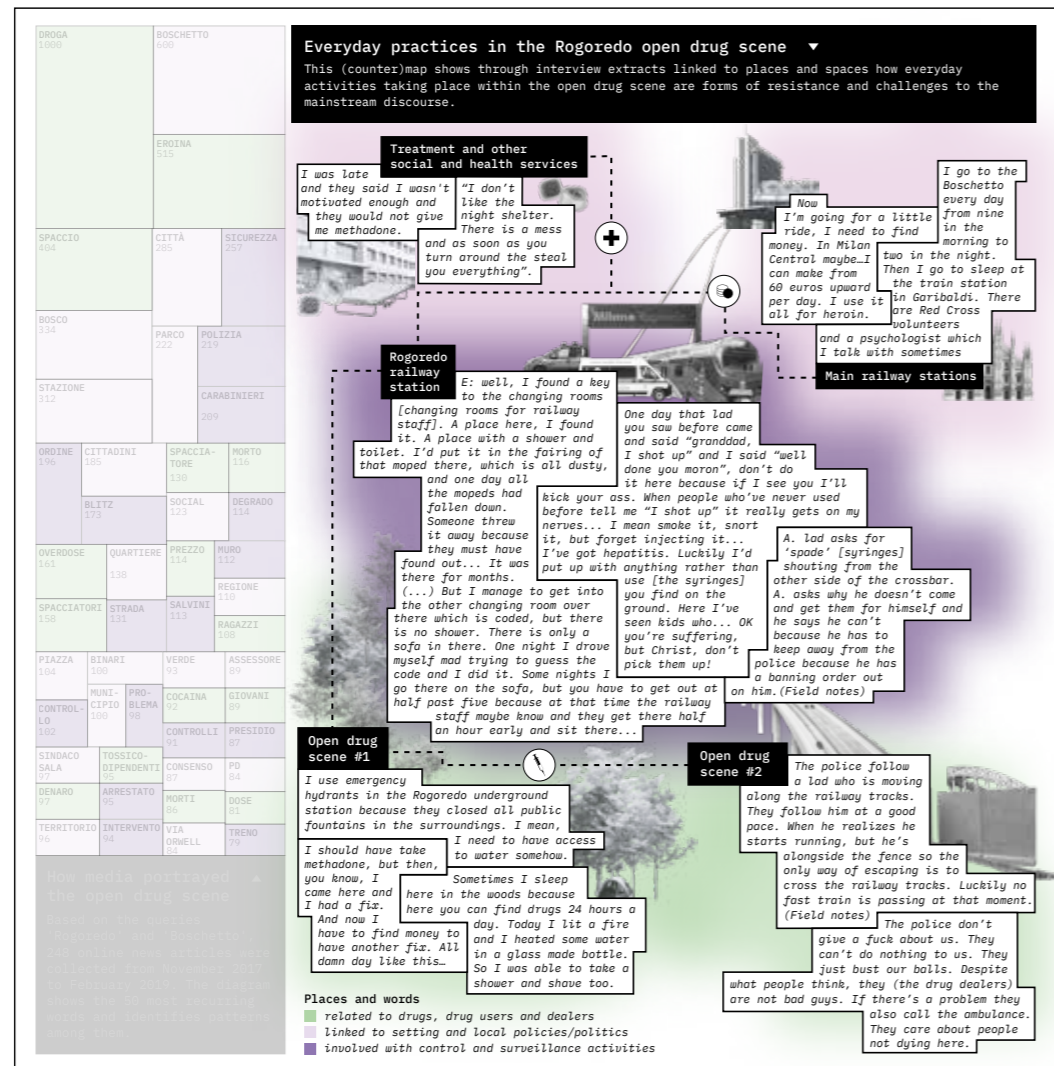
The map uses graphic and photographic languages, but the narration is mainly carried out through the texts filling the space.

For years not free to tell their stories, the Rogoredo actors finally have the chance to direct the narrative and give a new point of view on the matter. The interviews used are only a tiny

sample of Sonia's research work between 2017 and 2019. For the map, testimonies of consumers and other social actors in the area (carabinieri, social workers, ambulance workers) were used.

This map has a powerful emotional impact and aims to humanise the frequenters of the open scene and show their daily struggles that are never told.

In the following subsections, the authors will analyse all the elements that compose the visualisation, starting with the background elements and ending with the foreground elements.

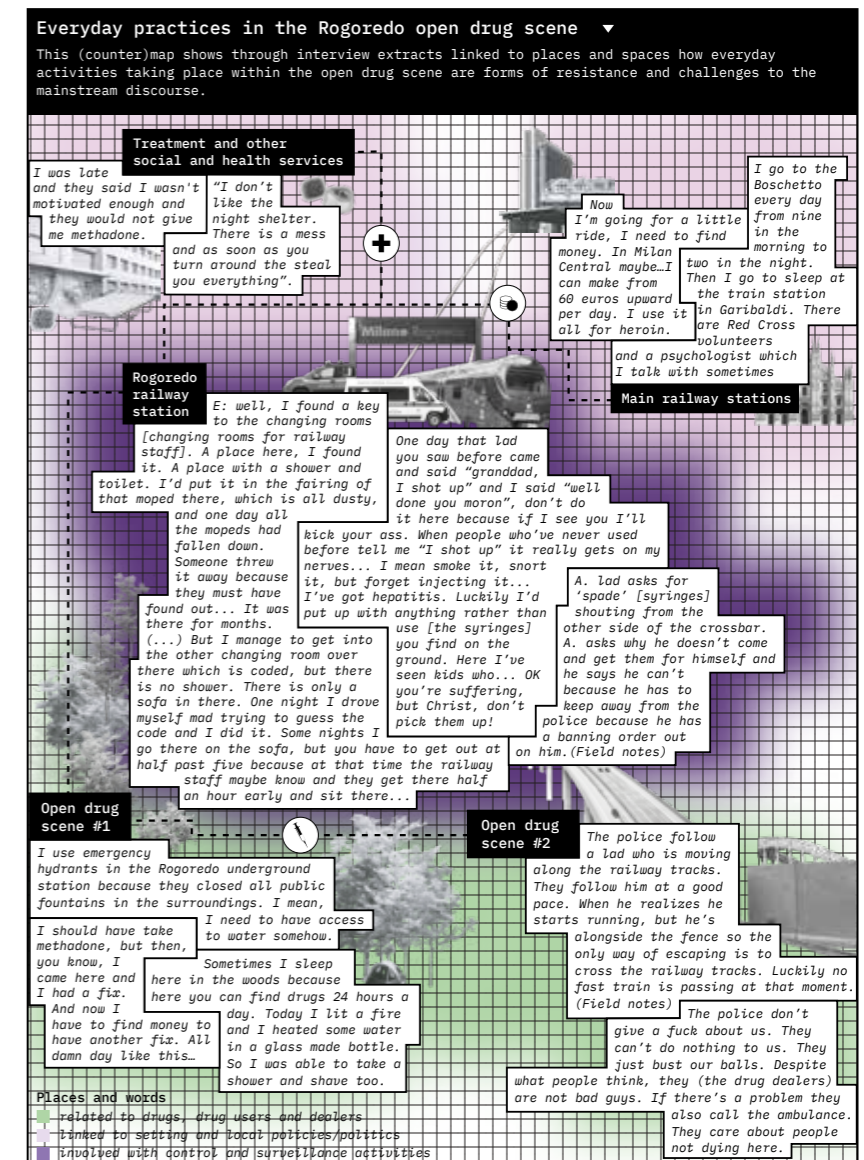


[Fig. 73] Everyday practices in the Rogoredo open drug scene map.

The invisible grid

The authors constructed this visualisation from a grid consistent with the first map. Furthermore, even though the subjects represented are far removed from those in traditional cartography, using a language such as that of the grid made it possible to give a visual order to the visualisation and made it easier to read. However, in this map, the grid was only used as

a basic structure on which to build the narrative. In the final stages of the project, the grid became invisible, and it is only visible through the shape and arrangement of the elements that make up the visualisation. The choice derives from functional reasons; in such an information-laden map, a basic grid would have been heavy and would have complicated readability.



[Fig. 74] Everyday practices in the Rogoredo open drug scene map, the base grid.

Colours, and background shapes

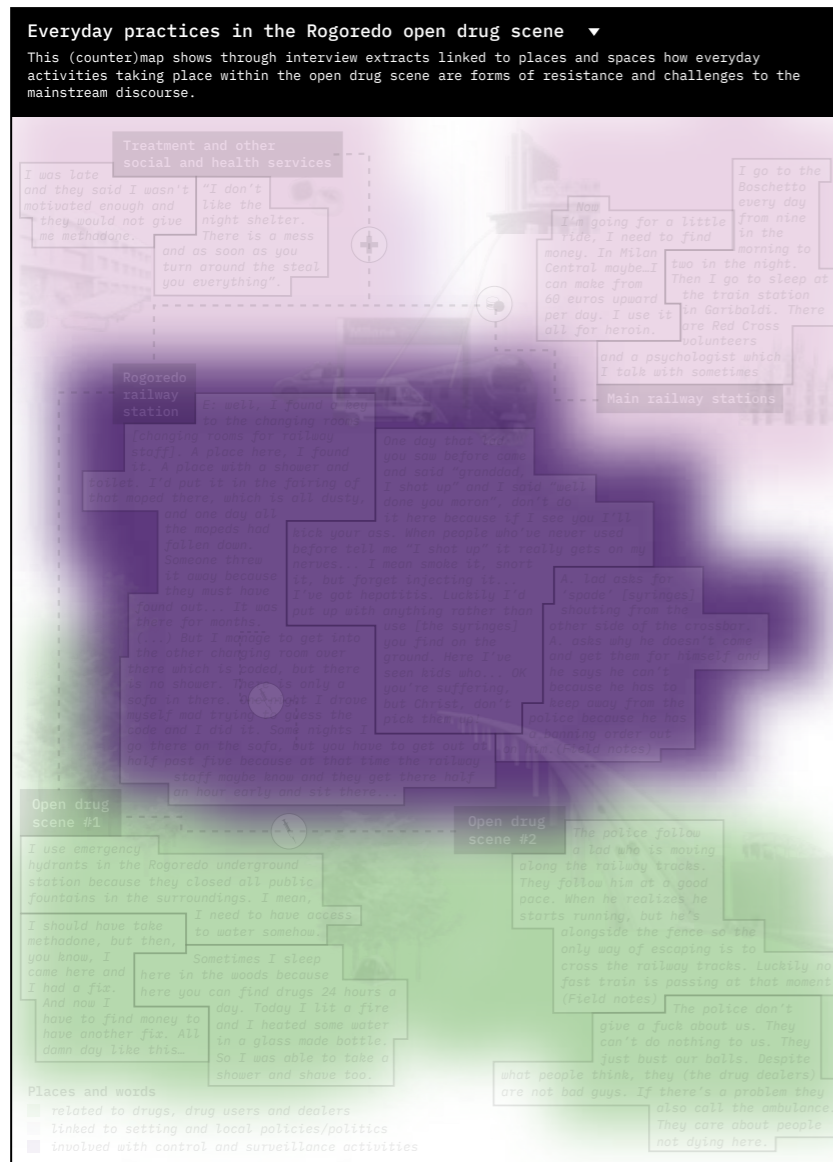
Three colours are used in the background outlining the informal areas. The colours were chosen to be consistent with those used for the Capital-related forces maps. The places were categorised into three macro-areas concerning how they are used and perceived by consumers and other social actors. The macro-areas found are places related to drugs, drug users and dealers, places linked to setting and local policies/policies and

areas involved with control and surveillance activities. The shape of the delimited areas was constructed according to the text areas above. The shape boundaries are blurred and undefined and intersect with other areas; this visual choice represents the difficulty in categorising a place due to the promiscuity and variability of the activities that take place there.

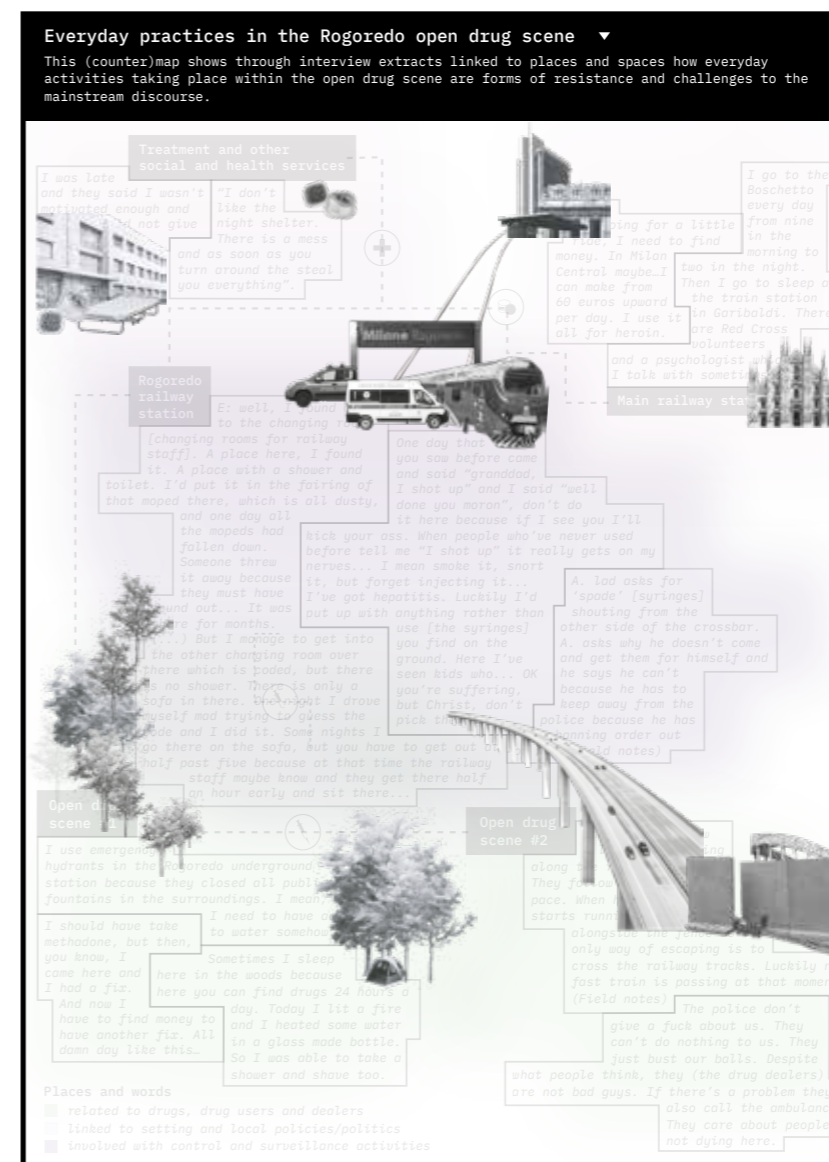
The use of images

Photographs are used as a visual medium to contextualise the testimonies within well-defined geographical areas. The use of photography allows the user to visualise informal places, thus leaving the abstract space and returning to the real. The chosen photographs represent both places and spatial elements characterising that area and objects and other elements necessary to represent the space.

The photographs were edited and rendered in black and white to leave colour only in the underlying shapes. Although most of the photographs define the boundaries and characteristics of a space, some serve as a “bridge” between the places, highlighting how they are not independent but part of the same ecosystem.



[Fig. 75] Everyday practices in the Rogoredo open drug scene map, focus on the base colours.

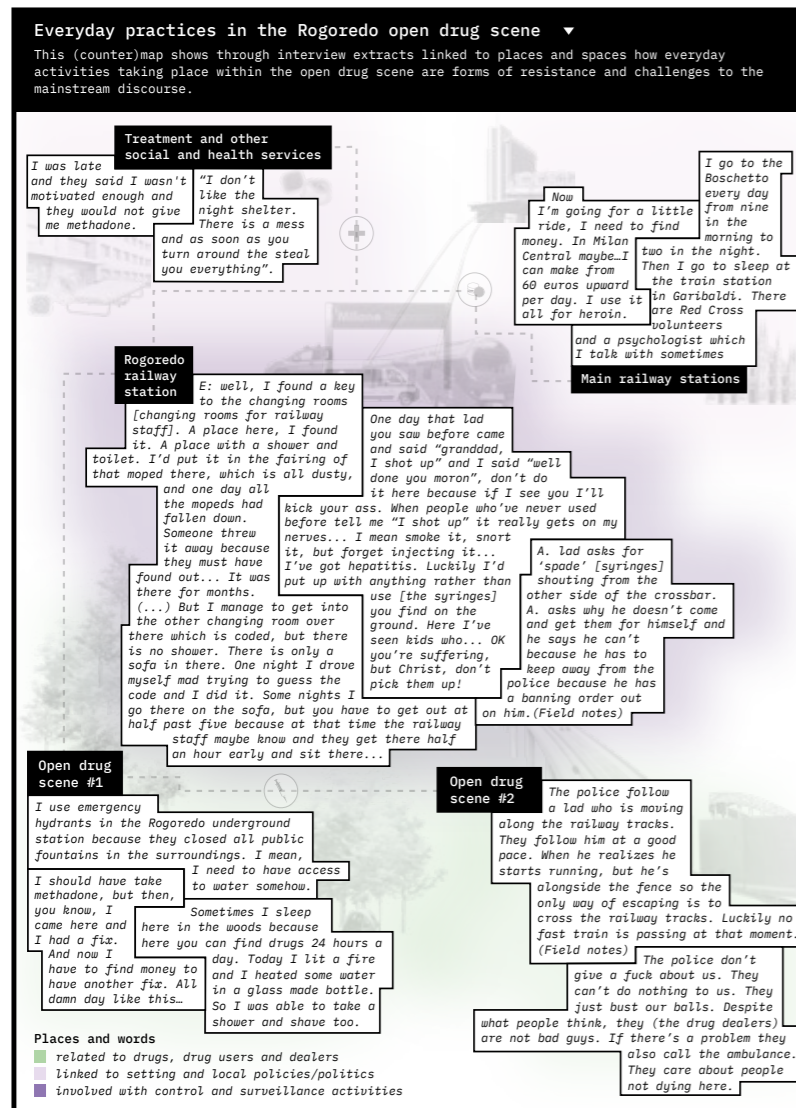


[Fig. 76] Everyday practices in the Rogoredo open drug scene map, focus on the images.

Interviews

The interviews are the heart and central element of the visualisation. Although they are only a fragment of the whole research, they represent the everyday life and actions of the Rogoredo frequenters well. The interviews are enclosed within free geometric shapes, built on the base grid, which, with the white background and black stroke, stand out from the rest of the map. Since they are the essential and most characterising element of the visualisation, they are placed on the highest and most evident level. The interviews are grouped according to the

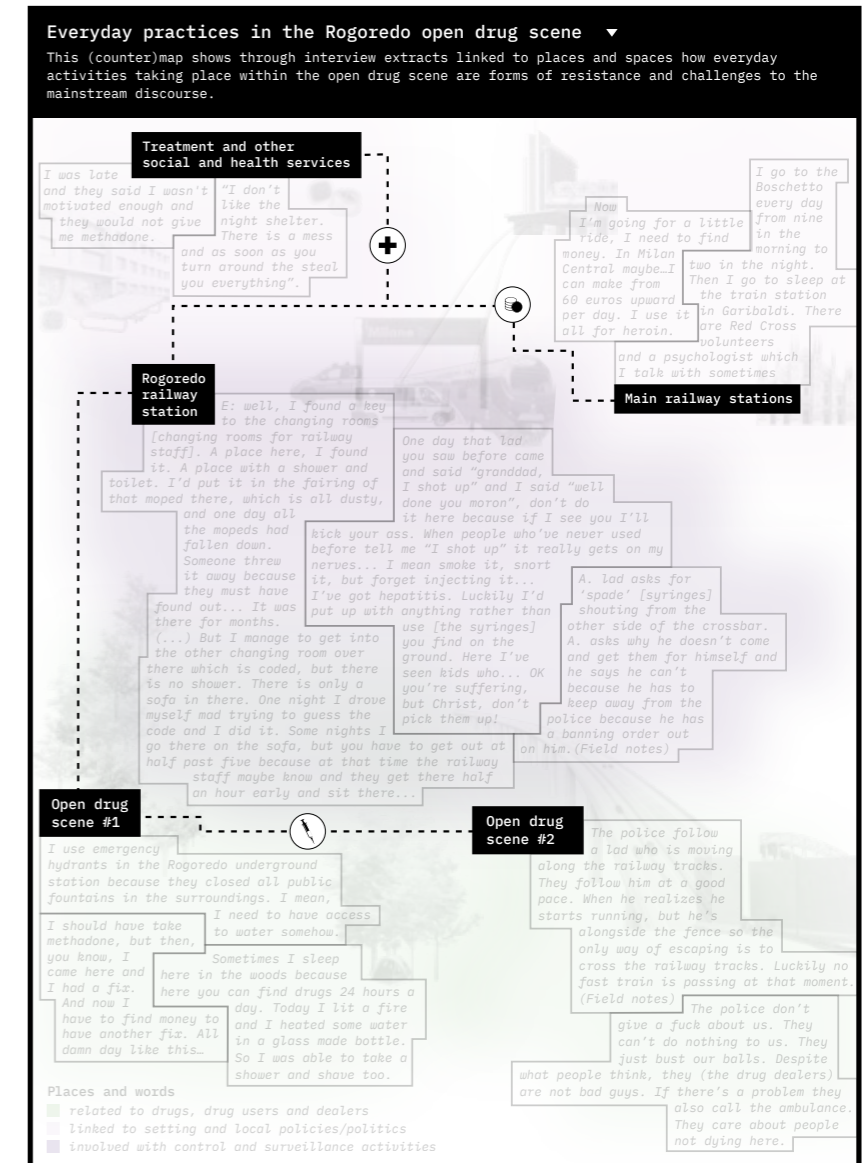
themes and situations dealt with. Within the same area, they are grouped to highlight the link. The authors used captions to emphasise and stress the division into five areas, delimit the areas and reiterate the categorisation. These captions are placed on a black background to be immediately recognisable and distinguishable from the rest of the texts. The interview texts are different from the rest of the textual content by the font used. The team chose to use an italic font, which is commonly associated with quotations and direct speeches.



[Fig. 77] Everyday practices in the Rogoredo open drug scene map, focus on the interviews.

Flows between areas

Finally, the authors used dotted lines to connect the various informal places and create a continuous flow between the informal places. Three different icons characterise the flows and represent the main activity that drives users to move between city areas. These flows represent the primary routes users take daily to buy substances, collect money, and travel to rescue centres for the night.



[Fig. 78] Everyday practices in the Rogoredo open drug scene map, focus on the flows between informal areas.

5.3.3 Treemap: how the media portrayed the open drug scene

As repeatedly described above, this visual model explores the most commonly used terms by mainstream online media to describe the open scene. Rogoredo and its patrons have come under intense pressure from journalists and TV channels in recent years. Over the past few years, consumers have been caught on hidden cameras by reporters looking for a juicy scoop. There have also been several newspapers that have reported an incomplete and distorted view of the reality of Rogoredo, editing interviews and consumer testimonies. Through visualisation, an attempt was made to highlight how there is only one narrative regarding substance use. What is always highlighted is the more dramatic side of the phenomenon, without reflecting on the social, economic and political causes that have created it.

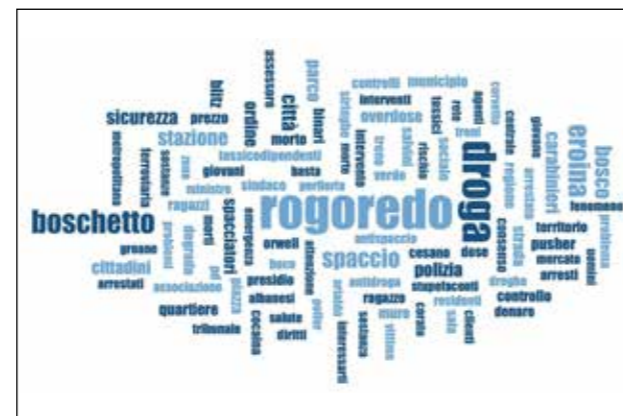
Visual model selection

During the initial phase of constructing the visualisation, it was planned to use a word cloud for summarising the data on the most frequently used words visually. The authors made several attempts to incorporate the information within this visual model. However, we decided to omit it and use a treemap model. Although a highly intuitive and functional visual model, the word cloud is hard to adapt to small formats. The disproportion in word frequency would then have made some terms really small and therefore illegible. Furthermore, although it is intuitive, it is a visual model that does not provide punctual information to the user but only highlights the hierarchical scale of the elements examined. The treemap, on the other hand, uses size as the primary indicator, can adapt to any format, and leaves room to insert other information, such as the point value on the frequency of each term.

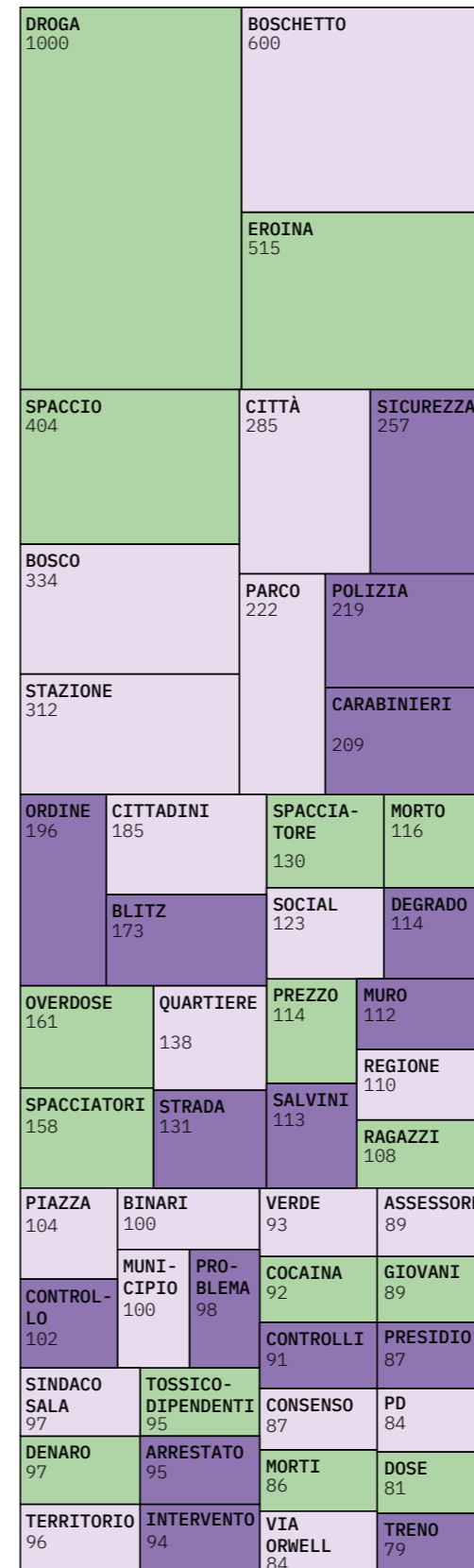
Text, numbers and language

In each visualisation box, the reference word is shown and the number of times it is repeated. Although the size of the cell itself already represents the frequency with which the word was used, the authors decided to report the data with numbers to make it more readable and evident.

Initially, the terms reported were translated into English, like the rest of the visualisation. However, it was later decided to keep the Italian text for the sake of the correctness of the information. Each word, in addition to its primary meaning, is loaded with cultural and social meanings that risk losing translation. For example, the word 'droga' is just one of many terms used to describe substances, yet it is usually used with a strong negative connotation in Italian. This linguistic subtlety would be lost by changing language.



▲ [Fig. 79] Word-cloud representing the most frequently used words to describe the open scene.



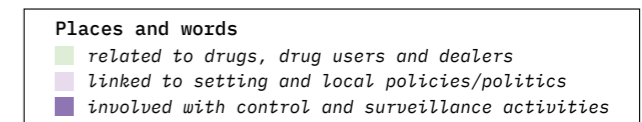
Colours

The authors manually categorised the fifty terms reported, dividing them into three categories, consistent with those found during the categorisation of informal spaces. Subsequently, the cell of each word was coloured according to the category to which it belonged. This characterisation made it possible both to increase the amount of information reported and to create a link between the visualisation and the adjacent map.

5.3.4 Challenges encountered during the construction of the map

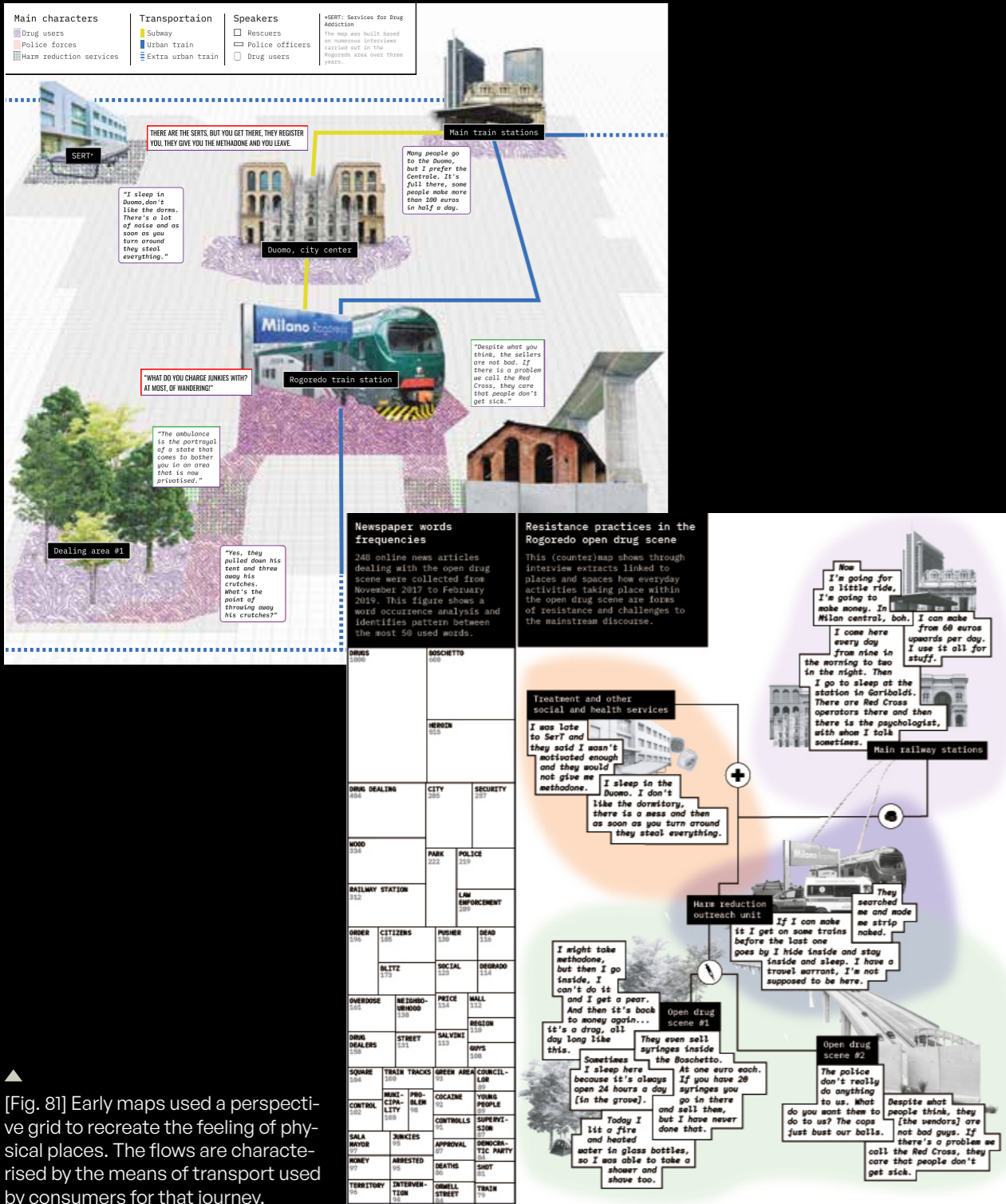
Indeed the main challenge encountered during the construction of the map was being able to enhance and bring out the textual component. Since the text is almost never used as a principal

medium for visualisations, the risk was that it would be cumbersome for the user, who would therefore not be enticed to read the content. It was also challenging to establish a dialogue and connection between the two visualisations since they display opposing points of view on the topic.



◀▲ [Fig. 80] Treemap on how the media portrayed the open drug scene, the colours helps the user to see the clusterisation of the terms used.

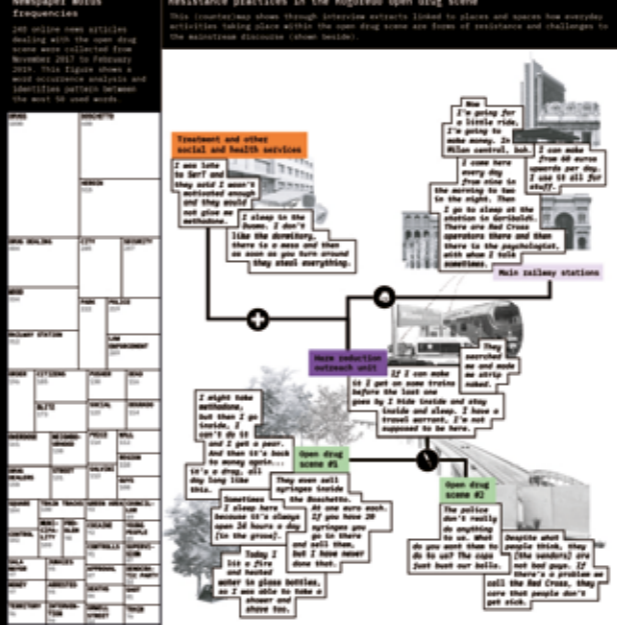
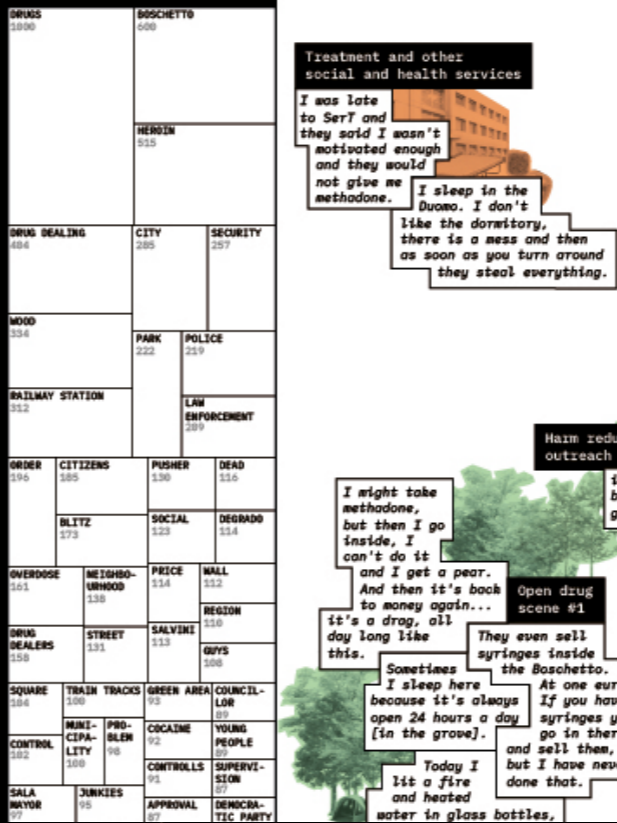
5.2.5 Rejected proposals



[Fig. 81] Early maps used a perspective grid to recreate the feeling of physical places. The flows are characterised by the means of transport used by consumers for that journey.

Newspaper words frequencies

248 online news articles dealing with the open drug scene were collected from November 2017 to February 2019. This figure shows a word occurrence analysis and identifies pattern between the most 50 used words.



[Fig. 82] Some tests of characterisation of informal spaces through the use of colour.

This thesis aims to explore the world of critical cartography, highlighting its potential as a tool to support alternative narratives. In a world where we are constantly bombarded with information, it is essential to understand how the major communication tools work to approach them critically.

Specifically, maps are analysed as a medium traditionally recognised as truthful and objective. Instead, this research highlights its subjective characteristics, how many choices the author makes when creating a map, and how much the same information can change radically depending on how it is represented. In order to be conscious individuals, it is crucial to detach oneself from mainstream communication channels and accept different points of view. Counter-mapping and other disciplines allow one to broaden one's knowledge and look at information more critically and consciously.

With this research, an attempt was made to highlight how these alternative approaches are instrumental and functional within urban contexts. The heterogeneous nature of cities is often a cause of conflict and disparity. However, at the same time, proximity to the subject matter allows for a better understanding of its problems and peculiarities.

Specifically, workshops, interviews and crowdsourcing allow direct interaction with those who live within the context under examination. This approach is highly complex when dealing with issues that are more 'global' and

distant, both geographically and culturally, from the research team.

Through the project developed, the reality of the open scene in Milan Rogoredo is explored in detail, shedding light on the political, social and economic causes that led to its creation and, subsequently, to its dismantling. While traditionally, the issue of drug addiction is demonised and considered an individual problem, this project instead brings forth an alternative narrative emphasising its collective nature and social causes. Thanks to the project's innovative approach, which uses both quantitative and qualitative data, it was possible to analyse different aspects of the open scene, showing both an external and internal point of view.

Fundamental to the project's success was the close collaboration and synergy created between the authors. Each author succeeded vertically in advancing his contribution and horizontally in approaching each other's discipline. Sonia was fundamental for her research and profound knowledge of the context while actively participating in the visual construction of the maps. On the other hand, the design team experimented with different data collection methods and research approaches. Starting from purely theoretical research, the team identified the most suitable type of information to carry the narrative forward and subsequently visually translate the research into a communicative artefact.

The final maps can be helpful both for those unfamiliar

with the Rogoredo contest and may therefore be approaching it for the first time and for those who, like the authors, were already familiar with the topic but were victims of filtered and biased communication. Instead, the publication has extreme potential within the international scene; by collecting dozens and dozens of counter-maps from all over the world, it has become one of the largest collections of alternative narratives on the issue of substance use. Working on such a vast scale, the book succeeds in bringing out so many points of view and addressing the issue by highlighting all the facets that are generally not told.

Finally, let us focus on the future potential of interdisciplinary approaches: in a society that exponentially uses quantitative data to describe the phenomena that surround it, it is essential to remember that the use of qualitative information, collected together with the subjects examined, allows emphasising the human and social-cultural nature of the issue, giving voice to those who are excluded from mainstream narratives.

Glossary Given the complex and fragmented nature of the topics and methodologies considered during the research and writing of this thesis, it could be helpful to shed light on the key terms used to avoid misunderstandings and lack of clarity.

Alternative narratives: narratives different from those provided by governments, big organisations and mainstream media.

API: “Application Programming Interface” are mechanisms that enable two software components to communicate with each other using a set of definitions and protocols.

Clustering: It is the process of grouping the data elements based on some similarity measures.

Crowdsourcing: it involves a large group of dispersed participants contributing or producing goods or services—such as ideas, voting, and finances—for payment or as volunteers.

DASPO urbano: defined by the law as a 'measure to protect the decorum of particular places': in practice, a mayor - with the prefect - can fine and establish a ban on access to certain areas of the city for anyone who 'engages in conduct that restricts the free accessibility and enjoyment' of transport infrastructure.

Data collection: the procedure of collecting, measuring and analysing sets of information using standard validated techniques. The approach to data collection is different for each field of study, depending on the required information.

Foglio di via: official measure ordering the return to the municipality of residence of persons dangerous to public safety.

Gatekeepers: the person who controls access to the open drug scene. Gatekeepers assess who is “in or out” of the dealing area.

Gentrification: the process of changing the character of a neighbourhood through the influx of more affluent residents and bu-

sinesses. Gentrification often increases the economic value of a neighbourhood, but the resulting demographic displacement can become a major social issue.

GIS: “Geographic Information System” is a type of database containing geographic data (that is, descriptions of phenomena for which location is relevant), combined with software tools for managing, analysing, and visualising those data.

Heatmap: is a data visualisation technique that shows the magnitude of a phenomenon as colour in two dimensions. The variation in colour may be by hue or intensity, giving obvious visual cues to the reader about how the phenomenon is clustered or varies over space.

Microdose: is a specific reference to the doses sold in the Rogoredo grove. These are doses of minimal quantities of a low-quality substance that cause continuous consumer demand.

N.I.L.: “Nuclei d'Identità Locale” represents areas that can be defined as neighbourhoods in Milan, where it is possible to recognise historical and planned neighbourhoods with different characteristics.

Open source: the term refers to something people can modify and share because its design is publicly accessible.

Qualitative data: is a type of information that cannot be counted, measured or expressed by numbers. It is usually collected from text, audio and images and shared through data visualisation tools, such as word clouds or concept maps.

Quantitative data: data expressing a certain quantity, amount or range.

Query: is a request for data or information from a database table or combination of tables.

Scraping: is the process of importing information from a website into an online database or local file.

SERT: “I Servizi per le Tossicodipendenze” are public services dedicated to the treatment, prevention and rehabilitation of **people with**

problems resulting from the abuse and dependence on psychoactive substances.

Small multiple: a series of similar graphs or charts using the same scale and axes, allowing them to be easily compared. It uses multiple views to show different partitions of a dataset.

Spada: slang term used by consumers to describe a single dose of heroin.

Treemap: a diagram representing hierarchical data in the form of nested rectangles, the area of each corresponding to its numerical value.

Substance: in the Rogoredo drug scene, the term substance usually refers to heroin, an opiate derived from morphine.

Treemap: Alternative narratives are those that provide different stories from the ones of dominant power structures, such as information provided by governments, corporations, organisations, the media, etc.

Word cloud: is the visual representation of text data, which is often used to depict keyword metadata on websites, or to visualise free-form text.

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