

MAPPING IN URBANISM:
THE ROLE OF MAPS AND MAPPING IN URBAN DESIGN THINKING

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THE ROLE OF MAPS AND MAPPING IN URBAN DESIGN THINKING**

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ABSTRACT

MAPPING IN URBANISM: THE ROLE OF MAPS AND MAPPING IN URBAN DESIGN THINKING

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Maps have been primary representations of space for centuries and the traditional approaches in cartographic production have bounded mapping practices in a rigid, conventional, and scientific framework. Within that framework, the relationship between maps and urbanism was limited to the representative aspects of mapping to read the visible elements of geographies, regions, cities, and built environments. However, with the post-representative, post-structuralist and postmodern theories on maps and mapping, a diverse range of map definitions and mapping techniques have emerged. In practice, mapping became an experimental and experiential act that relates to artistic expressions, social constructions, and power structures. These paradigm shifts of the past few decades have been broadening the scope of mapping practices in urbanism, architecture, and landscape architecture. The study aims to elaborate on the instrumentalization of maps and mapping in urban design practices; beyond their conventional function as survey and analysis tools to understand the visible peculiarities of a site. Thus, the study approaches maps and mapping not only as the initial formalities that start urban planning and design processes mainly but as performances that provoke, test, unfold, and consequently develop planning and

design outcomes. Considering the striking effect of the contemporary mapping theory, the study conducts a critical review of the urban design practices that involve maps and mappings throughout the urban design process. By focusing on the instrumentalization of mappings in the selected projects, the research aims to discover the productive and provocative merits of maps and mapping acts that shape the design and production of urban space. Thus, the research reveals how mapping practices structures end results (design by mapping) and how the end results become mappings by themselves (design as mapping).

Keywords: Map, Mapping, Urbanism, Urban Design Thinking, Architecture.

ÖZ

ŞEHİRCİLİKTE HARİTALAMA: KENTSEL TASARIM DÜŞÜNCESİNDE HARİTA VE HARİTALAMANIN ROLÜ

Tufan, Aybüke
Yüksek Lisans, Kentsel Tasarım, Şehir Bölge Planlama
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Haritalar yüzyıllar boyunca mekânın temel temsilcileri olmuşlardır ve kartografik üretimdeki geleneksel yaklaşımlar haritalama pratiklerini katı, konvansiyonel ve bilimsel bir çerçeve içerisinde sınırlandırmıştır. Bu çerçevede haritalar ve şehircilik arasındaki ilişki de haritaların coğrafyaların, bölgelerin, kentlerin ve yapıli çevrelerin gözle görünür unsurlarını okunur kılan temsili karakteri doğrultusunda sınırlı kalmıştır. Fakat, haritalara ve haritalamaya odaklanan post-yapısalcı, post-temsili ve post-modernist teoriler ile birlikte, çeşitli harita tanımları ve haritalama teknikleri ortaya çıkmıştır. Bu teoriler doğrultusunda, pratiklerdeki haritalama da sanatsal ifadelere, sosyal kurgulara ve güç yapılarına ilişkilenen deneysel ve deneyimsel bir eylem haline gelmiştir. Geçtiğimiz yıllarda ortaya çıkan bu paradigma değişimleri de şehircilik, mimarlık ve peyzaj mimarlığındaki haritalama uygulamalarının kapsamını genişletmiştir.

Bu çalışmada ise, haritaların ve haritalamanın bir alanın görünür özelliklerini okumaya ve anlamaya yarayan geleneksel araştırma ve analiz araçları olarak işlevselleştirilmesi ötesindeki araçsallaştırılmaları kentsel tasarım pratikleri bağlamında detaylandırılmıştır. Dolayısıyla çalışma bünyesinde haritalara ve

haritalamaya yalnızca kent planlama ve kentsel tasarım süreçlerini başlatan formaliteler olarak değil; planlama ve tasarım süreçlerine ek olarak sonuç ürünlerini kıskırtan, test eden, açan ve geliştiren performanslar olarak yaklaşılmaktadır.

Bu bağlamda, tez çalışması haritalama kuramının çarpıcı etkisini göz önünde bulundurarak kentsel tasarım süreçlerinde haritalardan ve haritalamadan faydalanan uygulamaları eleştirel bir bakış açısı ile incelemektedir. Temel olarak, çalışmanın bünyesinde seçilen şehircilik ve kentsel tasarım projelerinde haritaların ve haritalamanın araçsallaştırılmasına odaklanılarak, kentsel mekân üretimi pratiklerinde haritalama eylemlerinin tasarımı şekillendiren üretken ve provokatif özelliklerini keşfetmek hedeflemektedir. Çalışmanın sonucunda ise haritalamanın sonuç ürünü yönlendirmesi (haritalayarak tasarlama) ve tasarımın kendisinin bir haritalamaya dönüşmesi (tasarım olarak haritalama) kavramları açığa çıkmaktadır.

Anahtar Kelimeler: Harita, Haritalama, Şehircilik, Kentsel Tasarım Düşüncesi, Mimarlık.

To my beloved grandfather Ali,
who believed in the power of science and educated women...

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CHAPTER 1

INTRODUCTION

1.1 Context & Definition of Research Questions

As the map itself, today the practice of mapping in urbanism has been deconstructed and reconstructed. This constantly evolving loop shifted the hand-in-hand relationship between maps and urbanism into a new milieu. In that milieu, the attention given to mapping while comprehending, planning, and designing cities strikingly increased. As a result, maps and mapping have exceeded their mainstream identities as representational and quantitative survey tools. Contemporary urbanism practices have started to prioritize mapping as a process that allows us to highlight and illustrate salient dynamics of the spatial knowledge that defines a site on many scales. Furthermore, mappings have been re-introduced as agents that are actively involved in urban planning and design processes. Eventually, mapping in planning and design processes has placed right at the intersection of transdisciplinary interpretation, conceptualization, and design of space.

The aim of this research is to explore instrumental, operative, and projective aspects of mapping in urban planning and design processes from the first step to the last and to investigate the role of mapping in urban design thinking. Rather than evaluating how overall urbanism practices benefit from maps and mapping, the research aims to elaborate on the experimental approaches and practices that employ mapping throughout the design process. Thus, the core of research focuses on the possible instrumentalization of maps and mapping in relation to design. In this frame, the main research question the thesis intends to answer is: What is the role of maps and

mapping practices in urban design thinking in terms of design outputs? In addition to the main research question, the research is shaped by number of sub-questions:

- What are the dynamics between mapping and design thinking?
- How maps are instrumentalized in the planning/design processes?
- How do different types of creative mappings structure the planning/design process?
- In which ways do maps link spatial analysis to urban planning and design?
- How mapped phenomena strengthen the design proposal?

1.2 Methodological Approach of the Research

To answer the research questions, firstly the relevant theoretical framework is discussed via literature review. Through the canonical examples and benchmarks, developments and paradigm shifts in the history of map-making and contemporary theory are presented.

Following that, the literature review on maps and mapping in urbanism founds the base of the research. For that, relevant materials on mapping in architecture, landscape design, and landscape urbanism are examined and discussed in relation to urban planning and design practices.

Finally, the core of the study revolves around the critical review of the selected design projects. The projects are purposely chosen from experimental design schools or studies. By making use of several cutting-edge projects, the study aims to point out the relationship between mapping and design. The maps and acts of mappings discussed in the thesis study, are positioned in multi-scaled planning and design processes mainly. Moreover, among a vast number of projects, the ones that build bridges between different professions such as regional/urban planning, urban design, landscape planning/design, architecture, and even graphic design are selected to be reviewed.

1.3 Structure of the Thesis

The thesis study is composed of five consecutive chapters.

Chapter 1: Introduction, provides an insight into the research/thesis. The contextual framework, research questions, and, methodological approach of the research are introduced.

Chapter 2: Maps, Mapping, And Contemporary Studies, mainly highlights the literature review and the theoretical framework. The chapter starts with the literal definitions of the main terminology that the thesis focuses on. Following that section, the history of map-making, cartographic production traditions of Western practices, and scholarly identity of the history of cartography are discussed with respect to chronological developments.

The core discussion in this chapter focuses on the paradigm shifts in mapping practices with respect to the post-structuralist, post-representative, and post-modernist theories. These shifts are explained further based on the map's relation to art, the performative aspects of mapping, and the social/cultural aspects of mapping. In this chapter, a set of *map*, *mapping* (n.), and *mapping* (v.) definitions in literature are elaborated with canonical examples.

Finally, four mapping techniques (*drift*, *layering*, *game-board*, and *rhizome*) are introduced based on James Corner's discussions.

Chapter 3: Mapping in Urbanism, examines maps and mapping practices in urban planning, urban design, architecture, and landscape design with respect to the theoretical discussion of the previous chapter and further literature review.

Initially, maps are introduced as tools for the production of spatial knowledge. Then, how maps are instrumentalized in conventional and unconventional urbanism practices are explained based on the stages mapping practices involve in urban planning and urban design processes. In this section, not only urbanism practices but

also architectural design and landscape design practices contribute to the discussion as well.

The instrumentalization in question is elaborated further based on the map's power to visualize ideas and spatial information. In that sense, the impact of digitalization in terms of map-making and mapping is questioned.

The chapter finalizes the discussion with the mappable phenomena of urban space, how maps are instrumentalized to understand urban space, and the expanded scope of mapping practices in urbanism. Lastly, maps and mapping practices are discussed with respect to the urban design processes. Thus, the role of mapping in urbanism is explained in relation to design processes and two main concepts (*design by mapping* and *design as mapping*) are introduced in a theoretical and critical framework to provide an insight for the following chapter.

In ***Chapter 4: Role Of Mapping In Urban Design Thinking: A Critical Review***, the core discussion of the thesis is provided, and the involvement of mapping in contemporary urban design practices is discussed. For this purpose, different urban design practices (selected projects) are examined in terms of the maps and mapping practices they include. In every example, the role of mapping is discussed with respect to the contributions and impacts they have on design inputs and outputs. Depending on the theme and scope of the selected projects the discussion also provides an insight into mapping in architectural design and landscape design practices as well. Then, two main conceptual classifications based on generative and operative aspects of mapping are focused on: *design by mapping* and *design as mapping*.

Design by mapping focuses on the unique, provoking, and unfolding mapping practices and mapped phenomena that involve the design process with the spatial knowledge they produce. In that sense maps and mapping practices are considered to be inputs that eventually shape design outputs.

Design as mapping focuses on the design outputs that are considered to be maps or mappings rather than rigid and static design outcomes such as master plans, site plans, and any other spatial representation. In that examination, maps and map-like diagrams relating to the design outputs are discussed as well.

In ***Chapter 5: Conclusion***, the contribution of the research and thesis to the literature and practice are reviewed in a critical manner. The limitations of the framework are discussed and insight on future research and suggestions on the research questions are provided.

CHAPTER 2

MAPS, MAPPING, and CONTEMPORARY STUDIES

2.1 The Terminology and Definitions

In this section, the basic and literal definitions of the main terminology (*map*, *mapping* (v.), *mapping* (n.), *cartography*, *chorography*, and *topography*) are provided to give an insight prior to discussion. In the following chapters and sections several definitions of map, mapping (v.), and mapping (n.) are further discussed and elaborated based on the literature review.

The literal dictionary definition of a map is: (i) “*a drawing of the earth's surface or part of that surface, showing the shape and position of different countries, political borders, natural features such as rivers and mountains, and artificial features such as roads and buildings*”; (ii) “*a drawing that gives you a particular type of information about a particular area*”; (iii) “*something that shows the position of stars in the sky or the features on the surface of planets*”; and (iv) “*a very simple drawing that shows a direction of travel between one place and another*” (Cambridge Dictionary, 2022).

This literal definition puts emphasis on the representative aspect of maps mostly and connotes factual, scientific, and directive features of the map.

On the other hand, the definition of map by the International Cartographic Association (ICA): “a symbolized image of geographical reality, representing selected features or characteristics” (Crampton, 2001, p.240) puts emphasis on the visual aspects (notation, symbolism, and abstraction) of the representation.

Andrews (1996) states that, even though the most common understanding of maps is to treat them as “representations of the surface of the earth”, this simplified definition has been quite general and crude. However, this opinion remained popular from the 17th century to the late 20th century (p.1). According to Andrew’s study, “What Was a Map? The Lexicographers Reply” the term “*representation*” in the definition of the map brings out terms such as “*picture*”, “*drawing*”, “*image*”, “*figure*”, “*description*”, “*projection*”, “*reproduction*”, “*transcript*” and most of these words involve some spatial correspondence.

Mapping (v.) is the act of “*making*” or “*producing*” a map, while mapping (n.) is the result of the making of a map (Schoonderbeek, 2015, p.57).

Acar (2019) highlights the difference between “*map*” and “*mapping*” by stating that “...*a map is the transfer of spatial information to a two-dimensional surface while mapping is the processing of another information on the information transferred to the two-dimensional surface.*” (p.19).

Cartography is an ancient form of art that started with the science of geodesy (Grelot, 1991). While geodesy can be defined as the “*determination of the size and shape of Earth and the exact position of a series of reference points on its surface*” (Grelot, 1991, p.35); cartography can basically be defined as “*attempting to portray a certain region of the earth with the highest precision available at any given time in history*” (Casey, 2004, p.260).

Chorography, which originates from the Greek word “*chóra*”, corresponds to countryside and region. Thus, chorography maps the regions of the earth defined by political borders or natural assets (Casey, 2004, p.261). On the other hand, until the 20th century, the map’s constituents mentioned in the map definitions were “*rivers*”, “*hills and mountains*”, “*oceans and seas*”, “*cities and towns*”, “*woods*”, and “*islands*” (Andrews, 1996).

Topography, which was once a distinct discipline, especially in early modern Dutch and German etchings, is the “*mapping of peculiar places such as urban centers,*

counties, or other determined localities” (Casey, 2004, p.261). However, the literal dictionary definition of topography, *“the physical features of an area of land, especially the position of its rivers, mountains, etc. and the study of these features”* (Oxford Learner’s Dictionaries, 2022), focuses on the natural artifacts mainly.

2.2 History of Mapmaking and Development of Cartography

“Men doubtless tried in very early times to make a mental picture of their spatial horizons and of the principal natural features they came across when they journeyed by land, sea, or river. Man, however, has made it his business to depict the world around him in durable form. Using rudimentary instruments, he began to reveal a kind of mapping impulse by scratching symbolic representations of his environment on cave walls and the bark of trees. This impulse may have sprung from a need to record for later generations the location of hunting grounds and springs, hazards, and heavens. Perhaps it was also part of an innate human desire to achieve intellectual mastery over a world where unknown lands stretched far beyond familiar landscapes. The need to record space visually according to increasingly formal rules was extended to continents and then to the Earth in its entirety. The story of cartography has been an epic of human perseverance in the face of natural obstacles - deserts, mountains, oceans. The longest and the most arduous task of mapmakers, however, has been that of overcoming the distorted visions and cultural prejudices inherited from a past in which each people naturally saw themselves at the center of the universe.” (UNESCO, 1991, p.9).

In this section, the historical developments in map-making and cartography are discussed from pre-historic times to the mid-20th century. As Harley (1987) did, the development of cartography in the Western World is examined in three periods: (i)

“developments until 1800”, (ii) “19th century and early 20th century – up to ca. the 1930s”, and (iii) “from 1940 to 1990s which witnessed the emergence of the subject’s scholarly identity”. Further discussion involving mapping practices rather than mapmaking and cartographic production; and the emergence of post-structuralist and contemporary theories is elaborated in the following sections and chapters.

The history of cartography is concerned with the historical process through which the graphic language of maps has been constructed and employed (Harley, 1987). Thus, its principal concern is the “*study of the map in human terms*” (p.1). The history of cartography is not a generalization based on facts, but it is a cumulation of theories on how maps work and how they are produced. Therefore, the new history of cartography correlates with the history of humanity via a particular tool of spatial representation (Edney, 1996).

Even though mapmaking is not a simple hereditary skill; a mapping drive has most likely always existed in human consciousness, and the mapping experience involving the cognitive mapping of space undoubtedly existed long before the physical objects currently called maps. Thus, maps are ancient artifacts and extremely widespread even though they did not become everyday objects in multiple fields of the world until the European Renaissance. The importance of the maps and their meanings in the past is rooted in the fact that they are made for transferring experiences about places and spaces. Hence, throughout history maps meant more than a frozen image of a certain context or product of technical processes and craftsmanship (Harley, 1987). As one of the earliest forms of human communication, maps are crucial tools assisting the human mind in understanding its universe at various scales. In that sense, Harley (1987) considers maps as “*agents of historical change and mediators between an inner mental world and the outer physical world*” (p.1).

The improvements in formal map knowledge, employment of distinctive geometrical structure, practical and intellectual use, gradual or precipitous developments in the technical production and reproduction of maps, and expansion of the idea of the map from its origins; have all carried major importance in the societies where they

happened. The transmission process that underpins these changes—from their earliest origins to the age of mass and now computer mapping—is also a considerably important focus of the historical development of cartography. Hence, the history of cartography is not just the technical and practical history of the artifact. It is also about the history of human thought, the social importance of cartographic innovation, and the adoption of maps at many points in human history (Harley, 1987). Consequently, the social aspects of the historical process of mapmaking are as crucial as technical progression in cartographic developments (Harley & Woodward, 1987).

However, due to the nature of the evidence (such as the maps used on board ships, Babylonian clay tablet maps, and Egyptian plans on papyri), studying maps from prehistoric, ancient, and medieval periods faced obstacles. Since the survived maps are mostly descendent of earlier prototypes, pointing out the origins of peculiar cartographic traditions can be doubly difficult. In addition to that, unknown ancestors of maps (whether the origin was textual or graphic) caused gaps and discontinuities in the history of cartography. Remarkably, not only the physical destruction of maps but also the locations of maps in different historical periods expanded the gap (Harley & Woodward, 1987). Discontinuities can be observed in the temporal dimension of cartographic development as well. Except for the Greek and Roman period, it is not possible to indicate a continuous mapmaking activity (Harley & Woodward, 1987). Thus, these discontinuities mark an unclear relationship between prehistoric maps, Babylonian maps, and dynastic Egyptian maps and their influence on the Mediterranean and European maps (Harley & Woodward, 1987).

Rather than being accurate recordings of geography, a lot of examples of early maps were imagined “*evocations of space*”. That notion played a crucial part in triggering the imagination of human beings to discover the very meaning behind life on earth (Harley, 1987). Such imagination has a crucial role in cartographical development. Maps with different notations and graphic language are derived from a desire to imagine the world humans lived in.

For example, the Aztecs imagined their world as five squares, ancient Peruvians as a box, and ancient Egyptians in an egg-shaped form (Delano Smith, 1991).

Since ancient times, maps represented worlds beyond imagination and even the worlds of religions, beliefs, and rituals, and whether accurate or imagined, such maps showed locations of religious events and practices as well. Moreover, in some cases, the geographical world was integrated with religious myths and symbols (Delano Smith, 1991). Especially some of the earliest maps include linguistic annotations regarding the depiction of cosmological and terrestrial places (Skupins, 2006), such as the religious maps meant to guide the newly deceased (Delano Smith, 1991).

Even though cadastral maps, which are concerned with land ownership and taxation, are considered to be an extremely ancient genre in the history of cartography (Thrower, 1991); painted on the wall of a shrine or holy room for a ritual act, the oldest authenticated map in the world -which dates back to approximately 6000 B.C-, is found at Çatal Hüyük. The map was in plan form indicating the streets and houses that are lying beneath the profile of Hasan Dag and its volcano erupting (Harley, 1991).



Figure 2.1. Rendering of the Mural Found in Shrine 14 in Çatalhöyük, John Swogger, n.d., (Source: URL 1).

On some occasions in the ancient world, map-making activities were initiated and processed by ruling classes such as priests, scholars, and bureaucrats. Such

production was quite common in dynastic Egypt and can be further seen in Christian Medieval Europe as well (Harley & Woodward, 1987).

However, since mapmaking was an elite activity then, maps were manipulated for their purposes. These manipulations highlight the capacity of cartography to influence human actions and how their messages were given and understood. In addition to the minority responsible for the production of maps, maps were not public besides their educational function. For example, by the fifth century B.C. ordinary Athenians were only familiar with zodiac and nativity charts. In Rome, the practical, educational, and propagandist uses of maps and their public displays on coins made maps more common amongst ordinary citizens (Harley & Woodward, 1987).

As a different yet complementary tradition of cartography and emanations of clerical elites' power, cosmological maps arise from man's desire to understand his universe. Without the requirement of geographical and mathematical accuracy, cosmological maps became the lodestar of modern mapping since their representation technique were paradigmatic instead of factual. For example, maps of Roman and post-Roman periods are probably produced to represent shifts in cosmological thought rather than demonstrating the development of cartographic form or technique (Harley, 1987). Thus, cartography was in relation to religious art in prehistoric, ancient, and medieval times (Harley & Woodward, 1987).

For further analysis of the dynamics of prehistoric mapping, a broader sense should be employed to examine relevant materials, such as ancient Greek and Roman coins, frescoes, and mosaics that contain maps or map-like representations. Also, such materials can indicate the motives (colonial, commercial, political, or administrative) behind the maps and map-making processes (Harley & Woodward, 1987).

In the 15th century, Ptolemaic maps were considered authoritative maps of the earth and its regions. However, subsequently, classical maps became primarily historical objects and slowly they were replaced by the *tabulae modernae* (Harley, 1987).

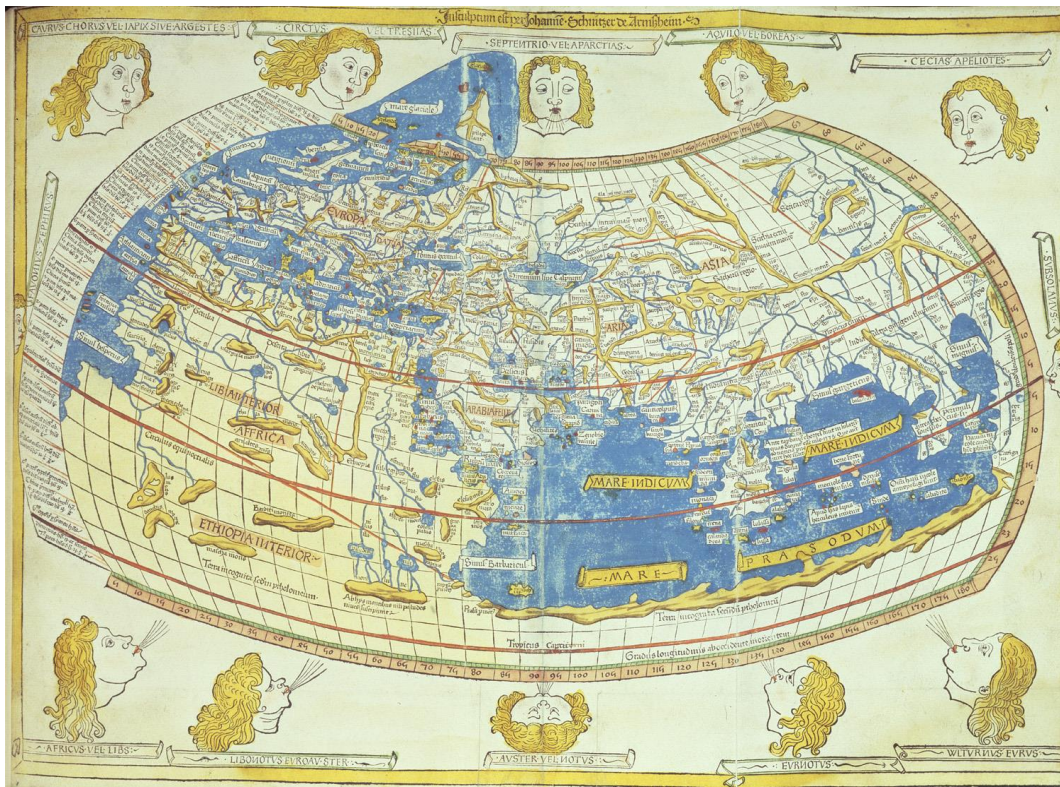


Figure 2.2. Ptolemy's World Map, Ptolemy, *Geographia*, 1407, (Source: URL 2).

The great voyages of explorations in the 15th century resulted in the transformation of world maps (Grelot, 1991). For example, in the last decade of the 15th century Europeans started to depict America on their maps with economic and political motivations (Delano Smith, 1991).

Later on, during the European Renaissance - especially from the 16th century onward, it is possible to see systematic attention given to maps of previous centuries is increasing. In that period (15th and 16th century) authors of geography, valued and praised maps from classical sources as useful contemporary tools and monuments of antiquity. As one of the masterpieces of antiquity and a benchmark of the Renaissance in European Cartography, "Ptolemy's Geography" draws a line between the antiquarian study of early maps and the technical and practical development of contemporary mapping (Harley, 1987).



Figure 2.3. The Fra Mauro Map, Fra Mauro, *Biblioteca Nazionale Marciana in Venice in Italy*, 1450s, (Source: URL 3).

Although maps are systematically collected for bureaucratic purposes in the ancient civilizations of China and Europe, the widespread increase in map collecting became a turning point in the rise of cartographic consciousness in Europe around the 16th century. Maps and atlases were collected by certain groups such as statesmen, city dignitaries, merchants, historians, etc. as records of explorations, colonization, examples of graphic art, or tools of astronomical practices (Harley, 1987).



Figure 2.4. Theatrum Orbis Terrarum (Theatre of the Orb of the World), Abraham Ortelius, *Repository: Library of Congress Geography and Map Division Washington, D.C.*, 1570, (Source: URL 4).

By the 17th century, maps became strongly related to geography and furthermore regarded as a method of geographical representation (Harley, 1987). Thus, maps represented imaginary political supremacy and reflected economic competition with graphic messages (Delano Smith, 1991).

In the 18th century, the emphasis on mapping as a detailed cartographic representation and as a tool of surveying with more precise instruments increased since they were associated with the history of discovery (Harley, 1987). Through the 18th century, the maritime nations kept charting multiple coastal areas they had a special interest (Thrower, 1991). During that era, the cartographic past was strongly Eurocentric and accompanied by a desire for precision in mapping practices (Harley, 1987).

Modern scientific cartography was born in 18th century France when the astronomer “Giovanni Domenico Cassini (1625-1712)” started working for Paris Observatory. With his works, a detailed and accurate map of the national territory was produced for the first time. Cassini’s map had uniform symbols for roads, settlements, and natural features in multiple sheets (Thrower, 1991).

Later, Newton focused on many mappable phenomena in his great work “Principia”, and his young contemporary Edmond Halley (1656-1742) promoted Newton’s work by contributing to thematic or special-purpose maps. He came up with the southern hemisphere star chart and the first meteorological chart of trade and monsoon winds (Thrower, 1991).

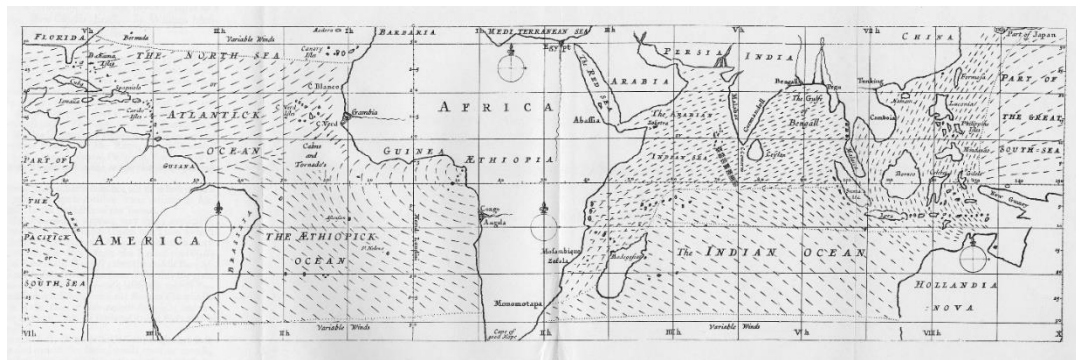


Figure 2.5. The Wind Map, Edmond Halley, 1686, (Source: URL 5).

18th century developments also included the invention of numerous map projections. “Mathematician Johann H. Lambert (1728-1777)” contributed with his conic equal area, conic conformal, cylindrical equal area, azimuthal equal-area, etc. calculations while “Vincenzo Coronelli (1650-1718)” contributed with his celestial or terrestrial globes in different dimensions (Thrower, 1991).

When “Alexander von Humboldt (1769-1859)” made his reconnaissance map based on his explorations in South America, the story of mapping in the 19th century had begun (Thrower, 1991).

On the other hand, economic exploitation of the land triggered the development of geological mapping in the 19th century, and “William Smith (1769-1839)” -the father of geological mapping- published “The Strata of England” in 1818 (Thrower, 1991).



Figure 2.6. Strata of England, William Smith, 1815, (Source: URL 6).

Later, an immense amount of statistical data such as population, education, crime, disease and etc. became available for mapping. As one of the remarkable thematic map examples from the 19th century, “Dr. John Snow (1813-1858)” made a map (1855) by using uniform symbols, showing deaths from cholera and lethal infrastructure in London (Thrower, 1991).

As a canonical development in the history of cartography, increasing interest in the study of early maps as a distinct field of study from cartography marked the 19th century. With the rise and institutionalization of geography accompanied by the growth of map libraries, especially in Europe and North America, the professional interest in maps increased. In that period, the most remarkable development was the foundation of geographical societies such as “Societe de Geographie de Paris (1821)”, “Gesellschaft für Erdkunde zu Berlin (1828)”, and the “Royal Geographical Society of London (1830)”. Most of these societies provided a basis for research into early cartography by publishing journals and comprehensive collections of topographic maps and atlases. As well as publications, exhibitions such as “Cartes et figures de la terre (Paris, 1980)” pioneered the development of new conceptual approaches to maps too (Harley, 1987).

Finally, In the 19th century, a new trend emerged; simplification of the map-reading for the ones whose geographical education was incomplete or ineffective. Moreover, the consumption of large-scale maps (town plans, real estate maps, and engineering surveys) that are easily comprehensible has increased enormously (Andrews, 1996, p.4). The majority of geographical knowledge of the 19th century was disseminated and popularized through atlases produced in increasing numbers (Thrower, 1991).

By the 1960s, the rapid changes in the technical production of the maps and the cognitive dimension of geography were emphasized in cartographic studies. The scope of these studies, including the ones on the effective map design and legibility of map elements, contributed to the development of theories of mapping as a cognitive science involving the communication between mapmakers and map users (Harley, 1987).

By the 1970s newly emerging theories were diffused to the subject and altered the views on the nature of cartography, from “*map as a product*” to “*a process*”. This diffusion and paradigm shift also modified the definitions of map and cartography (Harley, 1987).

According to Harley (1987), the primary factor that has been changing perceptions of the history of cartography, from the 1970s, was the rise of academic cartography which focused on the merits of the maps as communicators of knowledge about space (p.36).

By 1980, the dismantling of historical associations with geography and map collecting, studying maps as artifacts in their own right, and consideration of maps as graphic language triggering modifications; led to a turning point that provided a basis for the emancipation of cartography (Harley, 1987).

One of the remarkable developments in map-making during the 1980s was the computers that started to involve in every aspect of cartography, including photogrammetry, and that interaction led to the development of “Geographic Information System” with its own data banks, special equipment, and application programs. Even if computers decreased the time required for mapmaking, there was still an increasing demand for faster results. Thus, cartography elaborated with new tools- remote sensing and satellite images. The requirement of interpretation by specialists was still valid for satellite images but computer aid was available this time (Grelot, 1991).



Figure 2.8. Map of Bamako, Based on Satellite Image, Mall, n.d., (Source: UNESCO, 1991, p.38)

Most importantly, in the middle of the 20th century, critical approaches that question the map in its strong conventional perspective have been put forward. This critical literature, which focuses on the distortion of the map, has been analyzed on the basis of two main points. The first point emphasizes the map's political aspect, instead of considering the map as a mere objective document in an interdisciplinary field. The second point considers the map as a tool or a form of discourse that takes an active part in the social construction of reality rather than being a “*transparent window*” offering a direct view of reality. This critical approach is a reminder of the map's way of constructing reality by making particular things visible and others by suppressing them (Baykan, 2019).

“Cartography still retains its essential didactic function. A synthesis science that reveals the lines of force of global phenomena by demonstrating their spatial relationships, it also pioneers the way to new horizons of knowledge. And, feeding back to us as it does the image that we are giving to our land, it has become a prime witness to our cultural development.” (Grelot, 1991, p.38).

2.3 From Mapmaking to Mapping: Contemporary Theory

“A map says to you. Read me carefully, follow me closely, doubt me not. I am the earth in the palm of your hand. Without me, you are alone and lost.” (Markham, 1983).

This section focuses on the paradigm shifts from map-making to the act of mapping in post-structuralist and contemporary theories in addition to the developments in cartographic productions. The turning points that triggered the emergence of provocative thoughts and ideas on mapping practices are examined in relation to the inter- and multidisciplinary aspects of mapping, enabling nature of mappings, and the power structure of maps.

2.3.1 The Paradigm Shifts in Theory

As reflections of man’s relationship to his environment or as products of humankind’s dominance over a particular territory, maps have had a crucial role across the board and spectrum of human existence (Bruyns, 2012). However, for a long time, maps have been considered mere depictions of geographic space (Skupins, 2006).

Essentially, mapping is part of the ‘process of change’ the world has undergone; maps are “products of the world”, and they even produce new worlds. Changes as such request a new manifesto; new ways of thinking, researching, and creating maps

(Dodge & Perkins & Kitchin, 2009). Moreover, our way of seeing the world has changed even more rapidly than our world. Hence, notions of mappable worlds expanded; holistic and multidimensional approaches to cartography developed (Hall, 2003).

Critical cartographers have revealed hidden stories of power and control in historical and contemporary maps since the 1980s (Caquard & Cartwright, 2014, p.104). Such critics emphasized the reflective and instrumental aspects of maps regarding their capacity to shape relationships characterized by differences in power and control (Skupins, 2006).

Writers such as J.B. Harley, Denis Wood, John Pickles, Michael Curry, and Matthew Edney approached maps as “representations and sites of power-knowledge”. Especially Harley’s works, in which he constructed a framework referring to Michel Foucault’s and Jacques Derrida’s poststructuralist theories, have been influential in that sense (Crampton, 2001, p.236).

According to Şenel (2014), there is a “shift from map-making to mapping” and from representative theories and practices to performative ones. Throughout history objectivity of maps built around representational techniques, selective contents, and the context in which maps are produced. However, these three map-making aspects must be considered in relation to strategies of hegemonic power and tactics developed by counter-hegemonic forces. Mapping, instead of map-making, relates to a worldview through which subjectivities and multiplicities are highly valued. Such a worldview allows us to consider mapping as a ‘performance’ rather than considering ‘map’ as a powerful tool for constructing objective representations of dominant views in society. Thus, every act of mapping defines a ‘subjective’ place, and various diverse maps of that place can be produced (p.95).

Today the idea that mapping is a scientifically objective activity has been dismantled (Alanyalı Aral, 2016). Mapping itself has undergone an evolutionary process within all fields; in terms of the “way maps are made”, the “manner they are read”, and how information is used to generate specific types of maps (Bruyns, 2012).

In contemporary cartographic epistemologies, a distinct range of mappings (the end product of which has a complex, multiple, overlapping, and rhizomatic structure) is seen to emerge from this shifting creative milieu (Dodge & Perkins & Kitchin, 2009).

2.3.2 The Map as ‘Art’

The conventional approaches focused on representations on maps rather than what they do. However, with analyses of drawings and paintings through the history of art, new approaches that consider maps as successive series of paradigmatic types and representations have emerged (Corner, 1999).

Theoretical cartographers were searching for parallels between other disciplines, such as linguistics and graphic communication, and cartography to discover cognitive dimensions in cartographic communication (Harley, 1987). Thus, the theoretical turn in cartography and mapping was attempting to develop an understanding of the relationships between art and cartography (Cosgrove, 2005).

Since the 1980s with the lead of theoreticians such as Harley and Woodward (1987), Woods (1992), Harvey (1996), and Soja (1996); mapping has been discussed as a subjective practice and a tool of not only social but also artistic expression (Alanyalı Aral, 2016). Especially according to Harley (1987), making a map is associated with both science and art (p.3). In that sense, such theoreticians and some cartographers sought to bring critical discussions on the interpretation of maps to the scene and broaden the understanding of mapping practices beyond conventional cartographic production (Cosgrove, 2005).

Similar to the relationship between pre-modern art and cartography, avant-garde and expressionist artists also established a connection with maps and mapping in their works. These tendencies form a new context in which scientific maps are critically deconstructed to reveal cultural, individual, locational, and aesthetic aspects (Cosgrove, 2005).

For example, with the influence of cartographic representation of space; Marcel Duchamp (1887-1968) created a map of Paris with his famous readymades. Moreover, surrealism was explicitly engaged with cartography and sought further aspects rather than depicting a map simply as an image. Situationists, second-generation Surrealists, triggered the increasing interest in map's communicative characteristics and subversive potentials (Cosgrove, 2005).

Consequently, maps have become a focus of diverse critical and graphic attention with the engagement of contemporary art and cartographic practices. In that sense, as mapping technologies advanced and maps involved in daily practices, artistic interest in maps and mappings have increased (Cosgrove, 2005).

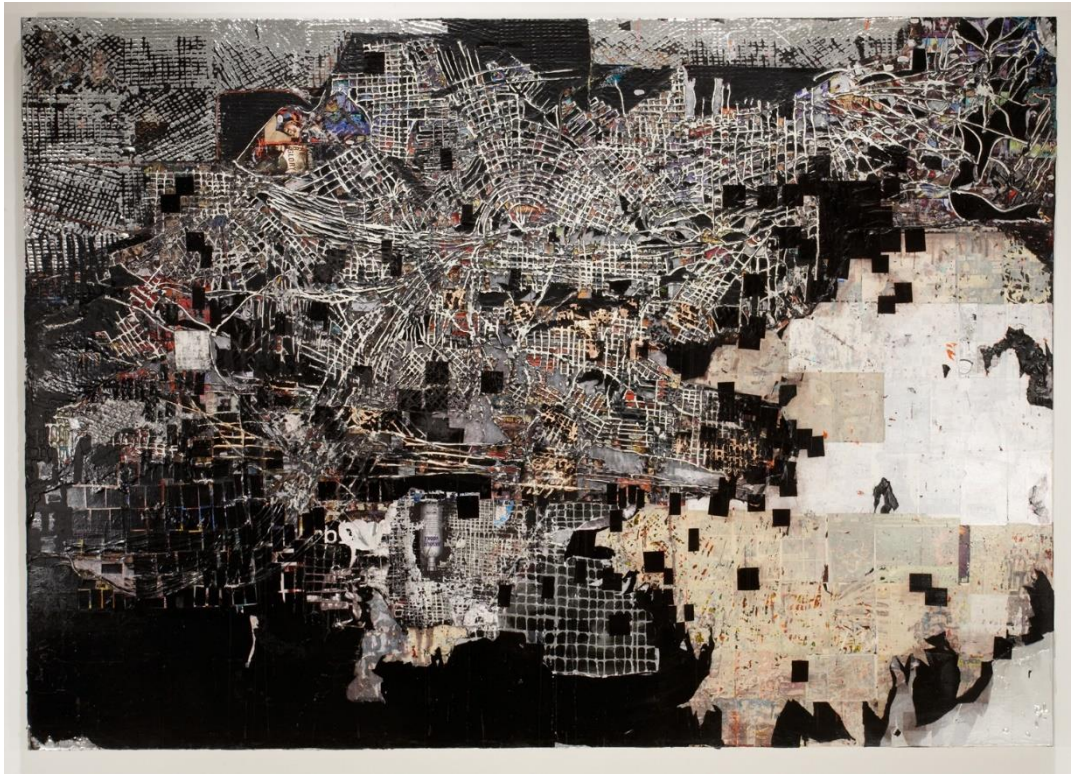


Figure 2.9. Across 110th Street, Mark Bradford, 2008, (Source: URL 8).

Nonetheless, mapping as an artistic practice connotes a spatial imagination detached from the utilitarian representation of a certain territory. Even though it is not easy to draw a rigid line between map as a form of art and/ or knowledge, “*the map as art*” primarily serves desire rather than the production of spatial knowledge (Dovey & Ristic & Pafka, 2018, p.2-3). Cosgrove (2005) claims that to explore the linkages between art and cartography further, attention should be given to the process of mapping and its employment in scientific and artistic projects rather than the map itself.

2.3.3 Redefining Map, Mapping, and Mappings

Whether produced by using analog mediums or by the most progressive technological mediums, every map is a work. The consideration of maps merely as representational work and their practical use should not be misleading since every map is a limited interpretation of the region it represents with the output it set forth (Casey, 2004).

In that sense, Corner (1999) mentions the double-sided characteristics of maps; “*analogous and abstract*”. The analogous one is factual and represents the surface of the earth as it is while the abstract characteristic is derived from operations such as “*selection, omission, distance, and codification*”. Hence, the surface of a map is doubly projective, it captures the projected elements of the ground and projects back a variety of effects through use (p.215).

Corner (1999) defines maps as not only “*artificial and fallible constructions*” but also “*virtual abstractions*” which possess great power in terms of people's way of seeing and acting. Thus, maps are windows to imaginary worlds rather than representing an existing world (Dovey & Ristic & Pafka, 2018). With the involvement of makers’ and readers’ perceptions; out of one map - out of one territory-, a thousand geographies can bloom (Hall, 2003).

Corner (1999) discusses modern cartography and maps through three canonical exemplary works and claims that such maps are still legible and correct in terms of depicting spatial relationships from a critical standpoint.

The first one is “Fuller’s Dymaxion Airocean World Map (1943)”, in which the earth is cut into triangular facets and then unfolded as a flat polyhedron. Since dymaxion can be unfolded and re-oriented in multiple ways, locations and regions can be combined to represent different sets of relationships. Thus, the map itself becomes flexible and adaptive (Corner, 1999).

The second example, “Joaquin Torres-Garda’s the Inverted Map of South America (1943)” challenges habitual conventions that condition spatial hierarchies and power relations. The unquestioned domination of the north sign in maps, which arose from the global and economic expansion of Northern Europe from early ages, is criticized with a distinct ‘S’ at the top of the drawing. With the south sign he placed on the map, Torres-Garda referred to the different perceptions of orientation in different cultures (Corner, 1999).

The final work, “Waltercio Caldas’s Japan (1972)”, is a map of foreign or unimaginable territory for the Western gaze. The artist’s work is an empty map surface with tiny annotations and numbers, presenting elusive geography, in contrast to Western mapping techniques based on surveying and inventory (Corner, 1999).

As Harley states (1989): “*Postmodernism offers a challenge to read maps in ways that could reciprocally enrich the reading of other texts.*” (p.15). In post-representational approaches, the map is “as good as the different narratives and discourses it is linked to”, and the “political and personal agendas it helped to push forward”. Moreover, in such approaches, the narrative is essential to tell the story of the map’s life (Caquard & Cartwright, 2014, p.104).

Due to its attractive graphics and impressive information embodied in the end product, the production process of mapping sometimes remains hidden. Thus, the

critical attitude difference between map-making and mapping might be blurred or even lost (Şenel, 2019).

The act of mapping precedes the map up to a point that it is not possible to anticipate its final form, engenders new and meaningful relationships that remained hidden, and constructs resultant relational structures (Corner, 1999).

Corner (1999) defines mapping as a creative practice that uncovers unseen or unimagined realities. Hence, it “*unfolds potential, and re-makes territory over and over again each time with new and diverse consequences*” (p.213). The act of mapping liberates potentials, enriches experiences, and diversifies worlds (Corner, 1999).

Basically, as a relational action, mapping; allows pluralization and deepening, aims to reveal the diversity of data that cannot be found in conventional maps, connects that data with the ‘place’, and searches for new and unique representational language and methods (Alanyalı Aral, 2019). Thus, every act of mapping is a new production of place since the mapper’s relationships with objects, places, and other subjects change depending on the time and the way of doing it (Şenel, 2019).

In these terms, mappings are mental constructs and ideas that enable and affect change (Corner, 1999). They do not represent geographies or ideas but rather affect their actualization (Graafland, 2012, p.91). Thus, mappings are already a project in the making since they are extremely opaque, imaginative, and operational instruments (Corner, 1999, p.250).

2.3.4 Social and Cultural Aspects of Mapping

“Map’s ultimate significance, as a medium of expression and communication, lies in its capacity to connect its subject to the actual space and a study on maps is always to involve behavioral and ideological tendencies of their makers.” (Alanyalı Aral, 2016, p.1.)

Maps are one of the oldest mediums of transmission and human expression (Alanyalı Aral, 2016). As a tool of communication, maps' influence on the behavioral peculiarity and social life of humanity is derived from their specialized graphic language which can exceed the limitations of an ordinary language (Harley, 1987). Thus, if we deconstruct the map, it forces us to read between its lines and then we comprehend that “*cartographic facts are only facts within a particular cultural perspective*” (p.3).

Remarkably, research of art historians on early maps forced historians of cartography to reconsider alternative aspects of maps such as meaning and social significance (Harley, 1989). Until then, exaggeration of the objectivity and factuality of maps caused missing the fact that every map is a social interpretation (Tekeli, 2012).

Even though the social structures are often hidden beneath an abstract and instrumental space in the maps, new tendencies to discover meanings and trace the social mechanisms in the maps have emerged in the contemporary theory of mapping (Harley, 1989). Thus, if maps are positioned within their societal power relations, a richer perspective of their purpose could be envisioned (Crampton, 2001) since they are representations and evidence of the cultural growth of societies (Harley & Woodward, 1987).

According to Baykan (2019), to fully understand a map one needs to know how to decipher its message and place it in appropriate spatial, chronological, and cultural contexts; because a mapping represents a social construct within a spatial and temporal frame (Schoonderbeek, 2015). In that sense, as diverse as their making and utilization, their cultural, economic, intellectual, political, ideological, technological, ethical, and aesthetic aspects of maps vary in each society (Harley & Woodward, 1987). They offer means to navigate the space it represents and enable the measuring of characteristics and influences of the social and political fields it embodies and traces the parameters of their spatial operations (Schoonderbeek, 2015).

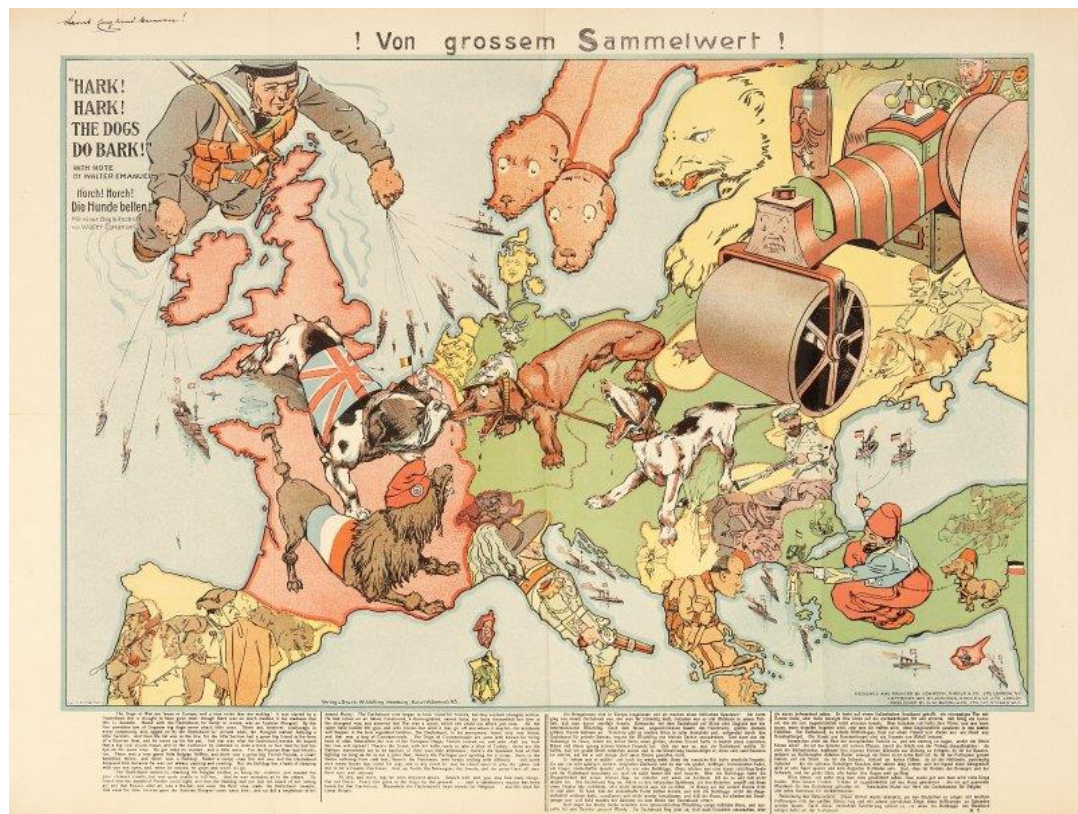


Figure 2.10. Hark! Hark! The Dogs Do Bark!, Johnson and Riddle & Co., 1914, (Source: URL 9).

2.3.5 Performative Aspects of Mapping

The practice of mapping may emerge new places since it is temporal and self-reflexive. Thus, it also suggests a performance of place (Şenel, 2014). In addition to that, in the end, every map reflects some kind of bodily interaction such as drawing, sketching, or reproducing (Casey, 2004)

According to Şenel (2019), the act of mapping is performative because it operates within the transfer of the process to another process.

Suggesting mapping as a performance is to suggest an active user with respect to the skeptical and demanding standpoint of critical mapping (Şenel, 2019).

The maker reveals his/her statements or makes a point of view clear; and the knowledge produced by mapping relationships redefines one's own territories while opening up space for another point of view. In such an approach the map reader is not in a passive position, rather there is an invitation to see, read, distort and remake the map. Hence, the map user may construct his/her scenarios by relating different places, things, and memories to a place, ignoring the predefined urban functions, and displaying unconventional uses of those spaces (Şenel, 2014).

For example, Kathy Prendergast drew large maps of cities that lack any traditional locational information. Her maps provide viewers the possibility of discovering and producing their knowledge about the cities presented. Moreover, Prendergast's maps emphasize the transformative effect of the map-user in terms of perception since each user creates new cities by integrating their imagined and remembered cities as spectators (Şenel, 2014).

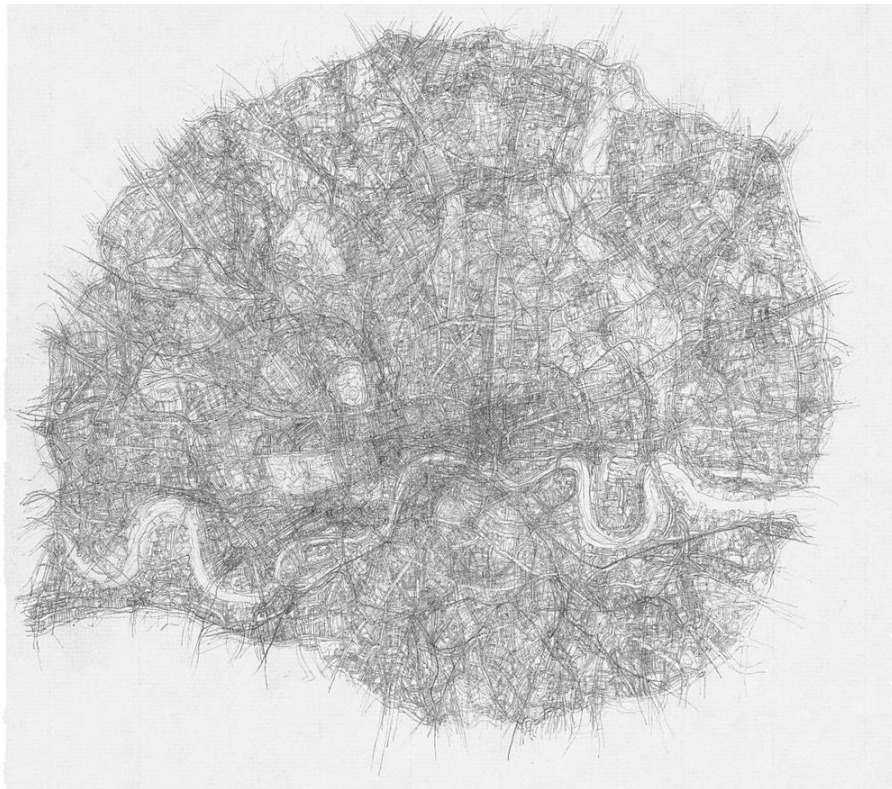


Figure 2.11. City Drawings Series / London, Kathy Prendergast, 1997, (Source: URL 10).



Figure 2.12. London Black, Tannaz Oroumchi, 2007, (Source: URL 11).



Figure 2.13. London Maxi, Tannaz Oroumchi, 2013, (Source: URL 11).

Consideration of maps as performance could be further developed by focusing on the “*performativity*” of maps. Such consideration suggests that part of the production of social space is the act of mapping places in abstract space (Aalbers, 2015, p.558).

2.4 Thematic Mapping Techniques

Corner (1999) discusses mapping as an active agent of the cultural invention and puts emphasis on new and speculative mapping techniques and their ability to generate creative reformulation of what is already given. In this frame, Corner (1999) identifies four thematic ways “*drift, layering, game-board, and rhizome*” in which new practices and approaches are emerging in contemporary spatial design and planning.

2.4.1 Drift

The Situationists, a group of European artists, were interested in engagements with everyday life and social formations. They put out works to increase public consciousness and promoted systematic participation in everyday life (Corner, 1999). They attempted to develop a new understanding of mapping beyond its colonizing agency of survey and control. They aimed to “*return the map to everyday life, to the unexplored and repressed topographies of the city*” (p. 232).

Guy Debord, a key Situationist theorist, searched for a connection between art and the geography of the city. He reflected his radical ideas on rationalist and functionalist urban planning, which he believes to be quite destructive to the social and psychological wellbeing of urban communities, with mapping practices. Intimately connected to his concept of unitary urbanism, Debord’s concept of psychogeography and *dérive* -or drift- aimed to “*engender encounters and provocative interactions with other individuals*” (Cosgrove, 2005).

Debord made a series of maps after he walked aimlessly around the city. He cut up and reconfigured a standard Paris map according to his wanderings and the points that attracted him. His “*psycho-geographic guides*” were a form of subjective and cognitive mapping and focused on the street level instead of reflecting the synoptic totality of the urban fabric (Corner,1999). Such cartographical representation aimed to evoke the emotional and passionate connections made within and between such locales by the mapmaker himself. Thus, urban mapping is transformed into a pictorial-art practice that eventually the outcome becomes a record of urban experiences (Cosgrove, 2005, p.41).

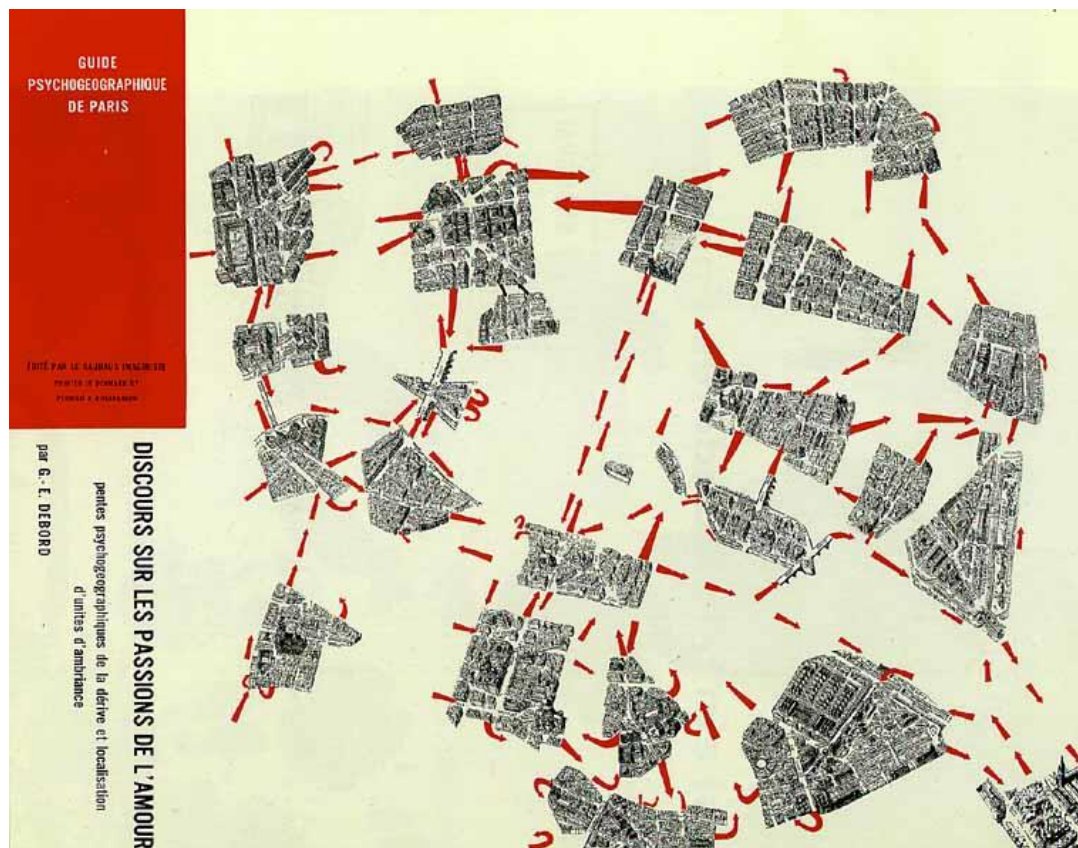


Figure 2.14. Psychogeographic Guide of Paris, Guy Debord, 1957, (Source: URL 12).

Similar to Debord's groundbreaking Paris Map, "Richard Long's 'A Seven Day Circle of Ground' (1984)" represents disparate, repressed, or unavailable topographies. Both Debord's and Long's works are highly personal and openly cognitive; their constructive agency and their ability to render new images of space and relationship separate them from many conventional maps (Corner, 1999). These two mapping practices indicate that deconstruction has challenged the naturalizing power of maps successfully (Cosgrove, 2005).

Cosgrove (2005) states, "*Derive was a conscious challenge to the apparently omniscient, disembodies and totalizing urban map that had become the principal instrument for urban planning and comprehensive redevelopment during the post-war years.*" (p. 39). Such an approach considers the art 'object' as the city itself and through mapping, its alternative impressions and interventions emerge in the urban milieu (Corner, 1999).

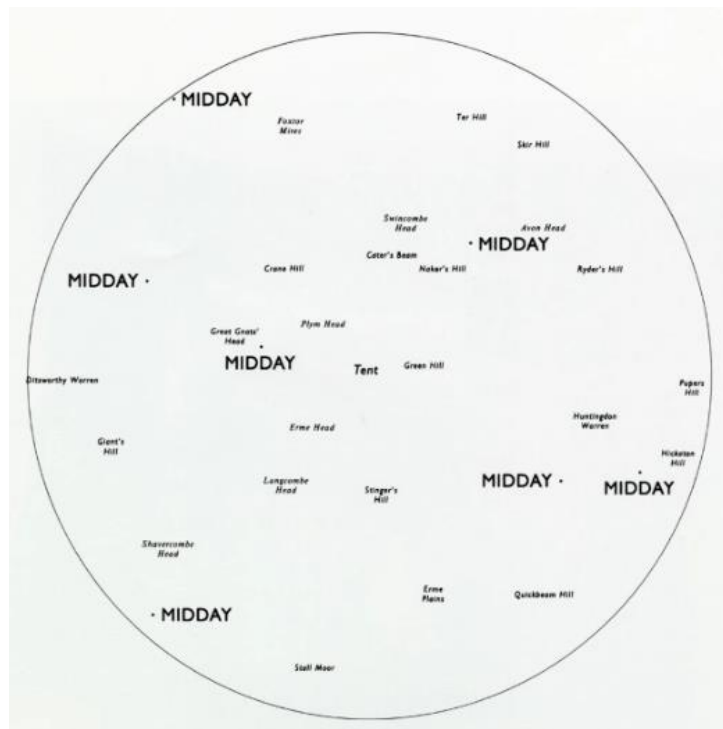


Figure 2.15. A Seven Day Circle of Ground, Seven Days Walking Within and Imaginary Circle 5 ½ Miles Wide, Richard Long, 1984, (Source: URL 13).

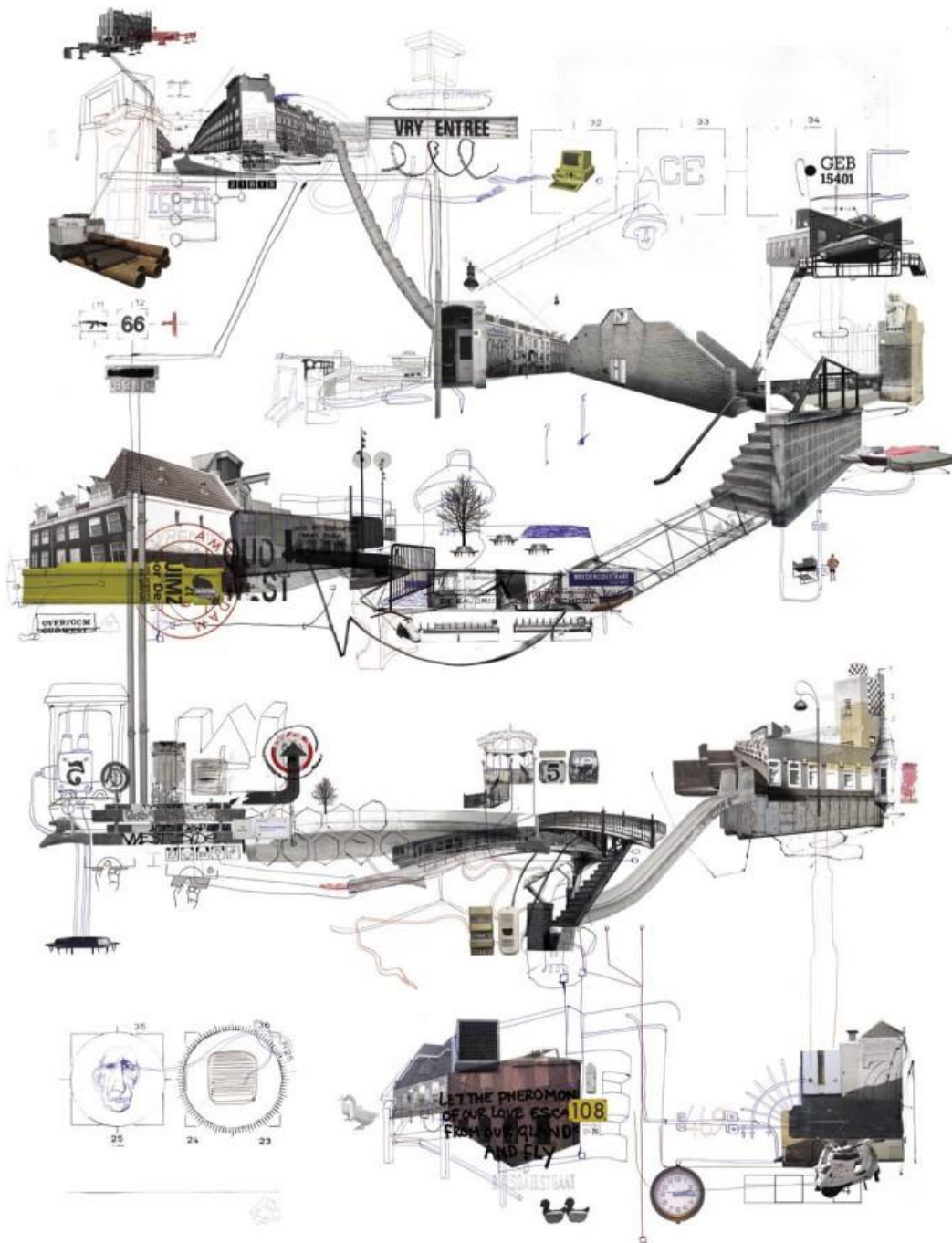


Figure 2.16. Waterloo, Jamie Strong, n.d., (Source: URL 14).

In addition to the challenging and artistic aspects, the drift cannot be alienated from its political content since it is more than just “*another way of microscopic attention to city life*” (Graafland, 2012). Drift is an aesthetic and political tool to describe the psychogeography of the city in which every zone in the city has a particular configuration of power relations (Wiley, 2008).

2.4.2 Layering

Layering, employed in the design of large-scale urban and landscape fabrics, involves the “*superimposition of multiple independent layers one upon the other to produce a heterogeneous and ‘thickened’ surface*” (Corner, 1999, p.235). In contrast to the clear order of a plan, layerings provide a complementary field of multiple orders. This aspect of layering is performative rather than representational and derives new possibilities out of old ones. Another remarking aspect is that the layered field is open to “*a variety of interpretations, uses, and transformations in time*”. Thus, unlike conventional plans, layered maps have an open-ended characteristic (Corner, 1999).

With their respective proposals for the “Parc de la Villette in Paris”, Bernard Tschumi and Rem Koolhaas were the first to develop layering strategies to dismantle the programmatic and logistical aspects of the park. Layering has an internal logic, content, and a system of organization depending on the function and the purpose. Each layer is a mapping of the complexity of the intended program for the site rather than an analysis of the existing context. In Tschumi’s and Koolhaas’s works; each layer, mapping, array an enabling geometry in addition to the technical requirements surrounding the program for the park. When the independent layers are overlaid together, a stratified network of relationships between parts comes to the surface. Thus, the end result indicates a complex fabric without a center, hierarchy, or single order principle. Such richness and complexity are beyond the limited scope, hierarchical order, and isolative aspects of one single master plan or zoning plan (Corner, 1999).

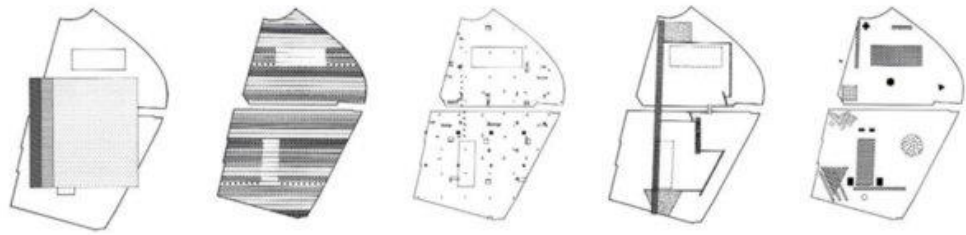


Figure 2.17. Layer Diagrams for the Parc de la Villette, Rem Koolhaas , *Office for Metropolitan Architecture*, 1983, (Source: URL 15).

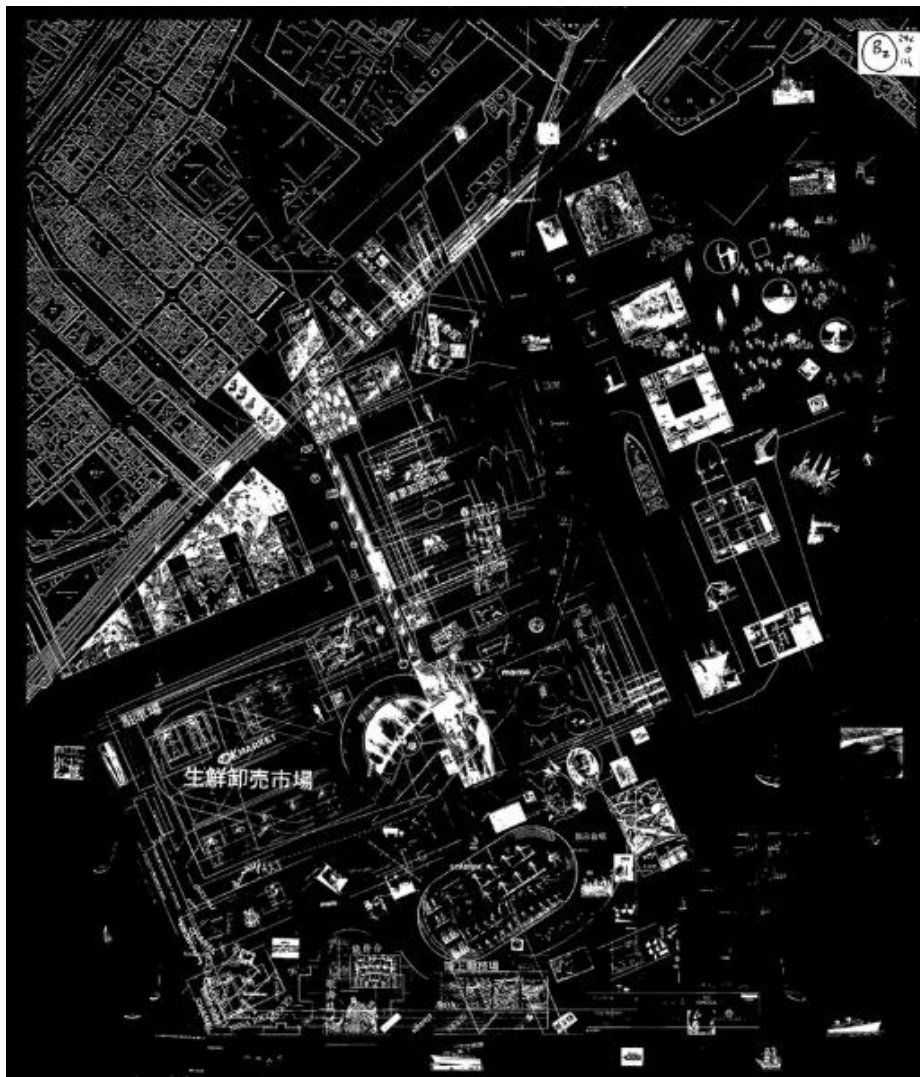


Figure 2.18. Yokohama Master Plan / Program Map, Rem Koolhaas , *Office for Metropolitan Architecture*, 1992, (Source: URL 16).

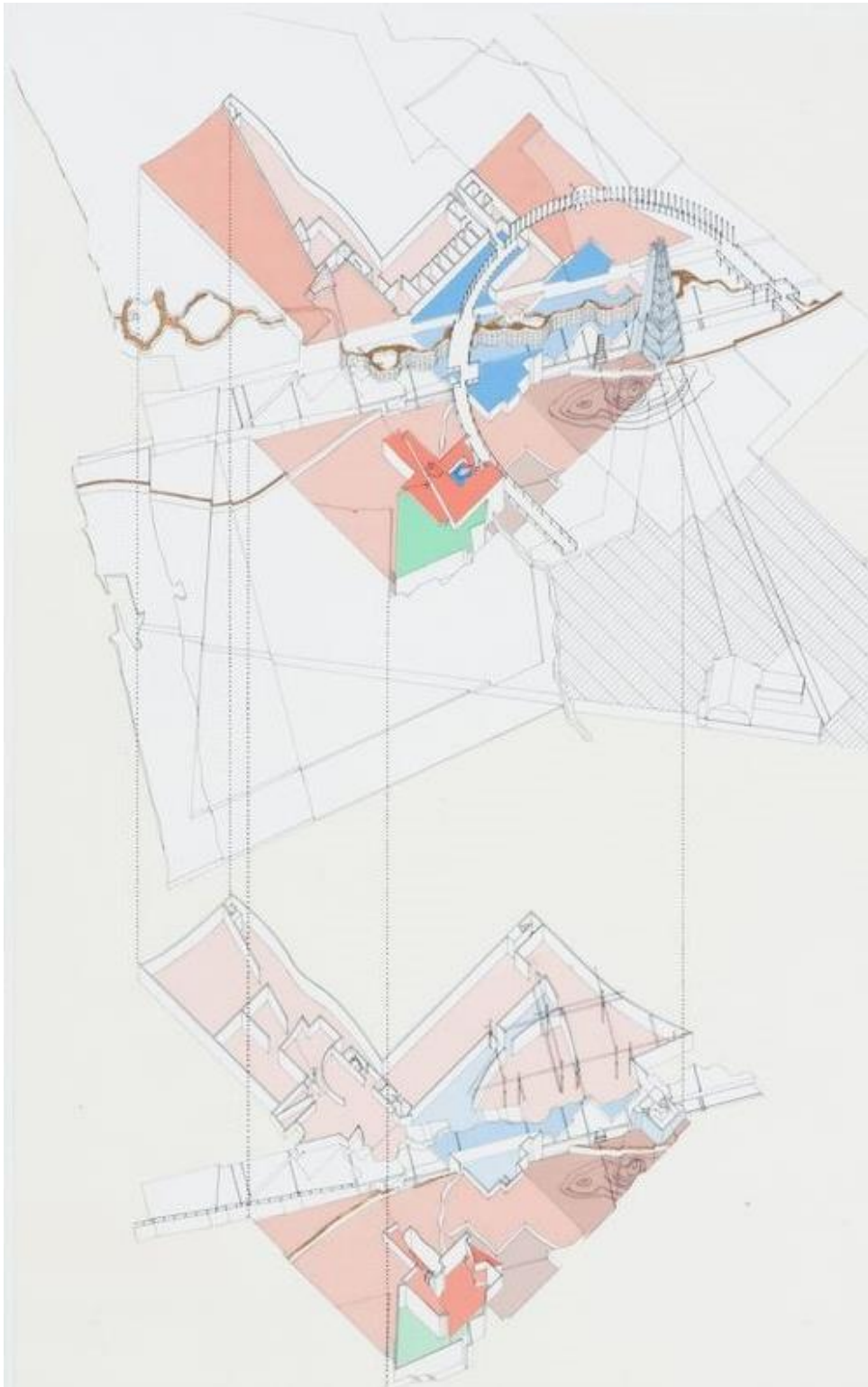


Figure 2.19. University Art Museum of the State University at Long Beach California, Peter Eisenman, n.d., (Source: URL 17).

Architect Peter Eisenman, who also worked with strata in his proposal for a new “Art Museum at the California State University in California”, produced a series of local maps to defamiliarize and systematize the landscape. Eisenman eliminated the traditional assumptions on the causal relationship between form and intention with mapping and searched for new analogic relationships (Corner,1999).

In Tschumi’s, Koolhaas’s, and Eisenman’s works the superimposition of independent layers of information aims the production of heterogeneous milieu. Thus, mapping is no longer a mere survey of the status quo but rather a generative extension of the design (Corner,1999).

2.4.3 Game-Board

Game-board map structures are “*shared working surfaces upon which different competing constituencies are invited to collaborate*”. Thus, the map itself represents the contested territory and has an enabling or facilitating status for groups to find common grounds through playing out various scenarios. Game-board technique highlights the necessity of engaging multiple processes of urbanization artfully yet indeterminately (Corner,1999).

Raoul Bunschoten, heading the CHORA, relates the spontaneity and uncontrollability of unplanned urbanism as “*second skin*” and names it “*urban flotsam*” (Graafland, 2010). He is focused on many complex urban regions in Europe, and developed innovative mapping techniques to work in contentious sites. Bunschoten considered cities to be dynamic and multiple; comprising a vast range of players and agents that affect the variety of urban spaces. In his works, through ‘stirring’ as he calls it, urban design is practiced less as a spatial composition and more as orchestrating the conditions around which processes in the city may be brought into the relationship and ‘put into effect’ (Corner, 1999, p. 240). Bunschoten was interested in the performative aspects of mapping as Jamer Corner did. He aimed to explore ways of modeling particular influences to develop scenarios that

forcefully question the role and position of urbanism as a discipline (Graafland, 2010).

“Proto-urban conditions”, a key principle in Bunschoten’s works, are *“a variety of potentially productive situations in a given milieu”*. In contrast to conventional possibilities derived from an overall governing authority in planning practices, proto-urban conditions are drawn out from existing structures and potentials. These conditions must be made visible firstly to be employed and operationalized. Bunschoten achieves this by defining a number of map frames in which particular processes or conditions are graphically identified (Corner, 1999).

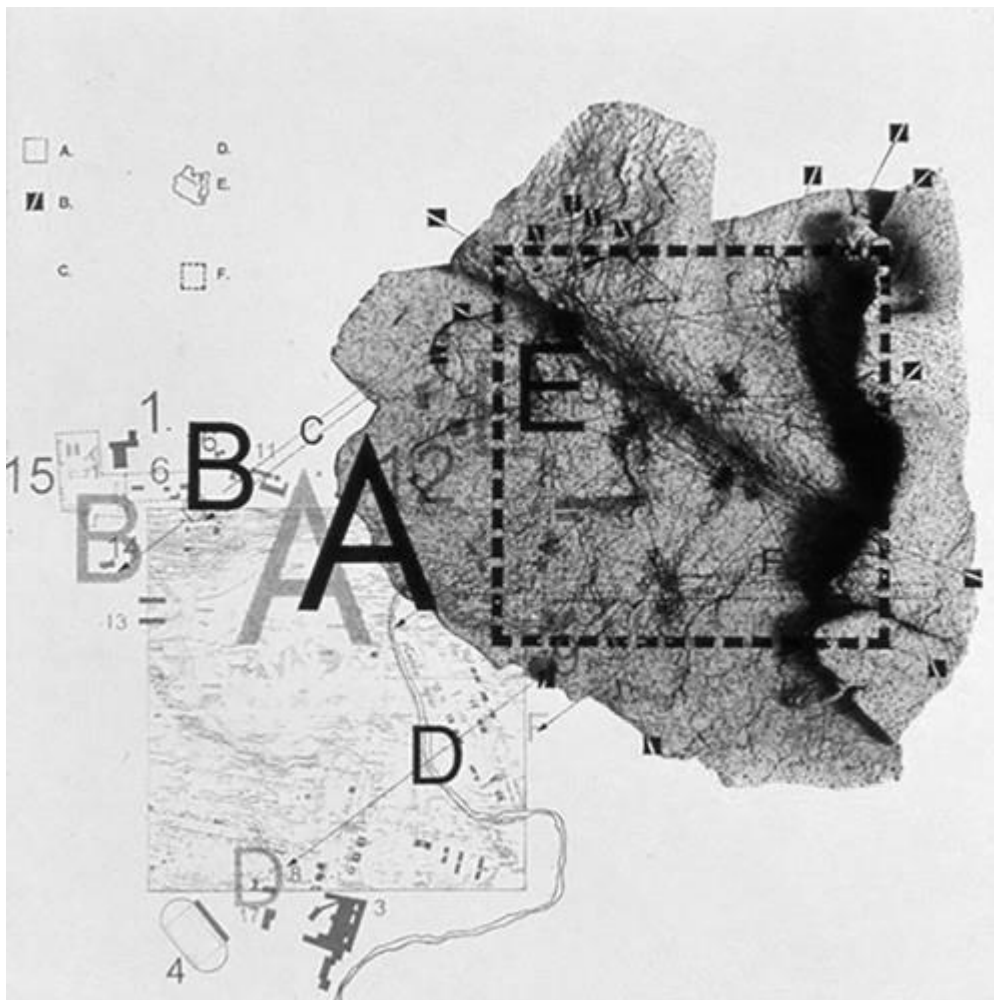


Figure 2.20. Toponymy / Russia, Raoul Bunschoten / CHORA, 1995, (Source: URL 18).

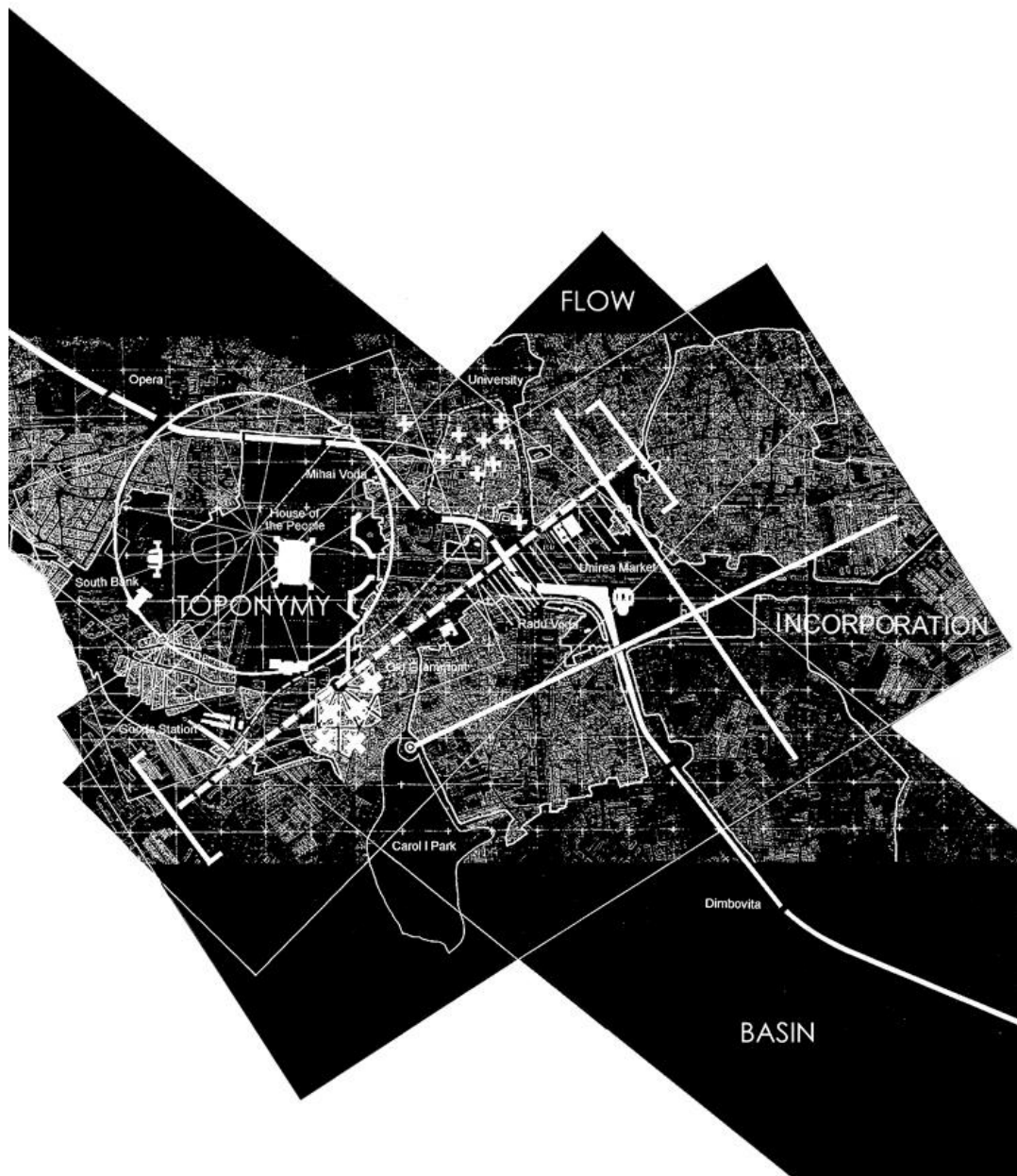


Figure 2.21. Four Planning Fields for Bucharest / Romania, Raoul Bunschoten / CHORA, 1996, (Source: URL 19).

He carefully links the cultural aspirations of groups to a physical space and territory, distinguishes the impacts of local authorities and institutions, and defines actors and agents who have the power and capacity to make things happen. Moreover, each map frame allows the play of thematic conditions such as preservation, ecology, economic development, etc. Eventually, overlaying all of the frames correlates with the plural and interacting nature of the urban theatre. Thus, Bunschoten develops a cartographic ‘stage’ for various interests and agents; discusses mutual benefits in four fields: toponomy, basin, flow, and incorporation (Corner, 1999). Bunschoten’s approach is similar to the Situationists’ approach in terms of revitalization of urban fields; since in both cases, the map designer puts forward a ‘setting’ in order to “*instigate, support, and enable social forms of interaction, affiliation, and negotiation*” (p. 243).



Figure 2.22. Wijkvisiespel Overvecht / Utrecht / Netherlands, Play the City, 2019, (Source: URL 20).

The evolving structure of maps provides a game-board for generative and open-ended urban futures, as they are drawn and redrawn by urban planners they also

allow the game to continue. Maps of such kind differ from simple inventory and tracings because they are informed by a sort of street-level ethnography which is often highly personalized and peculiar to places and individuals (Corner,1999).

Considering the fact that the game-board mapper exercises shrewd judgment while designing the structure of the map and incorporating the various imaginations and scenarios; game-board mapping is more purposefully active and rhetorical (Corner,1999).

In the contemporary architectural and urban maps that are performative by nature, the problem of objectivity and lack of face-to-face contact becomes even stronger. Thus, looking at those who lack the power to change their living conditions and the environment becomes important as well (Graafland, 2010).

2.4.4 Rhizome

Defined by Deleuze and Guattari (1987) in “A Thousand Plateaus: Capitalism and Schizophrenia”, the rhizome is a concept that is characterized as an “*acentred and nonhierarchical system*” that connects a point to any other point which is open to multiple readings. With its capability of prolonging itself, it cannot be reduced into one or multiple because it is composed of directions in motion, lines, and plateaus instead of points or positions as it is in a fixed structure of a tree or a root. The lines are inextricably linked to one another, and plateaus are consistently in the middle. Without a beginning or an end, every plateau has the potential to start from anywhere and form a relation to any other plateau (p.3-25).

Deleuze and Guattari draw a line between tracing and map and state the map’s significant feature that makes it distinguishable from tracing as the orientation towards experimentation that is in contact with what is real. In that sense, the map generates the unconscious, relates to performance, and hosts multiple openings. Tracing is considered quite dangerous since it reduces the map into an image with roots and radicles that oppose the rhizome concept. In tracing there occurs a certain

hierarchical order solely reproducing itself, on the contrary, the map is available for connections in all of its dimensions, and it is subject to never-ending modification. It can be deconstructed, reversed, adapted, or altered by a single person, group, or social organization. Thus, rhizome is a map rather than a tracing (Deleuze & Guattari, 1897).

To Deleuze and Guattari, the ‘plane of consistency’ is an especially important principle. It is an inclusive surface and has the power to structure new and open-ended series of relationships. Corner (1999) claims that to represent such an inclusive and structuring surface, techniques and modes of representation must be multiple and flexible. A wide range of graphic and notational systems should be employed to bring ‘unmappable’ aspects to the surface and the system must remain open to foster endless possibilities and insights.

In Deleuze and Guattari’s theory, the map is radically democratic. Their complex theory marks the non-authoritarian character of maps since they do not question the manner in which maps are constructed (Edney, 1996, p.187). Such a viewpoint privileges actions and effects over presentation and meaning. Thus, the main concern is how things work and what they do (Corner, 1999, p.244).

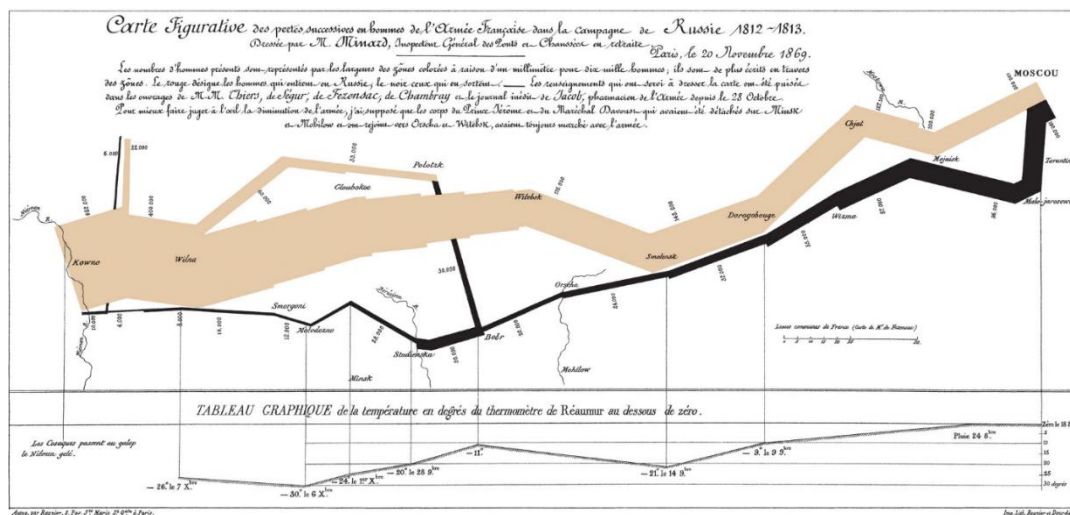


Figure 2.23. Map of Napoleon's March to Moscow, Charles Joseph Minard, 1812-1813, (Source: URL 21).

“Charles Joseph Minard’s narrative map of the fate of Napoleon’s army in Russia” synthesizes a complex amalgam of facts and interrelationships beyond telling a story. Even though, it is far from the rhizomatic plane of consistency because it is a closed system; it visually layers and embeds the network of relationships amongst all of the variables in an impressive manner. Minard’s map offers clues for rhizomatic mappings, rather than completely being rhizomatic, since it focuses on content and the reading of the map is single and linear (Corner, 1999).

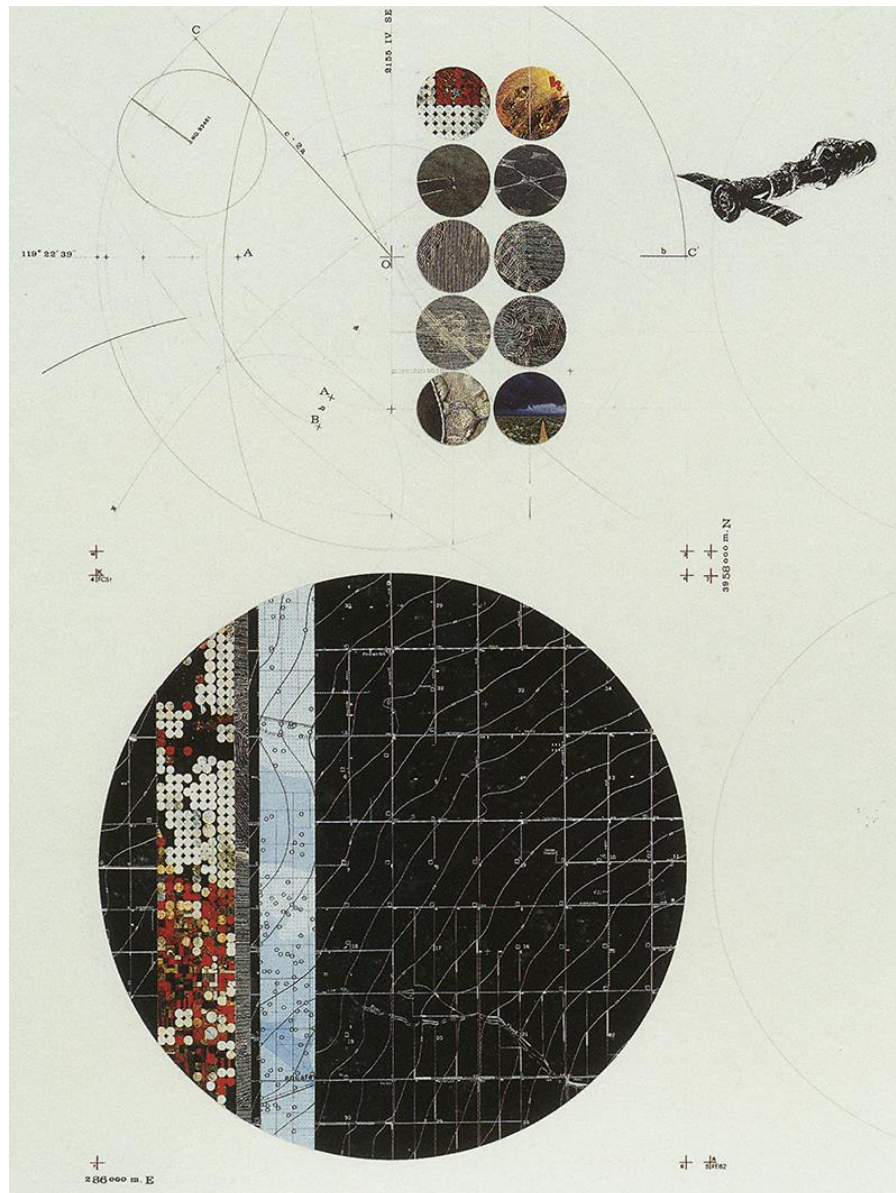


Figure 2.24. Pivot Irrigators I, James Corner, 1994, (Source: URL 22).

In his “Pivot Irrigators I”, James Corner aimed to develop an open and extensive setting by using, subverting, and incorporating USGS maps with other systems of notations. Similarly, in his “Windmill Topography” the de-territorialized map is framed together with the composite parts of the map to construct an “*ideographic* and *synaesthetic*” image. The attempt in both examples is to represent and describe geographical conditions and the process of landscape formation while suggesting new foundations for future work. In that sense, Corner’s mappings construct planes of consistency that present analytical information whilst allowing for suggestive readings or projections (Corner, 1999, p.247-249).

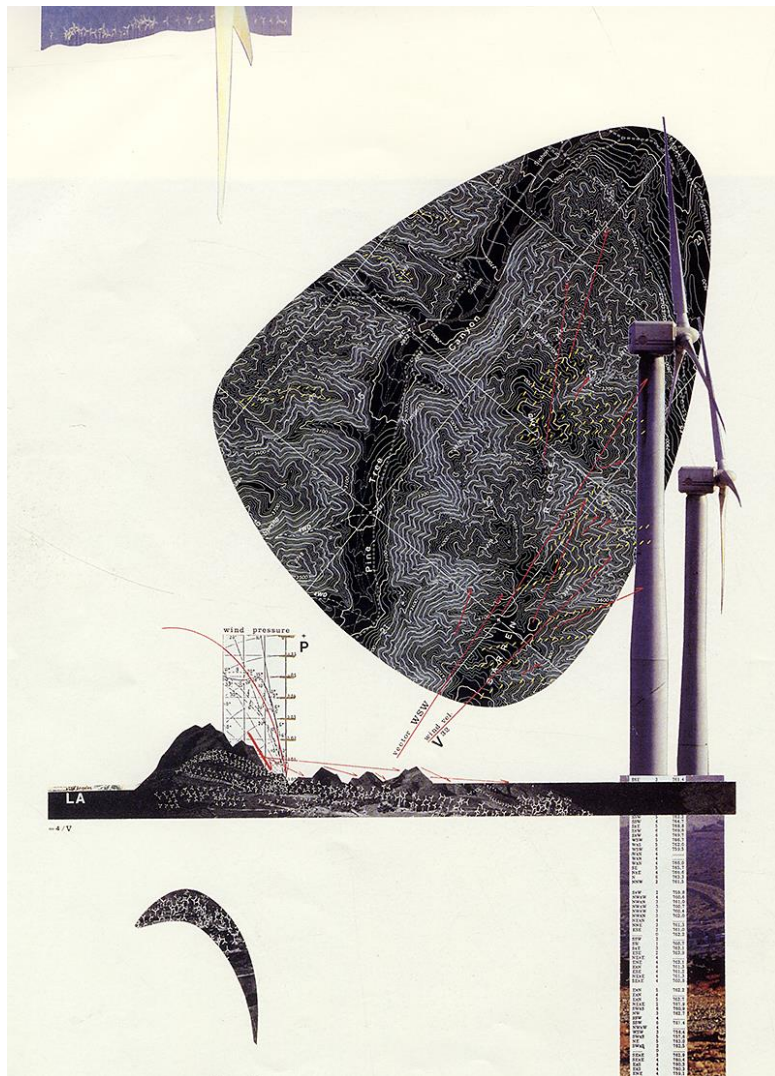


Figure 2.25. Windmill Topography, James Corner, 1994, (Source: URL 22).

The rhizomatic mapping is suggestive in terms of rendering temporal and systemic networks. It differs from traditional cartographic concerns and authoritative master plans with its creative and generative potential in urban planning and design practices (Corner,1999). By providing infinite series of connections, mapping comes to replace the reduction of planning (p.250)

2.5 Concluding Remarks

Maps and cartographic production have always been on the scene since the pre-historic ages. For a long time, that scene was dominated by the scientific, factual, and representative aspects of cartographic production. Thus, the power of maps, their role in society, their graphic language, and many other aspects were undermined with respect to the rigid frameworks of map-making.

However, with the contemporary theories; our understanding of cartographic production, maps, and mapping have undergone an evolutionary process. The contemporary theories which highlight the revealing, experimental, artistic, performative, and social/cultural aspects of mapping, provided a diverse range of map definitions and mapping approaches. These definitions and approaches have enlarged the scope of mapping practices in many fields and as a result, the chances of encountering with maps in daily life have remarkably increased. With respect to that increase, we observe diversification in terms of the ideology behind maps, the mapped content, the graphic languages that are employed in the process, and the techniques that are introduced by contemporary theory and practice. Basically, there is a shift from map-making to mapping that eventually lead to the evolution mentioned previously. As the result of this evolution, cartography - as a technical discipline - might or might not heading towards extinction; yet mapping is quite alive (Dodge & Perkins & Kitchin, 2009). Even though the legacy of cartography and its impact on contemporary theories cannot be ignored in today's mapping practices, the contemporary examples prove that the strict rules of cartographic production and processes of mapping are stretched.

Moreover, this shift from map-making to mapping connotes a shift from static to dynamic as well. This dynamism links map-maker and map-user to imagine new worlds to be emerged.

In this critical essay “Cartography is Dead (Thank God !)”, Dennis Wood (2003) expresses his thoughts on paradigm shifts in a critical manner. Wood claims that cartography is a dead field and mapmaking practices finally freed themselves from this mid-twentieth century phenomenon. He emphasizes that the maps and mapping produced by anyone but a cartographer (an artist, a designer, urban planner, architect and so) have been as *fine* as a cartographer's works; and maps of these *outsiders* have changed the way we think about the world and maps. Most importantly Wood states that “...*And design! Academic cartographers never understood a thing - not a thing-about design.*” (pg.7). Consequently, Wood's words provide an insight for the following chapter that discusses maps and mapping in urbanism.

CHAPTER 3

MAPPING in URBANISM

“Were all the maps in this world destroyed and vanished under the direction of some malevolent hand, each man would be blind again, each city be made a stranger to the next, each landmark becomes a meaningless signpost pointing to nothing.” (Harley, 1989, p.1)

This chapter focuses on the role of maps and mapping in urban planning, urban design, landscape design, and architectural design practices. The discussion revolves around generating simplified information from raw data and then correlating it to construct spatial knowledge. In that sense, the production of spatial knowledge is further elaborated through two main issues: (I): How maps are instrumentalized in the planning/design processes, and (ii) how do different types of creative mappings structure the planning/design process.

Moreover, the following sections discuss the vital role of maps in urbanism with respect to data visualization and the digitalization of mapping tools.

Finally, particular types of maps/mapping practices and their functionalization to understand urban space are examined. Their relation to urban design is discussed in terms of their role in the design process. Throughout the chapter variety of examples are provided to illustrate the role of maps in urbanism.

3.1 Production of Spatial Knowledge

Maps allow us to discover, read, evaluate, and comprehend the dynamics of urban space in multiple ways, and mapping practices play an intricate role in each of these steps. In between these steps, the spatial knowledge to be processed is constructed

from a relational set of information which is derived from the spatialization of raw data mostly.

A set of quantitative raw data, which is not expressed in spatial terms, can be spatialized through maps. In this stage, the effectuality of the map depends on its simplicity and selectivity (Tekeli, 2012). The set of raw data depicted in the maps must be relevant to the mapmaker or map user (Skupins, 2006). Operations such as extraction and juxtaposition of certain layers containing selected data produce the information through which the map represents the territory (Dovey & Ristic & Pafka, 2018, p.6). Thus, When the relevant data set is spatialized by mapping, the result is the generation of simplified information about space & place. The generated information provides insights to urban planners and designers to make meaning out of quantitative data and allows them to utilize it further through the planning/design processes. Such utilization mainly refers to the discovery of relational aspects of space and place since the abstract space of the map has the potential to link geographically distant agents to each other by the spatial arrangement of data and information (Şenel, 2014). Consequently, particular “ways of seeing the city” can be discovered with the assembly of data processed on maps (Dovey & Ristic & Pafka, 2018, p.6).

For example, when population data of districts in a city is combined with the surface area of districts, the selected data combination can be spatialized by visualizing the population density on a map. Similarly, the juxtaposition of traffic density data and public transportation routes on a map can simply inform us about the streets where the inhabitants prefer to commute with their private vehicles. However, these two examples can be referred to as tracings rather than “mappings” since both are representations of reality that employ maps as tools.

When the implicit or explicit meanings in the simplified information build correlations between relations and perception and express them through the act of mapping in a generative manner, spatial knowledge can be produced. In this stage, the occurs a shift from tracings to mappings.

Dovey, Ristic, and Pafka (2018) define mapping as “A form of knowledge production that links diagrammatic thinking and spatial representation in order to open up new ways of analyzing, understanding, planning and designing the city.” (p. 6). In their study “Mapping Urbanities: Morphologies, Flows, Possibilities” they also argue that “...urban mapping is a form of spatial knowledge production that is often diagrammatic, embodying a spatial logic that cannot be reduced to words and numbers. Urban mapping constructs interconnections between the ways the city is perceived, conceived, and lived; and it can reveal capacities for urban transformation- the city as a space of possibility.” (Dovey & Ristic & Pafka, 2018, p.1). In addition to that, Acar (2019) highlights the difference between “map” and “mapping” in terms of the transfer of information and states that “...a map is the transfer of spatial information to a two-dimensional surface while mapping is the processing of another information on the information transferred to the two-dimensional surface.” (p.19).

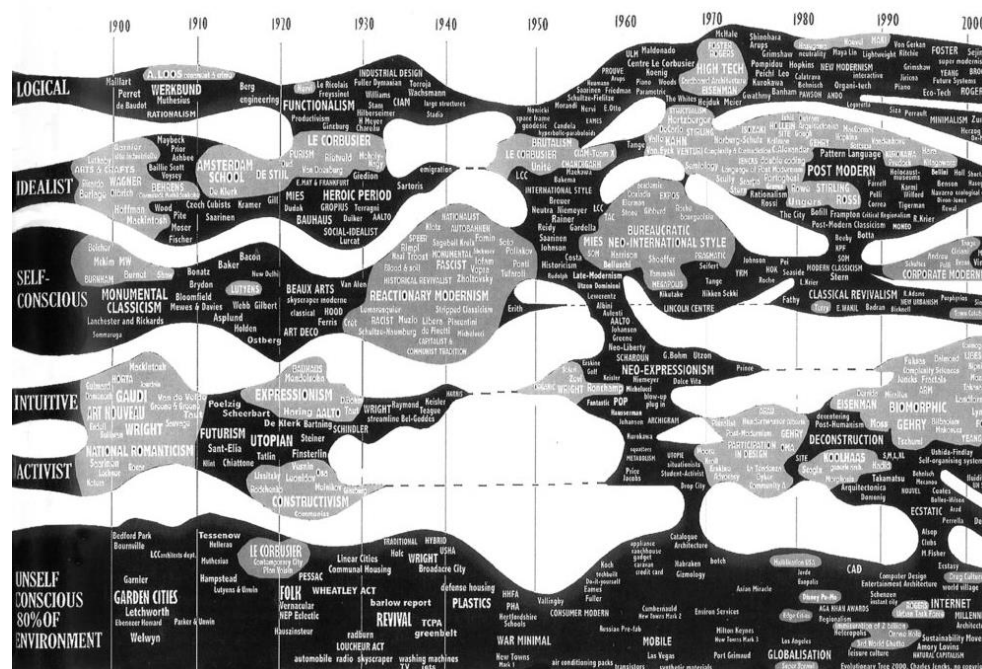


Figure 3.1. Theory of Evolution (An Overview of 20th Century Architecture), Charles Jencks, 1973, (Source: URL 23).

Furthermore, the construction of spatial knowledge may take place through the research processes benefiting from theoretical maps, mind maps, conceptual maps, diagrammatic maps, etc., while elaborating on layered information. For example, theoretical maps bring theoretical information and design knowledge together. In fact, in architecture, the map is seen as the transfer of spatial information into a two-dimensional plane, and Charles Jencks's "Theory of Evolution (1973)" is one of the most striking and well-known examples of theoretical maps in the field (Güleç, 2021).

In short, all mapping activities are about knowledge, relationships, and representation whether classical taxonomy and cartography studies or post-structuralist rhizomatic network maps (Acar, 2019).

3.2 Instrumentalization of Mapping in Urbanism

"There is no one thing that explains cities, no single way of designing them, no singular mapping of urbanity." (Dovey & Ristic & Pafka, 2018, p.14).

In architecture and urbanism, the defining feature of mapping is its capacity to relate to the "place" (Alanyalı Aral, 2019) and maps are the instruments to understand the reading of urban or suburban texts (Lukez, 2007). Even though, for most designers and planners maps are unimaginative and analytical artifacts that precede the design process (Corner, 1999); mapping brings the city and experimentalism to the fore by criticizing disciplinary representation conventions and taking spatial design to a new and inclusive level (Alanyalı Aral, 2019). Moreover, since a city cannot be recognized by its plan only, if we are to read and comprehend the dynamics of contemporary urbanism, complementary and innovative diagrams, and notations that identify hidden layers, processes, and relationships in constant evolution are needed (Bambó & García, 2018).

Basically, two principal methodological approaches can be pointed out in terms of the way we comprehend and map the cities: bottom-up and top-down. While the bottom-up method adopts an “empirical approach to urban space, its everyday life, and its scenes”; the top-down approach starts from the “theoretical origins of reading the urban morphologies and their interpretation through urban history or geography” (Providência, 2015, p.217-218). The bottom-up approach, which started around the mid-1950s, was inspired most notably by the writers such as Jane Jacobs, Kevin Lynch, Gordon Cullen, Guy Debord and the Situationists, and Michel de Certeau; today this line of inquiry is still present as the studies of Jahn Gehl proves. In this approach reading and mapping urban space is associated with the public perception of urban space. Thus, the bottom-up approach fosters a planning/design attitude that prioritizes the peculiarities of the lived space. The top-down approach might be thought of as an architectural approach that is discussed in the writings of Aldo Rossi, Italian Tendenza, and Colin Rowe mainly. This approach prioritizes the study of the urban block, persistency of urban structures, urban morphology, and the layers beyond the city surface and considers mapping as a supportive tool for design (Providência, 2015).

Throughout the 20th century, mapping has been employed to analyze and survey existing conditions prior to the design process. Conventionally, these maps represented “social, economic, ecological, and aesthetic aspects” of the spatial and statistical status quo. In that respect, these maps were considered to be “stable, accurate, and indisputable representations of reality” since they constitute “quantitative, objective, and rational” images. Mostly, they provided a basis for the legitimization of future plans and decisions and defined a frame in or around which a planning project may be rationally developed, evaluated, and built - such as the conventional maps that are closely aligned with the construction of the utopian renovation of immense urban fabrics. In such maps, sites are considered as blank areas or simple geometrical figures to be manipulated from above (Corner, 1999).

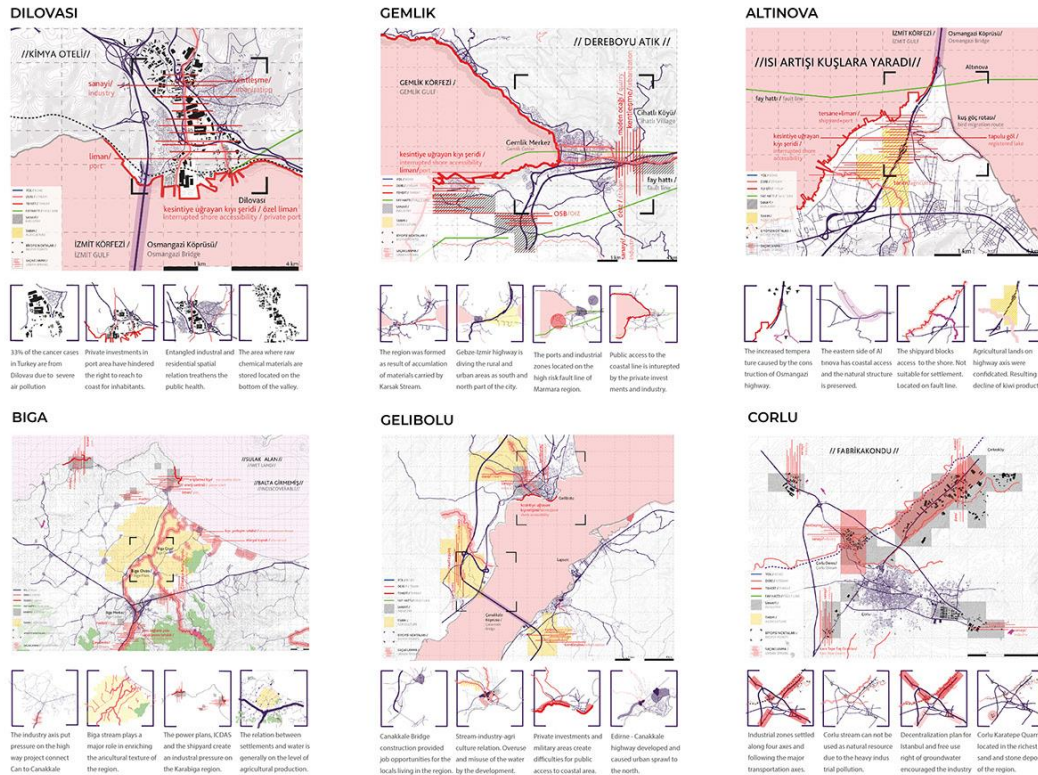
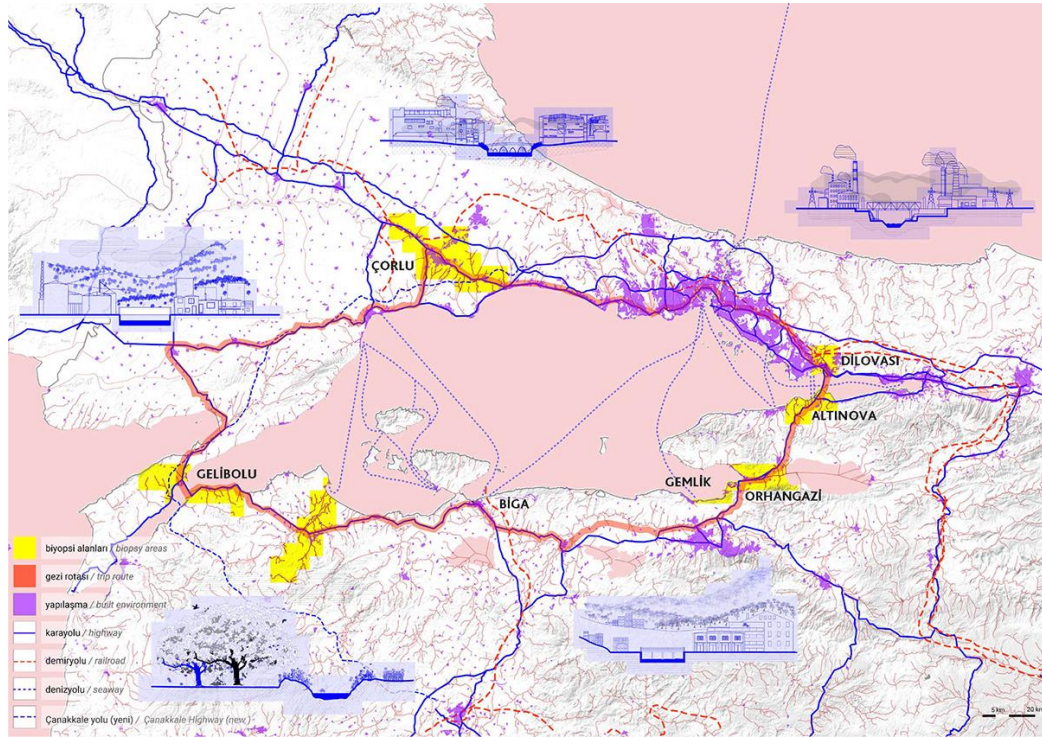


Figure 3.2. Mapping the Marmara Region / A Preliminary Biopsy, AURA / MARUF2021 / Sima Muhammetli, et. al., 2021, (Source: URL 24).

Conventional planning approaches, especially master planning, considered mapping a top-down practice - when it is exactly in the middle where top-down and bottom-up meet (Hougaard, 2012). These reductionist considerations took maps for granted as institutional conventions and relied on the reciprocal, mutual, and influential relationship between cartography and planning; thus, the development of experimental, innovative, and alternative forms of mapping in planning/design was limited for decades (Corner, 1999). Throughout these decades, common and widespread instrumentalizations of mapping in urbanism were:

- Representing any phenomena relating to space and place - policies, strategies, interventions, etc.-,
- Understanding the city/urban fabric and decoding or conjoining its mechanisms,
- Surveying the peculiarities of a site - can be referred to as site analysis-,
- Providing consistency between scales in the decision-making process,
- Conceptualizing the planning and design processes and projecting ideas,
- Increasing legibility of planning approaches and design operations – layered maps concerning development plans, site plans, and master plans -.

However, these common instrumentalizations that mainly employ the representative agency of mapping have undergone significant changes when the contemporary approaches are emancipated by the paradigm shifts that favor the potential of mapping rather than maps as mere spatial representations. Moreover, “Mapping in urbanism has become an interdisciplinary instrument that recognizes the combination of conditions and agents (human and non-human) that intervene in them.” (Bambó & García, 2018, p.237). Urban planners/designers, architects, and landscape designers have opened space for more provocative, speculative, interactive, and efficient use of mapping by putting emphasis on its unfolding agency. In that sense, implicit parallels between the discussion of mapping and contemporary practices in urban planning and design can be seen in terms of the appreciation of mapping’s revelatory and productive potential (Corner, 1999).

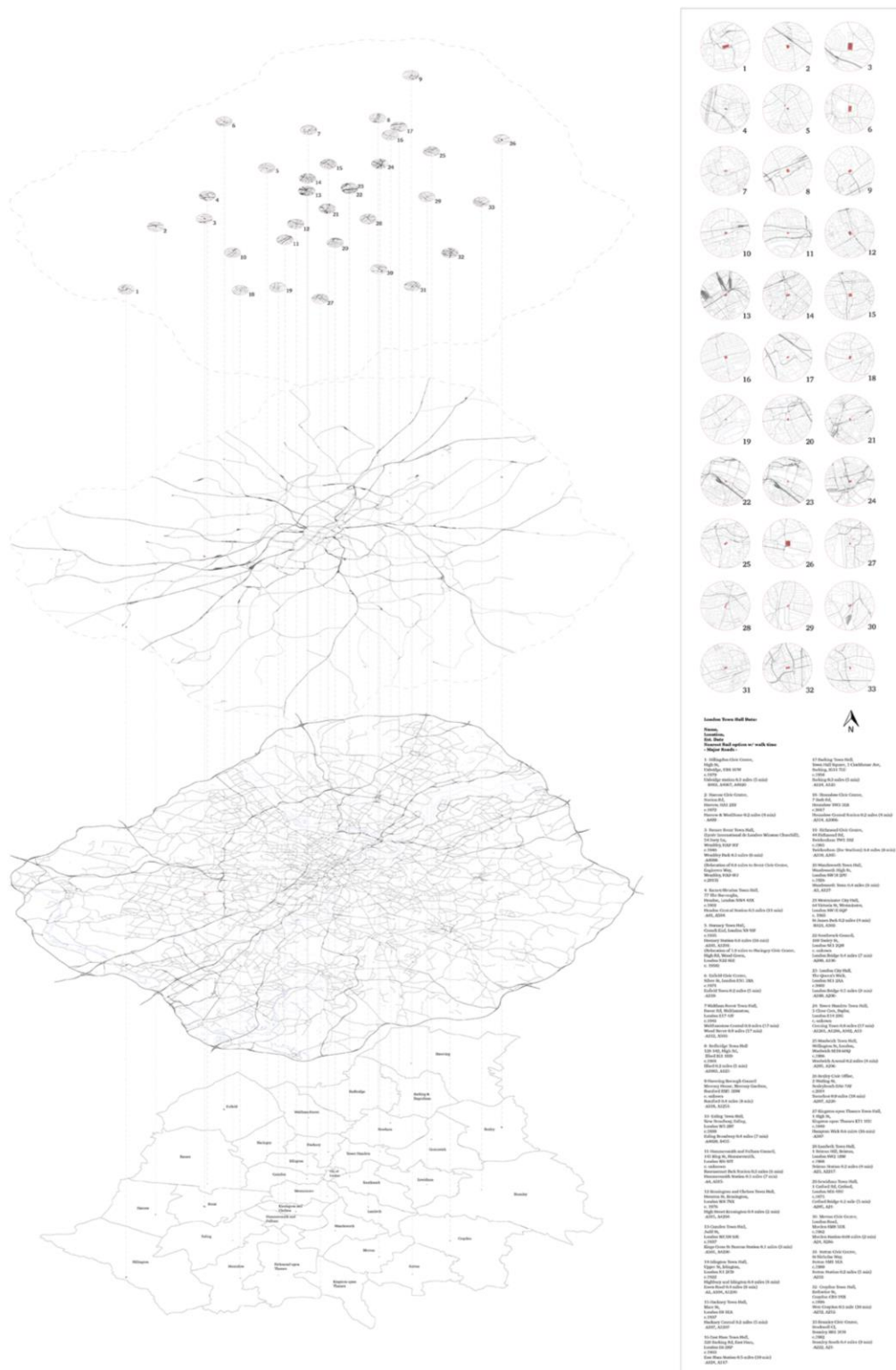


Figure 3.3. London City Hall Mapping / A Platform for the People, Cornwell, 2020, (Source: URL 25).

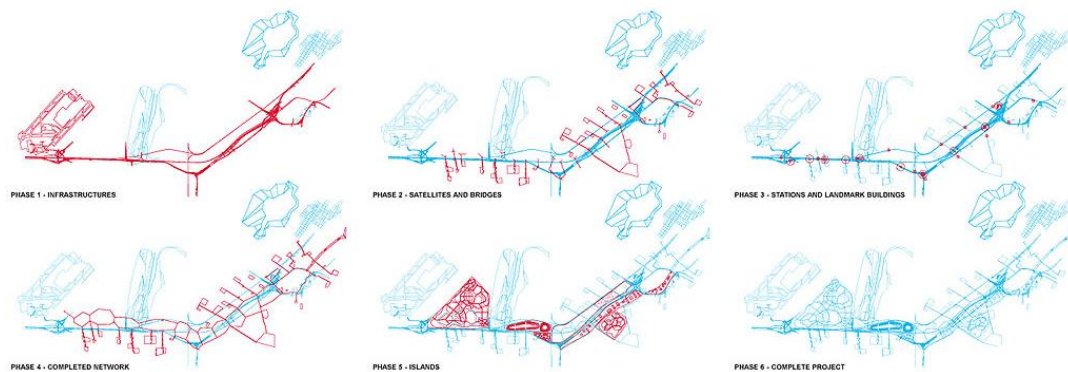


Figure 3.4. Mapping the Design Process in Network Montreal, Monolab, 2011, (Source: URL 26).

Schoonderbeek (2015) states that “...the use of maps and mapping in architecture involves a trans-disciplinary approach rather than an interdisciplinary one.” (p.48). With respect to this claim, his ideas on mapping in architectural design are also valid for urbanism practices which established an inextricable relation with maps on many scales. According to Schoonderbeek (2015) mapping refers to the “process of establishing relationships between terms, notations, or concepts of one vocabulary and those of another by making use of maps as a way of representing these relationships”. Schoonderbeek further explains what mapping in architecture deals with it (p.59):

- “The transition from observation via interpretation to notation”,
- “The spatialization of information”,
- “The objective of incorporating experiences, processes, and events of any exploration or investigation into spatial conditions”,
- “The measurement, circumscription, and demarcation of territory in a mapping process”.

While Schoonderbeek was clarifying these points, he also states that: although mapping has primarily been employed during the last two decades to analyze spatial

conditions; the adapted terminology has undergone changes as much as the very nature of those spatial conditions (Schoonderbeek, 2015). Especially, the concept of 'site' shifted to a larger and much more active "milieu" that has neither a beginning nor an end but is surrounded by other middles (Corner, 1999, p.224). Today's world's altering structure, the speed and complexity of events, and the dynamism of space and time triggered a creative view of mapping in architecture, urbanism, and landscape design. Therefore, the challenge for contemporary urbanism practices lies in the search for open and dynamic processes that can operate on multi-scaled frameworks (Lukez,2007).

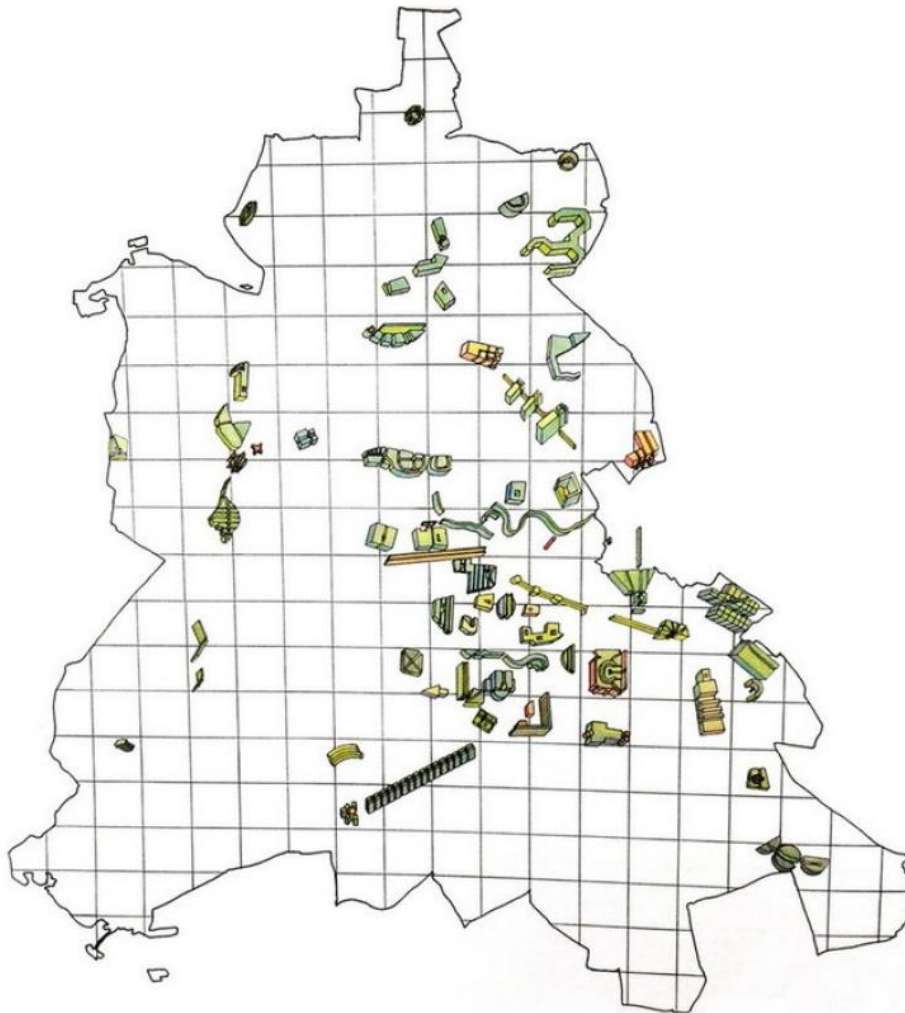


Figure 3.5. The City in the City, Peter Riemann & Oswald Mathias Ungers, 1977, (Ungers & Koolhaas, 1977,p.48).

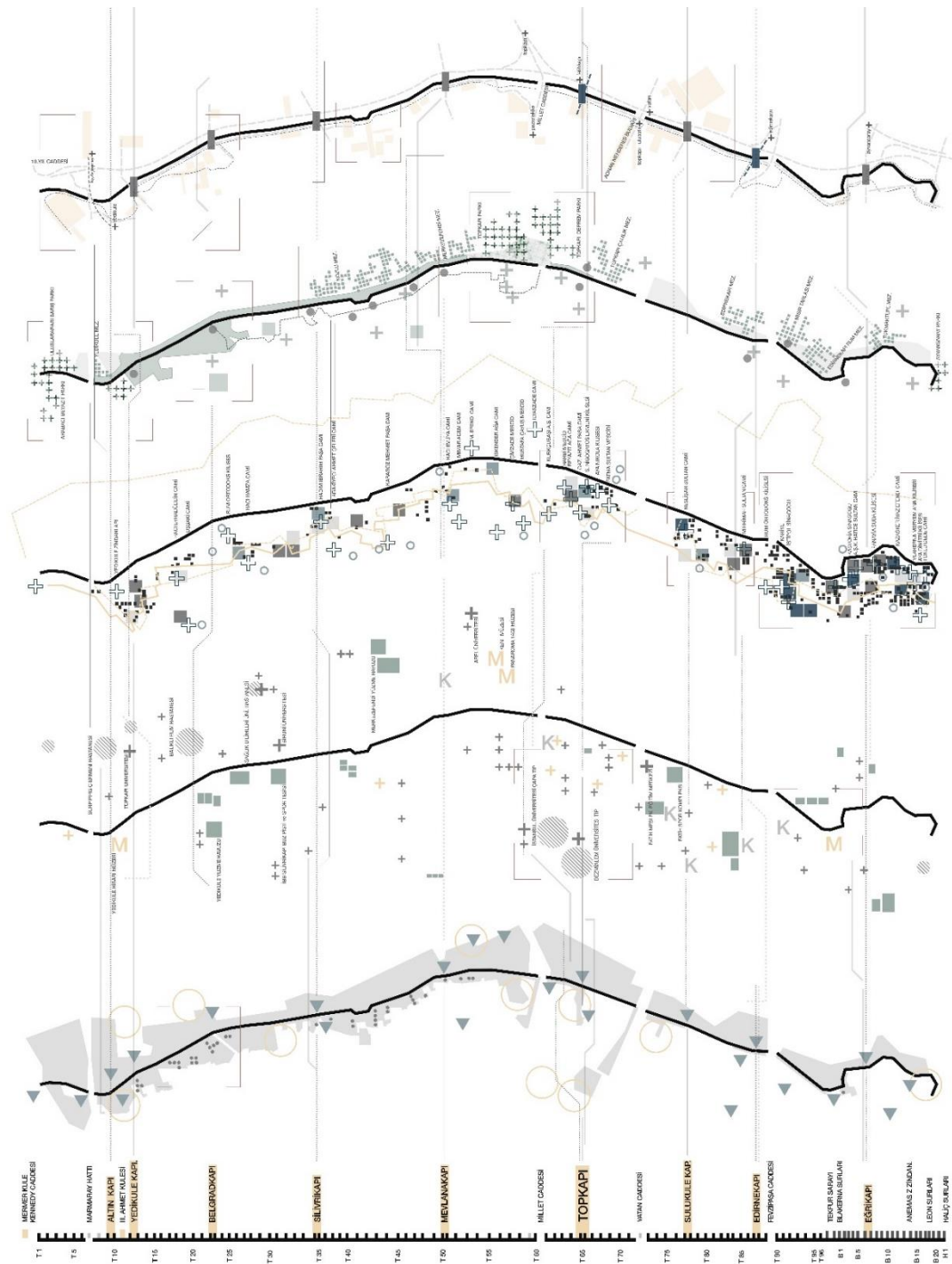


Figure 3.6. Comprehending Theodosius Walls, Aybüke Tufan, 2022, (Source: Personal Work by Author).

With respect to these changes, the promiscuous character of space and time relational systems shifted the milieu to maps and mapping. Mapping became an extremely significant instrument to “explore the multiplicity of changing spatial conditions” with respect to the great value it holds at the strategic and rhetorical level of operation when the traditional and bureaucratic regime of urban and landscape planning has failed to embrace the full complexity and fluidity of urbanism (Corner, 1999). For example, with the greater attention given to the site specification and contextualization in urbanism practices; interest in developing localized and discreet interventions, against top-down universal planning and design approaches, increased. Thus, mapping has been resurrected by a new generation of landscape architects, architects, and urbanists. For such designers and planners, mapping is beyond inventory and geometrical measurement of what is visible. Instead, maps are employed primarily for “finding” and then for “founding” new projects in collaboration with what exists (Corner, 1999). In that sense “what exists” is beyond the tangible and physical elements of the natural and built habitats.

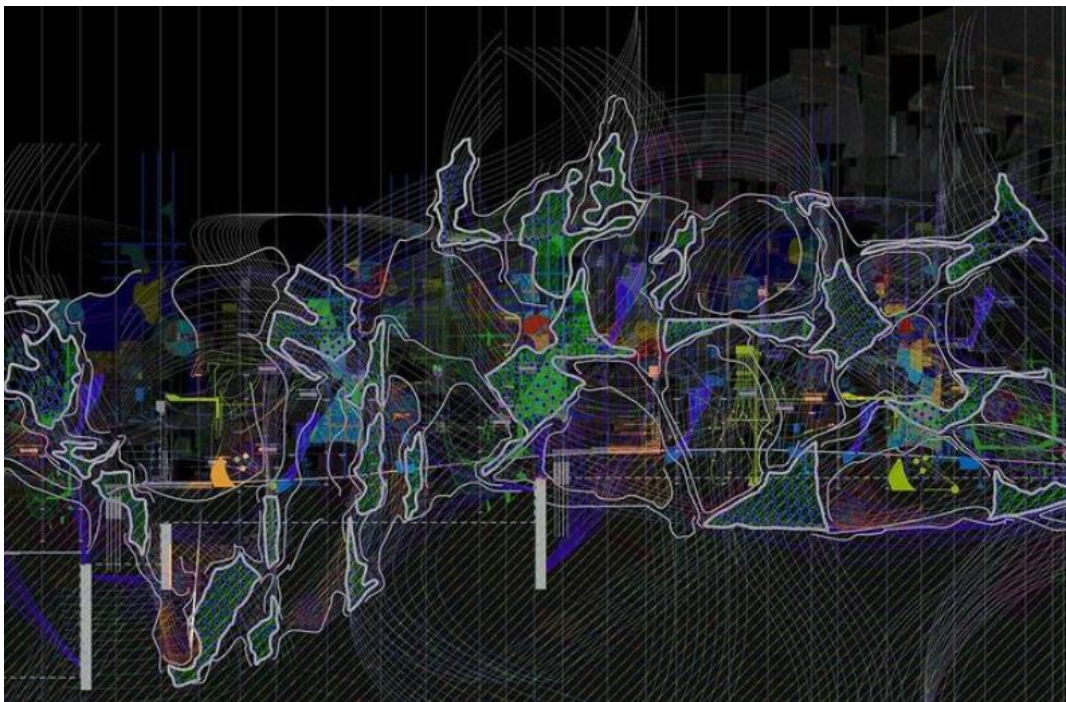


Figure 3.7. The Discharge of Contamination Upon Itself, Alaa Misto, 2022, (Source: URL 27).

Firstly, one of the most functional instrumentalizations of maps in urban planning is atlases. Atlases allow us to conduct a variety of readings of different times and places, but one must comprehend the map first to comprehend an atlas (Tekeli, 2012). Even though atlases are on the scene since the 16th century, especially in recent years, like the term “mapping”, “atlases” and “thematic maps” become very fashionable amongst publications on architecture and urbanism. In recent studies, atlases are more than the compilation of thematic maps; they are to locate the smallest units in a global world, beyond the political divisions, barriers, concepts, or borders. Through mapping, such units consolidate themselves as regions and totalities (Pinzon Cortes, 2009:69).

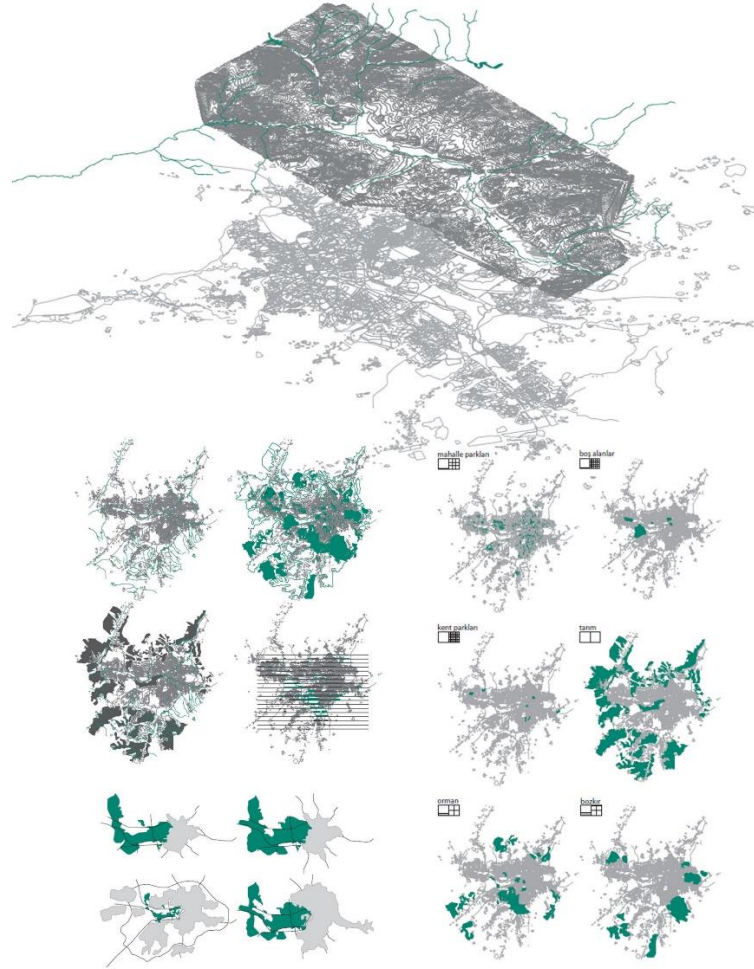


Figure 3.8. Eco-Morphology, Hayri Dörtdivanoğlu / et.al., 2012, (Ankara Kent Atlası, 2012, p.88-96).

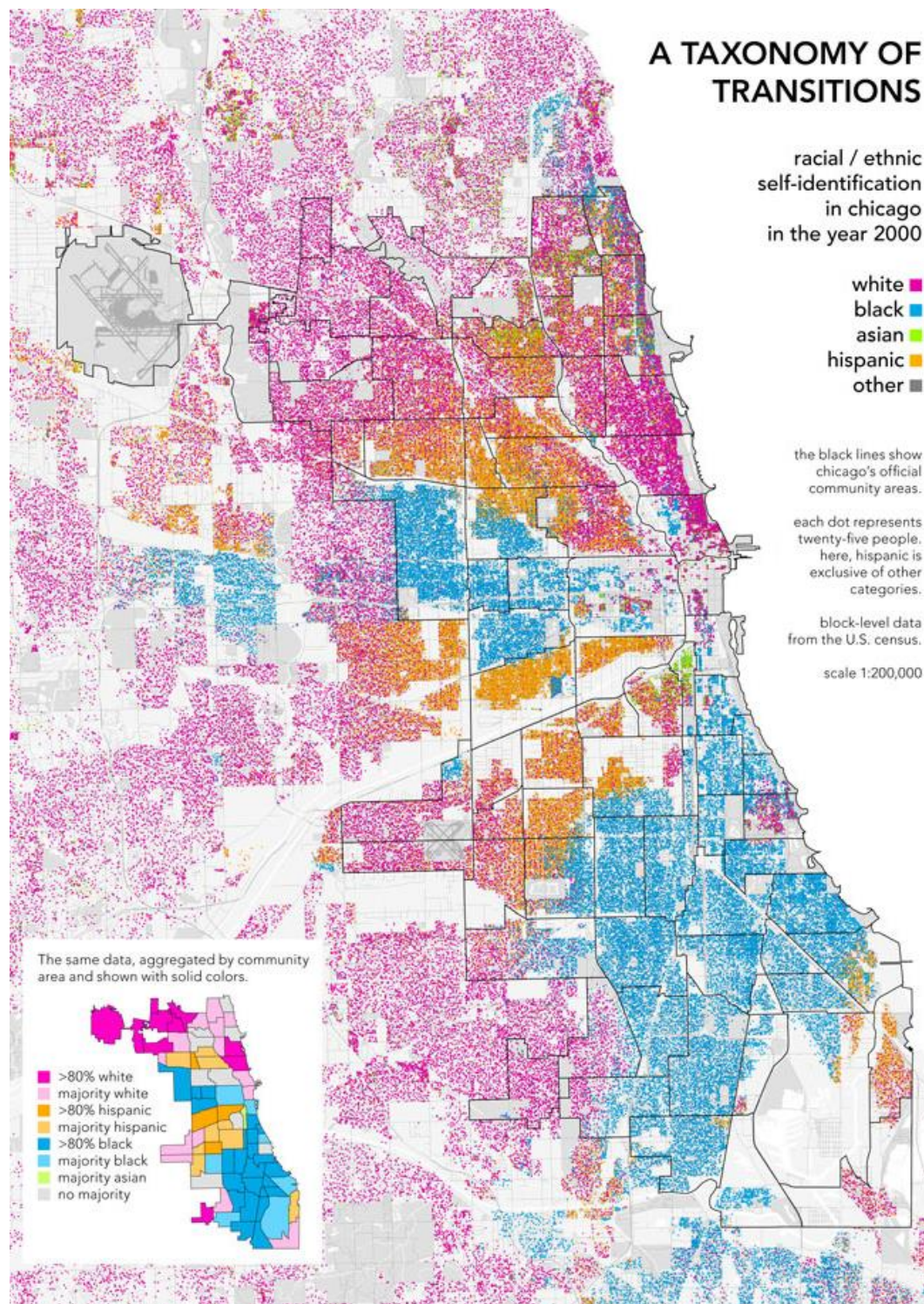


Figure 3.9. A Taxonomy of Transitions / Thematic Map, Bill Rankin, 2009, (Source: URL 28).

Secondly, mapping the movements and flows in relation to geolocations is another theme that has been discussed in the field of urban design and planning in recent years (Pinzon Cortes, 2009:71). Considering that, anything on the move has the potential to introduce new milieus or to integrate with existing ones; virtual reality and digitalization play an important role in the interpretation of mobility that impacts the regions, cities, and urban spaces. In that sense, particularly mapping the human flow in the global world allows urban planners to foresee the regional dynamics and relations about to emerge in the following years.

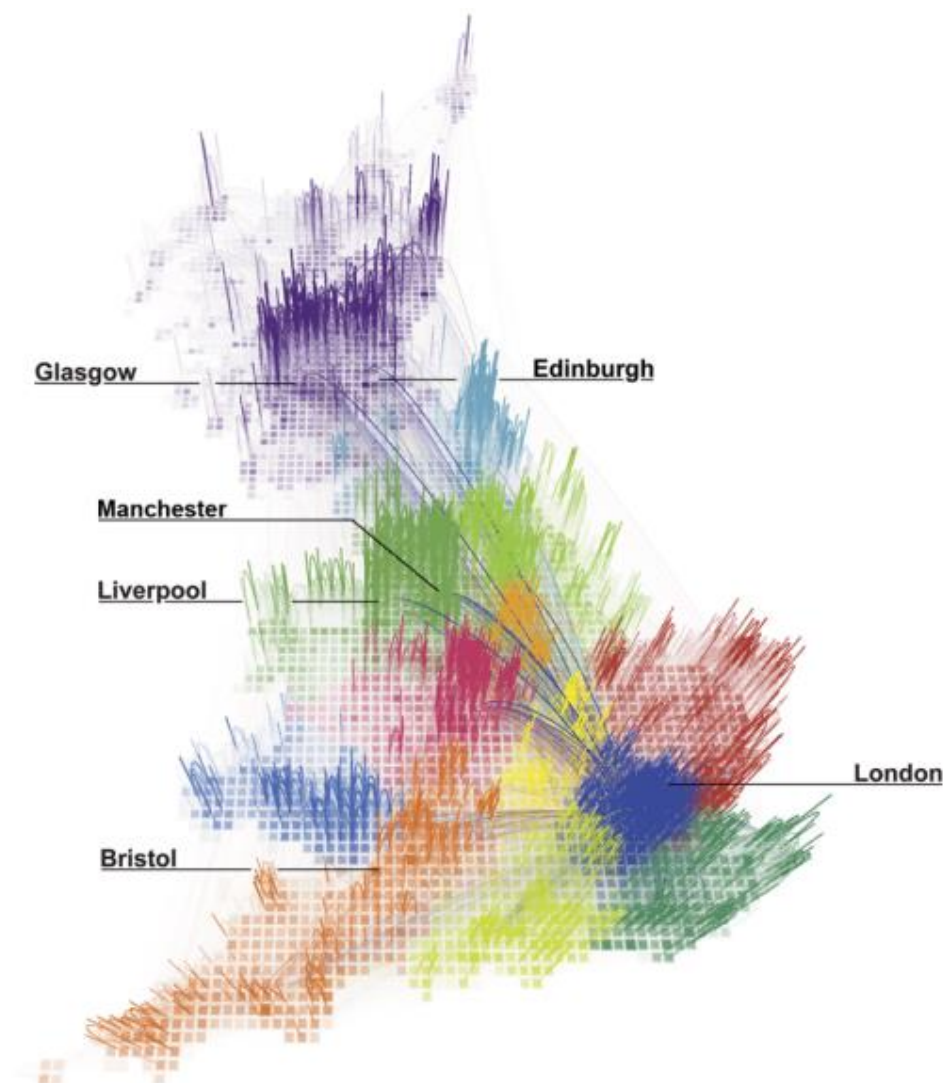


Figure 3.10. Redrawing the Map of Great Britain from a Network of Human Interactions, Carlo Ratti et al., 2010, (Source: URL 29).

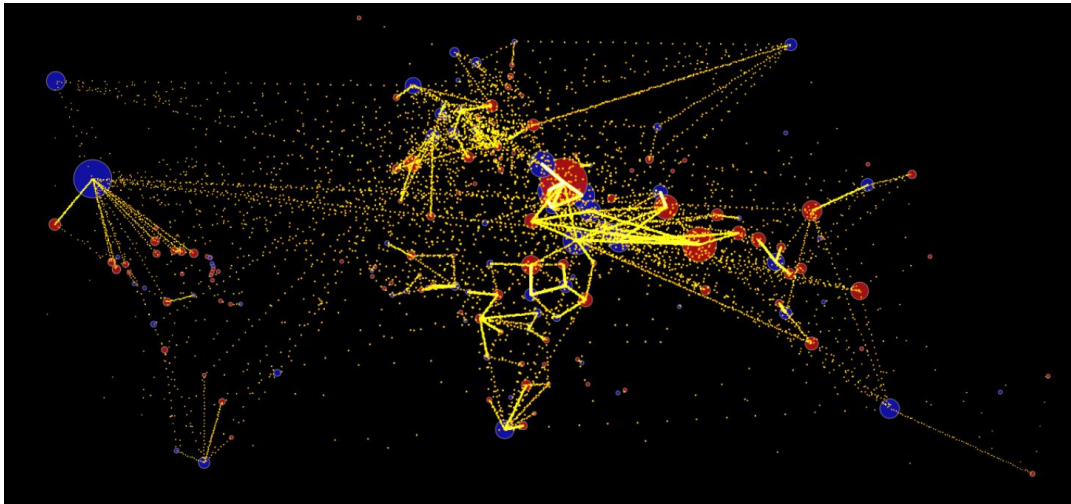


Figure 3.11. World Migration Map / Estimated Net Migration Between 2010-2015, Max Galka, n.d., (Source: URL 30).



Figure 3.12. Exploring Traffic Activity Along Road Segments in Detroit, Kuan Butts & Kieran Gupta, 2021, (Source: URL 31).

Lastly, maps have a ‘temporal’ dimension, as they represent a place in a specific time period (Baykan, 2019). “Mapping time” initially refers to the transformation of space over time. Such mappings are used in morphological studies with reference to transformations over long time periods (Pinzon Cortes, 2009:75). Reading the developments and transformations in the regions and cities by mappings allows urbanists to comprehend layered information in a complementary framework. In that sense, mapping emphasizes the temporal dimension and creative agency of ecology in the formation of urban life, where there is a need of finding equilibrium between nature and the built environment (Bambó & García, 2018).



Figure 3.13. Plan Proposals for Ankara, Gonca Zeynep Tunçbilek, 2012, (Ankara Kent Atlası, 2012, p.40-41).

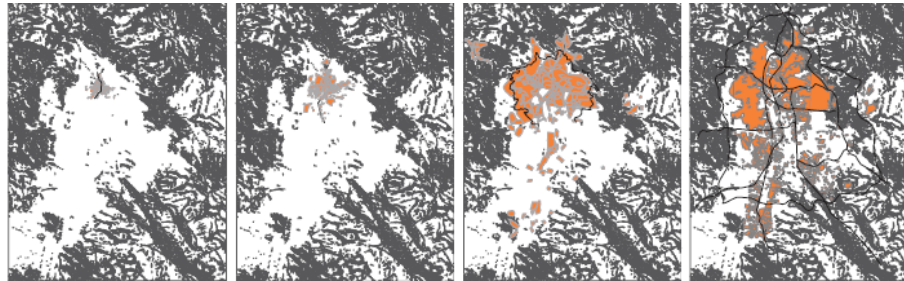


Figure 3.14. Relationship Between Geographical Basin and Urban Fabric of Ankara, Gonca Zeynep Tunçbilek, 2012, (Ankara Kent Atlası, 2012, p.42).

Today, mapping offers urban planners and designers to discover, record, comprehend and interpret the complexity, heterogeneity, fluidity, intricacy, and dynamism of regions, cities, and urban spaces. The scope of this offering is not limited to the framework of one single profession. On the contrary, it is a transdisciplinary milieu that brings a variety of professions, mindsets, mediums, methods, and techniques to a common ground.

Further instrumentalizations of mapping (mapping events, narratives, and informalities; mapping digitalized geospatial data, mapping senses, figure-ground maps, mental maps, cognitive maps, plan analysis, etc.) in urban planning and design are discussed in the following sections.

3.3 Map as a Visualization Tool & Digitalization of Mapping Practices

“A good map is abstract enough to reveal the underlying forces of the city without losing the complexity.” (Dovey & Ristic & Pafka, 2018, p.6)

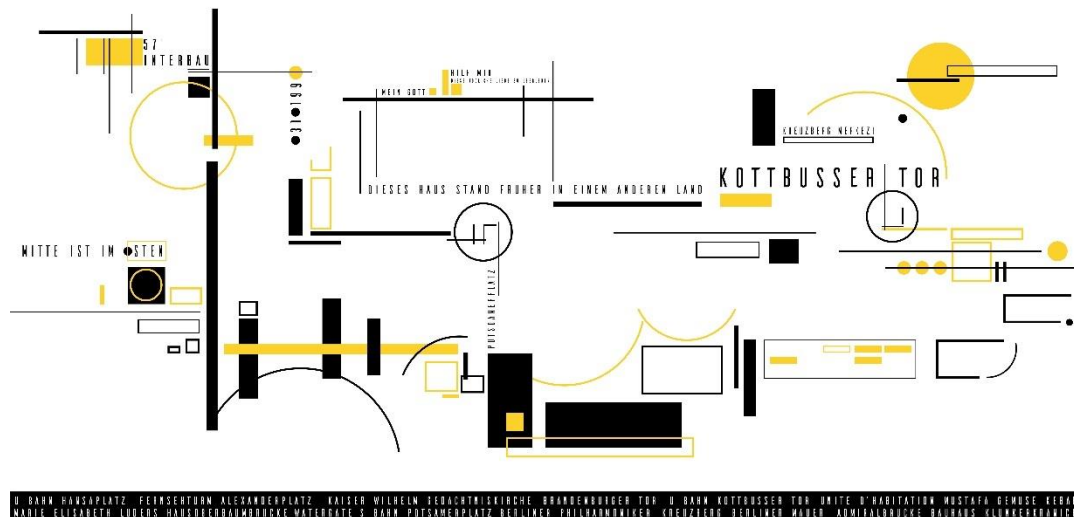


Figure 3.15. Jeder Einmal in Berlin (Architecture of Berlin), Aybüke Tufan, 2019, (Source: Personal Work by Author).

Map as a Visualization Tool

Even though at the first glance, the map appears to be a simple device that is taken by the eye quickly; maps are increasingly being recognized by a wide range of disciplines as representations of belief and ideology along with constituting images of scientific knowledge. This recognition considerably strengthened the idea that mapping can be considered a graphic language by its own dynamics (Harley, 1987). Primarily, every map is an outcome of graphic design, yet its visualized domain cannot be ignored (Tekeli, 2012).

For centuries, analytical cartography and visual communication tools have been at the center of urban planning and morphology to illustrate spatial patterns, develop design ideas, and compare scenarios. The physical complexity of urban spaces has compressed into easily comprehensible information artifacts by benefitting from classic urban form visualizations such as maps and mappings (Boeing, 2019). For example, pictorial maps captured the mid-century urban planning in European cities perfectly (Cosgrove, 2005).

Considering that, maps and mappings have the power to represent any substance or concept in relation to space; as a tool of data visualization, they can provide multiple readings on different scales when the graphic language is coherent and represented data is abstract and selective. The mediums or methods of data visualization in maps may differ since the legibility of data in a particular representation medium/method/media may not be applicable for all scales. There lies a potential exploration process of graphic language, expression, and mapping techniques. For example, when James Corner aimed to research the specific character of the contemporary North American landscape and uncover peculiar characteristics of landscape through mappings, he combined topographic features with data, time, and photography (Pinzon Cortes, 2009, p. 65).



Figure 3.16. In Search of Lost Time, William Taylor, 2016, (Source: ULR 32).

Even though Corner (1999) claims that some artists have been more engaged with creative mapping techniques and more conscious of the power maps possess for forming a new world, while planners and designers have been less ambitious about it; a variety of maps/mappings produced by architects, landscape designers, and urbanists have been contributing to the development of representation and mapping techniques to reveal liminalities of urban space, to express design ideas, and discourses. In addition to that, the creative mapping techniques employed by urbanists while visualizing what is not visible at the first look or while digging into hidden details of urban space open new fields for artistic expressions as well. In these

fields, the transdisciplinary mapping practices bring different professions together to conduct further research on maps' power to visualize existing and imaginary worlds.

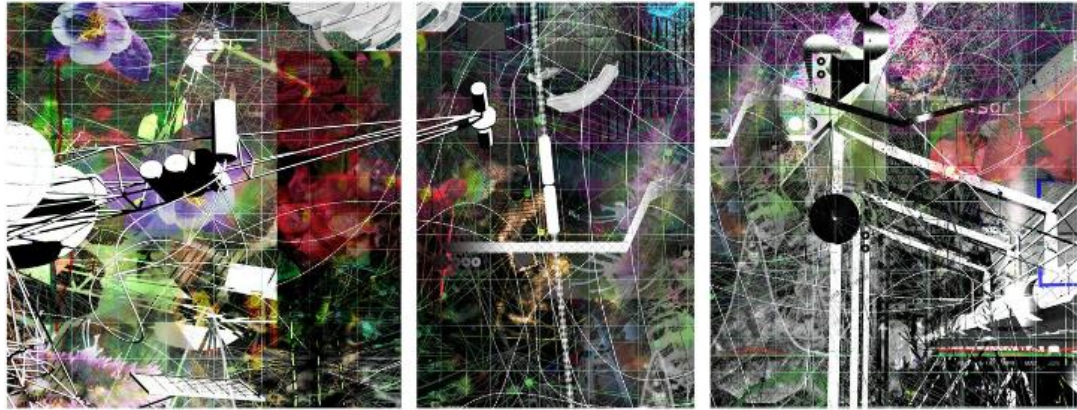


Figure 3.17. Constructive Thinking / Railway spaces in los Mallos de Riglos, Christian Belanger, 2022, (Source: ULR 33).

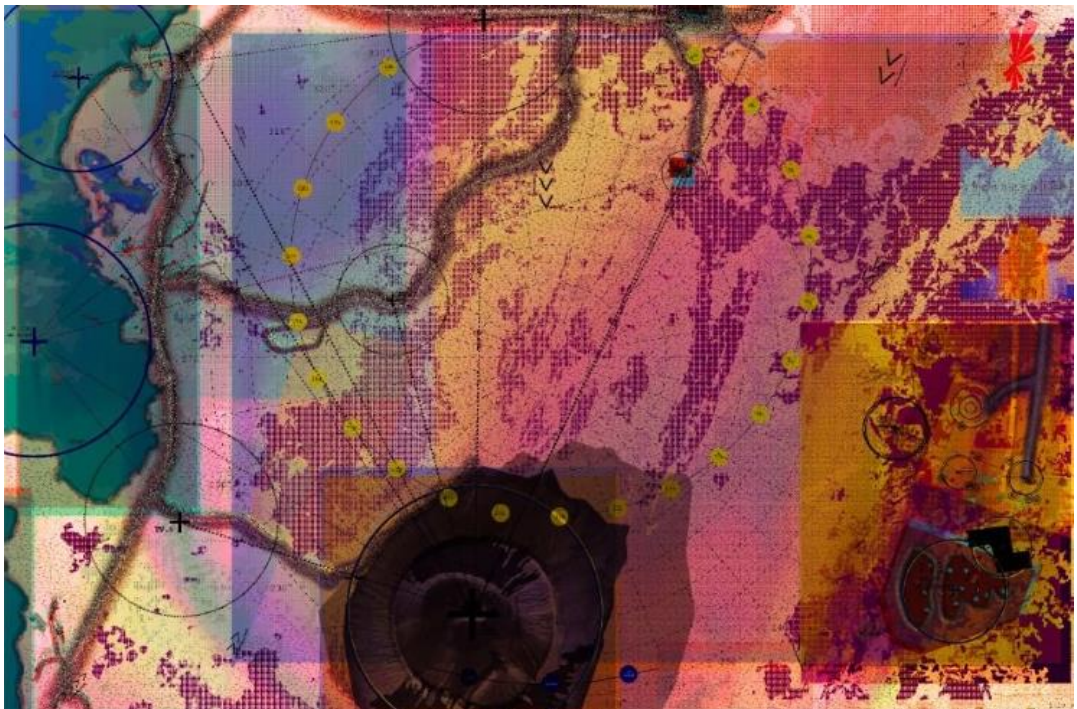


Figure 3.18. Culinary Space in Iceland, Pénélope Robineau-Pépin, 2021, (Source: ULR 33).

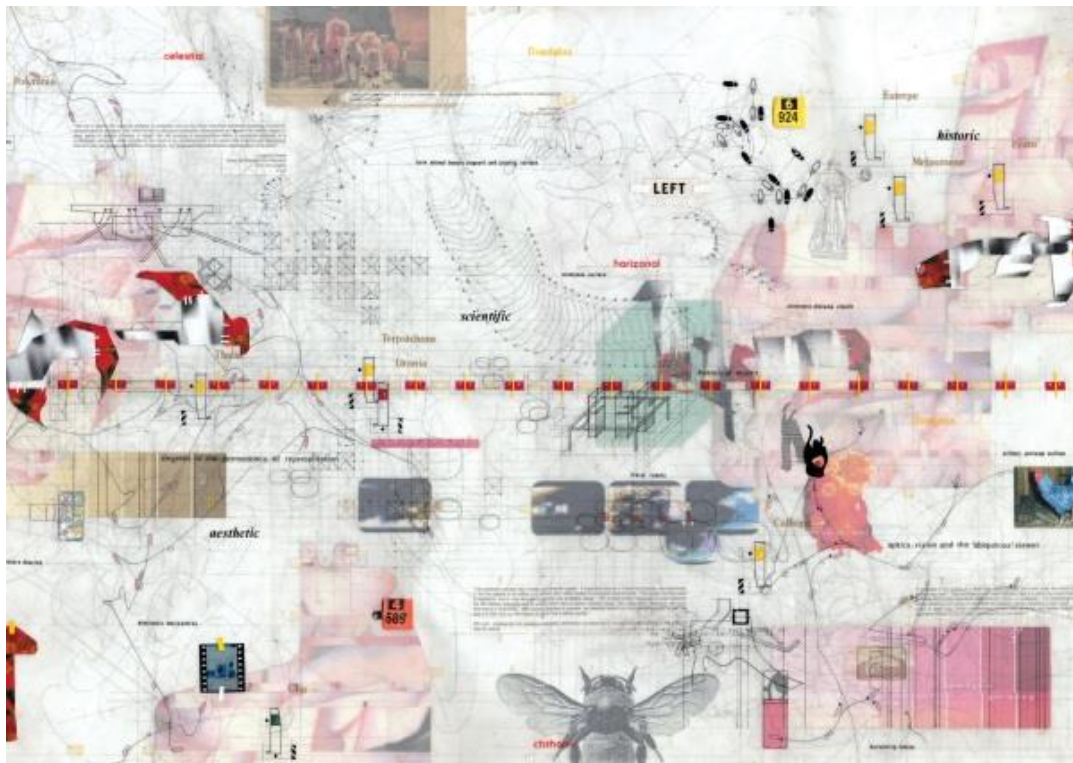


Figure 3.19. Central California History Museum, Perry Kulper, 2004, (Source: ULR 34).

Especially narrative maps, perceptual maps, and imaginal maps are utilitarian instruments for urbanists to visualize and realize subjective, obscure, temporal, and fictional aspects of urban space. In addition to that, even the research on conceptual maps as visualization tools in planning and design processes contributes to the theory and practice of mapping, since like other acts of mapping, conceptual mapping is about determining the relationship of a concept to other concepts. It is a subjective and artificial tool, and implicitly or explicitly representative of a discourse's worldview (Acar, 2019).

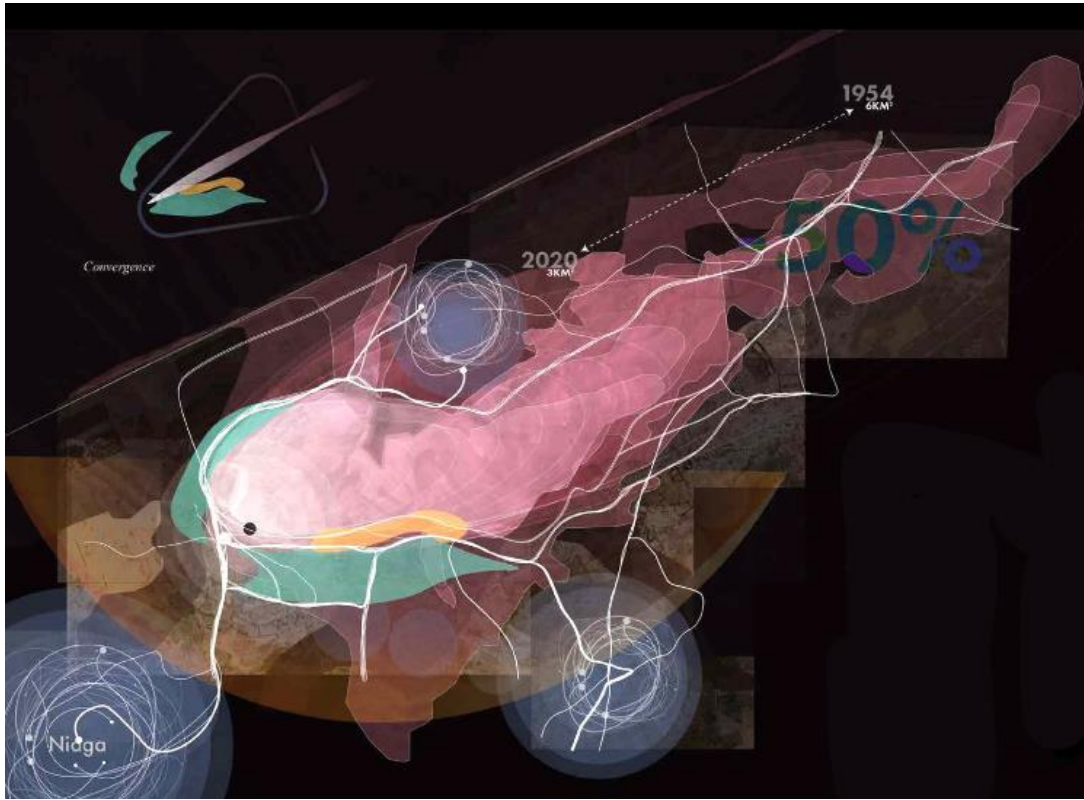


Figure 3.20. Conceptual Approximations, Samuel Flibotte, 2022, (Source: ULR 35).

Remarkable turning points that have been changing the visualization scene in urbanism practices were mainly the rapid urbanization, development of information technologies, and high level of interaction with geospatial data on a daily basis. All these turning points and even more have been transforming cities into immense data pools for the past few decades and they provide new ways to understand the transformation of cities and to reveal agendas embedded in the urban fabric for urban planners and designers. In these expanding datascares, the power of maps and mapping practices to comprehend performative aspects of urban conditions has gained increasing momentum in urbanism practices.

On the other hand, especially in contemporary practices of architectural design, the visualization of information has evolved into a distinct field of interest and expertise. Most notably OMA and MVRDV, besides several examples, have been trying to

explore efficient ways to quantify certain developments. However, some of the quantifications that datascares present are unable to capture or express these developments in spatial terms. Therefore, it is important to clarify the difference between graphical statistics and mappings; because mappings are complex entities with layered information that exceeds any intended message (Schoonderbeek, 2015). With respect to this difference, for example in mapping practices invisible but sensible artifacts such as the smellscape and soundscape of a neighborhood or even abstract concepts such as time can be visualized. However, not all maps and mappings are datascares or visualized statistics even though datascares and graphical statistics occasionally benefit from maps.

Depending on the scale and type of data, information, and concept to be mapped a variety of visualization inputs and graphic language (vector data, raster data, dot distribution, scripts, graduated symbols, choropleths, isopleths, etc.) may be adopted or different views (isometric, planimetric, perspective, etc.) of an area can be combined and merged. Thus, any visualization practice becomes research by itself, and its subjectivity and domain contribute to urbanism studies. At this point, it is impossible to underpin the role of digitalization of mapping tools and mapmaking processes in terms of tracking and visualizing urbanity.

Digitalization of Mapping Practices

Improvements such as aerial photography, remote-sensing, satellite images, Geographical Information Systems, and other computer-aided technologies have accelerated and eased cartographic production and map-making process (Corner, 1999).

Especially with GIS, the representation of urban data has evolved and developed remarkably (Dovey & Ristic & Pafka, 2018). Since geospatial data have become omnipresent; almost every aspect of living has been captivated by GIS - which can store, manipulate, and analyze the physical, social and economic data of a city. Even

though GIS primarily deals with data at a geographic scale rather than morphological urban data (Dovey & Ristic & Pafka, 2018) - for instance, the first field that benefitted from GIS was resource management in urban and rural areas (Grelot, 1991); utilizing its merits in spatial planning and urban design can take urbanism to another level (MapServe, 2021).

For instance, landscape architect Ian McHarg used GIS to understand the interconnectedness of natural and ecological systems by overlaying and cross-mapping separate data sets that play crucial roles on a site. He lays one transparent map of information over another to understand the needs of contemporary urban scenes. His composite maps expose vital values and opportunities for future planning and design strategies (Lukez, 2007). Moreover, Ian McHarg's analysis techniques based on mappings are obviously built upon Patrick Geddes' methods for regional planning (Bambó & García, 2018).

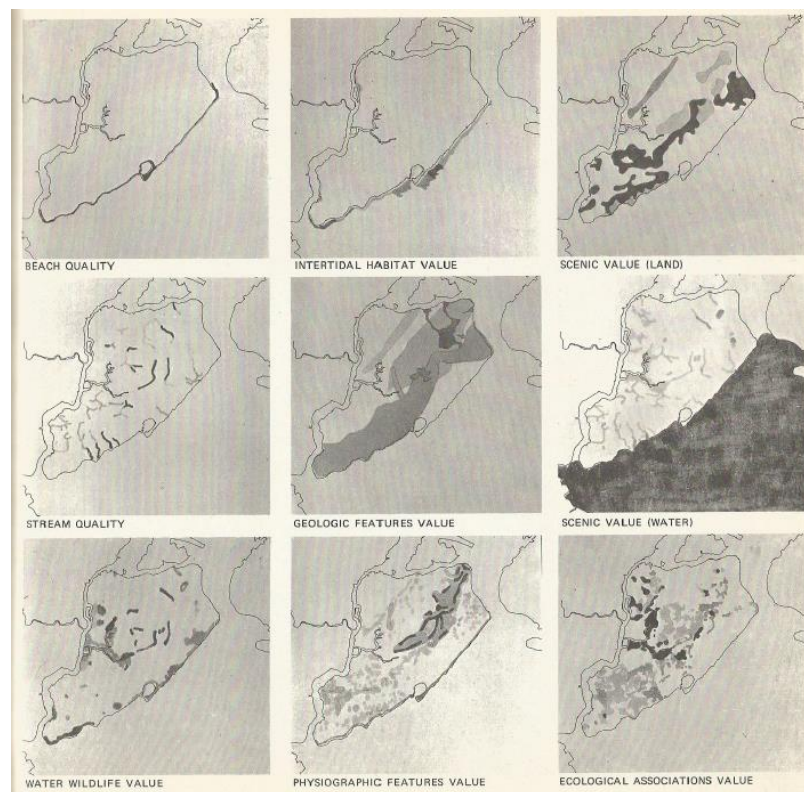


Figure 3.21. Layered Maps in *Design with Nature*, Ian McHarg, 1969, (Source: McHarg, 1971, p.111).

Besides GIS, a vast amount of digital mapping tools, online apps, and open-source databases became primary tools for urbanists as survey tools that ease mapping practices since they are easily adjustable and contain many operations such as filtering, layering, exporting, importing converting, etc. Applications and websites such as Google Maps, Yandex Maps, Google Earth, OpenStreetMap, CADmapper, ArcGIS Online, GIS Cloud, Carto, Mango Map, Mapbox, Leaflet Javascript Library, OpenLayers, Mapzen API, Mapcite, MapStack, etc. and many more have become quite popular and practical amongst professional and prospective urbanists, architects, and landscape designers. Thus, today's mapping practices gained momentum precisely because of their performance, which has resulted in an impressive number of mappings that visualize networks, conversations, territories, topographies, and topologies (Schoonderbeek, 2015, p. 27) also, some mapping software (mainly interactive maps) allow us to conduct multiple readings in different scales and timelines.

Another impact of digitalization and virtual reality on maps and mapping practices is the constantly expanding data sources. Today, any public digital platform can provide data and information for mapping practices to produce spatial knowledge. In that sense, what social media platforms provide cannot be underestimated because they have the capability to reveal invisible aspects of the space. Amongst many other platforms providing information about locations, especially Twitter and Instagram allow us to discover the "actual" perception of space by analyzing hashtags and posts users share. Even though the hashtags are textual, their connotations -when they are merged with location tags- matter in terms of understanding the spatial perceptions of users. In addition to that, the posted contents may reflect an image of the location. Thus, as a distinctive type of geospatial information, publicly accessible social media platforms can provide a design input as a mappable phenomenon.

A well-known example that benefitted from digital mapping tools and data retrieved from social media to understand the dynamics of the city is the artist Eric Fischer's maps that reveal the differences in how cities are perceived by tourists and locals. Entitled as "Locals and Tourists", Fischer's work benefitted from data combinations

retrieved from OpenStreetMap, MapBox, and Twitter to analyze the activity density of the largest and most visited cities in the world. In Fischer's work, blue dots on the maps represent pictures posted by locals (people who have taken pictures in the mapped city for a month-long or more), red dots represent pictures posted by tourists (people who seemed to be a local of a different city yet took pictures less than a month in the mapped city), and yellow dots represent the pictures posted by the users who haven't posted any pictures anywhere for over a month. Even though the data on the maps are compiled between 2010 and 2013, considering that the main tourist destinations in major cities change a little from year to year, it can be assumed that Fischer's maps reflect the activities of locals and tourists quite accurately (Baratto, 2019).

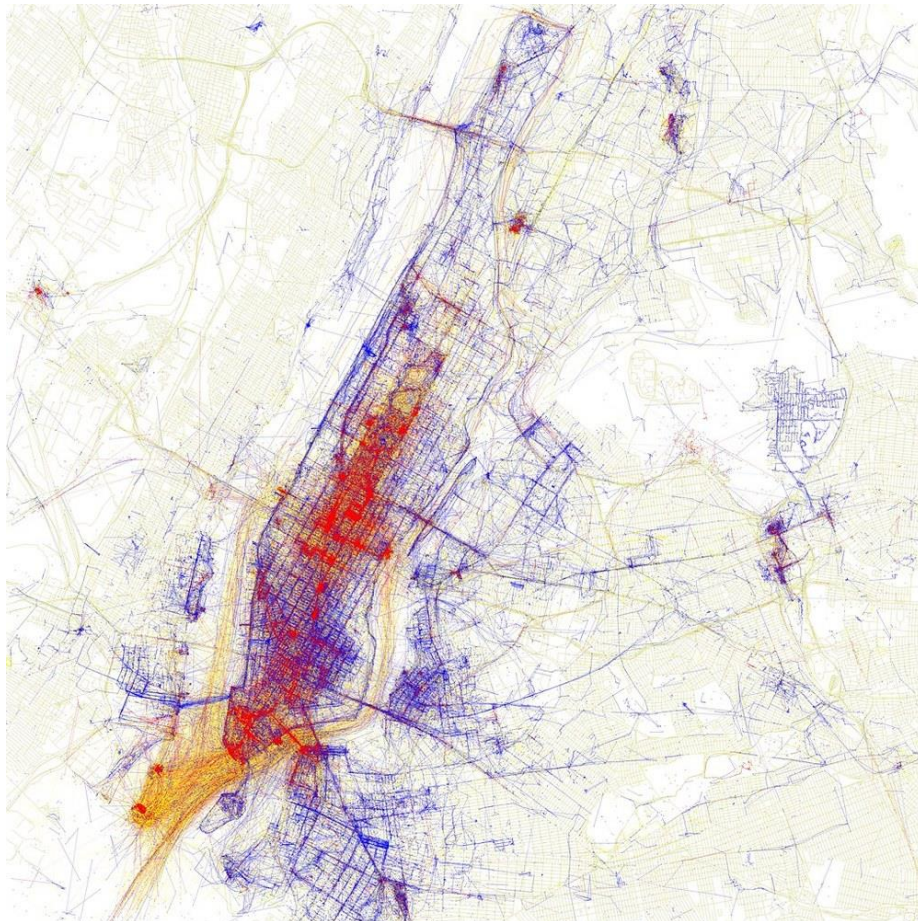


Figure 3.22. Locals and Tourists #2 / New York (GTWA #1), Eric Fischer, 2010, (Source: URL 36).

Another example that reflects how inhabitants or visitors of a city perceive their environment is the “Hoodmaps”. Hoodmaps offers a crowd-sourced mapping platform that provides a quick representation of a city with six colors that indicate: uni, hipsters, tourists, rich, suits, and normies. The platform features the largest cities in the world, and it is constantly edited with the fresh content/information added on Google Maps. Not only color-coding but also labels such as “empty streets”, “too much traffic” and “architectural” can be added to the locations and it is possible to vote on the labels. Thus, Hoodmaps itself is a pipeline for the public to express their views on the city. Even though the website is criticized for reinforcing negative stereotypes, with its expanding functions such as letting users draw and edit their own maps, it still provides a great range of data for architects and planners to decode the urban environment (Zorn, 2017).

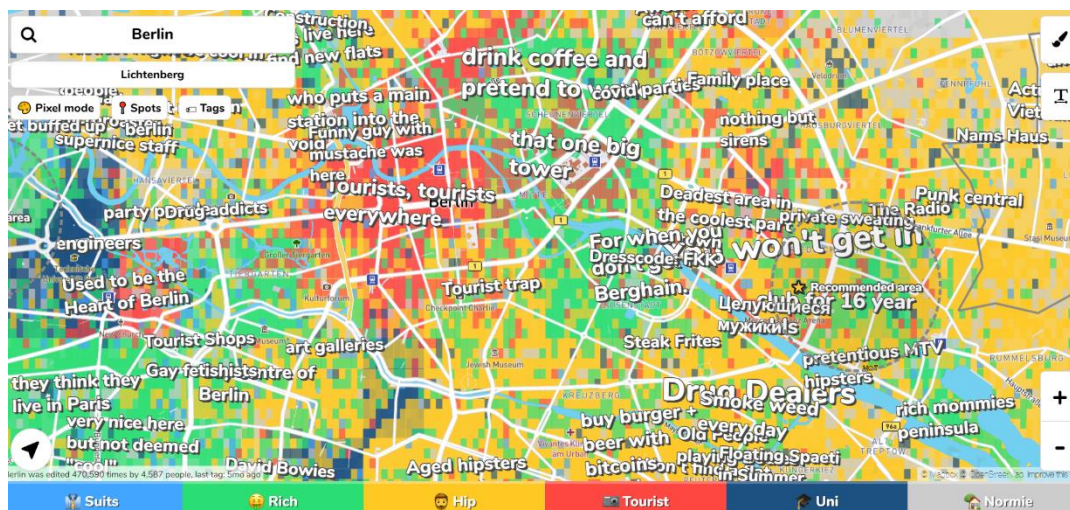


Figure 3.23. Berlin Neighborhood Map, Hoodmaps, n.d., (Source: URL 37).

Furthermore, customization of map production strikingly increased with the digitalization of map-making and mapping (Schoonderbeek, 2015, p. 27). Today, not only professionals but any individual can map and trace their journeys and stories with online cartographic applications (Caquard & Cartwright, 2014), and the

geospatial data retrieved from these customized maps and cartographic applications indicate how urban space is used, perceived, and appropriated.

One of the most important contributions digital mapping tools provide for professional and prospective urban planners and designers is base map production. Since some open sources allow their users to export layered geospatial data simple or even complex base maps can be generated. However, the accuracy and precision of these base maps should be questioned prior to use because some publicly accessible applications allow their users to edit and manipulate data.

For instance, “Colouring London” is a prototype platform developed by “Colouring Cities Research Program (CCRP) based at the Alan Turing Institute” to help make London more sustainable. It is a free knowledge exchange platform (as the creators named so), that provides more than fifty types of data on London buildings. Colouring London allows its users to download codes and data for free and lets users edit its data bank (CCRP, 2018). Thus, even though the morphology of the city is accurately presented on the platform, the accuracy of layered data (land use, age of buildings, size, type, and so on) might be deceiving.

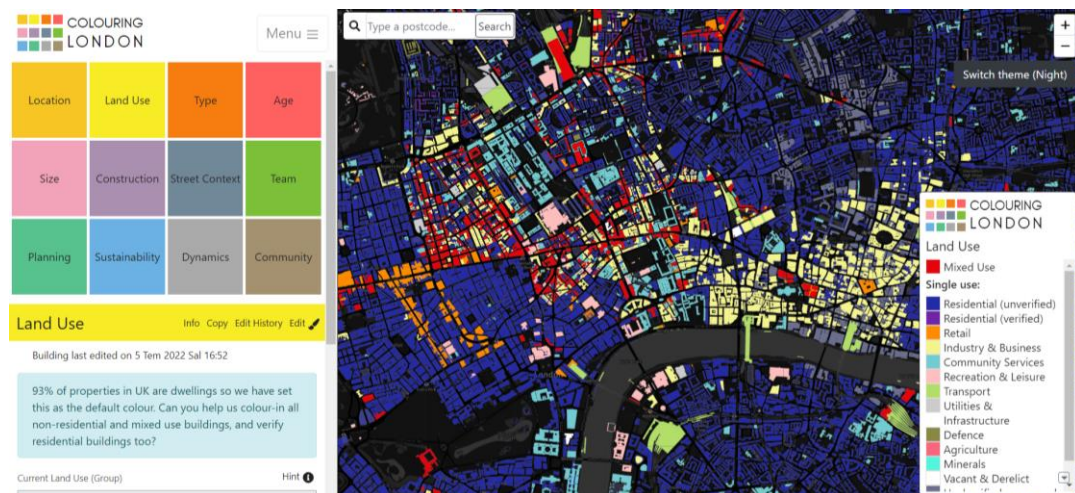


Figure 3.24. Colouring London, CCRP, n.d., (Source: URL 38).

Also, many public planning agencies such as municipalities and ministry departments benefit from digital mapping advancements to create databases on multiple scales (regional, city, county, neighborhood, etc.). With the help of these public maps, the inhabitants of a city can be informed about the city itself, planning processes, and recent or upcoming urban developments and interventions. Moreover, in some cases, the interactive city maps allow inhabitants to participate in planning processes. Such functionalization of digital mapping tools by public agencies may also provide transparent planning and design processes to take place.

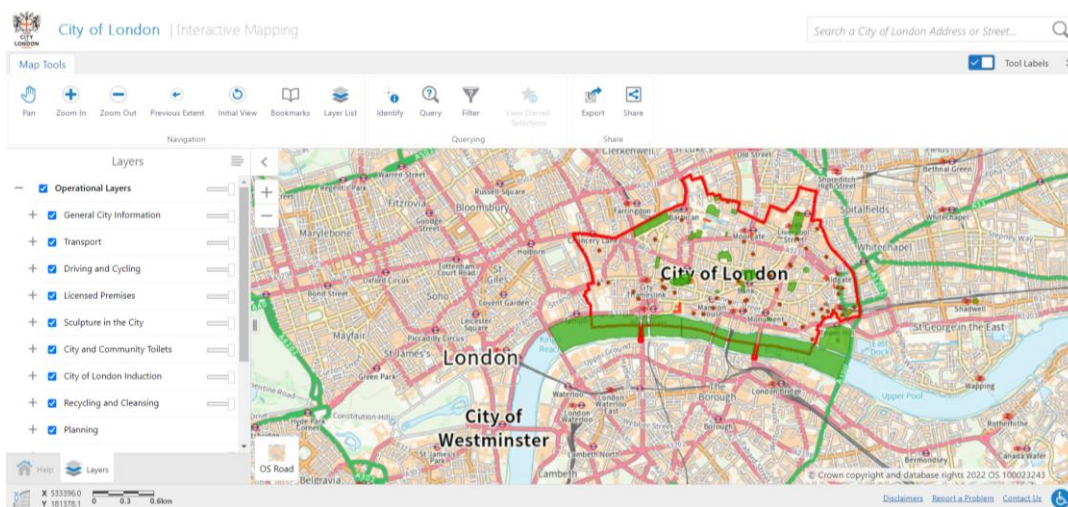


Figure 3.25. Interactive Map of City of London, The City of London Corporation, n.d., (Source: URL 39).

However, this acceleration in map-making and the techniques remained largely unquestioned and considered to be conventional devices of analysis and legitimization for future plans and design schemes, and only a few exceptions focused on maps' relationship to world-making (Corner, 1999). On the other hand, the term “visibility” is carried to another dimension by the developing computer technologies since maps have begun to be produced and created in a new environment - the world of virtual reality. The virtual reality environments triggered significant changes in design processes as well as mapping processes. The changes

were so striking that the representational relations between map and design have altered in the computer-assisted virtual environment. Such digitalization aided maps to create their own environment which exceeded their representative identity in the design process and eventually maps started to represent themselves. Thus, in a way, the digitalization of mapping tools revealed that maps are not only tools of representation in urbanism and architecture. In the environment of virtual reality, maps represent themselves and their own realities by becoming “design” themselves (Güleç, 2021).

The “Gateway” installation designed by Norman Foster in 13th Venice Biennale draws attention to the relationship between digitalization, mapping, and map as design approach. The theme of the installation was “Common Ground” and Foster interpreted theme in two ways. First one refers to “*the body of knowledge passed on through generations of architects, critics, designers, landscape architects, and planners.*”. Second one, in a literal sense, “*common ground is the communal gathering space that brings us all together socially.*” and Foster states that: “*Public space is more important than any individual building, which we often take for granted.*” (Arch2o, n.d.). Gateway installation is an example of interactive map with moving images and impressive sounds accompanying the images. Foster designed the Gateway as a three-dimensional map inside an exhibition space with two-dimensional visuals. Designed as an audio and video installation with moving images, the interactive map reveals the changes cities, architecture and humanity have undergone since ancient times. The three-dimensional map constantly changes while visitors perceive and relate images to each other, that is why the installation is considered to be an interactive map. Foster interprets this as an interactional change that eventually changes the perception of visitors (Saieh, 2012). Foster’s interactive map not only represents major public spaces of the world but also allows visitors to establish perceptual relations between those spaces. Thus, the moving and variable images reveal and form a basis for the new urban, public and spatial interactions to be emerged (Güleç, 2021).



Figure 3.26. and Figure 3.27. Gateway (Venice Biennale 2012), Designed by Lord Norman Foster, Photos by Nico Saieh, 2012, (Source: URL 40).

Consequently, the merits of digital map-making are most functional only when spatial knowledge can be generated from the geospatial data and immense information they contain, visualize and present. At that point, especially the performative, subjective, speculative, and experimental aspects of digital mapping become prominent for urbanists in terms of discovering the worlds to emerge. Otherwise, most of the maps produced via digital mediums are nothing more than tracings or processed data, as it was in conventional cartographic practices.

3.4 Mapping Urban Space

Following the previous discussions presented in this chapter, this section particularly focuses on mapping urban space particularly. Firstly, mapping physical aspects of urban space (morphology and built area) is discussed with respect to *figure-ground maps*. Subsequently, mapping hidden aspects of urban space are discussed with respect to human activities, everyday space and lived space. Examples from different genres of maps and mappings (*mental maps, cognitive maps, emotional maps, sensory maps, counter maps, mapping time, mapping events, and mapping network & flow*) are included in the discussion to provide an insight into the diverse scope of mapping practices about urban space and “lived space”.

Mapping registers the heterogeneous fabric of places and provides room for strategic cartography to question intricate aspects and peculiarities of a site, community, and culture. It specifies the particular conditions of a setting that arise in placedness (Tawa, 1998). Maps are powerful narratives besides depicting space & place and geolocating stories (Caquard & Cartwright, 2014, p.101). Thus, they are instrumental in terms of interpretation and formation of lived space, besides being a collective enabling enterprise revealing and realizing hidden potentials. The unfolding agency of mapping enables planners and designers to actualize potentials beyond possibilities in the existing complexities and contradictions. This instrumentalization

approach in mapping is extremely vital in a world where imagining and creating something outside normative planning and design practices becomes increasingly difficult (Corner, 1999).

Mapping Physical space

Pinzon Cortes (2009) examines three schools (The Italian, The French, and The British) to point out how maps and mapping contributed to urban morphology studies.

The Italian School employed mapping to search how the city and architecture were constructed through time on different scales and to find the laws of continuity within a transformation process. The French School benefitted from mapping in analyzing existing urban forms and areas to identify ideas and theories leading to specific types and forms of urban developments and to confront the constructed realities of planning and design. For The British School (Conzenian School), which originated within the field of geography, the main interest in mapping was derived from the search for how and why cities are built in a certain way (Pinzon Cortes, 2009).

Thus, the instrumentalization of mapping as an operative tool for urban readings and design is not something recent (Bambó & García, 2018). For example, early in the 20th century the geographer M.R.G. Conzen analyzed the relationships between the plots, streets, and building typologies in Newcastle and Birmingham by mapping them. His motive for mapping was to reveal how each combination of forms was unique to the conditions found on the mapped site. John Habraken mapped the various levels of control and decision-making power on a site to understand the urban form. His maps revealed how urban tissue is inhabited and altered in time to meet the needs of inhabitants and how territorial control is exercised over a site (Lukez, 2007).

Table 3.1. Comparative Table of Recent Approaches to Mapping Urban Form (Mapped Themes & Context of The Mapmakers & Techniques), Camila Eugenia Pinzon Cortes, (Pinzon Cortes, 2009, p.101).

		THEMES	CC	SIGNS AND TECHNIQUES	THEMES
1950	1748	Nolli map			Urban form
	1952	Kahn, L. Plan for midtown Philadelphia			Urban form and the traditional city
	1957	Debord, G. The Naked city			Urban form, suburbia, territory and landscape
	1960	Lynch, K. The image of the city			Context of the map: other themes
		Muratori, S. Studio per una oprante storia urbana di Venezia			New atlases
1960		Conzen, M.R.G. Alhwick, Northumberland: a study in town-plan analysis			Mapping perception
	1961	Cullen, G. The Concise Townscape			Mapping flows
	1963	Caniggia, G. Lettura di una città: Como.			Mapping time
		Muratori, S. Marinucci, B. Studi per una operante storia urbana di Roma			Mapping data
	1964	Appleyard, D., Lynch, K., Myer, J. R. The view from the road			Mapping scenarios
1970	1966	Rossi, A. L'Architettura della città			
	1972	Venturi, R. Scott Brown, D. Izenour, S. Learning from Las Vegas			
	1973	Cervellati, P. L. a.o., Bologna: politica e metodlogia del restauro nei centri storici			CONTEXT OF DE MAPMAKERS
	1974	Wumman, R.S. Cities. Comparisons of Form and Scale			City as architecture: the post-war reaction
	1975	Bacon, E.N. Design of cities			Intermezzo: transition and paradigm change
1970	1977	Castex, J., Depaule J.C., Panerai, P. Formes urbaines: de l'ilot a la barre			City as process: space-time and relations
	1978	Rowe, C. Koetter, F. Collage city			
	1979	Panerai, P. Depaule, J.C. Demorgon, M. Veyrenche M. Elements d'Analyse urbaine			SIGNS AND TECHNIQUES
		Caniggia, G. Maffei, G.L. Composizione architettonica e tipologia edilizia			Dissection of the map
		Sola Morales M. A Cartography for the Catalan territory			Additions and combinations to the map
1980		Castex, Jean a.o., Lecture d'une ville: Versailles			distances in the topographical map
		Panerai, Philippe. a.o., Elements d'analyse urbaine			
	1981	Geurtsen, R. Bos, L. Kopenhagen, dubbelstad. Een bewerkte reisindruk			Comparisons
		Plananalyse. O1 Ontwerp Onderzoek Onderwijs			Abstraction schemes
	1982	Geurtsen, R. Leupen, B. Tjallingii, S. Werkboek Landschapkunde, Architecture, Stedebouw (LAS). LAS Boek			Mapping with text
1980	1983	Divome, F. Gendre, B. Lavergne, B. Panerai, P. Les Bastides			Photographic reportages and interviews
	1984	Hillier, B. and Hanson, J. The social logic of space			
	1985	Palmboom, Rotterdam verstedelijkt landschap			
		Moudon, A.V. Built for change. Neighbourhood Architecture in San Francisco			
		Hoewen, C. Van der, Luowe, J. Amsterdam als Stedelijk Bouwwerk, een morfologische analyse			
1980	1986	Neutelings, W.J. Ring Culture			
	1987	Whitehand, J.W.R. The changing face of cities. A study of development cycles and urban form			
	1988	Geurtsen, R. Locatie Zuidpoort Delft, stadsmorfologische atlas			
	1989	Fortier, B. La metropole imaginaire: un Atlas de Paris			
		Geurtsen, R. Verschuren, P. Kwakkenbos, G. Stadsontwerp in 's-Gravenhage, stedenbouwkundig ontwerpen			
1990		Palmboom, F. Landschap en verstedelijking tussen Den Haag en Rotterdam, ruimtelijke analyse en ontwerpvoorstellen			
		Slater, Y.R. ed. The build form of western cities			
	1991	Gandelonas, M. The urban text. Chicago Institute for Architecture and Urbanism			
	1992	Boeri, S. Lanzani, A. "Gli orizzonti della città diffusa"			
		Busquets, J. Barcelona : evolución urbanística de una capital compacta			
1990	1993	Leupen, B. Grafe, C. Koming. Ontwerp en analysis			
		Boeri, S. Marini, E. Lanzani, A. Il territorio che cambia. Ambienti, paesaggi e immagini della regione Milanese			
		Sola Morales, M. Les Formas del Crecimiento Urbano			
		Southworth, M. Owens, P. M. The Evolving Metropolis. Studies of community, Neighbourhood and Street Form at the Urban Edge			
	1994	Urhahn, G.B. Bovic, M. A pattern image			
1990	1995	Koolhaas, R., O.M.A., Mau, B. S.M.L.XL			
	1996	Lucan, J., Paris des Faubourgs. Formation, Transformation			
		Rommerts, M. Klok, A. Hart et al. variatie in de Randstad			
		Urhahn, G.B. Bovic, M. Strategie voor stedelijkheid			
		Reh, W. Arcadia en metropolis, het landschapsexperiment van de verlichting			
1990	1997	Tummers, L.J.M. Tummers-Zuurmond, J.M. Het land in de stad de stedenbouw van de grote agglomeratie			
	1998	Maas, W. a.o. Farmax MVRDV, excursions on density			
		Moudon A.V. The Changing morphology of suburban neighborhoods			
		Basilio, G. Boeri, S. Italy. Cross sections of a country			
		Boeri, S. Eclectic Atlases, Four possible ways of seeing the city			
1990		Reh, W. a.o., Zee van Land: de droogmakerij als architectonisch experiment			
	1999	Gandelonas, M. XUrbanism. Architecture and the American city			
		Manguin, D. Panerai, P. Project Urbaine			
		Font, A. Utop, C. Vilanova, M. La Construcció del territori metropolità : morfogènesi de la regió urbana de Barcelona			
	2000	Koolhaas, R., H. P. o. i. City, et al. Mutations			
2000		Bindels, E. Gietema, R. Hartzema, H. Klok, A. 4			
		Baart, Theo a.o. (ed.), Atlas van de verandering: Nederland herwerkt			
		Maas, Wim a.o., Costa Iberica			
		Themans, M. Bergweg, New notation systems for urban situations			
		Gutierrez, L., Portefax, V. & Koor, A. Mapping Hong Kong			
2001		Chung, Chulha Judy (ed.), The Harvard Design School Guide to Shopping			
		Great Leap Forward / Harvard Design School Project on the City			
		Brouwer, J., Een nieuwe oude jas: de herontdekking van stedelijke weefsels en woningtypes			
		Claus, F. a.o. Uburg. Havenland en Rieter-C700landen			
		Gunschoen, R. Urban Botany: stirring the city. Chora			
2002		Berlage Institute ed. Mapping the Megacity. Global Urban Research. Los Angeles, Tokyo, De Randstad			
		Komossa, S. Meyer, H. Risselada, M. Atlas van het Hollandse bouwklok			
		Patteuw, V. en Urban Affairs (ed.), City Branding: Image Building & Building Images			
		De Geyter, X. Architecten, After-Sprawl: onderzoek naar de hedendaagse stad			
		de Mulder, B. et al. Atlas. Fascikel 1, Zuidelijk-West-Vlaanderen			
2003		Berger, A., Reclaiming the American West			
		Maas, W. MVRDV. The regionmaker : RhinRhurCity			
		Boeri, S., Multiplicity. USE Uncertain States of Europe: a trip through a changing Europe			
		Chavaldi, F., Baccini, P. Netstadt: Designing the Urban			
		Houben, F. (ed.), Calabrese, L.M. Mobility, a room with a view			
2004		Boelens, L. Sanders, W. De grote KAN atlas : mentale atlas van het stedelijk netwerk. Antem-Nijmegen			
		Koolhaas, R., 2003. "The New World, 30 Spaces for the 21st Century"			
		Broese, R. Euroscapes			
		Gausa, M. ed. Metapolis. HiperCatalunya research territories : multilayered strategies			
		Font, A. (ed.) (2004) L'explosió de la ciutat			
2005		Koolhaas, R. (ed.), Content			
		Reijndorp, A. et al. Sense of place : atlas van de culturele ecologie van Rotterdam			
		Vigano, P. (2004) New territories : situations, projects, scenarios for the European city and territory			
		Susteren, A. van, Metropolitan world atlas			
		De Hoog, M. & Amsterdam : ontwerpen aan de stad			
2005		Colenbrander, B. Must Limes atlas			

However, amongst many other examples of morphological maps “Pianta Grande di Roma” by Nolli was a very early groundbreaking attempt to comprehend urban form. Nolli’s plan is not a limited drawing that represents city form; it questions the architecture of the city and its context, the definition of public spaces, and the complexity of uninhabited landscapes (Bambó & García, 2018).



Figure 3.28. Pianta Grande di Roma / Area di Piazza Navona - Campidoglio, Giambattista Nolli, 1748, (Source: URL 41).

Among all of the media urbanists employed to decode morphology, the legacy of Nolli Map dominated the scene. With its origins stemming from the “Nolli Map”, a figure-ground map is “a two-dimensional map of an urban space that shows the relationships between built and unbuilt space.” (Graves, 2021). By employing a “monotone cartographic technique”, figure-ground maps show the “footprints of buildings and other three-dimensional solids appear as figure against a blank ground which represents unbuilt spaces” (Hebbert, 2015). They simply illustrate the relationships between public, private, and in-between spaces (Graves, 2021), and they are constructed through two main stages: selection, critical discernment of the elements that will be included or excluded, and perception (Bustamante C, 2008).

Figure-ground maps, which find certain antecedents in “Gestalt psychology”, are traditionally used in the analysis of urban form (Bustamante C, 2008). Since they are relatively easy to interpret, they are valued for their simplicity which eventually made them the most ubiquitous instrument in urban space readings. (Graves, 2021). According to Hebbert (2015), they became the “urbanist’s X-Ray technique” as a common method to “reveal the growth of urban fabric” and its “morphological shifts from year to year”. Moreover, from the perspective of building users, figure-ground maps reveal structures; from the perspective of a pedestrian, they become a navigation map – a diagram of streets and routes- (Hebbert, 2015).

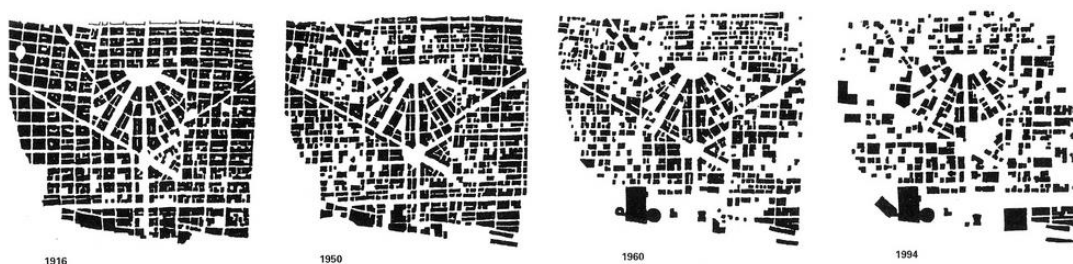


Figure 3.29. The Disintegration of central Detroit, n.d., (Hebbert, 2015, p.16).

On the other hand, in postmodernist urbanism practices, new approaches and critics of figure-ground maps emerged. For example, some theoreticians and designers valued them for their capacity to show “lost urban spaces” (Hebbert, 2015).

At that point, two main sources contributed to the re-instrumentalization of figure-ground maps, their common utilization, and appreciation: (i) “Collage City” by Rowe & Koetter, 1979 and (ii) “Learning from Las Vegas” by Venturi & Scott Brown & Izenour.

Colin Rowe played a crucial role in the redefinition of the figure-ground map as a technique for representing cities (Bambó & García, 2018). Moreover, with Rowe’s contributions -Collage City-, figure-ground maps became the “principal channel of dialogue between American and European traditions of urbanism” (Hebbert, 2015).



Figure 3.30. Figure-Ground Plan of Wiesbaden ca.1900, (Koetter & Rowe, 1979, p.82).

For Rowe, the city was a whole that is more than the sum of its parts. Based on his holistic approach figure-ground maps became the essential survey instruments to reconcile the lessons of history in his studio at Cornell University. Rowe's influence on Urban Design students at Cornell provoked them to search for capabilities of figure-ground maps. Consequently, in contrast to the parallel figure-ground maps compiled by Italian typo-morphologists, black and white maps and plans produced by Cornell students provided a much clearer image of the public realm instead of giving information about interior plans (Hebbert, 2015). The closest instrumentalization of the figure-ground map to Rowe's and Cornell's student's approach was the work of the German architect Josef-Paul Kleihues. By using figure-ground maps, Kleihues produced an atlas showing the historical morphology of the Charlottenburg and Kreuzberg districts of Berlin to reveal the "loss of urban tissue" (Hebbert, 2015).



Figure 3.31. Berlin 1884 Master Plan, J.P. Kleihues, n.d., (Hebbert, 2015, p.12).

In their canonical book “Learning from Las Vegas”, Venturi & Scott Brown & Izenour (2005) criticize the representation techniques learned from architecture and planning for impeding understanding of Las Vegas and for being static where it is dynamic, contained where it is open, and two-dimensional where it is three-dimensional. Their criticisms are illustrated with the Nolli maps of the Las Vegas Strip, revealing and clarifying public and private functions while reversing the solid-void relations. For them, mapping the strip from an aerial photograph provides an intriguing crosscut of the strip systems showing the undeveloped land, asphalt, autos, buildings, and ceremonial spaces. According to their critical standpoint, as in Nolli’s map of Rome, these maps lack iconological dimensions of the experience. In that sense, they emphasize the need for representing and abstracting the twin phenomena of the urban fabric instead of just depicting activities and land uses as in conventional practices of architecture and planning (Venturi & Scott Brown & Izenour, 2005).

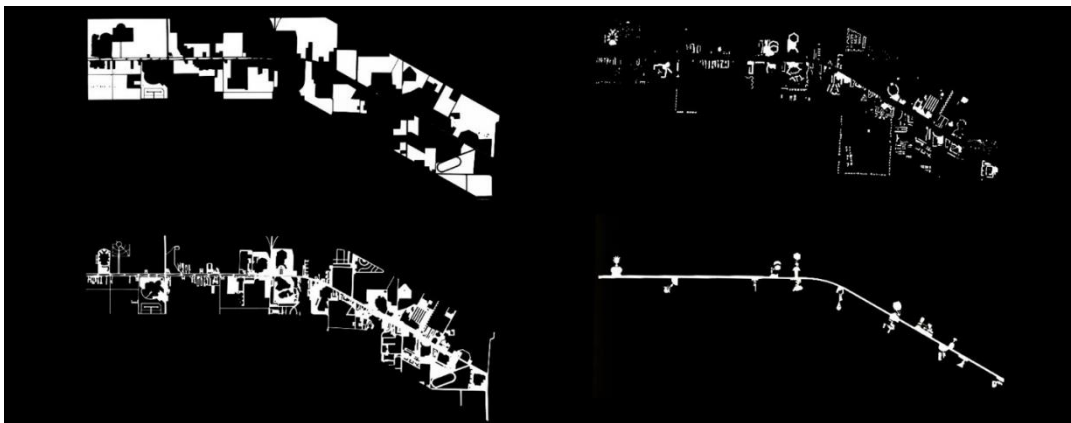


Figure 3.32. Figure Ground Maps of Las Vegas Strip, Venturi & Scott Brown & Izenour, 1972, (Source: URL 42).

Although figure-ground maps are considered “excellent and important tools” of urban analysis in urban design practices, Graves (2021) states his ideas on figure-ground maps as “...used by itself it is rather lacking.” Even though their strong visuality has been appreciated for centuries, figure-ground maps omit all information beyond two-dimensional space (Graves, 2021).

The reveal of the new relationships and scenarios through figure-ground maps is only limited by the speculation, inquiry, and criticism involved in their production. Even though a figure-ground map that reveals the past could project the future; traditionally, the schema that figure-ground maps produce has become standardized and resulted in the conventionalization of the technique even though map-making has to suggest critical interpretations and trigger the production of new scenarios (Bustamante C, 2008).

Recent studies, which have been conducted since the 1990s about the morphology, form of landscape, and territory developed approaches supported with “mapping” rather than “maps”. These studies emphasize the need for rigorous mapping of the existing conditions and context before intervening in its peculiar spatiality. Employing the mapping tools developed by recent studies while confronting the traditional morphological approaches in the realm of contemporary cities becomes a must in process of studying the morphology of the contemporary urban scenes. Through the process of mapping, the extracted spatiality of territories, transformations, and layers indicate mappings of different scenarios for future developments. This process allows us to reveal hidden, leftover, and in-between spaces of the contemporary urban landscapes and it shows the dependence between various scales (Pinzon Cortes, 2009). However, mapping morphology and built area is just a single aspect of mapping and reading urban space. For deeper readings, intricate patterns of urban space and lived space should be further researched by mapping practices.

Mapping Human Activities

“The shift in postmodern cartography is not simply one from global to the local, but also a territorial shift from nation to city. In this ever-changing, decentralized cityscape, the old totalizing maps are no longer appropriate. Rather than being given a ready-made, ‘scientific’ map to negotiate his or her own way through the postmodern world, the subject is instead endowed with the means of production. The subject becomes a cartographer at street level, plotting trajectories in a mapping process that is always about an experience of the world, rather than delineating an all-encompassing map in order to define a totalizing knowledge of the world.” (Mitchell, 2008, p.22)

In his conceptual triad – *spatial practice, representations of space, and representational space*-, Lefebvre (1991, p.33) defines lived space (representational space) as:

“...space as directly lived through its associated images and symbols, and hence the space of ‘inhabitants’ and ‘users’, but also of some artists and perhaps of those, such a few writers and philosophers, who describe and aspire to do no more than describe. This is the dominated- and hence passively experienced- space which the imagination seeks to change and appropriate. It overlays physical space, making symbolic use of its objects. Thus representational spaces may be said, though again with certain exceptions, to tend towards more or less coherent systems of non-verbal symbols and signs.”

Thus, the lived space is a compilation and evidence of experiences, perceptions, conceptions, memories, aspirations, and projections of its inhabitants and agents. Except for some examples of the cartographic past, such aspects of the lived space were greatly dominated by the scientific character of the map-making traditions of

the Western cultures for centuries. However, particularly after the 1980s, maps became “reflections of representational spaces” with a variety of examples that encompass subjectivity and art (Alanyalı Aral, 2016, p.2).

In that sense, the practitioners and theoreticians whose utopian view focuses on nomadity and urbanity and who theorize the city as an “entity in flux that constantly changes and responds to its inhabitants” emphasized the “dynamism” of the urban space rather than evaluating it in a fixed and static framework that is mainly associated with the built space (Nichols, 2012). For example, Situationists engaged with the city from the perspective of nomadity, they experienced the city by walking and drifting, and they constructed their own -personal- spatialities by doing so. The drifter negotiates the city in a “non-systematic way which associates with psychological mapping”. Thus, unexpected interactions with the city occur in the “residual and marginal lived space” of the urban fabric (Nichols, 2012). One of the pioneering utopian mapping practice that focused on the living space was the “New Babylon” proposed by the Dutch artist Constant Nieuwenhuys. To overthrow the norms and conventional approaches to urban space, New Babylon presented a highly utopian living model. As a mobile and temporary city, its aesthetic component involved explorations of representational mediums such as mappings and detailed models; its theoretical component involved concepts such as unitary urbanism and psychogeography. Constant’s mapping technique and graphic language which has textual components provided an insight into the socio-cultural qualities of the spaces. The spontaneity of living was graphically depicted by paths and connections with intersecting lines in the New Babylon, this depiction reflected the rhizomatic quality of spatial relations. However, since urban spaces cannot evolve instantaneously and then evaporate in the next moment, once they are constructed, they are no longer “ephemeral situations”; thus, once Constant’s imaginary spatialities were mapped into two or three-dimensional representations their spontaneous character was lost (Nichols, 2012).

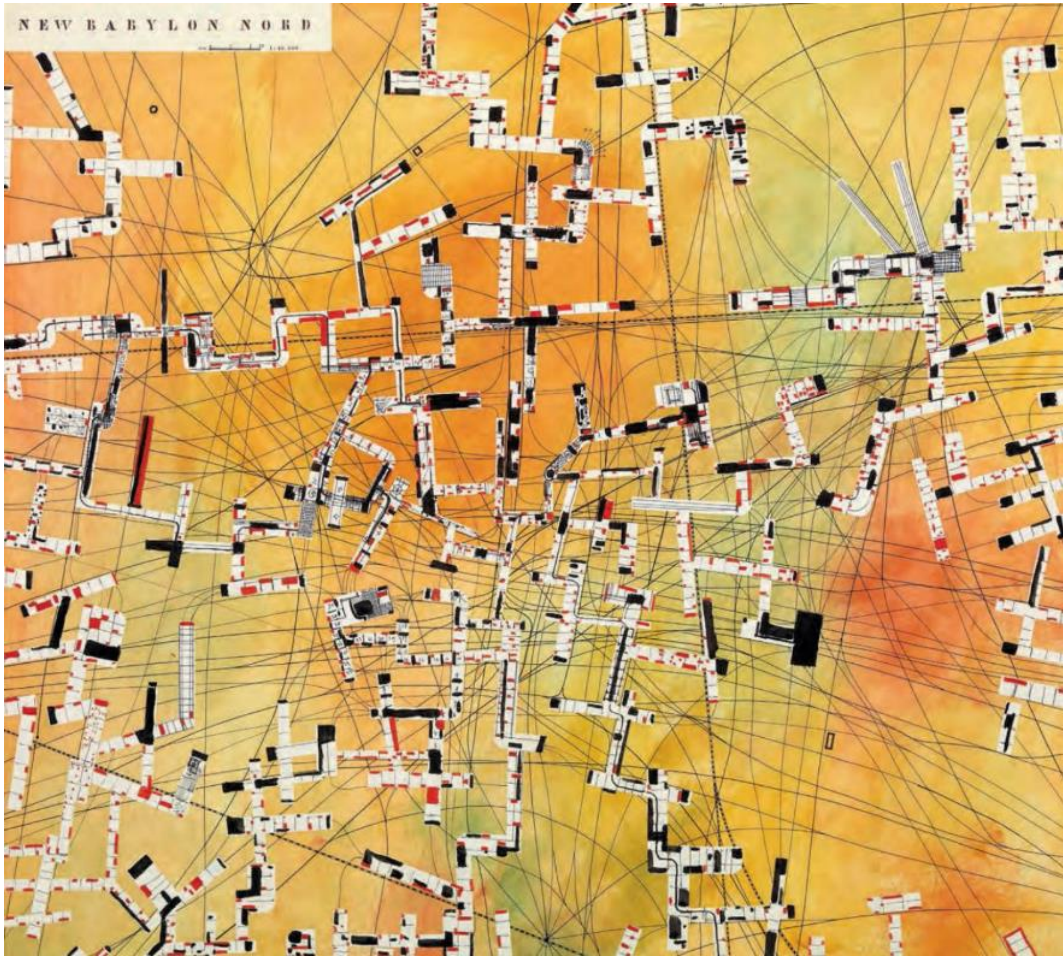


Figure 3.33. New Babylon North, Constant Nieuwenhuys, 1958, (Koolhaas et.al, 2006, p.146-147).

When it is defined as a “creative activity” that visualizes physical and mental formations of the complex processes and patterns in the space, mapping sets a basis in relation to lived space (Alanyalı Aral, 2016). On that basis, even the range of mapped phenomena and the mapping techniques can construct a research process to comprehend and interpret lived space. In that sense, hidden agendas of the lived space can be revealed by different genres of maps such as mental maps, cognitive maps, emotional maps, sensory maps, counter-maps, etc., or by mapping time, events, networks, flow, political conflicts, informalities, marginal groups, narratives, spatial appropriations, daily practices, and even more aspects of urban space.

People, even without any knowledge or skills in map-making, have a map of the environment they live in in their minds. These mental maps allow them to systematize their knowledge of the place, generate scenarios of life and draw routes while learning about their environment. Remarkably, these maps are quite subjective and laden with individualized values. Some parts of such maps are explicit while some are vague or even blank and never processed. Inhabitants of a not-yet-mapped city can maintain their daily lives and spatial coordination by making use of the representation and language that their mind maps provide (Tekeli, 2012). Such maps are never identical since they are interpretations of reality from a selective point of view (Sulsters, 2005).

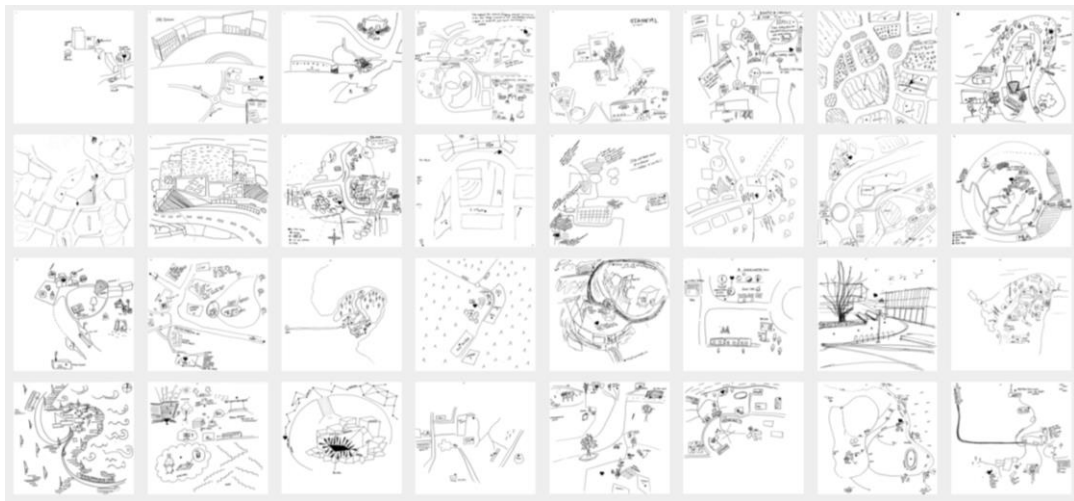


Figure 3.34. Mental Maps of Aalto University Campus in Otaniemi, by Master Level Students of Interdisciplinary Programs, 2018, (Source: URL 43).

A remarkable turning point in urban planning and design in terms of mental mapping was Kevin Lynch's studies. Lynch introduced the use of mapping to understand user experience in urban design in "The Image of the City" (1960). His mapping studies resulted in the discovery of five similar constructs of a city – "path", "node", "edge", "landmark", and "district" – among all the respondents (Zakariya & Mansor & Zalina Harun, 2015).

Even though, Lynch's studies were not focused on the cultural significance, identity of the city image, or lived space (Sulsters, 2005); in the following decades and even today, the outputs of Lynch's studies - his terminology and approach - had a great impact on the site analysis processes in terms of points of recognition in a city.

Moreover, within recent acts of mapping, perception emerges also as a crucial theme. Increasing attention to mental maps and attempts to involve urban experience in mapping practices emphasize the relativity in the perception of cities and lived space (Pinzon Cortes, 2009, p.70).



Figure 3.35. Cognitive Map of Kadıköy, Seren Esen, 2021, (Source: URL 44).

Mental maps and cognitive maps can provide design inputs and guidelines for urban planners and designers in terms of researching and designing lived space. As a survey tool, mental maps can indicate: (i) how people orient themselves in a city and which artifacts and urban elements have a greater role in the orientation, (ii) how urban site functions for a certain group of people, or (iii) which land use or program is preferred most and how does it relate to activity patterns of its users.

The survey results derived from a compilation of mental and cognitive maps can provide comprehensive, inclusive, diverse, and meaningful frameworks for functional and cultural interventions, strategic improvements, morphological approaches, and design solutions.

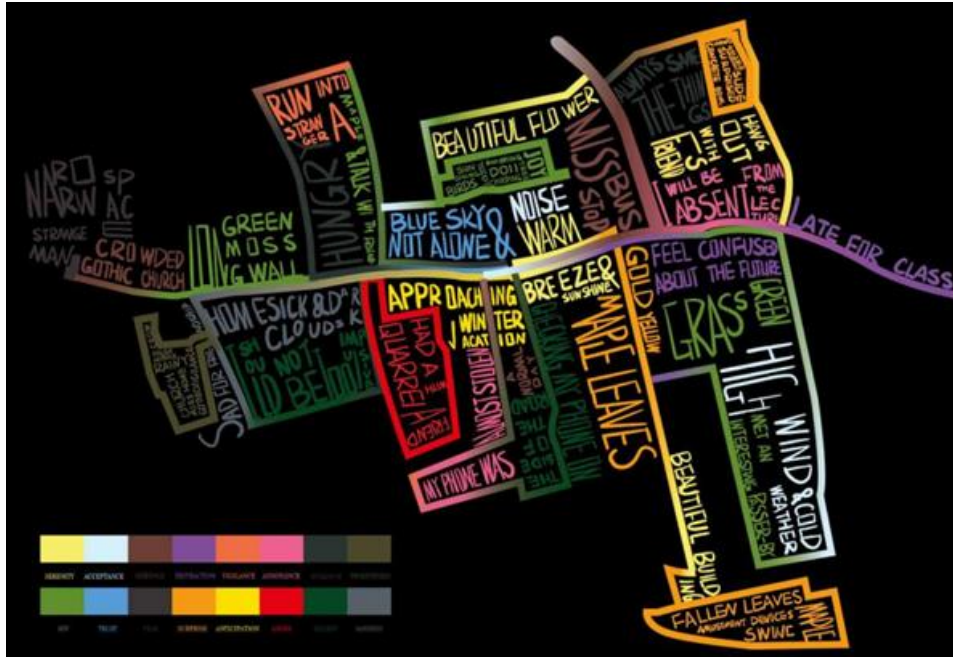


Figure 3.36. Color My Emotions, Shiyuan Liu, 2020, (Source: URL 45).

The city is a collection of experiences, and these experiences are not always visually perceivable. For example, the smellscape or soundscape of an area is a highly distinctive sensorial aura that can be traced or mapped. Sound frequencies and odors can become a compass for positioning ourselves in an environment or tracing urban functions such as food markets, flower gardens, or transportation hubs (Daniilidis, 2016). Any kind of sensescape corresponds to the “inhabitants’ perspective on their environment and lived space” since it includes a bodily and energetic exchange with/within the environment. It is a symmetrical and reverse perception; while one sees also can be seen, and while one listens also produce sounds (Diaconu, 2010). Thus, sensescape maps are representations of bodily interactions with the urban spaces and they indicate mental constructions about lived space.

“Slight whiffs can enable the pre-visualization of a forthcoming activity, serve as a summary synthesis of previously-witnessed events and have the capacity to evoke situated memories. However, the smellscape is in constant flux, and ephemeral, volatile smells are easy to ignore when experienced by ordinary people in everyday, urban environments.” (Dr. Kate McLean) (Florian, 2022)



Figure 3.37. Spice + Flavor is Key to the Memory, Sophiyaa Pawar, 2020-2021, (Source: URL 46).

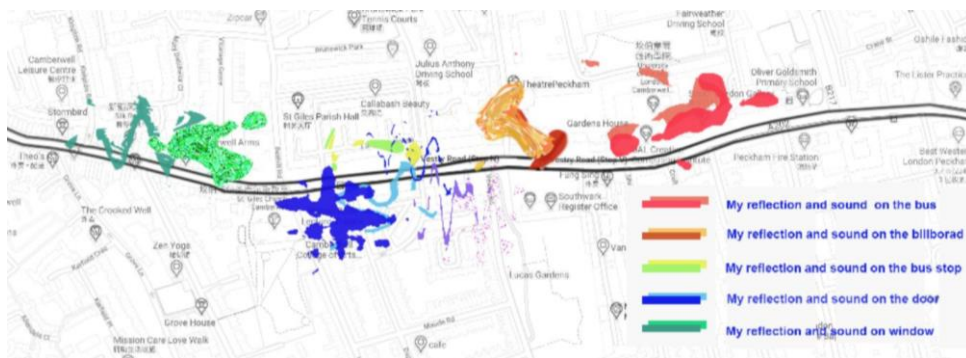


Figure 3.38. Visual and Sound Reflection Around Peckham Road, Helen Wei, 2020-2021, (Source: URL 47).

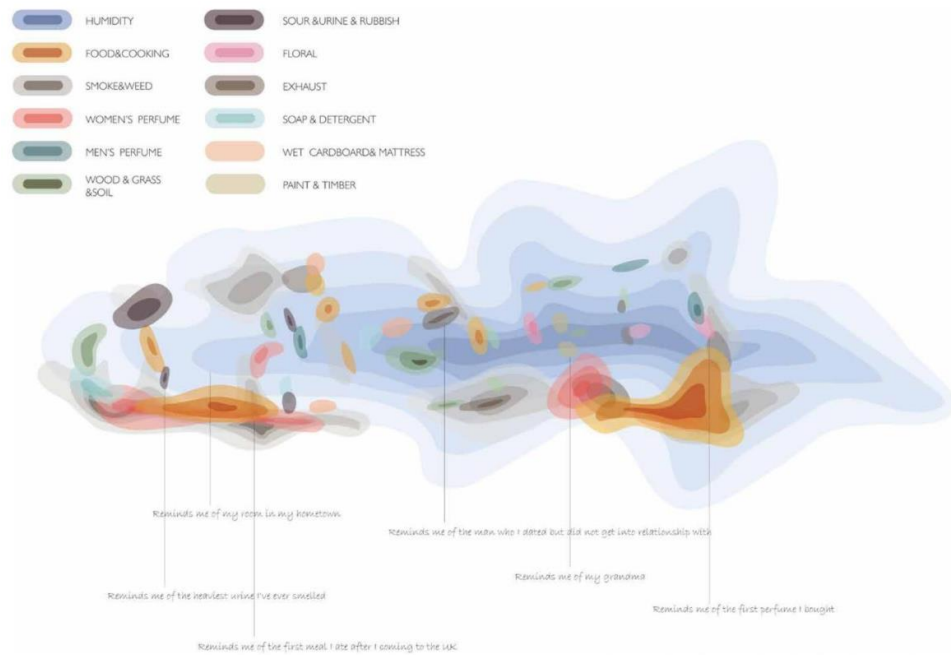


Figure 3.39. Smells of Camberwell, Xiquan Liu, 2020, (Source: URL 48).

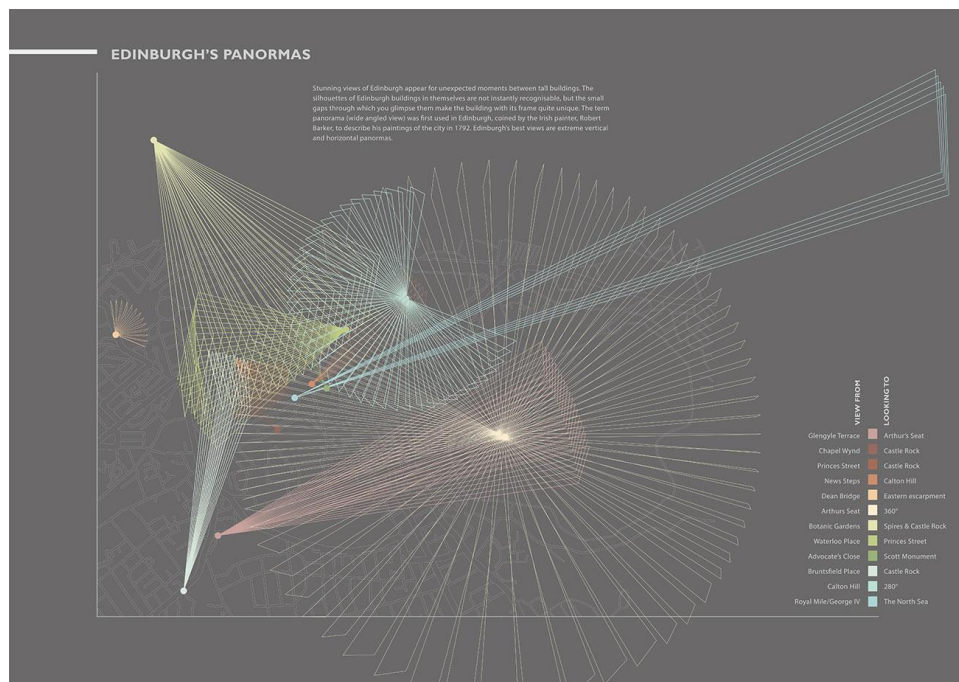


Figure 3.40. Edinburgh's Panormas, Kate McLean, 2011, (Source: URL 49).

One of the best examples of counter-mapping is the series of studies, works and exhibitions directed by Eyal Weizman. Named as “Forensic Architecture”, his research team investigates and maps the “state and corporate violence, human rights violations and environmental destruction all over the world” that takes place in urban areas and urban spaces of civilian neighborhoods. From Neo-Nazi attacks in Germany to bombings in Gaza/Syria, the team reveals and visualizes the impact of socio-political conflicts in the living environments of people. Even though their mapping techniques and data sources are mainly digital -their website also has an interactive map to reveal all conflicts in the world-, some of the maps they produce employ analog mediums and they include interviews with the inhabitants and victims (Forensic Architecture, 2022).

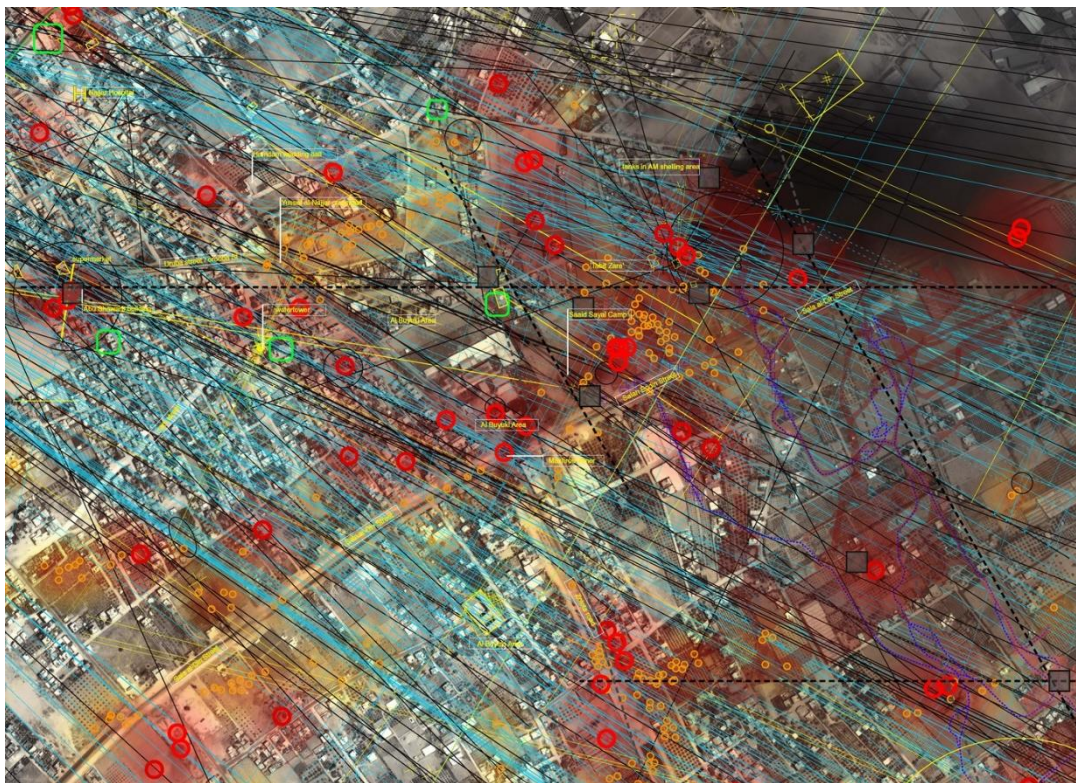


Figure 3.42. Wallpaper from Rafah, Forensic Architecture, 2015, (Source: URL 51).

Thus, when the socio-political conflicts, informalities, marginal groups, and outcasts are mapped to reveal the narratives behind the lived space, indeed it becomes a critical review of the idealized image of the urban space.

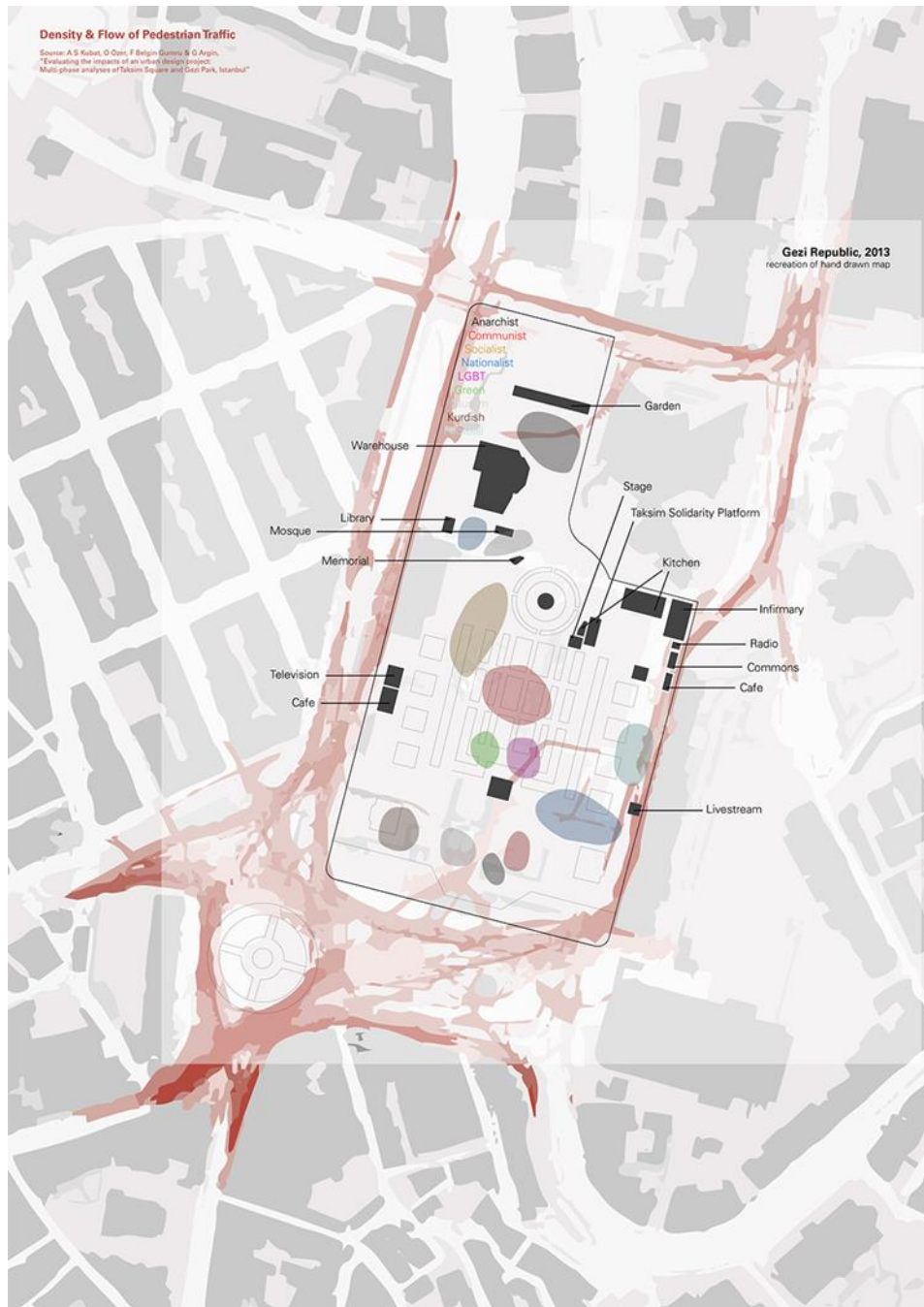


Figure 3.43. Gezi Republic: The Occupation and Informal Urbanism of Taksim Square and Gezi Park, Maya Sorabjee & Camille Chabrol, n.d., (Source: URL 52).

In terms of the built space, the temporal dimension of maps is instrumental to compare the growth and development of urban space. However, when ‘time’ is thought of in a more dynamic way; not the physical changes in the space but the way space is used, appropriated, and transformed in shorter time intervals can be mapped (Pinzon Cortes, 2009, p.75).

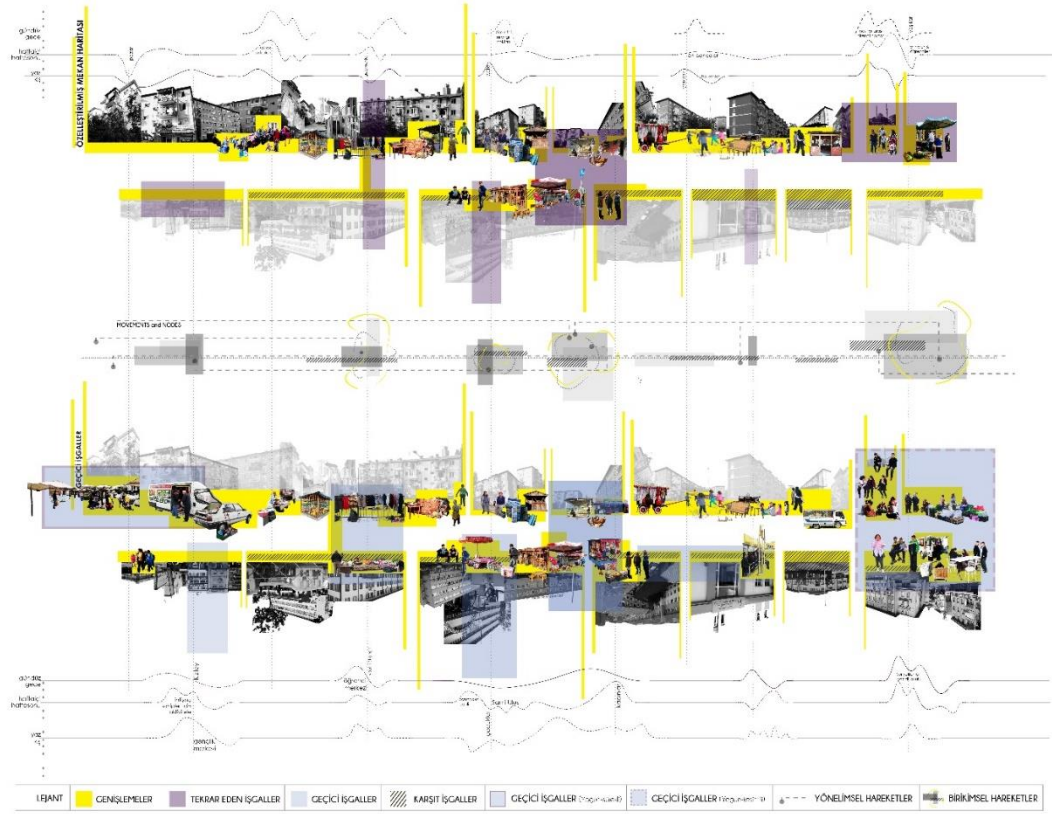


Figure 3.44. Mapping In-Between Narratives, Abdullah Eren Demirel & Aybüke Tufan, 2019.

Such mappings reveal the daily practices and narratives of the lived space through the hidden agendas of the inhabited urban space. Moreover, when they are combined with the flows, networks, and events, these mappings become narratives of the lived space by themselves. Hence, in a way, they have also the power to reflect the gap between conceived space and lived space. In that sense, they provide a remarkable input for urban planning and design practices.

For instance, a map tracing the use of pedestrian paths through a city might constitute a great input for design (Pinzon Cortes, 2009:71).

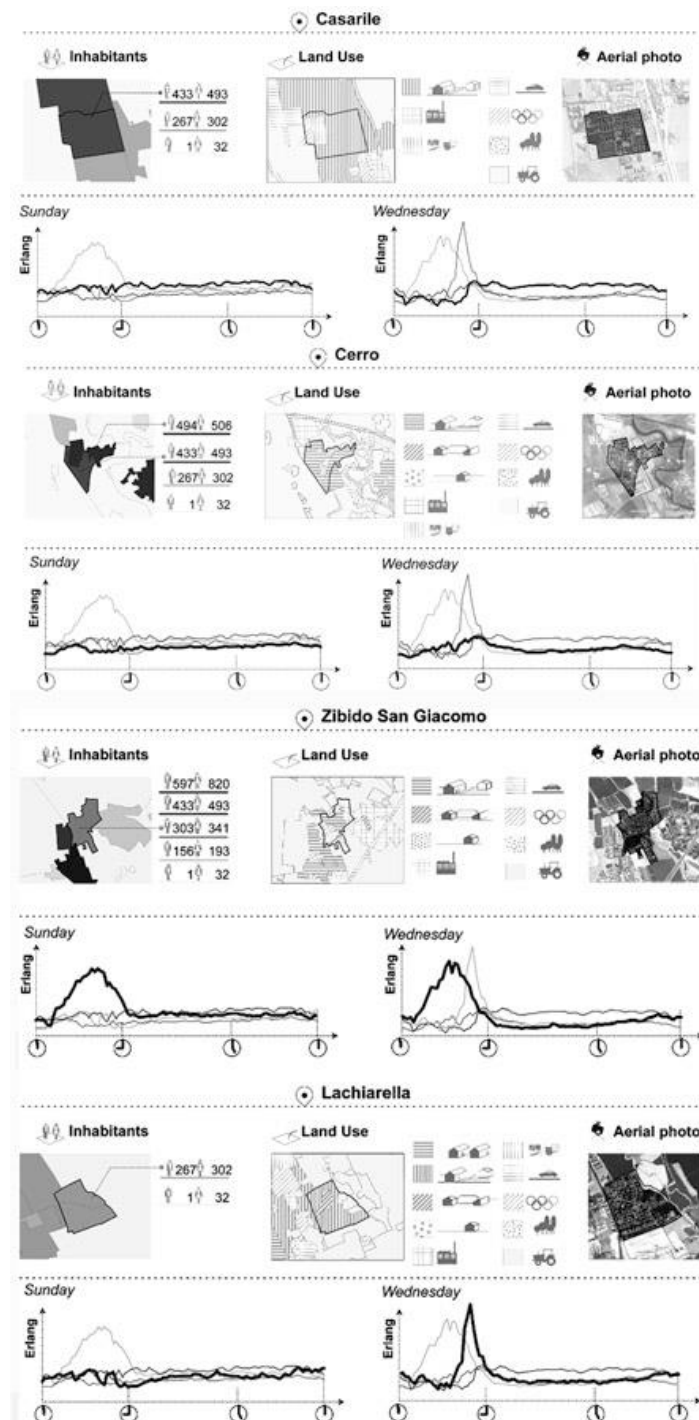


Figure 3.45. Daily Mobility Practices in the Urban Sprawl Areas, 2015, (Pucci & Manfredini & Tagliolato, 2015, p.46).

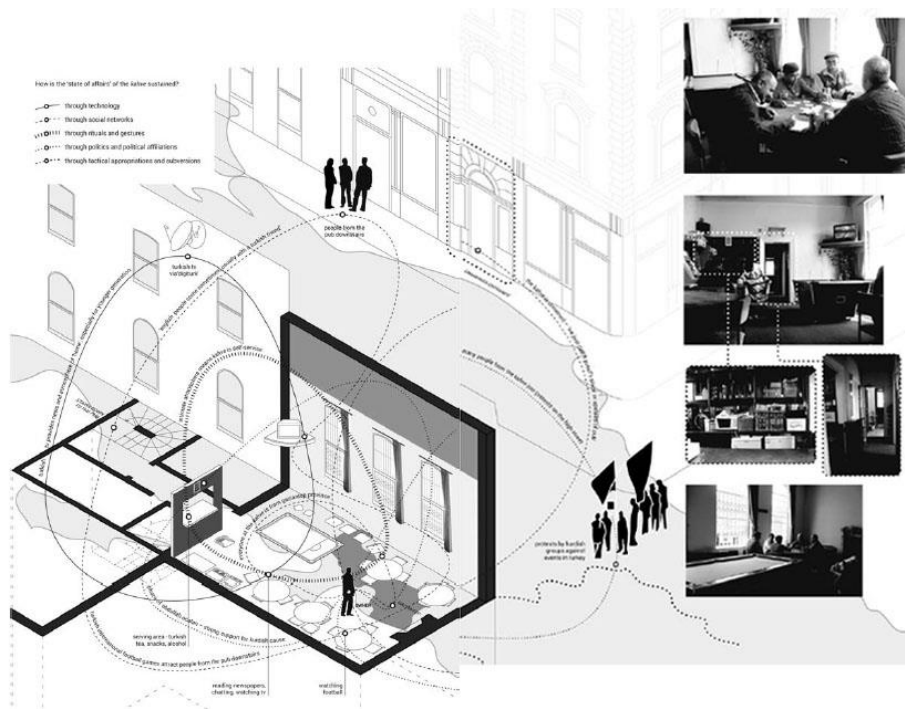


Figure 3.46. Kahve Network Map of Yusuf's Place, Nishat Awan, 2008, (Awan, 2016, p.176-177).

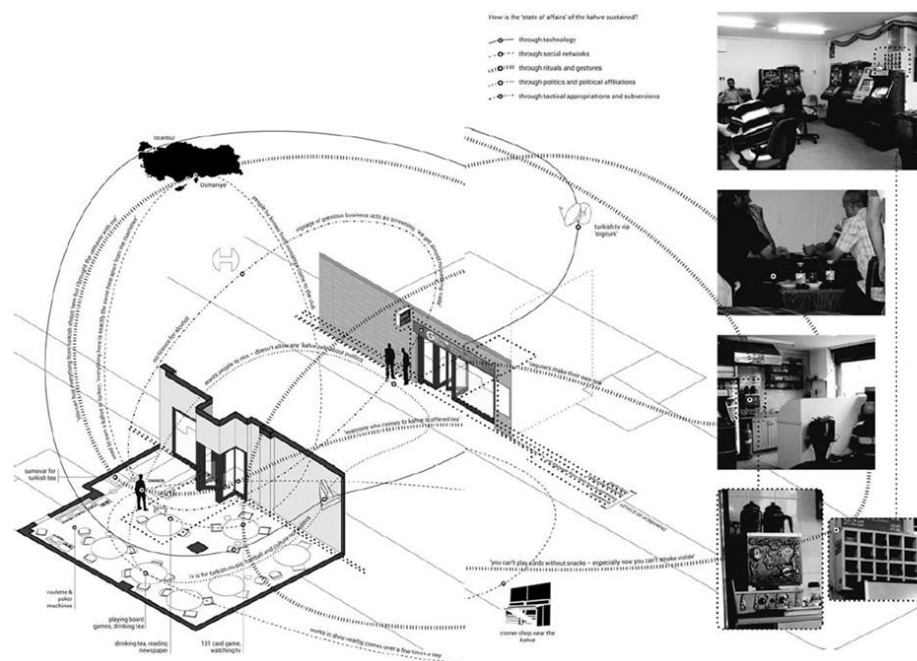


Figure 3.47. Kahve Network Map of Guben, Nishat Awan, 2008, (Awan, 2016, p.178-179).

Finally, as well as the hidden agendas of the lived space, the visualities embedded in it also matter to depict and decode its dynamics. In that sense, any visual material that identifies, relates, and projects the image of the lived space in its users' minds becomes a medium of representation for them to construct their mental maps as well. For example, the critics of Venturi, Scott Brown, and Izenour draw attention to the visual materials showing the atmospheric quality of Las Vegas. According to their point of view, while the conventional land-use map of Las Vegas merely shows the overall structure of commercial use and its relation to other uses of the city; message maps, tourists maps, and brochures suggest some of the atmospheric qualities which are primarily dependent on the watts, animation, and iconology (Venturi & Scott Brown & Izenour, 2005).



Figure 3.48. Multi - Cultural Rye Lane, Kiwi Chan, 2020, (Source: URL 53).

With its capacity to reveal diversities of lived space, mapping is a crucial instrument for urban planners and designers to comprehend the urban space from a collective, participatory, holistic, and bottom-up approach that eventually guides them throughout the design processes in multiple steps. To summarize with Alanyalı Aral's (2006) words, "*...its capacity to render a variety of notions of the lived space defines mapping's ethical mission. In this scope, the designer is no longer a technocrat isolated from the actual life and users, but a viewer from within, co-operating and acting within their dynamic interrelationships.*" (p.8).

3.5 Mapping in Urban Space Design

“The unfolding agency of mapping is most effective when its capacity for description also sets the conditions for new eidetic and physical worlds to emerge.” (Corner, 1999, p.214)

The status of the architect and urban designer has changed since the 1960s. Examples such as New Babylon – almost equate to artworks- stood up against “serious architecture or urban design” with their unrealized utopian solutions surviving in mappings. Movements under the influence of modernity - such as Dadaism and Surrealism or architectural offices such as Archigram and Utopie - have prompted a “range of investigations into mapping processes in city creation”. Even though these modern movements experimented with mapping to create a built space, their attempts were mainly utopian and not credible for realizing (Nichols, 2012). Moreover, in architectural history, there are also a few occasions in which mapping has been employed to make embodied spatial conditions available for architectural construct (Schoonderbeek, 2017). When protagonists of the “Landscape Urbanism” movement began employing mapping as an instrument in research and design in the late 1990s, the interest in integrating maps into design processes strikingly increased. Especially, James Corner’s contributions to Landscape Urbanism were highly mapping-centered attempts to introduce new ways in landscape and urban design practices. While searching for meanings in human environments, this movement instrumentalized mappings to read the city and implement utopian ideas into its voids. Landscape urbanists addressed ecological and cultural factors through large-scale mappings that provide insight into design strategies to be implemented in the final design outcome which are not clear-cut and clear. Since the priority of landscape urbanists was to order knowledge, make sense of it, and rationalize it to design new environments; the “unknown” character of the design output emphasizes experimentalism and the process of mapping throughout this process in a way (Nichols, 2012).

“... mapping is never neutral, passive, or without consequence; on the contrary, mapping is perhaps the most formative and creative act of any design process, first disclosing and then staging the conditions for the emergence of new realities.” (Corner, 1999, p. 216)

Map's capacity to shape reality is grossly misconstrued by the assumptions such as maps are utilitarian tools with secondary significance, and they are lacking in power as objective descriptions (Corner, 1999). With its emphasis on actors and spatial practices that are usually regarded, the mapping should be conceived as not just a medium of presentation, but rather a tool for reshaping alternative design approaches (Alanyalı Aral, 2016). The act of mapping does not solely measure and describe the world but also creates and builds it because maps allow a sort of “excavation and extension within a greater milieu”, they gather and show invisible things and harbor enormous potentials to be unfolded for alternative events (Corner, 1999).

Due to their rounded-up heterogeneity of juxtapositions and superimpositions, mappings are artistic fabrications that potentially become a performative tool for activating the projected complexities of urban conditions (Schoonderbeek, 2017). Hence, for urbanists maps are instruments for imagining and projecting alternative worlds and they are in-between what is virtual and what is real (Corner, 1999); moreover, throughout the urban planning and design process, mappings cannot be separated as an activity or an end in itself because they are essential to envision and develop a design output (Providência, 2015).

Schoonderbeek (2017) considers the use of mapping in architectural design as an activation of the map toward architectural construct. It is an activation that is being set in motion through mapping and is basically distinguished as instrumentalization, operationalization, and conceptualization of the map. (p.75) Even though Schoonderbeek explains the activation of the map in the architectural design process and relates it to the complexity of contemporary urban context, the multi-disciplinary discourse of spatial design practices fits into the same ideological framework as well.

As the first form of map activation, the instrumentalization of the map operates through transcription. The transcription is the definitive notation or coding system within the mapping that intends to illustrate a specific understanding of a specific part of the human world (Schoonderbeek, 2017).

Operationalization, the second form of activation, is an exploratory search to trigger an “entry point” or a “moment of emergence” for an architectural project. This exploration allows research to play a more experimental role in the design process by welcoming multiple possibilities of becomings and imagination to the design strategies. In such an unrestricted design strategy the construction of knowledge goes through a bottom-up process instead of implementing knowledge in a top-down manner. In addition to that, the notions of ‘entry point’ and ‘emergence moment’ in mapping allow ‘place’ and ‘time’ to be incorporated into the design process (Schoonderbeek, 2017).

Finally, the conceptualization of the map allows the production of architectural theory through a specific system of ordering implemented in the mapping. This system of ordering has commonalities with the production of maps depicting urban conditions in architectural tradition. Furthermore, as an elemental characteristic of mapping, a reality beyond the realm of physical and material facts is created. Following the recent developments in contemporary mapping studies underlining the tendency to integrate ephemeral features of space with tangible or physical aspects, the conceptualization of the map is considered to be in cooperation with urban conditions (Schoonderbeek, 2017).

At this point, the involvement of maps and mapping in the design process/practices are examined under two categories/concepts: (i): “*design by mapping*” – how mapping structures the end results of the design process, and (ii): “*design as mapping*” – how the end results of the design process become mappings by themselves.

Design by Mapping

Conventional design processes involve retrospective maps to be informed about site-specific features (Nichols, 2012) and such maps can be employed as means to effectively re-work or reformulate what is already there. Yet, what already exists is not completely adequate by itself because the generated knowledge from retrospective maps is hardly instrumentalized, conceptualized, or made operational within the design process (Schoonderbeek, 2017).

Considering that the research process that addresses the specific types of knowledge as an outcome, defines the contextual preconditions of design (Schoonderbeek, 2017); at the point where the map's position shifts from retrospective to projective, the designer gets the chance to utilize the conventional spatial knowledge of a site to project it to a new urban reality (Nichols, 2012).

In short, by performing the act of mapping, designers can operate in a milieu that links data collection and design in an innovative/inclusive way and urban mapping allows them to involve in a non-linear design process that produces spatial knowledge through reading, mapping, and projecting (Providência, 2015). In that sense, Schoonderbeek (2017) considers mapping as the most promising tool to link spatial analysis to design.

Thus, when the formal logic of the contemporary city is understood by mappings, then they become design intentions emerging from a specific logic (Pinzon Cortes, 2009), since mapping charts “networks of mutual resonance and connection that enable the emergence of strategic and tactical implications for design” (Tawa, 1998, p.35-36). Even the content of the mappings -essential characteristics or strong features of a site- can be utilized as a design theme in some cases since within creative mapping processes the once were obscure features of the place can be revealed (Pinzon Cortes, 2009).

To summarize, reformulation of the mappings as design inputs from which eidetic and physical worlds may emerge (Graafland, 2012) enables the designer to

“construct an argument, to embed it within the dominant practices of a rational culture, and ultimately to turn those practices towards more productive and collective ends.” (Corner, 1999, p. 251).

Design as Mapping

“One of the greatest potentials of urban mapping lies in its overlaps and intersections with planning and designing.”

(Dovey & Ristic & Pafka, 2018, p.7)

In “rational urban planning” – which emerged from utopian thinking- the translation of an idea as a visual representation is mainly a map or a plan. Throughout the development of urban rationalism, there was a point that utopian progressivist concepts were reduced to design principles and rules; some parameters of design were considered new forms of mapping as well. Two types of maps were greatly affected by these rules of utopian thought: survey and master plan. The “survey” itself became a part of a mapping project; as a highly rationalized process and “representation of geographical data that relies on sets of decisions, observations, and interpretations” with maximum accuracy to analyze a site (Nichols, 2012). Governing from above, the “master plan or site plan” is another type of mapping that represents utopian thoughts with graphic language. A master plan or a site plan specifies objective and visible aspects -block size, orientation, setbacks, access, plots, etc.- of the design proposal. However, any spatial aspect that is not quantitative or objective becomes lost in a rational idea of the master plan. Briefly explained with the examples in the previous discussions, there are multiple cases illustrating how surveys and master plans became predominant practices in urban design processes for years (Nichols, 2012).

Mapping entails searching, finding, and unfolding complex and latent forces in the existing milieu instead of imposing idealized projects from above. Hence, it differs

from planning with the multiple modes of spatiotemporal descriptions, fresh insights, and effective actions it embodies. While the synoptic imposition of plans implies consumption of contextual potential, by contrast, mapping discloses, stages and even adds potential for upcoming acts and events to unfold. Most importantly, while a plan leads to an end; the maker's own participation and engagement with cartographic processes provide a generative and suggestive outcome that only points out but does not overly determine (Corner, 1999).

Moreover, the space is not external to our apprehension, it is subjectively constituted through interaction with things such as material objects, images, values, cultural codes, cognition, and events; which means the map is more of a project than an empirical description (Graafland, 2012, p. 90) and another aspect that makes a map more a project than a mere empirical description is the application of judgment which is subjectively constituted (Corner, 1999).

“The function of maps is not to depict but to enable. Thus, mappings do not represent geographies or ideas; rather they affect their actualization. ...Through visual disclosure, mapping both sets up and puts into effect complex sets of relationships that remain to be more fully actualized.”
(Corner, 1999, p. 225)

According to Tawa (1998), design is a practice of mapping. In the practice of design as mapping, the goal of the questioning is not to achieve exactitude, accuracy, or comprehensiveness but to prepare for the advent of decision. Moreover, when mapping is considered relevant to design output, the map becomes an almost tangible place in many ways (Schoonderbeek, 2017). In that sense, with their power to activate projected complexities, mappings “are artistic fabrications that can potentially become performative tools” for spatial design (p.78).

3.6 Concluding Remarks

“Mapping is at once a beginning, a middle, and an end to understanding and transforming cities.” (Dovey & Ristic & Pafka, 2018, p.14)

The relationship between cartography, maps, and urban planning/design is not something new to us. For centuries, urbanists benefitted from analytic and objective features of maps as survey tools to discover peculiarities of a region, city, or site; and conventional approaches considered maps as formalities to initiate urban planning processes. However, the use of mapping to make spatial conditions accessible for the design processes increased the attention given to the development of particular cartographic techniques that enable the interpretation of urban spatial processes (Schoonderbeek, 2015). The social, imaginative, and critical aspects of mapping are reestablished in these modern cartographic approaches, specifically in planning, design, and urbanism (Corner, 1999).

Throughout this reestablishment, the digitalization of mapping tools and the diversification of mapped phenomena contributed to the development of visualization techniques, maximization of time management during urban planning and design processes, and most importantly opened up new exploratory grounds for planners/designers to engage with the space in an inclusive and holistic way. The lived space embedded in the built area is discovered through creative mappings that reveal what indeed identifies an urban space.

In short, the postmodernist theories and practices remarked a new epoch, and landscape urbanists upgraded it to a level. The projective and operative aspects of mapping that can potentially guide and shape the urban planning/design processes had put their impact on the diverse instrumentalizations of mapping in urbanism. Thus, in contemporary approaches, mapping is not a quantitative survey tool with maximum accuracy for urbanists, it's the design process and the design scenario by itself and it's a common ground for ideas and their actualizations.

CHAPTER 4

ROLE of MAPPING in URBAN DESIGN THINKING: A CRITICAL REVIEW

This chapter discusses the role of maps and mapping in urban design thinking. By reviewing contemporary urban design practices, the discussion aims to explore operative and projective aspects of mapping throughout the design process. The selected projects are discussed and reviewed under two main categories: (i) design by mapping and (ii) design as mapping.

4.1 Involvement of Mapping in Contemporary Practice: Selected Design Projects

As the previous chapters' discussions present, the relationship between maps, mapping, and urbanism is not new to us. Even though for a long time the retrospective aspects of mapping dominated the scene, today there is an increasing interest in its projective and operative aspects.

Especially with the provoking contributions of James Corner, mapping became an integral part of the design processes in spatial design practices. As a practice by itself, mapping opened up new exploratory and experimental fields for spatial designers. In these fields, mappings are not mere survey tools containing quantitative spatial data, but they are instruments operating in a multi-scaled framework and they are projective by their nature. Their power is not limited to the descriptions and representations of existing worlds; indeed, they guide designers in the process of creating new worlds – or they are the new worlds.

The strong theoretical background of mapping is aimed to be discussed by conducting research on the practice. With respect to that, the research aims to discover the operative and projective aspects of mapping in urban design practices.

To do so, a range of contemporary spatial design projects that employed maps and mapping in their design process is selected to be reviewed. To be able to point out generalized findings and to compare the findings; the projects are selected according to:

- **Discipline (Designer's Background):** Urban design, landscape urbanism, landscape design, architectural design, graphic design.
- **Scale of The Map:** Geographical region, city, district, neighborhood, block, street, plot, building.
- **Visualization Technique:** Collage, vector drawing, geometric notations, raster image, 3D-model, parametric flows, script or textual, dot distribution, isochrone, etc.
- **Source of Data:** Interviews, observations, experiences, social media, GPS tracking, participatory processes, etc.
- **Type of Information:** Processed quantitative data, psychogeographic, sensory, visual, experiential, etc.
- **The Subject Matter (Mapped Phenomena):** Sensescape, network, flow, lived space, spatial elements: buildings, public space, ..., etc.
- **The Focus of Map:** Experiential quality of space, spatial appropriations, activity patterns, visual quality of space, noise pollution, etc.

The selection criteria are set to diversify the reviewed projects. Even though it is not possible to point out one single option from each criterion – since mostly from discipline to visualization technique maps are quite collaboratively produced – the reviewed projects differ from each other as much as possible to answer questions such as:

- Which discipline benefits from projective aspects of mapping in which ways?
- How do inter-discipliner practices instrumentalize maps and at which stage of the design process do maps contribute?
- Which visualization techniques are particularly efficient for which scales?
- How type of information influences the visualization techniques?

- What is the relationship between the focus of the map and the mapped phenomena?

The selected projects are reviewed in two main sections:

Design by Mapping

- When Marginalized Subjects Map Their City
- Between_Void
- Inter-Pelagos
- Behind The Scene
- Win-Win & In It Together
- Escaping Super Gravity
- Milanesenses

Design as Mapping

- Hong Kong Is Land
- A Manual For Urban Surgery
- From Redundancy to Renewal: Reclaiming a Cultural Identity
- Digital Nomads (Go to Ibiza)
- Programming Physical Activity: Sporting Uses of Urban Spaces
- Betwixt & Between

4.2 Design by Mapping

The cutting-edge projects reviewed in this section instrumentalize maps and mapping practices as a primary step in design processes. The selected projects benefit from maps to decode and unveil the site-specific spatial dynamics and the processed data on the maps, or the spatial knowledge produced by mapping provides a “design input” for the process. Consequently, it is the maps or mapping practices that shape the design process and output in a particular way.

When Marginalized Subjects Map Their City: Counter-Mapping Planning Experiments with Drug Users in some German and French Neighborhoods

-Authors: Dr. Luise Klaus (Human Geography) & Dr. Mélina Germes (Social Geography) + Participants from Berlin-

“When Marginalized Subjects Map Their City” is a participatory research project that aims to understand the challenges marginalized groups face in French and German cities. The researchers overlap two complementary maps to reveal the socio-spatial dynamics of marginalized groups in selected neighborhoods. The project coordinators are not spatial designers, but their research questions put emphasis on the living environment of marginalized groups, social integration/exclusion, and urban policies.

The selected marginalized group for the research is the drug users in Berlin, Frankfurt, Munich, Nuremberg, and Bordeaux. The review focuses on the studies in Berlin because the city has decriminalized drug use to a certain extent and previously placed drug consumption rooms around the city. However, the city policies that favor gentrification and touristification removed the “obvious open drug scenes” from the sight of visitors and residents, which eventually put a distance between drug users, social workers, and support programs.

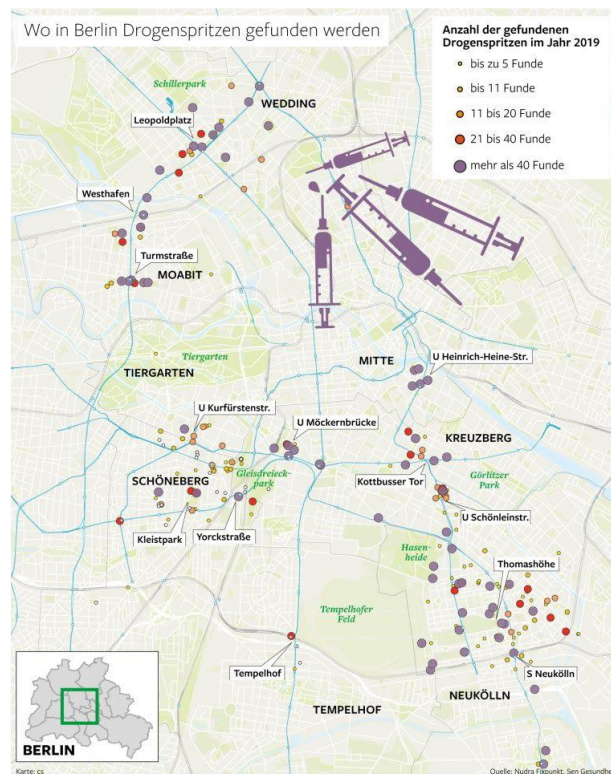


Figure 4.1. Where Syringes are Found in Berlin, Berliner Morgenpost, 2020, (Germes & Klaus, 2021, p.3).

The authors simply stated their research question as: *“How can one integrate the perspective and experience of drug users in both the conception of drug policies and the production of an inclusive urban space?”* (Germes & Klaus, 2021).

To evaluate the impact of city and state policies on the living environment of drug users, the research conducted two mapping studies with different methods. The counter-mapping method adopted by the authors aims to show diverse possibilities for visualizing the shared and alternative space of “others” and to proceed with an inclusive and transparent decision-making process.

Firstly, by individual interviews, the participants (drug users) made a series of emotional maps. The researchers aimed to analyze the arising point of the spatial problems by revealing particular events and problems drug users experience in their

city life. At first, the participants started to visualize their everyday spaces and routines in the city. Then by adding the colors on the emotion wheel to their maps, they attributed a “meaning” to their lived spaces. One important point in this step is that, when it comes to emotional maps, there is no right or wrong way of doing it, which means the maps are a free and encouraging medium of expression for the participants. According to Germes and Klaus, the maps were diverse enough to point out some common socio-spatial problems from a drug user’s perspective; this indicates that the emotional maps became a common ground to comprehend the “excluded” narratives of the city. Moreover, these emotional maps reveal the truthful image of Berlin- an image contrasting the image in which Berlin is glazed as the “Multi-Cultural Hub of Europe”.

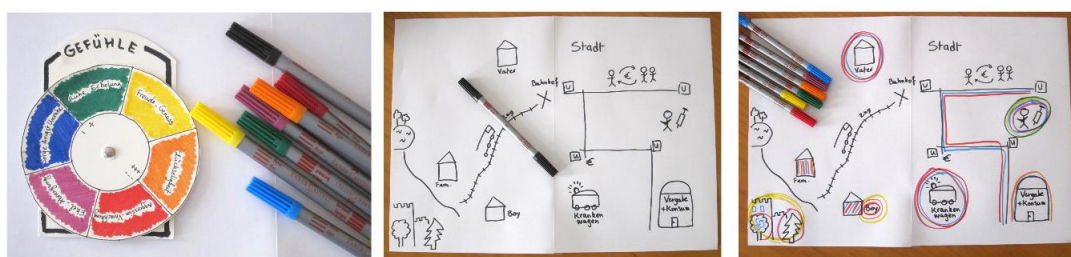


Figure 4.2. Emotional Maps by Berliner Drug Users, Photo by Germes, 2019, (Germes & Klaus, 2021, p.15).

Secondly, a participatory mapping workshop called “Ideal City Mapping” is held. The researchers were inspired by Lefebvre’s “Right to the City”; and throughout the workshop, the city planners and urban designers were drug users. They expressed their living conditions in particular points in the city and then proposed policies and spatial design solutions. The researchers introduced a few key concepts –“city for all, self-determination, own space, equality, access, decriminalization, tolerance, vulnerability”- to guide the participants while they think about their ideal city. Afterward, the discussions were linked to the emotional maps, and five themes – “*housing, mobility, health, safety, and drug use*”- were decided to be elaborated on the ideal city.



Figure 4.3. Mapping the Ideal City, Guarascio & Klaus & Germes, 2019, (Germes & Klaus, 2021, p.26).

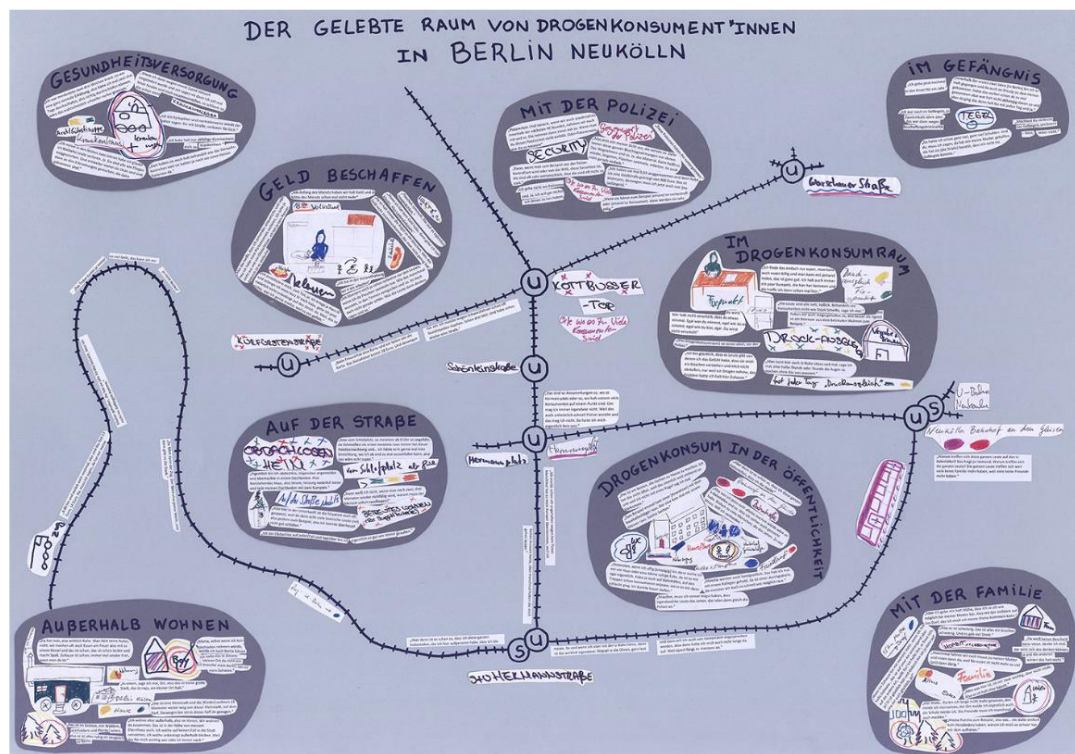


Figure 4.4. The Lived City of Drug Users in Berlin Neukölln, Méline Germes, 2019-2020, (Germes & Klaus, 2021, p.40).

At first, participants produced script-map-like boards with given concepts and themes, then added their personal keywords which connote negative or positive meanings for them. After combining different ideas of the ideal city, each idea was given a symbol which is also designed by the participants. Lastly, the symbols were located on a base map given to the participants. Approximately two hundred symbols

were drawn, and they were corresponding to social or spatial proposals such as fair treatment, justice, protection against violence and sexual harassment, emergency shelters, safe private housing, public spaces to meet, woman-only places, therapy, social care, etc. However, the participants had problems with placing the symbols on a huge base map of Berlin. Later on, the researchers worked with a design office to create a visual representation that would ease the process for participants.

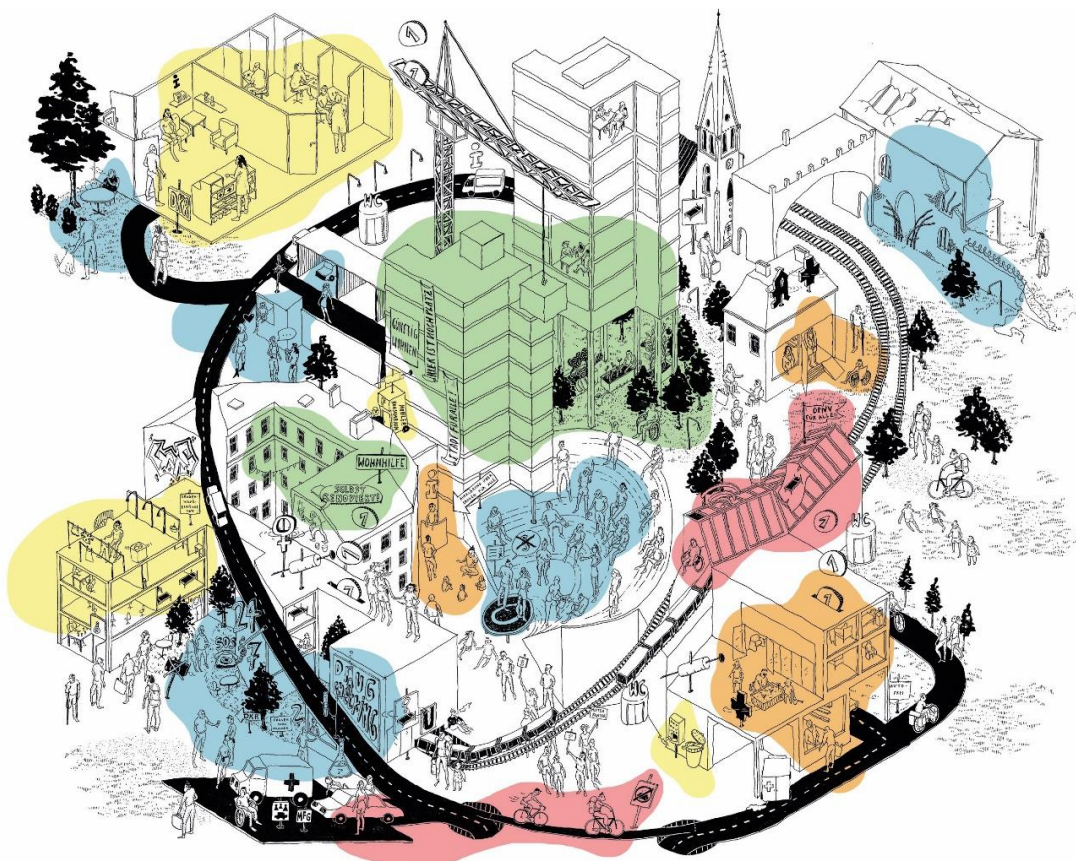


Figure 4.5. An Ideal City for Marginalized Drug Consumers, Concept by Germes, Visualizaiton by Design: Studio 8/4, 2020, (Germes & Klaus, 2021, p.29).

As a final product of the research, a three-dimensional visual that illustrates the ideal city of drug users was presented. The graphic designer's first sketch which combines the result of three workshops were reviewed and revised by the participants. The imaginary neighborhood had a mixed-used spatial configuration (residential units,

health care infrastructure, drug use spaces, etc.) and it was colored according to the themes introduced during the workshop: “*green for housing, blue for safety, orange for health, pink for transportation, and yellow for drug consumption*” (Germes & Klaus, 2021).

When both steps of mapping practices are combined, they allow us to understand the socio-spatial status quo of drug users in Berlin and what they imagine as a livable city. In this process, mapping is an instrument that brings the marginalized groups of a city and professionals to introduce inclusive urban design strategies together. Thus, the research is similar to the “game-board” technique in terms of including the actual stakeholders of lived space in the design process. Finally, encouraging drug users to “design” their ideal city by mapping it first is a critical design act that stands against the top-down and conventional urban design practices through which marginalities and informalities are excluded within a two-dimensional framework of a master plan. In that sense, perhaps the academic background of Germes and Klaus is another aspect that shapes this inclusive counter-mapping project; indeed it also highlights the transdisciplinary and universal position of mapping in spatial design practices.

Between_Void

-Authors: Qichen Cui, Siyi Liu, Qianyun Zhou, Chuandi Wei (Urban Design M.Arch Studio at Bartlett UCL / The Bartlett B-Pro Show 2021)-

“Between_Void” focuses on “*the impact of human activities on the spatial relationship of agricultural society, the transformation of land use systems, and the planetary ecosystem*” in the era of the Anthropocene. The theoretical approach of the project is inspired by Neil Brenner and the project location is an abandoned railway in Paris. The authors investigate phosphorus – “an indispensable element of the biochemical cycle & important existence of DNA, and an essential element in evolution”- and point out the fact that the majority of the world’s phosphorus is used in fertilizers. The authors correlate this relationship with food and propose a design

theme based on the limited phosphorus cycle in relation to the “*urgency of food safety and food waste on a global scale*”. Through a series of maps that aim to discover the dynamics of phosphorus on many scales, the authors initiate the design process.

As the first step, phosphorus consumption and loss are mapped on a global scale to emphasize the design problem’s extensivity.



Figure 4.6. Phosphorus Loss in Global Scale, RC18, 2021, (Source: URL 54).

Then, by using GIS data phosphorus distribution in France is mapped. Following that the unbalanced distribution of phosphorus in Paris is mapped and linkages with the food type are presented to comprehend the problem on the city scale.



Figure 4.7. Unbalanced Distribution of Phosphorus and Food Type, RC18, 2021, (Source: URL 54).



Figure 4.9. Food Culture Data Mining, RC18, 2021, (Source: URL 54).

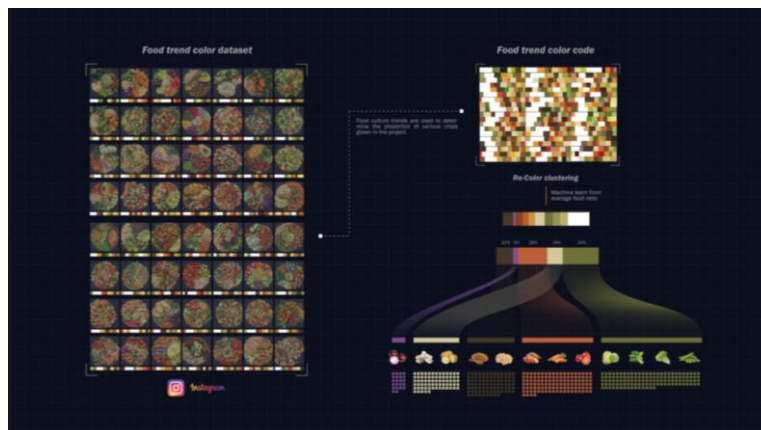


Figure 4.10. Food Trend Extract from Color Code, RC18, 2021, (Source: URL 54).

In the next step, the detected food preferences guide the proportion of crops to be grown at the project site. The site itself is pixelated and analyzed according to the amount of sunlight each pixel gets. Then the authors suggest that most consumed crops should be planted in the most sunlight-ed areas for maximum efficiency and balance in the food chain; also, from many pixelation options, one is selected and finalized as a master plan. Remarkably, this stage can be considered a cross-mapping

operation since two different sets of data have collided in one single field; and eventually, the juxtaposition configured the spatial dynamics and plantation of the project site. The master plan shows the pixel farm, sunlight index data, and height data.

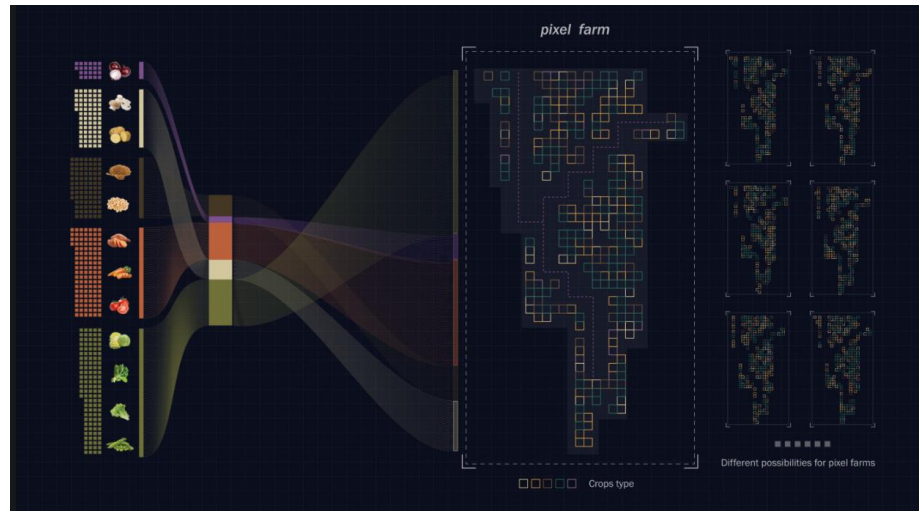


Figure 4.11. Public Pixel Farms, RC18, 2021, (Source: URL 54).



Figure 4.12. Master Plan, RC18, 2021, (Source: URL 54).

The authors benefitted from “Wallacei” to optimize the two-dimensional dynamics presented in the master plan and finalize the design proposals with three-dimensional visualizations.



Figure 4.13. Day Time Aerial View of the Pixel Farm and Green House, RC18, 2021, (Source: URL 54).

The design process adopts a top-down approach and benefits from three maps that differ from each other in terms of scale, source of data, subject matter, and visualization technique. This diversification has a positive aspect that reflects that the design proposal can be a solution to a worldwide problem if it is implemented in sites with similar characteristics. On the other hand, it has a negative aspect, the harmony between these maps can be considered weak in terms of correlating the spatial knowledge in-between each mapping practice. The maps not only guide designers to establish and prioritize spatial functionalizations with maximum efficiency but also provide a basis for design operations.

Inter-Pelagos

- Authors: Licheng Yao, Xuan Zhou, Miao Zeng, Qingrui Jiang, Mengyue Han– Team RC14 (Urban Design M.Arch Studio at Bartlett UCL / The Bartlett B-Pro Show 2021)-

“Inter-Pelagos” is an urban design project investigating mental health deprivation in Canary Wharf/London. The theoretical background of the project is inspired by Guy

Debord's psycho-geographical studies in relation to the psychological impact of public space. The authors examined other projects inspired by Debord's studies, particularly Constant's New Babylon, and defined two keywords: the motion and the vision in motion.

The authors initiated the design process by building a datascape. Twenty-two data sets are collected to highlight the correlation between the workplace, internet use, the young community, and mental diseases. Through machine learning, the authors checked their hypothesis and pointed out the working-related anxiety and it became the intervention area selection criteria. The authors examined popular Google data to understand movement dynamics during the day and at the night. The movement map suggested that there is a huge decrease from day to night; with respect to that "boosting the night movement" became the key strategy. Different movement scenarios are sketched through agent simulations and a heat map is overlaid on it to define the barriers in the movements.

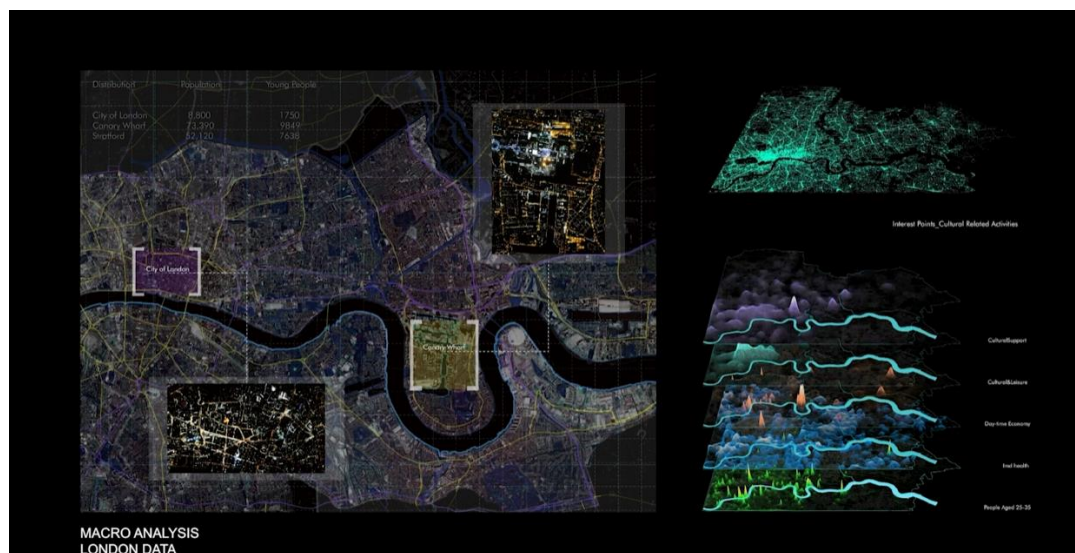


Figure 4.14. Data Analysis for Mental Health Deprivation, RC14, 2021, (Source: URL 55).

Following that, the visual accessibility of the area is mapped. Moreover, according to the geo-tags in the photos users share, major buildings are highlighted and color-coded to visualize the most attractive areas in Canary Wharf. The result was “inland canal”. By benefiting from the night remote sensing images, the special requirements of lighting were analyzed. At that point, the authors started to develop initial proposals for the “night movements”.

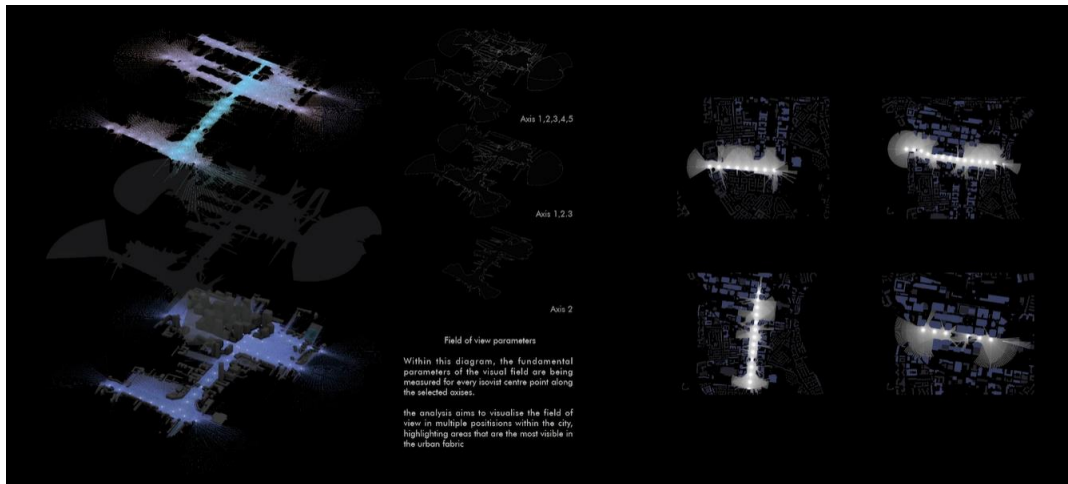


Figure 4.15. Visual Accessibility Analysis, RC14, 2021, (Source: URL 55).

Afterward, the authors proposed a master plan, but indeed as they clarified it, it was a “synthesis” of the mapped subjects until that point of the design process. The three-dimensional model of the site and layering of the previously gained information on it, this step resulted in the identification of the inland canal. The inland canal was a buffer zone, a barrier of movement and a visually attractive area for its users.

The authors defined their “key” to designing an “urban theater” as a vision-directed flow. By distributing the visual attraction points within the site, the design outcome aimed to improve the free movements of the users at the night. Finally, the flow patterns were simulated to link the most and least accessible areas to each other. The “urban theatre” is designed by distributing theatrical elements (stages, lights, stands) within the site to transform the atmosphere.

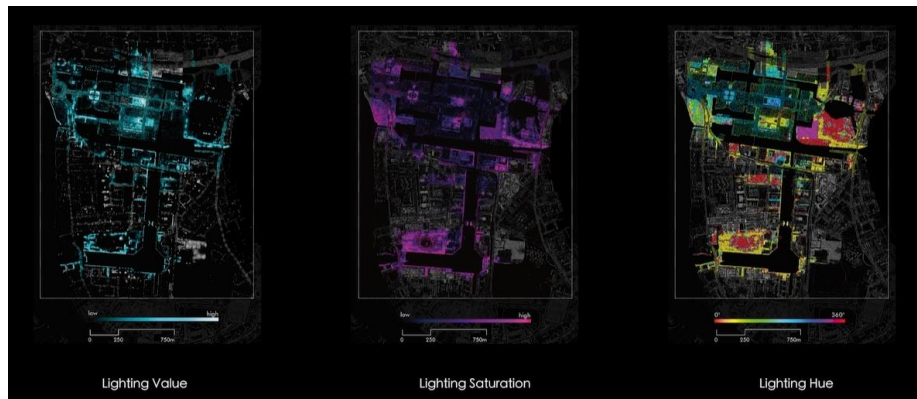


Figure 4.16. The Lightening Condition, RC14, 2021, (Source: URL 55).

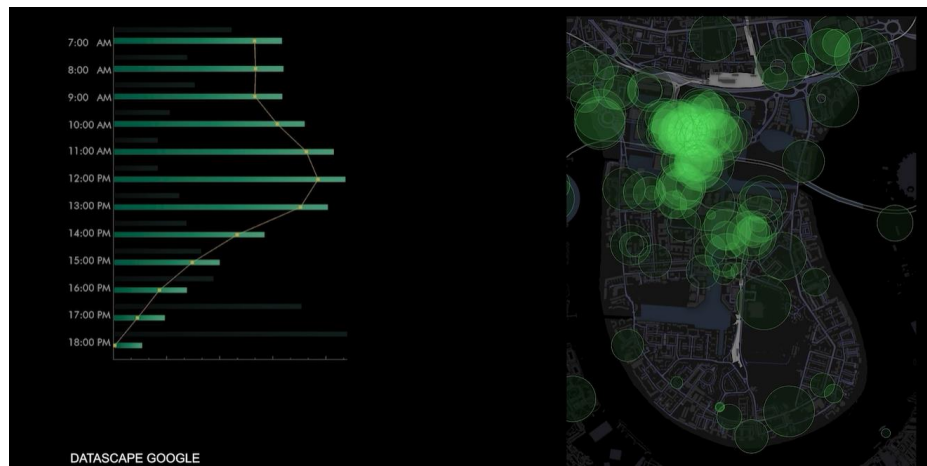


Figure 4.17. Comparing Day and Night Movements, RC14, 2021, (Source: URL 55).

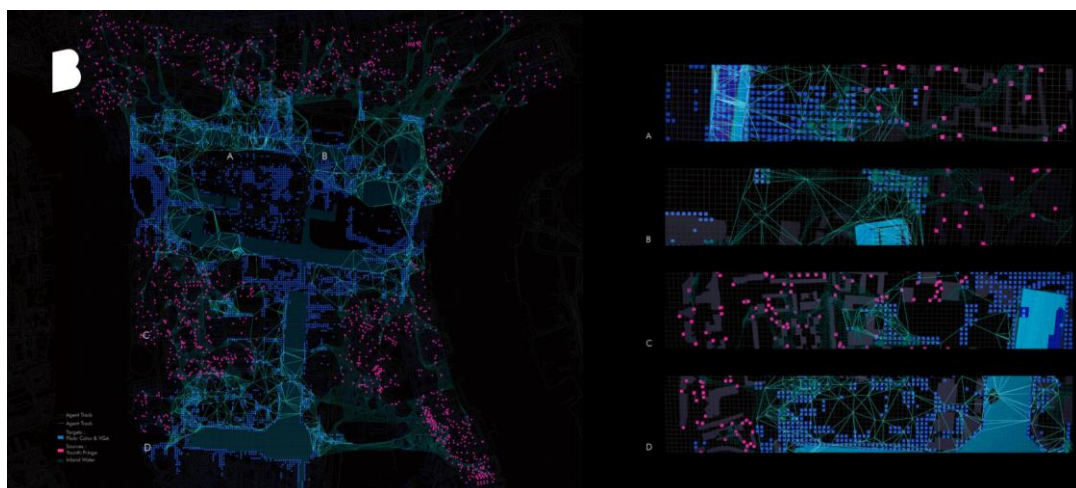


Figure 4.18. Network Map, RC14, 2021, (Source: URL 55).

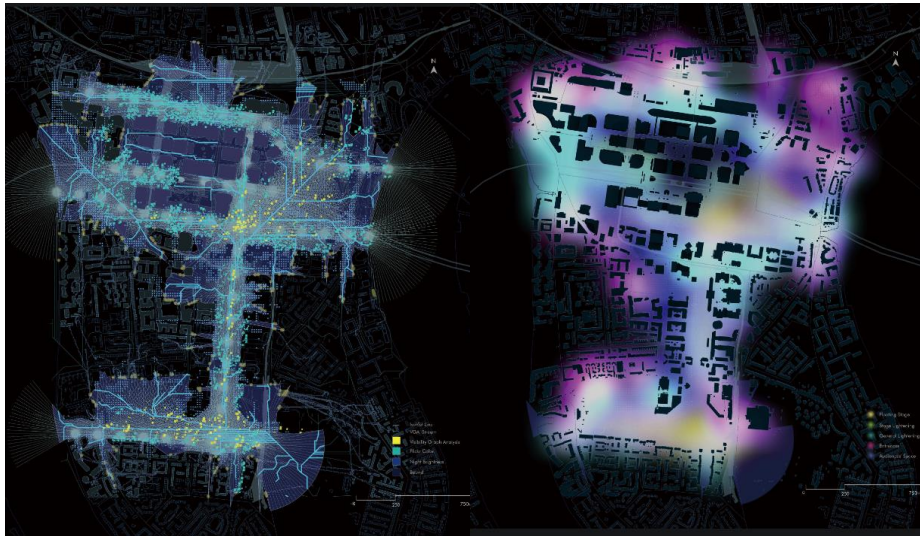


Figure 4.19. Event Programming and Lightening, RC14, 2021, (Source: URL 55).

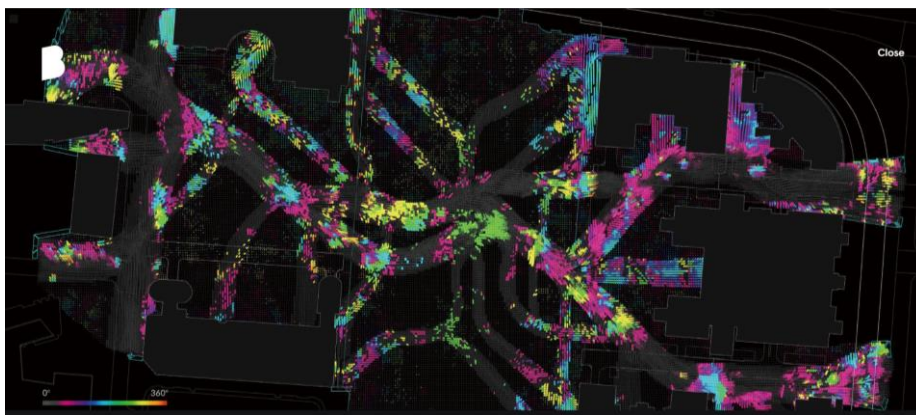


Figure 4.20. Arrangement of Theatric Elements, RC14, 2021, (Source: URL 55).



Figure 4.21. The Nightscape of Urban Theatre, RC14, 2021, (Source: URL 55).

The design process of Inter-Pelagos is a highly digitalized process (with animations and videos) that weakens the relationship between the designer and the subject matters of the maps. The authors layered different sets of data from different sources by machine learning rather than subjectively correlating it to produce spatial knowledge to unveil psycho-geographical aspects of the space.

Moreover, the borrowed theme structures the mapped phenomena; the process of mapping has no similarities with the drift technique indeed, the subjectivity of drift (the movement itself) became lost in the quantitative datascape visualized with the maps. The design problem and solution are interpretations of contemporary urban problems, even though they are mainly constructed by reconfigurations of geospatial data. The subject matter of the maps provided the authors input to frame the design process and structure the design outcome. However, the representative aspects of their maps as survey tools and the highly digitalized design process eventually led designers to think more as an engineer rather than an urban designer.

Behind the Scene

-Author: Roza Abazari (Architectural Design VI / Adaptable City Studio at Istanbul Technical University / Spring 2020-2021)-

In Architectural Design Studio VI the theme was Adaptable City and students were given two project sites to work on from city scale to architectural design scale: (i): SNIACE Paper Mill | Torrelavega/Spain and (ii): Gran Via Constellation | Madrid/Spain.

The author of “Behind the Scene” initiated the design process with a script map that indicates the land use dynamics in the Gran Via. The commercial characteristics of the project site are emphasized with the script map and overlapping texts show the uses that are not on the street level as well.

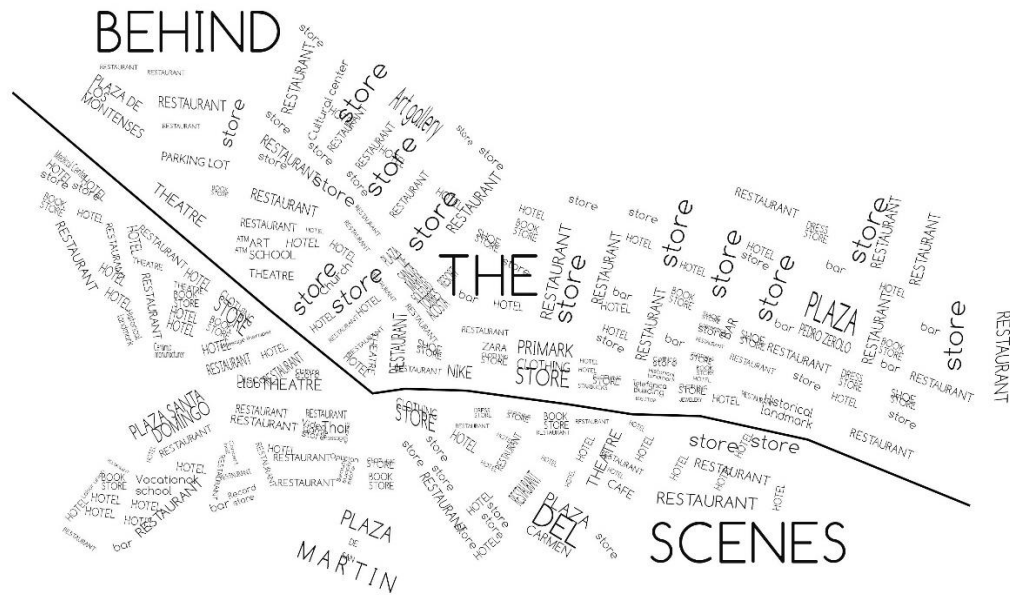


Figure 4.22. Script Map of Gran Via, Roza Abazari, 2020- 2021, (Source: URL 56).

The author's approach to adaptability focuses on encountering of different cultures and diversities. In a collage map, the author presented the street network, the facades of the buildings facing the Gran Via, visual elements on the streets (shop signs, traffic signs, stickers, and graffiti on the walls), and population data according to ethnicity. By showing facades in black and white and placing street networks on the background in grey; but bringing the visual elements forward with their colors, the author visually put emphasis on the diversities of the lived space.

Also, the author benefitted from HoodMaps -previously mentioned in the research- to reveal the users of Gran Via and its city-scale dynamics. The design idea is formed at this point by correlating relationships between spatial appropriations, daily practices, users, land uses, and diverse ethnicity.

The design idea suggested that the squares along Gran Via share common characteristics that contain secret memories and stories of people. Moreover, as people experience the place, they appropriate it within a set of frameworks; eventually, they become performers of their lived space and produce urban space.

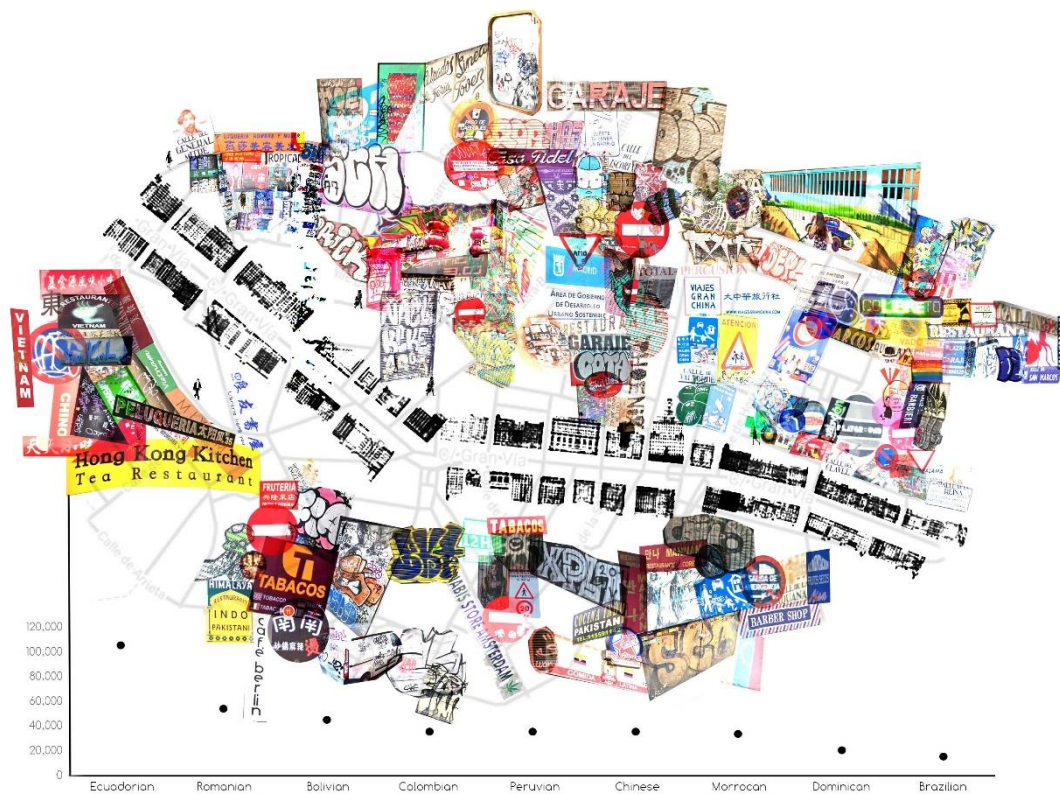


Figure 4.23. Exploring Gran Via, Roza Abazari, 2020- 2021, (Source: URL 56).

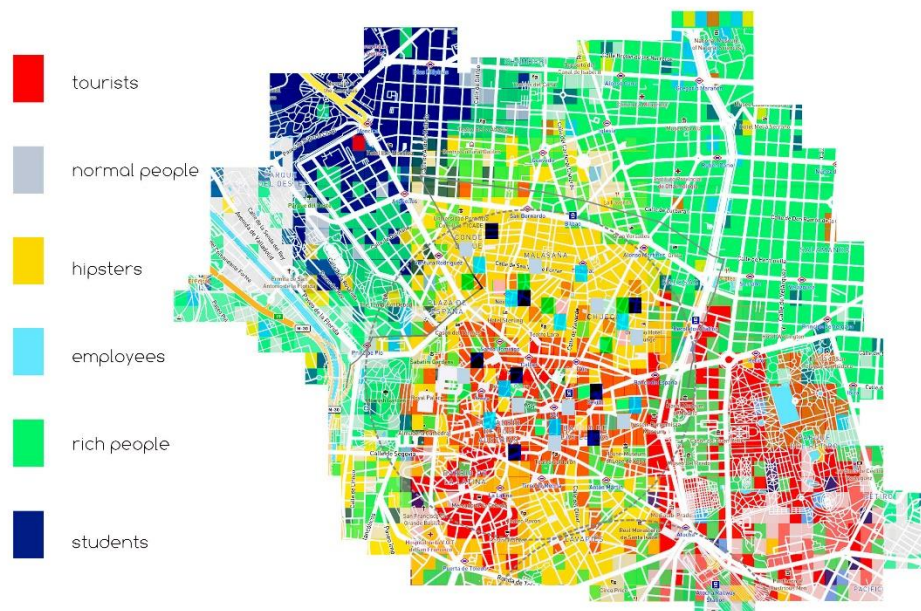


Figure 4.24. HoodMap of Site, Roza Abazari, 2020- 2021, (Source: URL 56).

After contextualizing the design approach via mapping, the author identifies intervention points. In each intervention point, according to the users, spatial identity, and spatial appropriations; the author presented sets of three-dimensional illustrations visualizing the design operations and the functions.

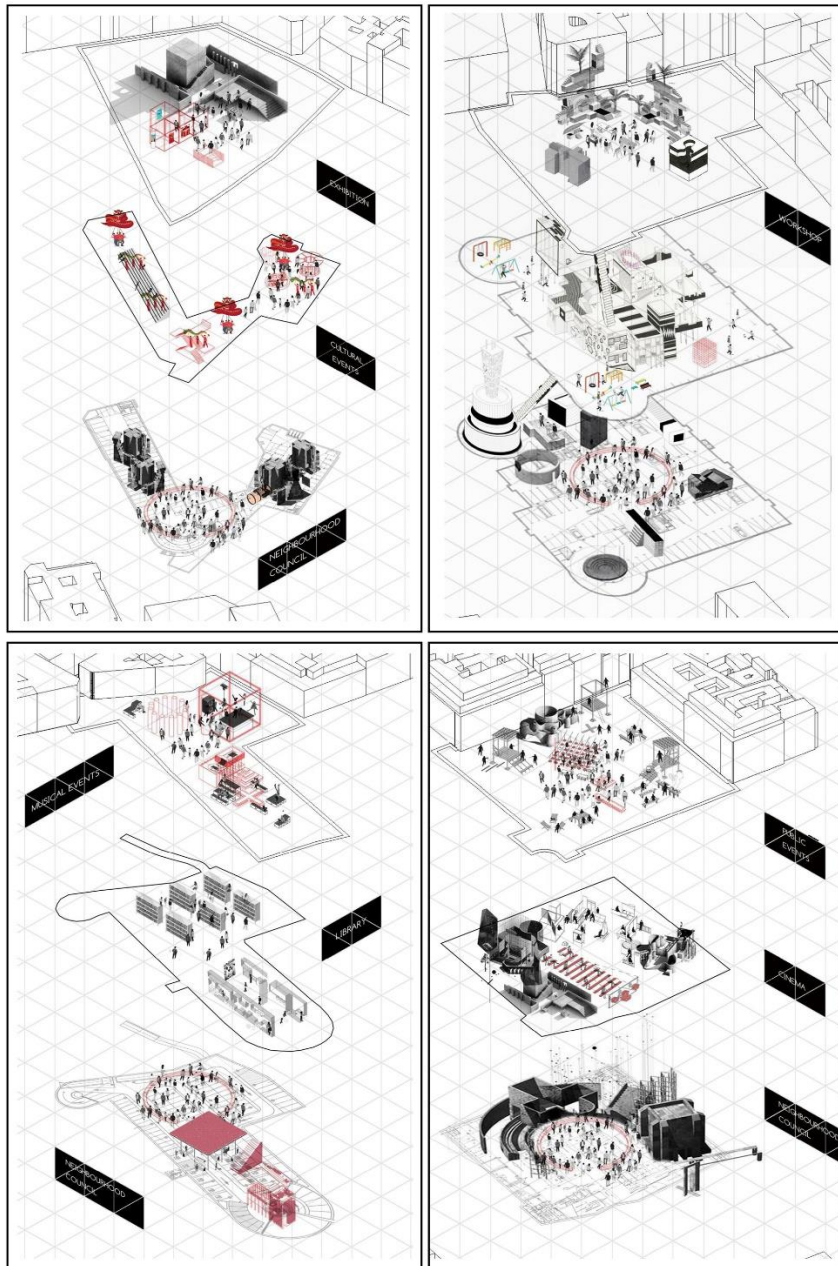


Figure 4.25. Intervention Areas and Functions, Roza Abazari, 2020- 2021, (Source: URL 56).

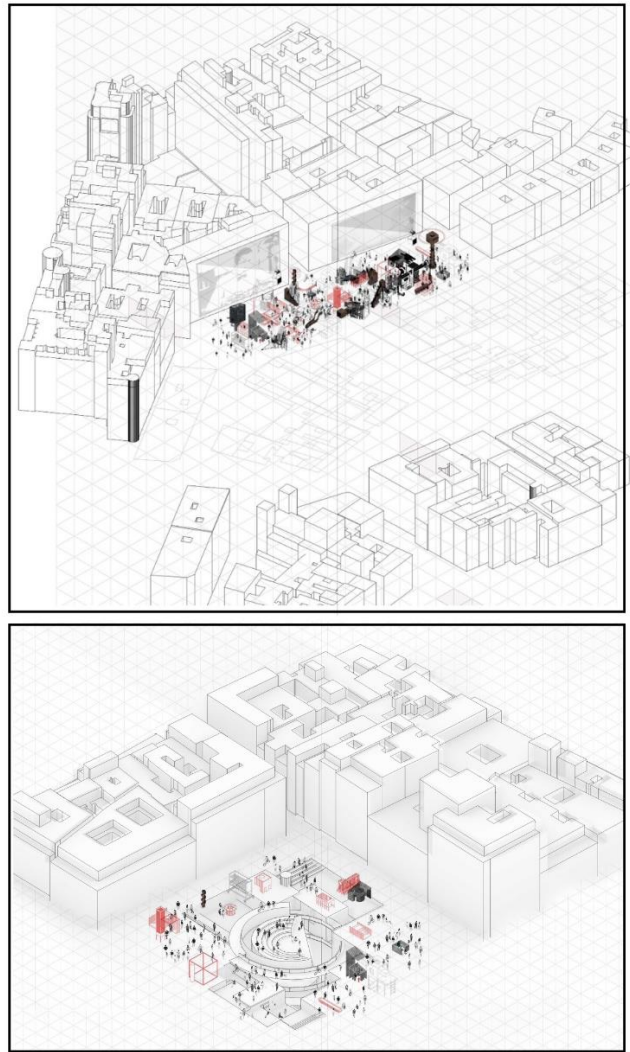


Figure 4.26. Spaces of Appropriation, Roza Abazari, 2020- 2021, (Source: URL 56).

In “Behind the Scene”, the lived space, its users, and their background are researched by mapping practices. The maps revealed the similarities and differences of squares; consequently, each intervention in each square turned out to be unique but all had common characteristics to meet the needs of users with respect to cultural identity. Eventually, mapping practices allowed the author to conduct a holistic design process; and to catch the balance and harmony between urban spaces by providing space for cultural growth and allowing users to be the “performers” of their lived space.

Win-Win & In It Together

-Authors: Janette Kim (Principal Investigator and Instructor) + Participants (Advanced Studio MAAD Urban Works, MArch and BArch, California College of the Arts, 2016-2018-ongoing)-

“Stop Calling Me Resilient” was an Advanced Design Studio taught by Assistant Professor Janette Kim, with MAAD, MArch and BArch students from California College of the Arts. The aim of the studio was to examine the relationship between climate resilience and gentrification and the research question was “How can designers integrate waterproofing measures into cities in a way that can ‘disrupt’ current displacement and gentrification trends?”.

The main idea behind the methodology followed during the semester was the fact that each individual decision had a small or large impact on the environment- which means nobody gets to decide on a common future individually and people should collaborate on the decision-making process.

The expectancy of Janette Kim from students was to engage with decision-making tools (maps as game-boards), propose master plans on a neighborhood scale and propose architectural design solutions on the block scale.

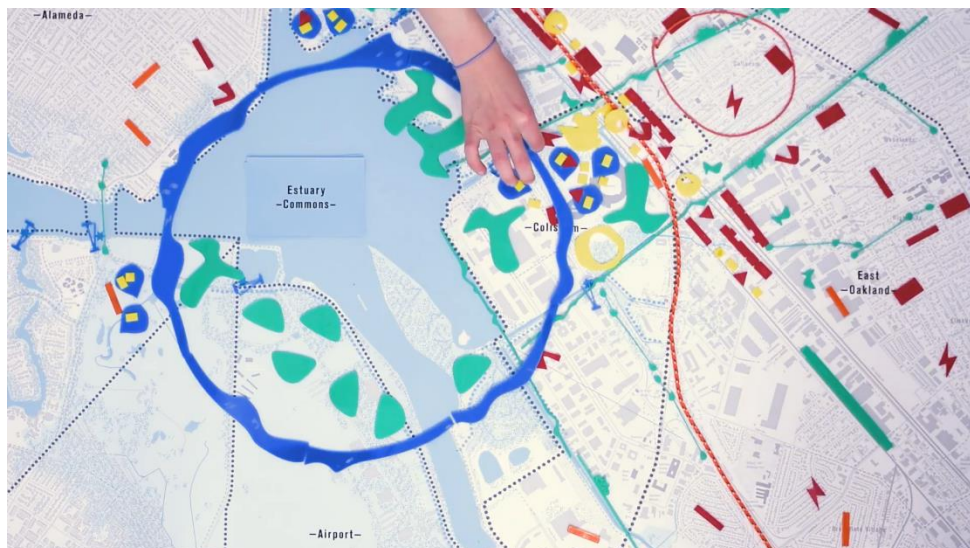


Figure 4.27. Scenario Planning, Urban Works Agency, 2016, (Source: URL 57).

After selecting a series of sites that exemplify ownership and gentrification trends to work on, students were asked to integrate sea level rise mitigation infrastructures into existing and newly constructed areas, and to double the existing square footage. Finally, the students were expected to propose an architectural design scheme with programs and functions to respond to the needs of each site.

Two core strategies guided the process. The first one was the “scenario planning” stage to anticipate “how climate-related effects, policy changes, community actions, and market fluctuations might influence each other in the future.”



Figure 4.28. (left) Game Tokens, Urban Works Agency, 2016, (Source: URL 57).

Figure 4.29. (right) Mission Bay Board Game, Urban Works Agency, 2016, (Source: URL 57).

On a game board (map of San Leonardo Bay) students came together to play scenarios on their minds. There were three possibilities (win-win, win-lose, and lose-lose) to experiment with the strategies for designing urban waterproofing techniques that can grow or alter in time to adapt to the needs of the contemporary city. In this way, students got to test the previously developed strategies and their impacts on the collective urban space as well.

In the second phase, students were given the selected sites for architectural design. At each site, students were expected to produce architectural solutions by following the urban strategies developed on the map. The design parameters were ever-changing land uses, economic drivers, and ecological demands of the waterfront conditions.



Figure 4.30. Exodus Nouveau Proposal for Mission Bay, Sarah Herlugson & Trenton Jewett, 2016, (Source: URL 57).

“Win-Win” brings students together on the surface of a map (game board) to design urban strategies collectively. Three possibilities encourage students to speculate on their individual ideas to achieve the best results.

The “Win-Win” board can be considered as a “hands-on mapping practice” that is interactive in a way. Moreover, the map is a process in which students are actively and collectively involved.

The board might represent an objectified conceptual map that has ideas on its surface as well. Besides being a common ground bringing challenges, facts, expectations, and conflicts together; it has a representative identity through which the strategies are visualized. The map in this case is a tool for negotiation and a surface reflecting the actions and impacts that shape urban conditions.

The same map was instrumentalized in another experimental research session conducted by Janette Kim in 2018. This time the “In It Together” board focused on the sea level rise and explored how diverse communities can collaborate to build greater resilience to climate change. The map brought different stakeholders together to work on “adaptation strategies, weight their tradeoffs, and achieve greater local resilience”. Each player in the game represented a community or an agency (NGOs, city residents, students, decision-makers, etc.) within Estuary; and each had a specific goal to build long-term resilience and meet the current needs of the area.



Figure 4.31. In It Together Board, Urban Works Agency, 2018, (Source: URL 58).

In each round, players placed an adaptation piece (tidal ponds, greenways, bridges, high density housing units, etc.) on the map and paid for their actions with the game tokens. When the impact of the adaptation piece is negative (a piece causing damage to an unprotected building or infrastructure since it causes a flood) the player paid taxes. Similar to “Win-Win” rules, players were given chance to compete or collaborate. After competing over an action, if it is a “win-lose” situation, the players only achieved their goal and got an individual score. If it is a collaboration, a “win-win” situation, all players got a score, and as a result, they decided on the “collective resilience points” together.

In this case, the map brings people from different backgrounds together to collaborate. Each round gives feedback to players; thus, the stakeholders can assess the spatial, economic, and ecologic consequences of their actions on a map surface. The map surface becomes a way to raise awareness regarding the living environment and it is an educational decision-making tool that encourages players to find creative ways to work and live together. “In It Together” differs from “Win-Win” in terms of the final outcome. Even though this time the map only shapes the urban design strategies (it does not end with architectural design proposals), the moves or scenes on the map surface can make us imagine possible futures and scenarios altering the urban space.



Figure 4.32. Finalized Strategies, Urban Works Agency, 2018, (Source: URL 58).

Escaping Super Gravity

-Author: Frederik Bo Bojesen (Dip10 / RIBA Part I & II, AA School of Architecture, 2013)-

In 2013, Dip10 Design Studio worked on a 1km² perimeter in three contrasting cities to identify “physical and social variables that create the urban experiences”. The author worked on Scan 1 (London) and examined the urban dynamics in terms of conflict, control, exchange, life, and time.

In three maps (three layers), the author focused on “time”, “exchange”, and “control”. He mapped the complexity of the urban space with top views and on the top of the maps, he presented the sections, which were flat when compared to the public life and urban experiences represented on the maps.

The first map “time”, focused on the temporal dimension of urban experience. The places which are used twenty-four hours in a day, the places which are only used during peak hours, the walking distances between landmarks in minutes, and the speed limit areas are mapped together to understand the temporal dimension of the urban experience in terms of movement patterns.

The second map “exchange”, focused on the events and phenomena that cause interactions between people. Besides a few points or land uses that are planned and “legal” (health clinic, job center, station, information points), the major keyword that indicates the exchange in the area was “sex” and following that it was nightclubs.

The third map “control”, focused on the territorial controls and their reasons such as privately-owned blocks secured by professional guards, station that is highly secured by the state due to terrorist attacks, public space and neighborhoods with surveillance cams, territories controlled by “gangs”, etc.



Figure 4.33. Time+Exchange+Control, Frederik Bojesen, 2013, (Source: URL 59).

After mapping time, exchange, and control; the author defined the design problem; London was in the state of “Super Gravity – the flatness of the city” because none of the subject matters of the maps were legible or visible in the sections. At this point, the maps led the author to design the site based on “sections”.

Through sectional and planar trajectories, the author refused the flatness of the city and aimed to “escape” from the super gravity. Thus, focused on the continuity between plans and sections, private and public space, physical and social urban experiences, and the city and its architecture.

In his architectural design proposals, the author altered the ground with a slab system to reveal territorial claims. With a linking core, he elevated the spaces independent from the slab system to bring urban experiences verticality. To establish a dialogue between the city and its architectural spaces he benefitted from the enclosure and material diversity.

To escape from the state of super gravity, the author proposed an “experienced section” through which buildings, passing interiors, exteriors, private or cooperative spaces, and the urban spaces are connected.



Figure 4.34. Experienced Section, Frederik B.Bojesen, 2013, (Source: URL 59)

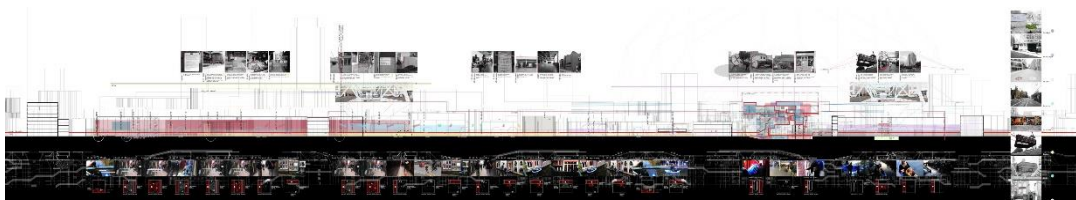


Figure 4.35. 1Km Section, Frederik B.Bojesen, 2013, (Source: URL 59).

Afterward, the author presented three site plans that overlap the territories, private and co-operative controlled space. Also, he defined three streets through which the city is seen as levels and different trajectories defined the space.



Figure 4.36. Site Plans, Frederik B.Bojesen, 2013, (Source: URL 59).

Most importantly, in the last phase of the design process, the author presented another set of maps that defined the contextual relations and intervention points together. To further explain the impacts of his architectural design proposals the author instrumentalized the maps. Each map showed the proposed temporal dimension of the urban space, exchanged experiences, and controlling factors. Thus, the initial mappings of time, exchange, and control came back to the scene to define how four different spaces (the Barbican, Broadgate, Shoreditch, and Old Street Station) are intrinsically connected and integrated into their surrounding spaces through the physical territory.

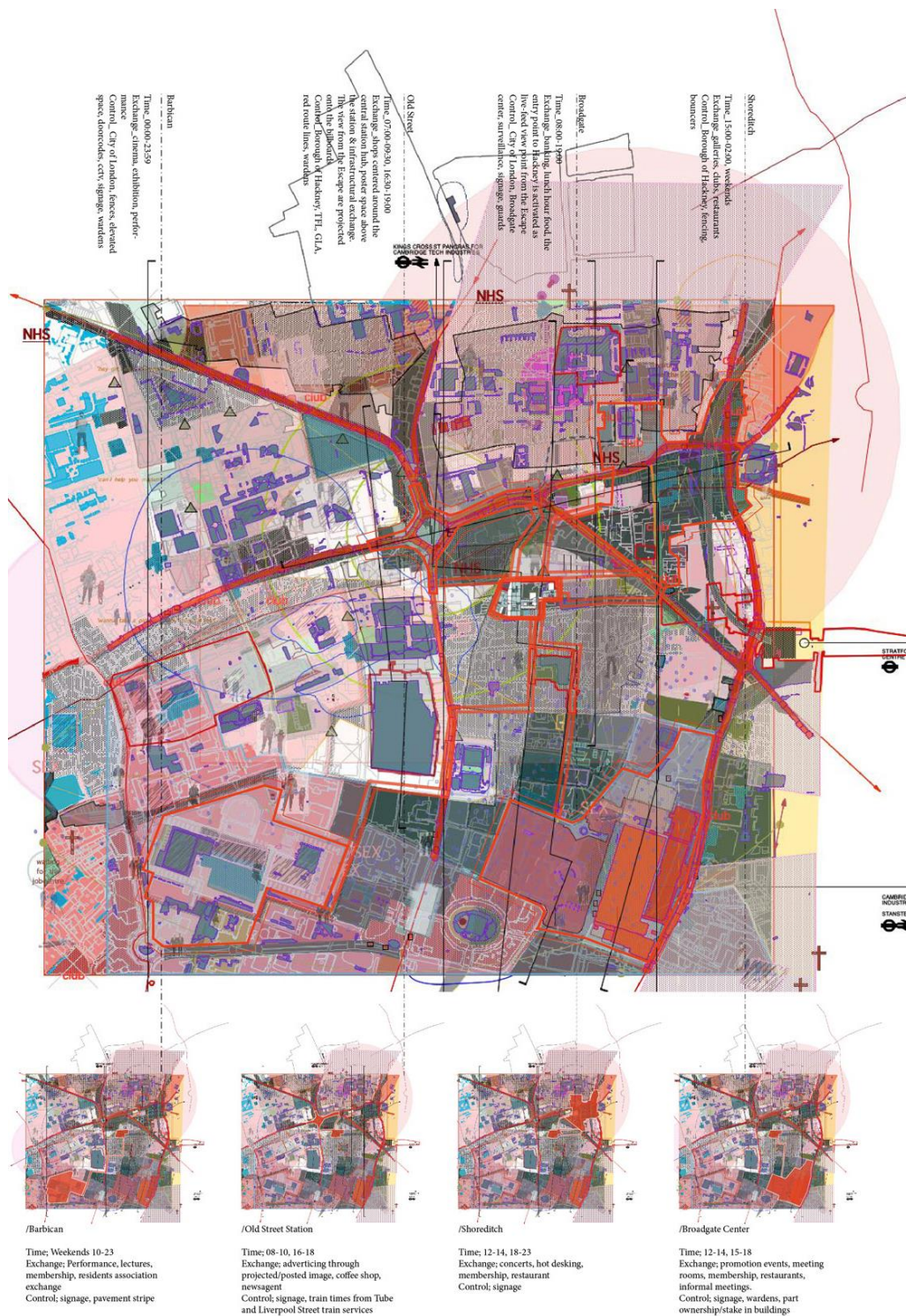


Figure 4.37. Contextual Relations, Frederik B.Bojesen, 2013, (Source: URL 59).

The design problem itself (“super gravity”) is defined by revealing the visible and invisible phenomena of urban space. Initial mappings that focus on the urban experience in three terms provoked the author to elaborate on the “flatness” of the city throughout the design process. As a result, to escape from the state of super gravity the author creates composite spaces including the physical and social components that are mapped. Thus, the mapped phenomena define both the problems and the solutions.

“Escaping Super Gravity” differs from the previously reviewed projects in terms of the stages that mapping is employed throughout the design process. It starts by mapping the urban experiences, and then the author introduces the proposed vertical urban experiences with architectural drawings. Afterward, the site plans are presented to show how each architectural design is integrated with its surroundings. The author finalizes the design process with another set of mappings to link each master plan and urban strategies with each other.

In short, the problem definition is in urban scale; the proposals are in architectural scale; and yet again, the impacts of the proposals are in urban scale. Thus, mapping is at the beginning and at the end of the design process. Thus, “Escaping Super Gravity” can be considered as a design practice that brings design by mapping and design as mapping together.

Milanesenses

-Authors: Aybüke Tufan (Urban Planner) & Cemre Korkut (Landscape Architect and Urban Designer) & Sima Muhammetli (Architect) / (Milan Navigli Canal Challenge, 2022)-

“Milan Navigli Canal Challenge” conducted by Primotivo Studio was an architectural competition inviting its participants to develop strategies on city scale and to focus on the detailed design of one selected site to reopen eight different points of Navigli in Milan. Shortlisted in the competition, Milanesenses focuses on the

sensescape of Milan throughout the design process. Based on the deliverables on the competition brief, the authors have introduced a multi-scalar design process from city scale to architectural scale.

Initially, the authors assessed the accessibility, the monuments, and the open/green areas in relation to the given project sites. By doing so, the authors created a basis for the next stage of analysis which is based on the sensescape of the given sites and their surroundings. To survey how given sites are used by locals and visitors and to comprehend the senses the sites evoke in their user's minds, the authors analyzed the most mentioned keywords in Google Maps comments on sites and their surroundings. Then, each keyword is categorized under a sense such as seeing, hearing, touching, etc. With an abstract script map, the authors visualized the monuments and the keywords reflecting the perceptual and sensational dimensions of given sites in one layer. With the help of that mapping, the authors defined the common spatial problems and potentials linking eight sites to each other on city scale. On another layer, they defined the design operations and strategies to reopen and connect eight points of Navigli.

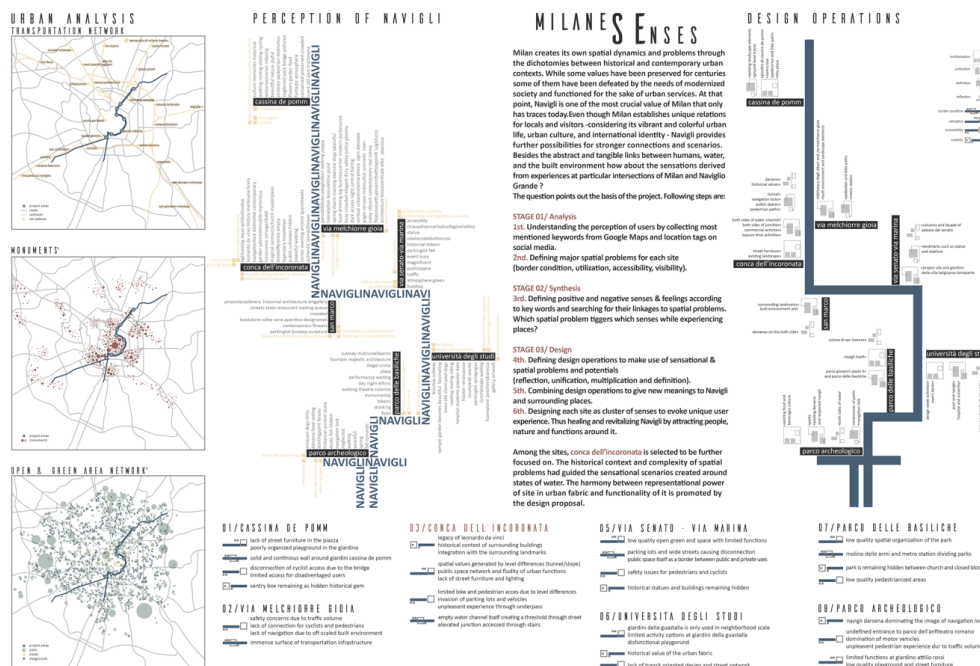


Figure 4.38. Sensescape Analysis Stage, Tufan & Korkut & Muhammetli, 2022.

Based on the problems and potentials mapped with respect to the sensescape, the authors introduced a variety of design solutions for each site. For instance, if the Google Maps comments of a site indicate the unpleasant smellscape of a polluted water channel or extreme noise pollution due to the transportation infrastructure; unique plantation strategies and tree types are proposed to revitalize smellscape or to filter noise. In addition to the site plans, abstract diagrams indicating the proposed sensescape are provided to straighten the linkages between the initial mapping and design output. As a result of that stage, a holistic design approach in terms of the objectives, strategies, and design operations is achieved on city scale.

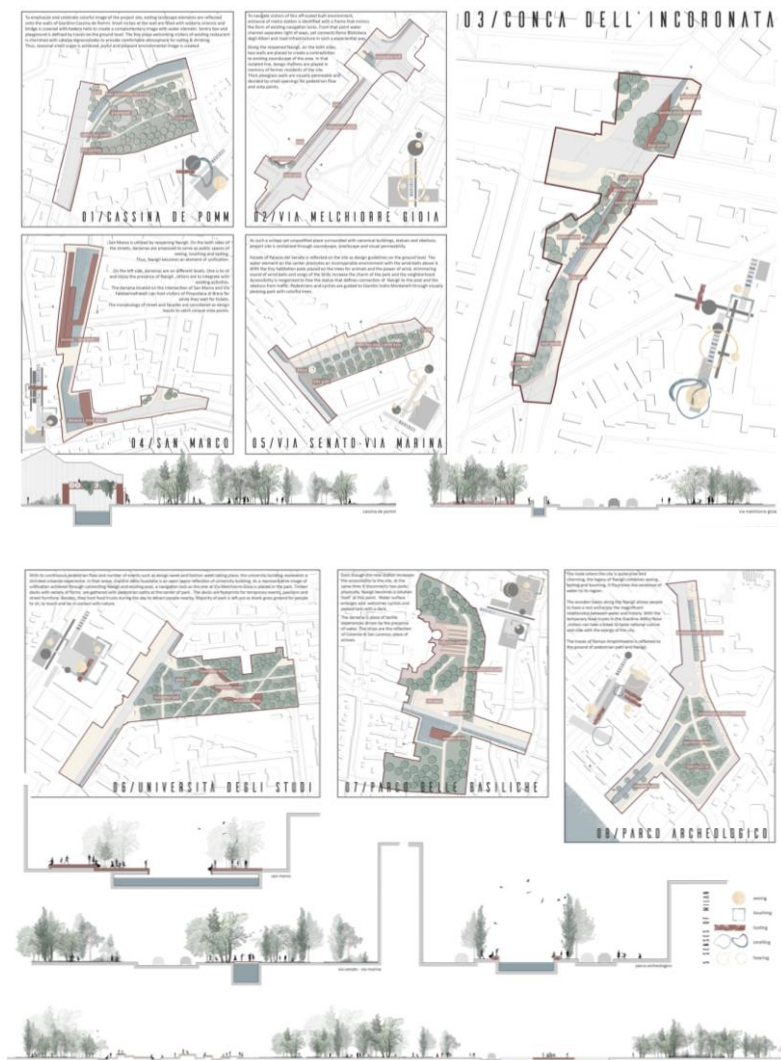


Figure 4.39 and 4.40. Design Proposals, Tufan & Korkut & Muhammetli, 2022.

In the focused site, all senses are presented together and interlinked with each other with respect to the different stages of water. To see, taste, touch, hear and smell the different stages of water; a set of design interventions are introduced and visualized with three-dimensional illustrations.

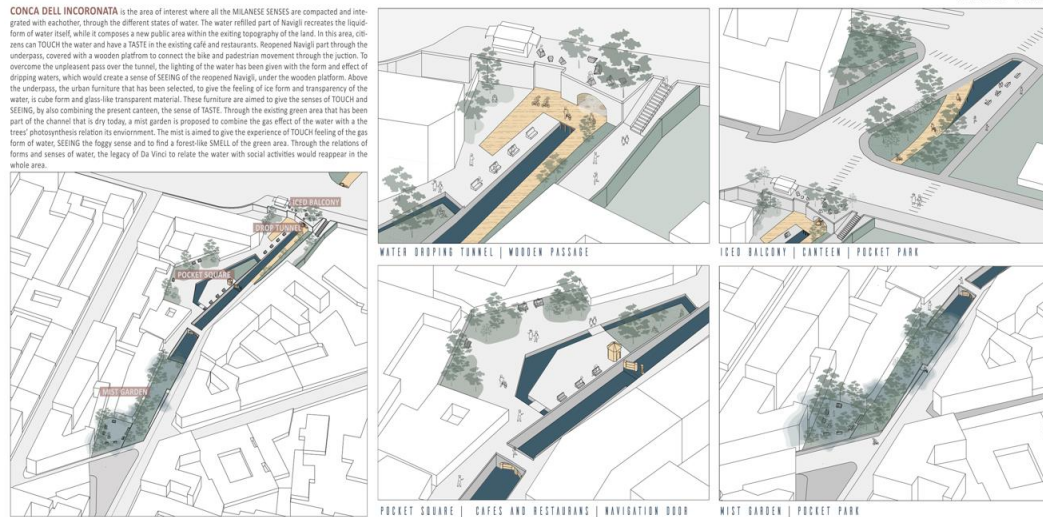


Figure 4.41. Conca Dell Incoronata Design Proposal, Tufan & Korkut & Muhammetli, 2022.

Throughout the design process, the authors instrumentalized mapping not only as a survey tool to define spatial problems and potentials but also as a basis to introduce design strategies and interventions. In the first stage, the diverse sensescape and perceptual dimension revealed by mapping guided the authors to understand the behavioral patterns of users peculiar to each site. In the second stage, to reopen Navigli and to improve the quality of spaces authors have inspired by the mapped phenomena. Finally, the core terminology of the analysis stage (sensescape); has become a goal to achieve, a vision to revitalize and reorganize physical and sensational interactions with given sites and a theme to conduct a multi-scaled design process which focuses on the experiential aspects of space.

4.3 Design as Mapping

The projects reviewed in this section instrumentalize maps and mapping practices as the final step in the design process. Thus, the cases benefit from maps and mapping practices, rather than site plans or master plans. As the “design outputs”, the maps in the selected projects present the temporal dimension of the design, design operations, imaginary worlds, design scenarios, activity patterns, dynamic spatial relations, movement, etc. Consequently, in the reviewed projects, the projective and operative nature of mapping enables designers to reflect the generative aspects of the design proposals.

Hong Kong Is Land

-Authors: Laurent Gutierrez and Valerie Portefaix (Architects and Artists / Founders of MAP Office, 2015) -

In 2013, MAP Office was selected to participate in the “Uneven Growth: Tactical Urbanisms for Expanding Megacities” exhibition at MOMA. The invited groups were multidisciplinary practitioners who were expected to research the architectural possibilities and develop proposals for six world metropolises.

The exhibition stated the design problem as “...by 2030, the world’s population will be a staggering eight billion people and that two-thirds (mostly poor) will live in cities”. Thus, we shall seek “to challenge current assumptions about the relationships between formal and informal, bottom-up and top-down urban development, and to address potential changes in the roles architects and urban designers might assume vis-à-vis the increasing inequality of current urban development.”.

MAP Office’s research “Hong Kong Is Land” proposed adding “eight artificial islands to the existing landscape of the city” which diffuses across over 260 islands already. The authors claimed that “Cartography is a form of representation that often replaces the territory itself by imposing its own narrative upon it. “; and produced

eight panels of maps that present eight islands. Their aim was to address “many urban population’s future needs while also providing distinctive hubs for tourism”.



Figure 4.42. Hong Kong Is Land, MAP Office, 2015, (Source: URL 60).

The authors considered islands as “territorial fragments” that are both constructed and destructed in a cycle. This cycle of production and destruction was means to escape from the present and imagine the future.

According to the authors, the rise in the sea level due to climate change was constantly redrawing the geographical map of the world we live in. With respect to that, the artificial islands were alternatives to sustainable urban development and paradigms of human life.

The authors were influenced by the existing geography and landscape of Hong Kong, and the pressure of urbanism and urban sprawl on the inhabitable land. They considered geography as a narrative that has been defined and redefined many times to respond to the socio-political and economic challenges. Such approaches and detections of the authors highlight the need for thinking outside the box, thinking outside the boundaries of conventional urban planning and design practices. Eventually, the authors proposed a set of maps -even can be called atlases considering their complementary visuality. In the maps, the new territories were not defined by the spatial narratives only; myths, legends, stories, and histories were on the scene as well. Regarding that, the combination of narratives from historical to contemporary, enabled the authors to imagine endless possibilities on the surface of

the maps. Thus, the spaces of the city and the spaces on the maps became spaces of exploration that embody territories, urban, and architectural features in a unique manner. The authors focused on the rapid population growth primarily and explored the capacities of the territorial waters of the city; as a result, they proposed eight artificial islands and each had a unique scenario and scenery.

“The Island of Land” comes forward with its mobility, its nature is both ephemeral and permanent, and it can create new sub-territories. This island is created by kids, it was a playground, by throwing shells into the water they gradually built the land. Consequently, the narrative of this map refers to the movement, design operations, and temporal dimension of the design proposal.

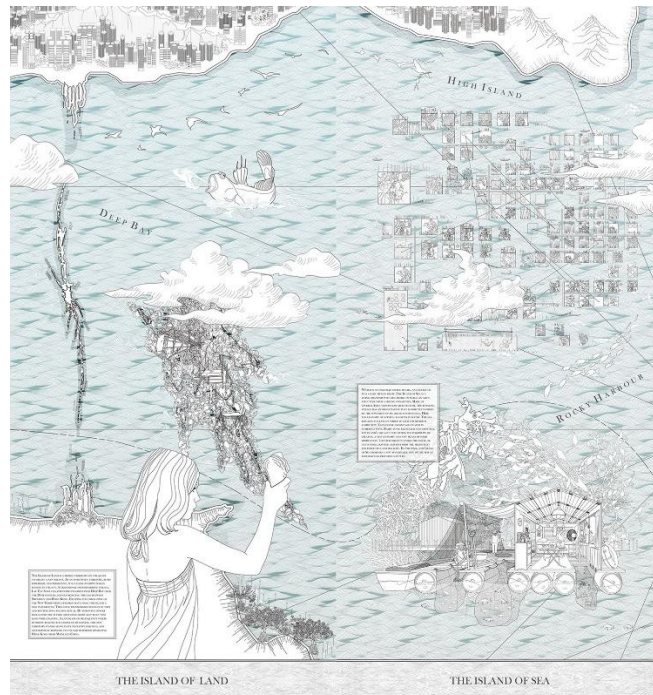


Figure 4.43. The Island of Land & The Island of Sea, MAP Office, 2015, (Source: URL 60).

“The Island of the Sea” is a living organism, its desire is to collaborate with a fishing community that lives in a layered Asian vernacular architecture. Aquaculture and its

relation to economic activities on the island project the possible food production means. The analogy presented with seaweed and fish refers to the future life of ecologically precious species. Consequently, the narrative of this map refers to the possible engagements of nature and human beings; it defines the relations and their locations.

“The Island of Self” is made of an intricate, maze-like network of alleys where illegal consumption is authorized. The island serves to the “intoxicated population of the new future” to do drugs, experience numerous adventures, and have sex. Consequently, the narrative of this map refers to a type of marginalized group of people and their practices and performances which are usually disregarded in the rational and conventional urban planning and design practices. In a traditional master plan on paper, we do not see places to perform such acts; however, in reality, the users of the urban space appropriate the places on paper to do so. Unfortunately, this map refers to the excluded lived spaces of the imagined future since the “intoxicated population” is placed on an island that is not mobile.

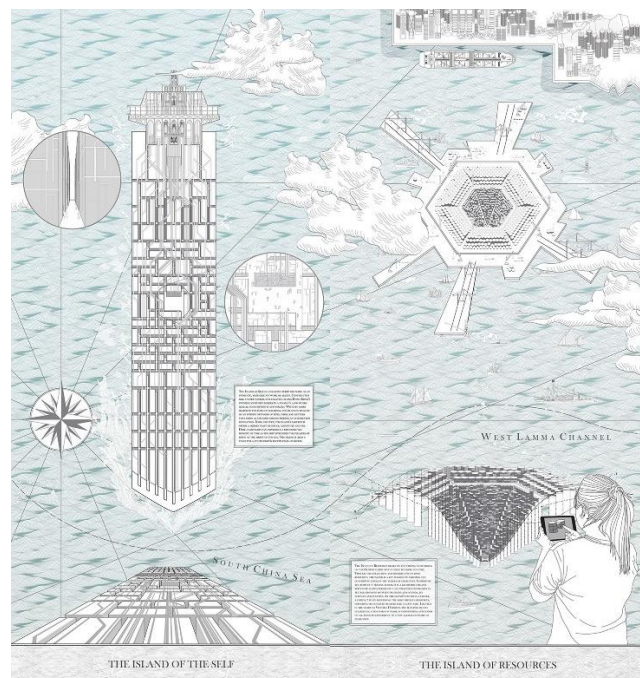


Figure 4.44. The Island of Self & The Island of Resources, MAP Office, 2015, (Source: URL 60).

“The Island of Resources” hosts a Filipino community with strong networking capability. The form of the island reflects the multifaced complexity of their network. There is a creator who shelters precious resources in the center of the island. The floating island aims to establish new trade routes and relations in the new global economy. Consequently, the narrative of this map refers to a minority and their network. The network by itself might be an abstract term but it has spatial connotations and impacts; and the map visualizes the term by illustrating a hexagon with extensions. “The Island of Resources” projects the existing and forthcoming economic relations and networks.

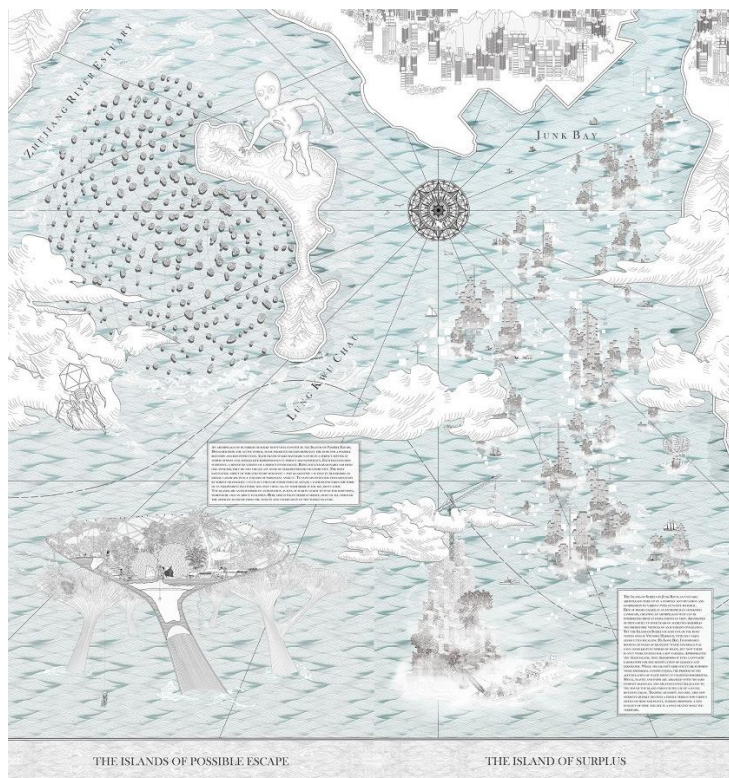


Figure 4.45. The Island of Possible Escape & The Island of Surplus, MAP Office, 2015, (Source: URL 60).

“The Islands of Possible Escape” consists of hundreds of rocky mountains coming together and forming an archipelago. The imaginary world in these rocky mountains

represents the “hope” for every possible condition, harmony between animals and humans, and a perfect environment. It is an eclectic setting since they are too far from each other to form a community. The inhabitants live in constant anxiety due to any sudden threat or conflict that might take place. It is a place of fear, anticipation, and uncertainty. Consequently, the narrative of this map refers to negative scenarios of the imagined future and the emotions and mental state of its inhabitants. The creature and virus-like drawings on the map surface represents future threats.

“The Island of Surplus” is located in Junk Bay, it is an unstable archipelago made of waste materials. The archipelago can be interpreted from many points of view: it is an entropically generated landscape and symbolizes ignorant civilization and its damage. Island’s grid structure allows ephemeral constructions and waste accumulations; which indicates unlimited scenarios in terms of form and content. Consequently, the narrative of this map refers to alternative scenarios, mobility, and spatial transformations defined by design operations and construction materials.

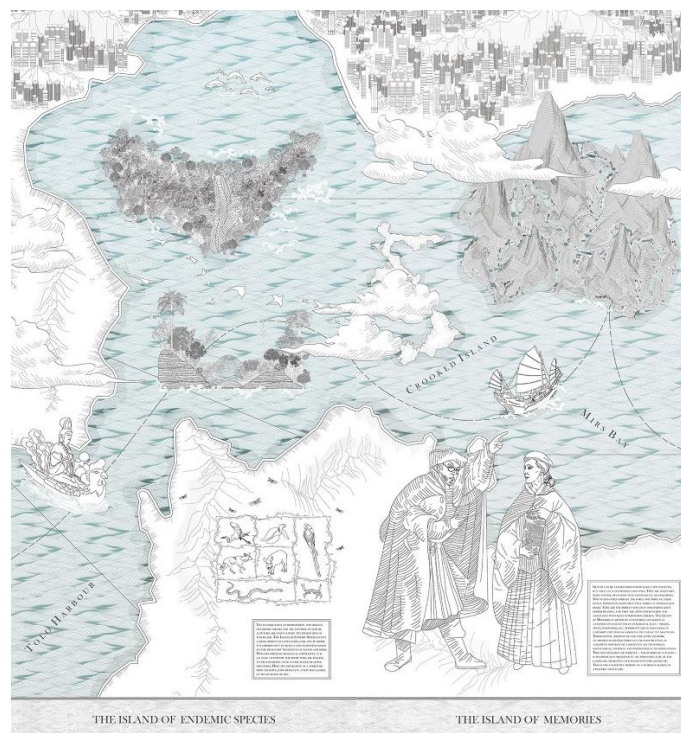


Figure 4.46. The Island of Endemic Species & The Island of Memories, MAP Office, 2015, (Source: URL 60).

“The Island of Endemic Species” is built to conserve biodiversity, it is an untouched land that offers possibilities for building new ecosystems. Consequently, the narrative of this map refers to the mobility of species illustrated on the map, co-existence, and a world of diversity to live in.

“The Island of Memories” is a laboratory to build new societies and preserve old ones. The analogy of the map lies in the mountains. They represent an exploration or a discovery with the two human figures below the mountains. The island is shaped by narratives; thus, it is a collector of the traces of civilizations. Above the mountains, there are layered chips that represent an archive, each chip represents a person’s life. By adding one chip after another a landscape that portrays the complex nature of society is created. Consequently, the narrative of this map refers to an accumulation of collective memory that is an invisible but sensible part of the space. It is a social infrastructure that is made tangible on the map surface as a landscape that projects us into it.

Considering the figures it contains “Hong Kong Is Land” is a visual amalgam. On the one side, there are almost traditional representations borrowed from the cartographic past. On the other side, the possible utopian/dystopian future of 2047 is mapped. Visually, even without going into details of each island, when the map panels come together; the design outcome is both retrospective and projective. Each island map is projective in itself, as explained by temporality, mobility, users, operations, scenarios, minorities, marginalities, etc.

The MAP Office’s work is multi-scalar projective mapping. In each island there is an urban design and/or architectural design proposal; and when they come together, they define a strategic/spatial plan for a geographical region. It is also an interdisciplinary one since the team was a diverse group of professionals: artists, architects, cartographers, and visual directors.

A Manual For Urban Surgery

-Author: Jeff Yu-Fu Huang (City in Transition: Beyond Old and New, March, Architectural Association School of Architecture, 2020)-

The author aimed to establish new connections in the fast-changing society; in the author's words: "lines for liberation". "A Manual for Urban Surgery" suggested continuous surgeries to be performed on the city to treat the existing pathological conditions. The procedures pulled forces towards the subcenters and introduced social spaces to utilize ignored urban spaces in the city.

According to the author's approach, to build more complex and diverse city, smaller operations are more effective rather than reconstructing the whole urban fabric. Thus, he defined a new idea of connectivity that there is no rigid division between users and programs; the space and its connections are blurred. To achieve that, the author defined five architectural surgeries (operations such as elevating, extending, and penetrating) to make modifications on the existing built urban space.

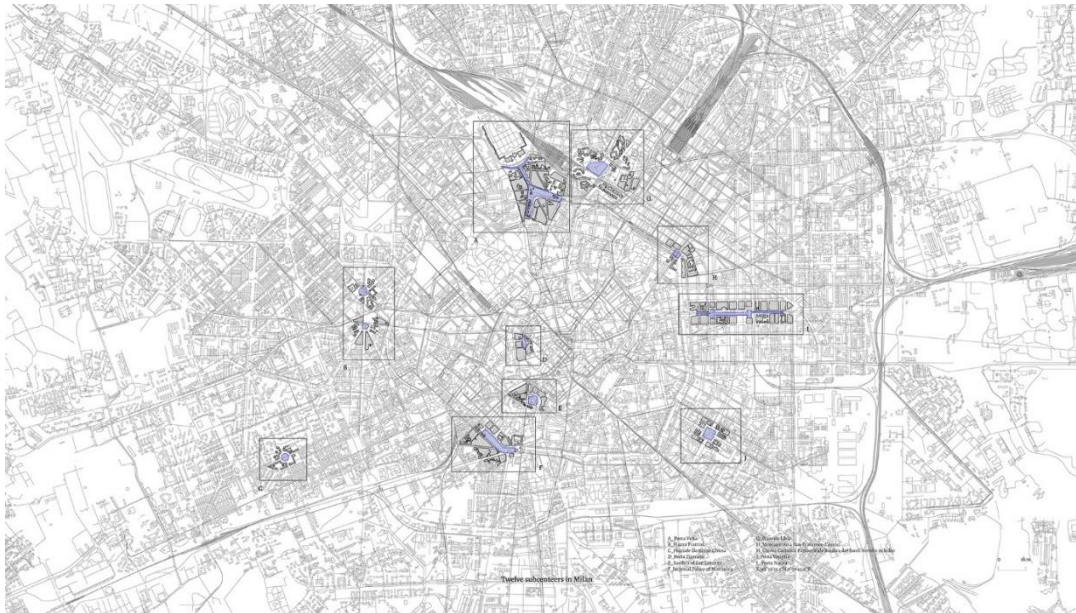


Figure 4.47. Subcenters of Milan, Jeff Yu-Fu Huang, 2020, (Source: URL 61).

Initially, the author presented twelve subcenters in Milan with similar spatial characteristics with a map. The subcenters on the map were under threat of inner infilling due to the expansions. Through this map, the author emphasized the radical expansions in the urban fabric of Milan.

In a layered axonometric diagram, the author illustrated the city resisting capitalist structures on the top; the capitalist-driven city on the bottom, and the proposed city in the middle.

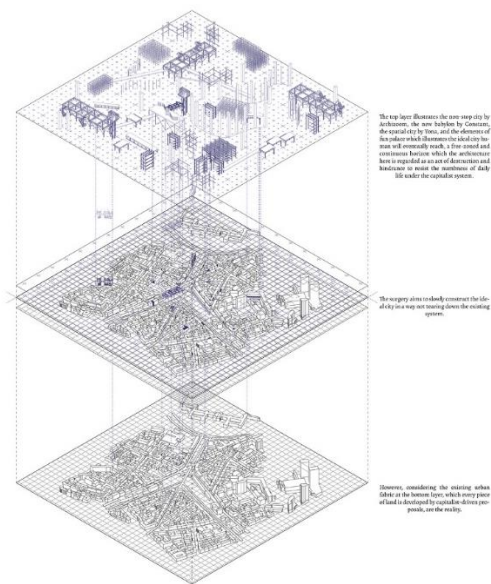


Figure 4.48. Proposed City, Jeff Yu-Fu Huang, 2020, (Source: URL 61).

Afterward, rather than master plans or site plans of twelve subcenters, the author proposes decentralized design actions by mapping them on one of the twelve subcenters in Milan. As the title of the project suggests, one of the final outcomes of the design process is a projective map of possible “operations, extensions, and agglomerations”.

The map does not have a temporal dimension, it does not refer to one spatial status-quo. It reflects the design idea: the surgery is an ongoing process and hubs scattered around the city can be slowly re-constructed, re-organized, and stimulated.

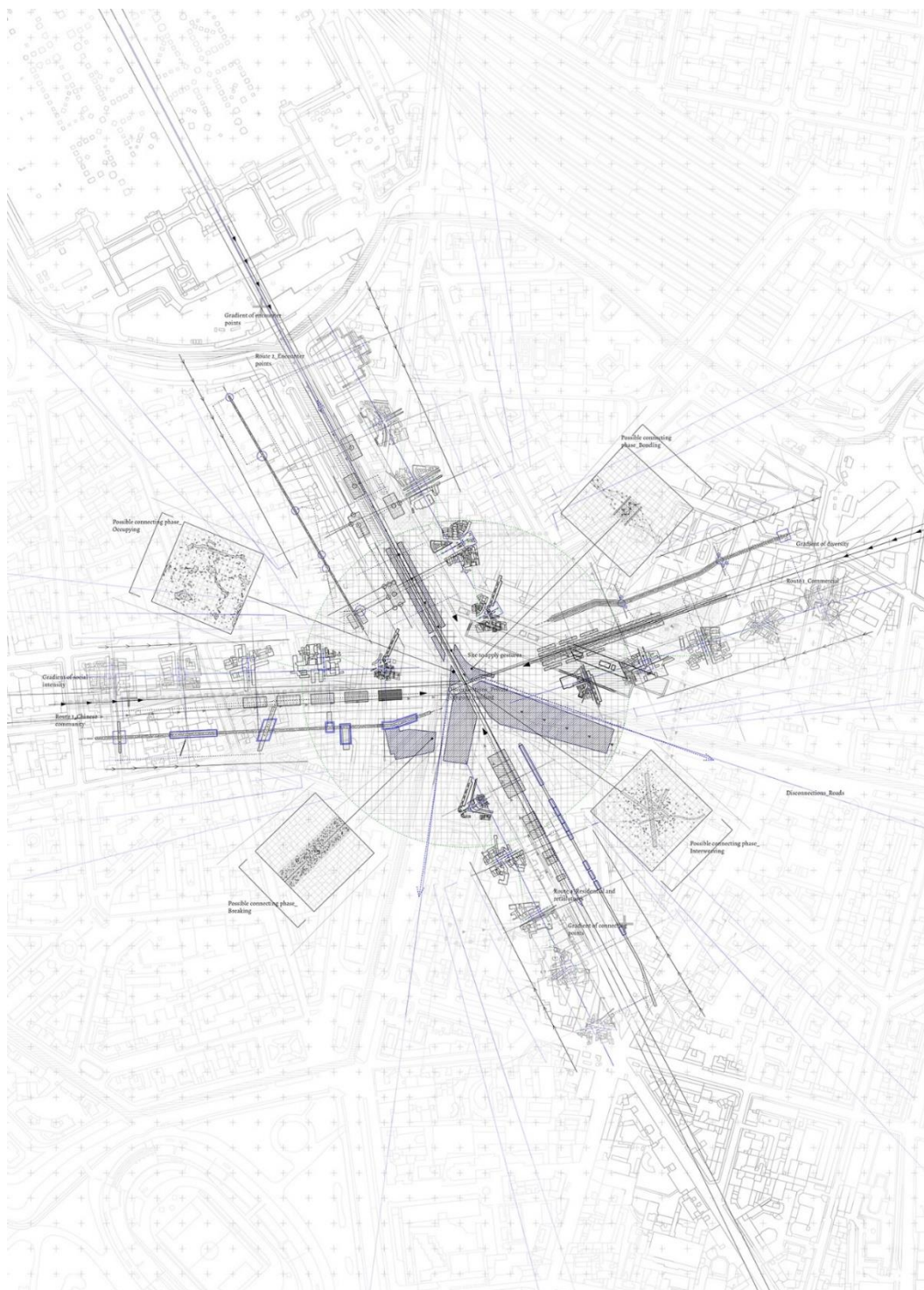


Figure 4.49. Projective Map of a Subcenter, Jeff Yu-Fu Huang, 2020, (Source: URL 61).

In the map, the author shows exemplary intensification points where heterogeneous desires collide. By mappings, he proposed a new typology that gradually merges and fuses with the urban spaces of Milan. To visualize the operations, the author also presented a set of three-dimensional models and diagrams representing one of the intensification points.

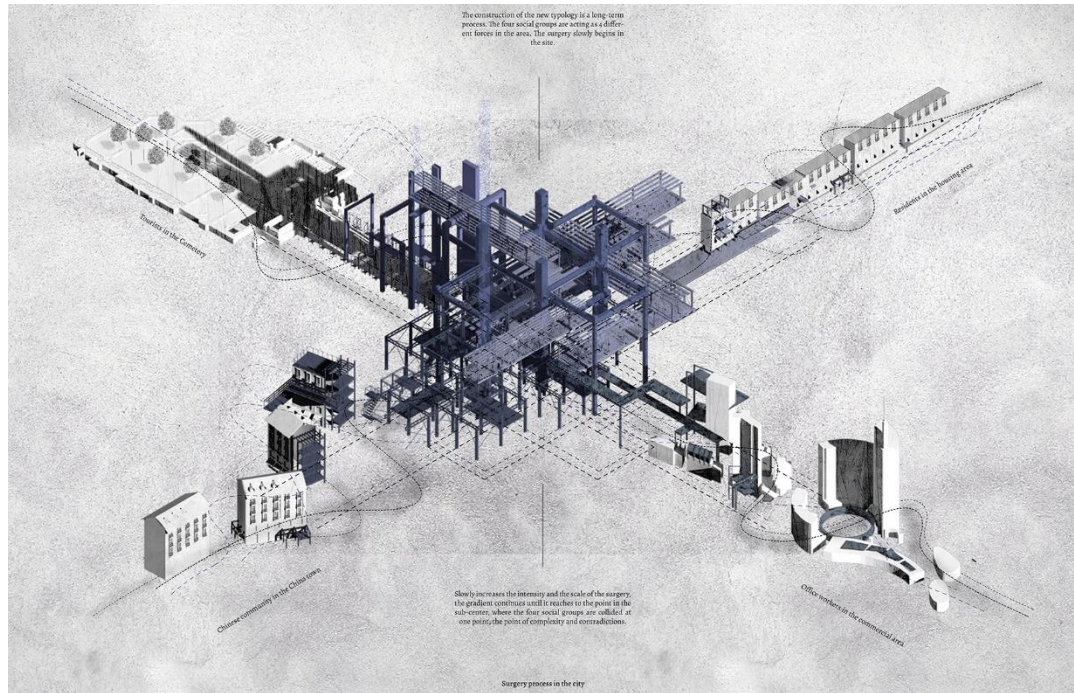


Figure 4.50. Diagrammatic Representation of a Subcenter, Jeff Yu-Fu Huang, 2020, (Source: URL 61).

From Redundancy to Renewal: Reclaiming a Cultural Identity

-Author: Yannick Scott (Candidate of RIBA President's Medal Bronze Award, BA of Architecture at University of Plymouth, 2014)-

The project site is the small town called Ivybridge in South Hams district on the south coast of Devon. The Erme River passing through the town has an intrinsic role in the development of the town, - from a 13th century bridge. The Erme River has been exploited for industrial production since the 16th century. The mills along the

river and the local industries provided industrial wealth to Ivybridge for many years. However, Stowford Paper Mill has been marginalized in recent years and has undergone a process of decommissioning. On the other hand, its infrastructure provided an opportunity to bring Ivybridge's redundant identity to the foreground.

The author's design strategy was to reclaim an identity pertinent to Ivybridge "through the implicit recognition of the cultural value of the everyday objects". Both locally and nationally, the author brought "domestic detritus from Ivybridge and its encompassing community" to the scene.



Figure 4.51. Ivybridge Overview, Yannick Scott , 2014, (Source: URL 62).

In the first step, the author drew attention to the historical development of the Ivybridge with figure-ground maps. In the second step, the author analyzed the site-specific aspects of the Ivybridge such as atmospheric conditions, materiality, and context. Then the author also searched for the components of the "master plan" with sketches that explore the agendas, concept of liminality, and the reciprocity of spatial territories.

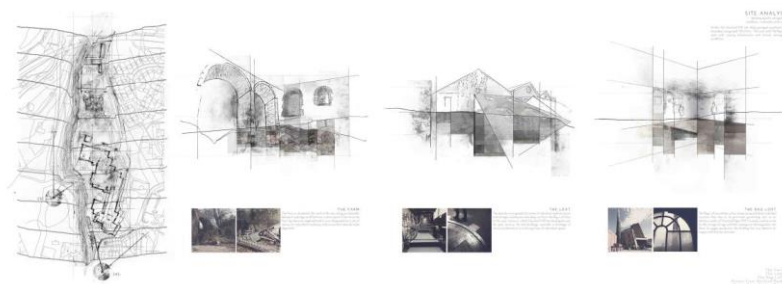


Figure 4.52. Site Analysis, Yannick Scott , 2014, (Source: URL 62).

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Even though, the author titled it a “master plan”, the final outcome of the design proposal in urban scale, is a map that depicts event territories, spatial sequences, and gestural formalizations. The author particularly showed the schematic floor plan of the mill on the map to define architectural intervention areas and their contextual relationships. The map is a narrative that depicts anything else that took place in the urban space or engages with urban space such as the activities, inhabitants, patterns, and relations. The map portrays the “cultural barometers” of Ivybridge in the author’s words; also with the local artisans; indeed the map specifies the location of craft activities, the spaces of living and working, educational facilities, and workshops. The map is neither a master plan nor a land use diagram, but it reveals the spatial relations, sceneries, and scenarios embedded in the urban space.

Digital Nomads (Go to Ibiza)

-Author: Austen Scott (MArch, RIBA Part II Graduate, Oxford Brookes University, 2015)-

According to the author, our relationship with technology has overthrown the “vernacular methodologies of architecture that do not recognize new ontological shifts”. Thus, the existing architectural forms and the urban spaces have failed to provide the necessary environment for the people of modern culture-the digital nomads. The design idea was inspired by the fact that “we are surrounded by the invisible, the non-physical, non-Euclidean fundamentals that allow us to live the lifestyles we create for ourselves”.

“Digital Nomads” is a project of exploration that dives into the new relationships we establish with ourselves and the spaces we inhabit. There are no longer architectural boundaries, “we emit them and we manipulate our spatial programs, we appropriate the places and we constantly re-define architectural agencies depending on what we need and when we need them”.

In the context of hedonism, the project focuses on the time, transitory events, and meaningful occurrences that create an environment for the architecture of the digital nomad in Ibiza-land of social and cultural anomaly, experimentalism, freedom of expression, and liberation.

The author initiates the design process by illustrating the architectural boundaries of a digital nomad. The overlapping relations are based on the devices the digital nomads encounter periodically. Altogether the five diagrams are indeed layered maps of relations we establish in the virtual world. Although they do not specify a particular location, they bring the experiences, challenges, and daily practices of digital nomads to the surface.

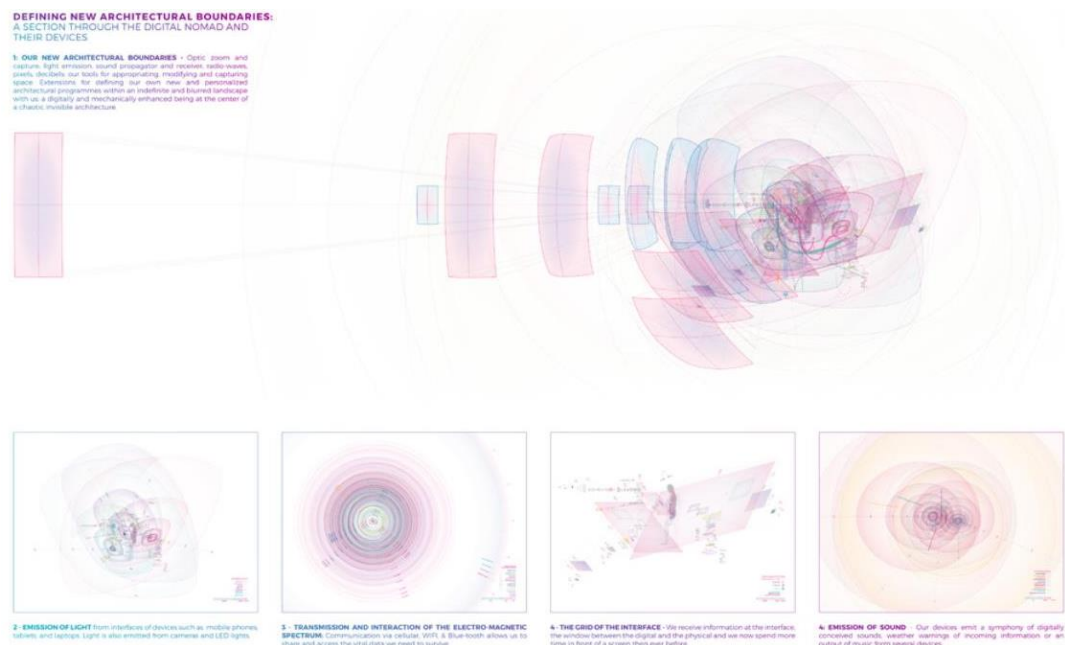


Figure 4.55. Defining New Architectural Boundaries, Austen Scott, 2015, (Source: URL 63).

Then the author maps particular layers of networks in Ibiza to prove that the whole island is a site that is composed of networks. The map highlights the heterogeneity of the overlapping networks, their spatial density, and their extends in the region.

The map shows that the networks are becoming more and more complex and intricate in the places where nightclubs are found.

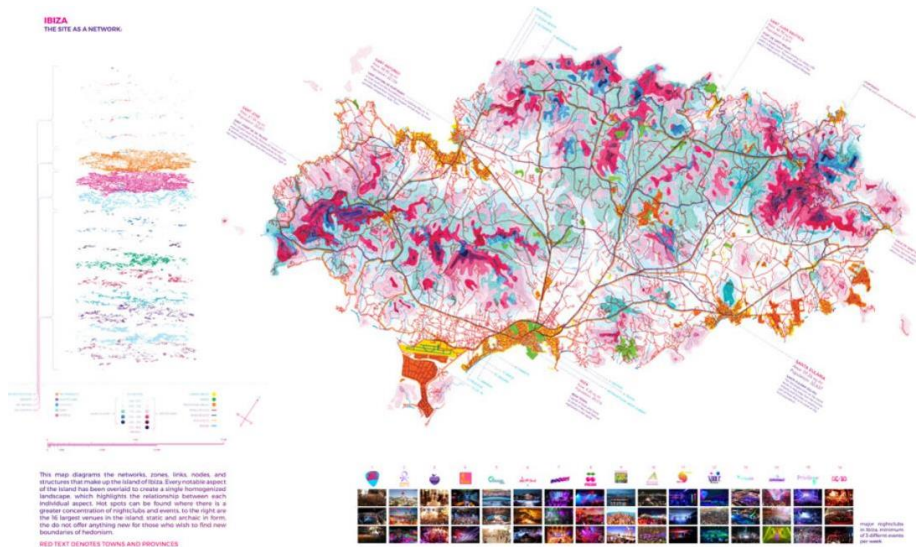


Figure 4.56. The Site as A Network, Austen Scott, 2015, (Source: URL 63).

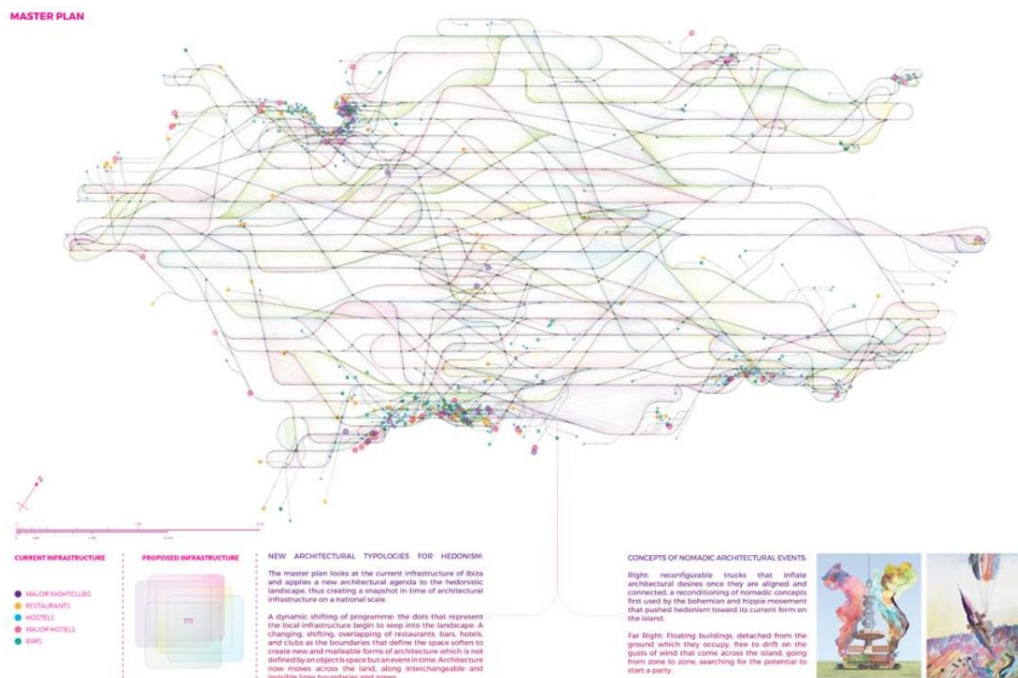


Figure 4.57. Master Plan for Ibiza, Austen Scott, 2015, (Source: URL 63).

The highlight of the project is “the master plan” that overlaps the existing network infrastructure and the proposed one together. Even though the author titled it as a “master plan”, it is indeed a rhizomatic network map that gives an insight into the dynamics of the digital nomads. The agglomeration points, the knots, the intersections, and the areas in between abstracted networks are just one alternative representation of the constantly changing networks. If a network expands, dissolves, or disappears due to the digital nomads who created it, the map reconfigures itself. In each reconfiguration a unique map comes to life, each one is open to alterations, and each one has its time and place; there is neither a beginning nor an end of these possibilities, that the map provokes us to imagine.

And finally, the author presents a section of the new architectural world. The section shows the altering space of digital nomads. The bubble-like areas are event spaces- or spaces of hedonism. But the section is a one time-scenery; with the fifteen fundamental aspects mentioned below the section, the author forces us to think about all possibilities – all sceneries that can come to life with a slight change. In other words, this section is another projective mapping that can be a base to imagine infinite relational possibilities that occur in the living space of the digital nomads.

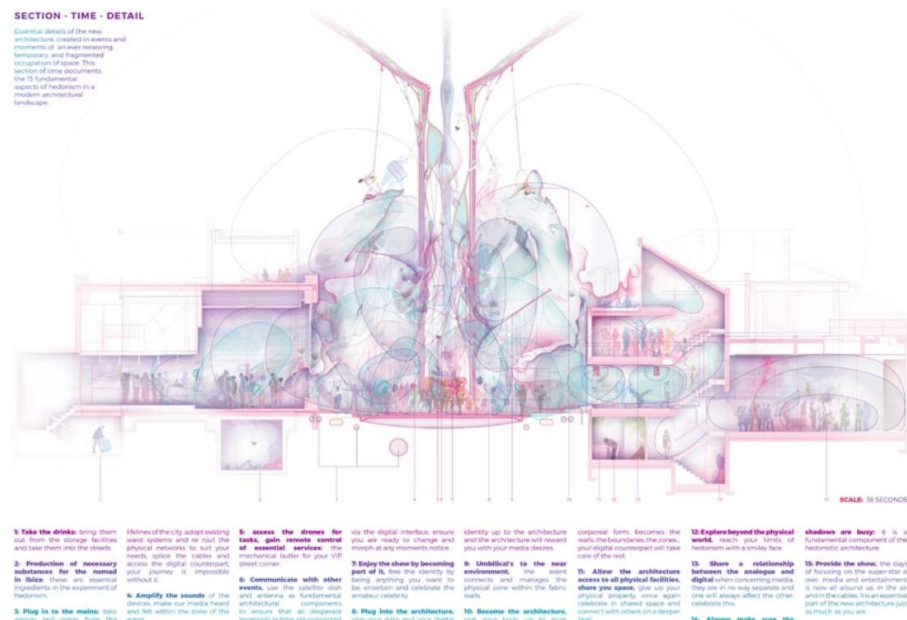


Figure 4.58. Section+Time+Detail, Austen Scott, 2015, (Source: URL 63).

Programming Physical Activity: Sporting Uses of Urban Spaces

-Author: Hoi Him Justin Chan (MArch, Chinese University of Hong Kong, 2015)-

According to the author, being active is one of the most persistent recreational pursuits of humans. However, contemporary urban developments have regarded the diversity behind the term “activity” and proposed “mainstream fields and facilities for sports that do not necessarily reflect the activity patterns of urbanities”. Indeed, as individuals, we tend to be more active in our daily spaces and surroundings where we practice our spatial knowledge. Following that, the author conducts research on the concepts in relation to sports. Throughout the design process, the author reinterprets sports as physical expressions in many forms. Thus, the final proposal aims to speculate on the new and diverse urban typologies that are less defined and more flexible to adapt to the “activeness of the city”; in terms of sports, social interactions, and cultural exchange.

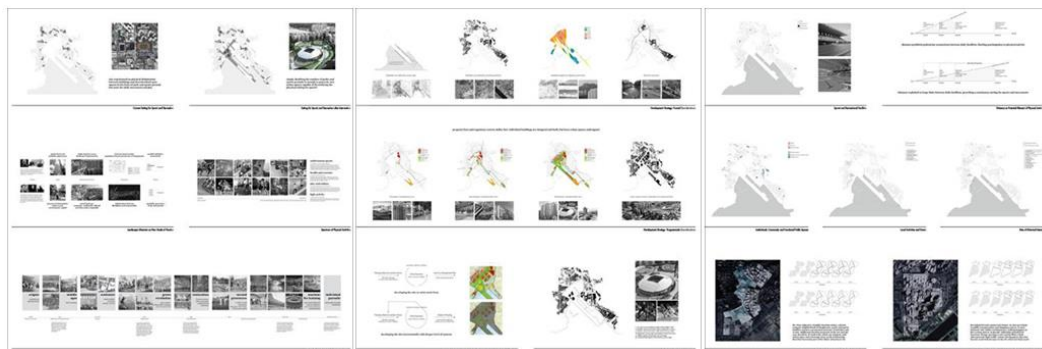


Figure 4.59. Defining the Problem (left) + Kai Tak Development (middle) + Interfacing Districts (right), Hoi Him Justin Chan, 2015, (Source: URL 64).

Firstly, the author defines the problem with a number of maps showing exemplary cases and sports facilities. Then, focuses on the site (Kai Tak Development) and analyzes the morphology, movement patterns, and land uses in the vicinity of the site. The layered maps of this phase of design are conventional maps instrumentalized in the urban design practices, yet they are efficient in terms of defining deficiencies of Kai Tak Development. Finally, the author presents

interfacing districts and emphasizes the relations between different activities held in urban space and lived space. Remarkably in these maps, the geographically distant regions are coming together by the linkages established between daily practices.

As the design proposal, the author presents three maps. The first one is the “programmatically distribution in relation to the existing urban program in different time scales”. The second one focuses on the “large scale sporting events and cruise traffic as the driver or urban regeneration”. The final map has both temporal and dimensional aspects that explain “how time establishes linkages between physical activity and the urban life”. These complimentary maps are projective and operative in terms of defining activities in urban scale at different times. They contain multiple layers of activities and their reflections on the urban space – similar to the layering technique discussed by Corner. Their graphic language concretizes the invisible patterns of relations in the site and the abstract features of the design proposal such as social cohesion.

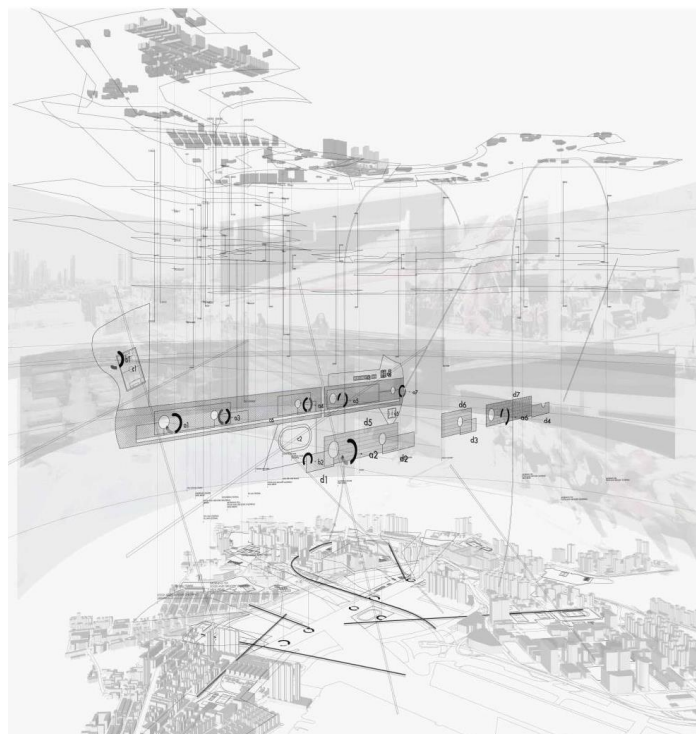


Figure 4.60. Reclaiming Vacant Land, Hoi Him Justin Chan, 2015, (Source: URL 64).

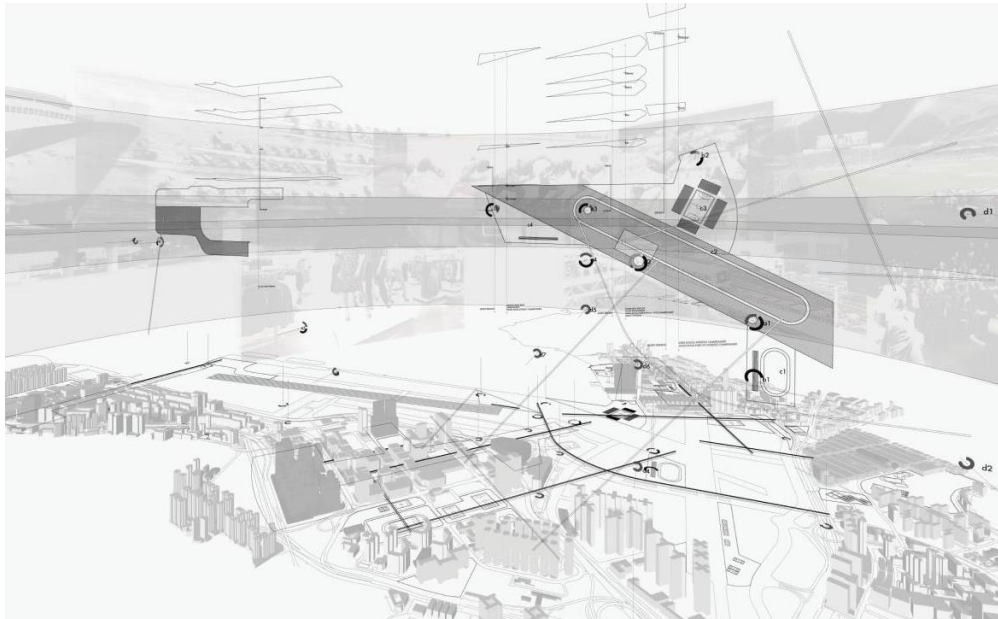


Figure 4.61. Retrofitting New Value into Existing Fabric, Hoi Him Justin Chan, 2015, (Source: URL 64).

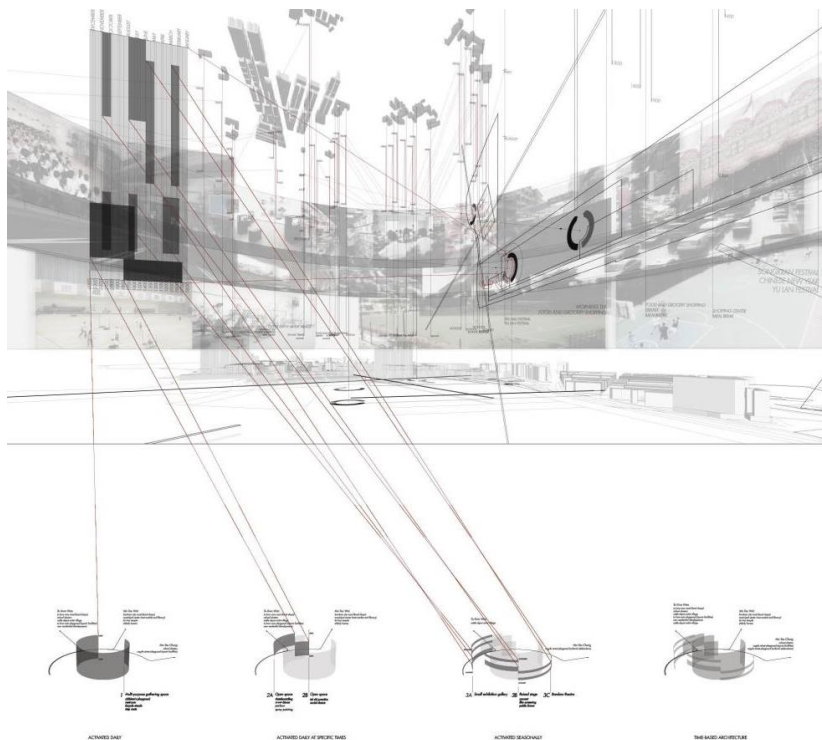


Figure 4.62. Exploration of the Time-Based Transformational Potential of Urban Spaces, Hoi Him Justin Chan, 2015, (Source: URL 64).

Betwixt & Between

-Authors: Aybüke Tufan (Master of Urban Design), Büşra Sönmez (Master of Urban Design, Ömer Faruk Ağırsoy (M.Arch) (Master of Urban Design | Industrial Urbanism Studio at Middle East Technical University, 2019)-

The master-level design studio “Industrial Urbanism” conducted in the first semester of the Master of Urban Design program at Middle East Technical University, aims to “develop strategic perspectives for the future transformation of the industrial districts in relation to the city in the very urbanistic context of Turkey.”. In the design studio, two major industrial sites in Ankara are selected to be worked on by master-level architecture and urban design students who collaborate from the beginning to the end of the semester.

As one of the semester outcomes, “Betwixt & Between” focuses on an industrial zone OSTİM which has located at the very center of Ankara. Betwixt & Between aims to discuss the “spatial and programmatic transformation of an industrial zone within the city in a world where Ankara’s industry is completely digitalized” and discover the “reflections of such transformation in the production of space and in the common open spaces”.

The authors of Betwixt & Between have conducted a “design by research” process that focuses on the alternative integration models between industry and the city in the case of OSTİM. As the initial step, the authors analyzed and synthesized the image of the industry in terms of socio-spatial dynamics, production scenes, sensescape, users, etc. To do so, the authors provided a set of collages that can be interpreted as mental or cognitive maps that draws attention to the dichotomies of existing and proposed spatial dynamics at OSTİM. In these collages, besides the spatial configurations, the authors mapped the objectives, keywords, and actors that contribute to the production-scape of the industry. The collage maps in Betwixt & Between remarkably differ from conventional analysis (survey) maps on urban scale in terms of mapping and visualization techniques, since they are created by a series of amalgams with multiple inputs.



Figure 4.63. Analysis and Synthesis Collages, Aybüke Tufan & Büşra Sönmez & Ömer Faruk Ağırsoy, 2019.

In the next step, the authors found the basis of their intervention areas according to the position, character, and typology of the vacant, left-over, unbuilt, etc. areas. After mapping each on one layer, the authors juxtaposed three maps and according to the overlapping areas, they generated an abstract typology matrix.



Figure 4.64. Mapping Position & Character and Typology, Aybüke Tufan & Büşra Sönmez & Ömer Faruk Ağırsoy, 2019.

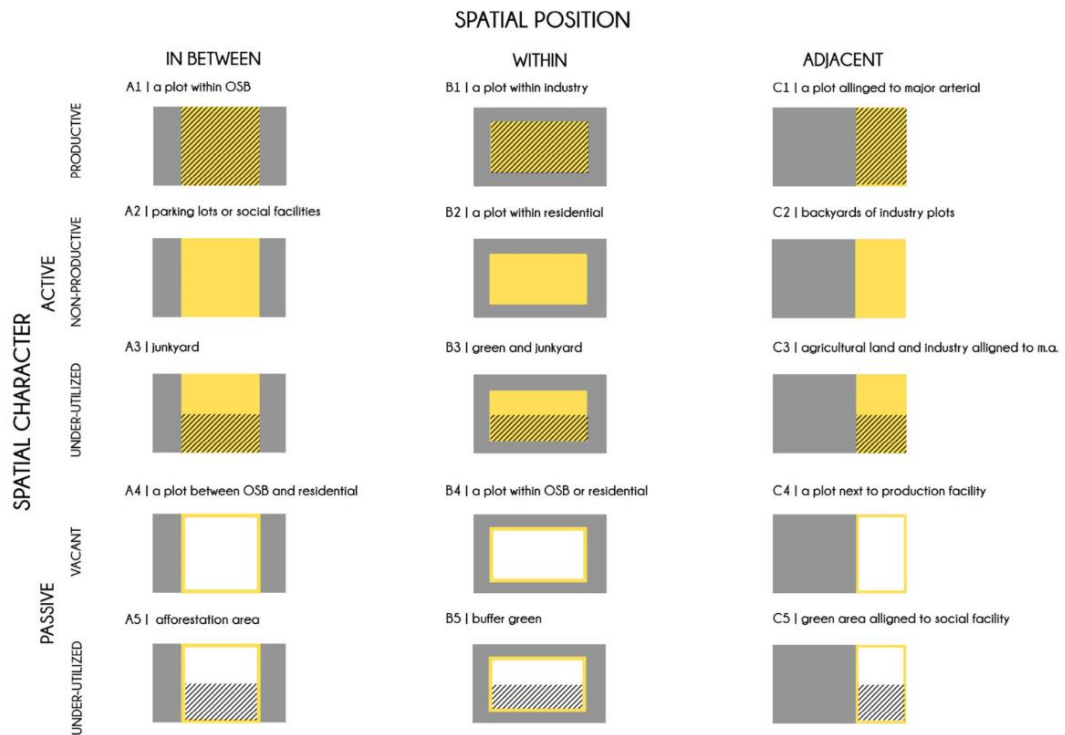


Figure 4.64. Typology Matrix, Aybüke Tufan & Büşra Sönmez & Ömer Faruk Ağırsoy, 2019.

In the third step, the authors defined the design operations which can be utilized one by one or can be combined according to the peculiarities of the intervention sites. The graphic language of these operations found the basis of the design output. The design output is a prototype of possible intervention areas and design operations, it is a mapping work, and it is not a single static master plan.

As the ideology of the project, its approach, and its scenario offer a flexible and adaptable model for majorly digitalized future of industrial production; a master plan does not have the capacity to represent every possible scene. Yet by mapping the design operations, the authors defined a design guideline of the modular solutions for multiple sequences of possible scenes to come.

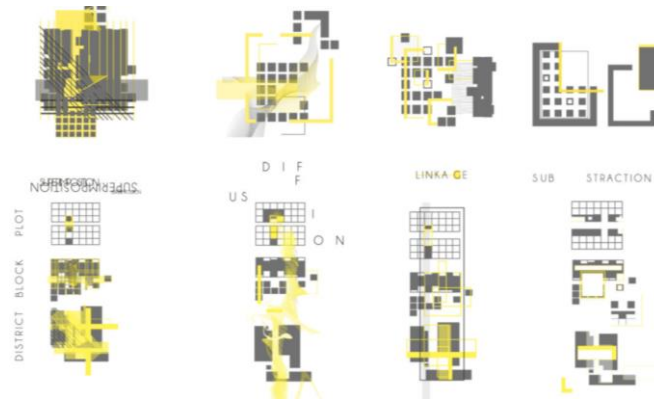


Figure 4.65. Design Operations, AybÜke Tufan & BÜşra Sönmez & Ömer Faruk Ağırsoy, 2019.



Figure 4.66. Mapping Operations, AybÜke Tufan & BÜşra Sönmez & Ömer Faruk Ağırsoy, 2019.

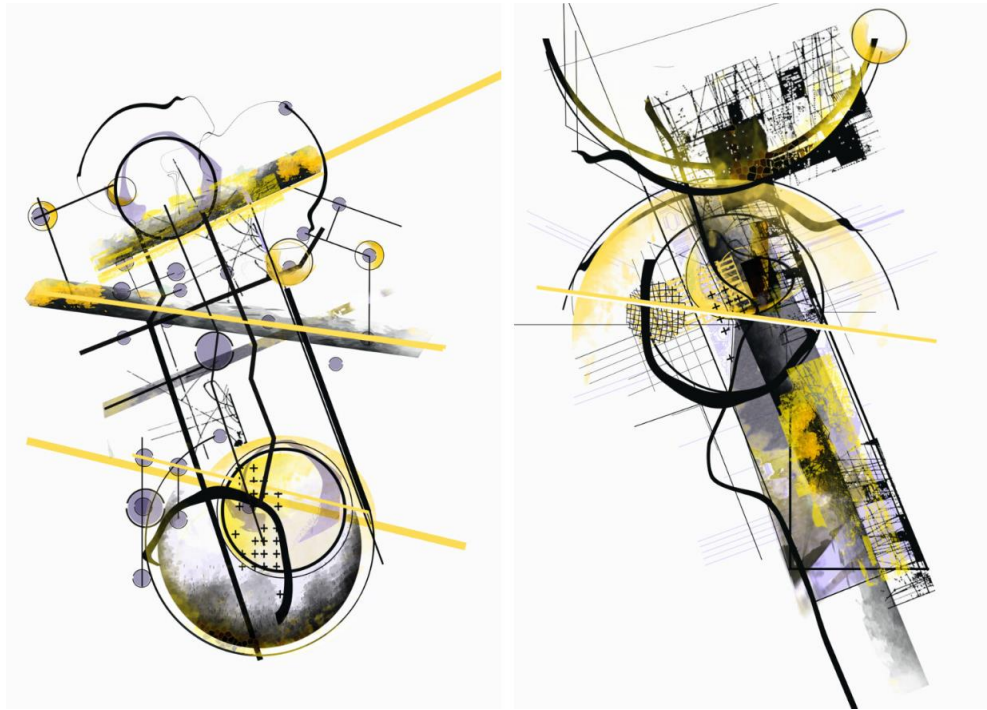


Figure 4.66. Mapping Connections, Aybüke Tufan & Büşra Sönmez & Ömer Faruk Ağırsoy, 2019.



Figure 4.67. Physical Model of Betwixt & Between, Aybüke Tufan & Büşra Sönmez & Ömer Faruk Ağırsoy, 2019.

In addition to the design operation mapping, the authors also benefitted from abstract maps that share the same visual language with design operations. Through a series of such maps, the authors explored the possible spatial configurations which are emerged from the connections between intervention areas. Moreover, a physical model that represents the hybridity of the design scenario with generative forms and connections is presented by the authors to emphasize the multiplicity, adaptability, and ever-changing nature of the future industry.

CHAPTER 5

CONCLUSION

For centuries, the hand-in-hand relationship between maps and urbanism was limited to the representative aspects of mapping to read the visible elements of geographies, regions, cities, and built environments. However, with the post-representative, post-structuralist and postmodern theories on maps and mapping, a diverse range of map definitions and mapping techniques have emerged. Remarkable paradigm shifts of the past few decades have broadened the scope of mapping practices in urbanism, architecture, and landscape architecture. As a result, as the map itself, today the practice of mapping in urbanism has been deconstructed and reconstructed; the attention given to mapping while comprehending, planning, and designing cities strikingly increased. Thus, maps and mapping have exceeded their mainstream identities as representational and quantitative survey tools.

Contemporary urbanism and architecture practices have started to instrumentalize mapping as a process and mapping practices have been placed right at the intersection of transdisciplinary interpretation, conceptualization, and design of space. In that sense, for designers and planners; mapping has become a performative act that provokes, tests, unfolds, and consequently develops planning and design outcomes.

With respect to that, the thesis study provides a framework to comprehend instrumental, operative, and projective aspects of mapping in urban planning and design processes from the first step to the last and investigates the role of mapping in urban design thinking. Moreover, the thesis study which aims to explore the dynamics between mapping and design thinking also mentions different types of creative mapping techniques that structure the design process, spatial analysis and its relation to design, and the influence of mapped phenomena on design output.

Rather than evaluating how overall urbanism practices benefit from maps and mapping, the research elaborates on the experimental approaches and practices that employ mapping throughout the design process. Thus, the core of research focuses on the possible instrumentalization of maps and mapping in relation to design.

To explore the role of maps and mapping practices in urban design thinking in terms of design outputs, the study is structured around the literature review and the critical review of the selected design projects. The projects are purposely chosen from experimental design schools or studies. By making use of several cutting-edge projects, the study points out the relationship between mapping and design. The maps and acts of mappings discussed in the thesis study, are positioned in multi-scaled planning and design processes mainly. Moreover, among a vast number of projects, the ones that build bridges between different professions such as regional/urban planning, urban design, landscape planning/design, architecture, and even graphic design are selected to be reviewed.

By focusing on the instrumentalization of mappings in the selected projects, the research discovers the productive and provocative merits of maps and mapping acts that shape the design and production of urban space. Thus, the research reveals how mapping practices structures end results (design by mapping) and how the end results become mappings by themselves (design as mapping).

5.1 Research Findings

Table 5.1. Selected Projects (Design by Mapping)

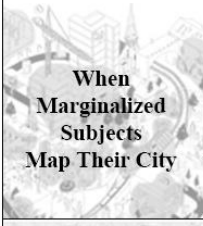




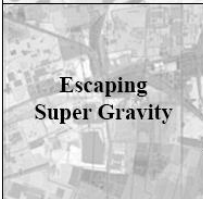

DESIGN BY MAPPING				
PROJECT	DISCIPLINE and LEVEL	MAPPED PHENOMENA	INVOLVEMENT STAGE	CONTRIBUTION TO DESIGN PROCESS OUTPUT
 When Marginalized Subjects Map Their City	Human Geography + Social Geography	emotions + perception + everyday spaces	analysis + synthesis	critical approach to conventional planning practices + transparent decision-making process + inclusive design solutions
	Professional			
 Between Void	Urban Design	distribution + population + settlements	analysis + strategic development	top-down design process + providing basis for design operations
	M.Arch	social media posts		
 Inter-Pelagos	Urban Design	quantitative data + accessibility + movement	analysis + synthesis + design proposal	framing design process + legitimization of design ideas
	M.Arch	networks		
 Behind The Scene	Architecture	land use + visual elements	analysis	inclusive and performative design proposal
	B.Arch	population + users		
 Win-Win & In It Together	Urban Planning + Architecture	strategies + conflicts	decision-making + strategic development	transparent decision-making process + assessing possible planning scenarios and design solutions (experimental approach)
	B.Arch+M.Arch + Public Particip.	public interest		
 Escaping Super Gravity	Architecture	time + exchange + control	analysis + design proposal	defining architectural operations + contextualization of design problem and design proposal
	M.Arch	relations		
 Milanesenses	Architecture + Urban Design + Landscape Arch.	spatial perception + design strategies	analysis + strategic development	defining design strategies + holistic and multi-scalar design proposal
	Professional			

Table 5.2. Selected Projects (Design as Mapping)


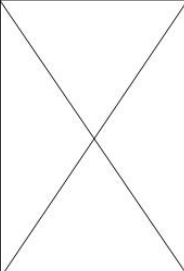
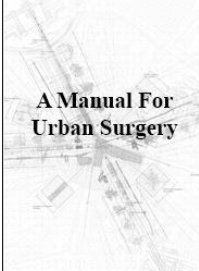
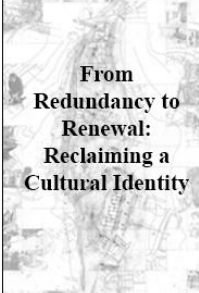
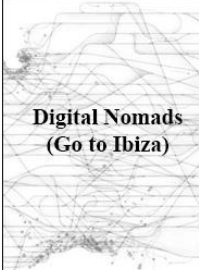
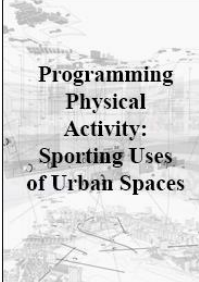

DESIGN AS MAPPING					
PROJECT	DISCIPLINE and LEVEL	INVOLVEMENT STAGE	MAPPED PHENOMENA		ADDITIONAL MATERIAL
			DESIGN PROCESS	DESIGN OUTPUT	
 Hong Kong Is Land	Art + Architecture + Cartography	design output		spatial relations + architectural form + movement patterns + activities + users of space	audio-visuals
	Professional				
 A Manual For Urban Surgery	Architecture	analysis (survey) + design approach + design output	design problems on urban scale + existing and proposed spatial configurations	design operations + possible intervention sites + programmatic relations	3d model + architectural diagrams + elevations + sections + collage
	M.Arch				
 From Redundancy to Renewal: Reclaiming a Cultural Identity	Architecture	analysis (survey) + design output	location and context + urban development (figure-ground) + atmospheric conditions	design concept + event territories + spatial sequence + gestural formalizations	architectural and programmatic diagrams + visualizations about activities + floor plans and sections
	B.Arch				
 Digital Nomads (Go to Ibiza)	Architecture	analysis (survey) + problem definition + synthesis + design output	context + content and extensions + networks + architectural boundaries	existing and proposed infrastructure + concepts + functions and programmatic approach	parametric architectural visualizations + sections and elevations + site plan + structural details
	M.Arch				
 Programming Physical Activity: Sporting Uses of Urban Spaces	Architecture	analysis (survey) + problem definition + design output	morphology (figure-ground) + movements + networks + spatial configurations	programmatic distribution + temporal changes in space + events and movement + spatial linkages	3d visualizations + sections and elevations + physical models
	M.Arch				

Table 5.2. (Continued)

	Urban Design + Architecture	analysis (survey) + synthesis + design output + physical model	connotations + position + character + typology	intervention areas + design operations	abstract diagrams + 3d visualizations + collage + physical models
	M.UD M.Arch				

Throughout the research process, the number of “design by mapping” cases encountered is remarkably higher than the number of “design as mapping” cases. Moreover, besides being more common, “design by mapping” cases are more diverse in terms of the mapped phenomena, scale, involved discipline, source of data, visualization technique, and mapping technique.

As it is indicated in Table 5.1., the authors of “design by mapping” cases are mostly urbanists. This research output might draw attention to the fact that contemporary urbanists still instrumentalize maps and mapping practices as survey tools during the analysis stage of the design process. A critical change in the mapped phenomena can be observed in contemporary urban design practices; the subjects of maps are thought provocative and projective. However, when their contribution to design outcomes and the instrumentalization phase is considered; the motivation behind mapping practices has similarities with the conventional urbanism practices.

The striking impact of digitalization on design practices in urbanism and architecture emerges new dichotomies in terms of maps and mapping practices in relation to design thinking. In terms of instrumentalization, on one end; the digitalization of mapping tools, CAD-based maps, and parametric maps allow designers to elaborate on infinite possibilities of mappings, models, plans, and visualizations. However, on the other hand in such cases, maps are mostly visualized raw data that is processed and correlated on digital mediums. The provoking and imagination-triggering aspects of mapping practices get lost in these digital mediums because such tools

operate to optimize the design based on the data inputs. Also, some cutting-edge trends in urban design practices eliminate the role of maps in design thinking and the design process.

In conventional urban design practices of previous decades, also in architecture and landscape design, the design output is usually a site plan, a master plan, or a three-dimensional model of the design proposal accompanied by layered “maps” or diagrams without a projective nature. This tendency can be observed in most of the contemporary urbanism practices as well, with respect to that it might be expressed that; the strong impact and legacy of site plans and master plans on urbanism practices are still on the scene; or it is the urbanists to be blamed for not leaving their comfort zones. In contrast to such conventional tendencies and urbanists, there are also the ones who define and redefine maps, instrumentalize the enabling nature of mappings and test their design proposals with maps.

As it is indicated in Table 5.2. the authors of “design as mapping” cases reviewed in the thesis study are mostly architects, not urbanists. In addition to that, most authors titled their mappings “site plan” or “master plan”; which forces us to think “Why do they consider the design outcomes as master plans but not mappings?”. At that point, it should be questioned whether the act of mapping is conscious or not.

Especially when we focus on the involvement of parametric design, coding, AI, machine learning, etc.; another point draws attention: the design outcomes produced or visualized by using such tools are quite dynamic. They are either an infinite number of three-dimensional models or animations, and site plans or master plans cannot portray the dynamic and interactive aspects of these design outcomes. Thus, perhaps we should elaborate on the following question: “Do the designers benefit from mappings just to represent the interactive and constantly evolving aspects of their design proposals?”.

Moreover, in the reviewed cases of “design as mapping” a common tendency comes forward; the authors (architects) of these cases benefit from maps and mappings to

contextualize their architectural design approach on the urban scale or for site specification.

Remarkably in the “design as mapping” cases – as it is observed in the conventional urbanism practices which finalize the design process with a master plan and other material following it- additional material such as 3D models, collages, sections, elevations, architectural diagrams, etc. accompany the design outputs. At this point, it might be claimed that mapping by itself as one single design output is insufficient.

Besides their merits and contributions in urban design thinking; maps and mapping practices and their impact on design output should be further questioned objectively. The adaptable, flexible, multiplying, and unfolding nature and characteristics of mapping have the power to structure the design outcomes; however, maps and mappings should not be considered as ultimate goals or the most vital instruments to be employed by designers. Even though the “unclear and ever-changing” aspects of maps provide flexibility up to a point; they might be lacking directive aspects for design outputs, especially considering the intricate and complex nature of the cities. Their representative and projective characteristics can be limited as well. Perhaps, on paper (as in the case of New Babylon by Nieuwenhuys) they are effective to imagine and explore possible scenarios; yet when it comes to realizing the design thoughts on paper in practice; they are not fully adequate or supplementary by themselves.

5.2 Limitations of the Study

The main limitation is the two categorizations the research pointed out: “design by mapping” and “design as mapping”. Further research on the instrumentalization of the projective and operative nature of maps and mapping in urban design thinking can be conducted by adding new categories or subcategories to these ones.

Also, based on thirteen cases the research only draws a rough and blurry framework that examines the relationship between map and design. Indeed, throughout the research, a diverse range of mappings employed in the design processes have been found. However, since there was no information about the context, background of the designer, the study area or the approach; such mappings are not reviewed in the thesis study.

The reviewed cases are mostly works of graduate students and professionals; which means the research does not provide any insight into undergraduate studies or Ph.D. studies.

5.3 Suggestions and Further Studies

In many universities or in research groups, a diverse range of mapping practices and research are being conducted. Unfortunately, in most cases the outcome is just the maps/mappings; there is no aim or no motive leading to design practices. If such cases would focus on the projective and enabling nature of maps, they have the potential to contribute to the theory and practice of mapping in urban design thinking. Another point is that a lot of universities offer seminars and lectures on data visualization, GIS, the history of cartography, maps, the theory of mapping, etc.; but their relation to the design studios in terms of provoking design thinking is lacking. Such cases should provide input for researchers, professionals, and students in the practice of design.

The design studios should have a free framework in terms of the deliverables. The rigid rules of research/design processes and design outputs force students to provide what is expected rather than being experimental and thinking outside the box. The same situation is also observed in the competitions. In architectural competitions, mapping is just a tool for legitimization and contextualization of architectural design solutions; in urban design or landscape competitions, the outcome is usually a site plan or a master plan. For creative outcomes, competitions should broaden the

understanding of the design process and outcomes, and also provide a space for mapping practices rather than considering them perfunctory means.

Also, perhaps the most crucial action would be involving mapping practices into the first-year studios. By doing so, students might be encouraged to explore the invisible aspects of the urban space, the hidden agendas, the marginalities, the outcasts, etc.; because as the primarily introduced representations, master plans limit their design thoughts. As a result; throughout their education and professional life, they tend to design the scenarios, relations, dynamics, and socio-cultural narratives of the urban space first, and then they flatten/reduce every imagined aspect of the urban space into a surface of a master plan that only makes sense with conceptual diagrams and drawings accompanying it.

As the discipline range widens, we see that the maps and mappings vary in terms of their subject matter, scale, visualization techniques and etc. In short, the maps become an exploratory common ground for people with different backgrounds. Thus, the involvement of different professionals in urban design practices might be a strategic step to structure design outcomes.

REFERENCES

- Aalbers, M. B. (2015). Do Maps Make Geography? Part 2: Post-Katrina New Orleans, Post-Foreclosure Cleveland and Neoliberal Urbanism. *ACME: An International Journal for Critical Geographies*, 13(4), 558.
- Acar, Y. (2019). Bilginin Haritalanması: Bilgi, İlişkilendirme ve Temsil. Dosya 42: İlişkisel Bir Eylem Olarak Haritalama, 19–25.
- Alanyalı Aral, E. (2016). Mapping – A Tool for Visualising “Lived Space” in Architecture. In Z. Onur, E. Tarasti, İ. Sığircı, & P. N. Dökmeci Yörükoğlu (Eds.), *Is it Real? Structuring Reality by Means of Signs* (pp. 233–243). Cambridge Scholars Publishing.
- Alanyalı Aral, E. (2019). Giriş. Dosya 42: İlişkisel Bir Eylem Olarak Haritalama.
- Andrews, J. (1996). What Was a Map? The Lexicographers Reply. *Cartographica: The International Journal for Geographic Information and Geovisualization*, 33(4), 1–12. <https://doi.org/10.3138/NJ8V-8514-871T-221K>
- Arch2o. (n.d.). Venice Biennale 2012: Gateway | Foster and Partners. Retrieved August 20, 2022, from <https://www.arch2o.com/venice-biennale-2012-gateway-foster-partners/>
- Awan, N. (2016). *Diasporic Agencies: Mapping the City Otherwise*. Routledge.
- Bambó, R., & García, M. (2018). Mapping Urbanism, Urban Mapping. In *Urban Visions* (pp. 237–246). Springer International Publishing. https://doi.org/10.1007/978-3-319-59047-9_23

- Baratto, R. (2019, July 7). A Series of Maps Reveals the Difference in How Cities are Perceived by Tourists and Locals. <https://www.archdaily.com/920002/a-series-of-maps-reveals-the-difference-in-how-cities-are-perceived-by-tourists-and-locals>
- Baykan, D. A. (2019). Haritayı Altüst Etmek. Dosya 42: İlişkisel Bir Eylem Olarak Haritalama, 27–37.
- Boeing, G. (2019). Spatial Information and the Legibility of Urban Form: Big Data in Urban Morphology. *International Journal of Information Management*, 56, 1. <https://doi.org/10.1016/j.ijinfomgt.2019.09.009>
- Bruyns, G. (2012). Mapping, Tracing & Reading. In A. Graafland (Ed.), *Architecture, Technology & Design* (pp. 34–47). Digital Studio for Research in Design, Visualization and Communication.
- Cambridge Dictionary. (2022). Map. <https://dictionary.cambridge.org/dictionary/english/map>
- Casey, E. S. (2004). Mapping the Earth in Works of Art. In B. Foltz & R. Frodeman (Eds.), *Rethinking Nature: Essays in Environmental Philosophy* (pp. 260–269). Indiana University Press.
- Caquard, S., & Cartwright, W. (2014). Narrative Cartography: From Mapping Stories to the Narrative of Maps and Mapping. *The Cartographic Journal*, 51(2), 101–106. <https://doi.org/10.1179/0008704114Z.0000000000130>
- Colouring Cities Research Programme (CCRP). (2018, August 22). Colouring London. <https://www.ucl.ac.uk/bartlett/casa/research-projects/2020/nov/colouring-london>
- Corner, J. (1999). The Agency of Mapping: Speculation, Critique and Invention. In D. Cosgrove (Ed.), *Mappings* (pp. 213–252). Reaktion Books.

- Cosgrove, D. (2005). Maps, Mapping, Modernity: Art and Cartography in the Twentieth Century. *Imago Mundi*, 57, 35–54.
- Crampton, J. W. (2001). Maps as social constructions: power, communication and visualization. *Progress in Human Geography*, 25(2), 235–252. <https://doi.org/10.1191/030913201678580494>
- Daniilidis, A. (2016). Urban Drifting: An Approach to City Comprehension and Mapping. *Sociology Study*, 6(7), 417-438–5.
- Delano Smith, C. (1991). Imagining the World. *The UNESCO Courier: Maps and Map-Makers*, 16–19.
- Deleuze, G., & Guattari, F. (1987). Introduction: Rhizome. In *A Thousand Plateaus: Capitalism and Schizophrenia* (pp. 3–25). University of Minnesota Press.
- Diaconu, M. (2010). Mapping Urban Smellscapes. *Sense and the City*, 223–238.
- Dodge, M., Perkins, C., & Kitchin, R. (2009). Mapping Modes, Methods and Moments: A Manifesto for Map Studies. In M. Dodge, C. Perkins, & R. Kitchin (Eds.), *Rethinking maps : new frontiers in cartographic theory* (pp. 311–341). Routledge.
- Dovey, K., Ristic, M., & Pafka, E. (2018). Mapping as Spatial Knowledge. In K. Dovey, M. Ristic, & E. Pafka (Eds.), *Mapping Urbanities: Morphologies, Flows, Possibilities* (pp. 1–16). Routledge.
- Edney, M. H. (1996). Theory and the History of Cartography. *Imago Mundi*, 48, 185–191.
- Florian, M.-C. (2022, July 27). Sensory Maps: What the Sense of Smell Can Reveal about Urban Environments. <https://www.archdaily.com/985983/sensory-maps-what-the-sense-of-smell-can-reveal-about-urban-environments>

Forensic Architecture. (2022). <https://forensic-architecture.org/>

Germes, M., & Klaus, L. (2021). When marginalized subjects map their city: Counter-mapping experiments with drug users in some German and French neighborhoods. *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique*, 152(1), 96–124. <https://doi.org/10.1177/07591063211040234>

Graafland, A. (2010). Understanding The Socius Through Creative Mapping Techniques (A. Graafland, Ed.). Delft School of Design (DSD) Delft University of Technology.

Graafland, A. (2012). Mapping, Sequal. In A. Graafland (Ed.), *Architecture, Technology & Design* (pp. 86–91). Digital Studio for Research in Design, Visualization and Communication.

Graves, C. P. (2021, April 15). Mapping Abstract Concepts for Urban Design. <https://lookingatcities.info/2021/04/15/mapping-abstract-concepts-for-urban-design-a-lecture-presented-to-htwg-konstanz-university-of-applied-science-faculty-of-architecture-and-design-constance-germany/>

Grelot, J.-P. (1991). The Perspective from Space. *The UNESCO Courier: Maps and Map-Makers*, 35–38.

Güleç, G. (2021). Maps as the Tools of Representation and Design in Architecture. *GRID - Architecture, Planning and Design Journal*, 4(1), 53–73. <https://doi.org/10.37246/grid.796513>

Hall, S. S. (2003). I, Mercator. In K. Harmon (Ed.), *You Are Here: Personal Geographies and Other Maps of the Imagination* (pp. 15–19). Princeton Architectural Press.

Harley, J. B. (1987). The Map and the Development of the History of Cartography. In J. B. Harley & D. Woodward (Eds.), *The History of Cartography: Vol. Volume 1* (pp. 1–42). The University of Chicago Press.

Harley, J. B., & Woodward, D. (1987). Concluding Remarks. In J. B. Harley & D. Woodward (Eds.), *History of Cartography* (Vol. 1, pp. 502–509). The University of Chicago Press.

Harley, J. B. (1989). Deconstructing The Map. *Cartographica: The International Journal for Geographic Information and Geovisualization*, 26(2), 1–20.
<https://doi.org/10.3138/E635-7827-1757-9T53>

Harley, J. B. (1991). The New History of Cartography. *The UNESCO Courier: Maps and Map-Makers*, 10–15.

Hebbert, M. (2015, January). Urban Past Present & Future in Black & White - the utility of figure-ground. *American Historical Association 2015 Annual Meeting*.

Hougaard, A. K. (2012). Haecceity, Drawing and Mapping. *Footprint: Delft School of Design Journal*, 10/11, 37–58.

Koetter, F., & Rowe, C. (1979). *Collage City*. MIT Press.

Koolhaas, R., & Nieuwenhuys, C. (2016). *Constant: New Babylon*. Hatje Cantz.

Lefebvre, H. (1991). *The Production of Space*. Blackwell Publishers.

Lukez, P. (2007). *Suburban Transformations* (L. N. Packard, Ed.). Princeton Architectural Press.

Mapserve. (2021, January 16). How is Mapping Used in Urban Planning?
<https://www.mapserve.co.uk/blog/how-is-mapping-used-in-urban-planning>

Markham, B. (1983). *West with the Night*. North Point Press.

- McHarg, I. L. (1971). *Design with Nature*. Doubleday / Natural History Press.
- Mitchell, P. (2008). *Cartographic Strategies of Post Modernity–The Figure of Map in Contemporary Theory and Fiction*. Routledge.
- Nichols, J. (2012). *Maps and Meanings: Urban Cartography and Urban Design*. Oxford Learner's Dictionaries. (2022). *Topography* .
<https://www.oxfordlearnersdictionaries.com/definition/english/topography>
- Pinzon Cortes, C. E. (2009). *Mapping Urban Form: Morphology Studies in the Contemporary Urban Landscape*.
- Providência, P. (2015). City Readings and Urban Mappings. In N. Duxburg, W. F. Garrett-Petts, & D. MacLennan (Eds.), *Cultural Mapping as Cultural Inquiry* (pp. 217–230). Routledge. <https://doi.org/10.4324/9781315743066-11>
- Pucci, P., Manfredini, F., & Tagliolato, P. (2015). *Mapping Urban Practices Through Mobile Phone Data*. Springer.
- Rifaat, A. (1991). *Maps and Map-Makers*. The UNESCO Courier: Maps and Map-Makers, 9.
- Saieh, N. (2012, October 9). *Venice Biennale 2012: Gateway / Norman Foster*.
<https://www.archdaily.com/268890/venice-biennale-2012-gateway-norman-foster>
- Schoonderbeek, M. G. H. (2015). *Place-Time Discontinuities: Mapping in Architectural Discourse*.

- Schoonderbeek, M. (2017). A Theory of “Design by Research”; Mapping Experimentation in Architecture and Architectural Design. *Ardeth#01*, 63–78.
- Skupin, A., & Skupin, M. (2009). On Written Language in Works of Art and Cartography. In A. Lehn, G. Gartner, & W. Cartwright (Eds.), *Cartography and Art: Lecture Notes in Geoinformation and Cartography* (pp. 207–222). Springer.
- Sulsters, W. A. (2005). Mental Mapping, viewing the urban landscapes of the mind. International Conference 'Doing, Thinking, Feeling Home: The Mental Geography of Residential Environments, 1–5.
- Şenel, A. (2014). Mapping as Performing Place. *DisClosure: A Journal of Social Theory*, 23, 91–119.
- Şenel, A. (2019). Mimarlık Eğitiminde Haritalama: Geleneksel Eril Mimarlık Üretimine Yaratıcı Bir Eleştiri. *Dosya 42: İlişkisel Bir Eylem Olarak Haritalama*, 5–17.
- Tawa, M. (1998). Mapping: Design. *Architectural Theory Review*, 3(1), 35–45. <https://doi.org/10.1080/13264829809478331>
- Tekeli, İ. (2012). Ankara Kent Atlası Üzerine Bir Üst Okuma. In G. A. Sargın (Ed.), *Ankara Kent Atlası* (pp. xx–xxi). TMMOB Mimarlar Odası Ankara Şubesi.
- Thrower, N. J. (1991). When Mapping Became a Science. *The UNESCO Courier: Maps and Map-Makers*, 31–34.
- Torres Bustamante, C. (2008, January). Reformulating Urban Landscapes: Figure-Ground Maps. *Subtropical Cities Conference*.
- Ungers, O. M., & Koolhaas, R. (1977). *The City in the City Berlin: A Green Archipelago*.

Venturi, R., Scott Brown, D., & Izenour, S. (2005). *Learning From Las Vegas: The Forgotten Symbolism of Architectural Form*. MIT Press Ltd.

Wiley, D. (2008). A Walk About The City: Stalker, The Transurbance And The City Map. *ETopia*, 1–13. <https://doi.org/10.25071/1718-4657.36740>

Wood, D. (2003). Cartography is Dead (Thank God!). *Cartographic Perspectives*, 45, 4–7. <https://doi.org/10.14714/CP45.497>

Zakariya, K., Mansor, M., & Zalina Harun, N. (2015). Mapping: A Speculative and Creative Design Tool. *Creative Space*, 3(1), 1–12. <https://doi.org/10.15415/cs.2015.31001>

Zorn, A. (2017, June 18). Where Are the Hipsters in Your City? These Crowdsourced Maps Will Show You. <https://www.archdaily.com/875863/where-are-the-hipsters-in-your-city-these-crowdsourced-maps-will-show-you>

URL1: <https://haemus.org.mk/catalhoyuk-mural-may-depict-ancient-volcanic-eruption/> (Last Access Date: 30.07.2022)

URL2: <https://www.bl.uk/learning/timeline/item126360.html> (Last Access Date: 31.07.2022)

URL3: https://en.wikipedia.org/wiki/Fra_Mauro_map#/media/File:FraMauroDetailedMap.jpg (Last Access Date: 31.07.2022)

URL4: <https://upload.wikimedia.org/wikipedia/commons/e/e2/OrteliusWorldMap1570.jpg> (Last Access Date: 31.07.2022)

URL5: https://upload.wikimedia.org/wikipedia/commons/a/a4/Edmond_Halley%27s_map_of_the_trade_winds%2C_1686.jpg (Last Access Date: 31.07.2022)

URL6: <https://www.bbc.com/news/science-environment-32004102> (Last Access Date: 31.07.2022)

URL7: <https://www.atlasofplaces.com/cartography/descriptive-map-of-london-poverty/> (Last Access Date: 31.07.2022)

URL8: <https://www.thebroad.org/art/mark-bradford/across-110th-street> (Last Access Date: 16.08.2022)

URL9: <https://collections.leventhalmap.org/search/commonwealth:0r96fp01x> (Last Access Date: 16.08.2022)

URL10: <https://www.prolegomena.net/blog/2016/city-drawing-series-kathy-prendergast> (Last Access Date: 16.08.2022)

URL11: <https://tannazoroumchi.com/portfolio> (Last Access Date: 16.08.2022)

URL12: <https://imaginarymuseum.org/LPG/Mapsitu1.htm> (Last Access Date: 29.07.2022)

URL13: https://njwv.wordpress.com/2019/07/31/coordinates-maps-and-art/rumsey_long/ (Last Access Date: 29.07.2022)

URL14: <https://jstrong.co.uk/2015/05/30/psychogeographic-mapping/> (Last Access Date: 16.08.2022)

URL15: https://www.researchgate.net/publication/301329628_Modern_Beer_Factory_Interwoven_in_Urban_Texture/figures?lo=1 (Last Access Date: 29.07.2022)

URL16: <https://www.oma.com/projects/yokohama-masterplan> (Last Access Date: 29.07.2022)

URL17: <https://www.cca.qc.ca/img-collection/yDihO-Kf2a1jVS4xGn8VR2VDj2M=/700x898/323130.jpg> (Last Access Date: 29.07.2022)

URL18: <http://storefrontnews.org/archive/raoul-bunschotenchora-liminal-bodies/> (Last Access Date: 29.07.2022)

URL19: <https://ubik-void.tumblr.com/post/143069469192/raoul-bunschoten-chora-four-planning-fields-for> (Last Access Date: 29.07.2022)

URL20: <https://www.playthecity.eu/playprojects/Wijkvisiespel-Overvecht-> (Last Access Date: 29.07.2022)

URL21: <https://upload.wikimedia.org/wikipedia/commons/2/29/Minard.png> (Last Access Date: 29.07.2022)

URL22: <https://socks-studio.com/2012/10/29/taking-measures-across-the-american-landscape-by-james-corner-and-alex-mclean/> (Last Access Date: 29.07.2022)

URL23: <https://www.architectural-review.com/archive/jencks-theory-of-evolution-an-overview-of-20th-century-architecture> (Last Access Date: 19.08.2022)

URL24: <https://www.behance.net/gallery/143842747/Mapping-Marmara-Region> (Last Access Date: 22.08.2022)

URL25: <https://www.aaschool.ac.uk/projects/a-platform-for-the-people> (Last Access Date: 22.08.2022)

URL26: <https://www.monolab.nl/projects/network-montreal/> (Last Access Date: 22.08.2022)

URL27: <https://www.instagram.com/alaamisto/> (Last Access Date: 22.08.2022)

URL28: <https://socks-studio.com/2012/01/22/taxonomies-of-transition-urban-segregation-maps-by-bill-rankin-and-eric-fisher/> (Last Access Date: 22.08.2022)

URL29: <https://mapdesign.icaci.org/tag/flow-map/> (Last Access Date: 22.08.2022)

URL30: http://metrocosm.com/global-migration-map.html?utm_medium=website&utm_source=archdaily.com (Last Access Date: 29.07.2022)

URL31: <https://www.mapbox.com/blog/mapbox-movement-vehicle-data> (Last Access Date: 22.08.2022)

URL32: <http://cargocollective.com/danielkbrown/In-Search-of-Lost-Time> (Last Access Date: 17.08.2022)

URL33: <https://www.instagram.com/atelier.ouvert.eaul/> (Last Access Date: 17.08.2022)

URL34: <https://datadesign.wordpress.com/2011/04/19/perry-kulper/> (Last Access Date: 21.08.2022)

URL35: <https://www.instagram.com/atelier.ouvert.eaul/> (Last Access Date: 17.08.2022)

URL36: <https://www.flickr.com/people/walkingsf/> (Last Access Date: 17.08.2022)

URL37: <https://hoodmaps.com/berlin-neighborhood-map> (Last Access Date: 20.08.2022)

URL38: <https://colouringlondon.org/> (Last Access Date: 20.08.2022)

URL39: <https://www.cityoflondon.gov.uk/footer/interactive-map-layers> (Last Access Date: 20.08.2022)

URL40: <https://www.archdaily.com/268890/venice-biennale-2012-gateway-norman-foster> (Last Access Date: 17.08.2022)

URL41: https://www.researchgate.net/publication/307833199_Tools_and_graphics_devices_for_the_understanding_and_the_interpretation_of_urban_areas_The_Pianta_Grande_di_Roma_by_Giovanni_Battista_Nolli (Last Access Date: 22.08.2022)

URL42: <https://morphocode.com/figure-ground-diagram/> (Last Access Date: 22.08.2022)

URL43: <https://www.researchcatalogue.net/view/452508/574230> (Last Access Date: 23.08.2022)

URL44: <https://www.behance.net/gallery/129918621/Cognitive-Map-of-Kadkoey> (Last Access Date: 23.08.2022)

URL45: https://issuu.com/shibbolethshechter/docs/mapping_our_area (Last Access Date: 23.08.2022)

URL46: https://issuu.com/shibbolethshechter/docs/mapping_project_final_single_pages (Last Access Date: 24.08.2022)

URL47: https://issuu.com/shibbolethshechter/docs/mapping_project_final_single_pages (Last Access Date: 24.08.2022)

URL48: https://issuu.com/shibbolethshechter/docs/mapping_our_area (Last Access Date: 24.08.2022)

URL49: <https://sensorymaps.com/?projects=views-map-edinburgh> (Last Access Date: 24.08.2022)

URL50: <https://antievictionmap.com/> (Last Access Date: 23.08.2022)

URL51: <https://www.archdaily.com/978927/an-upcoming-exhibition-at-louisiana-museum-of-modern-art-showcases-the-multidisciplinary-work-of-forensic-architecture> (Last Access Date: 22.08.2022)

URL52: <https://mayasorabjee.com/City-of-Conquest> (Last Access Date: 24.08.2022)

URL53: https://issuu.com/shibbolethshechter/docs/mapping_our_area (Last Access Date: 22.08.2022)

URL54: <https://bpro2021.bartlettarchucl.com/rc18-kiss-the-ground-2/between-void> (Last Access Date: 26.08.2022)

URL55: <https://bpro2021.bartlettarchucl.com/rc14-cities-beyond-cognition/inter-pelagos> (Last Access Date: 26.08.2022)

URL56: <https://ituarchadaptablecityfolio.cargo.site/behind-the-scene> (Last Access Date: 26.08.2022)

URL57: <https://www.urbanworks.cca.edu/winwin> (Last Access Date: 26.08.2022)

URL58: <https://www.urbanworks.cca.edu/in-it-together> (Last Access Date: 26.08.2022)

URL59: <http://pr2013.aaschool.ac.uk/DIP-10/frederik-bojesen/> (Last Access Date: 26.08.2022)

URL60: <https://socks-studio.com/2015/02/04/map-office-hong-kong-is-land-2014/> (Last Access Date: 26.08.2022)

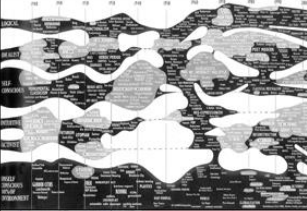
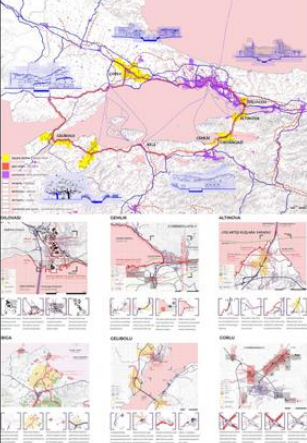
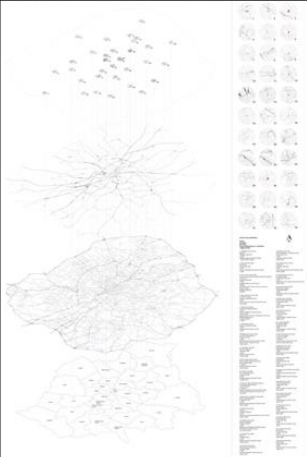
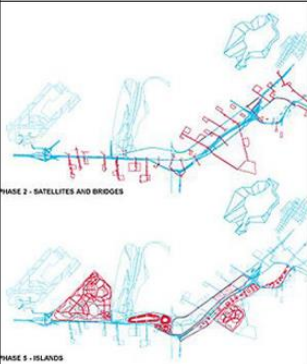
URL61: <https://pr2020.aaschool.ac.uk/Jeff-Yu-Fu-Huang> (Last Access Date: 29.08.2022)

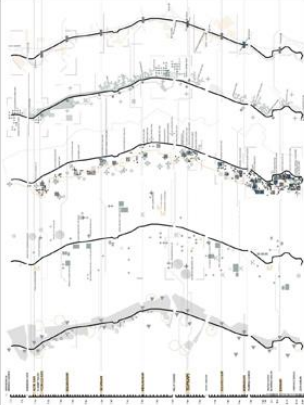

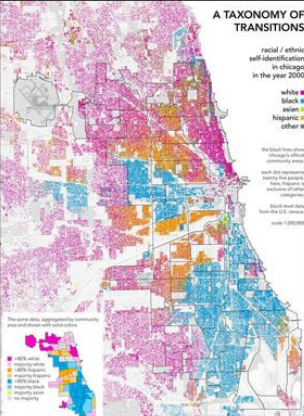
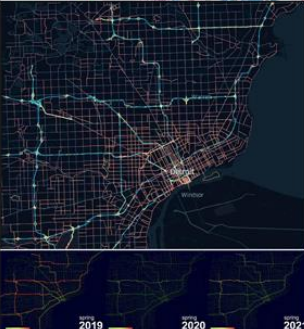
URL62: http://www.presidentsmedals.com/Project_Details.aspx?id=3669# (Last Access Date: 29.08.2022)

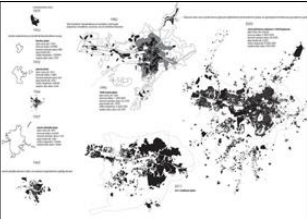
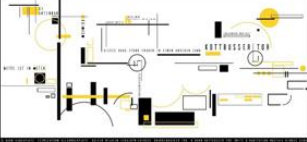





URL63: <http://www.presidentsmedals.com/Entry-39251> (Last Access Date: 29.08.2022)

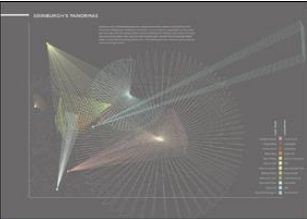



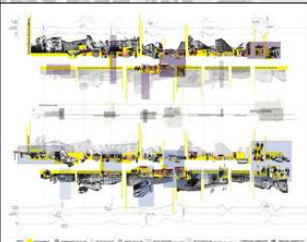
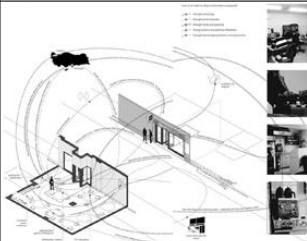
URL64: <http://www.presidentsmedals.com/Entry-38161> (Last Access Date: 29.08.2022)

INDEX OF MAPS AND MAPPINGS IN CHAPTER 3

TITLE	MAP MAPPING	DISCIPLINE	MAPPED PHENOMENA	DESIGN PROCESS		OBJECTIVE
				NO RELATED	RELATED	
Theory of Evolution		Landscape Design	20th century architecture			schematization of theory
Mapping the Marmara Region A Preliminary Biopsy		Architecture + Urban Planning + Urban Design	routes + built environment + transportation infrastructure + industrial production sites			conducting multi-scalar survey (on-site analysis)
London City Hall Mapping A Platform for the People		Architecture	intervention areas + transportation infrastructure + borders			defining design strategies on urban scale
Mapping the Design Process in Network Montreal		Architecture + Urban Design + Landscape Design	landmarks + transportation infrastructure + network			researching and defining human scale + staging design process

Comprehending Theodosius Walls		Architecture + Urban Planning + Urban Design + Landscape Design	landmarks and historical sites + transportation infrastructure + green infrast. + vacant lands + informalities + social infrast.			conducting multi-scalar survey (analysis) + defining intervention areas
Eco-Morphology		Architecture	urban development + transportation infrastructure + green infrast.			conducting multi-scalar survey (analysis) + thematic map (atlas)
A Taxonomy of Transitions		Cartography	racial boundaries + ethnicity			thematic map
Exploring Traffic Activity Along Road Segments in Detroit		Transportation Planning + Computer Engineering	traffic volume according to the time intervals			independent research

Plan Proposals for Ankara		Architecture	urban planning process + urban development			conducting morphological analysis + thematic map (atlas)
Jeder Einmal in Berlin		Urban Design + Graphic Design	architectural forms + urban spaces			mental map
In Search of Lost Time		Architecture	temporal dimension of space			conducting site analysis based on time intervals
Cognitive Map of Kadıköy		Architecture	spatial perception			cognitive map
Color My Emotions		Architecture	land use + emotions + personal experience			emotion map
Spice + Flavor is Key to the Memory		Architecture	smellscape			sensory map
Visual and Sound Reflection Around Peckham Road		Architecture	reflections of visuals and sounds (soundscape)			sensory map

Edinburgh's Panormas		Cartography + Design	visual accessibility			sensory map
Anti-Eviction Map		Cultural Studies + Anthropology + Policy Planning	narratives and stories + eviction policies			counter map
Wallpaper from Rafah Forensic Architecture		Architecture + Journalism + Computational Design + Engineering	bombings + military forces + political conflicts			counter map
The Occupation and Informal Urbanism of Taksim Square and Gezi Park		Architecture	temporary settlements of groups + flow and network + landmarks + morphology			event map + counter map
Mapping In-Between Narratives		Architecture + Urban Design	spatial appropriations + time + activities and users + land use			revealing the changes in spatial configurations based on different time intervals
Kahve Network Map of Guben		Architecture	network + flow + activities			network map