

INSTRUCTIONS FOR DESIGN:

The city,
from a living machine
to a metabolic system

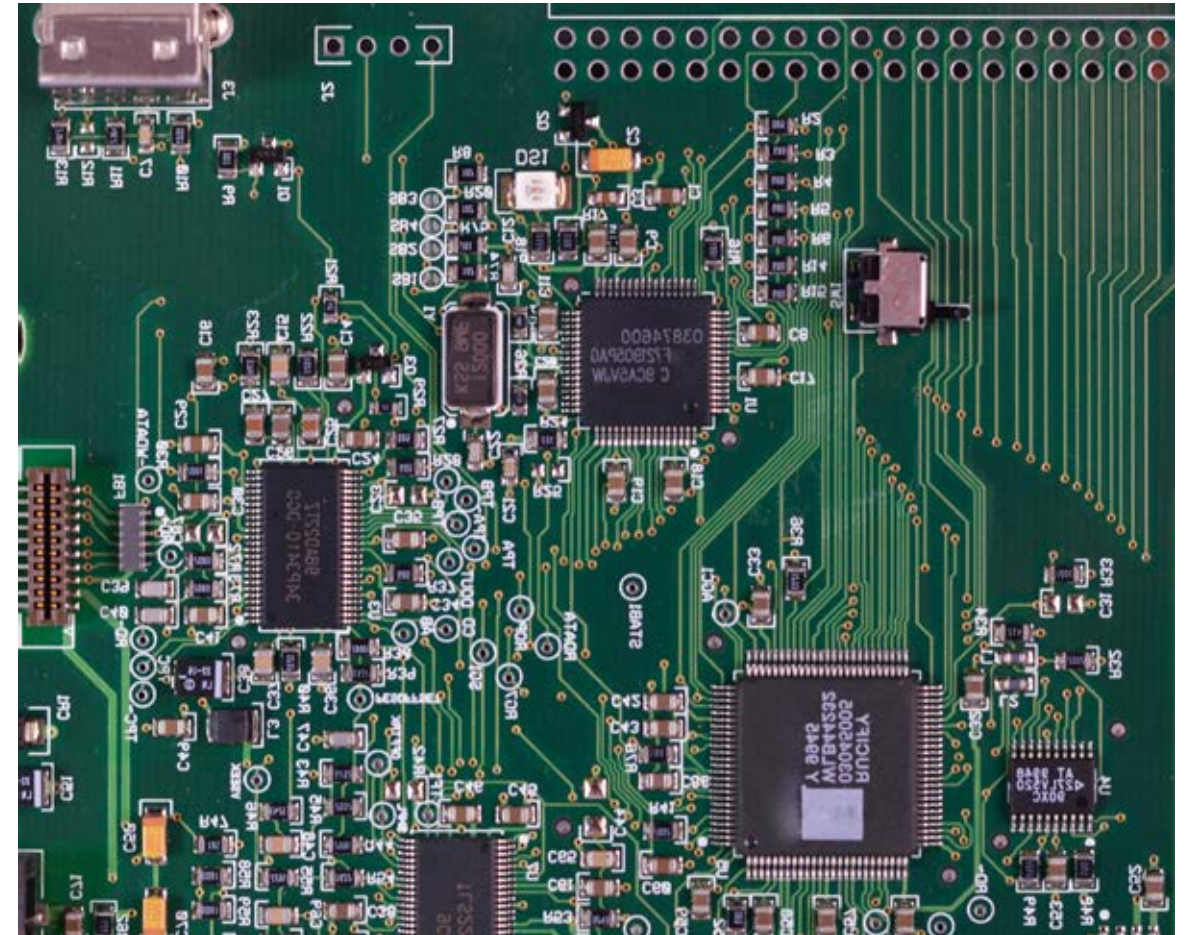
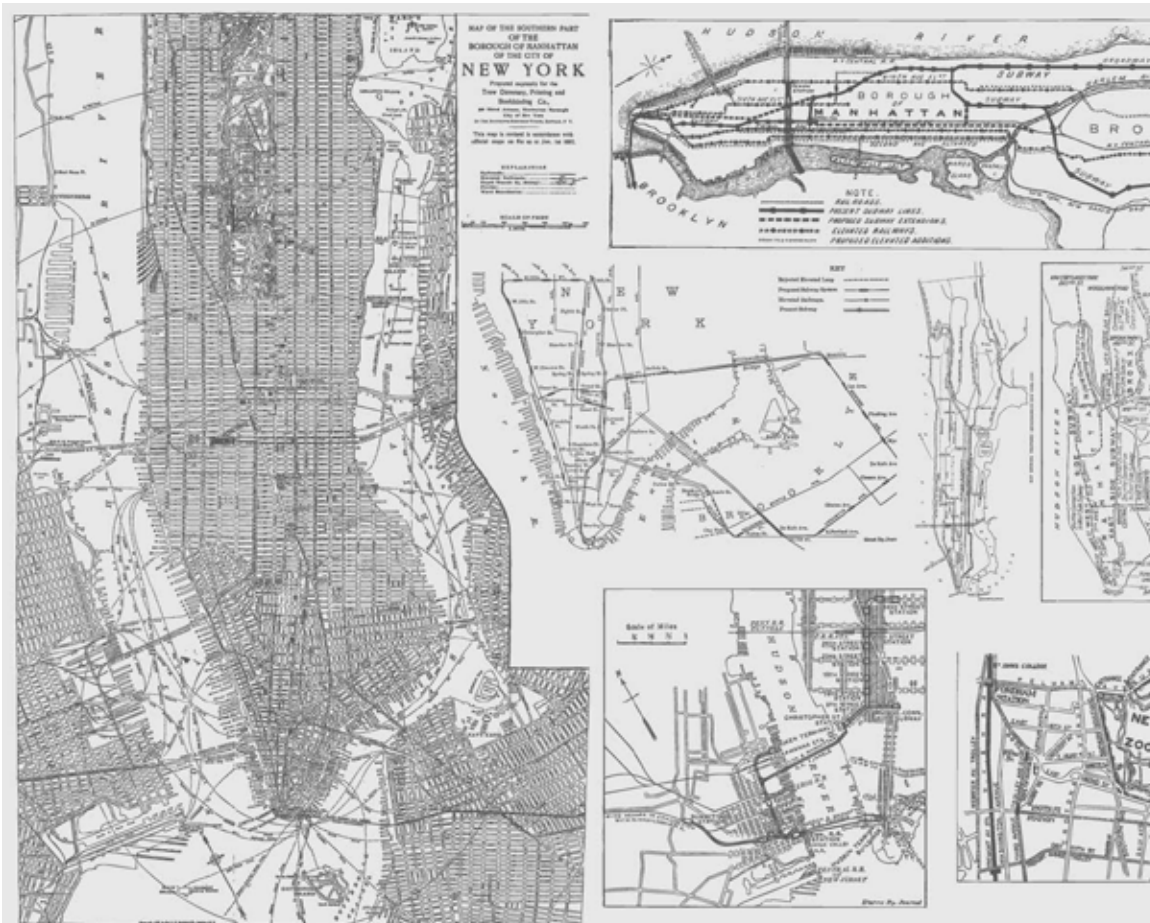
Leonard Borovičkić

mentors: Ivana Fabrio, Nika Pavlinek
School of Design, Faculty of Architecture,
University of Zagreb,
Zagreb, 2020.

WHAT DEFINES A CITY? > The machine

2

The city of today is designed as a machine for living. More precisely, a machine for production, consumption, leisure, socialization and rest. To look at a city in the traditional sense, through a map or a city plan, marking only its rough, most permanent, immutable properties is an incomplete view if we are to discover the nature of the city.



To look at a city this way is as if looking at a circuit board, or a drawing of a complex mechanism. It is understood when separated into parts, demonstrating how each part works and how they interact.

The most important qualities, often overlooked when documenting a city, are the interactions, stories and clashes that define its character and purpose. The city is endowed with a rich and powerful metabolic system that defines it, keeps it active healthy and constantly transforming.

The life of a city is infinitely more complex than the binary inputs and outputs of computing circuitry, and the approach to designing cities should reflect that complexity.

the mundane



the unusual



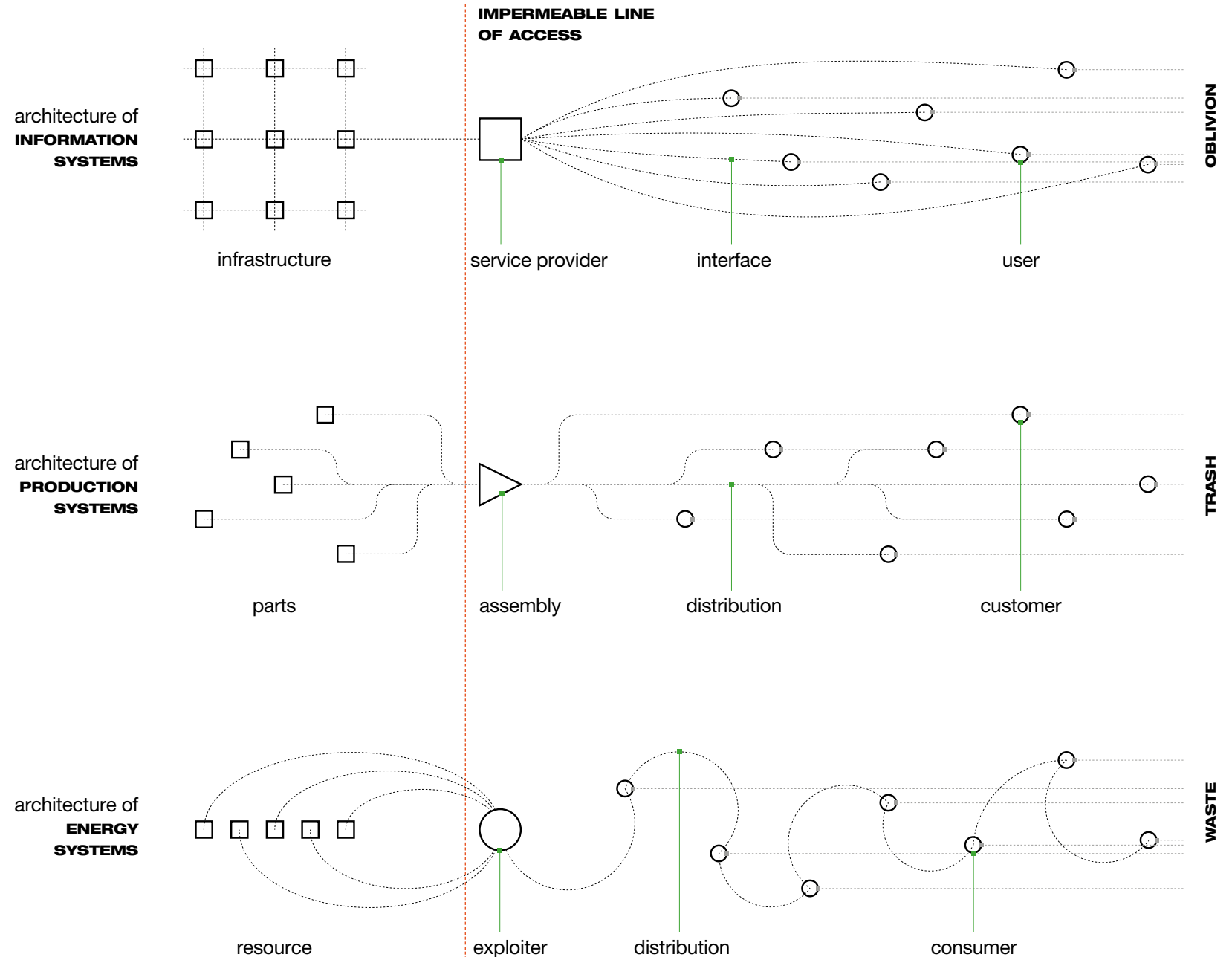
the extraordinary



The huge leaps of technology of the last two centuries have fundamentally transformed our way of life, our cycles of consumption, production, distribution, sharing and owning. The Third Industrial Revolution, in particular, created new possibilities and conditions which defined the way we organize our systems.

In an effort to maximize efficiency, we have created linear chains in our information systems, production systems, and energy systems, which not only create different types of waste at the end of their lifecycles, but they also create very established, unflexible relationships between different participants of the process. The corporate or governmental monopolization of managing these systems means that, in an effort to maximize efficiency, we create highly user-friendly, simple, understandable user interfaces which serve as impenetrable mediators between the infrastructures created by service providers and consumers of these services.

This means that the level of participation, understanding and access of these systems by the users themselves is extremely limited, and their role in the chain is only as the recipient of the service, to be used and discarded in a limited amount of time.



The metabolisms of the preindustrial social systems are vastly different than the infrastructures we know and are used to in a modern, capitalist society. The user, the maker, the steward, the protector and the provider are, in such a system, more often than not, the same entity. The archetypal farmer, whether it's one individual, a family or a larger collective, is involved in all the aspects of production, distribution, maintenance consumption and disposing of all allotted goods and resources.

The protocols are streamlined and optimized by pure routine, knowledge and familiarity, not by artificially calculating the optimal way forward. The wealth of intimate experience with the process provides the inputs to continuously tweak the rules, add or remove steps and adapt to new possibilities.



What if, instead of designing our systems (including our cities) as machines, systems made of separate parts, we designed them based on new models, ones inspired by preindustrial societies? This does not mean relinquishing our technological, social and economic advances. Merely, it means adopting design models and processes which are rooted in radical participation, democracy, collaboration and openness.

We can look not only at preindustrial societies for inspiration, but also to many countercultures springing up today.

For example, our mainstream manufacturing systems have moved far away from the traditions of craftsmanship and manual labor, into standardized post-fordist, semiautomated factory systems. The ecological repercussions, along with inhumane working conditions, exploitation and slave labor are incalculable. Therefore, many grassroots movements are springing up, based on DIY, maker culture, collaboration and immediate relationships between the materials, makers and users.

Likewise, our information systems have mutated into inaccessible, incomprehensible algorithms, presented to the user through easy to use interfaces. The reaction to these systems are open-source, hacker movement, which encourage collaboration, sharing of knowledge and resources.

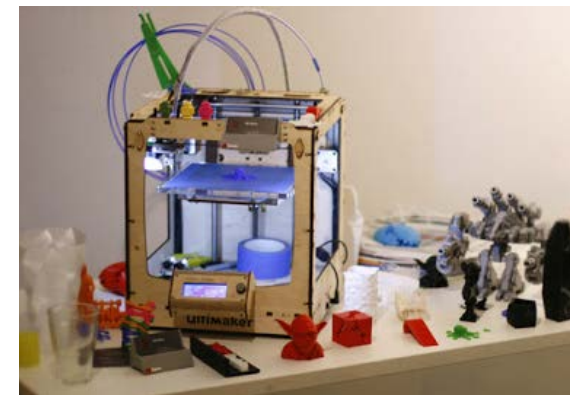
CRAFT tradition



MANUFACTURING standardization



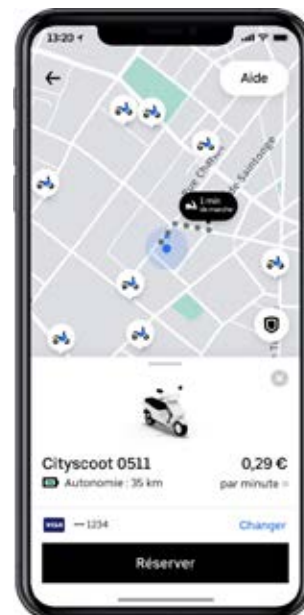
DIY/MAKER MOVEMENT counter-culture



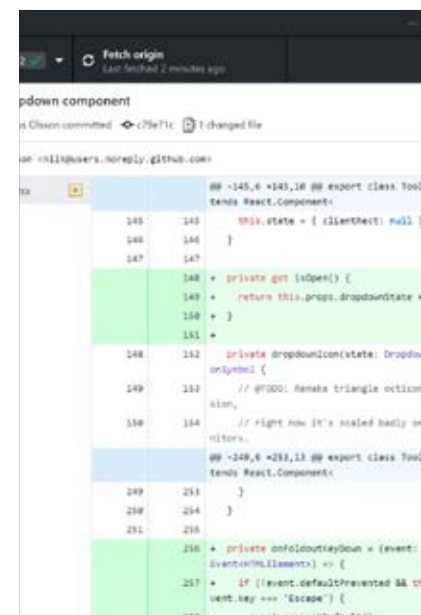
STORED KNOWLEDGE accumulated, institutionalized



INFORMATION SERVICES algorithms and interfaces



OPEN-SOURCE/HACKER MOVEMENT counter-culture



This redefinition of the design process to accommodate these new needs requires taking several factors in account. Ezio Manzini defines these properties as vital to creating an open, flexible and participatory design methodology. Manzini calls this concept **LOCAL COSMOPOLITANISM**.



COMPLEXITY AND SCALE

Radical simplifications forced by user-friendly interfaces and market solutions should be replaced by “enriching complexity”, and this complexity is at the heart of the “human scale” often talked about in design. This complexity should be offset by a reduction in scale. Small entities with participants in intimate relation with the material can create this value of human complexity.



WORK AND COOPERATION

Manufacturing standardization, automatization and fragmentation of work into smaller parts should be replaced by invested workers, who have real and tangible relationships to the products, and among themselves, as collaborators, whereby these relationships create not only fulfillment from a rich work ethic, but where the consequences of one’s work can be clearly felt.



RELATIONSHIPS AND TIME

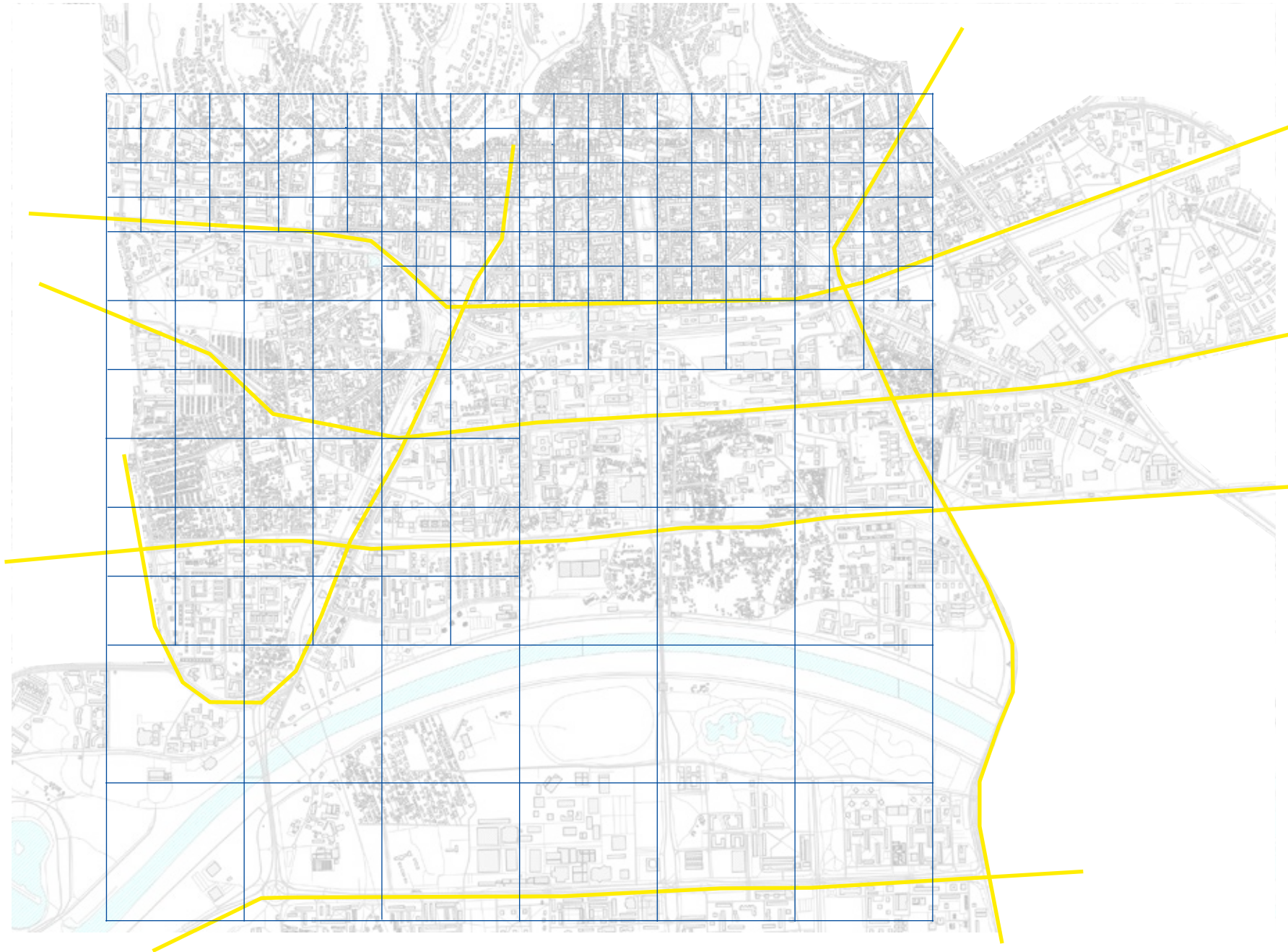
Such relationships can only be established through long periods of time, so instead of maximizing efficiency in manufacturing a product or a service, only to launch it and sever all ties with it, these processes should focus on long term collaboration, maintenance and nurturing of the shared and co-created.

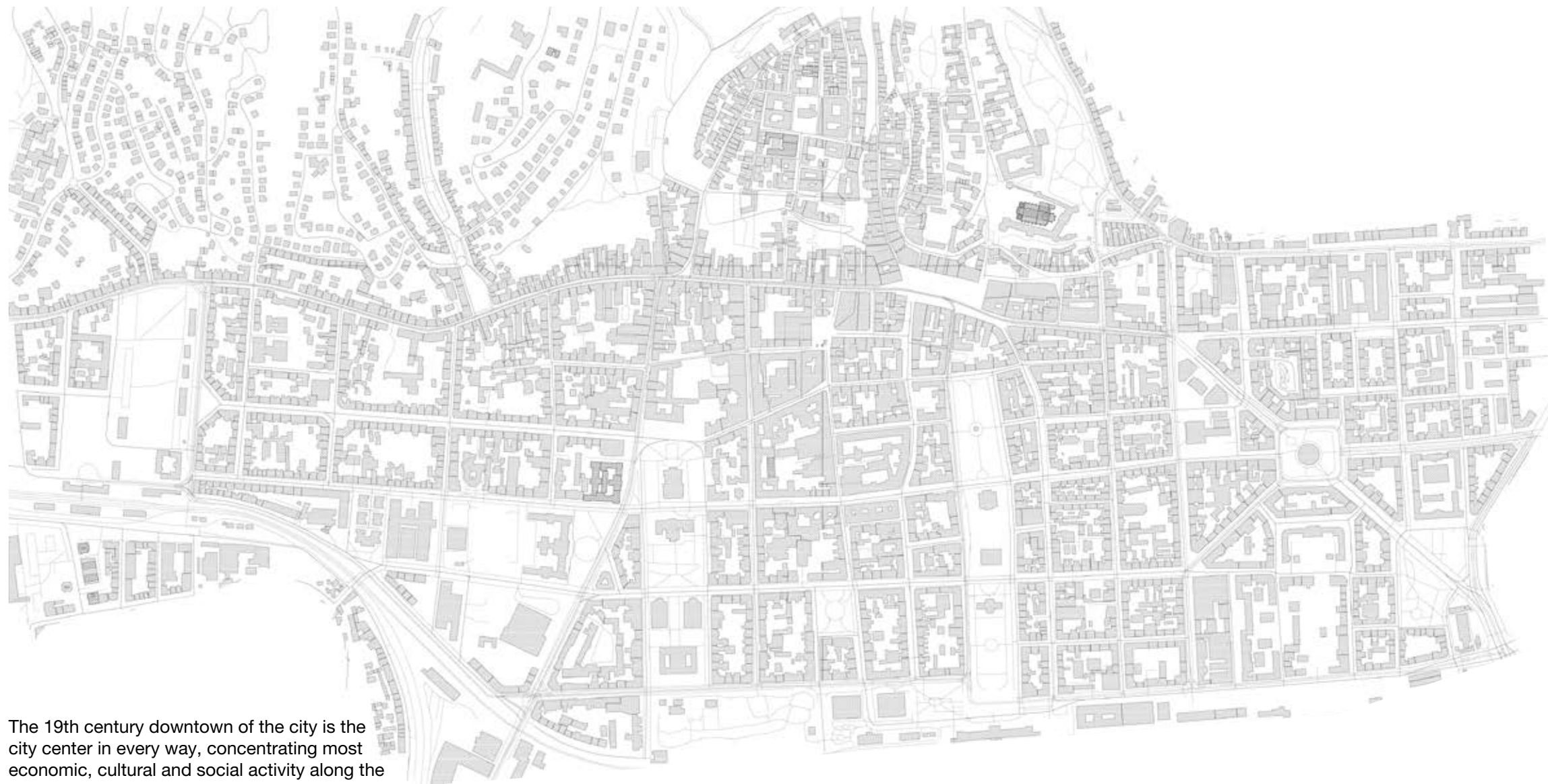


LOCALITY AND OPENNESS

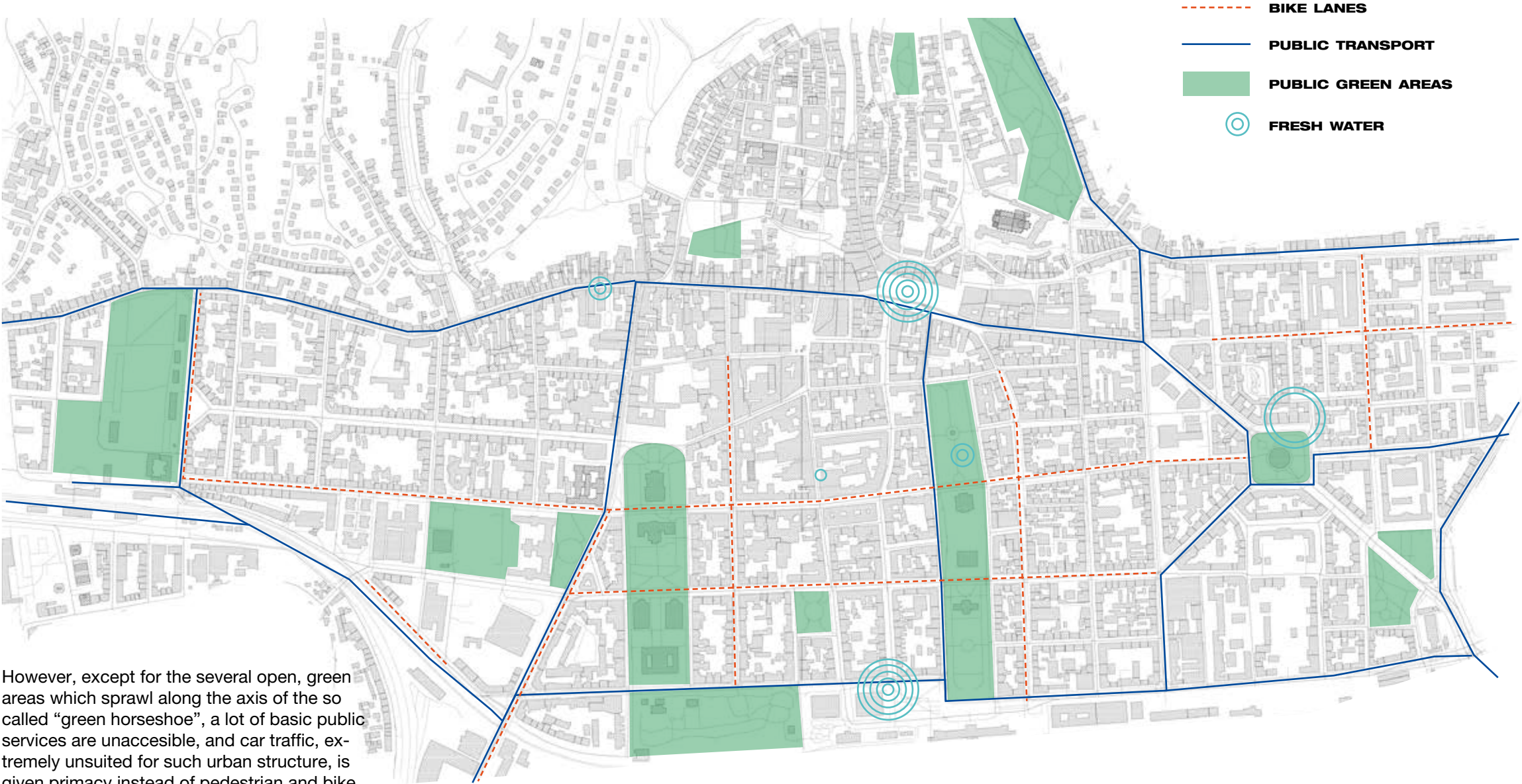
The increase of complexity, reduction in scale, focus of direct work in a mutual product shared by a community over a long period of time means that such a process needs to be rooted in a concrete locality. However, to avoid harmful, hermetic closing of communities in their own specific contexts, these systems need to be radically open, connected to the rest of the world, to create a collaboration, sharing network.

If we want to create cities which function as open, flexible systems, resilient to stresses and crises, we must take a closer look at the way they are now. This research uses the city of Zagreb as a case of study. Analyzing the scale of the city and the way it relates to the human scale, it is apparent that most of the city is scaled to the needs of vehicles, be it personal automobiles or transport vehicles passing through one of the wide avenues which cut through the urban tissue, separating and dividing sectors and neighbourhoods.

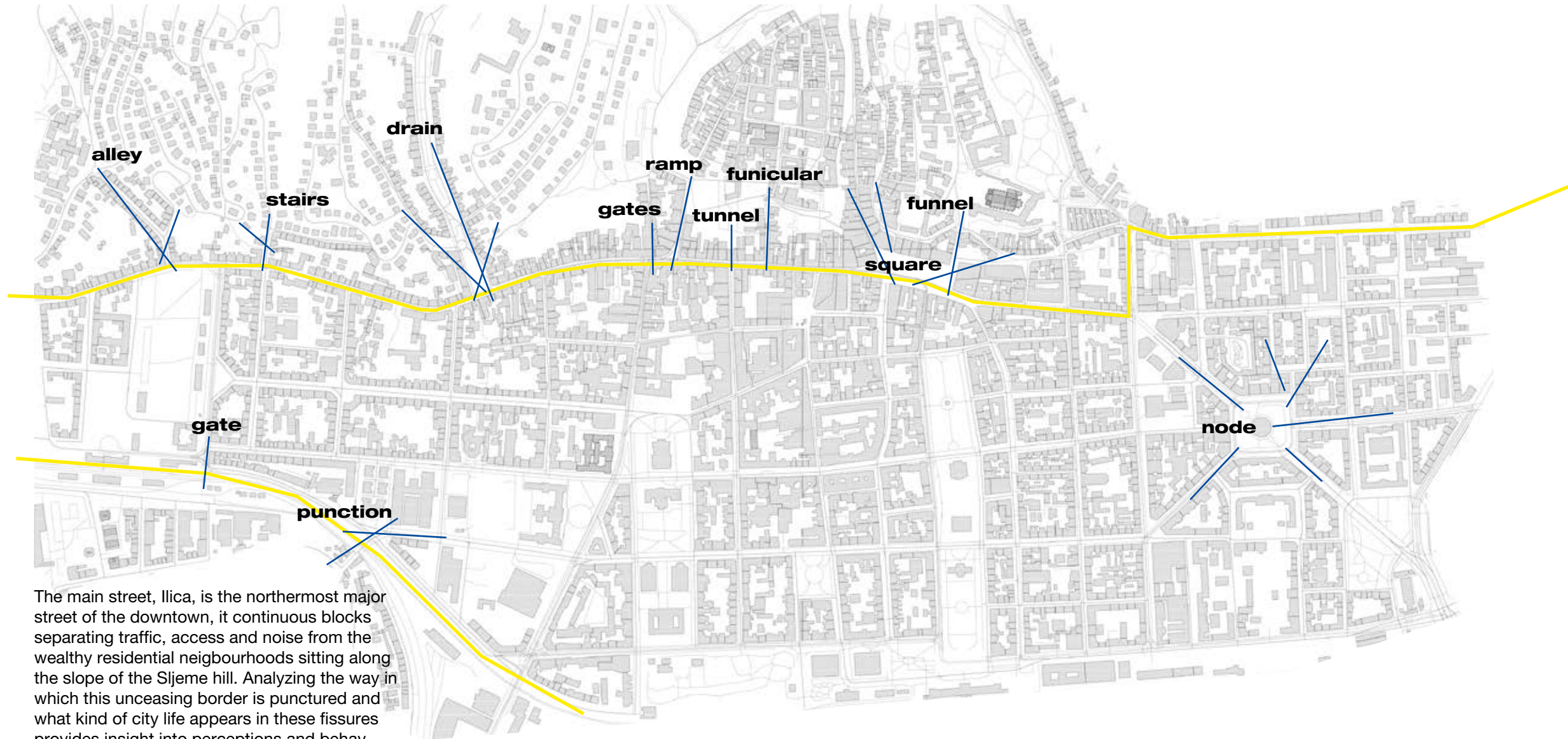




The 19th century downtown of the city is the city center in every way, concentrating most economic, cultural and social activity along the axis of the Ilica, Zagreb's major street.

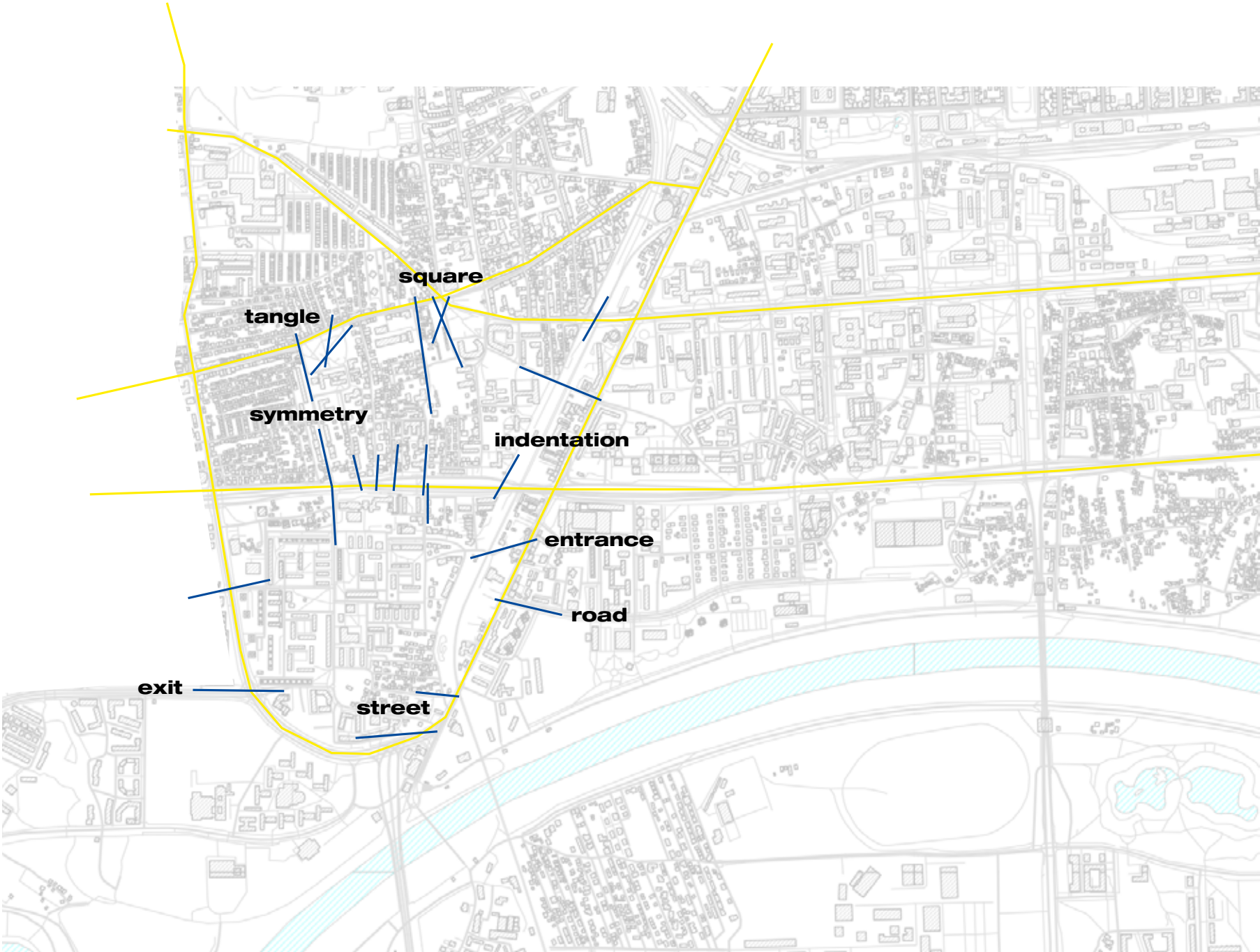


However, except for the several open, green areas which sprawl along the axis of the so called “green horseshoe”, a lot of basic public services are unaccessible, and car traffic, extremely unsuited for such urban structure, is given primacy instead of pedestrian and bike traffic.



The main street, Ilica, is the northernmost major street of the downtown, it continuous blocks separating traffic, access and noise from the wealthy residential neighbourhoods sitting along the slope of the Sljeme hill. Analyzing the way in which this unceasing border is punctured and what kind of city life appears in these fissures provides insight into perceptions and behaviours of citizens in relation to their environment.

The analysis is conducted on several residential neighbourhoods in the south of the city. These neighbourhoods are sealed off from the rest of the city by major highways, not adequately accessible for pedestrian and bike traffic, but also for personal cars. They are highways leading in and out of the city, more then transporting between different points in the city.

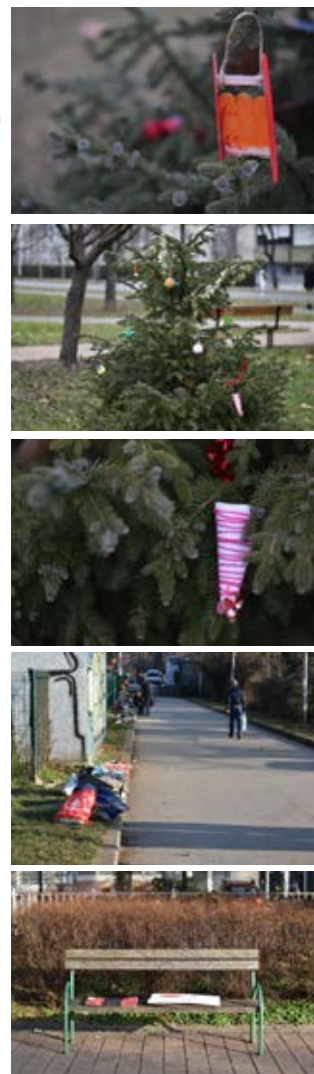


INSTRUCTIONS FOR DESIGN

social engineering and spontaneity



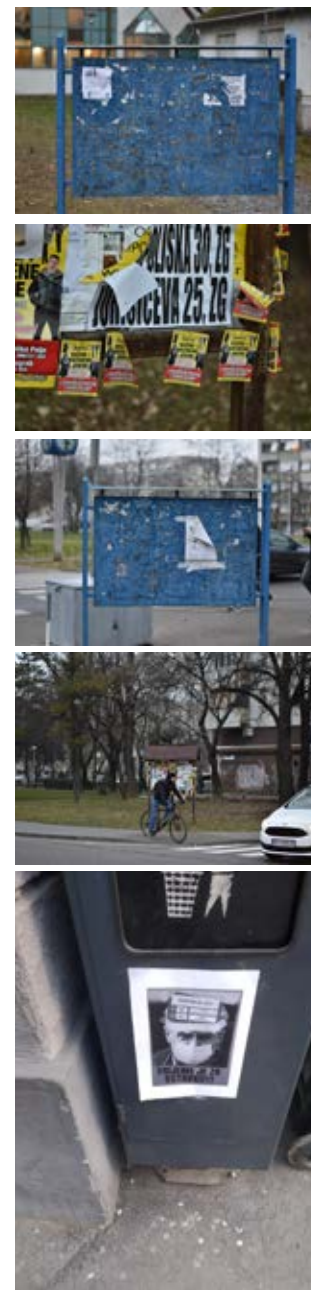
the public living room



shared care of shared space



local voices



marking the spot



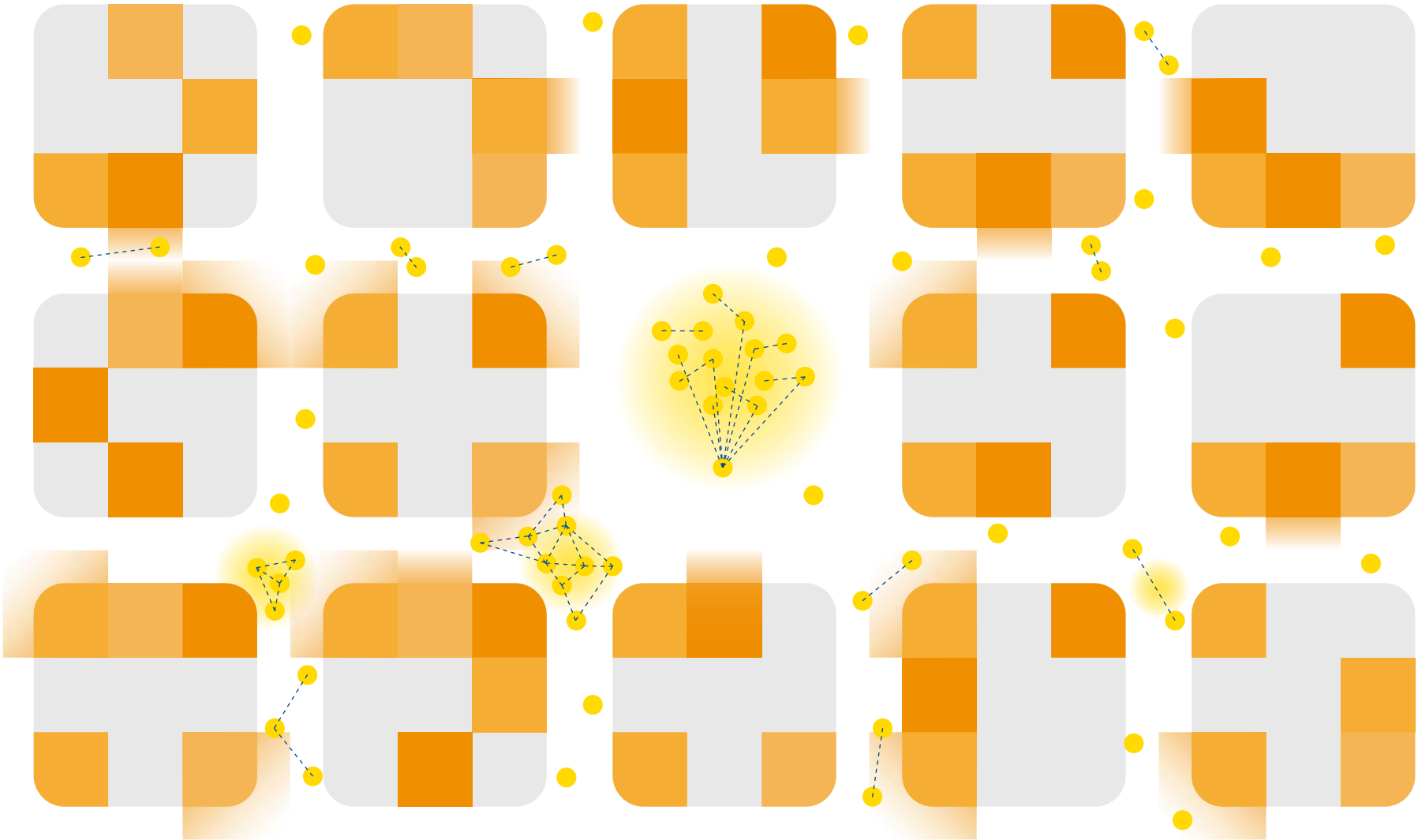
Photodocumenting various subtle, inconspicuous ways in which citizens interact with their environment - imposed, desired, rejected, embraced, converted, over and underused. It shows simple ways in which citizens attempt to extend their household into the public, shared space.

the ordinary

moderate interaction, gathering, private and public

local entities (shops, craftsmen, organizations, institutions) are activators of the public space (=space for citizens)

citizens, in turn, patron the local entities, keep them alive, financially and socially

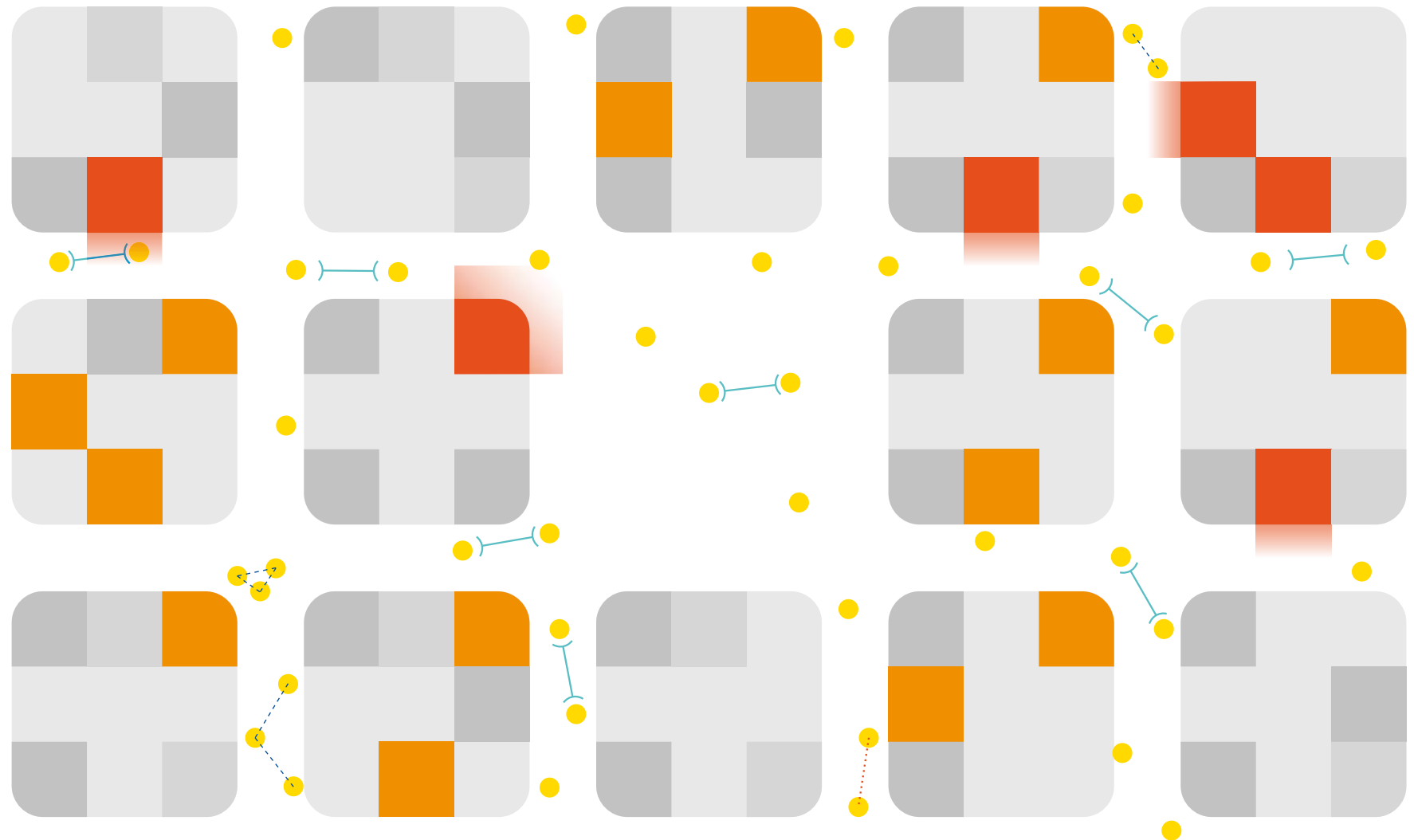


social distancing

abandonment of public space, maintaining
distance between citizens

only essential entities working, under special
protocol

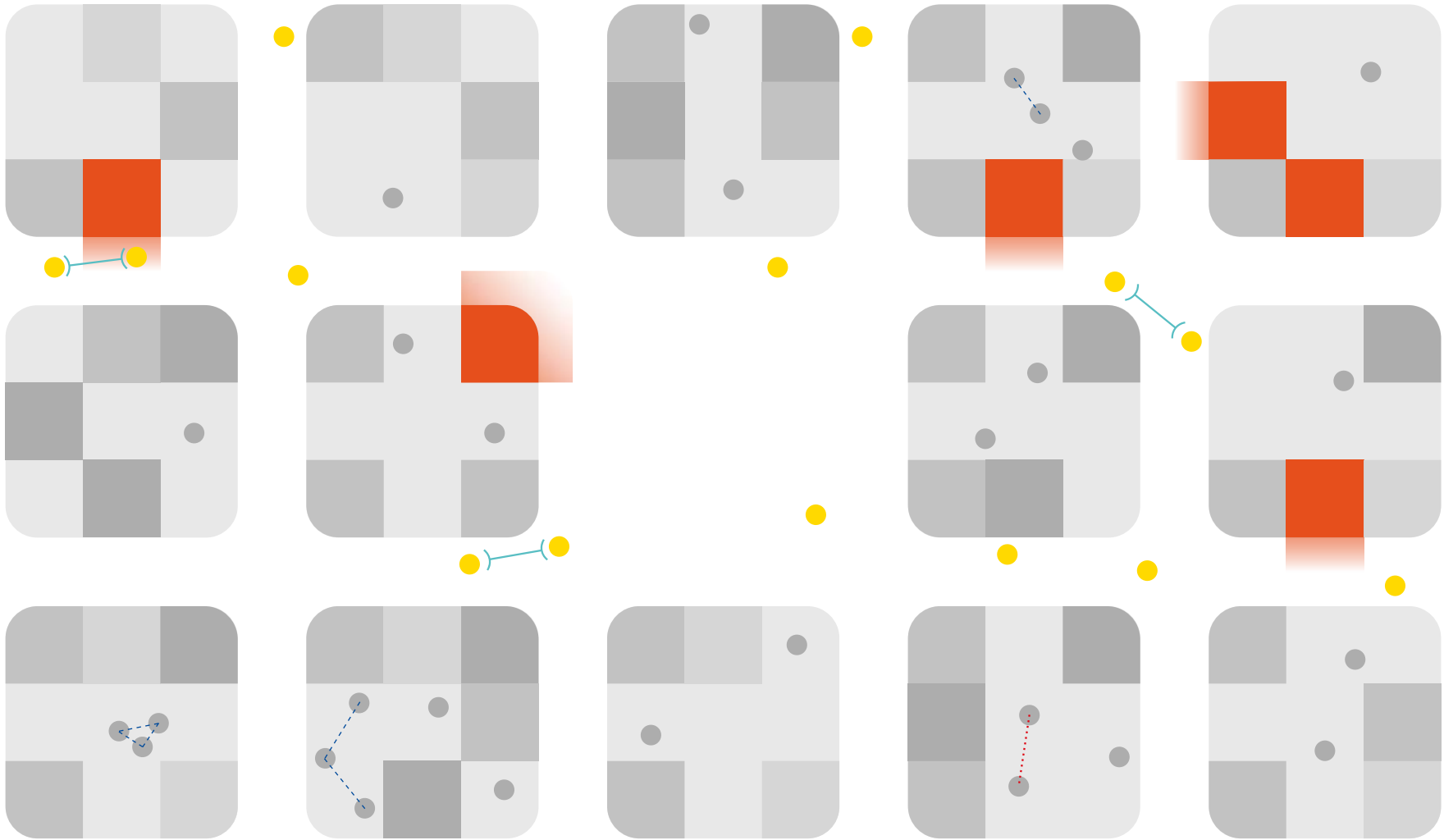
citizens neglect local entities



quarantine

gathering forbidden, mandatory maintenance of distance, interaction in/from private spaces only

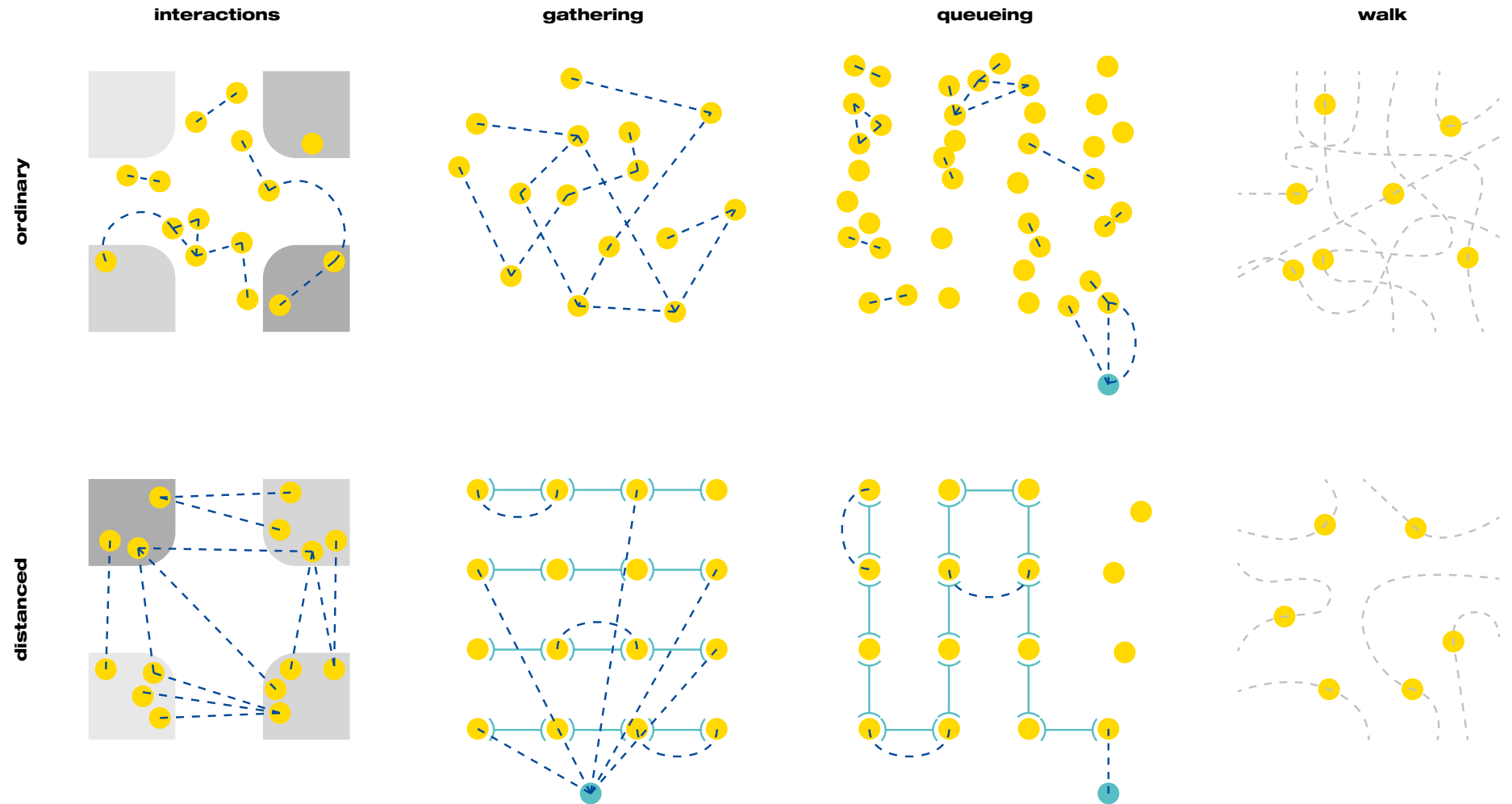
only most essential services operating, with special permission from the state



new protocolization of behaviour in the public space

constantly monitored, by the authorities and by each other

new modalities, choreographies and formations appear in lieu of the new rules and protocols

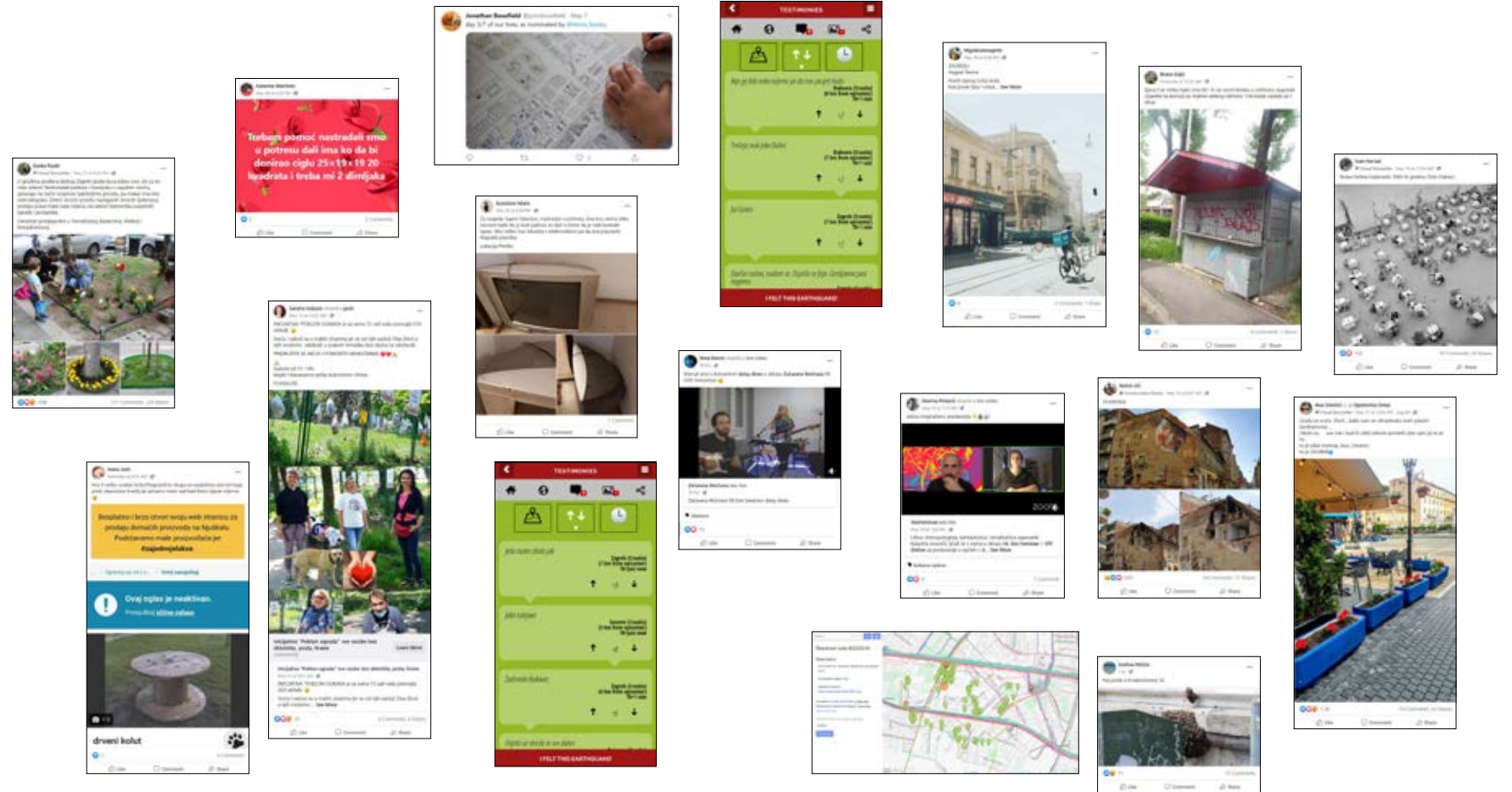


The difficulties this year has brought has demonstrated the strenuous foundations on which our society is built. The city of Zagreb, apart from the pandemic, had to deal with two large earthquakes this year. While the pandemic ravaged the social public space, the earthquakes greatly damaged the physical one. In this reality, virtual tools created exceptional opportunities not only to communicate, but to organize, create communities, crowdsource data and start movement. Analysis of the virtual content provides guidelines for design of the new infrastructure and methodologies required to revive the public sphere.



call to action







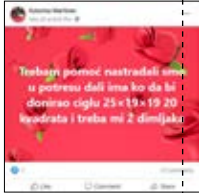








documenting

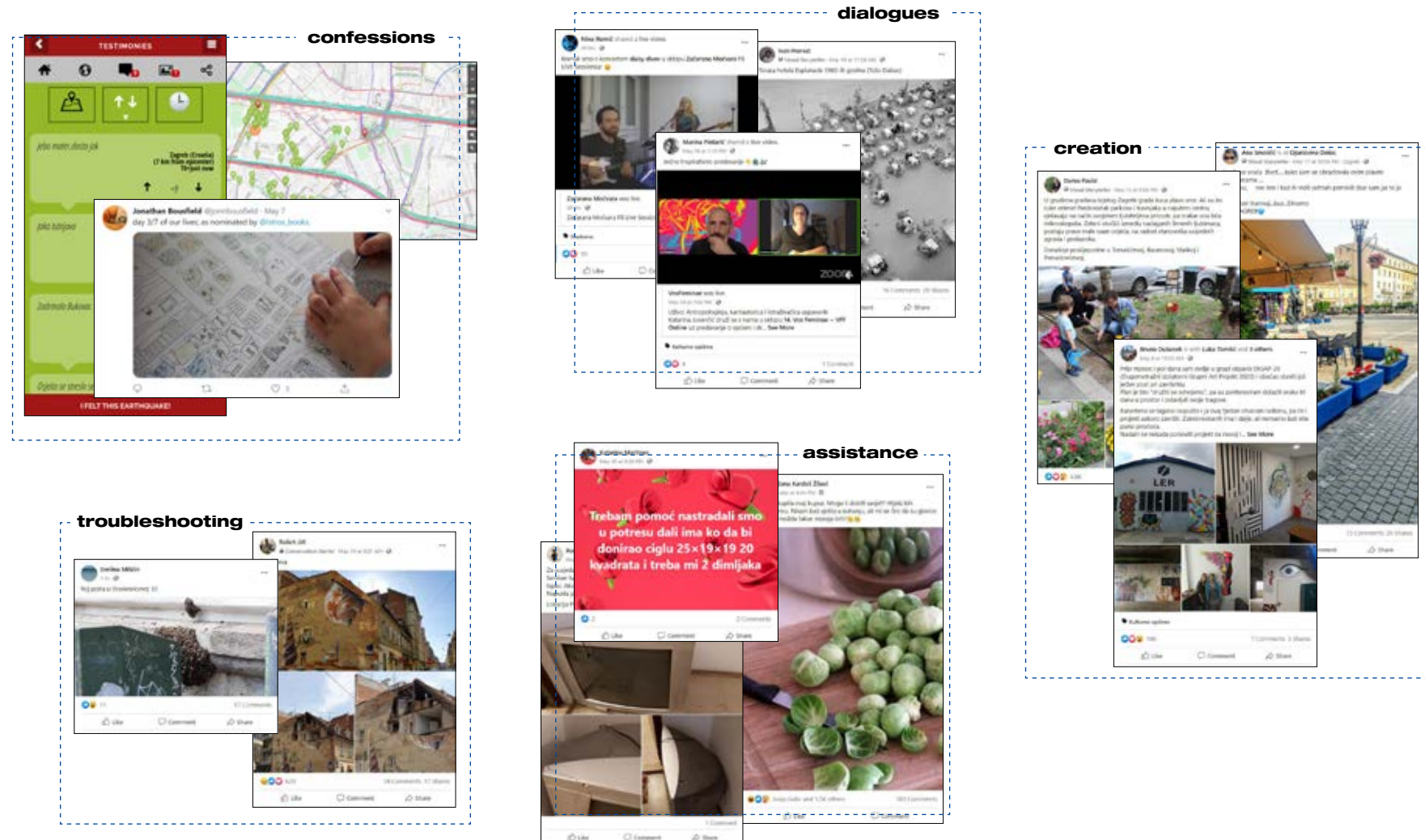


public space



INSTRUCTIONS FOR DESIGN

individuals	conversations	collaborations	crowdsourcing	challenges	movements	organizations
 	 	 	  	 	 	 



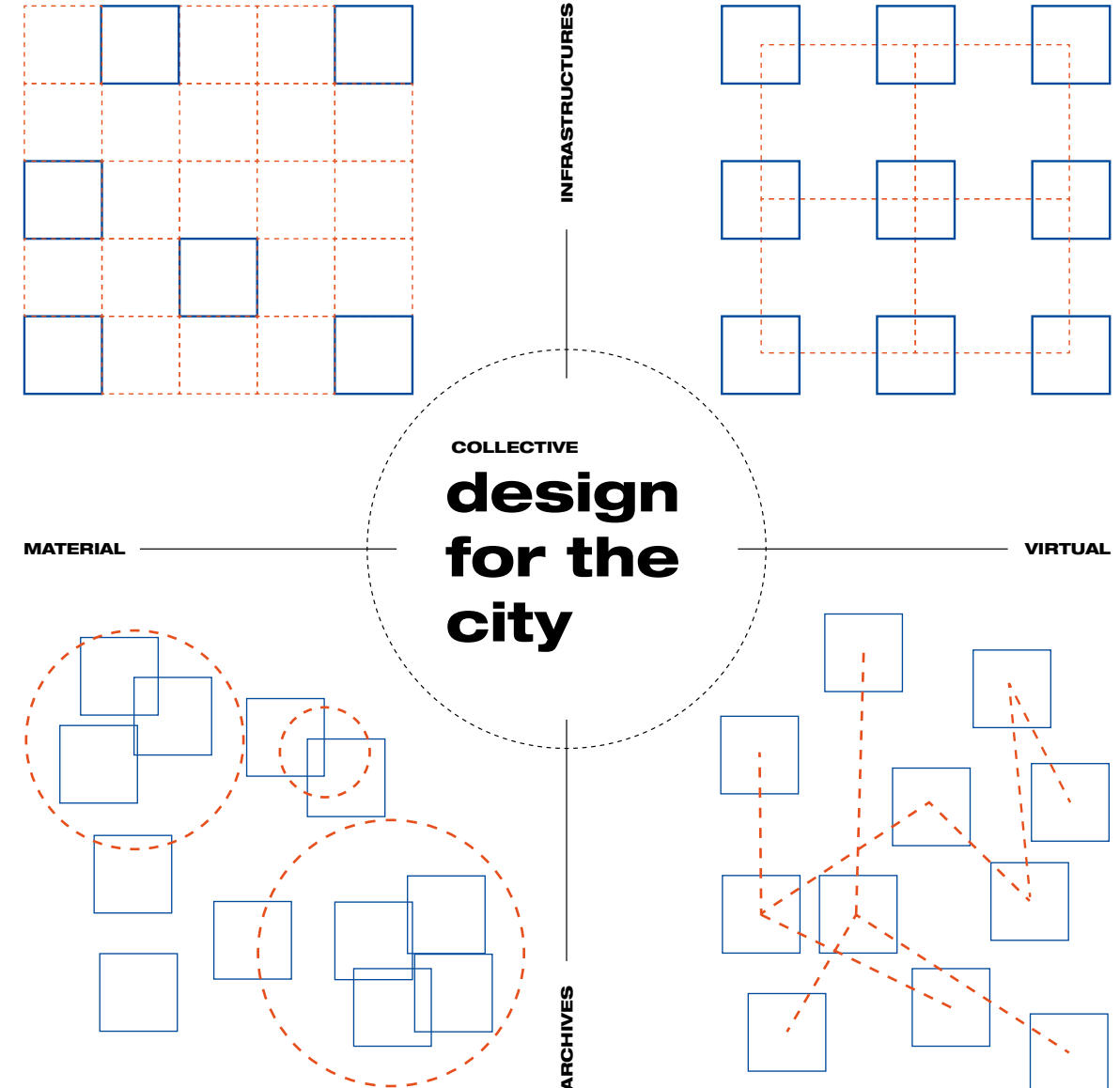
Every meaningful transformation of our system starts with the transformation of the city. The city is not only a machine for living, it is a metabolic system of production, creative endeavor and discussion. It is a terrain in which relationships are forged, it stores memories and creates a field for testing the future. It is also a battleground of politics, class and culture. Therefore it is a vital prerequisite of any meaningful change.

So how to design the city in a new way? This project proposes a model of radical participation, where design is not a linear process executed by professionals behind closed doors for the private or state client. Instead design must be integrated in the life of the city, become a daily activity of professional designers and citizens alike.

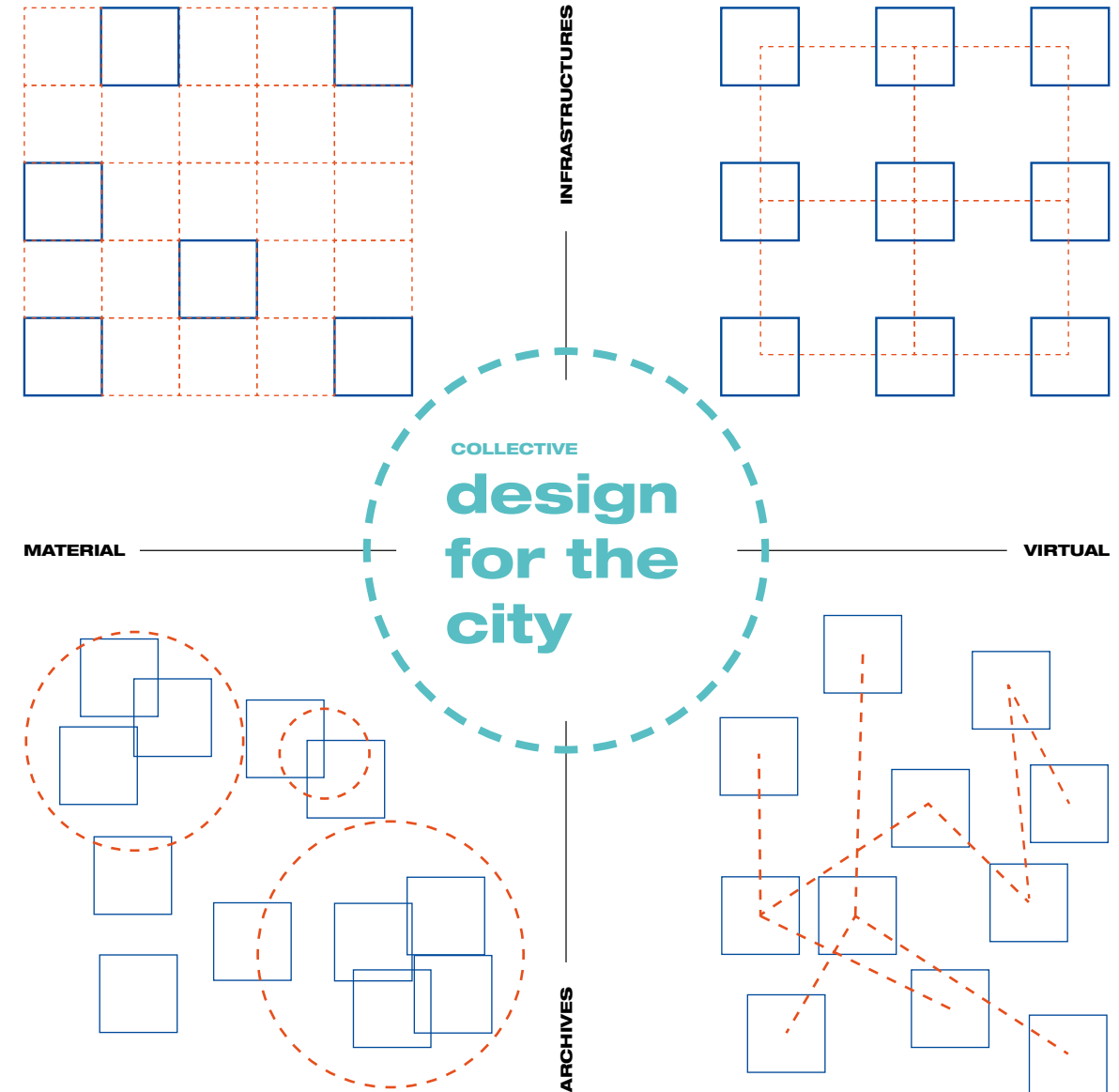
Based on Manzini's propositions, such design activity must deal with the complexity of the lived experience, and to offset it, must be small in scale - local. But this locality can never be hermetically sealed, it must be open to cosmopolitan interconnectedness. To be an invested participant in this system requires putting in meaningful work, with direct consequences and fruits of labour, and this work must be collaborative and strengthen the relationships of communities. That is why, again, it must be a continuous, daily process, slow, but intricate, allowing for growth and maintenance.

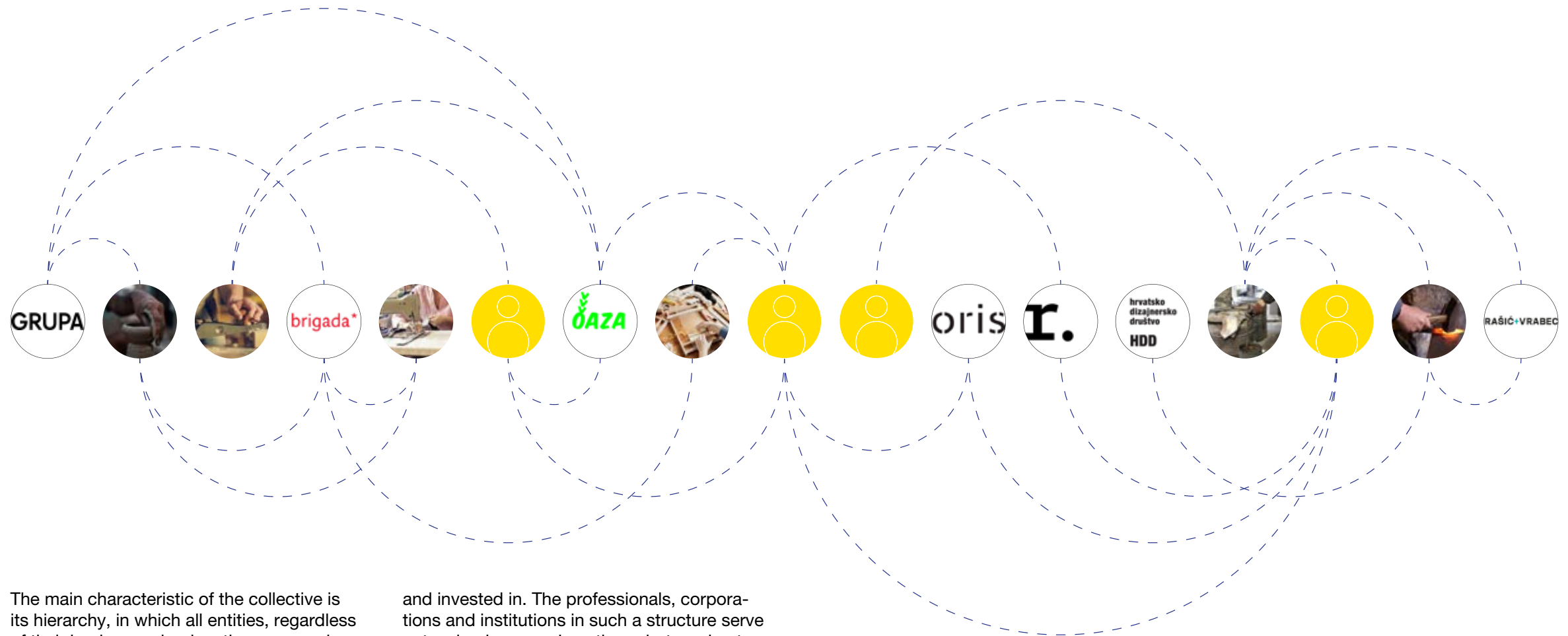
This proposal defines such system across two spectrums: first, between the material and the virtual, and second, between building archives and building infrastructures.

The research demonstrates the variety of movements and cultures based on openness, sharing of collaboration, such as open-source movements, Creative Commons, Wiki, maker, hacker and DIY cultures. The way we document our reality must be based on these principles: our shared archives.



The crux of the new conception of designing cities lies in the collective of creative professionals (freelancers, companies and organizations) who engage with the problems of the city and public space, local merchants and craftsmen and interested citizens. This collective is a democratic and inclusive infrastructure in which all three entities cooperate, share resources, knowledge, skills and perspectives to create solutions and methodologies of designing sustainable city of human scale.

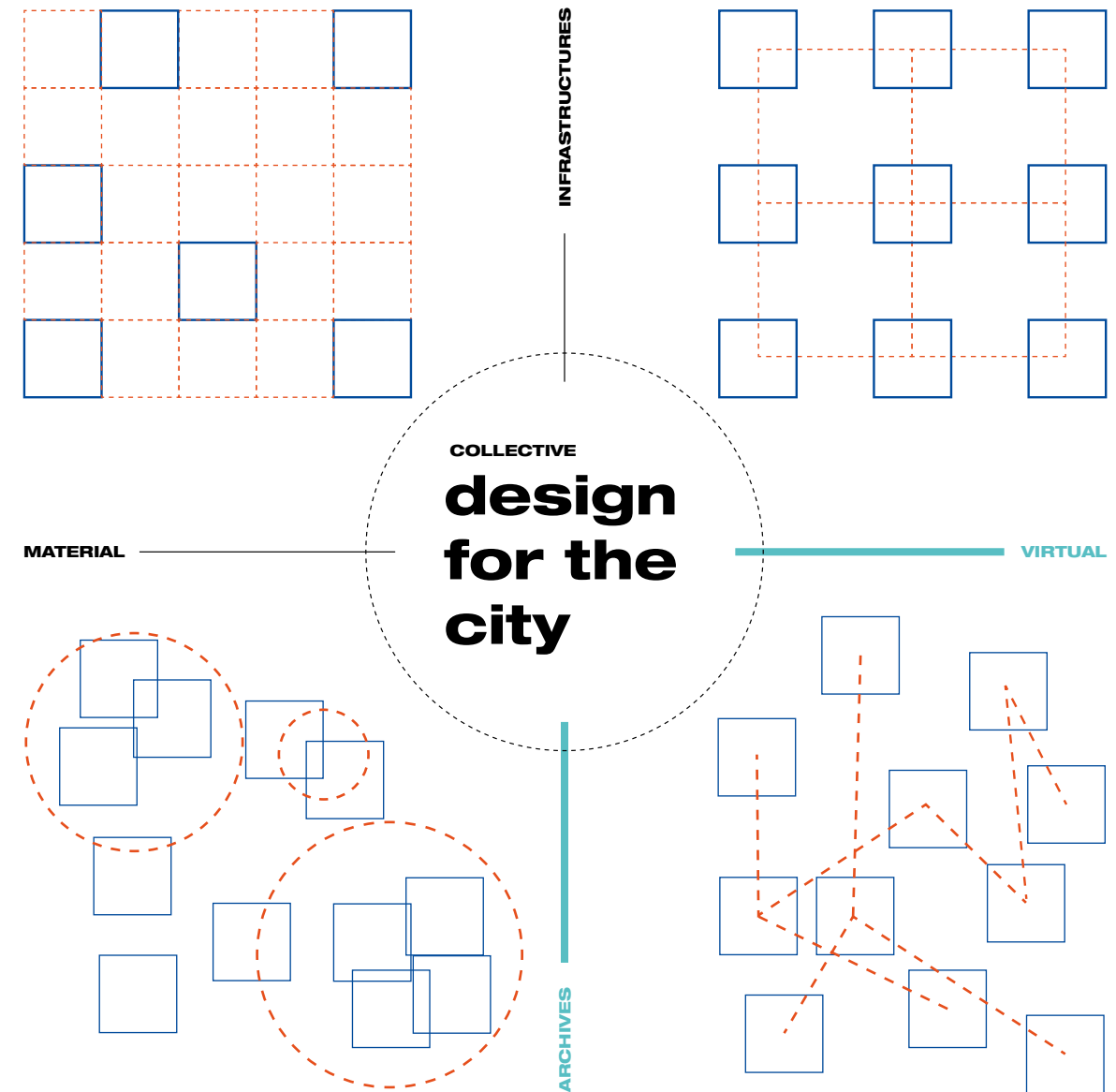




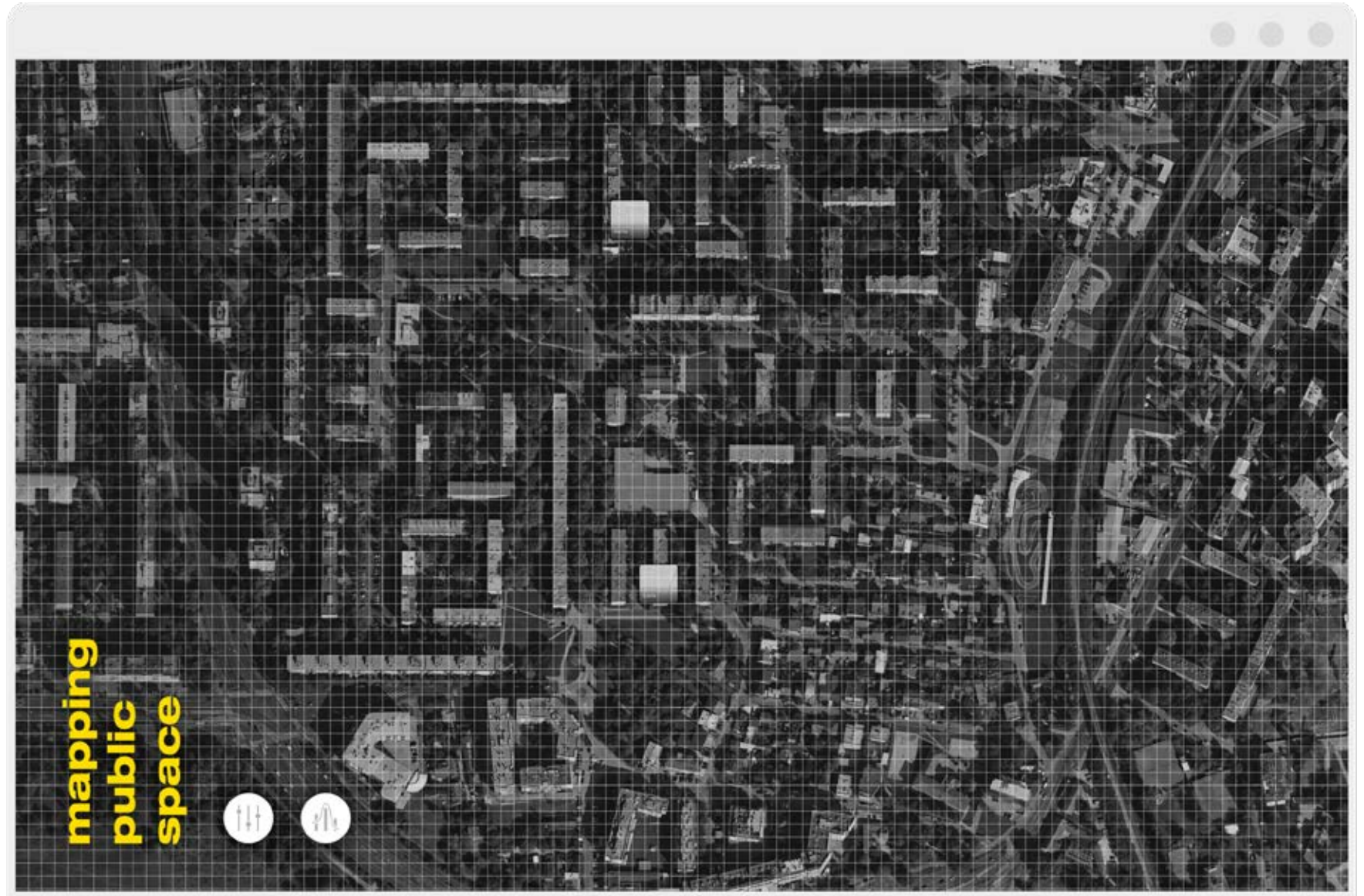
The main characteristic of the collective is its hierarchy, in which all entities, regardless of their background, education, economic or social status and power work collaboratively, through a horizontal hierarchy. Different configurations of building teams for particular projects are possible and depend solely on the interests and willingness of the participants. In that way, participants can choose and craft projects which they are directly affected by

and invested in. The professionals, corporations and institutions in such a structure serve not as leaders or sole authors, but moderators, interlocutors and collaborators. The value of such cooperation is returned to the local entrepreneurs, who become more than contractors, and are able to craft and participate in projects independently, and citizens are included as active stakeholders and decisionmakers of their material and social reality.

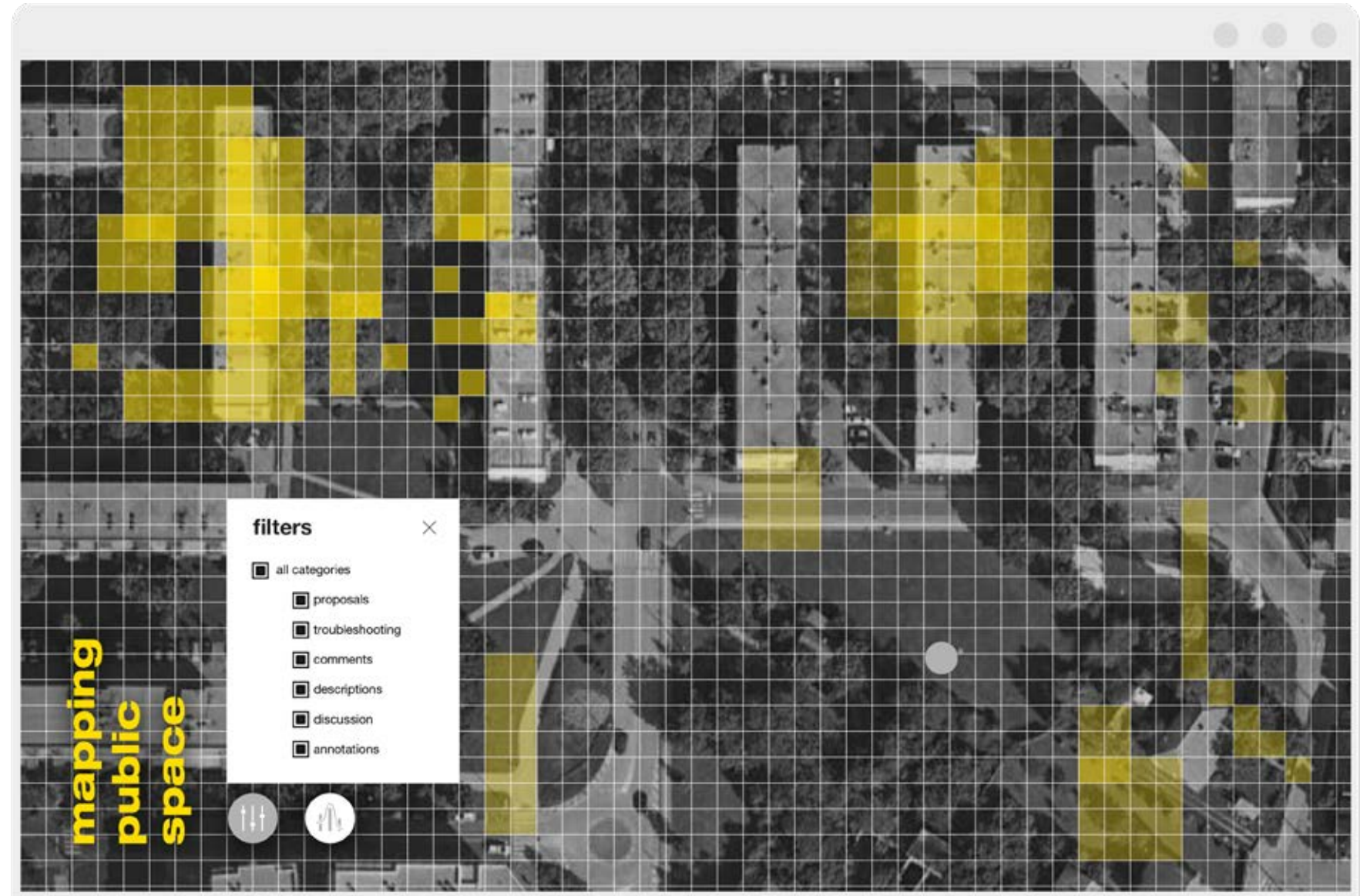
The other basis of the new methodology resides in the virtual world. As the recent events demonstrate, new communication technologies create endless opportunities to connect, organize, collaborate and share, in solidarity and in crisis. This principle can be applied to defining and problem solving in the everyday life. One part of the virtual platform is an archiving system which is rooted in principles of emerging movements - wiki, open source, sharing economy and crowdsourced data.



“Mapping public space” is an interactive wiki-map, with a transparent interface, which divides the space in an arbitrary 2x2 grid (the symbolic measure of social distancing, reclaimed in this project of reviving public space), and each module of the grid is a unit which allows users to store information, media, create discussion and projects.



Yellow patches mark the entries users have inscribed in the system. Such a way of visualizing entries serves not only as a browsing interface, but also as an analysis tool, to determine which areas are active hotspots, problematic areas, places of interest, etc.



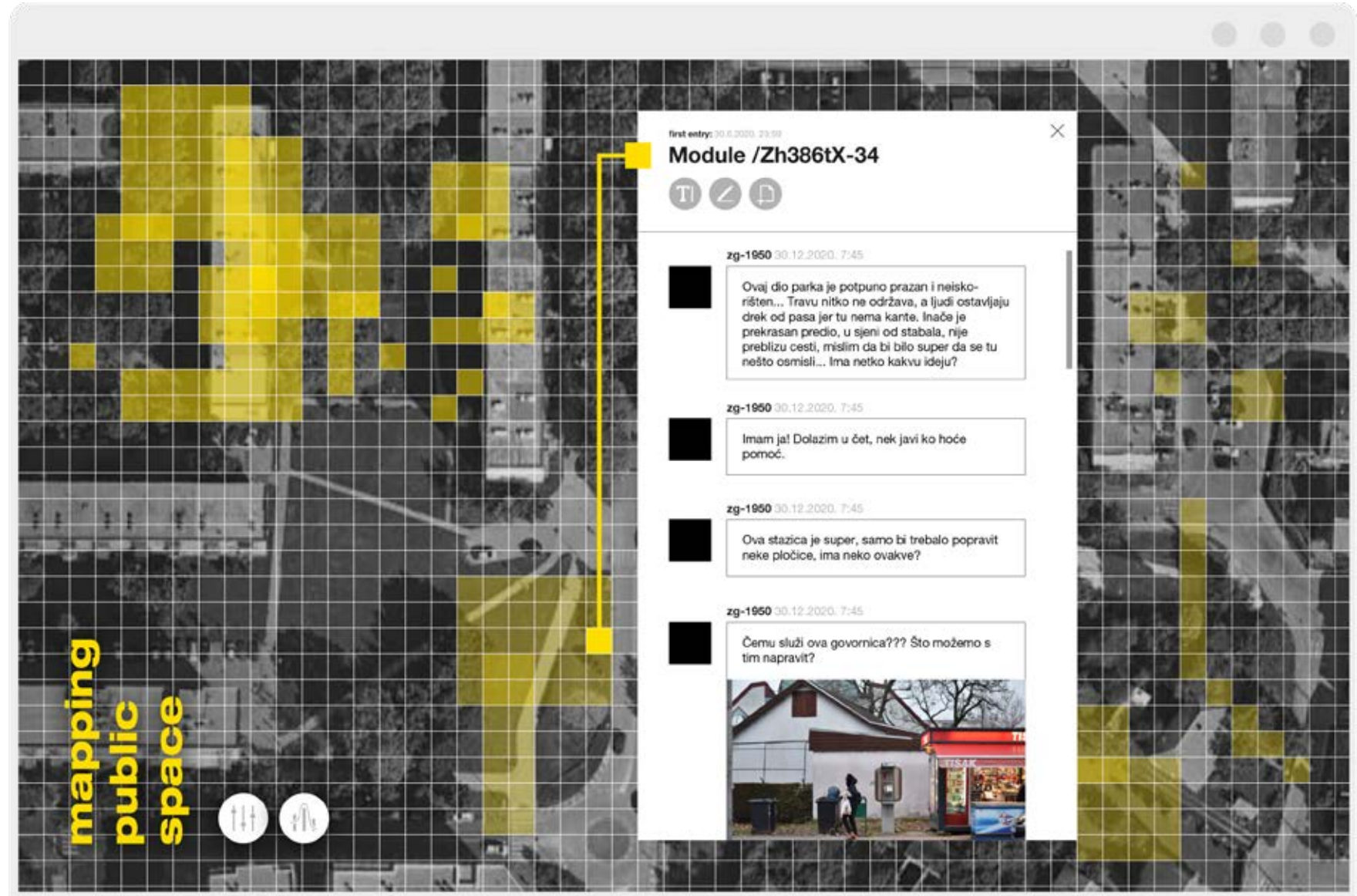
Marking an area allows a user to enter various information types.



Users can describe the space, report problems, propose solutions, etc.



Every module of the grid is a storage unit, which can be accessed in form of a timeline, showing all entries and interactions linked to the selected module. This interface demonstrates not only spatial characteristics, but also incorporate the dimension of time, changes, progress, activity of the past, and projections, plans and organization of the future.



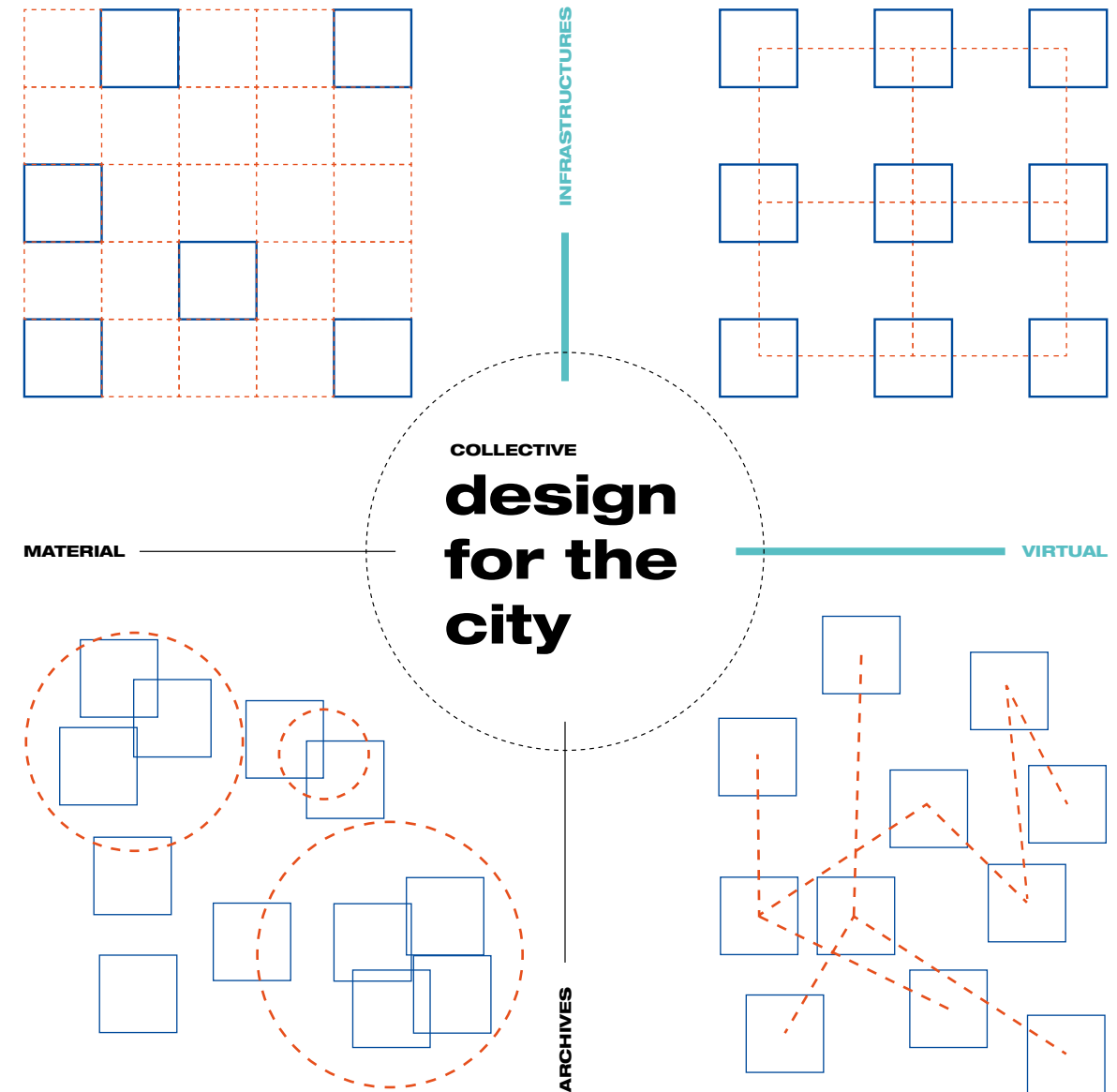
Selecting a particular entry shows all module that the selected entry is linked to.



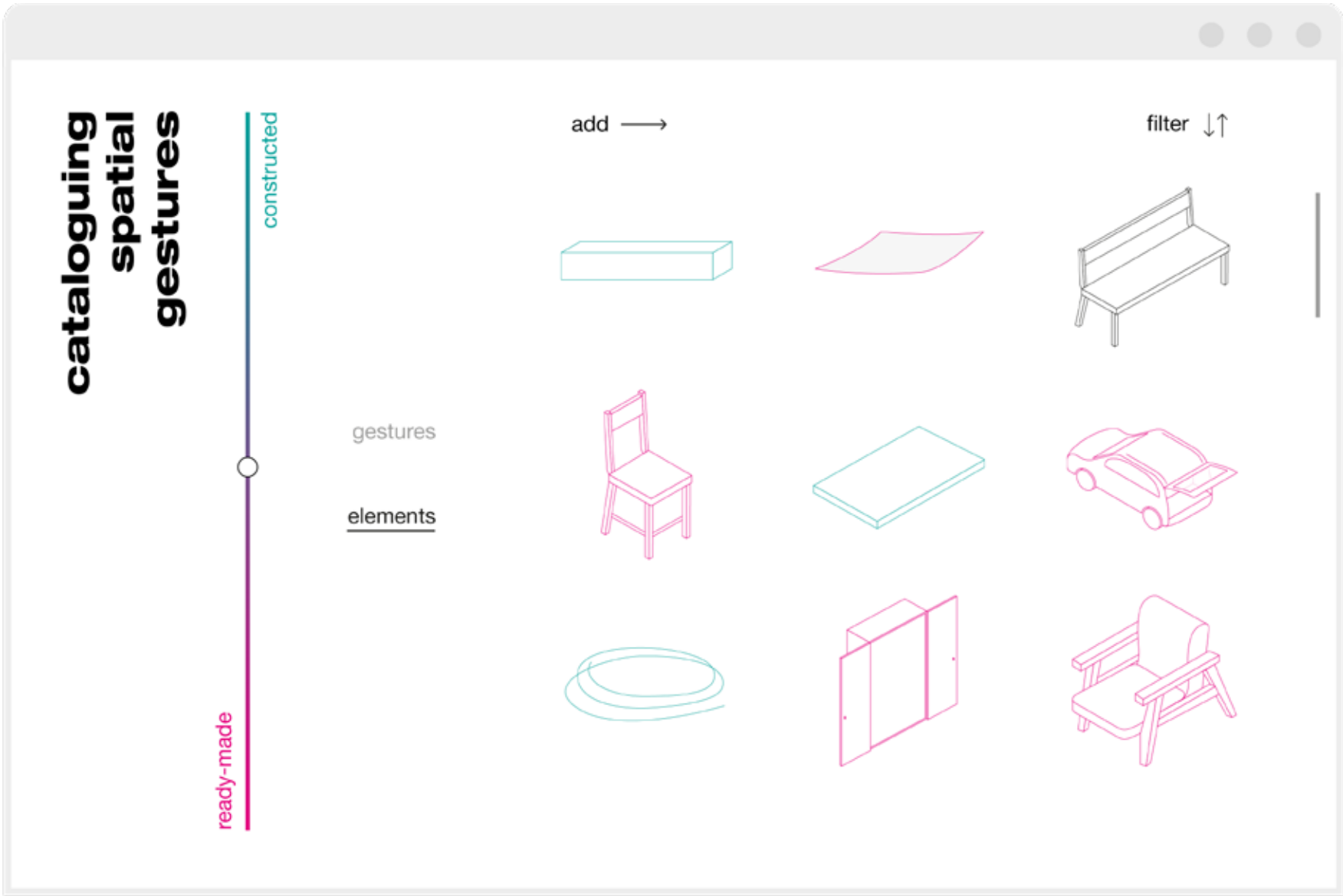
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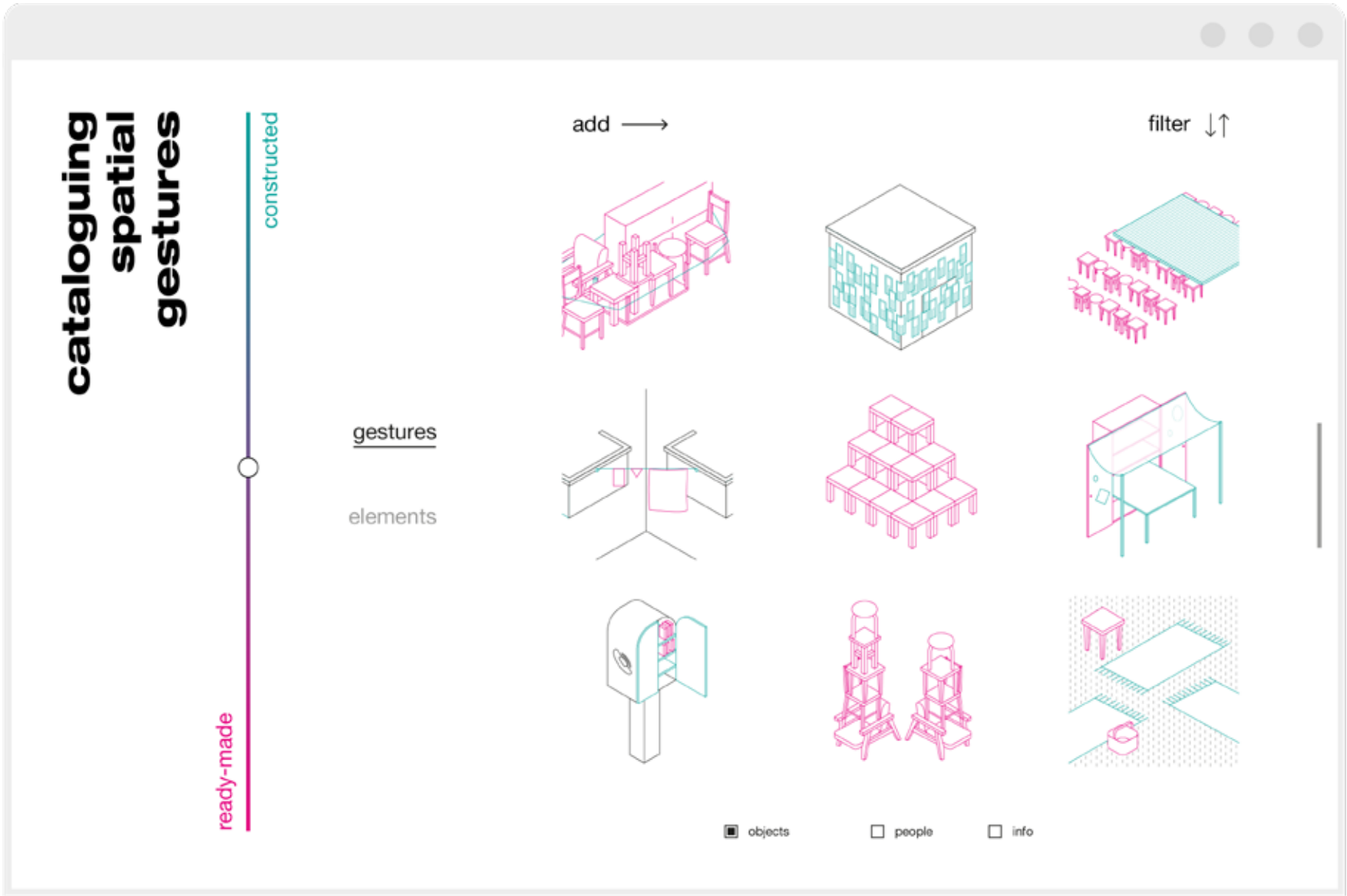
The second part of the virtual platform is based on the same principles, open-source, crowdsourcing, collaborative, but it concerns the imaginarium of spatial possibilities. It is designed in a way to be endlessly modifiable, but accesible to all users, as well as inspiring and a call to action.



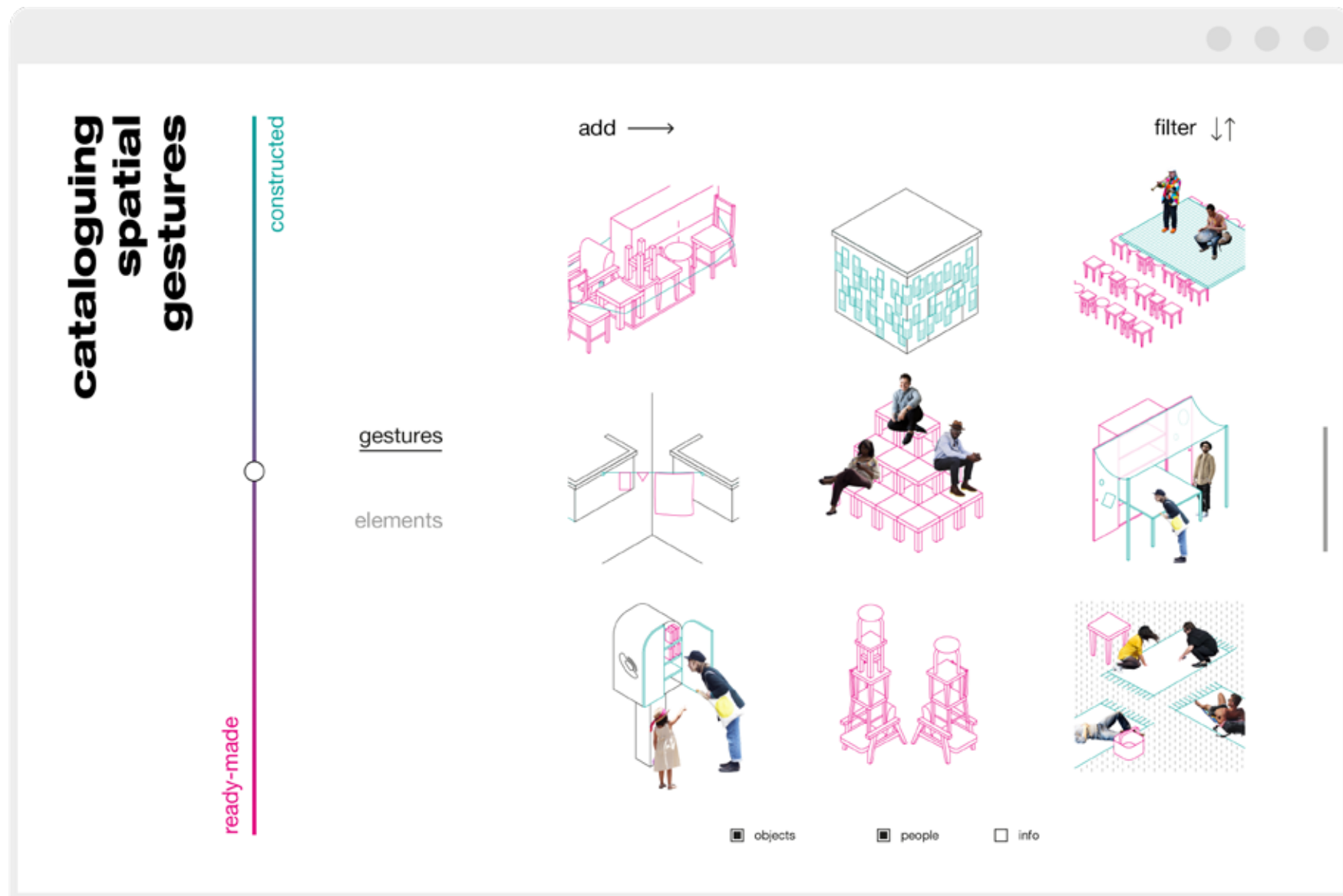
“Cataloguing spatial gestures” is constructed of a digital inventory of various elements, whether they are ready-made, constructed or found in the space. This inventory is an open database, which means it can be expanded, new datapoints can be added, all elements can be modified by users to create new versions.



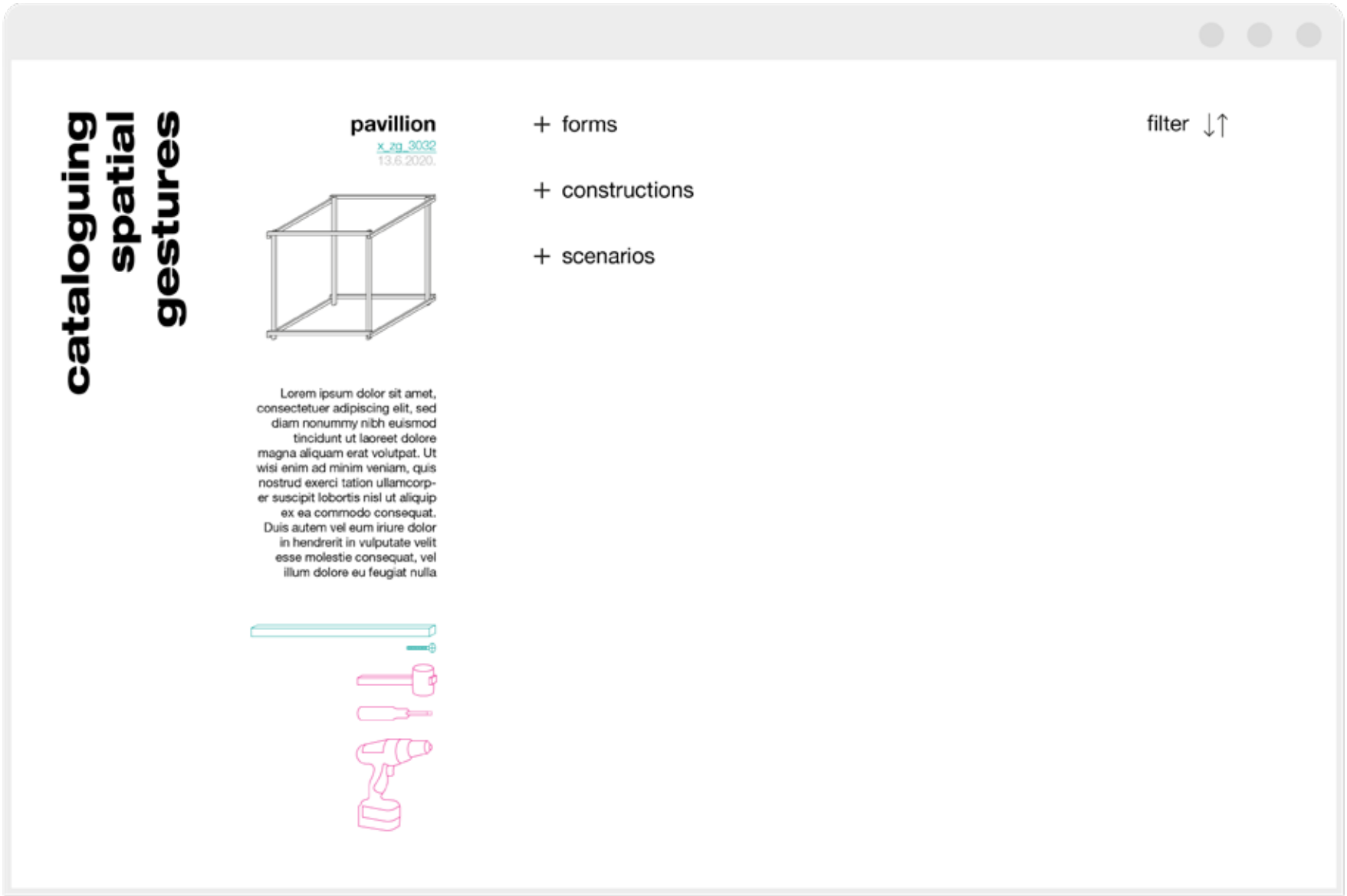
Using these elements, users can create simple plans of various spatial gestures, using easy-to-access, cheap elements. Just as the inventory of elements, this catalogue is modifiable, expandable and editable by users.



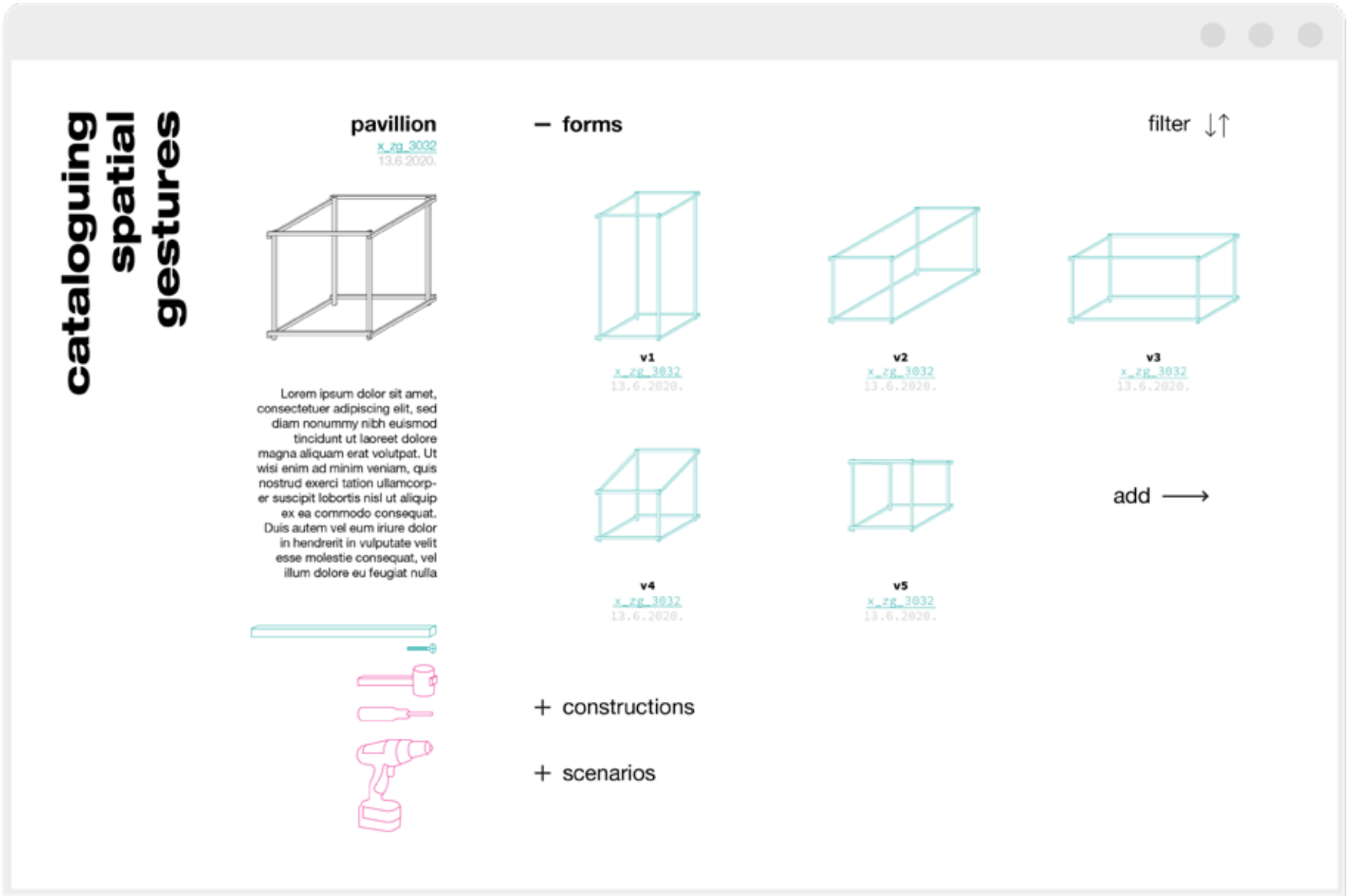
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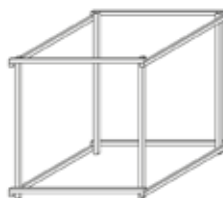


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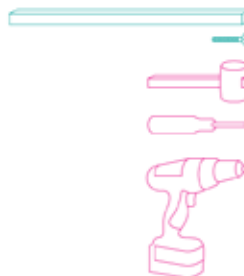
cataloguing spatial gestures

pavillion

x_zg_3032
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+ forms

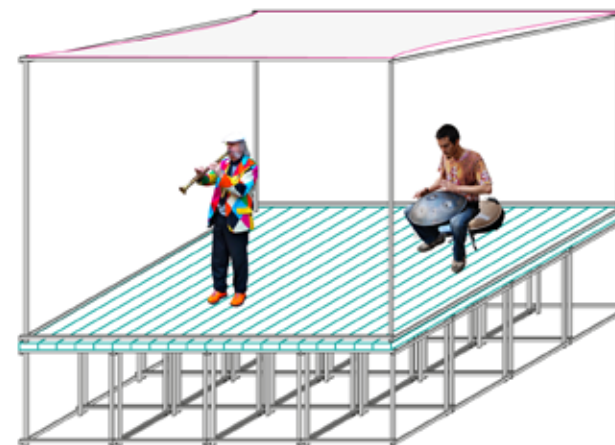
+ constructions

— scenarios



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stejd_4x4

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filter ↓↑

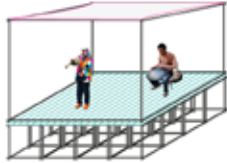
Each of these variations also generates simple instructions for building and construction. Using simple schematics, short description and inventory of necessary materials and tools, it gives users step-by-step guidelines for creating these spatial gestures.

pavillion / scenarios / stage_4x4


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cataloguing
spatial
gestures





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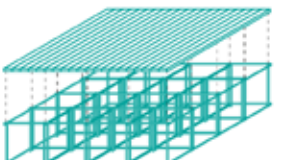




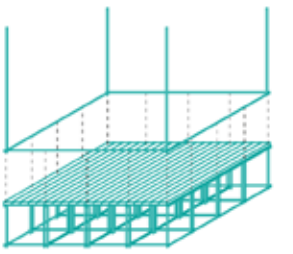
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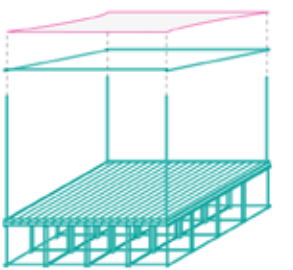
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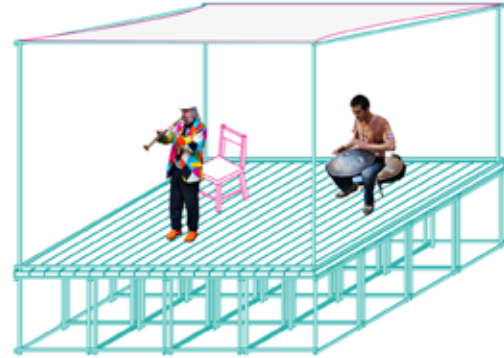


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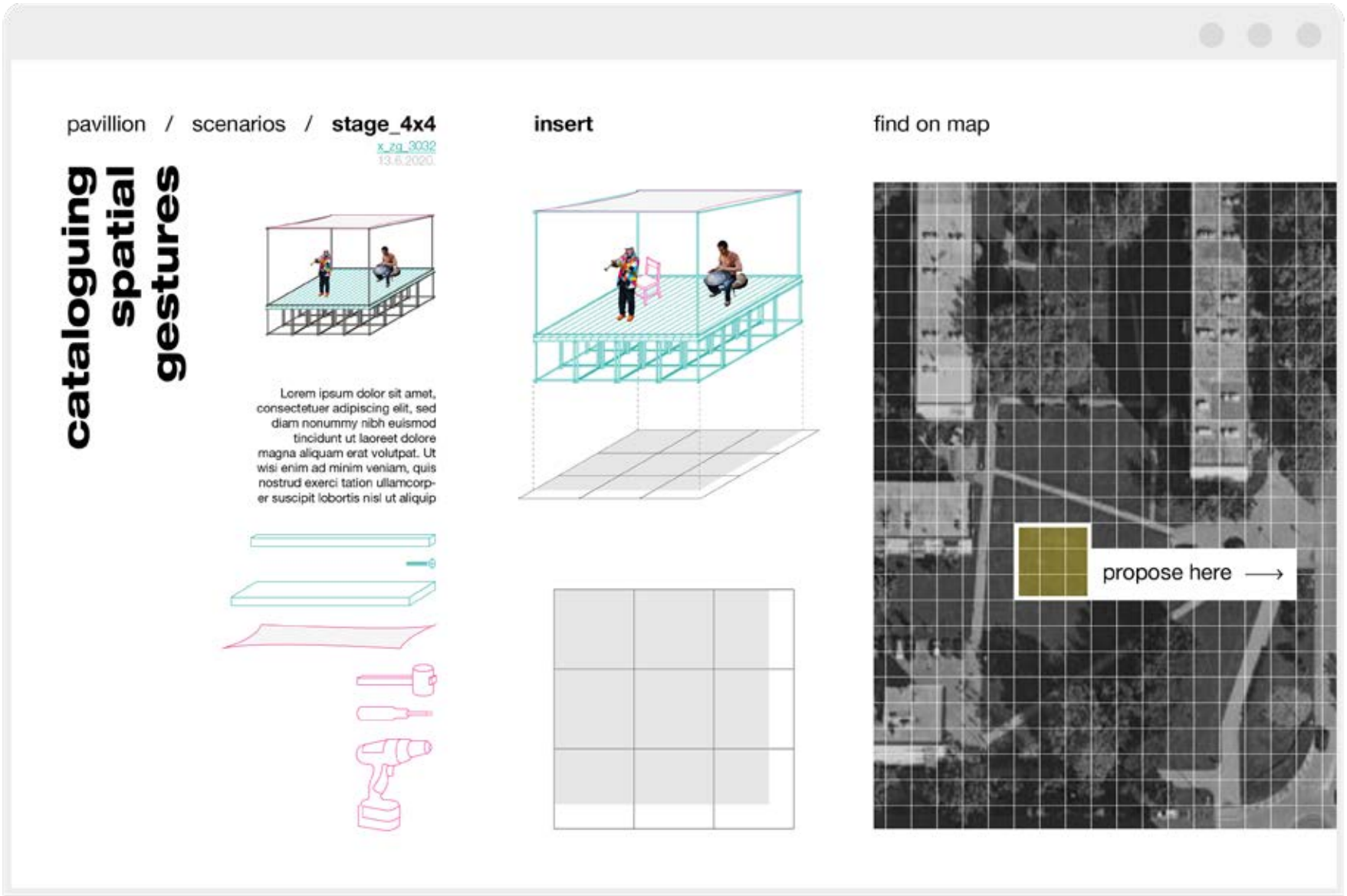


edit →

insert →



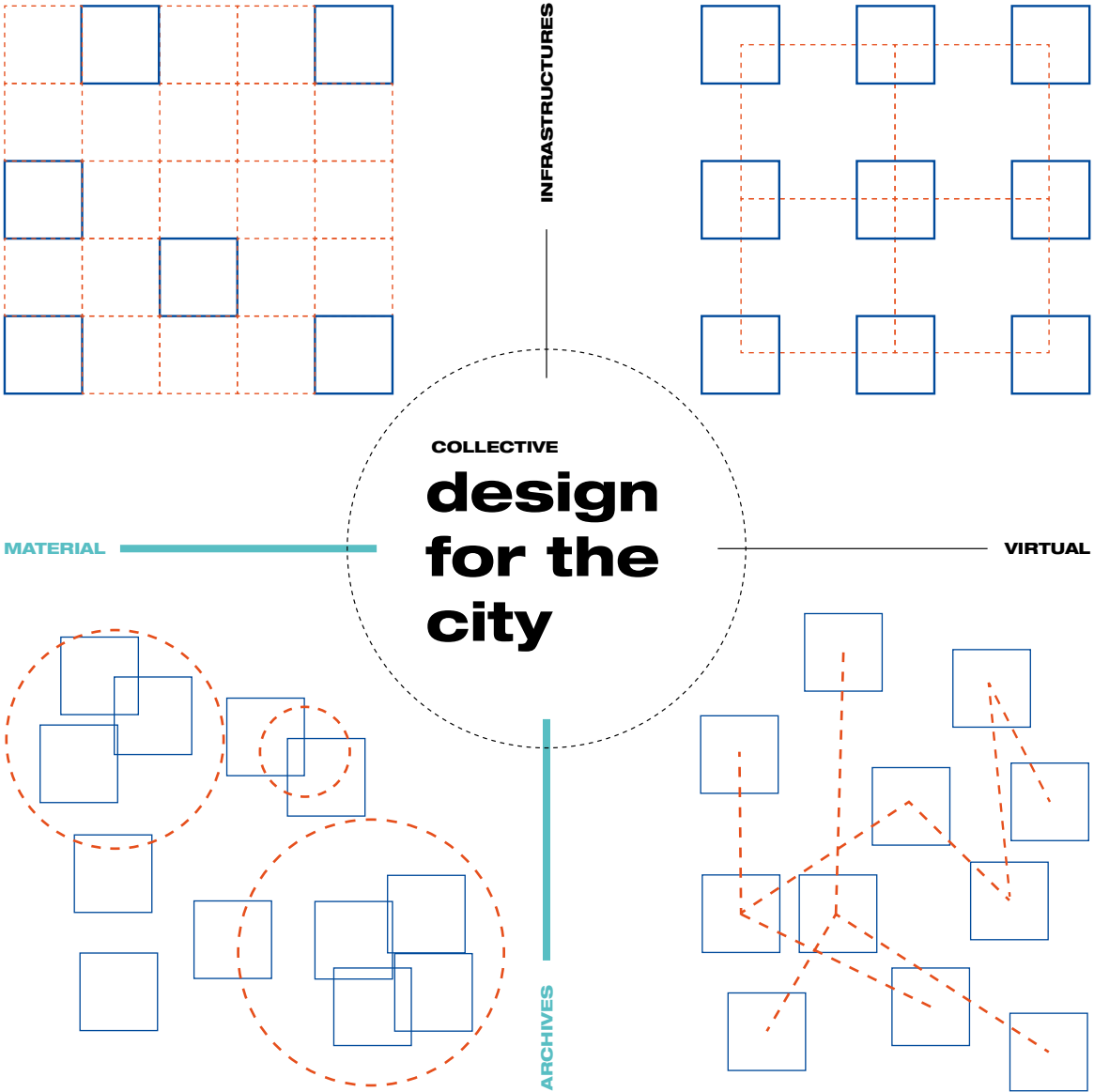
The catalogue is linked to the interactive map, allowing users to insert elements, gestures, and scenarios in the real space, test possibilities and propose them to the community, to start discussion and perhaps planning and organization of execution of these plans.



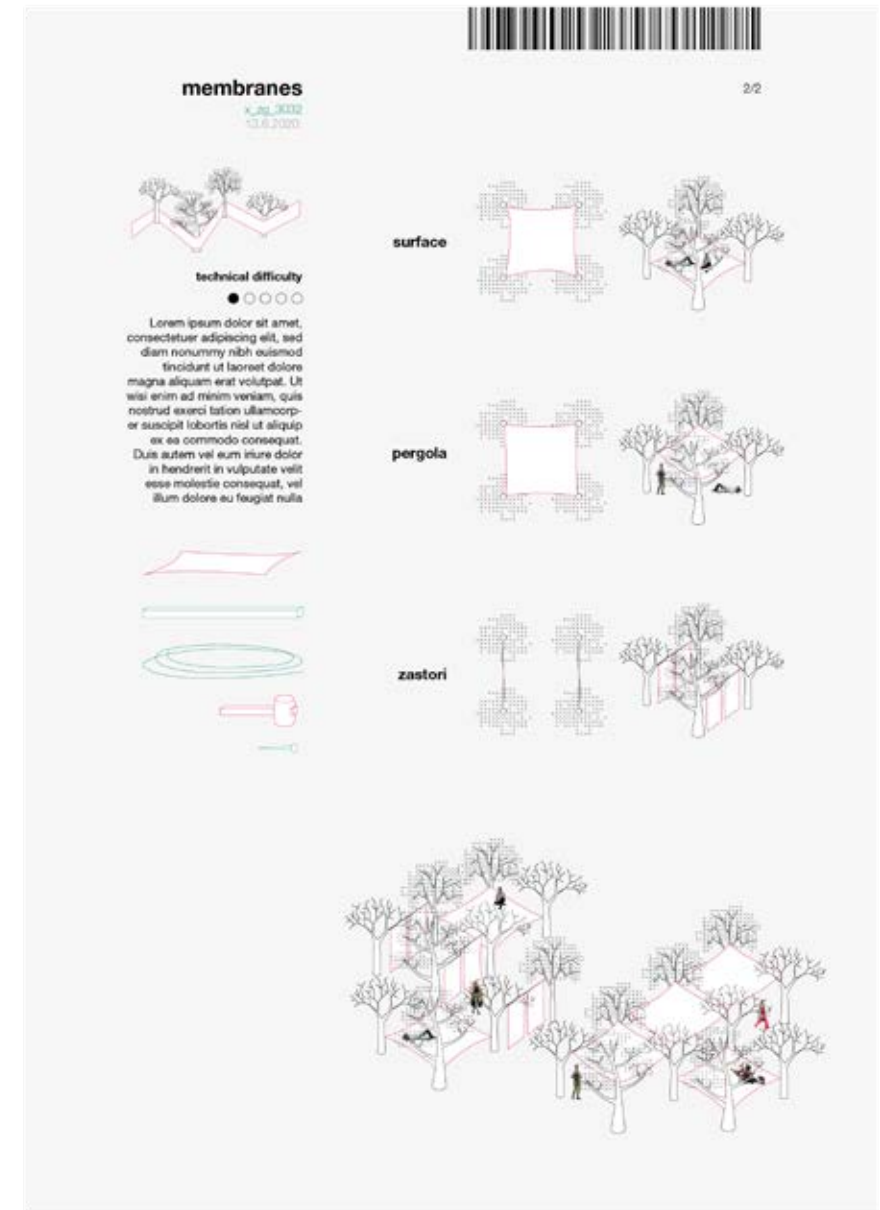
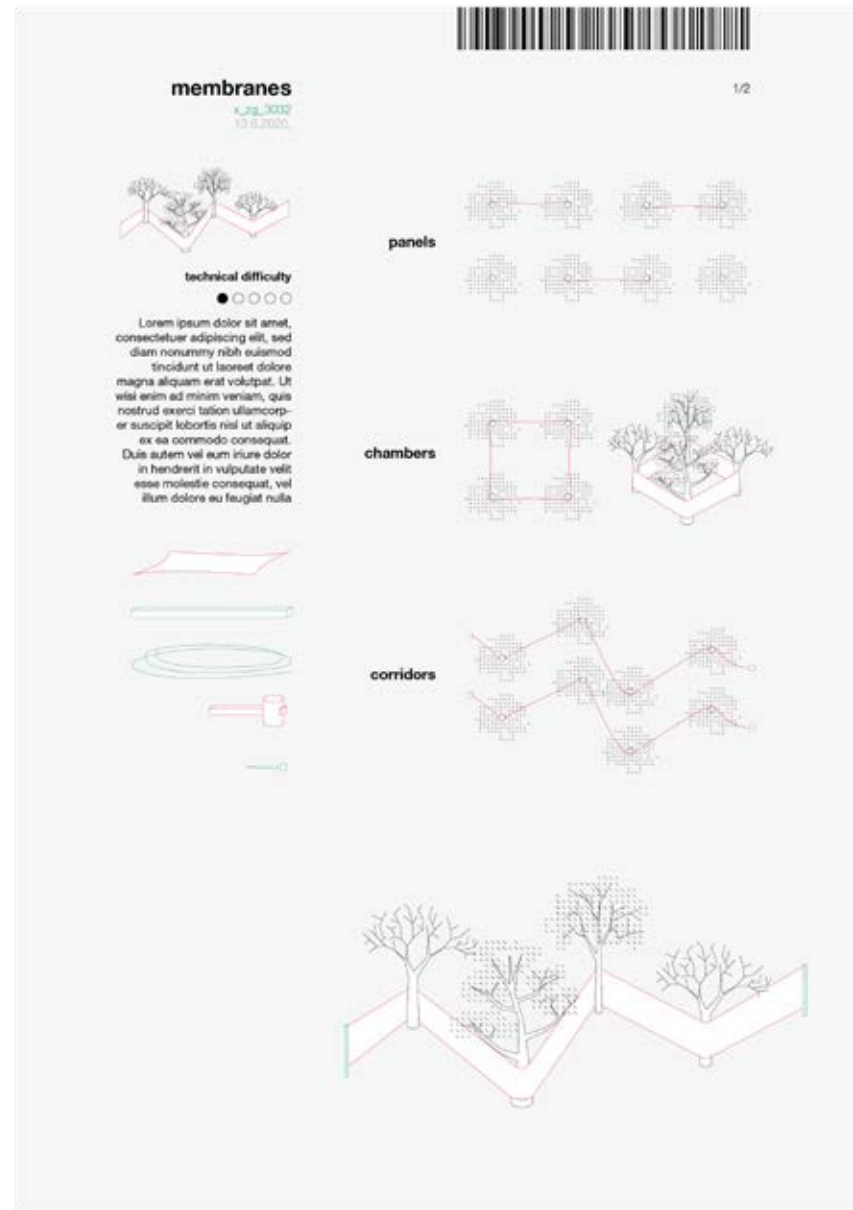
The proposal is automatically added to the timeline to be integrated as part of the discussion or description of a particular place.



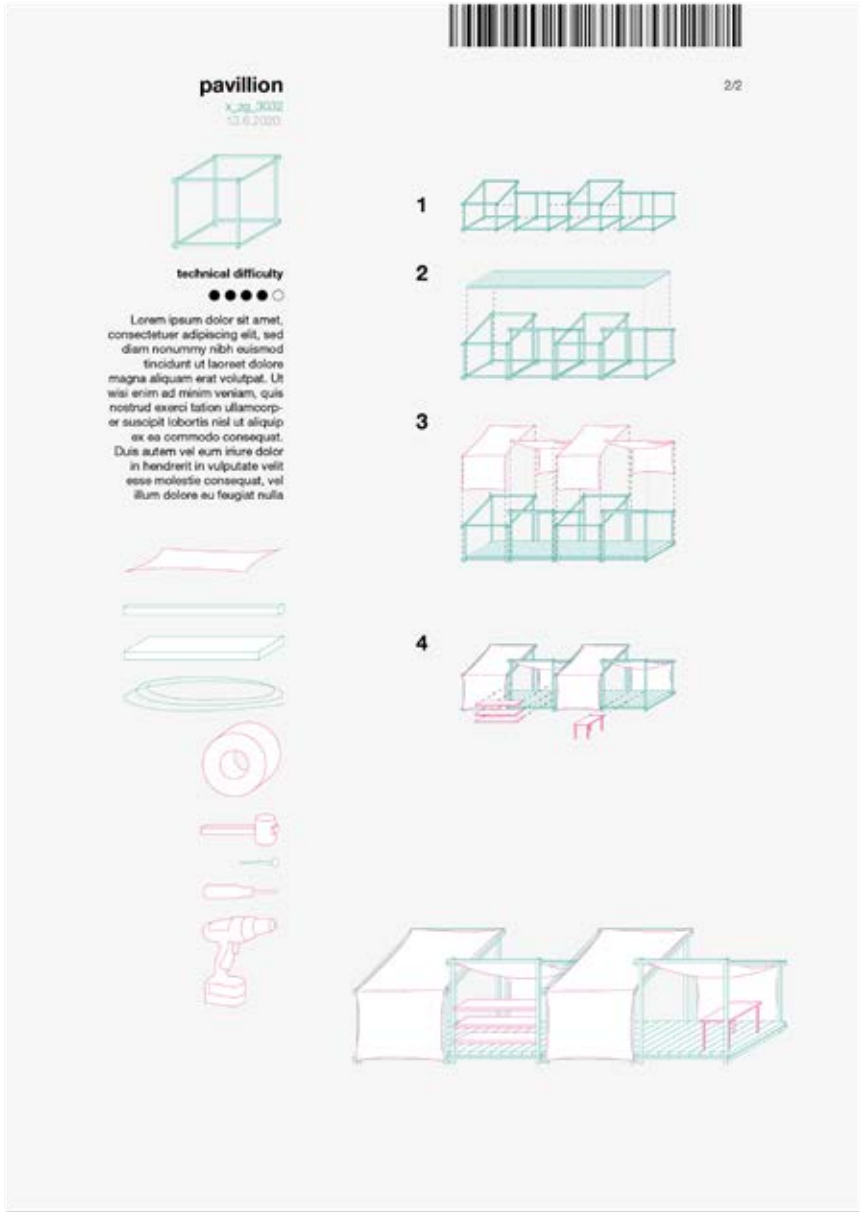
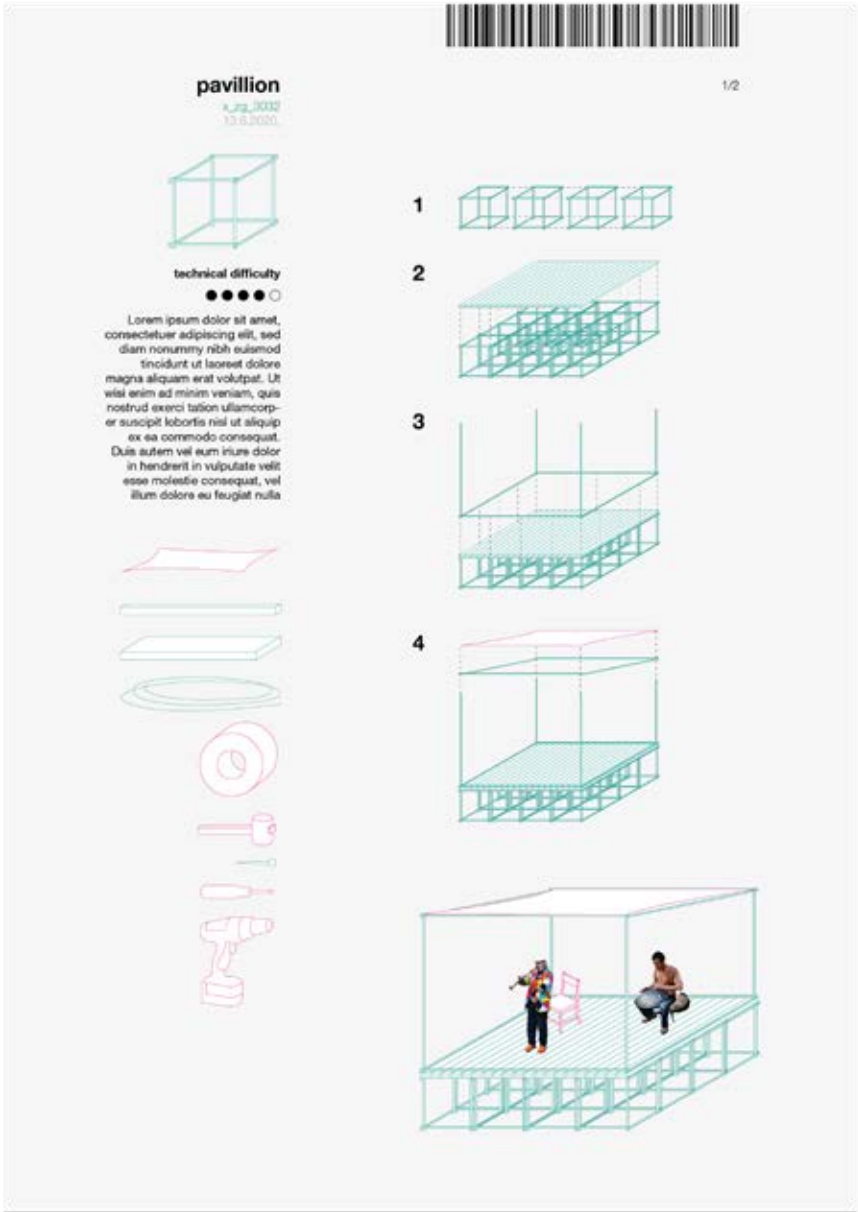
Except the virtual platform, these plans, ideas and archives can be exported into printable materials, plans, instruction manuals and posters. Materializing them in this way allows for them to serve as a visual identity of the project, but also, of the city life, a campaign and a call to action.



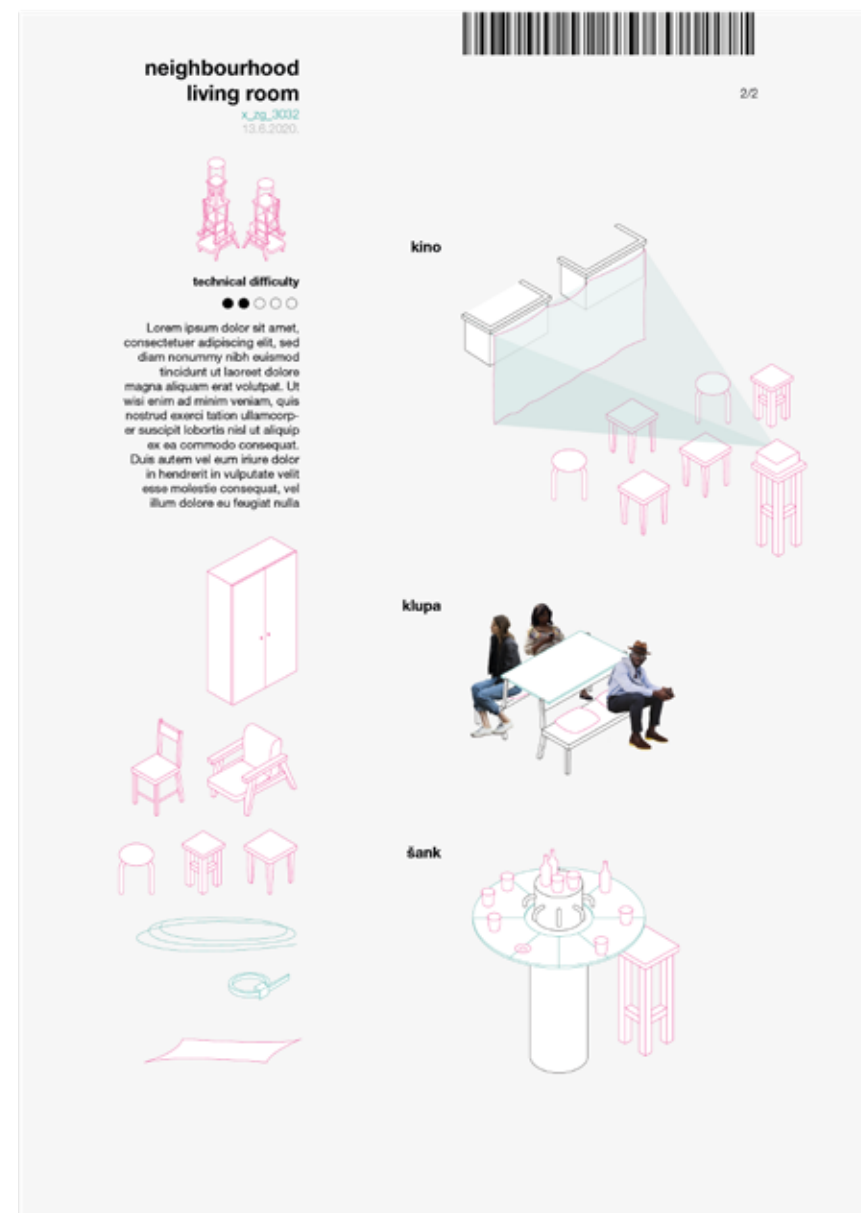
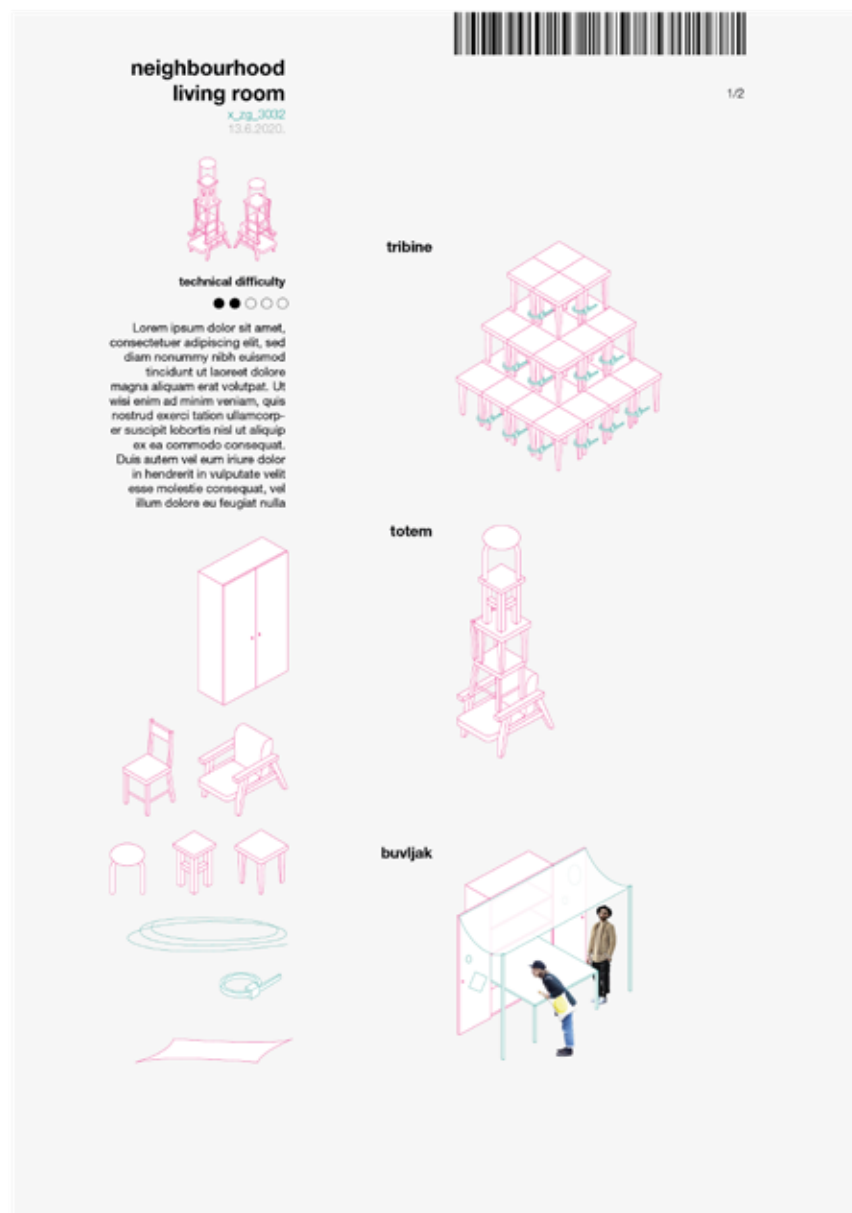
Some examples of possible gestures include “membranes”, simple, abstract structures made of easy to access textile or sheet materials. In interaction with the physical reality of the space, it can serve as space makers, directions, places of gathering, dividers, etc.



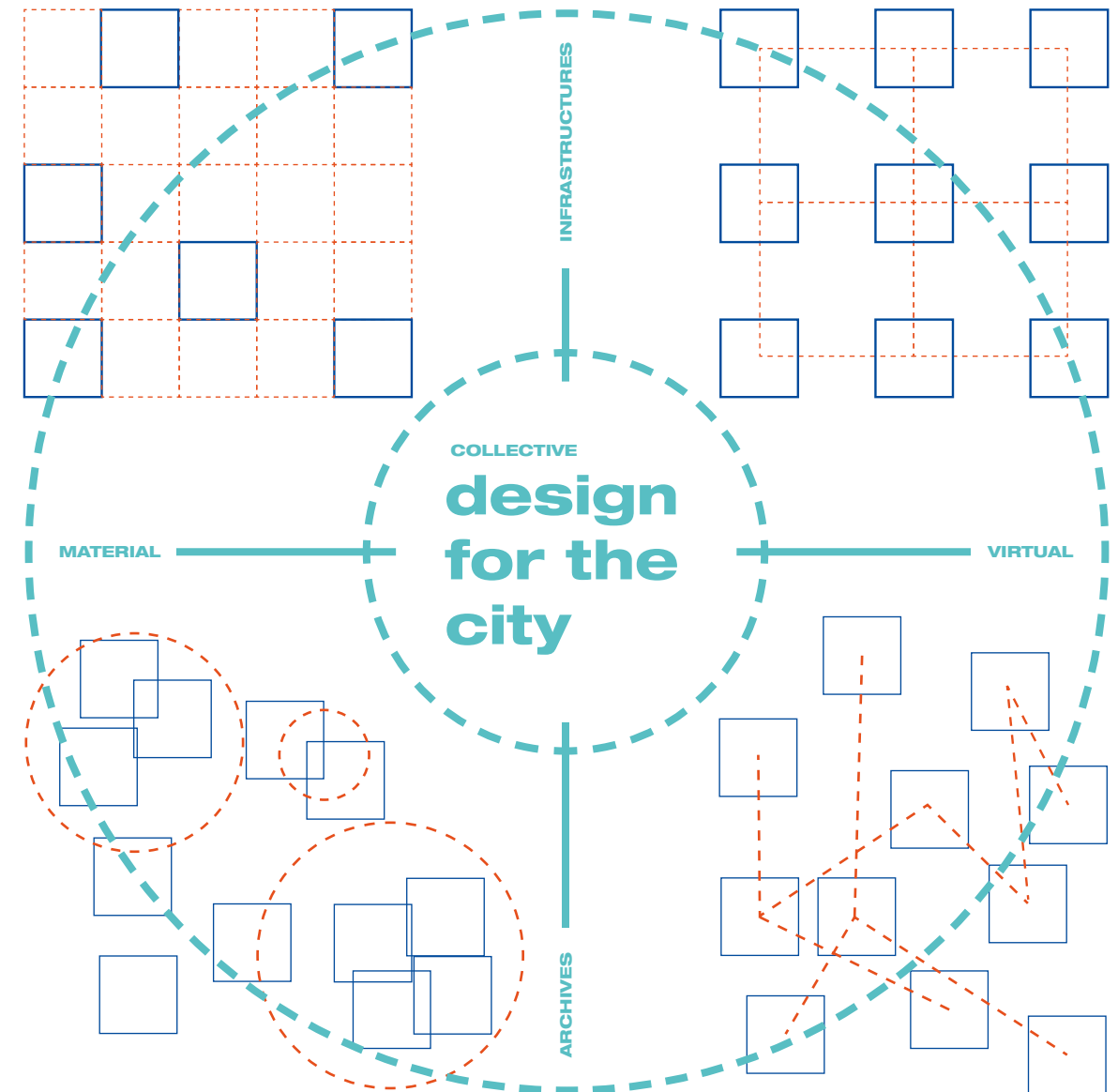
More complex constructive systems, such as “pavillion”, require more skill and knowledge, and in this way require participation of different entities, professionals, craftsmen and others. Such systems can be used to create events, temporary and permanent spatial structures, all the while including (socially and economically) local entrepreneurs and businesses.

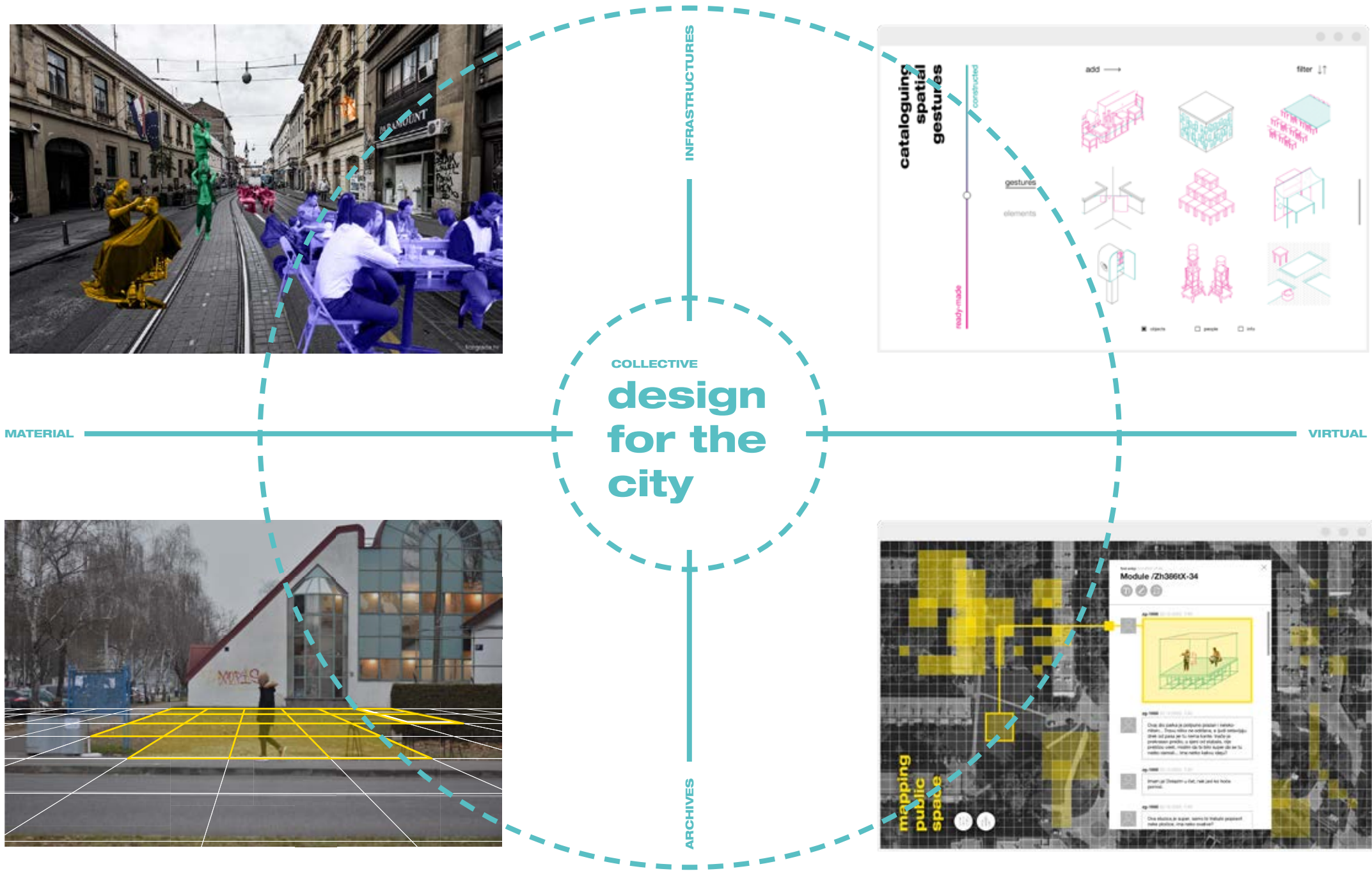


“Neighbourhood living room” is based in using ready-made elements found in every household to expand the home into the public space, to create a shared living room of the street or a neighbourhood, a sense of investment, ownership and responsibility.



For this system to be viable, all components of the system must be integrated and interconnected, and not seen as supplements or substitutes of each other. The virtual platforms for mapping and ideating space aren't there just to record activity, they serve as imaginaries of the possible, transparent, easily accessible and inviting. It is the work of the collective to transform this activity, coordinate it and bring it to fruition in the real world. Materialization of this activity marks the public space as our own, belonging to the community, which is invested in it, has stake in it and is willing to discuss it and take action to transform it and reclaim it.





Literature

Tuan, Yi-Fu, Space and Place, 1977.

What Is Placemaking?, Project for Public Spaces, 2007

Manzini, Ezio, Design, When Everybody Designs, 2015.

Benkler, Yochai, From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons, 2000.

Benkler, Yochai, Commons-based Peer Production and Virtue, 2006.

Sennett, Richard, Building and Dwelling: Ethics for the City, 2018.

Wiener, Norbert, The Human Use of Human Beings, 1950.

Rudofsky, Bernard, Architecture Without Architects, 1964.

Život umjetnosti 96, ur. Bojić, Nikola, 2015.

Hopkins, A. G., Globalization in World History, 2003.

Habermas, Jurgen., The Structural Transformation of the Public Sphere, 1962.

Thompson, John B., The Theory of the Public Sphere, 1993..

Reinhold, Martin, Public and Common(s), 2013.

Saskia Sassen - The global street. Making the political (Youtube)

Fuller R, Buckminster, Ephemeralization

Heylighen, Francis, Accelerating socio-technological evolution: from ephemeralization and stigmatism to the global brain

H. Bergson, Stvaralačka evolucija, 1907.

Sennet, Richard, The Craftsman, 2008.

Makers in the City – How 11 makerspaces around the world grow communities and hack urban issues

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