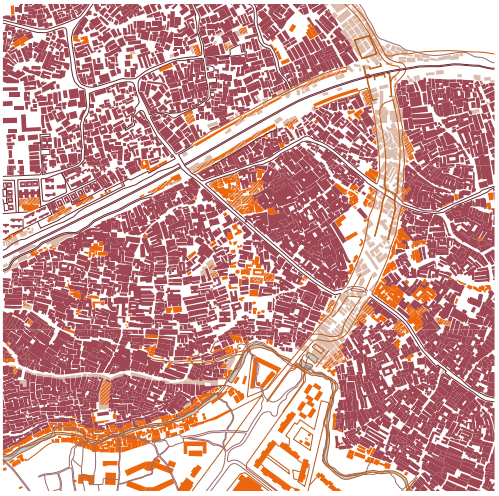
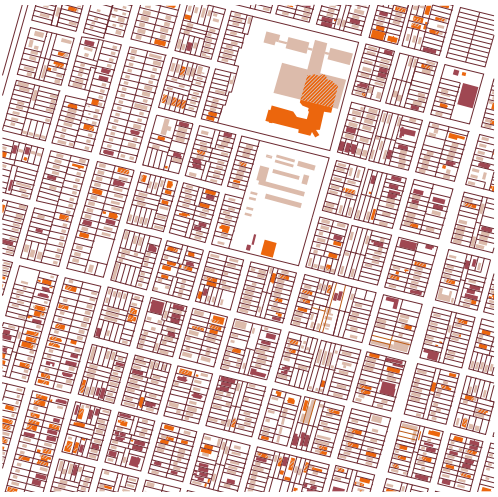
↑ Nahr el Bared / LEB 2003–2010

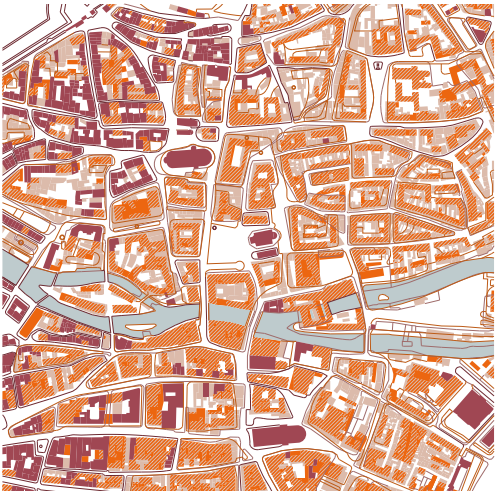


↑ Nairobi, Kibera / KNY 2002–2022



↑ New Orleans, Lower Ninth Ward / USA 2005–2020

↑ New York, South Bronx / USA 1952–2022



↑ Nürnberg / DEU 1945–1971

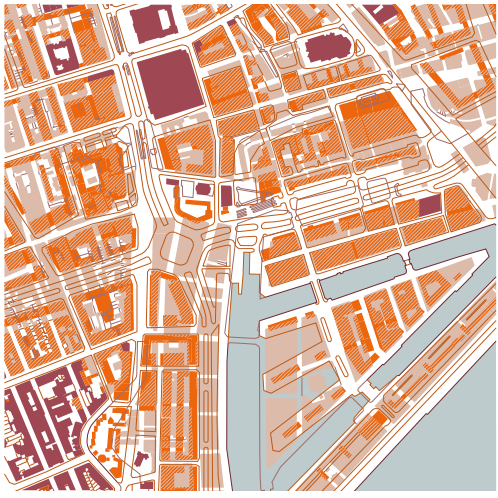
↑ Orléans, Bourgogne-République / FRA 1940–1960

↑ Pisa / ITA 1943–1960

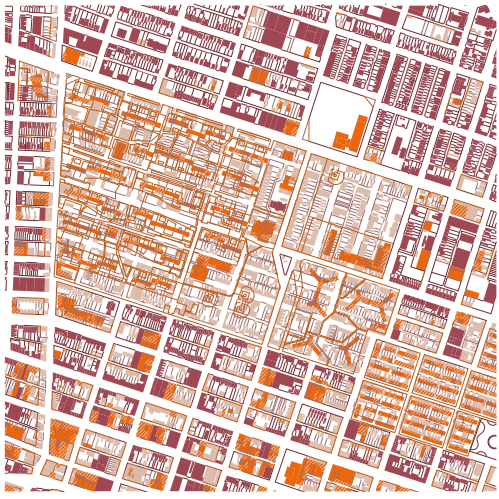
↑ Plymouth / GBR 1940–1962

↑ Poznań / POL 1939–1965

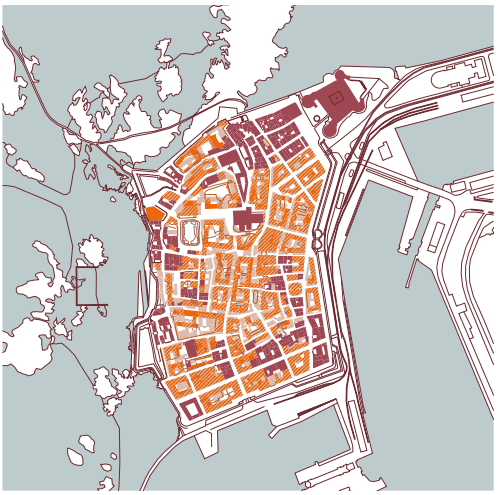
↑ Rimini / ITA 1943–1965



↑ Rotterdam / NLD 1940–1955

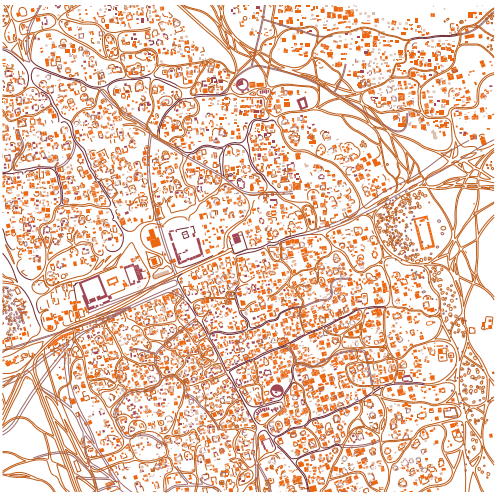


↑ Saint Louis, De Soto Carr / USA 1952–1976

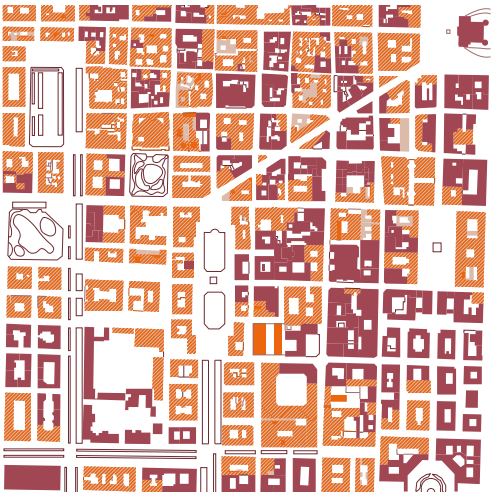


↑ Saint Malo / FRA 1944–1961

↑ Terni / ITA 1943–1954

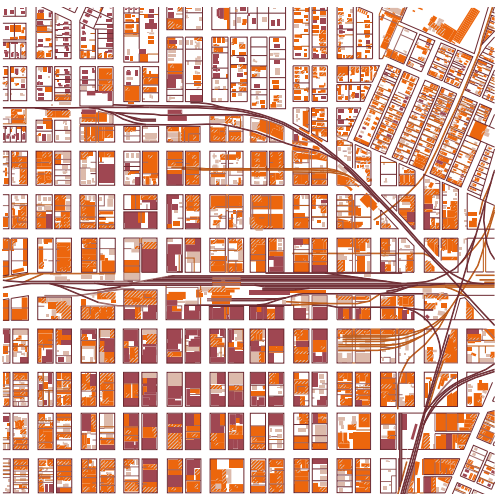


↑ Tindouf, El Aaiun / ALG 2003–2022

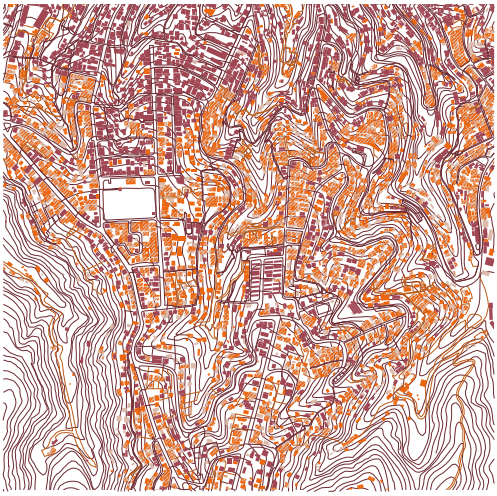


↑ Torino / ITA 1943–1959

↑ Tours / FRA 1940–1962

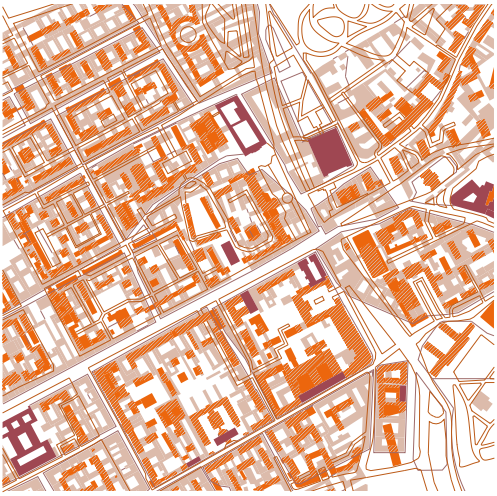


↑ Tulsa, Greenwood / USA 1921–1962



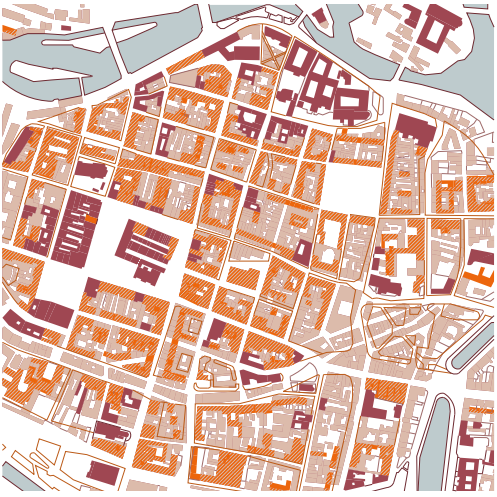
↑ Valparaíso, Cerro Merced / CIL 2014–2021

↑ Venzone / ITA 1976–1991

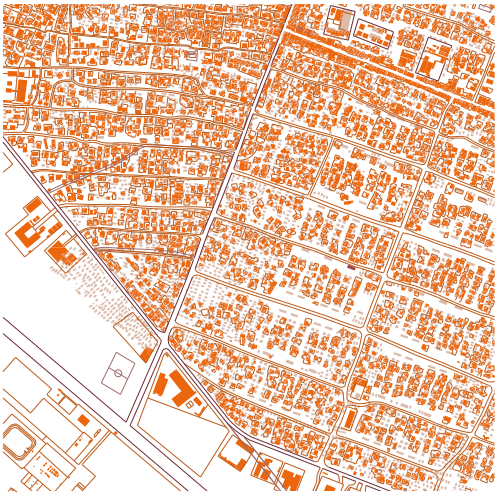


↑ Warsaw, Muranow / POL 1939–1956

↑ Wien / AUT 1945–1963



↑ Wroclaw / POL 1939–1965



↑ Zaatari / JOR 2013–2021

on the careful analysis of transformation maps and on their processing through an algorithm created specifically for this task (BROWN ET AL. 2010). We compiled a list of eighteen indicators related to pre-destruction and reconstruction of built-up area, number of urban elements, median size of elements, average distance, and percentage of built area. The statistical analysis of the indicators permits a selection of those most relevant in influencing urban metamorphosis, allowing one to eliminate indicators underrepresented in terms of significance. A weighting of all eighteen indicators shows that those related to map transformation are among the most relevant, with a cumulative weight of more than 63 percent. A synoptic chart with the two axes defined by an indexed version of the parameters related to urban patterns and building types allows one to precisely locate each case study within a unique quantitative framework. The results of such a process tend to form a strongly polarized cloud with a clear correlation between the degree of urban and architectural innovation. This result confirms the idea that choices in the urban model strongly influence levels of density, and act as a form factor of the architectural elements by inducing specific design choices. The use of quantitative parameters allows one to construct a basic understanding of prewar and postwar conditions freed from biases and acts as a fundamental base for the development of design strategies informed by data analysis and interpretation.

2_4 UNPRECEDENTED SCALE OF DESTRUCTION

Despite the desperate need for an organized knowledge of reconstruction processes, to be seen as a starting point in the development of a discipline of reconstruction, it is fundamental to admit that the current pressures imposed on urban environments are unprecedented in the history of humanity in terms of scale and intensity. In the field of urbicide, the biggest city completely obliterated during World War II was Warsaw with its 1.3 million inhabitants, while Dresden or Coventry, which remained in popular culture for the harshness of their carpet bombing, had only 650,000 and 260,000 residents; and Hiroshima, martyrized by the first atomic bomb, had around 345,000. Today, the complete destruction of metropolises such as Aleppo (4.6 million), Mosul (1.8 million), or Sanaa (3.5 million) and the attacks on Kyiv (2.3 million) pose new and distressing questions related to the scale of urban warfare, while military strategists are already discussing the possibilities of war in megacities (HARRIS ET AL. 2014; KONAEV 2019).

The most striking and fast increase in global risk comes from climate-related disasters, which are growing at a pace never experienced before: 83 percent, from 3,656 events during the 1980–99 period to 6,681 in the past twenty years (VAN LOENHOUT AND BELOW 2019). Major floods have more than doubled, the number of severe storms has risen 40 percent, and there have been major increases in droughts, wildfires, and

heat waves. Climate change will most likely completely alter entire territories at a geographical scale and force societally disruptive urban shifts. Indonesia will relocate its sinking capital Jakarta, and a large part of its 10 million inhabitants, to the new city of Nusantara, recently established on the island of Sumatra (LYONS 2019), while Egypt and South Korea are considering a similarly extreme solution. Climate induced rural-urban migration is seen as a concurring trigger for present-day violence in Syria, Libya, and Yemen (FEMIA AND WERRELL 2013; GLEICK 2014), while large parts of the Middle East / North Africa (MENA) region have been labeled as uninhabitable by 2050 (ZITTIS ET AL. 2021) and the foreseen climate migrants of the next fifteen years have been projected to reach the staggering number of 216 million (CLEMENT ET AL. 2021).

The climate crisis has often been seen as the great equalizer (PARSONS 2007), capable of uniting humanity toward the common goal of saving the Earth, but in reality the Gini coefficient defining the level of inequality is reaching its historical peak in practically every nation: "we are facing the same storm, but we are in different boats" (NAKATE 2022). An unequal society is threatening not only for the poorest strata of the local and global population but also for the community at large: California, by far the richest state in the richest country on Earth, is experiencing a housing crisis and rising homeless population due to its enormous wealth gap (DOUGHERTY 2021), posing doubts about the chance of survival of a highly unsustainable model (MANJOO 2019). Dubai, the ivory tower where it is possible to ski in the middle of the desert, has become the only truly global urban model and the home of "dubaization" (ELSHESHTAWY 2009), a synonym for grandiose urban interventions that hide disadvantaged migrant laborers in slave-like working conditions and an enormous waste of resources that is pushing the planet further and further toward its destruction (DAVIS 2006).

A key difference in the current cities subjected to major pressures is the type of urban pattern involved: until World War II and in the immediate postwar years, the vast majority of destruction following extreme events occurred in dense historical cores with buildings of significant heritage value. Today, on the contrary, 90 percent of destruction happens in postindustrial urban patterns with very low urban quality. This peculiar situation requires design strategies which, rather than simply restoring previous conditions, ameliorate in qualitative and quantitative terms the future cities and lead the sustainable transition. To be able to face such epochal challenges, it is fundamental to imagine and construct a new urban model, one capable of a radical modification of current urban forms. The scarce urban quality of postindustrial areas, of informal settlements lacking basic services, and of planned peripheries that obsessively re-propose a single architectural type requires additional effort in providing the local population not only with housing, electricity, water, and sanitation, but also with meaningful urban patterns: "perhaps the best definition of the city in its higher aspects is to say that it is a place designed to offer the widest facilities for significant conversation" (MUMFORD 1961).

QUALITATIVE AND QUANTITATIVE CLASSIFICATION

The qualitative classification of the case studies starts from the four categories proposed by Mamoli and Trebbi in 1988 (as it was, where it was, with continuity between tradition and innovation, a break with the past, programmatic innovation) to construct a synoptic chart that describes the permanence or modification of the building type (X axis) and of the urban pattern (Y axis). Each category occupies a quadrant, and each case study is positioned based on the interpretative analyses of available literature. The quantitative classification

is a mathematical analysis that confronts, for each case study, a series of indicators of urban metamorphosis derived from the transformation maps (percentage of land occupation, number of elements, median size, destroyed area, etc.). The analysis defines a building transformation score for each case study, allowing the construction of a synoptic chart where the position of each case study is given by the variation of its specific score from the average of all the cases.