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# Spatial Reactions to War

Urban Insights from  
Rear and Front

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April 2024

**DIPLOMARBEIT**

**SPATIAL REACTIONS TO WAR: URBAN INSIGHTS FROM REAR AND FRONT**

STADTRÄUME IM WANDEL DER KRIEGE: EINBLICKE AUS "REAR" UND "FRONT"

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# Abstract EN

keywords: Ukraine, Russo-Ukrainian war, Lviv, Kharkiv, rear-border city, front-border city, urban adaptation, spatial reaction

War affects all aspects of human life, extending to its spatial dimensions. On 24 February 2022, Russia launched a full-scale invasion of Ukraine, and Ukrainian cities began to react. Distance from the front line determined the nature of this reaction: while civilians in Kharkiv hid in bomb shelters or evacuated, Lviv (west) started to shelter the first refugees.

The aim of this thesis is to explore and highlight a series of spatial changes in cities through the analysis of selected case studies, such as buildings, infrastructure or public space elements. To achieve this, I propose a methodology of "spatial reaction" based on the functional change of the researched case study. This approach provides insight into urban processes and the mechanisms of their adaptation to critical circumstances. The proposed methodology is tested on twenty-eight case studies gathered in Lviv and Kharkiv. These cities represent two contrasting scenarios: "rear-border" and "front-border" cities. The thesis thus offers perspective on contemporary urban dynamics in Ukrainian cities and provides an analytical framework that helps to understand spatial adaptation in the context of war.

# Abstract DE

Schlagwörter: Ukraine, Russland-Ukraine-Krieg, Lwiw, Charkiw, Kriegs-Hinterland, Kriegs-Front, urbane Transformation, räumliche Transformation

Der Krieg manifestiert sich in sämtlichen Sphären des menschlichen Daseins und der umgebenden Realität und zeigt dabei deutlich ausgeprägte räumliche Dimensionen. Die großangelegte Invasion Russlands in die Ukraine am 24. Februar 2022 rief Reaktionen in den ukrainischen Städten hervor, deren Charakter maßgeblich von ihrer Entfernung zur Frontlinie bestimmt wurde: während die Zivilbevölkerung in Charkiw (im Osten) sich in Luftschutzkellern versteckte oder evakuierte, begann Lviv (im Westen), die ersten Flüchtlinge aufzunehmen.

Das Ziel dieser Arbeit besteht in der Untersuchung und Hervorhebung einer Reihe von urbanen Veränderungen durch die Analyse ausgewählter Fallbeispiele wie Gebäude, Infrastruktur oder Elemente des öffentlichen Raums. Zu diesem Zweck wird eine Methodik der "räumlichen Reaktion" vorgeschlagen, die auf dem funktionalen Wandel der untersuchten Fallstudien basiert. Dieser Ansatz ermöglicht Einblicke in urbane Prozesse und die Mechanismen ihrer Anpassung an kritische Umstände. Die vorgeschlagene Methodik wird anhand von achtundzwanzig Fallstudien in Lwiw und Charkiw getestet. Diese beiden Städte repräsentieren zwei gegensätzliche Szenarien: eine Stadt in der "Rear" und eine Stadt an der "Front". Die Arbeit bietet somit eine zeitgenössische Perspektive auf die urbane Dynamik in ukrainischen Städten und liefert einen analytischen Rahmen, der dazu beiträgt, die räumliche Anpassung im Kontext des Krieges zu verstehen.thesis thus offers perspective on contemporary urban dynamics in Ukrainian cities and provides an analytical framework that helps to understand spatial adaptation in the context of war.

# Abstract UA

ключові слова: Україна, Російсько-українська війна, Львів, Харків, тилове місто, фронтове місто, міська адаптація, просторова реакція

Війна впливає на всі аспекти людського життя. Ці зміни також мають просторовий вимір. 24 лютого 2022 року Росія розпочала повномасштабне вторгнення в Україну, і українські міста почали реагувати. Віддаленість від лінії фронту визначила характер цієї реакції: якщо цивільне населення Харкова ховалося у бомбосховищах або евакуювалося, то Львів починав приймати перших біженців.

Мета цієї роботи — дослідити та висвітлити низку просторових змін у містах через аналіз вибраних кейс стаді, таких як будівлі, елементи інфраструктури чи публічного простору. Для цього я пропоную методологію "просторової реакції", що базується на функціональних змінах досліджуваного об'єкта. Цей підхід дає змогу глибше зрозуміти міські процеси та механізми їхньої адаптації до критичних обставин. Запропонована методологія апробована на двадцяти восьми тематичних дослідженнях, зібраних у Львові та Харкові. Ці міста представляють два контрастні сценарії: "тилове" та "фронтове" міста. Таким чином, ця робота демонструє погляд на сучасну урбаністичну динаміку в українських містах і пропонує аналітичну базу, яка допомагає зрозуміти просторову адаптацію в умовах війни.

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I thank my friends for their support and for saying those "just do it" words so many times that I just did it.

In loving memory of my uncle Roman.

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**Martial law** is "a special legal regime introduced in Ukraine or in parts of it in the case of armed aggression or threat of attack, threat to the state independence of Ukraine, its territorial integrity and provides for the granting of powers to the relevant state authorities, military command, military administrations and local self-government authorities necessary to avert the threat, resist armed aggression and ensure national security, eliminate the threat to the state independence of Ukraine, its territorial integrity and as well temporary restrictions on constitutional rights and freedoms of a person and a citizen, as well as the rights and legitimate interests of legal entities, with an indication of the duration of these restrictions" (Law of Ukraine 2015, translation by Y. Tsarynnyk 2024).

**Internally displaced person (IDP)** – "a person or groups of persons who has been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised State border" (European Commission n.d.).

**Front-border city** (a term introduced within this research framework) is a city that belongs to a border-controlled region and has an active front line within a region's territory.

**Rear-border city** (a term introduced within this research framework) is a city that belongs to a border-controlled region and has no active front line within a region's territory.

**Curfew** – "is an order that imposes certain regulations during specified hours. Typically, curfews order all people affected by them to remain indoors during the evening and nighttime hours" (Wikipedia: Curfew).

# Preface

From the beginning of the full-scale invasion until now, the war in Ukraine dominates in my information space. I am physically in Vienna, but my thoughts are in Ukraine. My day starts and ends with news from various Telegram channels. For the first three months of the full-scale war, I was afraid to go to bed – I was afraid to fall asleep and then wake up and read that my city was gone and that I could not reach my mother, sister or brother. For the first three months, something bad happened often around three in the morning Vienna time. My body learned to wake up at this hour to check the Telegram channels if everything was okay. I still have these issues. It has become difficult for me to talk about anything other than the war and work; everything else seems unnecessary, ridiculous, and childish. I regularly receive messages about air raid alerts via Telegram channels. I mainly follow the Lviv region – my family, friends, and home are there. After such a notification, I call my sister to ask if she went to the basement and where is everyone. My sister shared her location with me because I dial her too often. My level of anxiety is very different from the environment I live in. The personal goal of my work is to show the real environment I live in.

# Introduction

However much we may prefer to discuss architecture in terms of visual styles, its most far-reaching practical effects are not at the level of appearances at all, but at the level of space.

Hillier/ Hansen 1989: IX

The contemporary urban environment is formed by necessities and requirements that imply a civil and peaceful mode of existence and is structured to cater to its residents' diverse requests and essential needs. During the war, people's requests and needs undergo significant changes due to the shifting arrangement of priorities, placing urgent and critical necessities, such as shelter, food, and medical assistance, at the forefront. Prioritisation in response to the evolving conditions of war is crucial for individuals and communities to address the most pressing issues effectively.

The ongoing war in Ukraine has left widespread destruction, inducing a need for mindful reconstruction and new construction to rebuild the country's shattered residential areas. Investigating the impact of the war with spatial analysing tools is crucial for legal proceedings related to war crimes. The loss of a city's cultural heritage underscores the importance of preserving and re-inventing spatial and cultural identity. Apart from reconstruction, investigation, and cultural perspective, documenting war is vital to comprehend how spaces behave during disasters. People adapt, leading to the transformation of living spaces "as a form of survival strategy" (Glumčević, Odobasic 2021). Investigating spatial behaviour during disasters offers insights into the adaptability and vulnerabilities of our surroundings, fostering innovation in urban planning for resilient environments that can dynamically respond and transform in changing circumstances.

A railway station, a stadium, a hostel, a theatre, a shipping container, a school, a house of culture, a palace of arts, a parking house, a museum, an art centre, metro stations, a dormitory, a gymnasium, a residential area, a post office, a basement... This is how one can define a space endowed with some functional characteristics, which tail a particular image of how this space or building looks and what is accepted to happen there. Under martial law and constant threat, this image-function notion partly loses meaning. As the function corresponding to the respective building type or space is often absent, either changed or other functions are added to the existing one. People lived in theatres, schools, and metro stations and got medical treatment in underground parking; procurement of groceries was replaced by the distribution of humanitarian aid at post offices.

## Context

On the 24th of February at about 5:00 a.m., explosions were reported in Kyiv, Kharkiv, Dnipro, Odesa, Mariupol, and other cities of Ukraine. Russia began a major escalation of the Russo-Ukrainian War, which started in 2014 with the annexing of Crimea and occupation of some territories of Donetsk and Luhansk regions. War in Europe has ceased to be a "past that will not repeat itself" but has become a reality. The autocracy of Russia and its dominance in gas and oil exports allows it to manipulate and destabilise the world order.

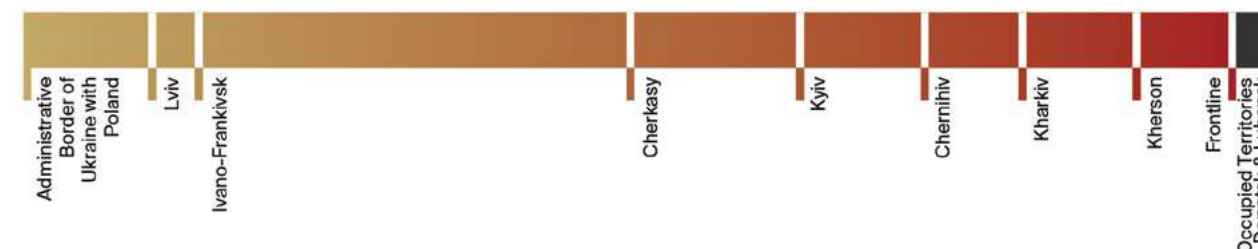
In the event of armed conflicts between certain regions, countries or other geopolitical entities, border areas, those on the periphery, are the first to suffer the consequences and are, therefore, the best representatives of change. When some external invasion occurs, social, geopolitical, economic and spatial processes are activated to restore the internal balance. Often, these points of exchange are polar. For example, shelling of one area causes evacuation to the polar area, which is considered to be "safe". In the case of Ukraine, one of the major directions of invasion took place from the east, and the west accordingly became the polar epicentre of rear and supply.

It can be argued that the tendencies and dynamics of changes in Ukrainian cities under the Russian invasion correlate with the distance and side from the front line. Let's imagine a scale [Fig. 01] where we will determine the position of the city by the mentioned criteria. On this scale, as an example of an extreme, from one side, there will be Ukrainian cities that have been under occupation since the beginning of the war (February/ March of 2014) and are incorporated into the military and civil infrastructure of the invaders' side, those are for example, Donetsk and Luhansk.

In the centre of the scale will be located cities that suffer losses and are regularly shelled by long-range weapons, but have never been under direct threat of occupation. Finally, on the opposite side of the scale would be cities that are located near the western borders and are relatively safe and, therefore, act as hubs for hosting IDPs and humanitarian aid.

The central hypothesis of this work revolves around the existence of two distinct scenarios – rear and front, that may unfold in cities under threatening circumstances. Each scenario is characterised by specific spatial changes unique

[Fig. 01]  
Intuitive interpolation of dangerous and safe cities of Ukraine based on the distance from the front line: east – dangerous cities, west – "safe" cities © Y. Tsarynnyk (2024)



to its context. In this work, I identify these spatial changes. Two cities positioned on opposite ends of the scale were chosen – Kharkiv as a representative of a front-border city and Lviv as a representative of a rear-border city. Such a lens will enable a more extensive view of the urban transformations occurring in a country resisting armed invasion.

## Goal/ Question/ Method

Goal:

1. Identify, classify and interpret urban elements' [1] transformations caused by the armed invasion.
2. Propose an evaluative framework for analysing urban elements' transformations in disaster circumstances

Question:

1. What urban transformations characterise rear- and front-border city scenarios that unfold during an armed invasion?
2. How to research and document them?

Approaching this goal was divided into four steps: building methods and collecting data, selecting cases, choosing key point, data structuring, classification and conclusions. First, I collected data that could be relevant to my work based on the information from various Ukrainian and international media outlets available online, my observations, conducted interviews and conversations with a circle of friends and acquaintances who stayed in Ukraine and experienced all the events personally. In addition, there are publicly available laws issued by city administrations regarding changes in public space, such as curfews, checkpoints, and changes in the functional purpose of public or private institutions of public importance, such as schools, kindergartens, shopping centres, etc. Any information that added to understanding what was happening in the selected cities was considered. The nature of the information collected suggested the method of further research – the case study method. The next stage of work was to select cases from the information collected. Cases were selected as current if they had clear spatial representativeness and the level of significant spatial change resulting from a full-scale invasion. This left me with twenty-eight

[1] Such as buildings, infrastructure or public space elements.

cases at the end of this step. For some of the cases, I conducted interviews to fill the gaps in the information if a person able and willing to provide such information could be found. Once the information had been gathered and the cases selected, I had to choose a single framework that could be applied to the non-homogeneous cases. I decided to focus on functional change. The last step was to complete the methodology with attributes and metadata to make the study holistic and possible for further evaluation.

## Book Guide

**Chapter 1. Shaping Force of a City:** What is the relationship between war and the city? This chapter explains how war and the city have shaped each other throughout history. The subsections on Regulatory measures, top-down/bottom-up, additionally describe adaptation strategies by government agencies and city residents who adapt to the changed conditions themselves. The example of the siege of Sarajevo is used to illustrate this. **Chapter 2. War in Cities: Front and Rear:** In this chapter, I explain the background of Russia's invasion of Ukraine. The choice of cities to research and the explanation of the hypothesis of the front and rear city scenarios are then justified. The subchapter **The Impact of War: Urban Dynamics in Diverse Scenarios** reveals the specific consequences of the war faced by cities in Ukraine. Interviews conducted in Lviv and Kharkiv complement the narrative, offering firsthand perspectives on life in a country resisting military aggression. **Chapter 3. Methodology:** provides a comprehensive overview of the research methodology, divided into five subsections that outline the step-by-step development of the proposed research method. **Chapter 4. Case Studies: On the Rear** and **Chapter 5. Case Studies: At the Front** are a compilation of case studies from Lviv and Kharkiv depicted with the predetermined structure outlined in the previous chapter. **Chapter 6. Insights, Correlations and Conclusions:** serves as the culmination of this research, where insights and conclusions are drawn based on the analysis of the collected cases.



# Chapter 1

## Shaping Force of a City

Introduction; Iron Sharpens Iron;  
Regulative Measures: Top-Down;  
Regulative Measures: Bottom-Up

### Introduction

Throughout history, city and war have reshaped each other. From the ancient polis to the contemporary metropolis, cities have been walled, besieged, burned down, bombed out, divided, segregated, terrorized and traumatized. (Ristic 2018:1)

The city is in a constant state of change under the pressure of both external and internal forces. It adapts to new conditions, laws, needs, numbers, tasks, society, culture, borders etc. The scale and magnitude of these changes depend on the scale and magnitude of the trigger. Armed violence is undoubtedly one of the most potentially powerful triggers. Today's unstable global political situation is leading to an increase in armed conflicts. The trend towards an increasingly urbanised world creates a trend towards an increasingly urbanised armed conflict (cf. OECD 2017).

In recent decades, going beyond military studies, war has become a complex subject of study and analysis in urban science. The evolution of war as an urban phenomenon can be traced back to the very notion of the city as such, and in particular to its defensive dimension. Gregory J. Ashworth, in his book "War and the City", asserts that "[...] the idea of fortifying cities is as old as the idea of the city itself" (Ashworth 1991:12). According to archaeological evidence, early cities were often fortified settlements (cf. Ashworth 1991:13). The need for fortification, and thus protection from the outside, indicates that violence is one of the driving forces behind the idea of the city. Whether this violence is real or mythical [2].

I was initially convinced that war as an urban phenomenon was a relatively recent idea, originating with industrialisation. In the course of my research, however, I changed my mind to some extent. The relationship between the city and war has always been there. It has just changed because the idea of what is now the city and what is now war has changed.

"Throughout most of recorded military history, warfare could be divided into two clear arenas of action: battles and sieges" (Ashworth 1991:112). Battles involved field armies manoeuvring and clashing in open terrain. Sieges, on the other hand, were static confrontations where fortified cities were surrounded and blockaded. The resolution of battle often came without fighting inside the city (cf. Ashworth 1991:112). In past conflicts, streets and buildings were not usually battlegrounds, except in events like the Paris revolutions; once attackers breached defences, they gained control over the whole city (cf. Bernard 2016).

In historical contexts, cities often functioned as fortified enclaves, with the entire city designed strategically to perform defensive functions. Cities that survived throughout history have expanded, making it impossible to limit them within stone walls. From an object with clear boundaries, the city shifted to a system of connections with blurred ones, making it more exposed to external influence and violence. Evolution transformed the city itself in the aforementioned field. The city has become an urbanised battlefield (cf. Ashworth 1991:112).

[2] "But the fact that citadels are surrounded by walls, even when cities are not, does not necessarily give its military functions primacy in time; for the first use of the wall may have been a religious one: to define the sacred limits of the temenos, and to keep at bay evil spirits rather than inimical men" (Mumford 1961:36).

## Iron Sharpens Iron: G.J.Ashworth on the Notion of Fortifications and Weapons Technologies

\*The analysis of the evolution of fortification provided below explains the mutual regulation of the city and war. It does not claim to be exhaustive but instead gives an enclaved perspective, which aims to introduce the war as a shaping force of a city.

The evolution of the city into a battlefield was gradual. The fortification, the "weapon system" (Ashworth 1991:12) that represented the defensive dimension of the city and spatially shaped its morphology, was constantly evolving, forcing the development of weapons that could overcome them. Ancient and mediaeval warfare relied heavily on siege tactics to conquer fortified cities. The development of siege engines, such as battering rams, siege towers, and catapults, necessitated the construction of stronger city walls and defensive structures. Conversely, innovations in defensive fortifications, such as moats, bastions, and curtain walls, were responses to evolving siege tactics, resulting in the redesign and reinforcement of urban defences (cf. Ashworth 1991).

Ashworth classifies four groups of urban fortifications, based not directly on chronology but on "the similarities in the urban reactions to particular military situations" (Ashworth 1991:18-19). These groups are "pre-gunpowder fortifications", "early gunpowder-artillery fortifications", "mature gunpowder-artillery fortifications", and "the last fortified cities" (Ashworth 1991:18-19).

In the following text, I will provide a short glimpse of Ashworth's characteristics of fortification groups, which he based on the notion of weapons technology.

### Pre-gunpowder fortifications

According to Ashworth, pre-gunpowder fortifications occurred before gunpowder artillery was effectively used, from the first city fortifications to the 15th century. The basis for the construction of such a fortification was a "ditch, an earth-bank or a wooden, brick or masonry obstruction (or a combination of all three)" (Ashworth 1991:19). Against this type of fortification, the attacker used such methods as bridging or filling the ditch, as well as using "approach trenches, portable screens, and movable towers" (id.). Alternatively, if the soil allowed it, the fortifications were sapped or breached with artillery (tension-powered launchers of shaped stone missiles). The success of such fortifications depended, among other things, on the material they were made of and their maintenance (cf. id.:19-23).

### Early gunpowder-artillery fortifications

Early gunpowder-artillery fortifications appeared in response to the further development in artillery technology and the invention of gunpowder (cf. id.).

However, the popular idea is that gunpowder was a turning point in the war; in reality, due to the technical challenges related to gunpowder artillery, such as limited range, accuracy, and mobility, it was not revolutionary and sensational (cf. id.:24-25). The adaptation of the fortification did not undergo rapid change. However, slowly, defensive gunpowder-propelled artillery was integrated into fortification systems to serve two primary purposes: anti-personnel fire for protecting vulnerable points (gates and walls) and counter-battery fire to deter attacking artillery (cf. id.:25). Ashworth stated that the design of fortifications evolved to include purpose-built bastions positioned in front of walls to increase distance from enemy artillery and provide anti-personnel covering fire. The fortifications were built on the principle that it was not their height that mattered but their strength against fire (cf. id.:22). As a result, they were lowered and reduced in size but thickened. The development of powerful fortifications became a national concern, requiring resources only the state or exceptionally wealthy cities could afford. Across Europe, the new fortification system spread rapidly, facilitated by the internationalisation of military engineering and the rise of absolutist national monarchies (cf. id.:30). This system emphasised the strategic fortification of towns, reflecting an enlargement in the scale of warfare on the continent. Outside Europe, the expansion of European trade overseas led to the fortification of settlements in regions such as North America, Africa, and Asia (cf. id.:31). Fortified towns in various regions adapted the fortification technology to local contexts. These developments demonstrate the complex interplay between military strategy, technological advancements, and geopolitical interests in shaping urban fortifications during this period.

### Mature gunpowder-artillery fortifications

The introduction of artillery during the Renaissance and early modern periods revolutionised warfare and profoundly affected cities. Cannon fire could breach traditional city walls, developing star forts and other geometric fortifications designed to withstand artillery bombardment. However, the use of artillery also resulted in widespread urban destruction, as seen in the devastation wrought upon cities like Constantinople during the Ottoman conquest of 1453 (cf. id.:165).

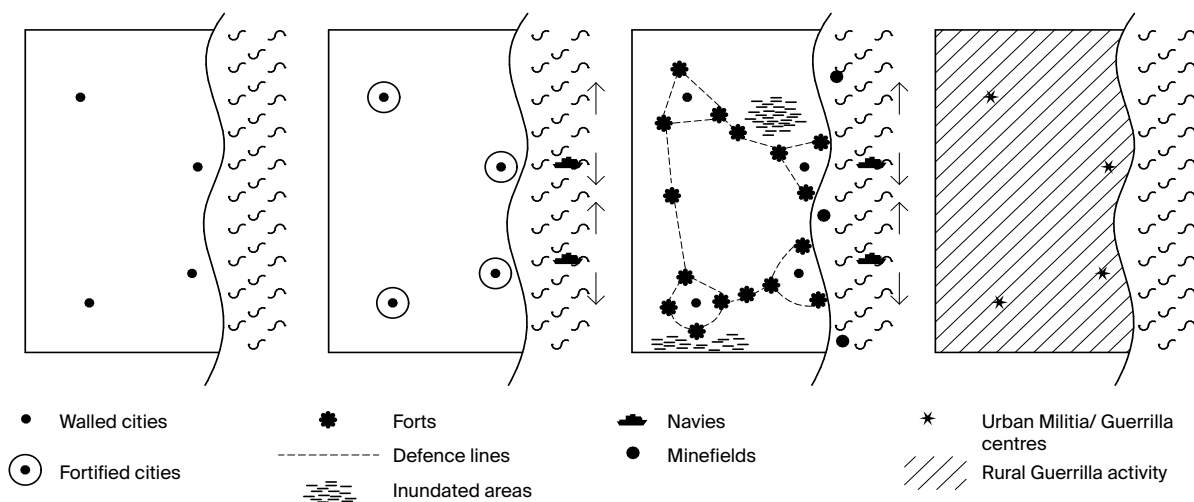
The evolution of fortification design during the 17th century was a response to advancements in artillery technology and the emergence of musket-armed infantry (cf. id.:35). This period saw the development of more complicated structures beyond city walls, aimed at keeping "[...] the city outside the range of enemy artillery" (id.:35). Fortresses became "architecturally dramatic" and "technically complex" (id.:34), employing a series of outworks such as ravelins, lunettes, and horn works to defend vulnerable points (entrances) (cf. id.:35). These innovations, epitomised by the 'New Dutch System,' were characterised by their elaborate geometry and strategic placement of defensive positions (cf. id.:34). The application of these designs varied depending on factors like site characteristics and available resources. While some cities, like Maastricht (Netherlands) and Groningen (Netherlands), fully embraced the new fortification

systems, others, like Utrecht, incrementally added system elements to their existing defences (cf. id.:37-39). However, the expense involved meant that only a few carefully selected sites received complete fortification overhauls, typically those of significant national defence interest (cf. id.:34-45).

### The last fortified cities

In the 19th century, advancements in artillery technology, including rifling, steel construction, breech-loading, and exploding shells, revolutionised warfare by increasing the range, accuracy, and hitting power of artillery (cf. id.:45). This led to an "arms race" between fortifications and artillery, with fortifications becoming increasingly obsolete in the face of rapidly advancing artillery capabilities (cf. id.:46). The emphasis shifted from defending cities with traditional walls to creating defensive systems around cities as part of national defence policies. The concept of the "Prussian System," characterised by a ring of detached forts surrounding a city, exemplified this shift (cf. id.:47). Instead of relying solely on city walls for defence, cities were fortified with outer rings of forts spaced at distances dictated by the gunfire range (cf. id.:47). This approach rendered traditional city walls unnecessary and led to "the abandonment and dismantling of city walls" (id.:47) in many places. Examples such as the Maginot Line in France and the national redoubts in countries like Denmark, Belgium, and the Netherlands illustrate the transition from fortified cities to broader defensive systems designed to protect urban regions (cf. id.:49). These systems incorporated strategic locations and natural features, such as rivers and water barriers, into their defensive strategies (cf. id.:49). The effectiveness of static defences was

[Fig. 02]  
"National defence development model" by © Ashworth (1991:53); redraw by Y. Tsarynyk (2024)



tested during conflicts such as the Crimean War (1853-6), the American Civil War (1863), and the Russo-Japanese War (1904-5), demonstrating the continued importance of fortified positions in specific scenarios (cf. id.:48). However, the increasing scale and mobility of warfare and advances in artillery and military technology eventually rendered the fortified city concept obsolete (cf. id.:45).

The evolution of fortifications provided by Ashworth illustrates a progression from fortified cities to larger-scale defensive systems driven by changes in warfare, technology, and strategic thinking. This evolution ultimately transformed the spatial patterns of defence and warfare, leading to the abandonment of traditional urban fortifications in favour of more extensive and flexible defence strategies. Fortless city – battlefield.

## Regulative Measures: Top-Down

In addition to the directly related elements of defence, which historically were expressed in the city by the cultivation of fortifications, government agencies developed a variety of adaptation mechanisms aimed at mitigating the impact of war on the life of the population and regulation in the city system related to higher security risk.

"Martial law-also called martial rule-is a type of jurisdiction in which military authority temporarily replaces civil authority" (Legal Information Institute n.d.). The city as a unit of civil law is transformed into a unit of military law with its own rules: the imposition of curfews, restrictions on public assembly, and the establishment of military tribunals to replace civilian courts (cf. Wikipedia: Martial Law).

The individual states are also working to develop an emergency response plan. The roots of modern emergency management originate from the Second World War and the Cold War (cf. Thomas 2016). In the United Kingdom for example, the formal emergency response plan can be traced back to the Civil Defence Act of 1939, enacted in response to the looming threat of World War II. This legislation established civil defence arrangements to protect civilians during air raids and other wartime emergencies (cf. Thomas 2016:4). While other countries may have had informal emergency response measures before, the Civil Defence Act of 1939 is significant because it formalised the government's role in emergency preparedness and response (cf. Haldane 1970). It laid the foundation for subsequent developments in emergency management in the UK and served as a model for other nations as they established their own emergency planning frameworks. These plans outline protocols for evacuations, sheltering, and resource allocation, ensuring a coordinated response to disasters (cf. Thomas 2016).

Wars in cities pose a direct threat to residents. In the ICRC review, Bernard identifies the 5 biggest problems that city-dwellers may face concerning armed conflict. These are:

"Security: fighting, bombing, mines, improvised explosive devices (IEDs), unexploded ordnance and oppression by combatants mean that people's homes are no longer safe.

Supplies of subsistence items: food and water are rationed, of poor quality or unavailable.

Electricity and fuel supplies: these are limited, rationed or cut off.

Health care: hospitals are damaged or destroyed, health-care staff become increasingly scarce, the quality of care falls, and there is a risk of epidemics spreading more easily.

The future: people's ability to have an education, a job or any kind of future is compromised."

Bernard 2016

Government agencies and humanitarian organisations operating within the state take measures to protect civilians by developing the resilience of critical infrastructure and housing. A notable example is the city of Jerusalem, which has invested heavily in fortifying its buildings and transportation networks against the threat of rocket attacks and bombings. Starting from 1951, the construction of bomb shelters was required within all residential buildings, later substituted with "protected space" – reinforced concrete sealed rooms (cf. Sever, Garb, Pearlmutter: 2015:70).

Measurements imposed on martial law and developing emergency response plans or resilience strategies are some of the possible regulative responses in emergencies, including war. These measurements try to predict and shape the possible scenarios unfolding due to disasters, which they do to some extent. However, they don't lead to the holistic reactions of the city, as those are created by bottom-up strategies. In other words, people on site decide how to react.

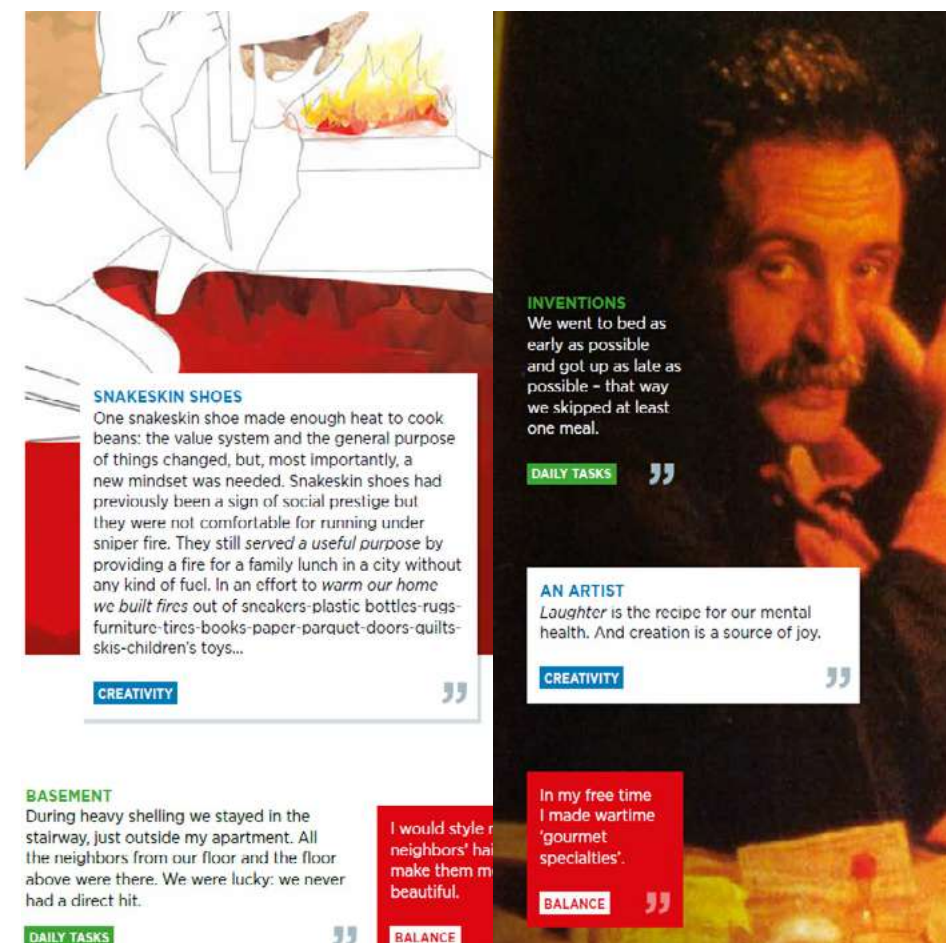
## Regulative Measures: Bottom-Up

The adaptation of urban spaces during an armed conflict is often examined by researchers on the example of the siege of Sarajevo, as that is a modern representation of war in the western world. Armina Pilav, an architectural researcher, addresses the issue of innovative spatial reproduction in the context of war as part of survival tactics and urban resilience in the chapter "Collective Documenting Of Extreme Urban Transformations" (Pilav 2019 in Trogal et al. 2019). Her work focused on the single, mid-size family residential unit, arguing that the processes of change begin with the urban habitat through citizens' own innovative spatial reproductions in their homes (cf. Pilav 2019).

During the siege of Sarajevo from 1992 to 1996, the city experienced sustained attacks and encirclement by Serbian forces, resulting in significant

hardship for its residents (cf. id.). This period was characterised by a scarcity of basic necessities such as food, water, and electricity, prompting civilians to devise innovative survival strategies (cf. id.). In response to the threatening circumstances, many citizens documented their experiences through various mediums, including photography, videography, and personal diaries (cf. id.). These firsthand accounts offer valuable insights into the daily struggles faced by Sarajevo's inhabitants during the siege (cf. id.).

One notable aspect of this documentation is the creativity displayed by civilians in overcoming obstacles (cf. id.). Residents improvised solutions for essential needs such as cooking, lighting, and transportation, utilising whatever materials were available (cf. id.). These makeshift innovations facilitated survival and fostered a sense of community as individuals collaborated to support one another (cf. id.). The documentation of Sarajevo's siege offers a rich resource for scholarly inquiry into urban resilience during conflict (cf. id.). By analysing these records, researchers can gain a deeper understanding of how communities navigate extreme adversity and adapt to hostile environments, which can further contribute to "survival tactics within some other extreme urban situation



[Fig. 03] Description and Illustration of people adaptations, including both material and non-material strategies © Kapić 2016:30-31

of war or natural disaster" (cf. id.). Moreover, the preservation of these accounts serves as a poignant reminder of the human toll of war and the importance of commemorating those who endured such hardships (cf. id.).

This experience may [experience of living in the siege] also serve for a new section of the famous encyclopaedia for architectural standards of Ernst Neufert, a tragic section of the book dedicated to the elementary survival of cities and civilizations that are under the process of deliberate destruction."

Doršner 1994 as cited in Pilav 2019

"Sarajevo Survival Guide" (Prstojevic et al.1994) and "The Art of Survival: Extreme Urban Conditions and Human Resilience based on Evidence from the Siege of Sarajevo 1992-1996" (Kapić 2016) are guides to the life of people during the Siege of Sarajevo. "Sarajevo Survival Guide" reveals how essential items and activities were adapted to suit the challenging conditions of wartime survival. It provides insights into the creative ways in which residents repurposed everyday objects, improvised solutions, and adjusted their behaviours.

The modern Sarajevan male

He has accreditation [ID], weapons, a good car, and a complete uniform. The owner of a bullet-proof vest is regarded with respect. One who doesn't wear a uniform has an ax in his right hand for cutting down trees, and a series of [water] canisters on his left shoulder. His image would be complete with a mask against poison gas. (Prstojevic et al.1994)

Gifts

A bottle of clean water, a candle, a bar of soap, shampoo, some garlic or an onion. Passionate love is being expressed here by a handful of wood, a bucket of coal, a complete edition of books that lack humor or poetry. Could you spare some Vladimir Illich Lenin? Last winter has proven that his books burn well. (Prstojevic et al.1994)

The study of everyday practices in critical circumstances provides architects with a unique lens through which to examine the dynamic interplay between individuals, communities and their built environment. By embracing this perspective, architects can cultivate innovative approaches to design that prioritise human agency, collective empowerment, and the enduring resilience of urban spaces.

# Chapter 2

## War in Cities: Front and Rear

Introduction; Historical  
Background; Scenario Shaping;  
The Impact of War: Urban  
Dynamics in Diverse Scenarios

## Introduction

On February 24, 2022, Russia launched a full-scale land, air, and sea invasion of Ukraine. Ukraine's history has been tightly intertwined with the aggressor state since its pre-state emerged under the name Moscovia. In 1721, Pyotr I, ruler of Muscovy, renamed it to the Russian Empire to create a myth and the right to possession of all territories of the former mediaeval state Rus'.

Modern Russia, a country staying true to its imperialistic objectives, has consistently targeted its neighbouring states or supported separatist movements in such, as it was in Georgia with Abkhazia and South Ossetia, separatist zones under Russian control now. The same fate happened with the east side of Moldova, now called Transnistria. Russia justifies its actions by alleging the "oppression" of Russian populations, often through the forced assimilation of indigenous people into the Russian identity using imperialist narratives, propaganda, and the infiltration of "own" individuals into positions of power. In 2014, Ukraine experienced this manipulative strategy firsthand. In 2014, there was a significant geopolitical shift when the then-president opted to abandon the path of European Integration in favour of aligning with Russia. This decision sparked widespread protests across the country. The culmination of these events unfolded as the Euromaidan protests from 2013 to 2014, ultimately leading to the removal of the sitting president. Responding swiftly, Russia perceived a loss of influence and applied a strategy of armed violence. On February 27, 2014, Russian special forces seized the parliament building in Crimea, resulting in the peninsula's occupation on March 18. Within a month, certain territories in Donetsk were captured, followed by a similar situation in some areas of Luhansk a month later.

The motives behind the annexation of resource-rich territories are apparent. Donetsk is the wealthiest region in Ukraine in terms of natural resources, and Crimea, which offers access to the sea, represents a strategic possession of both maritime territories and their associated resources. However, for Ukraine, the fight against Russia is not only a fight for natural resources but primarily a matter of preserving national identity. Throughout centuries, Russia has sought to erode Ukrainian identity and assimilate Ukrainians into Russian society. The Russian Empire repeatedly suppressed the Ukrainian language and culture, and individuals who resisted the Russian regime faced deportations. During the totalitarian regime of the Soviet Union, the Holodomor, a man-made famine of 1932-1933, considered a genocide, resulted in the starvation of 3 to 6 million Ukrainians (Subtelny 2009:483). The depopulated territories were resettled with Russians, leading to ethnic displacement, particularly in eastern and central Ukraine. In 1944, 200,000 Crimean Tatars experienced deportation, and the planned resettlement of Russians began in Crimea as well (cf. Subtelny 2009:483).

Since its inception, Ukrainian identity has delicately navigated the interplay of various cultures. In the contemporary context, Ukraine finds itself at the crossroads of democratic and autocratic regimes. The unfolding war brings an understanding that the territories in the east and southeast of Ukraine serve as

front areas, while the western regions function as the rear. For a deeper understanding of the conflict's origins and Ukraine's distinctive geopolitical position in the world, alongside the development of its eastern and western regions, it is essential to provide a brief historical overview complemented by a map. Since the dissolution of Rus', Ukraine has been considered a "gate to Europe" (Plokhyy 2015), and a battlefield for many conflicts, where throughout history various regions of the country have found themselves on opposing sides of the field.

The occupation by Russia and the Soviet Union of the southern and central regions of Ukraine for more than 200 years had a significant impact on the country. It led to cultural, linguistic, and economic divergence, the formation of political loyalty, and geopolitical vulnerability in these regions. While other parts of Ukraine, particularly Galicia, experienced occupation by the Soviet Union as well, this period was relatively short compared to the eastern and central regions. This has influenced the course of the modern war with Russia, the dynamics of the front line, the speed of occupation, the frequency of shelling, alerts, clear distinctions between safe and dangerous cities, as well as spatial transformation and adaptability dictated by military actions.

For instance, the principles of spatial adaptation will differ between a city in close proximity to the invader and a city far from direct armed violence. The section *Scenario shaping* supplements the historical narrative by clarifying the selection process of cities for study based on the war's progression and administrative divisions. *The Impact of War: Urban Dynamics in Diverse Scenarios* further elaborates on the distinct circumstances experienced by cities in front and rear scenarios. Interviews conducted in Kharkiv and Lviv offer a deeper insight into the contextual nuances.



[Fig. 04]  
"Typus generalis Ukrainae, sive Palatinatum Podoliae, Kioviensis et Braczlaviensis terras nova delineatione exhibens" [General map of Ukraine (including Podolian, Kiev, and Bracław Voivodeships) of the 17th century], Janssonio-Waesbergiana, and Moses Pitt approx. 1680.

## Historical Background

### Before the Rus' period

Before the establishment of Rus', the territory of modern Ukraine [3] hosted diverse ethnicities and cultures. The Scythian epoch is pivotal in this historical landscape (cf. Subtelny 2009:8-15). In essence, the inception of the Great Scythia represents the early consolidation of a state that spanned nearly the whole territory of modern Ukraine (cf. Palii 2017:31), laying the foundation for the region's nascent statehood. The Scythians, ancient tribes with ties to Iran, thrived along the shores of the Black Sea and the Sea of Azov from the 7th to the 3rd century BCE (cf. Kazmyrchuk 2009:24-26).

[3] The term "Ukraine" first appeared in 1187 in the Kyiv Chronicle. Subsequently, to distinguish Ukrainian lands from the renamed in 16th century Muscovy to Russia, this term began to be widely used.



[Fig. 05] Lands of Scythians; based on "Greek colonization" Subtelny (2009:14) © Y. Tsarynnyk (2024)



[Fig. 06] Lands of "East Slavic tribes"; based on Subtelny (2009:20) © Y. Tsarynnyk (2024)

### Rus' 9th-13th centuries

From the early 4th century, the territory of present-day Ukraine was inhabited by East Slavic tribes that united in the 9th century into the mediaeval state centred in Kyiv – Rus' (cf. Subtelny 2009:19-21). This period is considered the genesis of Ukrainian national identity and serves as the historical backdrop for the ongoing conflict between Ukraine and Russia. Russia's official stance posits Kyivan Rus' as a predecessor to Russia, seeking to appropriate the historical legacy of Rus' entirely'. This appropriation has been a consistent endeavour since the days of the Russian Empire, as a journalist investigation of media outlet Texty revealed that two Russian museums contain around 110,000 archaeological findings from Ukraine, which at various historical periods were exported from the territory of modern Ukraine to Russia (cf. Gadzynska et al. 2023).

Rus' was a mediaeval state encompassing numerous ethnicities, including Ukrainian, Belarusian, and Russian (cf. Plochy 2023:4-5). Ukrainians were called Ruthenians (Rusyny), while the term Russian emerged only after the renaming of Muscovy to Russia; "Russians were generally called Muscovites", and Ukrainians were Rusyns – the people of Rus' (cf. Subtelny 2009:69). By adopting a name identical to the term Rus', Russia has created an etymological illusion in its history, attempting to erase the authentic narrative. This manoeuvre successfully influences the international interpretation of Eastern European history and aims to obscure the actual history. Petro Kralyuk, Doctor of Philosophy, professor, and publicist, stated in the publication in media outlet "Radio Svoboda" the following:

The term "Rus' " or even "Russia" was an ethnic designation that persisted in the territories of (modern – ed.) Ukraine or Belarus practically until the 16th or even 17th century. The local population referred to themselves as Rusichs [Rusyns], and there is nothing surprising about that. Rus' existed as one ethnic entity, and Muscovy was another. However, when we speak about 'Muscovy,' for a long time, Muscovy was not considered as Rus'. [...] Moreover, the territory of then Russia was mostly referred to as Muscovy. In other words, we can say that Rus' existed as one ethnic formation, and Muscovy was another. The name 'Russia' emerged during the time of Pyotr the Great – already with a different sound, but essentially, it was the same Greek term used for Rus'. In essence, they adopted our [Ukrainian] name. [...] If we draw a parallel, Rus' to Russia and Ukraine has roughly the same relationship as the Roman Empire to Romania and Italy, respectively. Romanians adopted the name from the Romans and consider themselves their descendants, although the territories of present-day Romania were a distant, 'barbarian' province of the Roman Empire, where Roman cultural influence barely reached. The inhabitants of the Apennine Peninsula, which was the heart of the Roman Empire, now call themselves not Romans but Italians. [...] Accordingly, just as Italians have much more right to claim the ancient Roman heritage than Romanians, Ukrainians have more right to claim the heritage of Rus' than Russians.

Vytivskiy 2022, translation by Y. Tsarynnyk 2024

Vytivskiy 2022,  
translation by  
Y. Tsarynnyk 2024

[Fig. 07]  
Lands of Rus'; based on "Kyivan Rus', 980-1054" Plokhy (2015) © Y. Tsarynnyk (2024)



The peak of Rus' is marked by the rule of Volodymyr the Great (979-1015), who baptised the lands of Rus' and undertook the construction of Kyiv. In the 11th century, after the death of Yaroslav the Wise (1019-1054), son of Volodymyr, Rus' entered a phase of internal conflicts (cf. Kazmyrchuk 2009:55-56). Slowly, it led to the disintegration of a once great and powerful state; this decay process lasted from the 11th to the 14th centuries. In the 12th century, after the rule of Mstyslav the Great, the last ruler who maintained state unity, Rus' faced not only internal discord, which led to the fragmentation of the state into thirteen principalities, but also constant pressure from nomadic tribes from the west and southwest (cf. Kazmyrchuk 2009:64).

In the 13th century, during the Mongol invasion, Kyivan Rus' suffered severe territorial losses, and the capital was devastated (cf. Kazmyrchuk 2009:64). This period was marked by economic hardships and social upheavals. The Mongols brought extensive destruction and suffering; it is noted that Kyiv (1240) was

[Fig. 08]  
"The Golden Horde ca. 1300" based on Plokhy (2015) © Y. Tsarynnyk (2024)



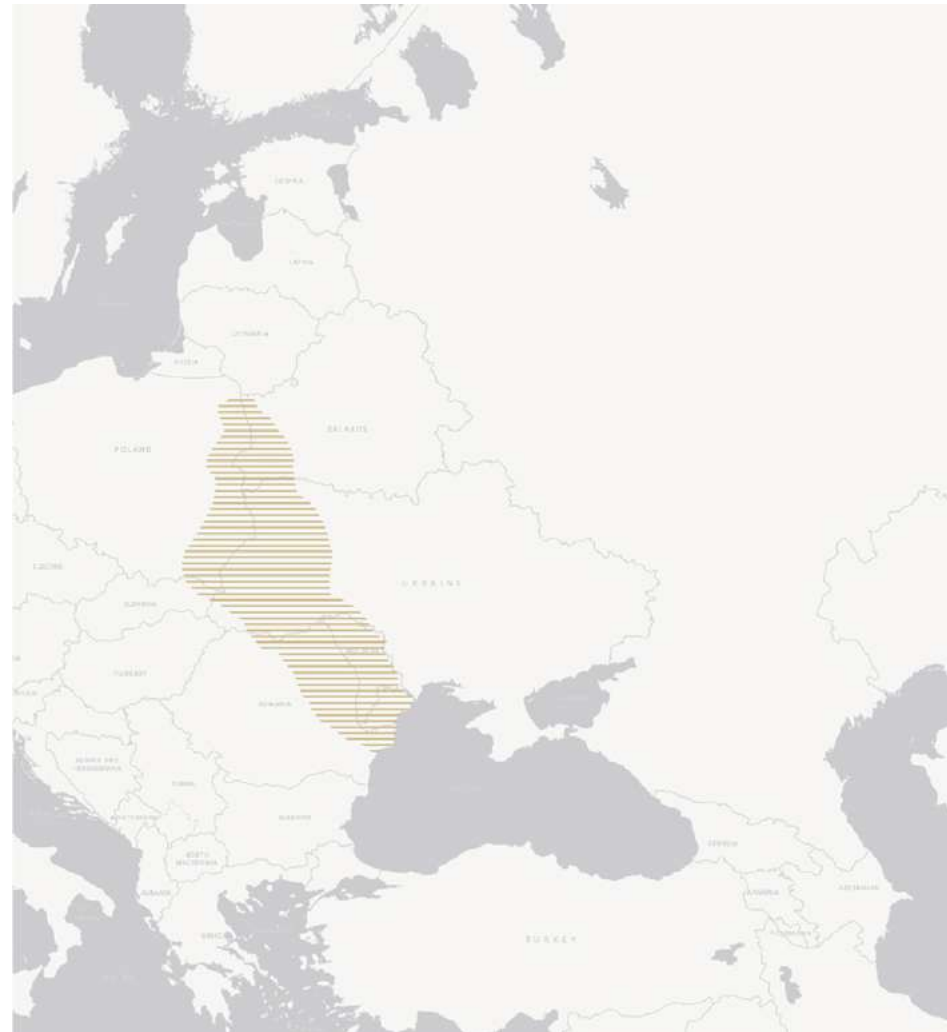
[4] The term "Tatars" has been used throughout history to refer to various Turkic and Mongolian ethnic groups that lived in different parts of Eurasia (cf. Subtelny 2009: 39), "mainly in west-central Russia along the central course of the Volga River and its tributary, the Kama, and thence east to the Ural Mountains" (The editors of Encyclopedia2024). It should be noted that the word "Tatars" is often used as an umbrella term for various Turkic and Mongolian peoples, and it can have different connotations in different historical and geographical contexts; for example, the Crimean Tatars and the Tatars who lived in the Golden Horde after its collapse are distinct groups with their own histories and cultural characteristics (cf. The editors of Encyclopedia 2024). In the Middle Ages, the term "Tatars" was often used to refer to Mongol conquerors, particularly those of the Golden Horde, which controlled certain areas of former Kyivan Rus' (The editors of Encyclopedia 2024).

practically destroyed, and the population was sometimes taken into captivity, which effectively put an end to the existence of Rus' (cf. Subtelny 2009:41).

In the 13th century, the Galicia-Volhynia Principality took shape in the territory of modern Western Ukraine (cf. Kazmyrchuk 2009:77). Later, Lviv, founded in 1256, became the central city of the principality and a new centre of economic and political life after the decline of Kyiv. In 1253, Danylo of Galicia was crowned under the official patronage of Pope Innocent IV, who advocated the idea of an anti-Tatar [4] crusade (cf. 1253 – coronation of Prince Danylo n.d). This alliance was advantageous, as it brought one of the largest territories in Europe into the ranks of allies; King Danylo initiated the consolidation of certain territories, but internal conflicts, the reluctance of neighbouring states to participate in the crusade, and the desire to annex the principality itself defined an unstable fate for his reign (cf. 1253 - coronation of Prince Danylo n.d).



[Fig. 09]  
Galicia-Volhynia Principality in  
13th century; based on Tiutko  
(1995:63) © Y. Tsarynnyk (2024)



### Ukrainian lands in the 14th-15th centuries / Lithuanian-Polish rule (14th-15th centuries)

A series of principalities emerged amid the disintegration of Kyivan Rus' and the Mongol invasion. One of these, Muscovy, originated in the eastern part of Kyivan Rus' and the northwestern region of present-day Russia; initially part of the Vladimir-Suzdal Principality, Muscovy later came under the control of the Golden Horde (cf. Paliy 2017:249). In 1480, Ivan III became the first ruler of independent Muscovy, self-proclaiming the title of the "Tsar of All Rus'" (cf. Subtelny 2009:71), laying the foundation for the myth of Muscovy and later Russia as the heir to the legacy of Rus'.

From the 13th century onwards, another state took shape along the Nemunas River in Europe – the Grand Duchy of Lithuania. The primary goal of the Grand Duchy of Lithuania was to unite the Eastern Baltic tribes and Rus' peo-

[Fig. 10]  
Grand Duchy of Lithuania and  
Muscovy 14th-15th century;  
based on Tiutko (1995:69) © Y.  
Tsarynnyk (2024)



ple to fend off German expansion and the spread of Catholicism (cf. Subtelny 2009:70). Notably, by 1385, Lithuanian Grand Duke Jogaila, who styled himself as "By the God's Grace Grand Duke of Lithuania and Lord of Rus'" (cf. Plokhy 2015:63) evinced a willingness to enter into matrimony with the Polish queen Jadwiga and embrace Catholicism, thereby facilitating his accession to the Polish crown (cf. Plokhy 2015:63).

In the early 14th century, the Grand Duchy of Lithuania, Muscovy, and the Kingdom of Poland (which was taking shape in the mid-10th century) initiated a competition for control over the territories of the fragmented Kyivan Rus' when internal conflicts started within the Golden Horde itself (cf. Kazmyrchuk 2009:107).

External pressure from the Kingdom of Poland and the Grand Duchy of Lithuania emerged as decisive factors in the dissolution of the Galicia-Volhynia Principality, one of the attempts to unify the lands of Kyivan Rus'. The Grand Duchy of Lithuania, led by Gediminas and his descendants, actively expanded its

[Fig. 11]  
Polish-Lithuanian Commonwealth; based on "Ukraine after the Union of Lublin (1569)" Tiutko (1995:77) © Y. Tsarynnyk (2024)



influence to the west and southwest, encompassing territories of Kyivan Rus' (cf. Palii 2017:221). In 1352, Lithuania and Poland, engaged in territorial competition, signed a peace agreement; according to this accord, the lands of Galicia were ceded to Poland, while Volhynia became part of the Grand Duchy of Lithuania (cf. Kazmyrchuk 2009:108). During that period, Muscovy was actively expanding its influence in the east and northeast, encompassing the remaining territories of Kyivan Rus'. At the end of the 15th and beginning of the 16th, Muscovy consolidated its positions and secured control over key areas, including Chernihiv and Smolensk (cf. Palii 2017:241-242).

Thus, in the 14th-16th centuries, the territories of the former Kyivan Rus' were divided among various states, such as Muscovy, the Ottoman Empire, the Grand Duchy of Lithuania, the Kingdom of Poland, and later, simply within the unified state of the Polish-Lithuanian Commonwealth (cf. Kazmyrchuk 2009:107).

[Fig. 12]  
"Ukrainian Cossack State of Hetman Bohdan Khmelnytsky 1648-1657"; based on Tiutko (1995:91) © Y. Tsarynnyk (2023)



### Cossacks XV-XVIII

In the 15th and 16th centuries, Cossackdom emerged in Ukraine in response to socio-economic challenges – peasants, dispossessed by feudal laws, moved southward, joining Cossack groups in the uninhabited steppe regions (cf. Kazmyrchuk 2009:132). Turkish-Tatar raids compelled the local population to form armed groups for self-defence; evolving into a potent military force, they played a pivotal role in shaping Ukrainian society and became a formidable entity that neighbouring states had to reckon with (cf. Kazmyrchuk 2009:133). In 1552, the Zaporizhian Sich emerged as the heart of Cossackdom, embodying freedom and self-rule and serving as a crucible for the formation of Ukrainian identity (cf. Kazmyrchuk 2009:135).

The Cossacks proved to be highly skilled warriors, and several states sought them as military allies. They fought as part of the Grand Duchy of Lithuania. In

1594, Erich Lassota, the envoy of Emperor Rudolf II of the Holy Roman Empire, approached the Zaporizhian Cossacks, urging them to join his master's side against the Turks; later, Aleksandar Komulović, a representative of the Pope, made a similar request to them (cf. Plokhly 2015:80).

During the 1590s, Cossack uprisings emerged in opposition to Polish dominance and the exploitation of Cossacks as mercenaries; Cossacks resisted social and economic pressures and fought against attempts to restrict their freedoms and autonomy (cf. Subtelny 2009:113-114). These uprisings became essential to the Ukrainian people's quest for national liberation, defending their rights and independence. Despite Polish attempts to suppress the Cossacks, their significant role in the military support of Poland prevented such efforts (cf. Kazmyrchuk 2009:144). As a result of the Cossack uprisings in 1648 against the oppression of the Polish-Lithuanian Commonwealth, the Hetmanate [5] emerged – the Ukrainian Cossack state led by Hetman Bohdan Khmelnytsky (cf. Subtelny 2009:152).

[5] An etymological term derived from "hetman", which is the equivalent to the head of state.

By 1648, the Zaporozhian Cossacks essentially existed in a certain form of independence from both Muscovite and Polish-Lithuanian rule. In 1654, in Pereyaslav, Cossacks accepted protection from the Tsar of Moscow, contingent on the Tsar pledging allegiance to the Cossacks (cf. Kazmyrchuk 2009:179). His failure to do so complicated their relationship. By Bohdan Khmelnytsky's death in 1657, Ukraine had become a powerful European state, rivalling the Polish-Lithuanian Commonwealth (cf. Kazmyrchuk 2009:181). However, the hetman's control over western regions, particularly Galicia and Volhynia, was limited, creating dependencies on foreign governments; this complexity hindered relations with other European countries and the ability to implement foreign policy (cf. Kazmyrchuk 2009:181).

Cossacks, particularly under the leadership of prominent Cossack elders, periodically entered into various agreements and arrangements with Muscovite and Polish-Lithuanian rulers to secure a degree of autonomy and legal status. What played a contrary role was that the party with which the Cossacks signed agreements, be it the Polish Kingdom or Muscovy, consistently failed to fulfil the specified conditions on their part. Instead, they utilised the Cossacks to achieve their military goals. This constant political manoeuvring compelled the Cossacks to switch allegiances, shifting between the Polish-Lithuanian Commonwealth, Muscovy, the Ottoman Empire, and even Sweden. Ultimately, these changing alliances strengthened the coalition against the Hetmanate. The 1667 Truce of Andrusovo, dividing the Hetmanate into Left-Bank Ukraine aligned with Moscow and Right-Bank Ukraine under the control of the Polish-Lithuanian Commonwealth, marked a significant turning point; this period in Ukraine's history is known as the "Ruina" period (1667-1687) (cf. Palii 2017:361). Essentially, since the disintegration of Rus', Ukraine found itself surrounded by states attempting to annex its territories.

The successor to Khmelnytsky, hetman Ivan Vyhovsky, chooses the Polish political vector, which also ends unfavourably with the Hadiach Agreement signed in 1658 between the Cossacks and the Poles, the latter failed to uphold its terms (cf. Kazmyrchuk 2009:192-193). In 1672, there was another attempt to

unite Ukrainian lands – the then hetman, Petro Doroshenko, allied with the Turks, defeated the Polish army and concluded a treaty with Poland recognizing the "Ukrainian state" within its "ancient borders" (Kazmyrchuk 2009:200). All Polish garrisons were to be withdrawn from its territory. However, the Polish Sejm did not ratify this agreement, so despite the cessation of military actions, there was no talk of the war's end (cf. Kazmyrchuk 2009:201).

In the late 1680s, the Left Bank and Sloboda Ukraine were part of Muscovy, the Right Bank belonged to the Polish-Lithuanian Commonwealth, and some areas were under the Ottoman Empire's protectorate. The Treaty of Eternal Peace in 1686 between Muscovy and Poland affirmed the decision to divide Ukraine; it legally and practically solidified Moscow's control over Hetmanate (cf. Kazmyrchuk 2009:229).

During the second half of the 17th century, autocracy increasingly pursued a national-colonial policy in Left-Bank Ukraine, resulting in the tragic loss of tens of thousands of Cossacks, peasants, and townspeople, who perished in harsh conditions while constructing canals, fortresses, and other defensive structures; simultaneously, the Tsarist anti-Ukrainian policy intensified concerning national language and culture (cf. Kazmyrchuk 2009:204-205).

Despite the ongoing national liberation movements, Ekaterina II, who came to power in 1762, took definitive steps to eliminate the Hetmanate (cf. Palii 2017:419). She utilised the Cossack fleet, practically the only force in the Black Sea, in the battle against the Ottoman Empire and after initiating the destruction of the Zaporizhian Sich (cf. Palii 2017:419). Ekaterina II ordered the eradication of all remnants of Ukrainian autonomy, closely monitored economic development, significantly increased taxation on the population, and acted cautiously to "avoid stirring resentment toward the Russians" (Kazmyrchuk 2009:225). In 1783, by the decree of Ekaterina II, serfdom was established – a de facto form of slavery with the right of sale and physical punishment (cf. Palii 2017:420). One could say she initiated the infamous Russian propaganda, instructing to persuade Ukrainian peasants that their worsening situation resulted from the backwardness of "Malorosien customs" (cf. Kazmyrchuk 2009: 225-226). Under Ekaterina II's rule, Left-Bank Ukraine became known as Little Russia [6], Right-Bank Ukraine as the Southwestern Territory, and the southern part of Ukraine as New Russia (cf. Kazmyrchuk 2009:250).

[6] Malorossia was a term used by Russia in relation to Ukraine, which means "Little Russia."

History offers few examples of such a rapid regression in intellectual life as that which occurred after the liquidation of the Hetmanate and the Zaporizhian Sich. According to the census data of 1740-1748, there were 866 schools in the seven regiments of the Hetmanate – practically in every significant town or village. All these schools conducted classes in the Ukrainian language. By the year 1800, not a single one of these schools remained. In the Hetmanate of the 17th-18th centuries, there was almost universal literacy among the Ukrainian population. In contrast, during the era of the Russian Empire in the 19th century, less than 20% of Ukrainians were found to be literate.

Palii 2017:420, translation by Y. Tsarynnyk 2024

In addition, an active policy of renaming toponyms was pursued, with the original names of cities being replaced by ones that were consonant with the Russian language. The population of Ukraine during the 19th century tripled from 7,7 to 23,4 million, mostly due to migrations of other ethnicities – Russians, Serbs, Germans, Greeks, Bulgarians, etc. (cf. Kazmyrchuk 2009:254).

The period of the 16th – 18th centuries was very rich in events, in allies and adversaries, who changed their roles from one to another with high speed. That is the period when Cossack's Ukraine or Hetmanate signed "thousands" of documents, agreements, and deals with adversary-allies, and if such agreements worked, they did not last long, only creating a myth of legal conflict resolution. Hetmanate, or Cosack's Ukraine – was a failed attempt to unite the lands of Ukrainians for an extended period. However, this attempt played an enormous role in shaping Ukrainian identity and the willingness to fight for its independence. Now, the lyrics of the Ukrainian National anthem include the following words:

Soul and body shall we lay down for our freedom,  
And we will show, brothers, that we are of the Cossack nation!

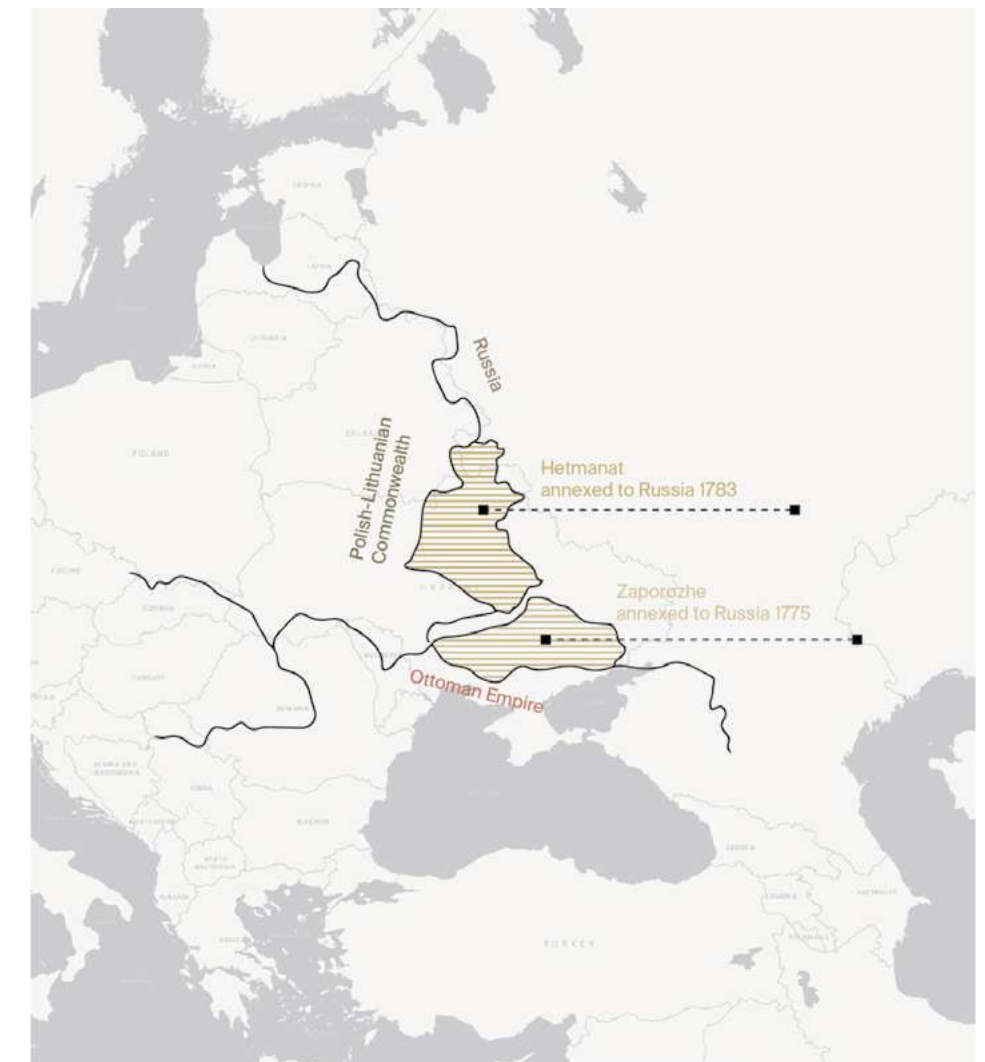
### Ukrainian in 17th-19th centuries

In the early 18th century, as Poland lost its former power and internal struggles for control erupted among various magnate noble groups, it provided grounds for foreign powers to intervene in Polish affairs – neighbouring countries, notably the Russian Empire, Austro-Hungarian Empire, and Prussia, decided to partition Polish territories (cf. Kazmyrchuk 2009:251). By the end of the 18th century, due to three partitions in 1772, 1793, and 1795 among Russia, Austria, and Prussia, most Ukrainian lands became part of the Russian Empire, while Galicia, Bukovina, and Transcarpathia went to Austria (cf. Kazmyrchuk 2009:285). These territories, under Austro-Hungarian rule, were more "fortunate" – the use of the native language was not prohibited; however, the local administrative and territorial structure was completely substituted; "The forced assimilation policy threatened the very existence of the Ukrainian people, who were divided in two by the Austrian-Russian border" (cf. Kazmyrchuk 2009:287). The rest of Ukraine, under the occupation of the Russian Empire, underwent a process of "Russification"; the Ukrainian language was banned and considered "peasant", and the name "Ukraine" was forbidden (cf. Kazmyrchuk 2009:317). There were arrests and deportations to Russia against communities that maintained a connection with their cultural and national identity, including writers, artists, and ordinary peasants. Despite this, the national spirit did not lose its strength.

### Ukrainian People's Republic

In the early twentieth century. Ukraine became a leader in the Russian Empire in terms of the number of anti-government protests.

Palii 2017: 466, translation by Y. Tsarynnyk 2024



[Fig. 13]  
Ukrainian Territory in the 18th century; based on Tiutko (1995:103) © Y. Tsarynnyk (2024)

In the latter half of the 19th century, following the Bolshevik revolution and under the influence of general revolutionary sentiments and dissatisfaction with the authorities in Ukraine, the All-Ukrainian Council on November 20, 1917, declared the independence of the Ukrainian People's Republic (cf. Kazmyrchuk 2009:440-442). Within a year, in the territory subject to Austria-Hungary, the West Ukrainian People's Republic (ukr.: "Західно Українська Народна Республіка", romanized "Zakhidnoukrainska Narodna Respublika"; abbreviated "ЗУНР", "ZUNR", also "WUNR" or "WUPR") was also proclaimed (Kazmyrchuk 2009:459). Three months later, on January 22 1919, they united, and Ukraine acquired the boundaries of its modern borders (cf. Kazmyrchuk 2009:452). However, this was abruptly interrupted by the totalitarian regime that replaced the Russian Empire. Neighbouring countries divided Ukrainian lands, with the largest territory going to the newly formed Soviet Union. Ukraine was renamed the Ukrainian Soviet Socialist Republic (UkrSSR), with its capital in Kharkiv.

## Totalitarian regime of USSR

The period under the totalitarian regime of the USSR is probably the most tragic time for Ukrainians, marked by numerous repressions and deportations (cf. Subtelny 2009:403-404). The most horrific event during the Soviet era is considered to be the Holodomor, a man-made famine orchestrated by the Soviet government in 1932-1933. This artificial famine affected the territory of Ukraine, excluding Galicia, Volhynia, Western Podillya (which were part of Poland), Bukovina (part of Romania), and Transcarpathia (then part of Czechoslovakia), as well as Crimea (then belonging to the RSFSR). The Holodomor was achieved through the confiscation of crops harvested by the population. The estimation of the number of victims remains a subject of debate, ranging from 3 to 6 million Ukrainians (cf. Subtelny 2009:415). A significant number of people were resettled from the Russian and Belarusian SSRs to the depopulated territory of Ukraine. In essence, the USSR was engaged in the replacement of the gene pool on the territory of Ukraine.

The then-head of the capital's (Kharkiv) OGPU [political police] stated that due to the famine, "ethnographic material will be changed." The Italian consul in Kharkiv, Sergio Gradenigo, wrote to the Italian ambassador in Moscow that "the consequence of the current disaster in Ukraine will be Russian colonisation of this country, which will lead to a change in its ethnographic character. In the future, and probably in the very near future, no one will speak of Ukraine or the Ukrainian people, nor of the Ukrainian problem, because Ukraine will become, de facto, a territory with a predominantly Russian population.

Paliy 2005, translation by Y. Tsarynnyk 2024

However, the USSR's established post-war reputation as the "victors" made it immune to criticism, and even though Western governments knew about the famine-induced deaths, no one wanted to sour relations with the USSR (cf. Subtelny 2009:416). With the onset of the Second World War, the USSR extended to the western lands of Ukraine as well.

## Ukraine Independent

In a nationwide referendum on December 1, 1991, 90.32% of Ukrainians supported independence and withdrawal from the Soviet Union. However, the struggle for independence did not end there. In 1991, Ukraine became a nuclear state, acquiring the third nuclear arsenal in the world after the United States and the Russian Federation. Part of the weaponry and the fleet was taken by the Russian Federation. On December 5, 1994, Ukraine's president signed the Budapest Memorandum on Ukraine's non-nuclear status. According to this memorandum, the presidents of the United States, Great Britain, and Russia pledged to respect Ukraine's independence, sovereignty, and borders, not to

use any weapons against Ukraine, refrain from economic pressure, not to use nuclear weapons against Ukraine, and seek urgent assistance from the UN Security Council in case Ukraine faces military aggression (cf. Wikipedia: Budapest Memorandum). This event, along with years of reforms and agreements on the status and armament of the Ukrainian army that followed, led to the gradual loss of the military potential of the Ukrainian army.

In 2003, Russia began constructing a dam towards the Ukrainian island of Tuzla. The Ukrainian side reacted, leading to the cessation of construction, but the dam was not dismantled. It was this dam that served as the foundation for the construction of the Crimean Bridge [7] in 2014 (cf. Wikipedia: Crimean Bridge).

The immediate precondition for Russia's full-scale invasion of Ukraine in 2014 was the desire of Ukrainians to start Euro Integration. For Russia, this meant a reduction in influence, and due to the impossibility of complete political occupation of the country, it resorted to military intervention. In 2013, the incumbent president of Ukraine refused to sign an Association Agreement with the European Union, leading to massive protests in the country. Over a hundred protesters were killed, including by Russian special services operating within the country. The president fled, and on February 26, Russian media reported the deployment of Russian special forces to Crimea. On February 27, they seized the parliament building. On March 18, the occupation of the peninsula took place. Within a month, territories in Donetsk and later in Luhansk were also occupied.

Despite the magnitude of this aggression, the response from Western society was feeble. This unsettling reality serves as a testament to the insidious influence of Russian narratives and their ability to manipulate and control the values of freedom and cultural autonomy through the utilisation of available resources.

[7] Built by the Russian Federation after the annexation of Crimea at the start of 2014.



[Fig. 14] Ethnographic territory of Ukraine; based on Tiutko (1995:125) © Y. Tsarynnyk (2024)

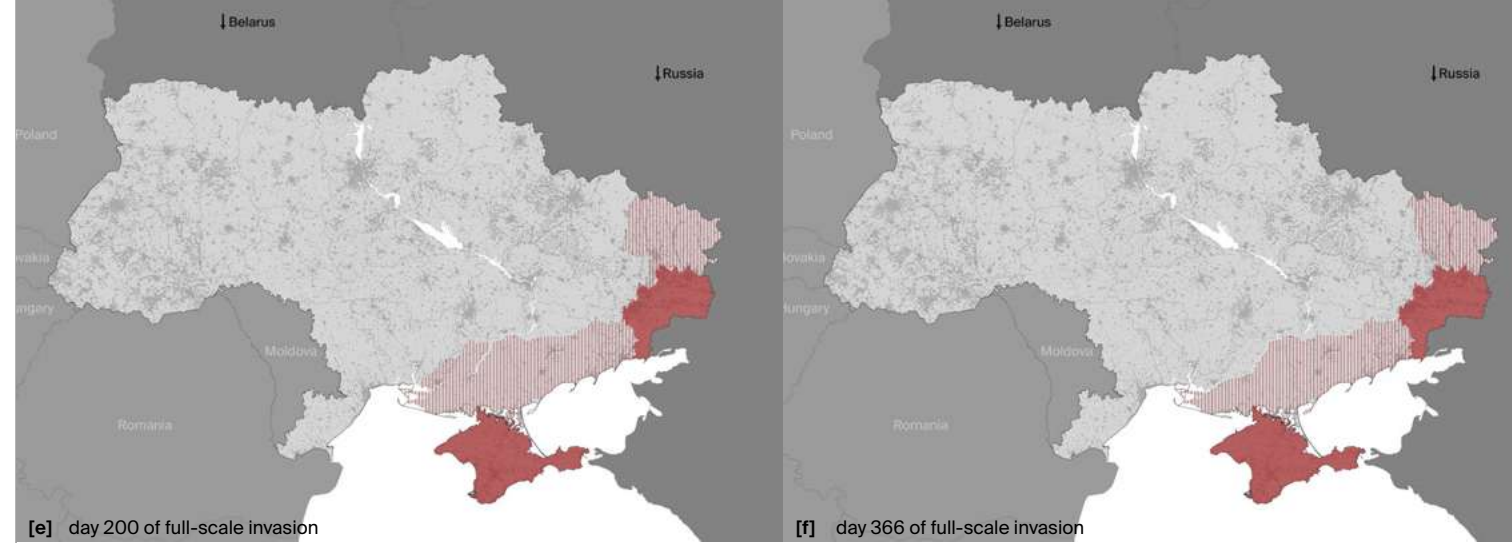
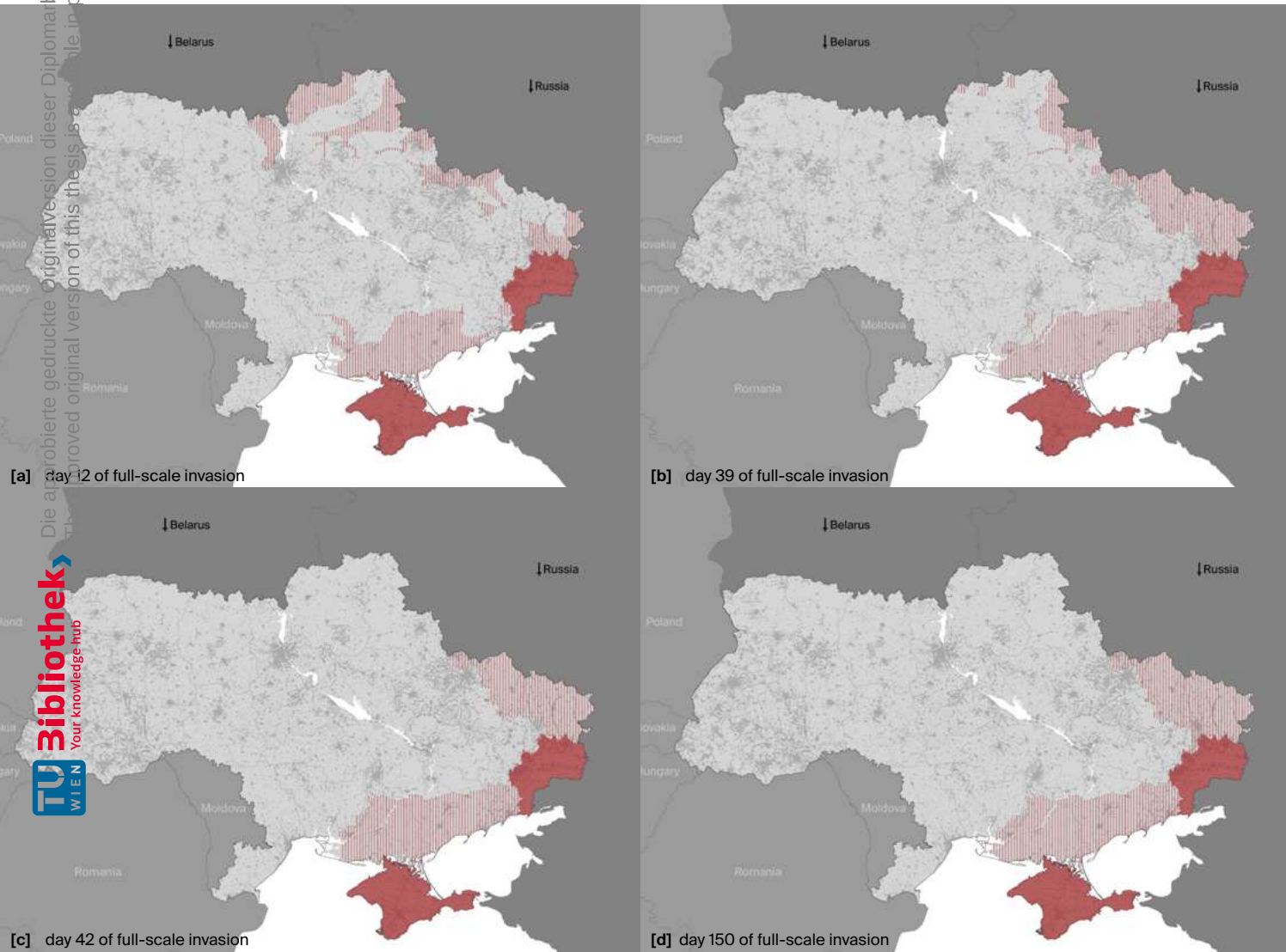
## Scenario Shaping

\*The selection of two cities for further research is driven by two primary considerations: the first revolves around the internal dynamics of the war's deployment, while the second is grounded in the country's administrative division. This dual approach offers a rationale for the chosen cities.

### Argument 1: war deployment

In addition to the inherent transformative nature of war, the modern Russo-Ukrainian war in the timespan of a year from 24.02.2022 stands out for its rapid development, shaped by the nature of engagement between the invaders and defenders. The independent project MilitaryLand.net, which covers "the full-scale Russian invasion of Ukraine since day one" (MilitaryLand.net), provides a comprehensive territorial examination of the conflict's unfolding on

[Fig. 15]  
Invasion maps (left to right):  
day 12, 39, 42, 150, 200, 366  
of full-scale invasion; based  
on MilitaryLand.net (2023) © Y.  
Tsarynnyk (2024)

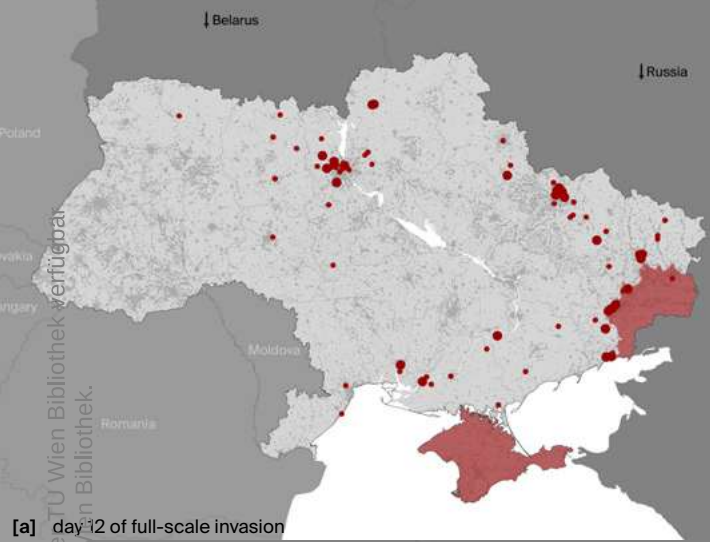


Ukrainian territory. Selected from the resource MilitaryLand.net, these maps depict days 12, 39, 42, 150, 200, and 366 of the full-scale invasion [see Fig. 15], illustrating significant milestones in the conflict's progression over the course of a year. During the first forty days, attempts at offensives, including from the north, originated from Belarusian territory. However, the front line eventually stabilised in the southeastern direction, between occupied territories by Russia since 2014 and the Russian border.

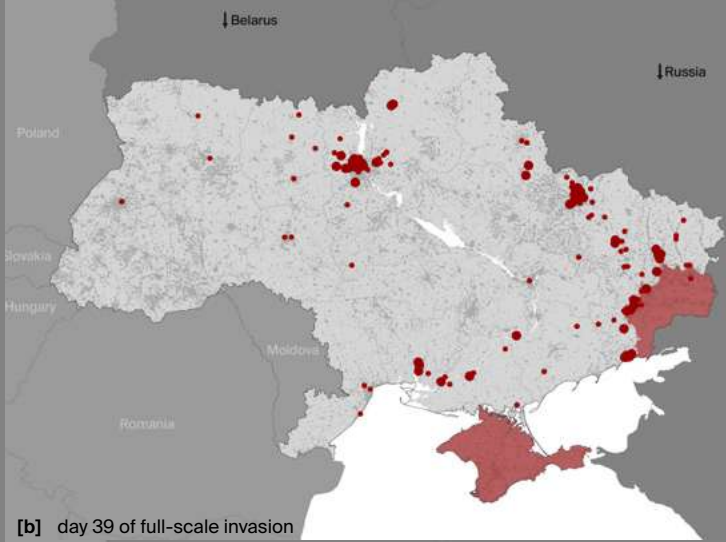
The following maps [see Fig. 16] depict data of the "Civilian Harm in Ukraine" gathered by an investigative journalism group, bellingcat specialising in fact-checking and open-source intelligence. This data includes incidents "that have resulted in potential civilian impact or harm since Russia began its invasion of Ukraine" including "where rockets or missiles struck civilian areas," "where attacks have resulted in the destruction of civilian infrastructure," and where visual evidence depicts civilian injuries or "immobile civilian bodies". The data, including incidents up to day 12, 39, 42, 150, 200, and 366 of the full-scale invasion, was selected to correlate with the invasion maps [see Fig. 15].

Overlaying the invasion map [Fig. 15] and the civilian harm map [Fig. 16] reveals that the highest number of strikes occurred along the border of the front line and in the largest cities.

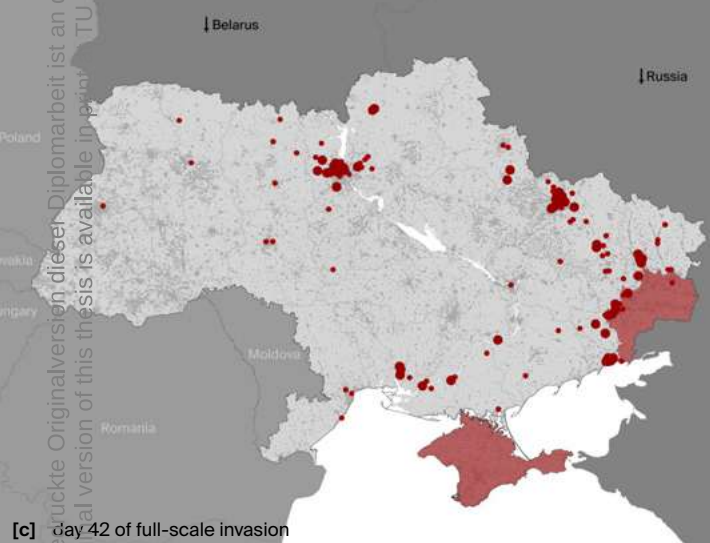
Based on the civilian harm dataset, Kharkiv emerged as the most affected region (ukr. "область", romanized "oblast") in the first year of the full-scale war. In contrast, Volyn reports only one incident impacting residential object during this timeframe.



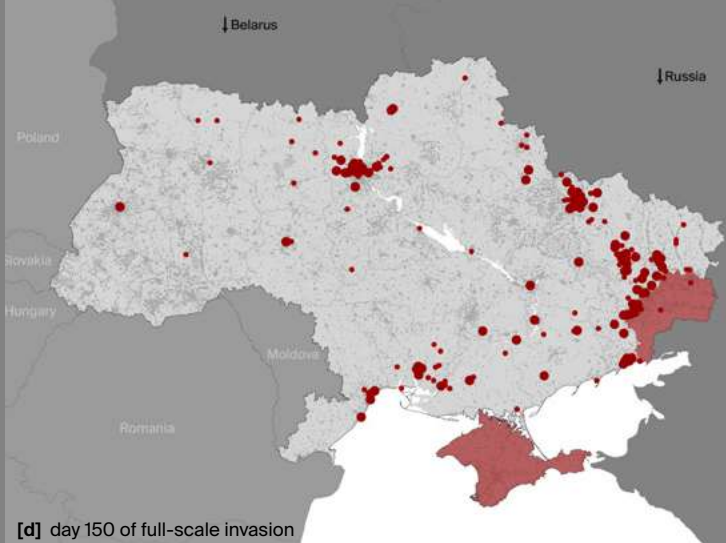
[a] day 12 of full-scale invasion



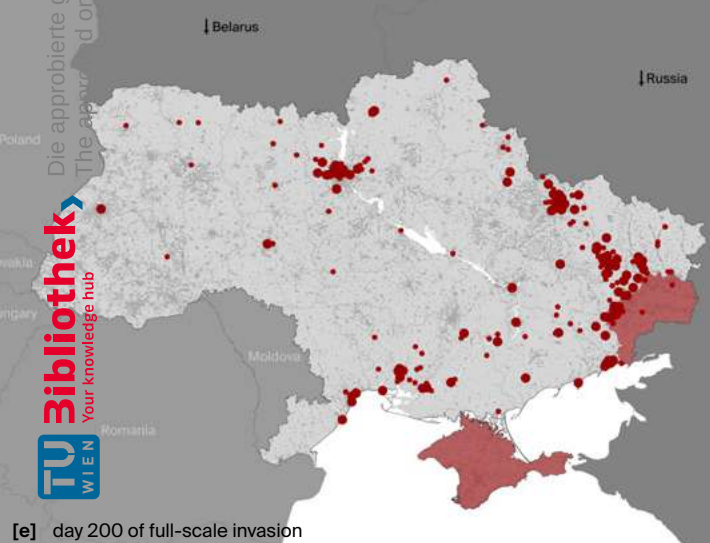
[b] day 39 of full-scale invasion



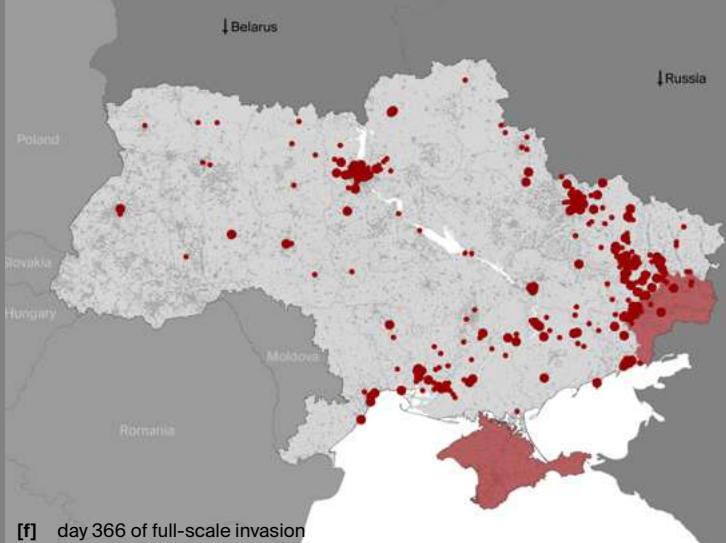
[c] day 42 of full-scale invasion



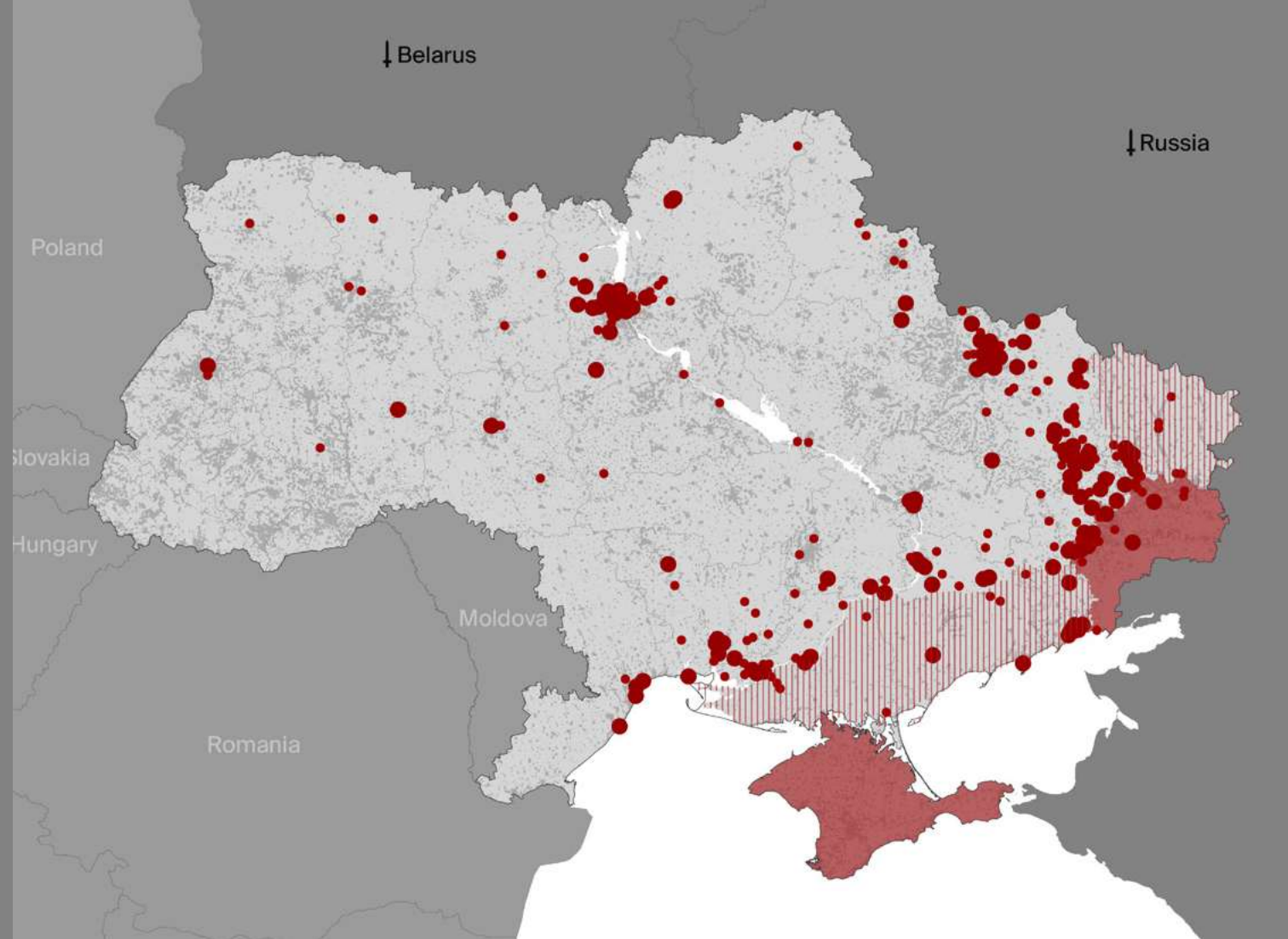
[d] day 150 of full-scale invasion



[e] day 200 of full-scale invasion



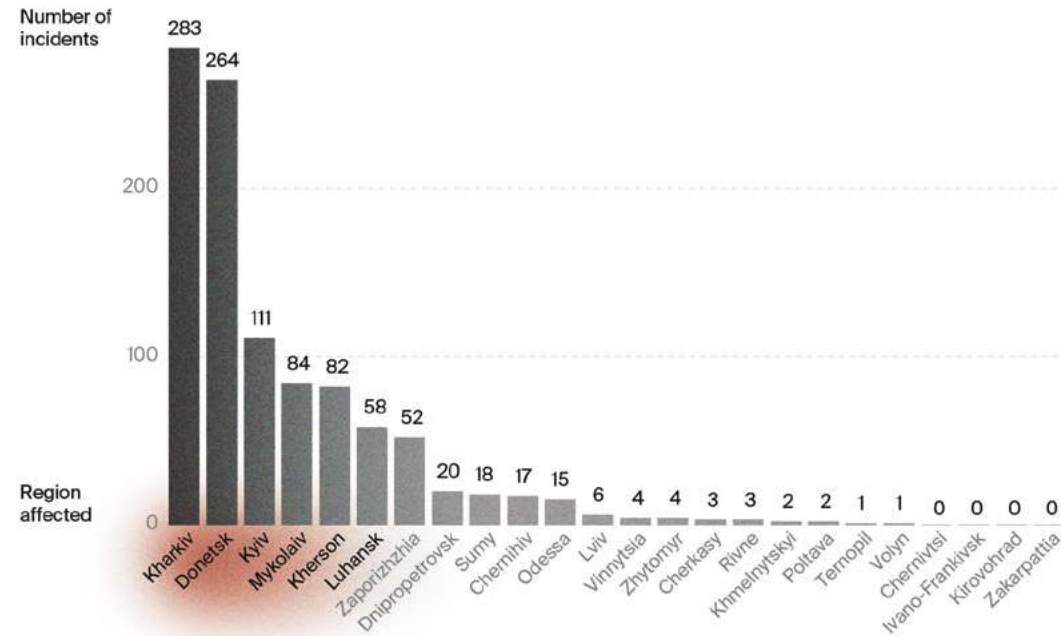
[f] day 366 of full-scale invasion



↑ [Fig. 17]  
Correlation of invasion and documented civilian harm from 24.02.2022 till 24.02.2023; based on Bellingcat (2023) and MilitaryLand.net (2023) © Y. Tsarynnyk (2024)

← [Fig. 16]  
Documented civilian harm (left to right): day 12, 39, 42, 150, 200, 366 of full-scale invasion; based on Bellingcat (2023) © Y. Tsarynnyk (2024)

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[Fig. 18]  
Civilian harm in Ukrainian regions in period from 24.02.2022 till 24.02.2023; based on Bellingcat (2023) © Y. Tsarynyk (2024)

Cities located in close proximity to the Russian border or the territories occupied by Russia since 2014 apparently experience more frequent and accurate shelling, resulting in a significantly higher percentage of destruction compared to the western part of the country. At the same time, western cities designated as safe within the country have faced a substantial increase in population due to the evacuation of fellow citizens, so-called IDPs (internally displaced persons). The intensification of offensive operations on the front line, or territories closer to it, correlates with an augmented occurrence of processes in the rear, encompassing aspects such as the influx and resettlement of refugees and reception of humanitarian aid via allied western borders.

The nature of the war unfolding in each specific city in Ukraine correlates with the distance to the Russian border and Ukrainian territories occupied by Russia before 2022. As a result, for example, the experience endured by a city in the east and the experience of a western city of Ukraine is very different, as are the various challenges associated with the military invasion.

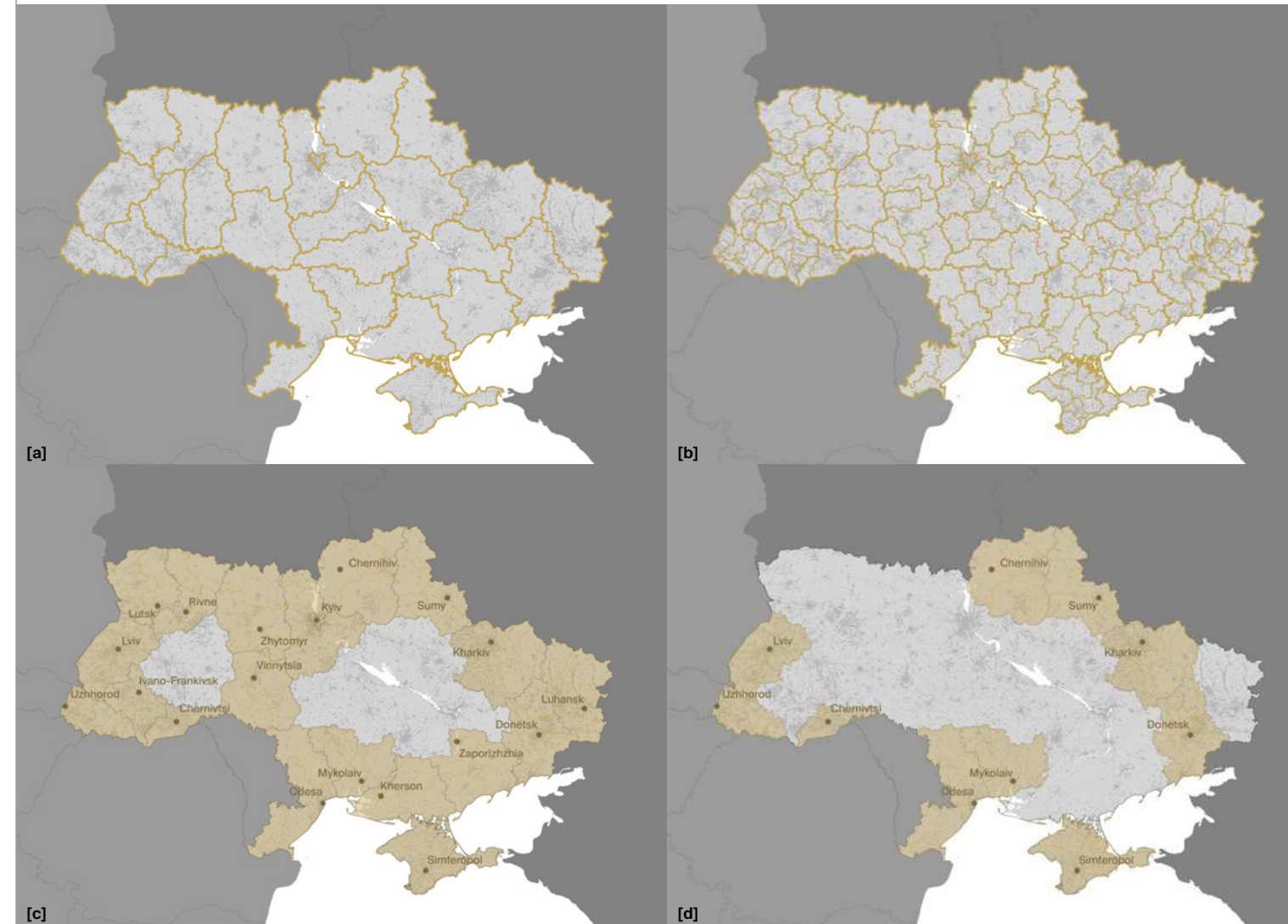
To refine the focus of the research, it is necessary to delve into the administrative divisions of Ukraine. Specifically, one city from the eastern region will be designated as the front-border city, while another from the western region will be designated as the rear-border city.

## Argument 2: administrative boundaries

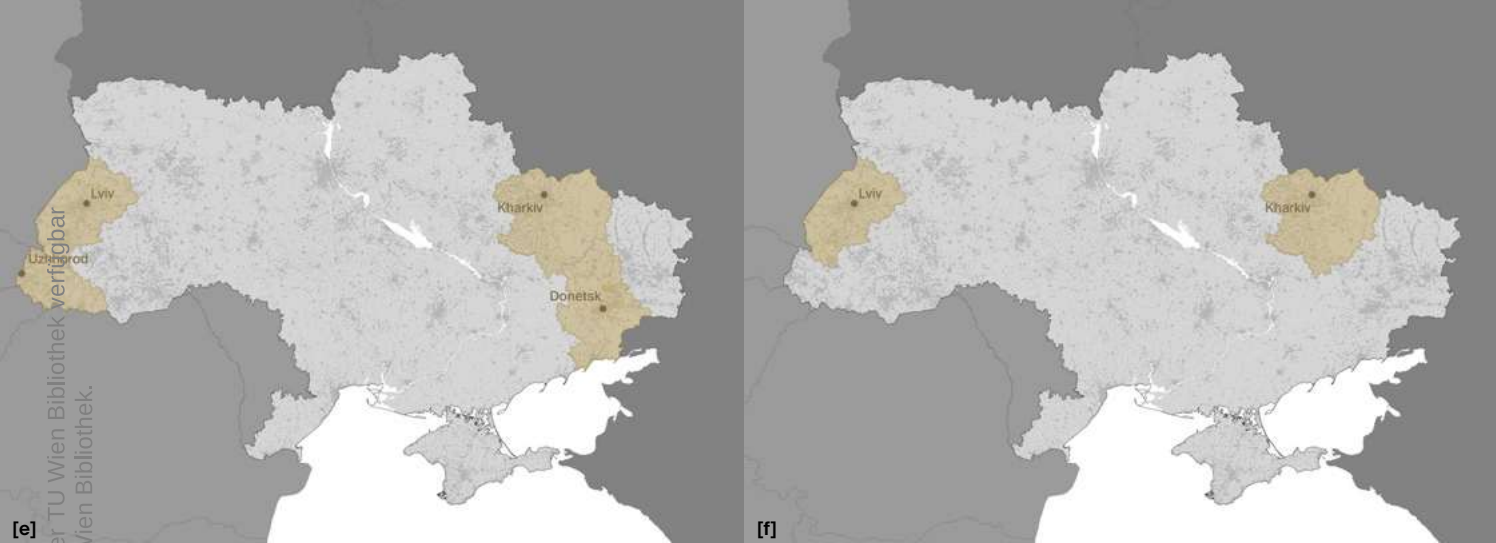
Ukraine operates as a unitary state with four levels of subnational gover-

nance: (1) oblasts (equivalent to regions), (2) raions (comparable to districts), (3) city councils, and (4) rural councils. The country comprises 24 oblasts (regions), Crimea, and two cities with special status. At the district level, Ukraine previously consisted of 490 districts. However, as part of the decentralisation efforts implemented since 2020, this number was reduced to 140 districts, including those in Crimea, which are currently beyond Ukrainian control. The research introduces the concept of a border city, which is not officially recognised within the country's administrative division. However, terms referencing border territories are recognised within the administrative framework of The State Border Guard Service of Ukraine.

Border territory is called the border zone on the Ukrainian-Polish border (cf. Berezhniuk et. al. 2013:294). This territory stretches 30 km from the shared







[Fig. 19] Administrative divisions of Ukraine © Y. Tsarynnyk (2024)

[8] Term introduced by the Resolution of the Cabinet of Ministers of Ukraine (1998).

[9] City with special status.

borderline. Border territory on the Ukrainian-Slovak border means 10 km from the common borderline (cf. Berezhniuk et al. 2013:294). The definition describing boundaries, which coincides with this research, is the controlled border raion [8] (or district). There are 62 districts (out of 140), which are controlled border districts and Sevastopol [9].

In the scope of this research, cities located within the boundaries of controlled border districts will be referred to as border cities. As administrative centres possess greater media visibility and thus better representativeness, the choice for further research is made between them. Regions which have controlled border districts with region territory are marked in color on the map [Fig. 19c]. The next map [Fig. 19d] shows which administrative centres lie within the territory of controlled border districts. There are ten of them in total [Fig. 19d].

However, to depict various scenarios that may arise during an armed invasion, it is essential to select one city from the east, representing a front-border city, and one from the west, representing a rear-border city. The remaining options are Lviv and Uzhhorod on the west side and Kharkiv and Donetsk on the east.

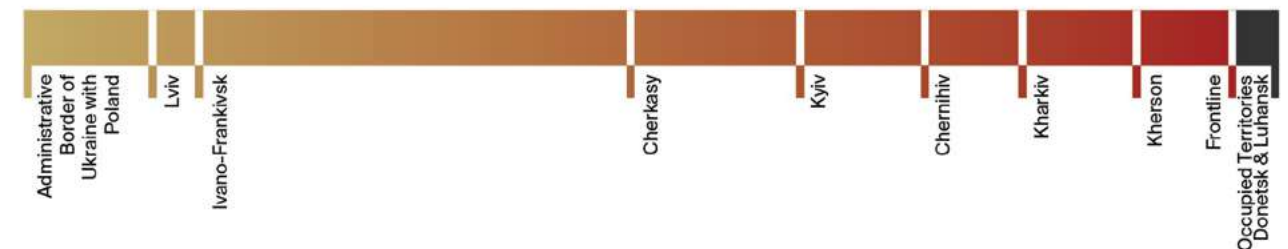
When the situation in Kyiv intensified, Lviv emerged as a mediator in the West of Ukraine. Given its familiarity and significance to me, I selected Lviv as the representative city for the west side of Ukraine. For the eastern counterpart, I opted for Kharkiv. Since the occupation of Donetsk began in 2014, conducting thorough research from that time is crucial. Therefore, I chose Lviv, situated within the Lviv-controlled border district, and Kharkiv, located within the Kharkiv-controlled border district, for this research.

## The Impact of War: Urban Dynamics in Diverse Scenarios

In Ukrainian lexical usage, tryvoha (ukr. romanized), which is anxiety in the first meaning, is more often used in its second meaning of an air raid alarm, a nuclear threat – in the Ukrainian language, yaderna zahroza (ukr. romanized)

is gently called yaderka (ukr. romanized). Shelter, humanitarka (ukr. romanized, meaning "humanitarian help"), evacuation, liberation, de-occupation, volunteering – all these words have become deeply ingrained in the everyday lives of Ukrainians after the full-scale invasion. These terms reflect the current realities and challenges the Ukrainian population faces amid war.

Although the war has been ongoing since the beginning of 2014, its impact significantly increased due to the full-scale invasion. The initiation of military operations surpassed the borders of three regions of Ukraine and extended within the entire national border. Staying anywhere in the country became dangerous. However, due to their distance from Russia, the Western regions experienced the slightest degree of military aggression. Consequently, a considerable percentage of Ukrainians opted to reside in these areas. An intuitive interpolation, mapping the safest to the most hazardous cities based on proximity to the Russian border, reveals the following scale:



[Fig. 20] Intuitive interpolation of dangerous and safe cities of Ukraine based on the distance from the front line: east – dangerous cities, west – "safe" cities © Y. Tsarynnyk (2024)

This interpolation was generated in mid-November 2022, with the criterion being the distance to the border with Russia or occupied territories. When transposing this scale onto a map [Fig. 21], the east-to-west vector was employed.

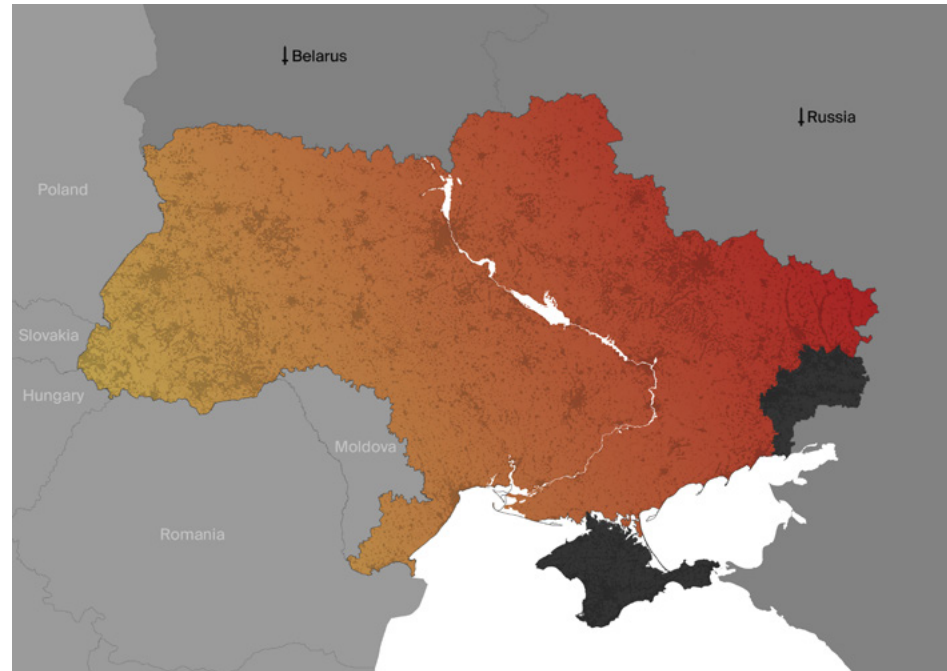
The following map [Fig. 22] illustrates the approximate annual statistics of air raid alerts within the country. Notably, Kharkiv emerges as one of the leaders in alarm frequency, with the total number of alerts nearly five times higher than that observed in Lviv. This statistical representation provides a visual comprehension of cities categorised as dangerous and safe.

The alarm map closely aligns with the intuitive tracing of dangerous regions. However, it is essential to note that the data for the Kherson region is incomplete due to partial occupation. Therefore, if the Kherson on the map trends towards a deeper shade of red, it would correspond more closely to the intuitive illustration of dangerous regions. Nevertheless, the trend of an exposed east and a comparatively secure west remains prevalent. Within the context of danger, the frequency of air raid alerts demonstrates a noticeable correlation with the number of shelling incidents, which is the main trigger that initiates a chain reaction of changes, including spatial ones.

Shelling can be distinguished by the type of weapons used, as each has a certain blast radius and attack consequences. Invader aviation, indicated by

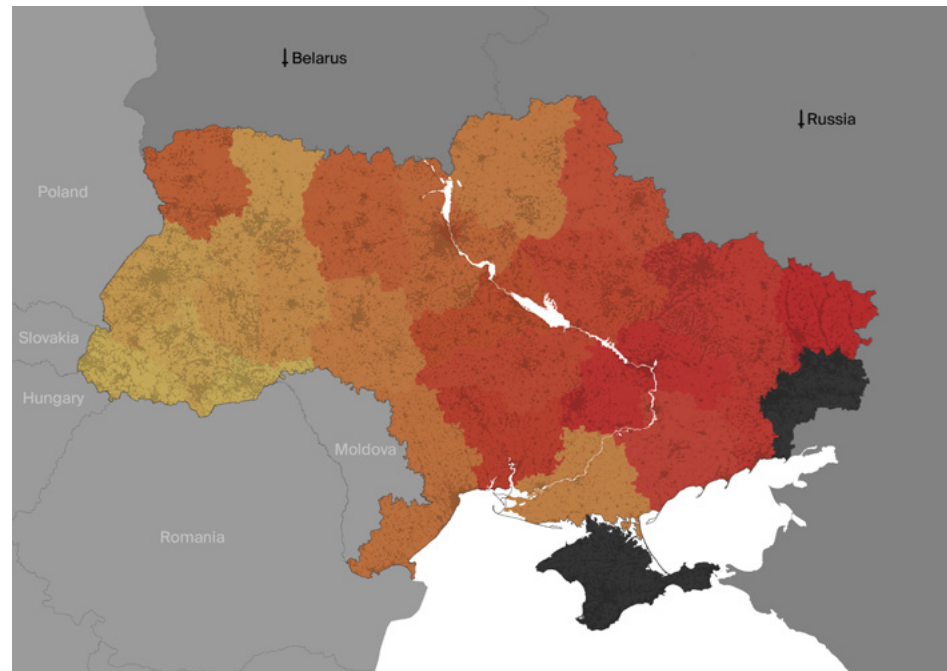
[Fig. 21]

Map projection of intuitive interpolation of dangerous and safe cities of Ukraine based on the distance from the front line: east – dangerous cities, west – "safe" cities © Y. Tsarynnyk (2024)



[Fig. 22]

Map projection of approximate annual statistics of air raid alerts by region; based on dataset "Air-raid sirens in Ukraine" (2023) © Y. Tsarynnyk (2024)



air raid alerts, mined areas in occupied territory, movement of military vehicles, dynamics of the front line, the risk of sabotage by infiltrators and collaborators – all these factors create perilous conditions, leading to destruction, fear, and further evacuation or adaptation to life in new circumstances, ultimately resulting in changes of the spatial landscape.

## Impact

During the course of the research, the following themes of impact on cities have been identified through a review of media sources, legislative publications and information gathered through interviews:

### Destruction

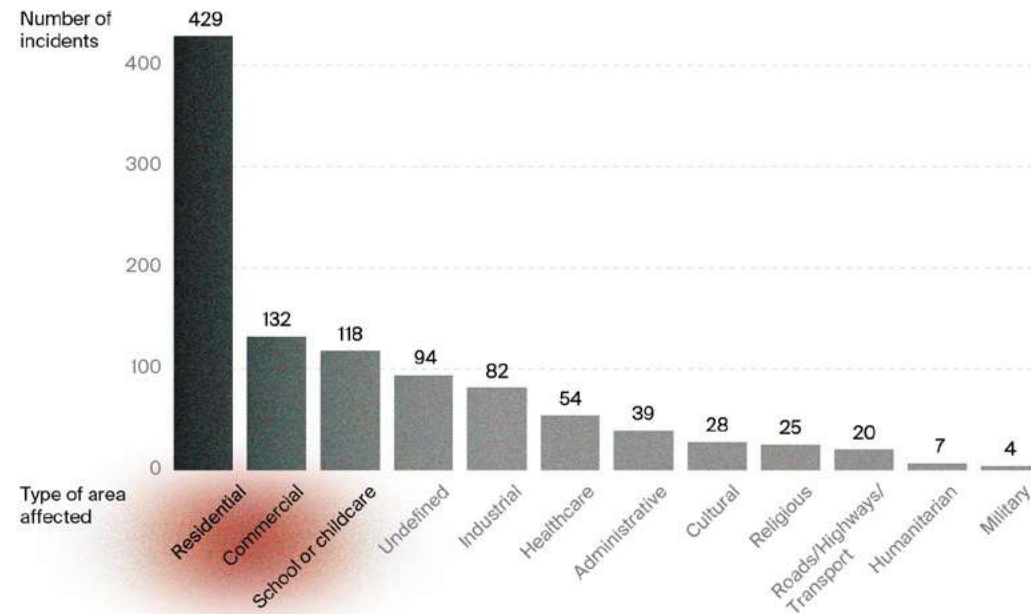
If measured by the scale, destruction takes the first place in terms of impact on the physical transformations of an urban fabric. It is the primary catalyst for changes resulting from military aggression. The closer the city is to the front line, the more evident destruction in an area around it. Despite Russia's signing of the Geneva Convention, bombardments extend beyond military targets. Within a year, there were 429 documented incidents in residential areas, as reported by Bellingcat. It is important to note that this number represents only documented incidents, and the actual number could be higher. The third place in shelled objects posits schools and childcare.

What happens to a destroyed or partly destroyed object within the city? If the object is not entirely destroyed and still undergoes partial utilisation, it continues to be used at will or due to a lack of alternatives. In other words, it may keep old or acquire new functions. If the object is destroyed and can no longer perform its intended functions, these functions must be transferred to another object. Or suppose the functions are non-essential, private, such as trade or catering establishments. In that case, they cease to exist at the owner's decision, resulting in the object's disappearance along with its functions.

### Evacuation and adaptation of transport infrastructure

As people fled from dangerous areas at the beginning of the full-scale invasion, the transportation infrastructure experienced overload. Firstly, due to the influx of people, and secondly, because the transportation infrastructure often becomes a target of the aggressor, leading to logistical breakdowns and the need for adaptation. The concept of an evacuation train also appeared – this train often leaves bombarded areas, and therefore, the number and condition of people in it are unknown. In the first weeks, these evacuation trains moving to Lviv were so overcrowded that people stood everywhere because there was no room to sit down. Evacuation is conducted as a measure to ensure safety. However, for some, the danger lies in simply staying in the country where a military invasion is unfolding, even if the city is less exposed to military actions, as in the western part of the country.

On the other hand, some may not feel direct danger or have already accepted it, especially if shelling continues daily nearby. This redistributes the number of city users within the city, across the country or beyond its borders, altering the balance of supply and demand. Changes in public transport movement and accessibility are influenced by available resources like fuel or electricity for electric transport and the feasibility of routes. When specific city



[Fig. 23] Documented civilian harm by type of area affected in period from 24.02.2022 till 24.02.2023; based on Bellingcat (2023) © Y. Tsarynyk (2024)

areas become unsafe, standard routes may be avoided for safety reasons. Consequently, individuals often switch to alternative transportation modes such as bicycles or restrict their travel radius within the city.

### Shortage of resources

The shortage of resources due to a disrupted logistics chain and the constant threat from the aggressor are other noticeable phenomena in the city. Consequently, numerous volunteer initiatives emerge to address people's essential needs locally, such as food, hygiene products, medications, fuel, and more. Effectively providing living conditions during a resource shortage becomes the prior concern for city residents under regular shelling. This changes the points of attraction in the city, reshaping the city's paths. Sometimes, volunteer efforts grow to the extent that they undertake tasks usually handled by the government, such as providing social support to economically disadvantaged or less mobile groups. Dormitory "Through The War" (as) Shelter for the Needs of the Disabled Seniors in Kharkiv illustrates such an initiative.

### Civil defence siren/air raid alarm

This phenomenon is not only visible, as city residents are obliged to seek shelter, whether in basements or underground garages, resulting in the suspension of city life, but it is also audible. Translating the air raid alarm into spatial terms, one of the first conclusions that can be drawn is that the level

of city usage centralises, within the same shelters, descends to ground level, and partially suspends – public transport stops running, public catering establishments cease to serve people. However, seeking shelter is not always followed, especially in Western regions. Even if the city has not experienced missile attacks, it is not to underestimate the impact of this phenomenon on the psycho-emotional condition of people.

### Psycho emotional impact

The psychological and emotional impacts initially appear distinct from spatial significance. However, in reality, individuals undergoing psycho-emotional burnout may experience reduced capacity or effectiveness. They may encounter difficulties navigating the city autonomously or assisting less mobile population groups in such circumstances. Consequently, such individuals transit from being regular users to becoming part of the less mobile population. As a result, there is a shift in the distribution of city residents. This shift reveals the emergence of a particular group that requires establishing specialised facilities tailored to their needs, such as rehabilitation centres.

### Curfew

Curfew regulates the city's usage hours, and its impact is directly tied to the duration of the restrictions. For instance, if the curfew spans from four in the morning until noon, civilians have only four hours to fulfil their needs, including obtaining essential resources like food. Conversely, if the curfew is in effect from midnight to six in the morning, its impact may be minimal for many, as this period typically coincides with sleeping hours. Curfew regulations govern the city's usage patterns, which means people must follow a set lighting schedule and limit the use of indoor spaces.

### City actors

Due to the invasion, a more evident division between the city users appears. A rough distinction is made between civilians and the military, determining the nature of their interaction with the city. While the primary task of civilians is to survive and provide their surroundings with all the necessary resources, the military's mission is to engage in combat. Among civilians, there are also volunteers who play a crucial role. For these individuals, volunteering can either be their primary activity or complement their leading professional practice. Volunteers have several options for work in the invaded country. They can assist the military or aid those fleeing dangerous zones. This involvement may include the supply of humanitarian aid, the establishment of warehouses to store supplies, evacuating people from at-risk or front line areas, and ongoing support for displaced individuals. This support can range from coordination efforts to finding housing, assisting with employment, and providing social, psychological, medical, and other necessary aid forms.

### Daily activities

War also influences changes in urban residents' activities, giving rise to new functions and requirements. Two prevalent practices include volunteering and humanitarian activities. Alongside traditional humanitarian aid, where volunteers distribute essential goods like food and fuel to designated civilian locations, many individuals contribute directly through their professional skills. For instance, architects volunteer to construct temporary housing, and chefs offer food assistance. Additionally, civil self-governance initiatives emerge as communities band together based on neighbourhood affiliations or other shared principles, aiming to fulfil essential functions such as providing accommodation, security, and food.

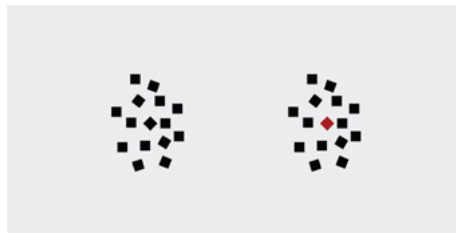
### Issues

Generalising these processes and translating them into spatial terms allows for considering the following phenomena:



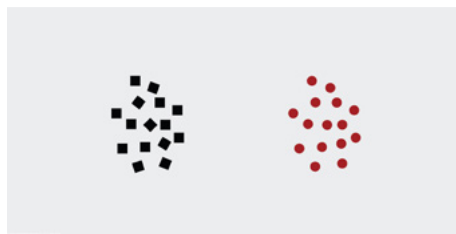
#### Common behavioural pattern of city users

As a result of increased control by state structures e.g., an air alarm causes a stop or partial suspension of city functions. City actors are using available functions, which are limited. [Fig. 24]



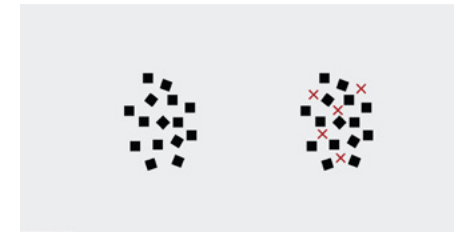
#### Appearance of common points of attraction in the city

E.g. when an air alarm occurs, civilians (de jure) follow to the nearest shelter; de facto, not everyone is following this rule. [Fig. 25]



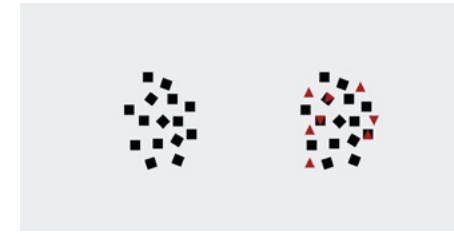
#### Change in functional usage of spaces or formation of new ones

E.g., suppose a building or infrastructure that served a specific function is destroyed. In that case, other spaces must fulfil this function, primarily if the destroyed one provided essential services, such as residential accommodations. [Fig. 26]



#### Appearance of military spatial artefacts

E.g. block posts, Czech hedgehog (static anti-tank obstacle defence made of metal angle beams or I-beams). [Fig. 27]



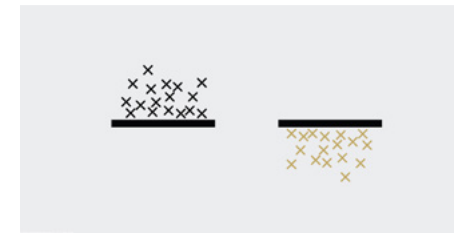
#### Appearance of new urban elements

To deal with the consequences of armed invasion e.g. refugee points, humanitarian hubs. [Fig. 28]



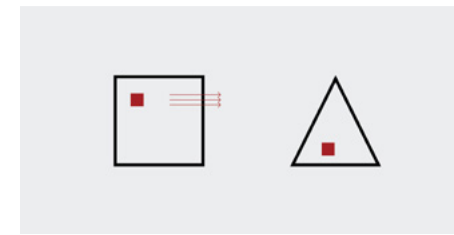
#### Centralisation

This process is closely intertwined with communication. It is commonly known that people tend to come together in times of crisis. Consequently, there is a denser network of communication and grouping based on shared criteria, such as age, interests, profession, social class, and geographical location – ranging from micro to macro levels, from individuals within a city to those within a single household. As a result, centres of activity with a defined radius emerge within these groups. [Fig. 29]



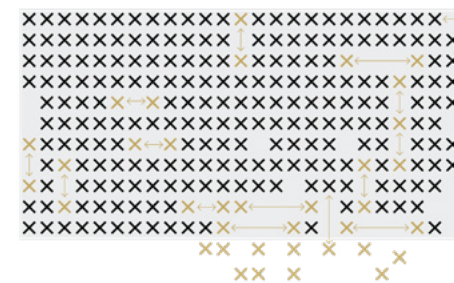
#### Shifting an active city level to the underground level

This phenomenon is evident in the case of Kharkiv Metro Stations (as) Underground City, where individuals transformed trains and train stations into communal living and public spaces. [Fig. 30]



#### Relocation

This happens when physical space ceases to exist or is no longer accessible due to occupation, requiring the relocation of its function. The case study a15 of the "Territory of Terror" museum and the Luhansk Regional History Museum relocated to its venue provides an example of this phenomenon. In this case, relocation involves not moving exhibits from the museum but evacuating the museum's director, who chose to continue her work. [Fig. 31]



#### Migration/ Evacuation

It differs between different types [Fig. 32]:

- short-range evacuation to safe places within a city, such as bomb shelters (which means, in reality, underground, basements or underground parking)
- long-lasting (extended) migration
- when people do not know where to go, they move from one train station to another;
- from the city or a country.



[Fig. 37] Lviv at the beginning of full-scale invasion; based on "Zaborona" (2022) Photo © Pau Venteo

# Interview: Lviv



[Fig. 38] Lviv at the beginning of full-scale invasion; based on "Zaborona" (2022) Photo © Dan Kitwood



[Fig. 35] Lviv at the beginning of full-scale invasion; based on "Zaborona" (2022) Photo © Dan Kiwood



[Fig. 33] Lviv at the beginning of full-scale invasion; based on "Zaborona" (2022) Photo © Mykola Tys



[Fig. 34] Lviv at the beginning of full-scale invasion; based on "Zaborona" (2022) Photo © Alejandro Martinez



[Fig. 36] Lviv at the beginning of full-scale invasion; based on "Zaborona" (2022) Photo © Alejandro Martinez

## Lviv Anonym 1 – Lviv resident, a friend

Stay in Lviv: from 24.02.2022 till now

Interview date: 31.10.2022

Day of full-scale invasion: 250

Can you divide the six months of full-scale war events from 24 February [2022] to 1 October [2022] into specific stages of experience in the city? What happened in the first days of the war and later when people started to adapt? What was this experience like for you?

You don't know what to do with yourself; you try to be helpful. For example, I am not able to help in a super-financial way, so I cooked, made nets, and sorted humanitarian aid; I don't know what else I did. I tried to paint something, sell my artwork, and sell NFT, but I failed because there was a lot of bureaucracy. Well, in general, yes. You just can't sit at home watching the news constantly, so you look for other things to do.

In May, we started going to work, and life began to return to "normal", although we still had these air raid alerts, which we successfully ignored. We already had a survey about who was in the best shelters [bomb shelter] and the top 5 best shelters in Lviv. And we were like, "I was in that shelter", "I was in that shelter", "it's very clean there, with a TV, with a sofa", and all that kind of stuff. And I don't know... There are many newcomers and new institutions; everyone is trying to survive somehow, to volunteer, to work.

There are many architectural competitions. We are currently participating in a rehabilitation competition in Briukhovychi [Lviv district], and this Unbroken Mothers building was opened – a building for pregnant and postpartum women, only those who are IDPs. We are also participating in a housing competition on Mykolaichuk Street [Lviv], which is also for displaced people, as temporary housing.

Oh, and I personally attended a workshop on furniture for a dormitory that was also opened in Hrybovychi, not a dormitory, but housing for IDPs. They had to make a set of furniture for it. We took part in a workshop on this. People [IDPs] were supposed to move in September, and it was delayed. But the local team organised everything, so they are making furniture, filling all the rooms, they are great.

Can you highlight something? Are any specific days or events related to the events of the war? Everyone remembers the 24th [24.02.2022], for example. Are there any other days or weeks, or periods that stood out? Can you think of anything?

No, I can't, really, because everything is going on super fast. Every day, there are some events, and every day, we go crazy with life. Every day, Zelenskyy says something, and everyone is like, "Yikes." The last few weeks have been the most stressful for me because, firstly, there have been a lot of missile strikes,

and secondly, I've started to get really nervous about the nuclear strike. So it's a kind of new fear.

To put it bluntly, it is not so offensive to die from an ordinary missile as from a nuclear bomb. I was walking recently, and there were some dates, you know, all these dates, on which a nuclear attack would happen on the 24th, 26th, and 28th. Before one of these days, I was going to work, and I was so scared, I was so tense, I thought, "Oh, shit". I also got up in the morning, opened Tiktok, and I had the first video, "What to do in case of nuclear attack", and I watched this video, and I was like, I won't have time, I'll be too lazy to do all this, so I'll just stand there and wait for death.

And for the first time in all these days, I thought that I was so scared of dying that I was ready to go somewhere abroad, but then I changed my mind.

Did you think about a certain scenario? What would you do in a dangerous situation? What is the first safe place you would go to in the city? Do you have your own evacuation plan? Where do you feel safe, or what places would you definitely avoid?

Well, considering that I live very far away. And I can't carry an emergency backpack [10] with me all the time. And I don't know, I'm a person who worries about my comfort and the comfort of others, and I don't want to stress anyone with me. So, I plan to die at home in any situation. So, yes. In fact, many people are preparing for different situations, they have emergency backpacks with them all the time. But I don't want to have to think about something or pack something in the last minutes before I die.

On 24 February, when the full-scale war started. What were your first actions and thoughts? Were all the people getting ready to go somewhere or were they staying at home and had no desire to go out, to leave the house?

I don't know; I got up in the morning and turned on the first video. I was freaked out. Because I couldn't really hear sirens at home at all, I have very thick windows. I started... I've never had an emergency backpack; I kept putting this story off always. So I began to pack; I packed all the necessary things: some documents, some things to change into, and a laptop. So, I went to my parents' place, and while walking, I saw all the neighbours sitting in the basement, discussing something very actively.

I went to my parents, they didn't know anything either. I didn't want to go anywhere, but I didn't want to be alone either. So, I wrote in my work chat that I wouldn't be coming to work today [Laughter]. And I spent the whole day tweeting, watching the news and watching all these Maidans that were abroad in Europe, there were a lot of people in Georgia...

Were there any instructions that everyone should go to large shelters, such as school basements in districts?

We have a basement in every building. But it's not a good shelter because there is only one way out, and if you get trapped, you have a better chance of being trapped in the basement and not being pulled out than being trapped in an

[10]

Emergency backpack – in Ukrainian context called "anxious backpack" – survival kit in emergency situations, which consists of documents; essential medicines; energy bars and water; a set of underwear, socks; flashlight, knife, power bank, FM radio; cash; an action plan written down on paper, with the necessary addresses and contacts (cf. Dubchak 2018).

apartment and being pulled out at least alive. Anyway, everyone stays at home, but we have this school shelter, it seems to be safer, and everyone went there first period but then IDPs were brought and no one was going there anymore.

**But in the first days, did you go there too?**

I did not go because there is this rule of two walls [11].

**How has the war affected your daily routine? On the use of the city, like the ones I know, curfews, sirens, what happens in the city at this time? How, what is closed? For example, I already know how transport runs. A taxi picked me up from the station at night during the curfew....**

The curfew has a great impact... The curfew is stressful. You know, in summer, everyone got used to some longer walks. For example, if you have to go to the train station at three in the morning, everyone is a little worried that you will be caught [by the police]. All electric transport stops during the sirens, so it's hard sometimes, there are very big traffic jams because of this. It stops in very inconvenient places, I don't understand this system. It would be better if it came somewhere closer, at least not in the middle of nowhere. And now there are a lot of strikes on the infrastructure, so there is no electricity in the neighbourhoods. They [public utility companies] also switch off the electricity; sometimes there is no hot water, no water. Well, in my neighbourhood, the electricity was only switched off once, for a couple of hours, but in some areas, there was no electricity for the whole day, and it is switched off periodically every day. I also know it is even worse in Kyiv with water or electricity. We need to prepare for some kind of schedule. In winter, it will be even worse. And now everyone is saving light, so it's much darker on the streets.

**Now, the curfew is from 0:00 to 05:00, and before, was it from 23:00 to 06:00?**

Yes.

**Was it like this all the time? Is this the second change of curfew or were there other changes?**

I think it was from 22:00 at first, but I could be very wrong... 21:00... It's not the first shift for sure; the first months were very scary, so I think it was from 21:00.

**Does everyone really observe the curfew?**

No. There are exceptions. But the streets are really empty after the curfew begins.

**But do you keep the curfew yourself?**

Well, there are some things; for example, I went to a party on Saturday and arrived right at the time of the curfew. And sometimes I leave my parents' place after the curfew, too. But it's a couple of metres. I mean, it's something so insignificant, if I have any excuses.

[11]

"The rule of "two walls". You should have at least 2 walls separating you from the danger, as one will likely collapse on impact and the other will take on the broken wall, window glass, etc. Therefore, it is safe to hide in a place located behind the second retaining wall from the facade. Usually this is a vestibule, corridor or hallway. Even if it seems to you that the house is unstable, there is no basement, and there is no space in the storage room, stay close to the retaining walls – they will withstand." (Visit Ukraine today 2022)

**What about catering establishments?**

Catering establishments are closed during an air raid alarm. Which is very bad, because they give you orders to take away and you have to go and look for some shelter. But they could have allowed some things, like two walls or something like that, so as not to drive customers away, because it's very uncomfortable. For example, on Saturday before the party, we went to Port [bar], drank wine, the alarm started and we were asked to leave. Like, "there is a shelter here in the church, go to the church."

**In every establishment, they have to tell you the nearest shelter?**

I don't know if they are obliged to. They just say, "We can't keep people in during the alarm," "We need everyone to come out," and "We can pour it, make it take away, but you just have to come out."

**How much time do establishments have to close before the curfew?**

I don't know if there are any such norms, but I go to the ambassadors [Night Ambassadors – event organisation] quite often. Since there was a curfew from 23:00, they closed at 22:00, an hour earlier. But they don't sell alcohol after 21:00, so there's no point in sitting there anyway [Laughter]. You can continue to sit, but the bar and the kitchen close at 21:00.

**Is there anything other than general peace that has disappeared from your life that you cannot enjoy?**

I can't buy an electric brush, namely a brush head. And I don't like to order online. I have been going to all of the stores for a month now, and there are no electric brush heads.

**If you started this topic. Has there been a shortage of goods or a monopoly of something on the market?**

No no. But eggs have become more expensive. But about goods, there is another reason. You deliberately avoid some goods because they have not left the Russian market. Well, I made a screen list of things that you use, but they have not left the Russian market. This is, for example, "Dr. Martens". It was very offensive to me because I really wanted shoes from them, but they did not leave the Russian market, and I am like this...I will be fine without them. Well, that is, you choose such elementary things more consciously now.

**Can you name some points of attraction in the city? That is, places that the city cannot do without, maybe some new things have appeared, or the existing ones have acquired some additional ones? For example, a train station, which used to be just a transit point, has now become a place where people can stay longer than one day.**

Briefly, there are two things. In the summer, when there was no study, all schools, educational institutions, and kindergartens were like dormitories for IDPs. Many old premises are being restored; for example, the same Lorta Palace is being reconstructed to meet the needs of IDPs. There are a lot of such



examples that acquired a new meaning. And that's cool.

However, despite this, some premises are also empty because they either do not have an owner or there is another incomprehensible bureaucratic situation. And instead of settling people in comfortable conditions, they are settled in the gyms, which is very bad. This is unclear. Many spaces are used, but also many that are not.

**Do you want to add something from yourself?**

I don't like the fact that there are many artefacts in Rynok Square [the main square of the city of Lviv]. Well, for example, there were tanks, some baby carriages, a lot of installations, a lot of all that. There is also a wing of a shot-down Russian plane near the monument to Diana. And it annoys me; however, I understand that they put it in the most popular tourist places. And this is clearly Rynok Square, but there are so many people there. On the contrary, it is possible to attract people to other parts of the city so that people go and look, and not do it all very banally and very under the nose. I don't like it.

Well, this is purely my individual city issue. I had this question for a long time: everything that happens in our city happens on Rynok Square. But our Lviv is a little bigger than Rynok Square.

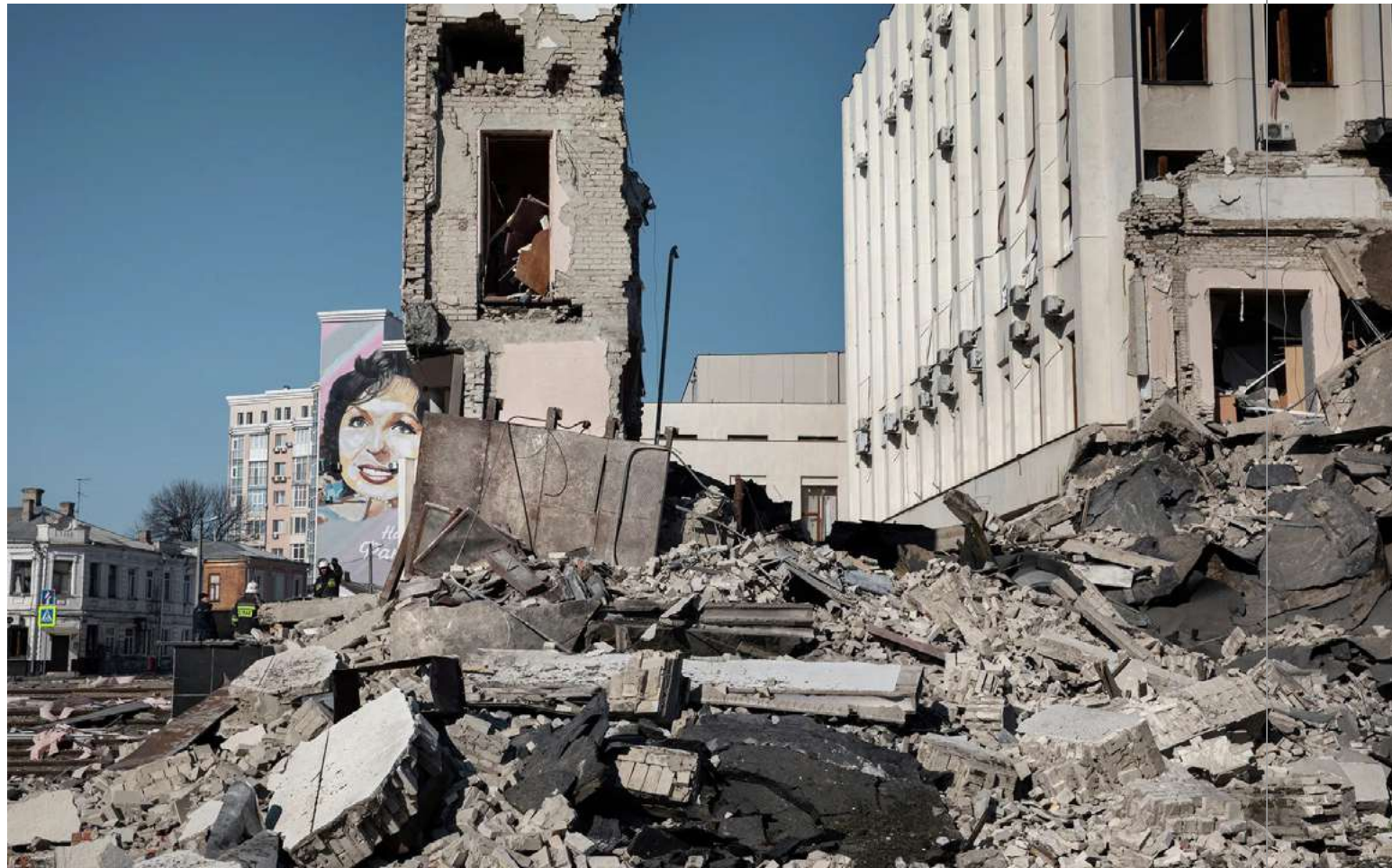
**Do you believe that the significant influx of people has led to the emergence of segregation, whereby IDPs now occupy certain places, causing Lviv residents to avoid those areas?**

There are different IDPs. Some are still living in school gyms...

**Still?**

Yes. I met one girl who came from Mykolaiv. And she still lives in a shelter. Because she can't find a job, so she can't find a place to live. She is not doing well, and she cannot afford much. But there are also people, for example, the Kharkiv diaspora, who quickly localised here and opened two million establishments.

# Kharkiv



[Fig. 39] Kharkiv at the beginning of full-scale invasion; based on "New Yorker" (2022) Photo © Jérôme Sessini



[Fig. 40] Kharkiv at the beginning of full-scale invasion; based on "New Yorker" (2022) Photo © Jérôme Sessini



[Fig. 43] Kharkiv at the beginning of full-scale invasion; based on © O'Reilly "The New York Times" (2022)



[Fig. 41] Kharkiv at the beginning of full-scale invasion; Kharkiv metro station; based on Kasianova "Bird in Flight" (2022) Photo © Pavlo Dorogoy

## Kharkiv Anonym 1 – Kharkiv resident who moved to Lviv

Stay in Kharkiv: from 24.02.2022 till 05.03.2022

Interview date: 20.03.2023

Day of full-scale invasion: 390

**Tell about the first day of the full-scale invasion. How did it all start for Kharkiv and for you?**

When it started, most people woke up at the same time. Very few people didn't wake up because of the explosion. Everyone who wanted to leave immediately ran for their lives, left Kharkiv, while others stayed and tried to find... Everybody had the same problem. The first two thoughts were to get money because you need cash, and most people were without cash, and the second was food. The problem was that I didn't have any cash, so I went to get it, and there were many people already. So I came out at about eight o'clock in the morning before I was in the room for three hours [from the time of the first explosion]. A lot of people were already standing by the ATMs. There were lines of people, and at about nine o'clock, they put a limit; from Mono Bank, it was impossible to withdraw money, while in Pryvat Bank, you could only withdraw 3000 per card. In general, the ATMs ran out of money very quickly because no one was renewing them; everyone was just taking out what they had, and that was it.

And the food. Because most of the shops simply did not open. And what was there was just taken away. And because there were no new supplies, only what was in the shops, and people didn't go to work at all in the first few days, they bought everything. Absolutely everything was bought. There was no food. From what I read on the channels on the fifth day, I just wanted to volunteer, and people were writing there that they had no food. So they were looking for someone to deliver the found food and also for somebody to cook it.

That is, on the second or third day, all these cafes that were able to work opened and were working. It was no longer a public place where you came to eat but a place from which food was delivered. They had a courier who travelled to the most terrible places, even Saltivka or Oleksiyivka, to bring people some food. And at the same time, they would get someone out of that place to safety. That's how it usually worked. So these two things were the most difficult at that time. And it went on like that, probably, I think, for a few months.

Because the lack of petrol, the lack of petrol supplies, food and so on, created a moment when everyone was just sharing what they had, and those who had some, I don't know, a basement with some potatoes, got it all to feed those who needed it. And to leave the city whenever possible.

**And how did you communicate? I mean, how did you know who worked where, what they had, or what they could provide? Because I understand it to be more informal communication, that is, a friend of a friend said that...**

Telegram channels and Instagram. The three most important channels of information, in my opinion, were Instagram, i.e. there are some promoted cafes, they have some food, they post about it, like "we have food, we need a person to deliver it to people, we are ready to cook, but we need some sports person with petrol and a car." So, some Instagram stories and posts...

The second was Telegram channels. At that time, we already had charity funds. In Kharkiv, we had probably 3-4 large funds that worked directly with all these deliveries, and there were deliveries from abroad, i.e. European funds supported all this. There was already something in these warehouses. In fact, then they had to set it all up for the chain. At first, they worked exclusively for the military, meaning they hardly issued anything to civilians, but they had to. And these Telegram channels were used for communication.

Most people were scared, so they went to some kind of shelter – if it was a metro or something, I don't know. Usually, in the centre, everyone went to some safe houses. Many were in basement workshops, and it is logical that when 40 people are sitting there, everyone has some acquaintances or has a connection – there was the Internet. This communication was very fast. There were no problems with this. Everyone knew where and what to find. The only question was how to deliver it because most people were afraid to go anywhere.

Those who wanted to help chose one of the state centres. Where you come and ask what is needed, and then you are coordinated. These were enthusiastic people who existed before, and they gathered their organisational power and created this process. The problem appeared when Russians hit the building of the Kharkiv Regional State Administration and killed at least 15 people. However, it is still unknown how many, definitely more than 15, because there was a centre where people gathered to help. There was a centre for collecting food and clothes, which were delivered to other centres after.

**Volunteers talk a lot about how the process of volunteering was established, but no one talks about the spatial component of this process. For example, I'm an entrepreneur and want to volunteer, but where do I get the room? Is it the state or the city council that provides it, or how does the occupation of this space work? How do I choose this space?**

So that's exactly the point: you have a car, you can drive people around, you have a place, a kitchen, for example, and you can cook for people. Logically, it would be inconvenient for you to choose an apartment to cook for everyone; it makes no sense. So there were these spaces; they just adapted to the needs of the time. We had nothing from the authorities. The authorities themselves were shocked by what was happening, and organising something with the authorities would have been a waste of time, and we would have been occupied, and that was it.

**What neighbourhood did you live in? Was it more or less safe in your neighbourhood?**

You know, the humour of it all, as soon as I left my neighbourhood, I had a few times when it was right next to me, I mean, about 500 metres away, there

is a centre, I live near it. And about 500 metres from me, it's already the centre, there is the Palace of Labour, which was hit, and I was like, well, it's time to go, it was very scary. And just when I left, the very next day, this street was demolished entirely, so my house, which I rented, survived purely because there was a Soviet court building in front of me, and it withstood all this explosive force. My parents continue to live in Kharkiv, and they lived in the part that was shelled the most, Saltivka. They have a house right at the crossroads, so they could see the Russian BTRs right from the window.

#### Did their house survive?

Well, how can I say, it is almost wholly covered with shrapnel. Almost no windows are left, but it is not scary for the most part.

#### How did you spend your time?

For the first two months, there was just nothing. People stayed at home. Nobody went out. Who can stay at home, who has food, does not go out. Who had no food left the city. Some people stayed at home or in bomb shelters. There were not many options; you won't go out. There was no one on the street who wasn't volunteering. It's about the first two months. Everyone hides and thinks it's going to be soon over

Some institutions had some proactive coordinators who said, "We are starting to prepare; we need this and that", and only those people were working and living. Everyone and everywhere needed something; sometimes, people simply had no water. Little by little, because you can't increase your headquarters by 20 people at once, you need to make processes for them; otherwise, they will just stand there and nag you that there is nothing. Plus, they had to make some arrangements abroad to start delivering something. And for this, petrol was needed. Until this problem with petrol was somehow solved, Kharkiv lasted for two or three months, more likely, to start supplying some villages and so on. This is the least. It was probably only in the summer, when it became warm that people began to understand that it was possible to live somehow.

From what I've heard, the end of June-July is probably the time when people relaxed and the brain adapted to the fact that you hear an explosion and understand whether it's far away or not, whether you need to hide or whether you can live on. And until then, everyone was sitting. You've probably seen all these videos from the Metro and so on. And probably 70-80 per cent of them just fell into the victim effect. They needed someone to come, not that they couldn't do anything; people just needed to be told clearly what to do because their whole life had changed entirely, and they were waiting for humanitarian aid, anything, and they couldn't do anything.

Or maybe you can name, for example, the Kharkiv metro, which is a well-known case, there are many reports about it. Are there any other places of temporary stay where people went? What was the most crowded metro station?

I didn't go because I was happy to stay at home. One of my friends was at the Palats Sportu metro station. At some point, some coordinators started

moving people between stations because there were too many people. People were led through all these stations, through the tunnels to the next station; it was made to reduce the density of people in one station because there were too many. I had friends who were in all the stations. I mean, this is the Palats Sportu, Kholodnohirska-Zavodska Line, Oleksiivska Line, and the most important one, and everyone knows this Heroiv Pratsi because this is where all the parts of Saltivka come together. Saltivka is the biggest district in Kharkiv. And I think half a million people are living there, were. It makes sense that it would be the most crowded of all. I didn't go anywhere because it was safer to stay at home than to go out.

#### What about checkpoints? Were there many in Kharkiv?

The problem with Kharkiv is that there were no checkpoints at the beginning and one day, Russian BTRs drove through the highway directly into the centre. Just because there is a direct road to get to the centre. From the Russian city of Belgorod, a straight road led to Kharkiv, to the centre... And then our people fought back at all these points and started building checkpoints, not really checkpoints but just blocks to make it difficult to go around because it's hard for a BTR to go around. When I was leaving, all the main roads were closed. I had to go through small roads. The closer you are to the occupation zone, the more checkpoints you have on the way. If you take Saltivka, I think there were 3 or 4 checkpoints from the centre, at every checkpoint, at every small intersection. It was important because even our people started to relax at some point and thought they could go home, but in Kharkiv itself, there were a lot of unexploded ordnance, some mines and so on.

When I was driving from Kharkiv to Lviv, we had millions of these checkpoints along the way, which were not specialised ones. They were made by ordinary people who came out near their village because they were scared, and they were like, "I have a gun I can protect". And this gun was not from the government; it's not some Kalash or something, not a sniper rifle. It was a regular hunting rifle. And a man came out with it, created his own checkpoint out of sandbags – and that's all it was. It was a terrible and irresponsible thing to do because people were transferring their fear to other people. Because of all these checkpoints, it took me three days to get to Lviv. Because some people decided that they should also check, even though there are already city checkpoints supported by the military and the government. But you can't say to a person with a gun, "Why are you standing there?".

About culture, cultural identity? Can you tell me about any new cultural things, like pride in the metro? Was there anything interesting?

Well, first of all, everything happened in the metro. And then, at some point, there was this support from the city council. They took the initiative with the puppet theatre, so there were some performances for children. Additionally, there are different people in the shelters. Some of them can draw, some are artists, and some are acrobats or magicians.

Regarding cultural identity, for example, monuments to Pushkin are being

demolished. And things like renaming streets. So we have a Telegram channel where all these things are discussed. It's a kind of voice of the city. All these communist things, if someone sees them, takes a picture, posts it, it gets publicity, and then it's quickly dismantled. Or people themselves come and sketch it. The renaming of streets is logically happening gradually; it has already happened before. Since 2014, authorities started changing all these names. There are just too many of them, you can't change all the names at once and it doesn't make sense, everyone has to adapt and navigate the city somehow.



[Fig. 42] Kharkiv at the beginning of full-scale invasion; based on Mirer "Suspilne Kharkiv" (2022) Photo © Pavlo Dorogoy



[Fig. 44] Kharkiv at the beginning of full-scale invasion; based on Gunter "BBC News Ukraine" (2022); Photo © Joel Gunter

## Chapter 3 Methodology

\*The spatial reactions defined in this study do not seek to be exhaustive and do not represent the only possible interpretation. Depending on the perspective and selected context or city, they may vary and complement each other. These spatial reactions are derived from real cases and grouped according to their functional purpose.

Step 0: Finding Topic; Step 1: Developing Methods and Collecting Data;  
Step 2: Selecting Cases; Step 3: Choosing Key Point; Step 4: Data Structuring and Classification; Glossary

## Step 0: Finding Topic

### Why this research?

Four months after the full-scale invasion, I started thinking about my thesis topic, knowing that the keywords for this work would be war and city. I started researching a more specific framework by getting inspiration from other conflicts and front line zones. My attention was drawn to Gaza and the West Bank, enclave territories of Palestine. Although the Russo-Ukrainian war and Israel's conflict with Palestine are different in nature, the idea of territory as a border or frontier emerged. This narrowed the topic to a more specific one: the war in the border cities of Ukraine. Border areas have historically been challenging territories, prone to saturation with outsiders and vulnerable to influence from neighbouring states or ethnic groups, particularly in the event of aggressive actions from such entities. In addition, if the goal is to show the war in the city, then Ukrainian territories bordering Russia or territories occupied by it since 2014 are the most indicative. Therefore, the chosen city in the eastern part of the country needed to be sufficiently representative and well-documented to enable the work with the data. But before choosing it, I thought that showing what was happening in a country facing an armed invasion would not be complete without showing a polar city – a city in the rear, which was not invaded by invader tanks and whose residents often did not run in the bomb-shelter before the first shelling in the city happened. A city that has also changed dramatically, but it has changed in a different way because the circumstances there were unlike. Consequently, one city in the east and one in the west, Lviv and Kharkiv, were selected according to the principles described in section Scenario Shaping of this thesis. The hypothesis of different scenarios that develop in a country resisting an armed invasion – the front and rear city scenarios – came up.

The next question that followed was how I would show the development of these scenarios?



## Step 1: Developing Methods and Collecting Data

It has been increasingly acknowledged that effective research design in war-affected societies depends on an understanding of the origins and nature of the conflict as it is experienced by those involved in, or affected by, it. Similarly, it has been recognised that working within a conflict-affected region cannot be regarded as a 'neutral' activity. Instead researchers, relief workers and local support staff are frequently seen as having a significant bearing over the course, and even the outcome, of the conflict itself. These concerns have in turn led to a perception that researching in conflict areas presents such special challenges that it is difficult or impossible to apply rigorous methodological norms expected of social science research under these conditions.

Barakat 2002

### How to approach the research goal?

To move forward, I need data that I can work with – information about how cities changed and what exactly happened where. Prior to writing my diploma, I was scrolling an extensive amount of news in various media and telegram channels, fact-checking them, and reviewing how this news or event was covered in the international media. I continued with that. Telegram channels were the most informative, sometimes providing almost minute-by-minute documentation of events with witnesses and comments. Telegram channels grew a lot during the full-scale war; they were often divided by regions, cities, and the focus of the news, whether it was shelling, volunteer gatherings, or humanitarian information. In addition to the information in messengers, there are publicly available orders from city administrations that indicate changes that residents should know about, such as an order to provide temporary accommodation for internally displaced persons, set up checkpoints, or imposition of curfews. I began to record the transformations that intuitively seemed important.

With Lviv, the situation is more straightforward: I have already visited the city four times during the full-scale invasion, and I have a network of friends who share information about what is happening in the city. However, with Kharkiv, the only information available was from the media, which lacked legitimacy for the research. So, it became clear that interviews should be included in the work to get information from primary sources. I conducted the first interviews, test ones, with my friends who live in Lviv to understand how to ask questions, what to ask, and what to avoid. They were so good at describing the context in which people lived in the city that some of these interviews also became part of the work. Further, through a network of acquaintances, people from Kharkiv were found and shared their experiences. However, these interviews were only a screening of significant data and verification of selected urban transformations for further research.

Since the changes were still taking place and it was impossible to theorise anything in dynamics, I set the time frame for the research to be the year

of the full-scale invasion. During this time, I found the elements of the city that underwent transformation and were verified by the residents of Lviv and Kharkiv, respectively. I contacted people involved in the transformation process, whether volunteers or people hiding in the shelter and conducted interviews based on prepared questions. For each case, I prepared personal questions that were adapted during the interview. Standardised questions were not used due to the varying amount of information available for each case. Sometimes, the questions were used to confirm or refute previously published data. In some cases, I clarified the interviewee's identity and the time frame of their presence in the facility under study to determine relevant questions directly during the interview. The purpose of the interviews was to understand the details of the events and to validate the case for further research.

The interview questions broadly encompassed topics such as the duration of involvement as a user or provider in specific cases, the nature of events, transformations in the rooms of specific cases, identification of providers and initiators, strategies for spatial adaptation, and more.

## Step 2: Selecting Cases

### What to research?

In this work, twenty-eight case studies were selected for Lviv and Kharkiv. These case studies were chosen based on their clear spatial representativeness and the level of significant spatial change resulting from a full-scale invasion. In addition, their selection was influenced by a high level of recognition in the media and their ability to showcase the effective utilisation of the proposed evaluative framework of spatial changes (see Step 4) during the state of emergency. However, the collection of case studies during martial law in the country is complex due to the impossibility of regular and precise documentation of changes and is "often conditioned more by what is practically possible" (Baracat et al. 2002:992). Therefore, the primary criterion for selecting a case study is that it can add to understanding what is happening in a country resisting an armed invasion. Objects of essential public importance, such as railway stations, metro, and objects of cultural purpose, have matching representativeness and were chosen mainly as the case studies.

#### Lviv case studies include the following city elements:

- railway station
- stadium
- hostel
- theatre
- residential camps made out of shipping containers
- specialised temporary housing
- sports school
- house of culture
- palace of arts
- underground parking
- city sights
- museum
- art centre

#### Kharkiv case studies include the following city elements:

- metro stations
- hostel
- residential area
- post offices
- basements
- checkpoints
- metro tunnels
- underground parking
- centre of modern art
- monument
- physical and symbolic remnants of russian heritage

## Step 3: Choosing Key Point

### What is the common ground for chosen case studies?

How can the pattern of spatial changes in urban contexts during the war be understood? What methods can be employed to monitor and record these spatial changes? Can one approach be utilised to analyse two distinct cities and their wartime experiences? A key aspect of answering these questions is comprehending the nature of the changes. What exactly is changing that is leading to changes in space? Moreover, what exactly is a military invasion and its consequences for the city?

To answer these questions, it is necessary to choose the perspective for analysis. Ukraine has been under martial law since the beginning of the full-scale invasion. The law of Ukraine defines martial law as follows:

Martial law is a special legal regime introduced in Ukraine or in parts of it in the case of armed aggression or threat of attack, threat to the state independence of Ukraine, its territorial integrity and provides for the granting of powers to the relevant state authorities, military command, military administrations and local self-government authorities necessary to avert the threat, resist armed aggression and ensure national security, eliminate the threat to the state independence of Ukraine, its territorial integrity and as well temporary restrictions on constitutional rights and freedoms of a person and a citizen, as well as the rights and legitimate interests of legal entities, with an indication of the duration of these restrictions.

Law of Ukraine 2015, translation by Y. Tsarynnyk 2024

This is the starting point for choosing a research perspective – legal regime. Since there is a martial law regime, it means that the regime that was in use prior to its introduction was also legally guaranteed – it was, so to speak, the regular regime, which does not have a specific official name, but it is characterised by the fact that civil law is in force. Accordingly, I will introduce the term civilian regular mode. In ordinary peacetime, each city has its own established mode of operation when everything works according to a standard schedule. There are also city days, festivals, parades and other festive events when the flow of people in the central parts of the city increases, and the working hours of institutions change – this is also a certain change in the regime of a city because during such events the city and its processes differ from the civilian regular mode. Often, such days are also officially designated, and changes in the city, such as street closures and changes in public transportation, are announced by orders of the relevant legislative bodies. Such a regime can be called a festive one.

In the event of an emergency of a man-made or natural origin of at least the national level, which has resulted or may result in human and material losses, threatens the life and health of citizens, or in the event of an attempt to seize



state power or change the constitutional order of Ukraine through violence, the Law of Ukraine defines a special legal regime of a state of emergency (cf. Law of Ukraine 2000). This regime includes a system of emergency measures and coordination of assistance. Quarantine can be separately distinguished, and for the sake of consistency, I will introduce the term quarantine regime (cf. Law of Ukraine 2000), which is a system of administrative and health measures aimed at controlling the spread of the disease in the event of an epidemic or pandemic. Restrictions on movement and closure of educational institutions and catering establishments have been implemented. One of the most critical variables in all these modes is the function of the city and its elements.

An example of each of the proposed modes can be examined using a specific element of the city – the metro:

- regular mode  
The metro operates according to a regular schedule and serves to transport passengers;
- festive mode  
The metro operates on an extended schedule; trains, in addition to being a means of transportation, turn into a place of collective celebration;
- state of emergency mode  
The metro can be used, but the schedule may change;
- quarantine regime  
Metro could be closed (as it was in the case of the Kyiv, Dnipro and Kharkiv metro during the COVID quarantine in March – April 2020);
- martial law regime  
The metro does not work but instead turns into a shelter for residents, or it works but additionally acquires the function of a bomb shelter.

This means that one possible interpretation of all these legal regimes lies in the change of function of urban objects, either by replacing them, disappearing, or adding other functions to the existing one. Tracing the shift in function gives an idea of the population's needs and the authorities' tactics to meet these needs or frame them, and accordingly indicates the regime in which the city is operating. Together, this gives an idea of the possibilities of spatial adaptation by each special mode.

Spatial adaptation in this research means a functional change of urban objects that has led to further adaptation of the interior, perception of the object, and its significance in everyday life. Spatial adaptation in the example mentioned above will look as follows:

- regular mode  
transportation hub of public importance

- festive mode  
transport hub of public importance + place of collective celebration
- state of emergency mode  
a transport hub, the use and access to which is regulated more strictly
- quarantine regime  
disappearance of a transport hub for a certain period
- martial law regime  
shelter for residents/transport hub + bomb shelter

Observing functional change in cities with different scenarios unfolding due to a full-scale invasion makes it possible to draw conclusions regarding spatial adaptation associated with each scenario. How does a city near the front line respond compared to a city at the rear? Is there a mutual dependence between them?

Focusing on the function provided a solid starting point for this thesis work. Function is easily traceable and measurable, requiring no field research. It can be accurately determined through various means, such as a photo depicting the spatial arrangement, media reports documenting the transformation, or firsthand accounts confirming the information.

## Step 4: Data Structuring and Classification

The transformation of an urban area can only be studied in relation to its past for the future.

Ataman/ Wingert 2000

### How to structure the data?

To indicate the change in function within a specific spatial unit in urban settings, the term spatial reaction [12] is used, as this change arises through reaction to specific events – conducted military aggression. A case study refers to a particular spatial unit – an object, structure, place, or part of the infrastructure that has functionally changed and serves as the place where the spatial reaction occurred. A case study is, for example, a station of the Kharkiv metro, and the associated spatial reaction is the establishment of a bomb shelter and an ad hoc shelter on the base of a station.

Each case study has a set of metadata that helps in further classification. Namely:

1. Number – is a sequence number of the case within the study. There are 28 cases in two cities. Case studies numbered from 1 to 16 belong to Lviv, and case studies from 17 to 28 to Kharkiv;
2. ID – identifies the case. The letter is the city in which the case study is located, and the number is its sequence number among all cases for the specific city, "a" – indicates Lviv, "b" – Kharkiv;
3. Case Study name (before) – indicates a specific spatial unit and its functional purpose (e.g. Kharkiv metro station) or only its functional purpose (e.g. parking);
4. Case Study name (after) – indicates the functional purpose that the case study acquired after the change (e.g. Underground City);
5. Spatial Reaction – the functional change of urban element, which occurred as a result of the activities of actors as a response to the challenges associated with the military invasion;
6. City – where the study case is located;
7. (Address)
8. Functional group (before) – groups study cases by functional purpose ( e.g transport infrastructure);
9. Element (before) – is a specific type of functional group ( e.g. metro station);

On the example of the case study – Kharkiv Metro Stations (as) Underground City it will look as followed:

metadata	1	number	17
metadata	2	ID	b01
metadata	3	case study name (before)	Kharkiv Metro Stations
analysis	4	case study name (after)	(as) Underground City
metadata	5	city	Kharkiv
metadata	6	address	-
metadata	7	functional group (before)	transport infrastructure
metadata	8	element (before)	metro station
analysis	9	spatial reaction	bomb shelter; ad hoc shelter

### Analysis

Setting up metadata allows for the analysis to proceed. The first step is to identify what specifically caused the spatial reaction. While the general cause is the military invasion, looking at individual case studies reveals different triggers. For example, in the case of the Kharkiv metro station, the trigger was the need for people to evacuate quickly due to shelling and the dangerous situation in the city. This led to the station being used as an ad hoc shelter and bomb shelter instead of just a place for catching trains. The spatial reaction results from a series of events – military invasion, shelling, the unwillingness of citizens to leave the city, and, as a result, evacuation to a nearby safe place. However, when analysing a case, the focus lies only on the last event in this series – the direct trigger and its outcomes. In this case, the direct trigger was a short-range evacuation, and the outcome was shifting the city to the underground level and adaptive use.

[12]

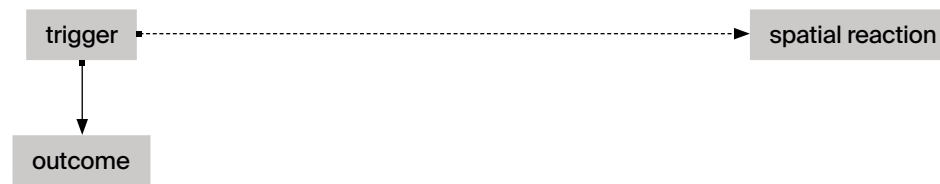
I came across the word combination of spatial reactions in an article by architect researcher Amina Pilav. She does not deal with it as the terminology but uses it in a meaning similar to what I use in my thesis. "I have identified the following forms of engagement by local architects in Sarajevo during the war: [...]; (4) by partaking in everyday activities in the production of space through the spatial reactions to military destruction, such as the preliminary estimation of war damage, equipping and organising hospital facilities for emergencies, working for the civil protection unit to build safe shelters for internally displaced people and remaining citizens; [...]" (Pilav 2020).

10. Trigger – what initiates spatial reaction;
11. Outcome – processes and phenomena of spatial and non-spatial significance that arise from triggering.

The expanded table will be displayed as follows:

e.g. case study – Kharkiv Metro Stations (as) Underground City:

analysis	10	trigger	short-range evacuation
analysis	11	outcome	shifting of city to the underground level; adaptive use



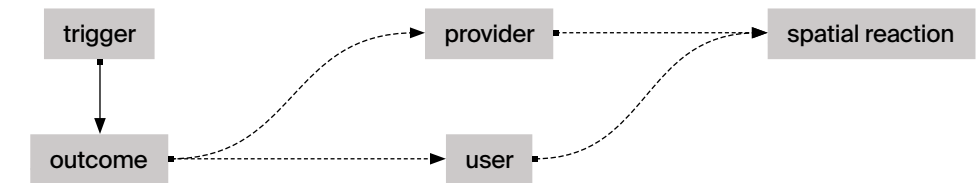
[Fig. 46]  
Scheme: Relations of methodology attributes: trigger and consequent challenge/ spatial reaction to war © Y. Tsarynnyk (2024)

Who participated in creating the spatial reaction, and for whom was it created? Every spatial reaction emerges from triggering by specific events, the presence of individuals requiring the spatial change (referred to as actor-user), and those actively involved in adapting the space (referred to as actor-provider). For example, providers might consist of volunteers, while users could be forcibly displaced persons (IDPs) in need of assistance from volunteers. Notably, an actor may occupy dual roles, functioning as user and provider. An illustration of this phenomenon can be observed in the Kharkiv metro station case, where individuals themselves sought shelter in metro stations, thereby organising an ad hoc shelter.

12. Provider – one who creates spatial reaction;
13. User – one for whom spatial reaction is created.

e.g. case study – Kharkiv Metro Stations (as) Underground City:

analysis	12	provider	local community; NGO, charity org, volunteers; employee of critical infrastructure facility
analysis	13	user	local community



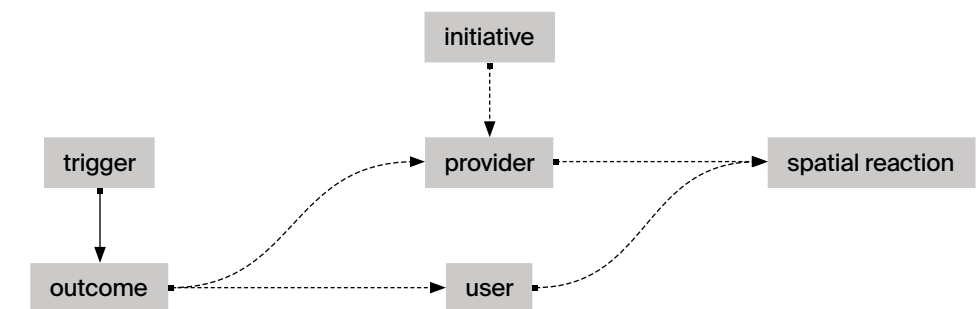
[Fig. 47]  
Scheme: Relations of methodology attributes: trigger and consequent challenge/ spatial reaction to war/ provider/ user © Y. Tsarynnyk (2024)

Another crucial aspect required to finalise this framework is the notion of initiative. This attribute explains the driving force behind the establishment, change, or adaptation of space, essentially identifying the initiator of the spatial reaction. In the context of the Kharkiv metro station, the residents took the initiative to descend into the stations, knowing that metro stations serve as safe shelters during air raids.

14. Initiative – points at the actor who initiates the first step or action in spatial adaptation.

e.g. case study – Kharkiv Metro Stations (as) Underground City:

analysis	14	initiative	local community
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[Fig. 48]  
Scheme: Relations of methodology attributes: trigger and consequent challenge/ spatial reaction to war/ provider/ user/ initiative © Y. Tsarynnyk (2024)

The deconstruction of spatial reactions into five key attributes – trigger and its outcome, user, executer, and initiative – enables the tracing of causal connections and offers an understanding of the distinct factors contributing to a particular spatial reaction. In addition to analytical attributes, spatial reactions have metadata that assist in clarifying the interdependencies between the initial state and the adapted state of the case study. These metadata contain the functional group, element, the start of the spatial reaction, end of the spatial reaction, reaction rate, reaction duration.

15. Functional group of spatial reaction – groups spatial reactions by functional purpose;
16. Element of spatial reaction – is a specific type of functional group;
17. Start of spatial reaction – is self-explainable;
18. End of spatial reaction – is self-explainable;
19. Spatial reaction rate – on which day of the full-scale war (24.02.2022) spatial reaction has started;
20. Reaction duration – duration of spatial reaction within a year period of full-scale war;

Below is the filled table with attributes and metadata for the case study of Kharkiv Metro Stations:

e.g. case study – Kharkiv Metro Stations (as) Underground City:

metadata	1	number	17
metadata	2	ID	b01
metadata	3	case study name (before)	Kharkiv Metro Stations
analysis	4	case study name (after)	(as) Underground City
metadata	5	city	Kharkiv
metadata	6	address	-

metadata	7	functional group (before)	transport infrastructure
metadata	8	element (before)	metro station
analysis	9	spatial reaction	bomb shelter; ad hoc shelter
analysis	10	trigger	short-range evacuation
analysis	11	outcome	shifting of city to the underground level; adaptive use
analysis	12	provider	local community; NGO, charity org, volunteers; employee of critical infrastructure facility
analysis	13	user	local community
analysis	14	initiative	local community
metadata of spatial reaction	15	functional group of spatial reaction	security and defence; residential
metadata of spatial reaction	16	element of spatial reaction	indoor safe collective space
metadata of spatial reaction	17	start of spatial reaction	24.02.2022
metadata of spatial reaction	18	end of spatial reaction	continues after 24.02.2023
metadata of spatial reaction	19	spatial reaction rate	0
metadata of spatial reaction	20	reaction duration	89 days + (ad hoc); 365 days + (bomb); continuing

Such a system, comprising both metadata and analysis, enables:

- The identification of spatial changes that have occurred;
- Explanation of the spatial reaction in relation to the challenges posed by military invasion;
- Determination of the individuals responsible for executing, utilising, or initiating the spatial reaction.
- Evaluation of temporal limitations.

### Tool for structuring data

The case analysis framework proposed in this study was developed using the Notion platform. It enables the rapid creation of diverse data views, facilitating a quick overview of the data's causal relationships and aiding in its development.

[Fig. A]  
Screenshot from database  
with collected case studies  
© Y. Tsarynyk (2024)


#	Number	ID	Case Study	City	Functional group	Element	Spatial Reaction	Functional group of s...	Element of sp...	Start of ...	End of s...	Σ Reactio...	Σ Reactio...	Trigg
1	a01	Lviv Railway Station (as) First Hub for Arriving IDPs	Lviv Railway Station	Lviv	transport infrastr...	railway st...	On-site Kitchen Aid Station Coordination Station Shelter for Temporary Stay	food and essential sup... healthcare administrative residential	field kitchen medical station common space indoor safe col...	February 24, 2022	February 24, 2023	0	365	arrival of IDPs
2	a02	Stadium "Arena Lviv" (as) Shelter for IDPs	Stadium "Arena Lviv"	Lviv	cultural	stadium	Shelter for Temporary Stay Coordination Station Aid Station	residential administrative healthcare	indoor safe col... common space medical station	February 25, 2022	February 24, 2023	-1	364	arrival of IDPs
3	a03	Hostel (as) Shelter for IDPs "Safe Place"	Hostel	Lviv	residential	hostel	Shelter for Temporary Stay	residential	indoor safe col...	January 11, 2023	February 24, 2023	-321	44	arrival of IDPs
4	a04	Theatre Les Kurbas (as) Shelter for IDPs	Theatre Les Kurbas	Lviv	cultural	theatre	Shelter for Temporary Stay	residential	indoor safe col...	February 27, 2022	April 7, 2022	-3	39	arrival of IDPs
5	a05	Residential Camp 1 made with shipping containers	Park Area	Lviv	recreation area	park area	Shelter for Temporary Stay (Prefab)	residential	shipping conta...	April 19, 2022	February 9, 2023	-54	296	arrival of IDPs
6	a06	Residential Camp 2 made with shipping containers	Courtyard of Technical College	Lviv	recreation area	courtyard	Shelter for Temporary Stay (Prefab)	residential	shipping conta...	May 6, 2022	February 9, 2023	-71	279	arrival of IDPs
7	a07	Residential Camp 3 made with shipping containers	Parking	Lviv	recreation area	courtyard	Shelter for Temporary Stay (Prefab)	residential	shipping conta...	May 19, 2022	February 9, 2023	-84	266	arrival of IDPs
8	a08	Residential Camp 4 made with shipping containers (Winter Version)	Parking	Lviv	recreation area	courtyard	Shelter for Temporary Stay (Prefab)	residential	shipping conta...	February 9, 2023	February 24, 2023	-350	15	arrival of IDPs

## heritage protection

Trigger Initial	direct armed violence/military activities and its after-effects unsecure context
Outcome	emerging of urban defensive infrastructure
Related to Case St...	City Monuments and Artefacts (during) Martial law Monument of National Ukrainian Poet (during) Martial Law Museum "Territory Of Terror" (as) Shelter for relocated museum fro...
Related to Case St...	Museum "Territory Of Terror" (as) Shelter for relocated museum fro... Monument of National Ukrainian Poet (during) Martial Law City Monuments and Artefacts (during) Martial law
Related to Case St...	Empty
Related to Case St...	City Monuments and Artefacts (during) Martial law Monument of National Ukrainian Poet (during) Martial Law Museum "Territory Of Terror" (as) Shelter for relocated museum fro...
Rollup	Shelter for Cultural Heritage Shelter for Cultural Heritage
Status	Approved
Case Study	City Monuments and Artefacts (during) Martial law Museum "Territory Of Terror" (as) Shelter for relocated museum fro... Monument of National Ukrainian Poet (during) Martial Law

[Fig. B]  
Screenshot from database  
with collected case studies:  
data of trigger "heritage protection"  
© Y. Tsarynyk (2024)

## Lviv Railway Station (as) First Hub for Arriving IDPs

# Number	1
ID	a01
Case Study Name ...	Lviv Railway Station
Case Study Name ...	(as) First Hub for Arriving IDPs
City	Lviv
Address	Lviv Railway Station, Dvortseva Square, 1, Lviv, Lviv Oblast, Ukraine, 79000
Functional group (...)	transport infrastructure
Element (before)	railway station
Spatial Reaction	<ul style="list-style-type: none"> <li>On-site Kitchen</li> <li>Aid Station</li> <li>Coordination Station</li> <li>Shelter for Temporary Stay</li> </ul>
Trigger and	arrival of IDPs
Outcome	<ul style="list-style-type: none"> <li>emerging of new design challenges</li> <li>adaptive use</li> <li>development of public warm food distribution areas</li> </ul>
Provider	<ul style="list-style-type: none"> <li>NGO, charity org., volunteers</li> <li>city council</li> <li>employee of critical infrastructure facility</li> </ul>
User	IDPs
Initiative	<ul style="list-style-type: none"> <li>NGO, charity org., volunteers</li> <li>city council</li> </ul>
Functional group ...	<ul style="list-style-type: none"> <li>food and essential supplies</li> <li>healthcare</li> <li>administrative</li> <li>residential</li> </ul>
Element of spatial ...	<ul style="list-style-type: none"> <li>field kitchen</li> <li>medical station</li> <li>common space</li> <li>indoor safe collective space</li> </ul>
Start of spatial rea...	February 24, 2022
End of spatial reac...	February 24, 2023
Reaction rate	0
Reaction Duration	365 
Condition	Active
1 more property	

### Detailed representation

The two case studies, a04 Theatre Les Kurbas, transformed into a shelter for Internally Displaced Persons (IDPs), and b01 Kharkiv Metro Stations repurposed as an Underground City, are examined in more detail. To complement the proposed data organisation, interviews were conducted with relevant individuals who have closely participated in each case study. For a04, insights were obtained from the individual responsible for establishing the shelter within the theatre premises. For b01, first-hand perspectives were obtained from an individual who lived in the metro station for an extended period.

These two case studies are examined in depth, with detailed descriptions covering various aspects. The "before" section provides insights into the conditions and functionalities of the respective locations before the onset of full-scale war. Conversely, the "after" illustrates the alterations and adaptations necessitated by the conflict. "Change of mode" explains shifts in operational parameters such as accessibility, capacity, and hours of function within these spaces. Additionally, "interior adaptation" outlines specific modifications made to the internal infrastructure to suit the new purposes required during wartime. "Supply" covers the logistic arrangements and supply mechanisms essential to maintain these transformed environments' functionality. Finally, 3D models were created to illustrate the spatial changes more clearly.

[Fig. C]  
Screenshot from database with collected case studies: data of case study a04 Lviv Railway Station (as) First Hub for Arriving IDPs © Y. Tsarynyk (2024)

## Glossary

\*Definitions in this glossary refer to existing terms (e.g. field hospital or aid station); if no reference is given, the definition is not commonly used or used in another meaning or context; in that case, the definition is made specifically for the framework of this thesis.

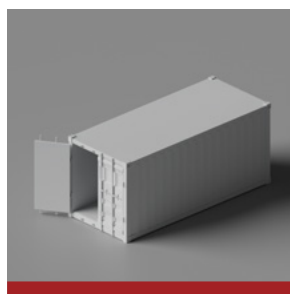
### Spatial reaction:



**Ad hoc Shelter** refers to a temporary and improvised structure or housing arrangement created for a specific and immediate purpose in response. The term "ad hoc" is Latin and translates to "for this purpose." In the context of shelter, it implies that the structure is not permanent or pre-planned but is set up quickly and temporarily to address a specific situation. Ad hoc shelters are typically simple and may involve using available materials to create makeshift housing adaptations for establishing the shelter within the theatre premises. For b01, first-hand perspectives were obtained from an individual who lived in the metro station for an extended period.



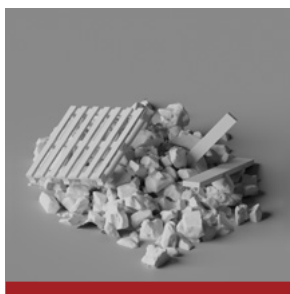
**Shelter for Temporary Stay** is shelter used for residential purposes and offer accommodation for short-term periods from 24 hours till 7 days.



**Shelter for Temporary Stay (Prefab)** is designed or modified for residential purposes and offer accommodation for a temporary stay; however, they do not have an end date for use. e.g. modular houses.



**Shelter for Persons with Reduced Mobility** is specifically created to cater to the needs of the less mobile population groups (seniors, disabled people, etc). It can be either adapted or established for temporary or long-term stays.



**Settlement in Debris** refers to destroyed residential areas that needed to be newly adapted for residential needs due to intense damages and lack of supplies.



**Humanitarian Hub** is space for receiving, sorting, and further dispatch of humanitarian aid, with the possibility of providing services to displaced persons, such as counselling, providing food and medicine, etc; "Humanitarian Hubs can either be set up temporarily (light or heavy base camps) or in permanent structure types (buildings, hotels, etc.)" (Emergency Manual 2023).



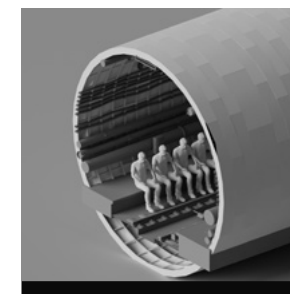
**On-site Kitchen** (also "summer" kitchen); set ups that were organised outside for preparing and cooking, as well as for warm food distribution.



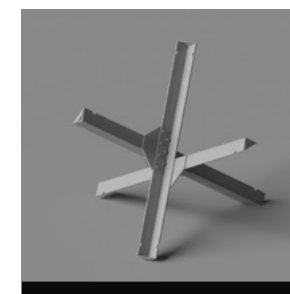
**Field Hospital** "[...] is a small mobile medical facility that takes care of casualties close to the battlefield, or in case of disasters, the scene of a natural or man-made catastrophe. The World Health Organization gives the definition of a field hospital as: "a mobile, self-contained, self-sufficient health care facility capable of rapid deployment and expansion or contraction to meet immediate emergency requirements for a specified period of time" (Wikipedia: Field Hospital).



**Aid Station** "[...] is a temporary facility (often a tent, table, or general rest area) established to provide supplies to endurance event participants or medical first aid and provisions during major events, disaster response situations, or military operations" (Wikipedia: Aid Station).



**Bomb Shelter** is "a shelter, usually underground, in which people take refuge from bomb attacks" (Collins English Dictionary: Bomb Shelter).



**Checkpoint** "[...] is a place where traffic is stopped so that it can be checked" (Collins English Dictionary: Checkpoint).



**Shelter for Cultural Heritage** is a combination of protective spatial measures applied to save cultural heritage from potential danger. Suppose the heritage is movable, such as a collection of paintings or documents. In that case, they can be relocated to secure storage facilities. For immovable heritage, like giant monumental statues, on-site measures are taken, such as constructing protective structures around the monument (sandbags, shields, framed formwork, scaffolding, etc.)



**Underground Stage** is a place for performance or other cultural-social expression in areas protected from air attacks, such as metro stations and underground garages.



**Community Hub** is a gathering place for people to exchange information and support.



**Coordination Station** (hub) is a place where people can get information from official sources, municipal authorities, community organisations, etc.



**Erasing Russia's imprint** is measures that involve physical destruction or removal of monuments, statues, or non-material "removal", such as renaming topography names.

## Functional Group of Spatial Reaction

Functions were defined as corresponding to the main civilian activity in wartime.

### 1. Live

Spatial reactions that include satisfying basic needs and necessities of people called "Live". And is represented in this work through the following hierarchy:

[Fig. 49]  
Spatial reaction functional groups © Y. Tsarynnyk (2024)



#### a. Residential

Housing represents the primary demand for creating space. Due to the mass evacuation from the eastern and southern regions of Ukraine to the western part of the country, there arose a need for additional housing. Furthermore, due to the destruction of residential infrastructure, those who preferred not to relocate had to adapt existing spaces for habitation. As a result, several new forms and types of housing have emerged:

- Ad hoc shelter
- Shelter for temporary stay
- Shelter for temporary stay (prefab)
- Shelter for persons with reduced mobility
- Settlement in debris

\*Residential + is the residential function including food and essential supplies, medical and administrative support.

#### b. Food and essential supplies

- Humanitarian hub
- On-site kitchen

#### c. Healthcare

Providing medical and health-related services is a crucial aspect of urban planning, becoming even more critical during emergencies.

- Field hospital
- Aid station

### 4. Defend

The defending function in the city is an essential aspect of urban life, giving residents a sense of security in their daily lives. In times of war, this function becomes even more critical as the threat becomes pervasive.

#### a. Security and defence

- Bomb shelter
- Shelter for cultural heritage
- Checkpoint

### 3. Express

Overall, the "express" function encompasses a wide range of behaviours, actions, and forms of communication that contribute to individual and collective identity, relationships, and societal norms.

#### a. Administrative

The administrative function of a city is important for managing the day-to-day operations of a city and is critical for responding to the needs of its citizens. Citizens administer to make sure their community is safe, well managed and responsive to their needs, and that includes various spatial components.

- Community hub
- Coordination station

#### b. Cultural

Culture and art serve as vital mediums for connecting, sharing experiences, and exploring new ideas, particularly during conflict and disaster. Creative expression enables individuals to find meaning, purpose, and resilience amidst adversity.

- Erasing Russia's imprint
- Underground stage

## Element of Spatial Reaction

- indoor safe collective space
- shipping container adapted for living
- tents and other temporary constructions
- storage space
- field kitchen
- medical station
- temporary modular structure
- physical barrier
- common space
- underground stage



## Functional Group Before

Functional group (before) – groups study cases by functional purpose ( e.g transport infrastructure)

cultural

residential

recreation area

transport infrastructure

educational

delivery service

- (not identified)

## Element Before

Element (before) – is a specific type of functional group ( e.g. metro station)

city monument theatre museum house of culture

exhibition house stadium

dormitory hostel residential area

courtyard park

metro station metro tunnel railway station

school

postal office

basement - (not identified)

## User

User – one for whom spatial reaction is created.

internally displaced person (IDP)

-

person with reduced mobility (PRM)

local community

## Provider

Provider – one who creates spatial reaction.

local community

NGO, charity org, volunteers

pro bono professional

city council

on-site employee

employee of critical infrastructure facility

## Initiative

Initiative – points at the actor who initiates the first step or action in spatial adaptation.

local community

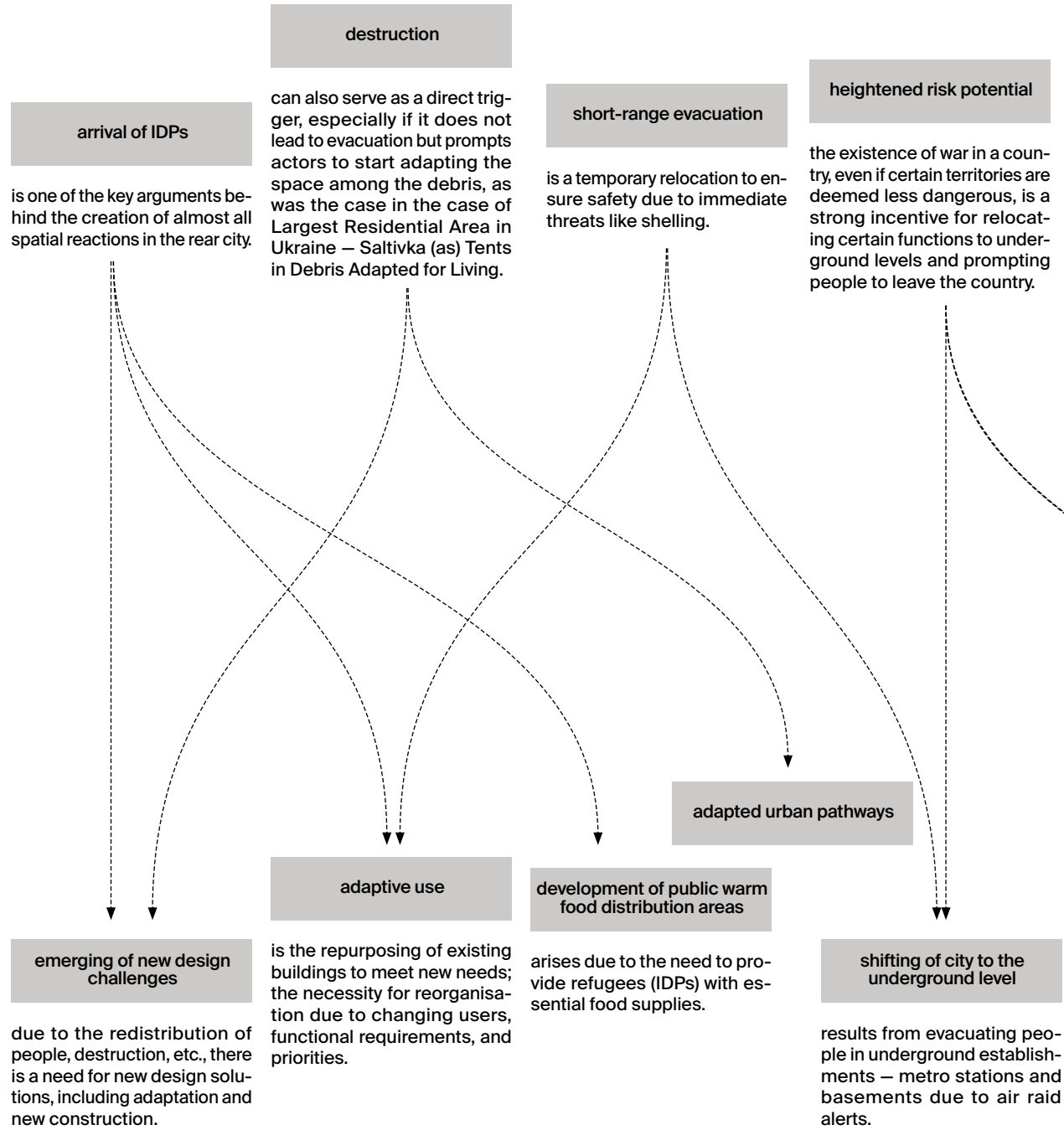
NGO, charity org, volunteers

pro bono professional

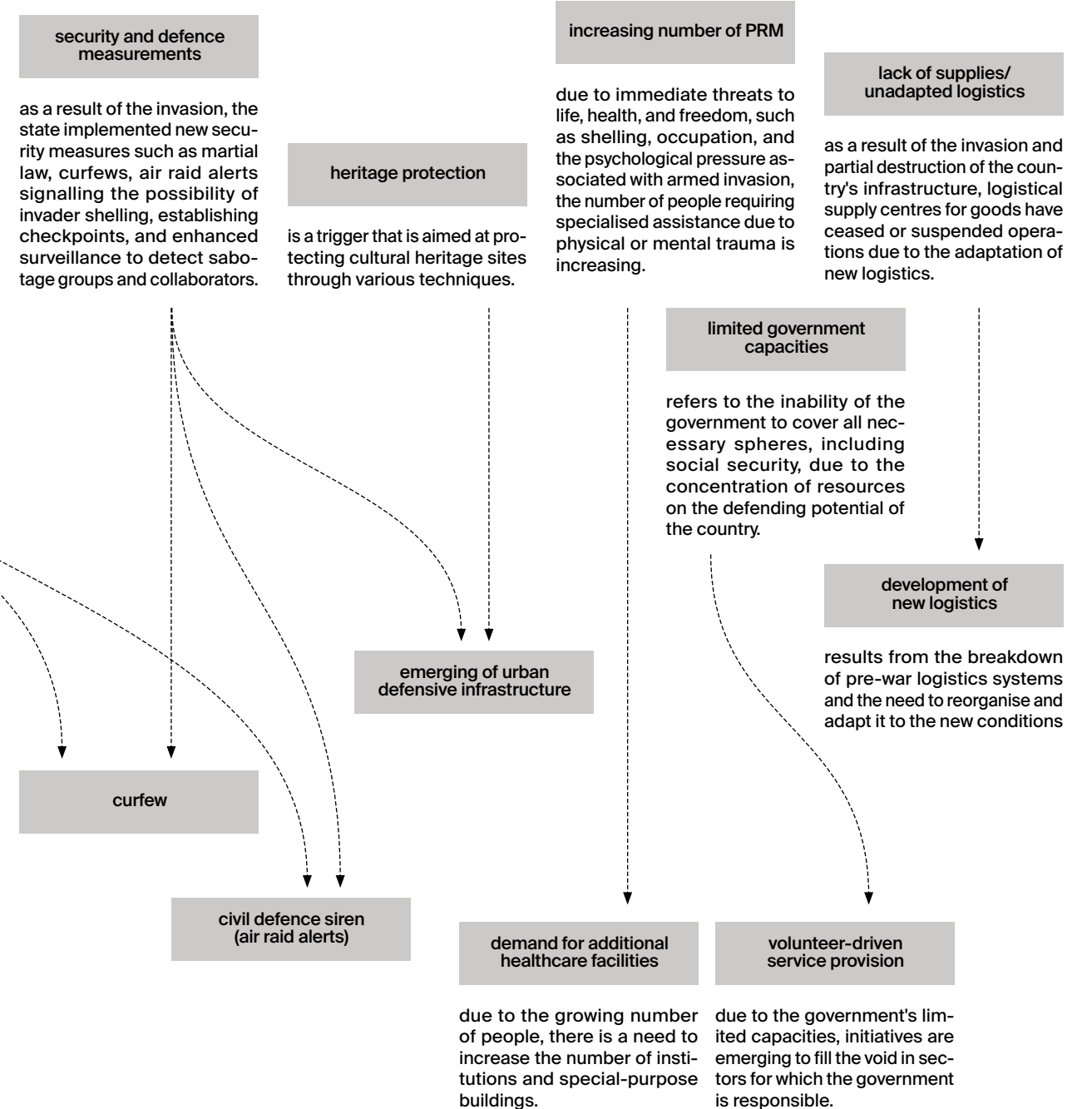
city council

on-site employee

### Trigger



### Outcome



## Case Study Navigation

The following four pages explain how to navigate the case study cards.



[Case Study]<sup>[ID]</sup>

identifies the case. The letter is the city in which the case study is located, and the number is its sequence number among all cases for the specific city, "a" – indicates Lviv, "b" – Kharkiv

[Description of the case study]

consists of:

**Case Study name (before)** – indicates a specific spatial unit and its functional purpose (e.g. Kharkiv metro station) or only its functional purpose (e.g. parking)

**(as)**

Case Study name (after) – indicates the functional purpose that the case study acquired after the change (e.g. Underground City)

CASE STUDY PAGE NAVIGATION

# Metadata<sup>[ID]</sup>

## Start of Spatial Reaction

[day.month.year]

## Reaction Rate

[on which day of the full-scale war (24.02.2022) spatial reaction has started]

## Functional Group Before

[groups study cases by functional purpose]

## Element Before

[is a specific type of functional group]

## End of Spatial Reaction

[day.month.year]

## Reaction Duration

[duration of spatial reaction within a year period of full-scale war]

## Functional Group of Spatial Reaction

[groups spatial reactions by functional purpose]

## Element of Spatial Reaction

[is a specific type of functional group]

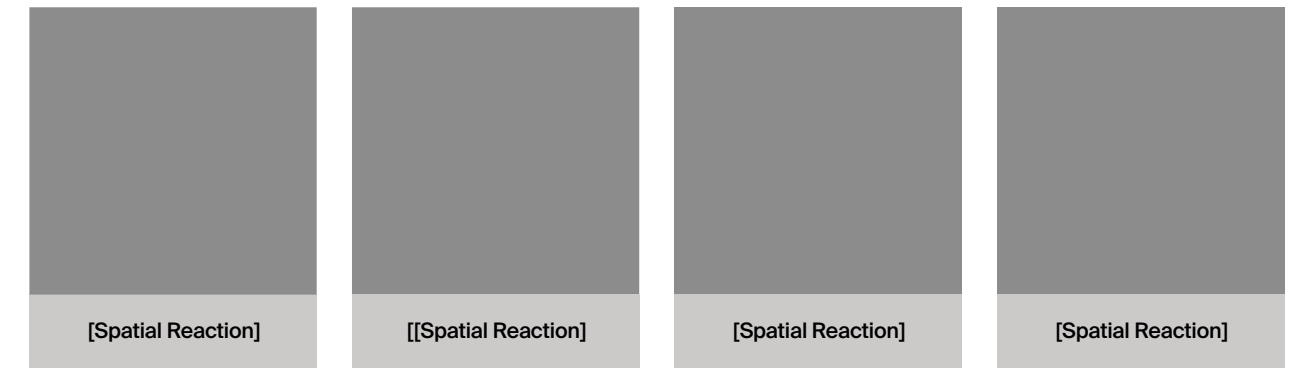


[Fig. x] Representation of a case study.

# Analysis<sup>[ID]</sup>

## Spatial Reactions

[ the functional change of urban element, which occurred as a result of the activities of actors as a response to the challenges associated with the military invasion]



## Triggers

[what initiates spatial reaction]

## Outcomes

[processes and phenomena of spatial and non-spatial significance that arise from triggering]

## Provider

[one who creates spatial reaction]

## User

[one for whom spatial reaction is created]

## Initiative

[points at the actor who initiates the first step or action in spatial adaptation]

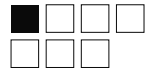
CASE STUDY PAGE NAVIGATION

## Insights from the Case <sup>[ID]</sup>

[What could be learned in this special case?]

## Chapter 4 Case Studies: on the Rear

A rear-border city (a term introduced within this research framework) is a city that belongs to a border-controlled region and has no active front line within a region's territory.



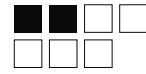
# Lviv Railway Station (as) First Hub for Arriving IDPs<sup>A01</sup>

The Lviv railway is an essential connection point for trains travelling westward, extending beyond Ukraine's borders. At any time, season, or political regime, the railway station is one of the key figures in the city. In wartime, the meaning of this type of building intensifies even more due to a massive evacuation tendency. Lviv's central railway station transformed from a transit point to a place where refugees could stay until they knew their destination. Waiting rooms have become people's bedrooms, and the station, usually not overloaded with passengers, could not place people fleeing from shelled zones. The station became an informational hub and overnight stay for refugees and volunteers, offering help. Every day, evacuation trains come to the station. Until they arrive, nobody knows how many people will come out (Stanislavskiy 2022). According to the head of the Lviv railway station, moving at the station, food supply, shelter, and stay of mothers with children and seniors – became the new issues that volunteers and station employees should provide (Stanislavskiy 2022). He noted that the station evacuated around 400,000 refugees in the first month – which is only the number of people travelling abroad. The total number of people arriving at the station for a month was 4.5 million (Stanislavskiy 2022). The first force helping at the station were the city residents, who came to the railway with cardboards "Volunteer". Horizontal communication took place, and after two weeks, the city council was included in the process and overtook the leading care of the station.

Number	ID	case study
1	a01	Lviv Railway Station (as) First Hub for Arriving IDPs
2	a02	Stadium "Arena Lviv" (as) Shelter for IDPs
3	a03	Hostel (as) Shelter for IDPs "Safe Place"
4	a04	Theatre Les Kurbas (as) Shelter for IDPs
5	a05	Residential Camp 1 Made With Shipping Containers
6	a06	Residential Camp 2 Made With Shipping Containers
7	a07	Residential Camp 3 Made With Shipping Containers
8	a08	Residential Camp 4 Made With Shipping Containers (Winter Version)
9	a09	Temporary Housing for IDPs Specialised for Pregnant Women and Women with Infants "Unbroken Mothers"
10	a10	Sport School (as) Shelter for IDPs "Urban Camp 1"
11	a11	Abandoned House of Culture (as) Shelter for IDPs "Urban Camp 2"
12	a12	Lviv Palace Of Arts (as) Humanitarian Hub
13	a13	Underground Car Park of Shopping Mall (as) Field Hospital
14	a14	City Monuments and Artefacts (during) Martial law
15	a15	Museum "Territory Of Terror" (as) Shelter for Relocated Museum from Luhansk Region
16	a16	Lviv Municipal Art Center (as) Community Hub for IDPs and Citizens

Case Studies for Lviv 1-16, case studies for Kharkiv 17-28.

# Metadata<sup>AO1</sup>



## Start of Spatial Reaction

24 February 2022

## Reaction Rate

0 days

## Functional Group Before

transport infrastructure •

## Element Before

railway station •

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

365 days; continuing

## Functional Group of Spatial Reaction

transport infrastructure • residential administrative  
 food and essential supplies healthcare

## Element of Spatial Reaction

railway station • indoor safe collective space  
 field kitchen medical station common space



[Fig. 50] Case Study a01 Lviv Railway Station (as) First Hub for Arriving IDPs © My Lviv City (2022)

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# Analysis<sup>AO1</sup>



## Spatial Reactions



Shelter for Temporary Stay



On-site Kitchen



Aid Station



Coordination Station

## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

NGO, charity org., volunteers

city council

employee of critical infrastructure facility

## User

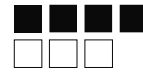
IDPs

## Initiative

NGO, charity org., volunteers

City Council

# Interview<sup>AO1</sup>



## Lviv Anonym 2 – Lviv Railway Station Volunteer

Interview date: 29.05.2023

Day of full-scale invasion: 460

I left Ukraine on the 8th of March [2022]. I was only at the station during the peak period. I had to run away from home to avoid watching the news, and the station was also my refuge point in a way. We started gathering at the station on the third day of the full-scale war, the 26th of February [2022]. There were not even organisations, but groups of people who realised they needed to come to the station and meet those who arrived. We all met there. We came and saw that there were no organised volunteers at the station, only people with pencil drawings on some cardboard saying "I am a volunteer", and they were coordinating people somewhere.

There were a few shelters from the city council, and some businesses made shelters, so they just wrote to us and said we have ten places there; you can coordinate people to come to us. At some point, there was more coordination. I think there were two different chats [Telegram chats], and in these two chats, there were 100, 200 people who came to volunteer at the station from time to time.

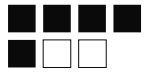
I went to volunteer at the railway station at night because there were fewer volunteers at night. Many trains arrived at night, so I slept during the day, rested, and came at night.

**So you've always volunteered the night shift there?**

Usually. We would come before the curfew started. On the one hand, I wanted to, well, there was an element of self-sacrifice, but on the other hand, on the third or fourth day, I started walking there for two hours, not four or five, usually because my feet were freezing and I didn't want to get sick. I would rather work there for ten days for two hours than two days for five. I had my own separate chat room, only with my friends who went to volunteer at the station.

**Who supervised and recruited people? Was there any organisational hierarchy?**

As usual, there was Game of Thrones there. Somehow, everyone was divided into these two chats, so there were these two camps. Some cooperated more with the city council, others less. At some point, they started organising buses. At first, we just sent people for transport, and then car volunteers joined in. For example, friends who had a car. I posted on Instagram, "Whoever has a car, come and help us get people to the bus." Later, some buses started coming



from the city council.

I think it was already the last few days when I volunteered. And why did I decide to leave? Because the volunteering at the station started to stall, and in the second or third week of full-scale war, I think the city council came and set up their tents and said, "Well, volunteers, go away. We don't need you anymore". Then, some people started forming their charitable foundations and volunteering officially.

Someone registered there, someone couldn't, and someone just collected some things and clothes and helped. Seriously, I came to a tent of the city council and asked where to help, and they said, "You are not a registered volunteer; go away."

**Was it around 7 March [2022]?**

I have a very blurry memory of this chronology, but yes, around 6-7 March [2022].

**Tell a little about your day as a volunteer at the station. Were the volunteers divided into task groups?**

At first, there was just a mess. We were sent to a man who was supposed to give us a task, and he said, "You are volunteers – volunteer". We were given some camisoles. So, whenever we went to the railway station, we took paper and wrote a sign saying "Volunteers". We would go around and see where help was needed and what to do. We were on our own; we didn't have any instructions on what to do. Gradually, it gained momentum. At first, volunteers met people at the train station exit and told them how to get to the shelters, what phone numbers those shelters had, how they could help, and whether they needed food or other things. On the third or fourth day, tents with food, clothing, and heating started to appear.

Some volunteers were meeting people on the platforms; for example, the charity organisation I worked for later was called the "Fifth Platform". They named this because of the train to Przemyśl [Poland] that was arriving on the fifth platform [train that goes westward, beyond Ukraine's border]. There were medical volunteers. They provided first aid, as frostbite was a common problem. And there were volunteer-psychologists. They provided psychological assistance to the people affected. They would just help on the platform, and if they saw a person in hysterics or numbness, they would approach and start a conversation. In one way or another, any volunteer had to be a psychologist, hug the person, and help them.

Then, a group of volunteers walked around the halls. Because a lot of people were just sitting at the station, they were throwing some mats and things and sleeping on them. The volunteers approached those people who were sleeping at the station and said that they didn't need to sleep there, that





there were shelters prepared, and that "you can go there; at least you will sleep indoors." People were living everywhere, just everywhere.

**And to which shelters did you send them?**

The first ones were the city council, because the city council immediately gave us a list. Well, they were all under the administrations. Then, random people started to get involved and offer housing. They asked us to coordinate. They came and left their contacts, and we passed them on. Or they came and said, "I have a room, I need clothes and food, you can help to organise it, and it could be used for IDPs."

**You mentioned the list of shelters from the city council. Is it publicly available somewhere?**

These are just the addresses of the Tsnap [Centers for the provision of administrative services]. So they were sent to the Tsnap, registered as IDPs, and sent to a school or something like that. Some people lived right in the rooms of Tsnap. Or they were registered and sent to the gym or anywhere else.

On the one hand, it was scary in general. I wish it hadn't happened in my life, but on the other hand, it was a very inspiring place where you feel such unity. I felt very much in touch with the city during those days because it was like an ant farm. Everyone was doing something. Someone went to weave nets, someone cooked there, and someone drove people around. It was like a single organism.

## Insights from the Case<sup>AO1</sup>



Transport hubs can quickly add additional functions as needed, which is an understandable phenomenon, as logistics and capacity support this. However, in the case of Lviv railway station, it was only possible with the high performance of residents who triggered the process of volunteering around the clock and unloading the government, which needed some time to build strategies and logistics for support of arriving refugees. "Ordinary people took over the function of the structures that were supposed to deal with this," said one of the station's coordinators in the interview (Tsarynnyk 2023).

## Stadium "Arena Lviv" (as) Shelter for IDPs<sup>AO2</sup>



Arena Lviv is a stadium built in Lviv to host one of the UEFA football matches in 2012. The original function of the stadium was to host cultural, entertainment, and sports events. As soon as the full-scale invasion began, the stadium was converted into a refugee centre on the orders of the head of the Lviv Regional Military Administration. During the first month, various activities were carried out around the clock for the refugees who arrived there. These included registering them as IDPs, providing counselling, distributing them to temporary shelters, providing essential items, and distributing hot lunches offered by volunteer organisations such as "World Central Kitchen". A temporary settlement (Arena Lviv 2022) appeared on the territory of the stadium complex itself. Starting March 9, 2022, buses operated 24 hours from the railway station to the stadium with a special permit.

The Shakhtar football club also held its support campaign in parallel. From the beginning of April 2022, the club's charity foundation organised a shelter for displaced people within the stadium called the "Shelter Center" (FC Shakhtar Donetsk 2022). Additionally, humanitarian aid for displaced persons was delivered to the stadium territory and transported to different destinations in Lviv and the region (FC Shakhtar Donetsk 2022). As of February 9, 2023, people lived in the shelter.

# Metadata<sup>AO2</sup>



## Start of Spatial Reaction

25 February 2022

## Reaction Rate

-1 day

## Functional Group Before

cultural

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

364 days; continuing

## Functional Group of Spatial Reaction

residential administrative healthcare

## Element Before

stadium

## Element of Spatial Reaction

indoor safe collective space common space

medical station



[Fig. 51] Case Study a02 Stadium "Arena Lviv" (as) Shelter for IDPs © Shakhtar Shelter Centre

# Analysis<sup>AO2</sup>



## Spatial Reactions



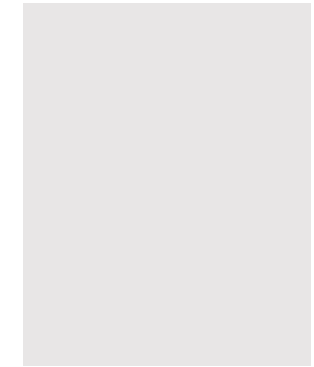
Shelter for Temporary Stay



On-site Kitchen



Coordination Station



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

NGO, charity org., volunteers

city council

## User

IDPs

## Initiative

NGO, charity org., volunteers

City Council

## Insights from the Case<sup>A02</sup>



In emergencies, stadiums are often used as shelters for evacuees, aid coordination centres, medical centres and places to store humanitarian supplies. Moreover, here, the key is not their ability as an extensive platform for spectacle but their capacity. A stadium or sports arena with a football field can accommodate up to 100,000 spectators – accordingly, the entire stadium infrastructure works for this quantity of people. The capacity of Arena Lviv is 34,915 people. However, it did not occupy one of the most prominent positions providing temporary residence and related functions for IDPs in Lviv. In the case of Arena Lviv, this may be related to complicated logistics, peripheral location in the city, confusing organisation and rights, and opaque communication [13].

[13]

Different sources gave different information about what exactly was being done at the arena, especially the point about the accommodation. It is known that the football team's shelter provided accommodation for people for a longer period of time, but it is not entirely clear whether the city council organised accommodation at the stadium.

## Hostel (as) Shelter for IDPs "Safe Place"<sup>A03</sup>



"Safe Place" is a shelter [14] opened by the International Charitable Foundation, "Alliance for Public Health", in January 2023 (Alliance for Public Health 2023). The rooms where the shelter was located worked as a hostel, a temporary accommodation for tourists. Its format has not changed, and so has its interior and equipment. Some photos of the hostel are still visible on the tourist site TripAdvisor (TripAdvisor n.d.). Within the Charitable Foundation, the shelter project is called a "pilot" project – based on it, they want to create general recommendations regarding shelter standards (Alliance for Public Health 2023). The peculiarity of this shelter is that the services here are also provided by IDPs, people who fled from Russian aggression (Alliance for Public Health 2023). The shelter is designed for 21 people (Alliance for Public Health 2023) (some sources indicate 24 (Laushchenko 2023) and is granted for 14 days (Laushchenko 2023). During this time, the residents get food, psychological assistance (the psychologist is a full-time employee), legal advice, and therapeutic examinations. Shelter workers organise workshops, and experts from various fields give lectures and masterclasses on topics ranging from easter egg painting to career integration. To get a place in the shelter, individuals were required to fill out a questionnaire via Google.

[14]

The conditions of the "Safe Place" were adapted according to demand. In the summer of 2023, it held children's camps and organised workshops. Now, the shelter is offering children's workshops in the IT sector (Update: Winter 2023-2024).

# Metadata<sup>A03</sup>



## Start of Spatial Reaction

11 January 2023

## Reaction Rate

-321 days

## Functional Group Before

residential

## Element Before

hostel

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

44 days; continuing

## Functional Group of Spatial Reaction

residential +

## Element of Spatial Reaction

indoor safe collective space



[Fig. 52] Case Study a03 Hostel (as) Shelter for IDPs "Safe Place" © Safe Place

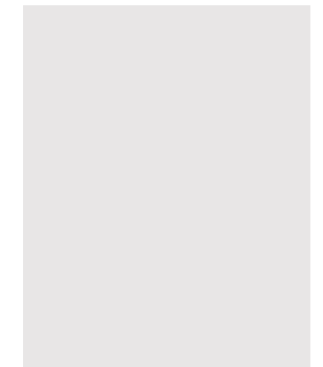
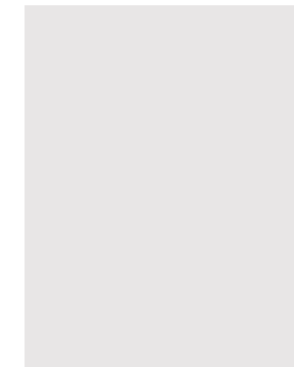
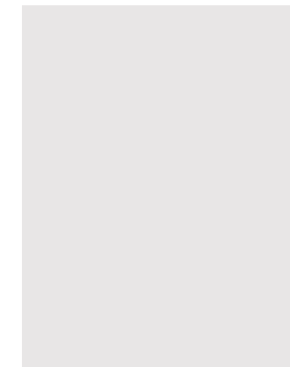
# Analysis<sup>A03</sup>



## Spatial Reactions



Shelter for  
Temporary Stay



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

NGO, charity org., volunteers

## User

IDPs

## Initiative

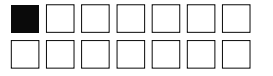
NGO, charity org., volunteers

## Insights from the Case<sup>AO3</sup>



The "Safe Place" shelter is a high-quality example of organising assistance for IDPs. Because the number of people cared for by the shelter at the same time is relatively small, people were provided with a wide range of help. The success of this project is due to two key factors – a ready-made, high-quality setup (former hostel) and the charitable organisation's competence and financial support.

## Theatre Les Kurbas (as) Shelter for IDPs<sup>AO4</sup>



The theatre is located in the central part of the city, close to Svobody Avenue – the main avenue of Lviv city. The city's central railway station is twenty minutes away by public transport, and the nearest registration centre for IDP is a seven-minute walk away, which allows easy access to both. On February 27th, three days after the full-scale invasion, the theatre opens with a new setup. Instead of traditional audience seating, the theatre featured beds made from theatrical platforms around the perimeter of the hall. The theatre turned into a place of temporary stay (up to three days) for arriving IDPs. It could accommodate twenty people at a time ([Facebook post of Les Kurbas Theatre 2022](#)). During this time, refugees received comprehensive aid, including food, essential items, counselling, and assistance to reach their next destination.

# Metadata<sup>AO4</sup>



**Start of Spatial Reaction**  
27 February 2022

**End of Spatial Reaction**  
7 April 2022

**Reaction Rate**  
-3 days

**Reaction Duration**  
39 days

**Functional Group Before**  
cultural

**Functional Group of Spatial Reaction**  
residential +

**Element Before**  
theatre

**Element of Spatial Reaction**  
indoor safe collective space



[Fig. 53] Case Study a04 Theatre Les Kurbas (as) Shelter for IDPs © Danylo Pavlov

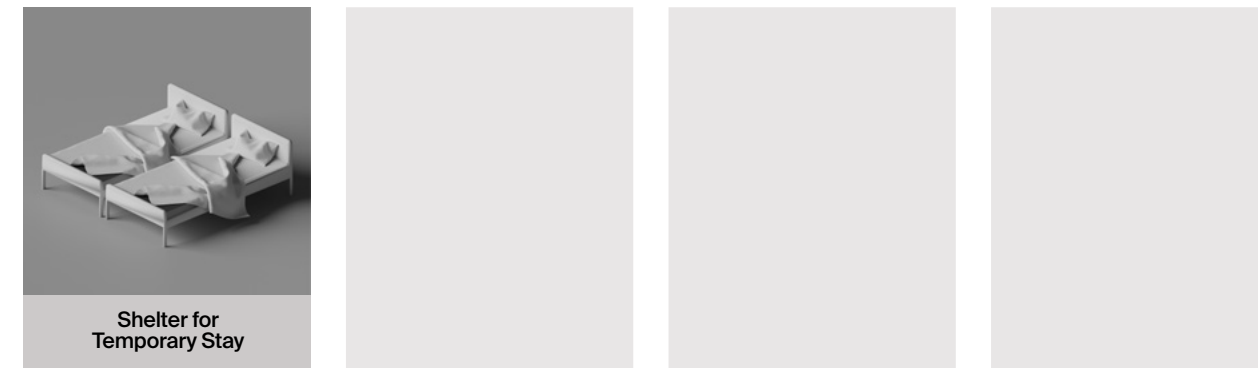
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# Analysis<sup>AO4</sup>



## Spatial Reactions



### Triggers

arrival of IDPs

### Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

### Provider

on-site employee

NGO, charity org., volunteers

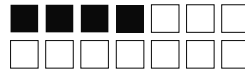
### User

IDPs

### Initiative

on-site employee

# In Detail<sup>AO4</sup>



## Before

The Les Kurbas Theatre is a small, academic theatre established in 1988 in a building of extheatre-varieties known as the "Casino de Paris." The theatre frequently stages experimental performances, resulting in a constantly changing stage and seating setup. The hall's centre serves as the stage where performances occur, while the audience, consisting of approximately 80 individuals, is seated around the hall's perimeter. In some cases, the stage serves as the seating area. It is constructed by the actors using modular theatrical platforms.

## After

On February 27, 2023, the theatre became an ad hoc shelter for internally displaced people. According to the theatre director, the shelter operated short-term (up to three days) and was designed to accommodate twenty people at a time. To be eligible for accommodation, the refugees had to register as IDPs officially. The theatre hall was equipped with eighteen beds along the perimeter, a central area with a table and chairs for dining, and a stage transformed into accommodation for a mother and child, including a play zone for children. The seating area and television were located close to one of the exits in the hall. The shelter provided comprehensive assistance to the refugees, including food, essential items, counselling, and help to reach their next destination.

## Change of mode

The mode of how theatre normally functions changed; around ten employees in the theatre would take care of IDPs. People were let in after the registration procedure in the administrative centre of a city or due to their relationships with the theatrical community, which means – the working group knew them before. Near the entrance, security was checking the people entering the building. The stay was possible for a maximum of three days. However, one could stay longer if needed more help, assistance, or time to decide what to do next. The capacity of the building as a theatre was around 110, including actors, other theatre workers, and visitors. During the adaptation period of ad hoc shelter, it fell to 50 – around 20 people living in the hall, employees who took care of them and occasional visitors like people bringing humanitarian help, etc. However, functioning as a theatre, the use of the building was limited to performances, which usually lasted up to four hours or repetitions, two hours per day. As an ad hoc shelter, the building was used around the clock.



## Interior adaptation

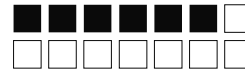
The functional zoning of the space transformed. Previously, the division was primarily between two key areas: the seating arrangement for the audience and the performance area. In its temporary set-up as an ad hoc shelter, the functions have been reimagined to cater practically to the needs of residents. The space encompassed a designated sleeping area (on the hall's perimeter), a dining area (in the centre), leisure spaces for kids on the stage and a TV zone closer to the exit. A particular focus was on creating a distinct area on stage for mothers and children. Additional sleeping areas were above – on the theatre balconies. For instance, two foreign volunteers slept there while helping at the railway station daily. The corridors of the theatre were full of clothes to take if needed. There is a bomb shelter on the underground floor with two exits, a small kitchen, a shower, toilets, and theatre storage rooms. This thoughtful re-configuration optimised comfort and functionality, ensuring that the temporary inhabitants can rest, dine, and engage in recreational activities.

## Supply

Local volunteers and food venues came together to organise the food supply for the shelter residents. Ordinary residents also worked together to arrange other essential supplies, such as everyday items and hygiene products. The nearby bakery contributed to the cause by giving the shelter residents croissants and other sweets, while the nearby hotel provided clean bed linen, ensuring that the residents had a comfortable stay.



# Interview<sup>AO4</sup>



## Lviv Anonym 3 – Actor and Volunteer

Interview date: 26.07.2023

Day of full-scale invasion: 518

**Tell me about the theatre's usual work before the full-scale invasion, including its mode of operation, capacity, and number of spectators.**

Monday is a day off, Tuesday is a rehearsal day, and Wednesday is our performance and rehearsal day. The performance started at 19:00, rehearsals until lunchtime at 11:00, and then the performance. Before the show, we always go to a test rehearsal at 17:00, two hours before the performance. On Thursday, we have a rehearsal day. And there will be performances again on Friday, Saturday, and Sunday. Accordingly, we work from 11:00 to 14:00, and from 17:00 to 19:00, we have a performance. On the 24th, we came to rehearsal in the morning; it had already started. Of course, we [Les Kurbas Theatre team] couldn't rehearse because we had to do something, so we decided to do a shelter. Shelter in the theatre.

So we organised this space in two days. We turned to the people of Lviv on Facebook, and in two days, Lviv residents ultimately helped us with mattresses and many other things; all these corridors of the second floor were filled with them. That's how we organised the space in two days, and other theatres joined us: the Lesya Ukrainka Theatre, the puppet theatre on Horodotska Street, the First Theatre, and the Zankovetska Theater.

We immediately established contacts with our Ukrainians in theatres in Poland, and they also joined in and organised buses and minibuses that stopped almost every day in Lviv near the opera house and picked up the people who lived in our theatres. We sent them to Poland, where they were received at these refugee centres. And we worked 24/7 at that time.

Two other people joined us, they were volunteering as security guards. We worked around the clock because we received people even at night. Even though there was a ban on movement, people came to us, and we would let them in.

**Did you let people in when they were already registered as IDPs, or was it more like a chain of acquaintances in theatre circles?**

Well, yes. We were told to accept people after registration because there were many cases when it was unknown who these people were; there was a great fear that some saboteurs might come. Accordingly, all the people we did not know went through the district administration and others we accepted through friendly relations without registration. We had a shelter that provided for people for up to three days and immediately helped them to go abroad or



to other western regions. But some people lived with us all the time. Some people did not want to leave; they did not know where to go, so they stayed a little longer. But we also helped them because, first of all, there had to be movement because people were arriving all the time, and we had to somehow help those people who had not yet rented an apartment or could not go abroad because there were boys of military age, their mothers were with them. There were dramas all the time, just like with everyone else.

**So you were taking care of people not only for 72 hours till they would reach the next destination?**

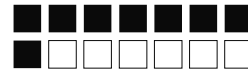
Yes. We also made private arrangements with coffee shops that cooked food for us, and they [IDPs] had lunch and breakfast. We had this kitchen in the middle, we made tables, and it was possible to heat food up downstairs in the basement. We had a kitchen, a shower, and an additional toilet downstairs. So, the people we took care of had everything they needed. And it was good because we were, A, in the centre, B, and we had a bomb shelter in the basement. It was also organised, there were two exits, and everything was fine. The city administration checked whether everything was done at the right level.

**Was your shelter on the authority's list?**

Yes. They knew that our priority was mothers with children. We also had contacts with all these shelters, and if we couldn't take someone... People had heard a lot about us and the conditions, and people would come to us, but we would say we couldn't take them because we had no space. Although to be honest, all the beds were in the hall, but for people who had just arrived at night or asked us to take them in, we took them to the loge or balcony seats upstairs. People would lie on mattresses or put two benches together and stay there. There were volunteers from abroad living with us. Those were two guys from the Czech Republic and Austria. They went to volunteer at the station to welcome people, and they came overnight and already had their beds and places on the balcony [theatre balcony]. So they stayed with us for a longer time.

**You mentioned that food was delivered for the IDPs, and there was also a kitchen in the theatre. Did the food arrive cooked, or were people cooking in the theatre's kitchen?**

Cooked. People could heat something in the kitchen; for example, if there were small children, they used it because then you always had to heat something up. However, we also had private volunteers who cooked for us, and we had an arrangement with two cafes to take turns delivering lunches. There is a cafe near us, its employees were coming to our bomb shelter during air raid alerts. And they saw that we had a lot of people, so in the evening, when they had all these croissants and sweets left over, they gave it to the theatre for IDPs. All



the people were completely involved because, for example, we provided bed linen for every bed; even if a person stayed one night, they got new linen, and we made an arrangement with the hotel near us, and they washed and ironed it in the hotel laundry. So, we had to take the bed linen to the laundry almost every two days. We involved a lot of organisations, and they joined in, and it was a common practice.

I liked that you made your beds out of these theatre modules. Have you made anything else besides beds?

No, on the stage, where the children's area was, there were just big mattresses. And downstairs, in the hall, we had enough of our modules to make sleeping places, something lower, something higher.

And, this setup you prepared on the 27th of February, all the beds, did it stay like that, or did you adapt it somehow?

No, that's the way it was.

In April 2022, the theatre resumed its performances. What happens if the air raid alert starts during the performance?

During air raids, the performance is interrupted, and everyone goes down to the bomb shelter. If the air raid lasted more than 40 minutes, the performance would not be shown anymore, and people would leave, but they could come back the next time. These seats were saved for them. Our first performance after the full-scale invasion was a concert. When we already knew that we would close the shelter, we made a combination; that is, people were still in the shelter, and we announced our first creative event. The beds were still standing, everything was completely preserved, and people were still sitting in their seats. We invited Lviv residents and those who came to Lviv, and people were packed entirely into our hall.

This performance was on 27th March.

Yes.

Then, on 7th April [2022], you resumed your work, correct? I found this date in the article.

I think so; I don't remember the exact date. We were approached by the Mayor's Office and the Department of Culture, and they said that it was probably time to open a theatre. First, the wave of people coming had slowed down a bit, so there were fewer people. Second, the city was able to prepare other places to receive IDPs during that time because they were not ready before, so we helped that way.

And then they came to us to request that the theatres should start working

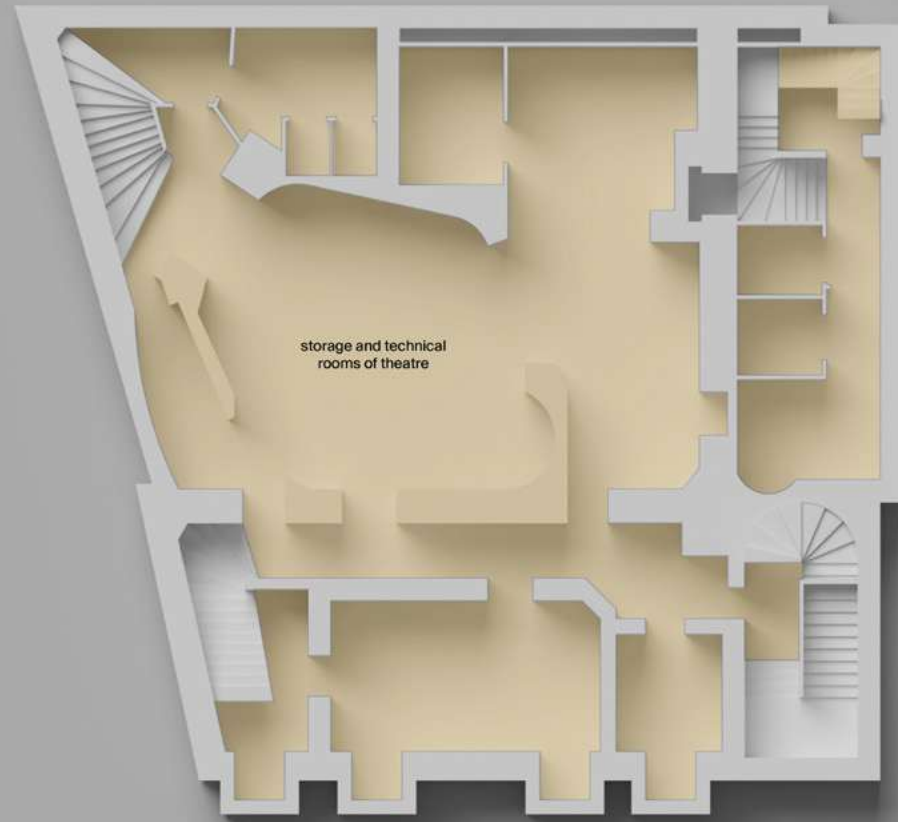


as soon as possible. We began to put on plays because it was essential and it was a good idea because, first of all, A, we wanted to put on plays and work in our profession, and B, there were a lot of people who went to the plays. And there were more than a million people in Lviv at that time. People went to the plays a lot, and people needed to watch the plays.

When the theatre went back to normal, did anything change? Perhaps you left some humanitarian functions? Or was everything the same as before the full-scale invasion, i.e. the same mode of operation? Did the number of performances decrease, the number of people at a time? What did the theatre look like after it had shelter experience?

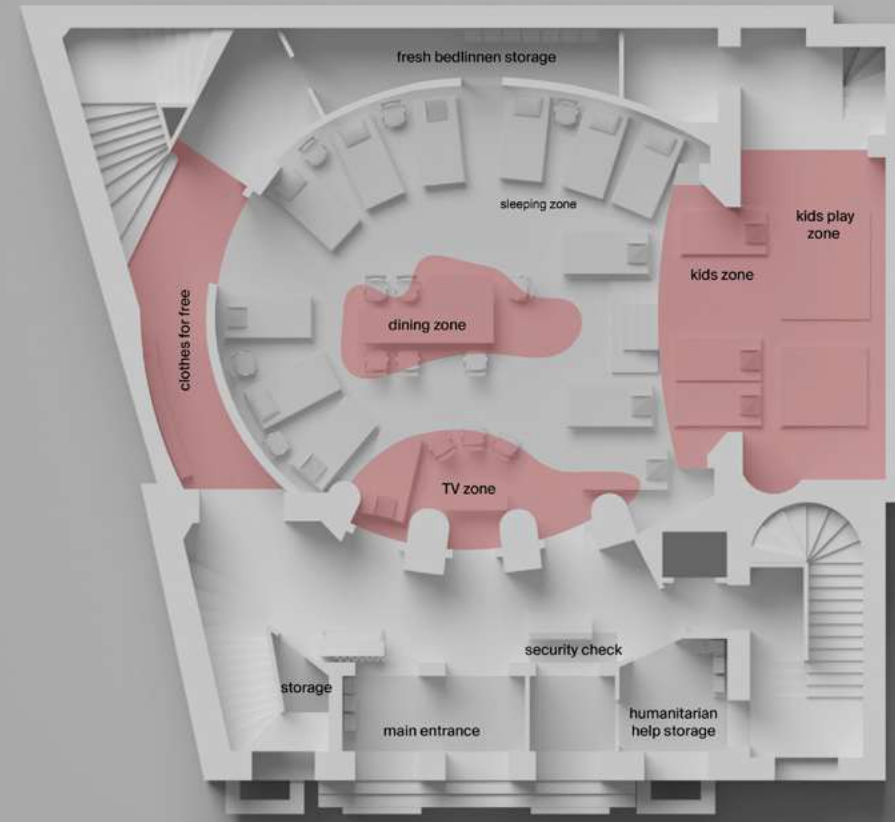
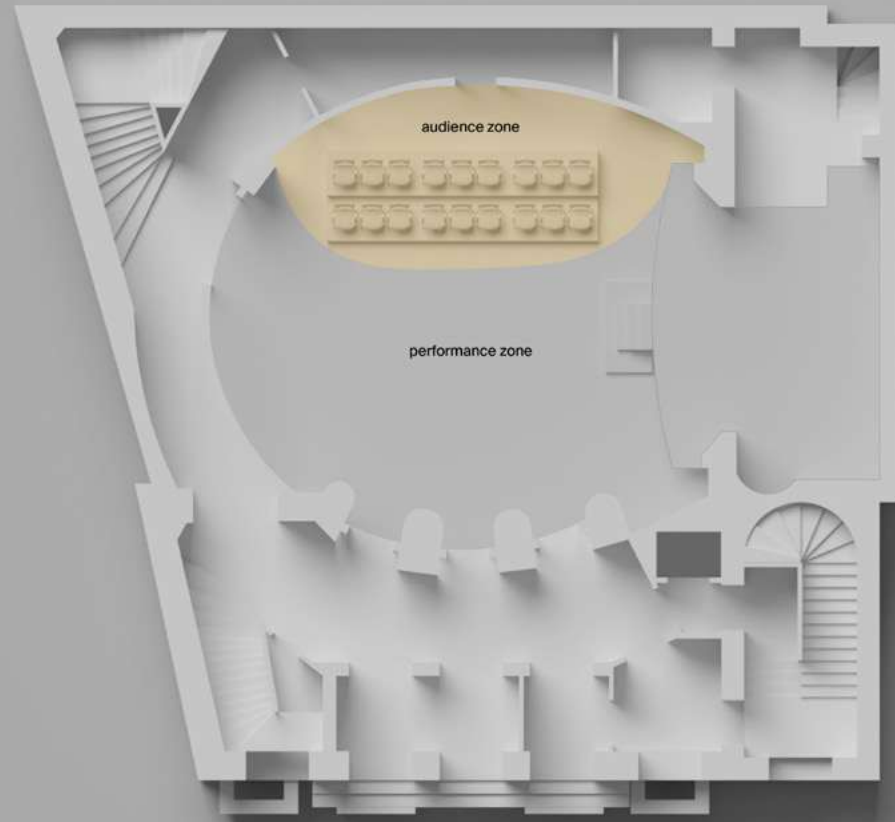
We started the performance at 17:00, taking into account the curfew beginning at 23:00. Then, the Poles gave us a generator, and we played even when there was no electricity. From the beginning, we organised a group of volunteers to supply food and medicine, which still works. So, after we closed the shelter, we still have our volunteer headquarters and people working as volunteers, except they are actors.

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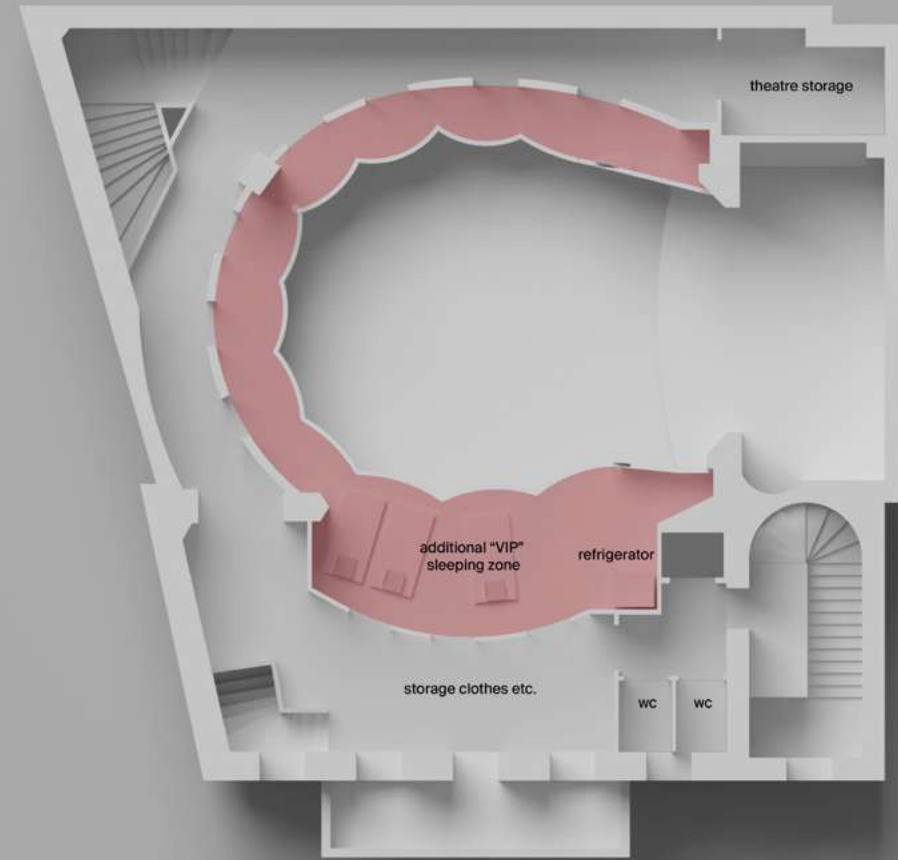
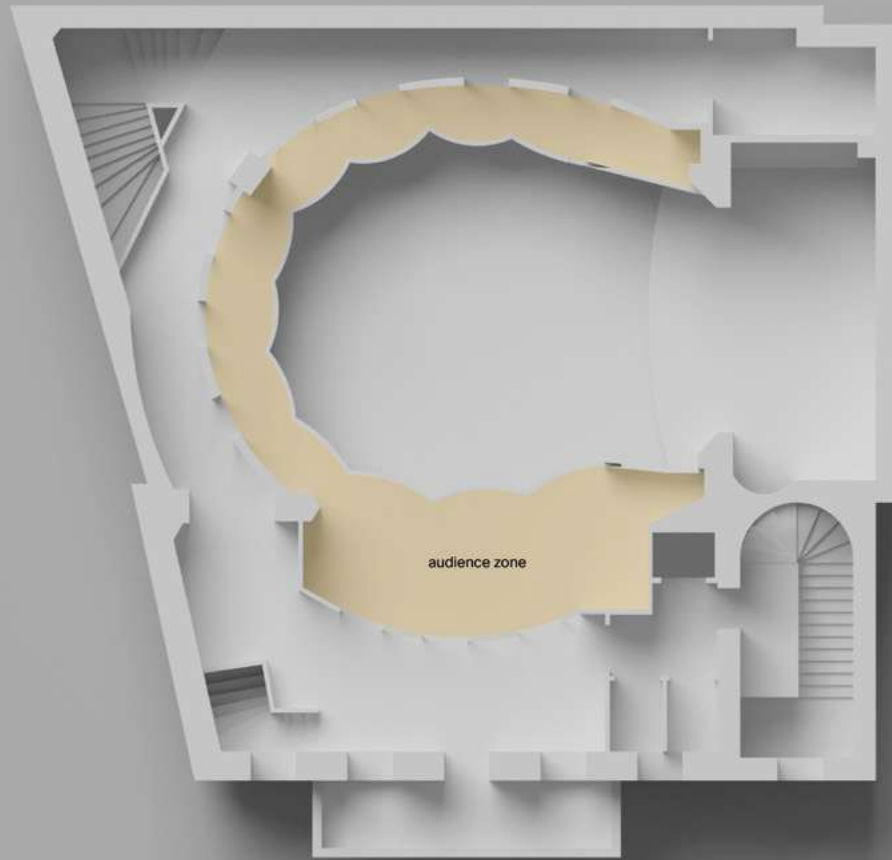
[Fig. D]  
Basement Plan of Les Kurbas  
Theatre with marked zones  
functioning as theatre  
© Y. Tsarynyk (2024)

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[Fig. F]  
Ground Floor Plan of Les Kurbas Theatre with marked zones functioning as theatre  
© Y. Tsarynyk (2024)

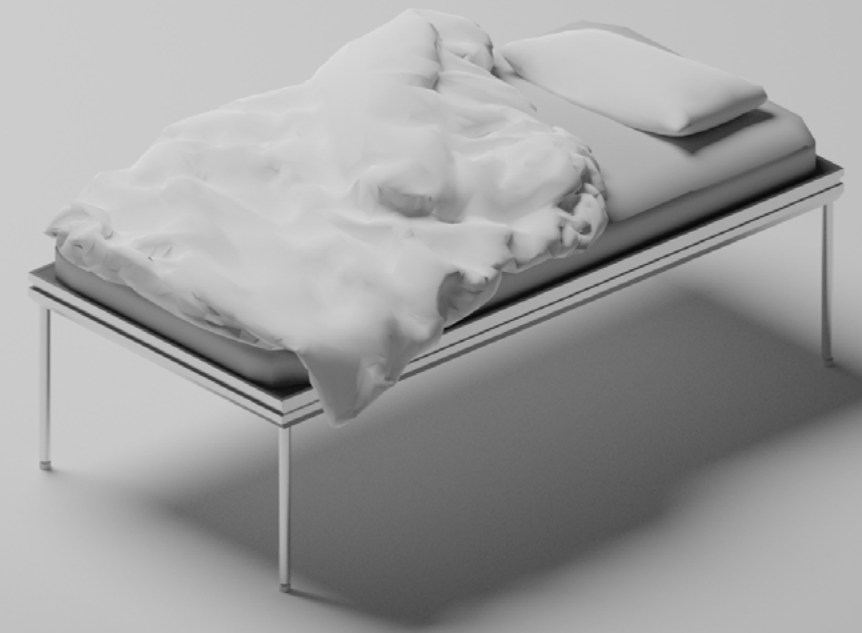
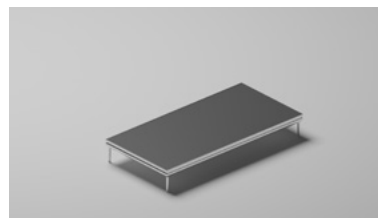
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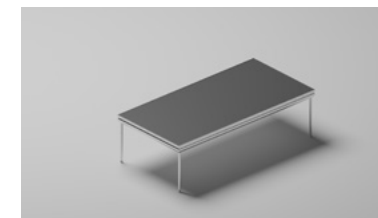
[Fig. H]  
First Floor Plan of Les Kurbas  
Theatre with marked zones  
functioning as theatre  
© Y. Tsarynyk (2024)



**[Fig. J]**  
Elements of modular stage system used to set up the audience seating for performance © Y. Tsarynnyk (2024)



**[Fig. K]**  
Bed constructed from elements of modular stage system previously used to set up the stage for performance © Y. Tsarynnyk (2024)



## Insights from the Case<sup>AO4</sup>



Often, working teams choose their activities based on the needs that arose due to military invasion, which is either dealing with humanitarian aid kits or providing shelter for IDPs. The direction of help was chosen based on the possibilities of the available rooms of the working groups, the opportunities to find and launch such into the process, and the organisation's character inside the working group itself. This case demonstrates how a cohesive working group, with the available space, can quickly react to crisis conditions. The small number of refugees and their length of stay in the shelter ensured the possibility of complex and high-quality individual assistance, providing this help for many refugees.

## Residential Camp 1 Made with Shipping Containers<sup>AO5</sup>



Residential camps made with shipping containers have become one of the most associated objects with the topic of refugees in Lviv. The Lviv City Council and foreign partners initiated this spatial response. The first residential camp arose on the park's territory near the building of the physical education department. It is located in the central part of the city. Construction lasted 12 days (Your CITY media hub 2022). The town comprises 88 residential containers (124, including administrative, sanitary and storage facilities, a dining area and a kitchen (Dev.ua 2022). It was designed to accommodate 350 individuals. Although the mayor of Lviv announced (Your CITY media hub 2022) this container town for displaced students, displaced families settled there. Each house has four beds. One separate heat-insulated (the walls of the container house have PIR material) "container house" has an area of 15 square metres and dimensions of 2.5\*6 metres (Dev.ua 2022). People lived there until the first winter – all the residents were resettled in the winter residential camp (see case study a08). After the residential camp in the park area was conserved.

# Metadata<sup>A05</sup>



## Start of Spatial Reaction

19 April 2022

## Reaction Rate

-54 days

## Functional Group Before

recreation area

## Element Before

park

## End of Spatial Reaction

9 February 2023

## Reaction Duration

296 days

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

shipping container adapted for living

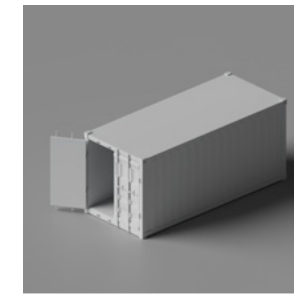


[Fig. 54] Case Study a05 Residential Camp 1 made with shipping containers © Roman Baluk

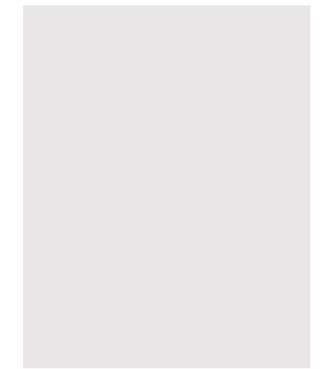
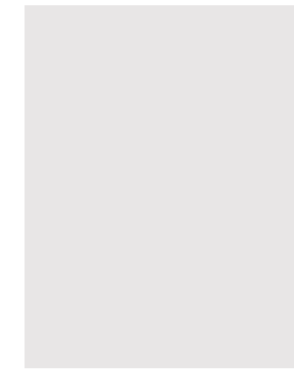
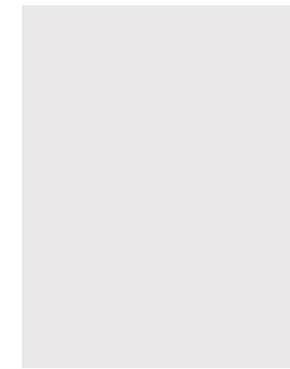
# Analysis<sup>A05</sup>



## Spatial Reactions



Shelter for Temporary Stay (Prefab)



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

city council

NGO, charity org., volunteers

## User

IDPs

## Initiative

City Council



## Insights from the Case<sup>A05</sup>



However, given the lack of accommodation, any opportunity to provide is perceived positively. The usefulness of accommodation made out of shipping containers seems questionable. It was announced that the town is designed for 350 people. Regarding the number of IDPs who arrived and the possibility of staying in the container for a long time (the containers are not adapted to the cold season), this solution does not solve the problem but postpones it. Instead, in cities, there is always the phenomenon of "empty houses", capital structures that could be adapted for residential purposes and provide decent conditions for people.

## Residential Camp 2 Made with Shipping Containers<sup>A06</sup>



The residential camp, constructed two weeks after the first one (case study a05), was located on the city's outskirts. Structurally, this town is no different from the previous one – the containers, placed around the perimeter of the asphalt site, consist of two blocks of 80 houses. Its capacity is 320 people (Lviv.Media 2022). There is one kitchen block, laundry room, and 18 toilets and showers for the whole "container" town. The charitable organisation "World Central Kitchen" provided food for the residents. Despite its small scale in solving the resettlement problem of IDPs, this case, like other residential camps made with shipping containers in Lviv, gained large-scale media attention.

# Metadata<sup>A06</sup>



## Start of Spatial Reaction

06 May 2022

## Reaction Rate

-71 days

## Functional Group Before

recreation area

## Element Before

courtyard

## End of Spatial Reaction

9 February 2023

## Reaction Duration

279 days

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

shipping container adapted for living

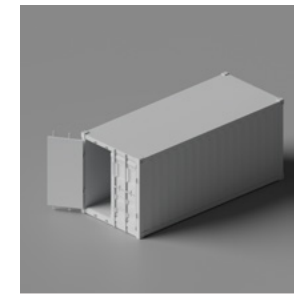


[Fig. 55] Case Study a06 Residential Camp 2 made with shipping containers © Roman Baluk

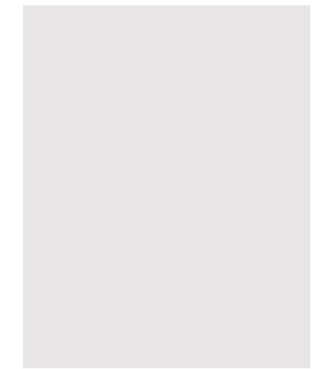
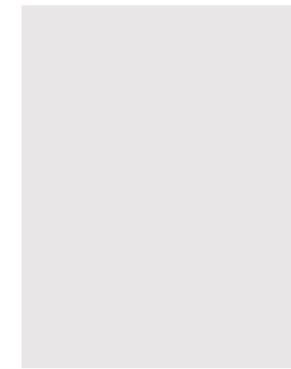
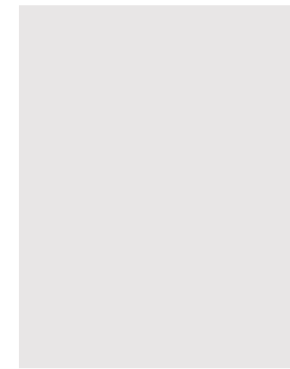
# Analysis<sup>A06</sup>



## Spatial Reactions



Shelter for Temporary Stay (Prefab)



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

city council

NGO, charity org., volunteers

## User

IDPs

## Initiative

City Council

## Insights from the Case<sup>A06</sup>



Just like residential camp number one, it lasted until the first winter. It was a temporary solution that required resources that could have been spent on long-term solutions.

## Residential Camp 3 Made with Shipping Containers<sup>A07</sup>



The residential camp 3 opens two weeks after the residential camp 2. Its location is also peripheral, in an area of residential housing and near the parking area of Pope John Paul II Park; immediately opposite the camp was the Administrative Services Center, where people could get their official IDP status. The “container” town allows a maximum of 370 people (Nikolaevich 2022) to inhabit. Among the available utilities, as in all other “shipping containers” houses, there were two bunk beds, a table, two stools, a wardrobe, light, heating and the Internet.

# Metadata<sup>A07</sup>



## Start of Spatial Reaction

19 May 2022

## Reaction Rate

-84 days

## Functional Group Before

recreation area

## Element Before

courtyard

## End of Spatial Reaction

9 February 2023

## Reaction Duration

266 days

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

shipping container adapted for living

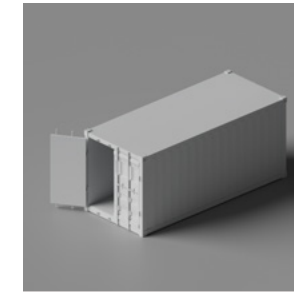


[Fig. 56] Case Study a07 Residential Camp 3 made with shipping containers © Roman Kaiman

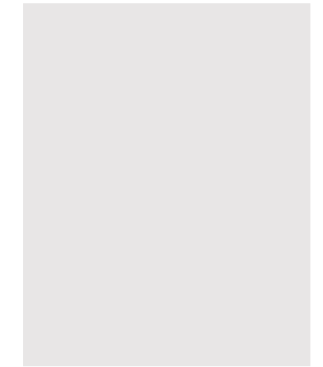
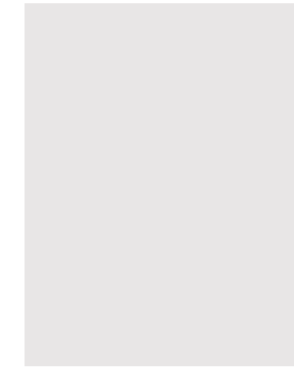
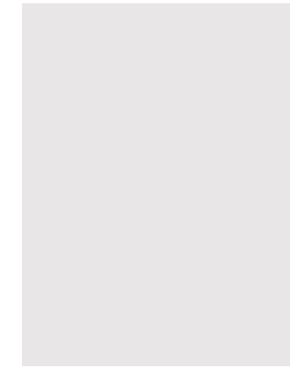
# Analysis<sup>A07</sup>



## Spatial Reactions



Shelter for Temporary Stay (Prefab)



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

city council

NGO, charity org., volunteers

## User

IDPs

## Initiative

City Council

## Insights from the Case<sup>A07</sup>



This residential camp lasted the least because it was not adapted to winter conditions like the two previous cases. Although the camp was initially recognised as "temporary," the effort spent and high media coverage do not correlate with the successful residential solution.

## Residential Camp 4 Made with Shipping Containers<sup>A08</sup>

(Winter Version)



Residential camp 4 was built on the same parking lot as residential camp 3. Its feature and difference from the previous ones is its two-story and corridor type. In order to go to the toilets, shower or kitchen, there was no need to go outside. The town consists of eight rectangular two-story buildings (Stanislavskyi 2023). The final move of all residents from the previous three camps took place almost at the end of winter 2023. The maximum capacity of this camp is 1400 people. As of April 18, 2023, 800 people lived there.

# Metadata<sup>A08</sup>



## Start of Spatial Reaction

9 February 2023

## Reaction Rate

-350 days

## Functional Group Before

recreation area

## Element Before

courtyard

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

15 days; continuing

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

shipping container adapted for living

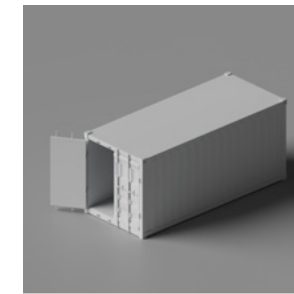


[Fig. 57] Case Study a08 Residential Camp 4 made with shipping containers (Winter Version) © Roman Baluk

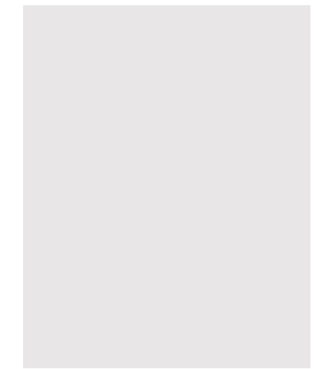
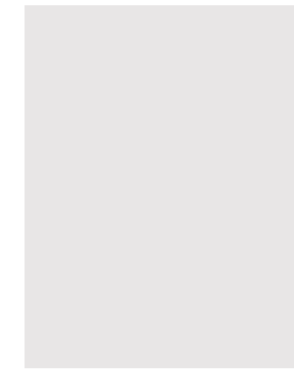
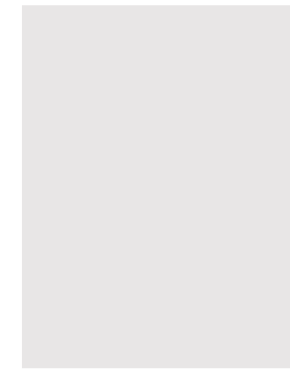
# Analysis<sup>A08</sup>



## Spatial Reactions



Shelter for Temporary Stay (Prefab)



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

city council

NGO, charity org., volunteers

## User

IDPs

## Initiative

City Council

## Insights from the Case<sup>AO8</sup>



The corridor type provides more comfortable use in winter. However, only the residents can judge how good the thermal or sound insulation is. One could say that this case demonstrates the provision of minimum living conditions and is a temporary solution. However, the question of more convenient settlement of people in capital buildings remains open. Almost half of employment indicates that people have found more comfortable living conditions, returned home, or left abroad.

## Temporary Housing for IDPs Specialised for Pregnant Women<sup>AO9</sup>



The construction of temporary housing for people with limited mobility is an essential social initiative to provide housing to those in difficult life conditions and those who need special housing due to physical peculiarities. Temporary housing for over 100 pregnant internally displaced women was built in Lviv four months after the full-scale invasion (Unbroken 2022). It aimed to provide temporary shelter and the necessary services specific to their needs; namely, the Unbroken Foundation noted that medical personnel would be on duty at the centre (Unbroken 2022). This shelter is a joint project of the Lviv City Council and the Red Cross Society of Ukraine.

**Full case study name:**  
Temporary Housing for IDPs Specialised for Pregnant Women and Women with Infants "Unbroken Mothers"

# Metadata<sup>A09</sup>



## Start of Spatial Reaction

15 July 2022

## Reaction Rate

-141 days

## Functional Group Before

-

## Element Before

-

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

224 days; continuing

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

indoor safe collective space



[Fig. 58] Case Study a09 Temporary Housing for IDPs Specialised for Pregnant Women and Women with Infants “Unbroken Mothers” © Halyna Kuchmanysh

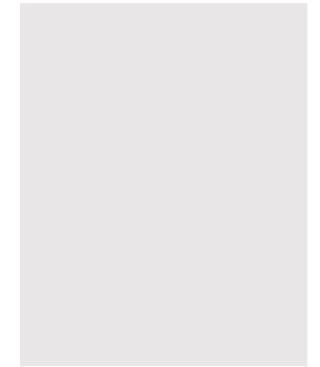
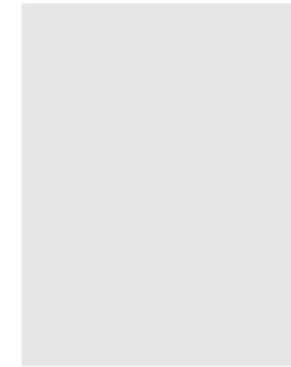
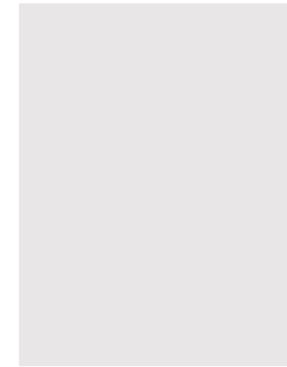
# Analysis<sup>A09</sup>



## Spatial Reactions



Shelter for Persons with Reduced Mobility



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

pro bono professional

NGO, charity org., volunteers

## User

IDPs: person with reduced mobility (PRM)

## Initiative

NGO, charity org., volunteers



## Insights from the Case<sup>A09</sup>



This case exemplifies how temporary housing can meet high standards without compromising human dignity. By establishing quality standards, this case can serve as a precedent for future initiatives aimed at addressing the housing needs of displaced people. Such initiatives can contribute to developing sustainable and aesthetically pleasing solutions with positive implications for economic viability and architectural integrity.

## Sports School (as) Shelter for IDPs "Urban Camp 1"<sup>A10</sup>



Schools, kindergartens, dormitories, universities, and other municipal educational institutions of the city were the first to start working as places of temporary stay for the arriving refugees. They were usually organised by the city council, charitable organisations and pro bono professionals to meet the needs of the refugees. This happened in the case of the shelter opening based in the sports school on April 6, 2022 ([Street Culture in Facebook post 2022](#)) at the initiative of community organisations Street Culture and Urban Reform. These two organisations are a collaboration of urban planners and representatives of street cultures who are engaged in transforming public spaces into attractive places for various forms of street sports and other creative activities. The sports school, which was converted to meet the needs of refugees, was named Urban Camp 1. The shelter was designed for 35 people, and in addition to sleeping places, there was food provision, essential things, a place for studying and working, and an outdoor space for physical activity, watching movies, the opportunity to make a garden and play with children ([Street Culture/ Urban Reform 2022](#)).

# Metadata<sup>A10</sup>



## Start of Spatial Reaction

6 April 2022

## Reaction Rate

-41 days

## Functional Group Before

educational

## Element Before

school

## End of Spatial Reaction

till the opening of "Urban Camp 2" [see a11]

## Reaction Duration

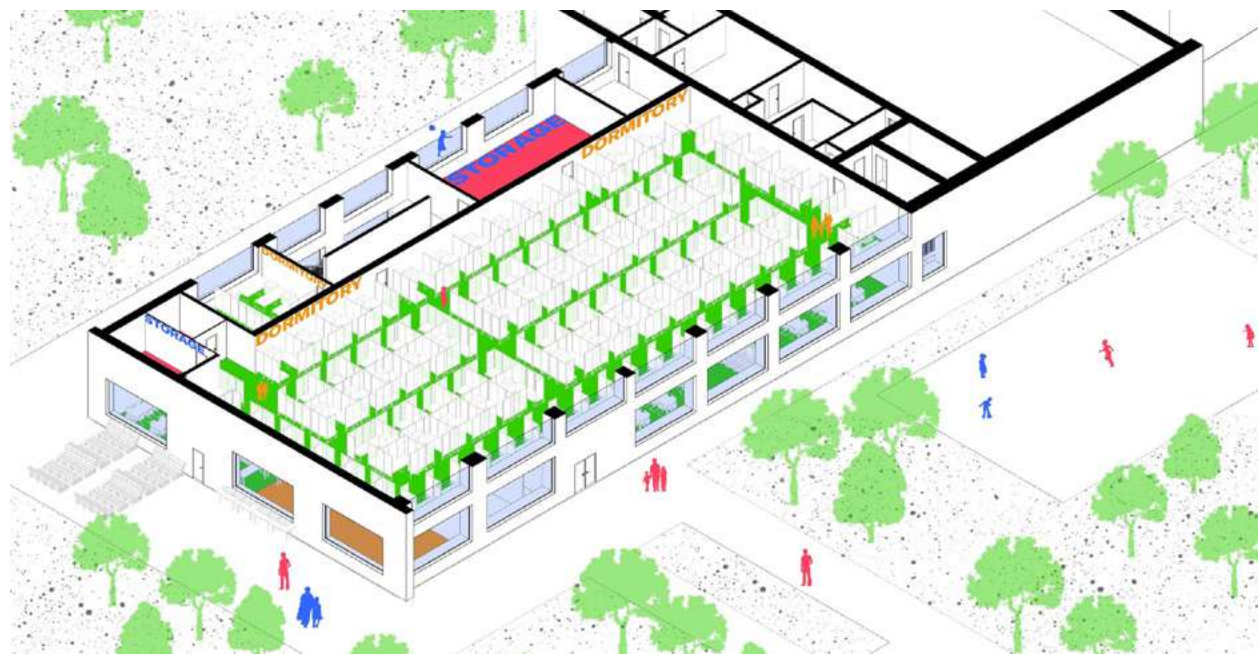
324 days +

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

indoor safe collective space



[Fig. 59] Case Study a10 Sport School (as) Shelter for IDPs "Urban Camp 1" © Urban Reform

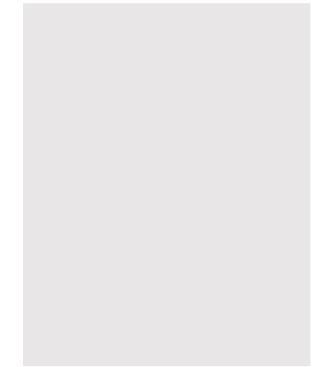
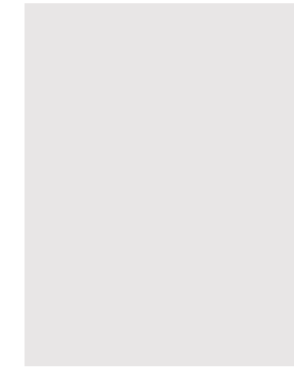
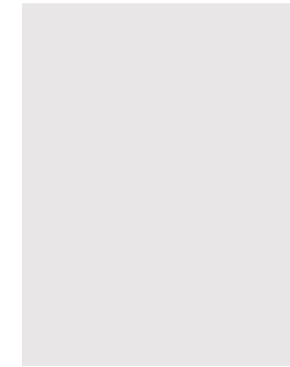
# Analysis<sup>A10</sup>



## Spatial Reactions



Shelter for Temporary Stay



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

pro bono professional

NGO, charity org., volunteers

## User

IDPs

## Initiative

NGO, charity org., volunteers

## Insights from the Case<sup>A10</sup>



"Urban Camp 1" serves not only as a temporary shelter but also as a hub for ongoing social engagement. By organising events like workshops and masterclasses for children, the facility transcends its role as merely a place for temporary accommodation and transforms into a centre for recovery. It aids individuals in adapting to crises, fostering integration, and easing fears associated with interacting with their surroundings. Consequently, the proactive scheduling of daytime activities within the shelter could facilitate the recovery of individuals following crises.

## Abandoned House of Culture (as) Shelter for IDPs "Urban Camp 2"<sup>A11</sup>



The Palace of Culture and Technology, called LORTA, was built in 1982 and housed a community centre where various artistic events occurred. The building's last use was before 2008. Several attempts were made to restore the palace. However, it succeeded only in 2022. On September 30, 2022, the idea of a new Urban Camp based in the palace was presented to the community. Although the building had already been activated by presentations, exhibitions, and charity events ([Street Culture in Facebook post 2022](#)), the camp officially opened for residents on June 2, 2023. "Urban Camp 2" and "Urban Camp 1" resulted from collaboration between the Lviv City Council and community organisations, such as Street Culture and Urban Reform, among others. The shelter is designed for 100 people and consists of a community space, a living area, offices and an organised outdoor space with various recreation and sports areas. Thirty-five residents of "Urban Camp 1" were relocated here; others were selected through interviews, giving priority to families with children ([Pylypenko 2022](#)).

# Metadata<sup>A11</sup>



## Start of Spatial Reaction

2 June 2023

## Reaction Rate

-463 days

## Functional Group Before

cultural

## Element Before

house of culture

## End of Spatial Reaction

continuing

## Reaction Duration

continuing

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

indoor safe collective space



[Fig. 60] Case Study a11 Abandoned House of Culture (as) Shelter for IDPs "Urban Camp 2" © Urban Camp

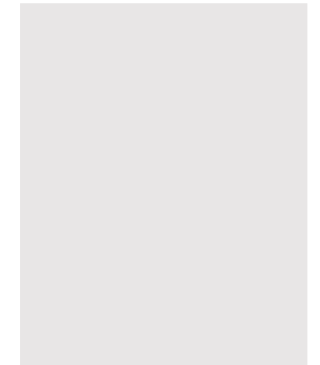
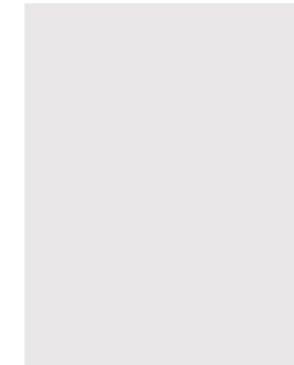
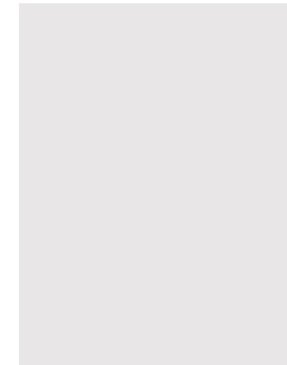
# Analysis<sup>A11</sup>



## Spatial Reactions



Shelter for  
Temporary Stay



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

pro bono professional

NGO, charity org., volunteers

## User

IDPs

## Initiative

NGO, charity org., volunteers

## Insights from the Case<sup>A11</sup>



This case emphasises the importance and possibility of restoring and transforming abandoned or unused spaces into places functional for the community. The restoration of the Palace of Culture into an Urban Camp became an example of the successful implementation of joint projects between government structures, non-profit organisations and active citizens. The collaboration of various parties made it possible not only to restore the building but also to create a new social environment for the lives of the displaced people. The accompanying functions of public events and initiatives also make better use of the potential and possibilities of the space.

## Lviv Palace Of Arts (as) Humanitarian Hub<sup>A12</sup>



The Lviv Palace of Arts is an exhibition complex located in the central part of the city, used for various exhibitions, festivals, forums, and fairs. Following the full-scale invasion, the Lviv Regional Council took the initiative to establish a humanitarian centre city at the palace's base. Volunteers at the centre received, sorted and sent humanitarian aid to its destination. The availability of vast exhibition spaces has facilitated the efficient storage and handling of considerable quantities of humanitarian aid. Arriving refugees were also sent to the centre to receive a humanitarian aid package. From April 2023, the palace will be 100% used as an exhibition hall. Humanitarian offices supporting the families of servicemen and helping survivors continue to operate in the palace.

# Metadata<sup>A12</sup>



## Start of Spatial Reaction

24 February 2022

## Reaction Rate

0 days

## Functional Group Before

cultural

## Element Before

exhibition house

## End of Spatial Reaction

1 April 2023

## Reaction Duration

401

## Functional Group of Spatial Reaction

food and essential supplies

## Element of Spatial Reaction

storage space



[Fig. 61] Case Study a12 Lviv Palace Of Arts (as) Humanitarian Hub © Oleksandr Khomenko

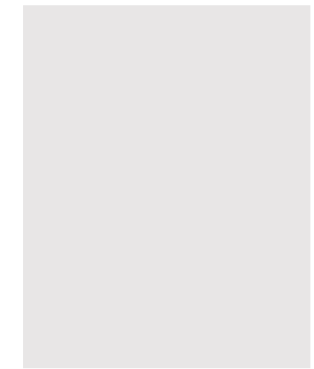
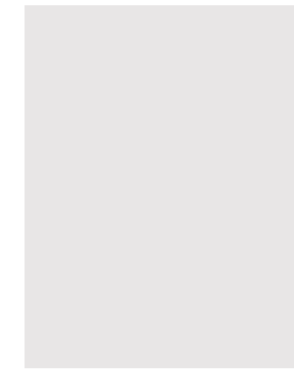
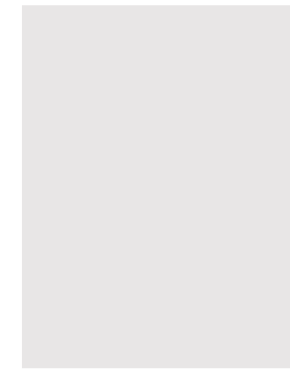
# Analysis<sup>A12</sup>



## Spatial Reactions



Humanitarian Hub



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

city council

NGO, charity org., volunteers

## User

IDPs

## Initiative

city council

## Insights from the Case<sup>A12</sup>



The exhibition space proved well-suited to function as a humanitarian centre for several reasons. First, its large open spaces and the availability of infrastructure created favourable conditions for the organisation of various activities and staff work. Its central city position guaranteed effortless accessibility for the dispatch and receipt of humanitarian aid. In times of crisis, cultural functions deemed non-essential can be replaced with other, more essential ones without affecting the main city functions. This substitution can be done seamlessly without any loss to the overall functionality of the city.

## Underground Car Park of Shopping Mall (as) Field Hospital<sup>A13</sup>



On March 15, 2022, the head of the Lviv Regional Military Administration issued an order to deploy a field hospital for Samaritan's Purse humanitarian organisation representatives based at the shopping and entertainment centre, King Cross Leopolis. The hospital opened in the complex's underground parking lot on March 14, 2022 (Samaritan's Purse 2022). A field hospital is a type of mobile hospital set up in short terms; this one was deployed in a week (Zaxid. Net 2022). It consists of a regularly arranged space of medical tents – one emergency unit, two step-down units for patients who need a higher level of care, three intensive care units – the highest level of care, and a sterile environment within two operating rooms. Up to 30 surgeons from the USA, Germany, Ireland and other countries were on duty daily (Your CITY media hub in YouTube stream 2022). The Organization procured and supplied comprehensive medical equipment and requisite hospital infrastructure for optimal patient care and management. People got here mainly by the guidance of volunteers at the railway station. The field hospital in Lviv existed until the middle of June. Over three months, approximately 4,000 patients were admitted to the hospital (Lviv Regional Military Administration 2022).

# Metadata<sup>A13</sup>



## Start of Spatial Reaction

14 March 2022

## Reaction Rate

-18 days

## Functional Group Before

transport infrastructure

## Element Before

underground garage

## End of Spatial Reaction

18 June 2022

## Reaction Duration

96

## Functional Group of Spatial Reaction

healthcare

## Element of Spatial Reaction

tents and other temporary constructions



[Fig. 62] Case Study a13 Underground Car Park of Shopping Mall (as) Field Hospital © Samaritan's Purse

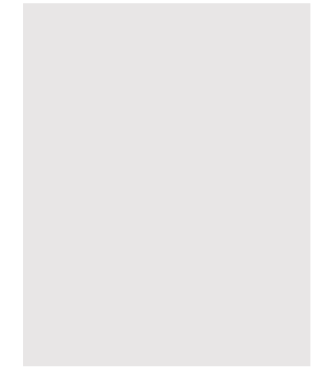
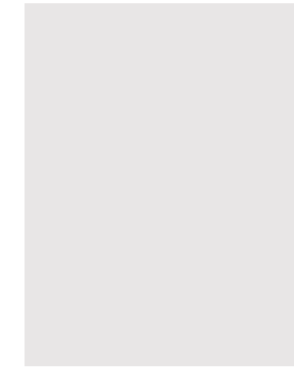
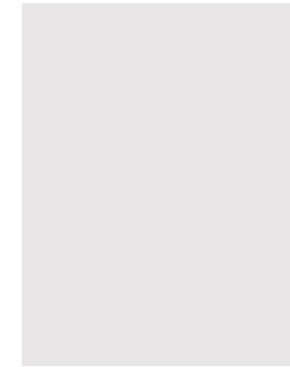
# Analysis<sup>A13</sup>



## Spatial Reactions



Field Hospital



## Triggers

increasing number of persons  
with reduced mobility

## Outcomes

demand for additional healthcare facilities

## Provider

NGO, charity org., volunteers

## User

IDPs

## Initiative

NGO, charity org., volunteers



## Insights from the Case<sup>A13</sup>



The decision to utilise underground parking as a site for a field hospital was based on several practical factors. Underground levels and basements can provide adequate protection during shelling due to their robustness and the shielding effect. The underground area also had enough space to house the medical equipment and infrastructure needed for medical care. Although there are no specified reasons for closing the hospital, it may be because, after a few months of a full-scale invasion, it became clear that Lviv occupies a rear position. The field hospital would be more appropriate in dangerous regions because the Lviv region could provide patient care in the available medical structures.

## City Monuments and Artefacts (during) Martial law<sup>A14</sup>



From the first days of the full-scale invasion, the pattern of shelling frequency, and intensity and the areas that would be most affected were unclear. The Lviv Conservation Society, a community organisation that conserves cultural heritage in the Lviv region, initiated preventive protection measures for cultural heritage sites. Due to its cultural and architectural significance, Lviv's old quarter has been designated as a UNESCO World Heritage Site. Andriy Salyuk, the head of the community organisation, reported that protective measures for the first monuments were installed by volunteers starting on February 27, 2022. Skilled professionals carried out the restoration work and sourced the required materials mainly through voluntary donations from partner organisations. The protection principle prioritised the most sensitive objects, considering their type (such as stained glass windows) or location within the city (near military administrative buildings). Protection efforts initially focused on stained glass windows, the most sensitive to explosion waves. Afterwards, street sculptures were protected by wrapping them first in fire-resistant fabric, followed by a layer of mineral wool, providing both fire resistance and the effect of cushioning. However, these measures will not keep the sculpture unharmed by direct hits; they are designed to maintain the integrity of its parts in a fixed location, consequently making the restoration possible (#BABYLON'13 2022).

# Metadata<sup>A14</sup>



## Start of Spatial Reaction

27 February 2022

## Reaction Rate

-3 days

## Functional Group Before

cultural

## Element Before

city monument

## End of Spatial Reaction

-

## Reaction Duration

-

## Functional Group of Spatial Reaction

security and defence

## Element of Spatial Reaction

temporary modular structure



[Fig. 63] Case Study a14 City Monuments and Artefacts (during) Martial law © Claire Harbage/NPR

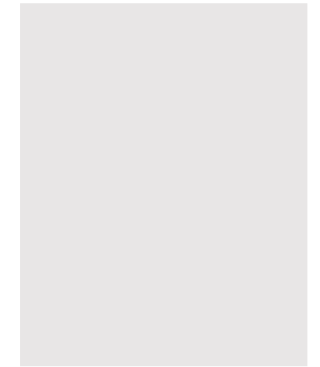
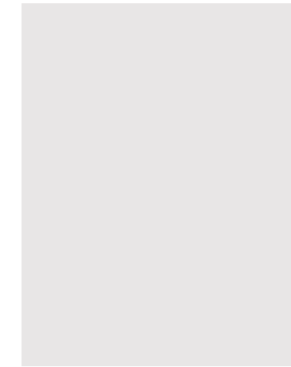
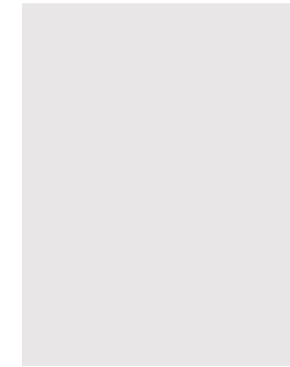
# Analysis<sup>A14</sup>



## Spatial Reactions



Shelter for Cultural Heritage



## Triggers

heritage protection

## Outcomes

emerging of urban defensive infrastructure

## Provider

NGO, charity org., volunteers

## User

-

## Initiative

NGO, charity org., volunteers

## Insights from the Case<sup>A14</sup>



Although the protective measures for monuments do not alter the function of physical objects, such as statues, as they do not serve any particular purpose, they significantly impact the perception of the surrounding space. In Lviv, witnessing every statue covered in mineral wool surrounded by scaffolding sends a clear signal of crisis. It represents a significant deviation from the usual celebration of culture, instead emphasising caution and vulnerability.

## Museum (as) Shelter for Relocated Museum from Luhansk Region<sup>A15</sup>



The "Territory of Terror" is a museum initiative led by the Lviv City Council, aiming to illuminate and reflect upon the Soviet and Nazi regimes' impact on the territory of present-day Ukraine. It consists of three elements: barracks numbered one and two and a cattle car housing a permanent exhibition. Before the full-scale invasion, the director of the Luhansk Regional Museum was in contact with the "Territory of Terror" employees. At that time, the Luhansk Museum was preparing to evacuate its exhibits and documents, but the Ministry of Culture did not grant permission for the evacuation. On February 24, around 03:40, the invasion began with a column of Russian tanks entering the territory of the Luhansk region. Only on April 5 the Luhansk museum director managed to evacuate. Although she could not bring the exhibits, she found the parachute of the occupier, which became the first exhibit of the newly reopened museum at the "Territory of Terror". This marked the second relocation of the Luhansk Museum, the first being from the occupied Luhansk to Starobilsk in the Luhansk region.

**Full case study name:**  
Museum "Territory Of Terror" (as)  
Shelter for Relocated Museum  
from Luhansk Region

# Metadata<sup>A15</sup>



## Start of Spatial Reaction

18 April 2022

## Reaction Rate

-53 days

## Functional Group Before

cultural

## Element Before

museum

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

312 days +; continuing

## Functional Group of Spatial Reaction

security and defence

## Element of Spatial Reaction

-



[Fig. 64] Case Study a15 Museum "Territory Of Terror" (as) Shelter for relocated museum from the city of Luhansk © Memorial museum of totalitarian regimes: Territory Of Terror

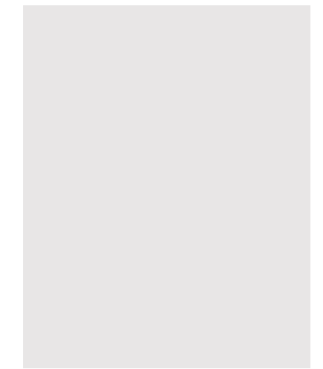
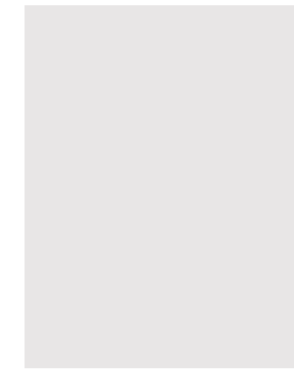
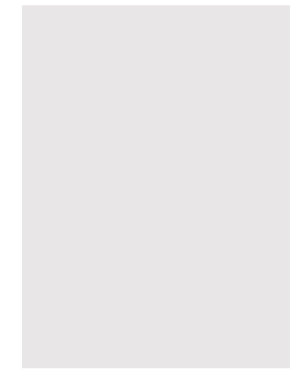
# Analysis<sup>A15</sup>



## Spatial Reactions



Shelter for Cultural Heritage



## Triggers

heritage protection

## Outcomes

emerging of urban defensive infrastructure

## Provider

on-site employee

## User

relocated institution

## Initiative

on-site employee

## Insights from the Case<sup>A15</sup>



No humanitarian centres or shelters for IDPs were stationed at the museum "Territory of Terror." The museum focused on its designated area of responsibility: museums and museum professionals. It is a notable example of individuals working in the field of their expertise, utilizing established connections, workflow systems, and communication channels. This instance does not denote a fundamental shift in function but rather an extension of the scope of responsibility.

## Lviv Municipal Art Center (as) Community Hub for IDPs and Citizens<sup>A16</sup>



Lviv Municipal Art Center is a municipal art gallery of contemporary art consisting of 100 square metres of exhibition space (Lviv Municipal Art Center n.d.). On February 24, the gallery was repurposed for a period of around three weeks as a temporary shelter for forcibly displaced individuals and anyone seeking psychological support amidst the full-scale invasion. Its facilities were available to provide rest and recovery from the traumatic events (lvivart.center in Instagram post 2022). The working group established a centre for assisting refugees, providing overnight or short-term shelter, meals, a children's play zone, and psychological support, with legal assistance when a lawyer was on-site. The space was not equipped with adequate sanitary facilities to provide temporary shelter but was suitable for temporary stays and rest. Additionally, the working group organised nighttime logistics to transport people to shelters from the railway station during curfew, as the gallery director ensured obtaining curfew passes for drivers. Within the gallery itself, the working group launched the "Cooperation" project aimed at assisting relocated individuals with integration, offering various art therapies and children's creativity classes. By March 10, the first exhibition – a reaction to the full-scale war – opened in the centre's space. Establishing a new centre unit, which underwent repairs in April 2022, has been a significant step towards providing shelter for artists from conflict zones. With the allocation of this space, these artists can access essential resources and a nurturing environment to carry out their work. The residency program aims to support these artists and provide them a platform to showcase their talents and share their stories with the world.

# Metadata<sup>A16</sup>



## Start of Spatial Reaction

24 February 2022

## End of Spatial Reaction

17 March 2022

## Reaction Rate

0 days

## Reaction Duration

21 days

## Functional Group Before

cultural

## Functional Group of Spatial Reaction

administrative

## Element Before

exhibition house

## Element of Spatial Reaction

common space



[Fig. 65] Case Study a16 Lviv Municipal Art Center (as) "Point of Return" for IDPs and citizens © Taras Bychkor

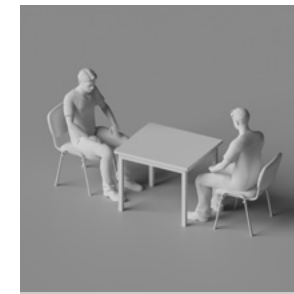
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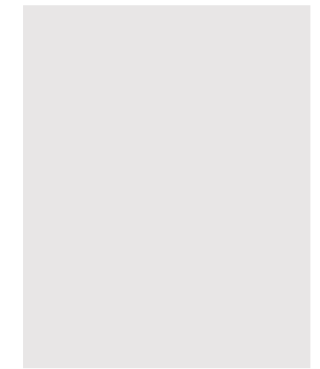
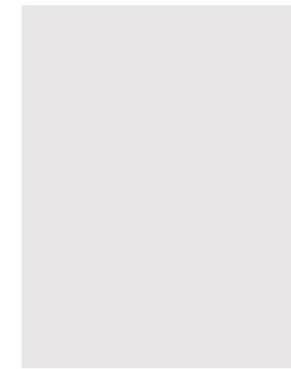
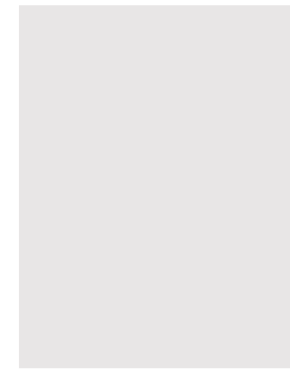
# Analysis<sup>A16</sup>



## Spatial Reactions



Community Hub



## Triggers

arrival of IDPs

## Outcomes

emerging of new design challenges

adaptive use

development of public warm food distribution areas

## Provider

on-site employee

NGO, charity org., volunteers

## User

IDPs

local community

## Initiative

on-site employee

## Insights from the Case<sup>A16</sup>



As a community hub for internally displaced persons (IDPs), the Lviv Municipal Art Centre operated for approximately three weeks, helping to unload the city institutions before they were prepared to meet the needs of refugees. Afterwards, the centre resumes regular activities and merges initiatives to help refugees integrate, including guided tours, art therapy sessions, and lectures. Significant attention is devoted to addressing the psychological well-being of individuals amidst war conditions and fostering resilience. "Resilience" aptly describes both the institution and the collaborative efforts of the working group.

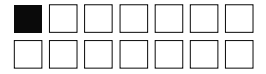
## Chapter 5 Case Studies: at the Front

A front-border city (a term introduced within this research framework) is a city that belongs to a border-controlled region and has an active front line within a region's territory.

Number	ID	case study
17	b01	Kharkiv Metro Stations (as) Underground City
18	b02	Dormitory "Through The War" (as) Shelter for the Needs of the Disabled Seniors
19	b03	Largest Residential Area in Ukraine – Saltivka (as) Tents in Debris Adapted for Living
20	b04	Postal Offices (as) Points of Humanitarian Aid Distribution
21	b05	Abandoned Basements (to) Bomb Shelters
22	b06	Checkpoints (as) New Borders of a City
23	b07	Metro Tunnels (as) Route for Pride Parade
24	b08	Underground Car Park of Shopping Mall (as) Cinema Hall
25	b09	Metro Station (as) Concert House
26	b10	Center of Contemporary Art "Yermilov Center" (as) Shelter for Artists and Friends
27	b11	Monument of National Ukrainian Poet (during) Martial Law
28	b12	Elimination of Physical and Symbolic Remnants of Russian Heritage

Case Studies for Lviv 1-16, case studies for Kharkiv 17-28.

# Kharkiv Metro Stations (as) Underground City<sup>B01</sup>

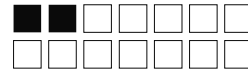


Explosions occurred for the first time in Kharkiv at approximately 5:00 am on the 24th of February 2022. At 05:30, the Kharkiv metro opened (Fedorkova 2022); at 15:00, it stopped running for three months – until the 24th of May, 2024. During this time, Kharkiv metro stations served not only as a bomb shelter but also became a home for Kharkiv residents who stayed at the station due to constant shelling in the first period of full-scale war. Kharkiv metro has three lines and 30 stations. People went to the nearest stations to their homes and arranged the space for living. Some people were at the stations only during the air raid alerts, some stayed during the metro shutdown (24.02.2022-24.05.2022), and some refused to leave the metro even after it started operating. The halls, the platforms, and even the carriages of the trains were filled with people. Volunteer organisations provided people living there with food and necessary humanitarian aid. If medical workers were hiding at the station, they often organised an aid station and assisted their fellow residents. If there were teachers, they conducted lessons for children. Theatres came with performances; public organisations initiated workshops and master classes, mainly for children. The city has utilised the metro system to relocate a significant portion of its population, with even the metro tunnels being repurposed as connecting ways to avoid surface-level exposure. All essential supplies are consolidated at the biggest stations and interchanges and distributed throughout the tunnel network (Svidok 2023).

\*The information for the case of the Kharkiv metro stations (as) Underground city was gathered from interviews conducted at two stations, namely Armiiska and Heroiv Pratsi, as well as from open sources and media outlets. The case itself represents a compilation of this information. It does not particularly point to any single station but rather reflects the transformation trend within the metro stations as one entity



# Metadata<sup>B01</sup>



## Start of Spatial Reaction

24 February 2022

## Reaction Rate

0 days

## Functional Group Before

transport infrastructure

## Element Before

metro station

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

89 days + (ad hoc); 365 days + (bomb); continuing

## Functional Group of Spatial Reaction

security and defence residential

## Element of Spatial Reaction

indoor safe collective space



[Fig. 66] Case Study b01 Kharkiv Underground Stations (as) Underground City © Pavlo Dorogoy

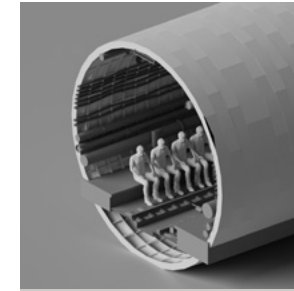
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# Analysis<sup>B01</sup>



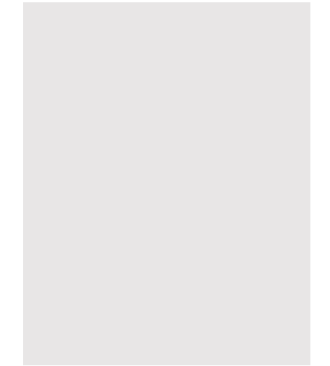
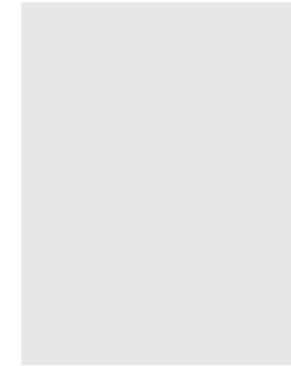
## Spatial Reactions



Bomb Shelter



Ad hoc Shelter



## Triggers

short-range evacuation

## Outcomes

shifting of city to the underground level

adaptive use

## Provider

local community

NGO, charity org., volunteers

employee of critical infrastructure facility

## User

local community

## Initiative

local community

# In Detail<sup>B01</sup>



## Before

The Kharkiv Metro was established on August 23, 1975, and is the second metro system in Ukraine after Kyiv. The metro system has three lines, namely the Kholodnohirsko-Zavodska line, the Saltivska line, and the Oleksiivska line, covering a total of 38.1 km with 30 active stations and three underground interchange hubs in the city centre. All stations are located underground, with six deep-level and 24 shallow-level stations. The Kharkiv Metro has an annual passenger volume of over 200 million (cf. [Wikipedia: Kharkiv Metro](#)) and operated daily from 05:30 to 00:30.

## After

On the 24th of February, 2022, the Kharkiv Metro stopped operating due to the mass shelling that caused stations to be utilised as bomb shelters or living quarters for Kharkiv residents. Residents from more dangerous areas hardly left the station and continued living there even after the resumption of passenger transportation on the 24th of May, 2022. Metro staff, volunteers, and active citizens organised life at the station. Within two weeks, a specific routine was established at the Armiiska station – regular and sufficient logistics of food and other necessary goods. Special attention was given to children's activities. Teachers conducted lessons at the station while musicians and actors entertained the children. Doctors regularly conducted examinations at the stations during their periodic visits. Metro tunnels were used as a path for delivering humanitarian aid between stations. The distribution of people across different stations was influenced by the area's population density and the threat level. Where the number of individuals using a particular station exceeded its capacity, some would need to go through the tunnels to access alternative stations. After the metro opening on the 24th of May 2022, the metro service schedule for passenger transportation was modified to operate from 7:00 am to 7:00 pm ([Kharkiv metro in Telegram post on 23.05.2022](#)) with a frequency of half-hour intervals. On the 26th of December, 2022, city administration asked everyone still living at the station – to leave. The municipality arranged accommodation options for individuals who lost their homes because of shelling, which included dormitories.

## Change of mode

Metro workers were involved in organising life at the station, communicating with volunteers, and providing information about the needs of residents. The metro station was closed at night (based on interviews from two stations). Sometimes, entry to the station was allowed only after showing documents at the entrance.



## Interior adaptation

People lived everywhere – on the platforms, in the halls; pregnant women, mothers with children, people with disabilities, and older people were accommodated in the trains. A separate zone was often arranged for children to play and learn; separate areas were organised for food distribution. At Armiiska station, makeshift kitchens were established by volunteers and equipped with electric stoves and a microwave. Although public toilet facilities were not explicitly mentioned, respondents indicated that only staff toilets were available, with limited accessibility and long queues. Some individuals also performed hygienic routines at the stations, utilising sinks with only cold water. Typically, trains were stationed on one side of the platform, while passengers traversed between stations through tunnels on the other side. Storage areas were allocated for humanitarian aid delivered to the stations and distributed as needed. Station cleaning commenced in the third month, and passengers gradually transitioned from trains to platforms. The metro resumed its standard operation on May 24, 2022.

## Supply

Drinking fountains were installed at the stations, and water barrels were brought to each metro exit. Nearby food establishments began delivering meals to the metro stations, initially chaotic but gradually transitioning to a more centralised approach where the number of meals was tracked. Various food establishments collaborated and divided Kharkiv into several sectors, corresponding to different stations, and initiated organised delivery services.

# Interview<sup>B01</sup>



## Kharkiv Anonym 2 – Resident of Kharkiv experienced living at the metro station during the period of heavy shelling

Interview date: 28.08.2023

Day of full-scale invasion: 551

Which metro station were you at, and how long did you stay there?

We were at the Armiiska metro station and stayed there for more than two months, from the beginning of the full-scale war until mid-May 2022. I was there not alone, but with my family, my mother and my wife.

Did you come down to the station on the first day, on the 24th of February?

No, not on the first day. At first, we tried to stay home, but it became too dangerous after a while. On about the fifth day, we went to the metro.

Why did you choose this station? Was it closest to home, was the area safe, or was it because it was the least crowded?

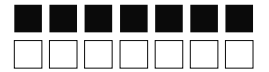
It's close to home, just a couple of minutes away.

And what was available at the station itself, i.e. was there food, water, internet, some kind of first aid station, toilet, shower, beds, and mattresses?

In the early days, it was scarce. Then volunteers started bringing us food. They brought enough; it was more or less enough. Many people ate on their own and were going home to do that. Some stayed irregularly. Those who had accommodation nearby went home. There was internet at the station, communication, mobile internet, and toilets for men and women, but there were no showers. It was crowded and queued. As for beds and mattresses, some were brought in and given out, but mostly, people got their own and bought their own from home; there were tents and air mattresses.

And who was involved in the organisation or, if I may say, management within the station itself? Was it the city council that somehow organised this process, or volunteers or station staff? Because of the number of people, they had to manage somehow and maintain order.

The volunteers did most of the organising; they brought food and products. I'm not sure about the city council; I didn't see any representatives. I mean, volunteers came – our volunteers, foreigners, Americans – and brought food. I didn't see the city council there to lead the process, so I think it was volunteers.



What about the number of people and how it changed? So we can say that at the beginning, it was full, and in the second or third month, there were fewer people. Can you describe any such dynamics, or were there any?

Of course, there were many people at our station in the beginning, but then a lot of people started to leave, and a lot of people were evacuated. So, on average, there were 150 people at our station. I think in the second month, there were fewer people. A lot of people went home, a lot of people left, so I can't say for sure; I didn't count.

But they were the same people, i.e. most of the people were those who lived there, some "residents" of the station, or there were mostly people who just came and stayed there for a time of air raid alerts?

There were permanent residents, mostly people who were not from this neighbourhood; they were from Horizont [a residential complex located in the Industrial district of Kharkiv], on the city's outskirts. There was a lot of destruction, and they simply had nowhere to go, so they stayed at the station with small children and older people. There were also locals living there. Some people stayed there all the time, and some went home. Some people came to eat and then went home. It was different. There were also permanent residents. But they were mostly people who had nowhere to go. Their houses were destroyed.

Can you tell me about your day in the metro? What was going on? What were people doing all the time? For example, was there a particular regime when they got food or some activities provided for children?

There was a regime. Food was brought in and distributed thrice daily – I remember it in the morning, noon, and evening. There were also classes for children. Teachers came during the day. Musicians from the Kharkiv State Academic Opera and Ballet Theatre came, and other musicians visited several times. Animators came to children, I remember. They held different events for the children to give everyone moral support and motivation.

Did the residents themselves take the initiative? For example, were there any artists, teachers, doctors, or other socially useful or creative professions among the residents?

Some tried to work with children. Primarily, volunteers and teachers provided some help and organised activities.

Was there a first-aid post at the station? Was there a nurse?

There was no nurse on duty; doctors would come to see people periodically, so they would come to the stations and ask about complaints. But there was no aid station; you could ask the metro workers for a first-aid kit and medicines volunteers brought. These were the first days the pharmacies worked badly,



with long queues. There were no medicines in the pharmacies, and volunteers helped there, too, taking them to the metro. I don't remember a doctor on duty; there was no doctor. There were people from the ambulance service who came to examine us. Someone was taken to hospital. I remember they took a person straight from the station. A lot of people were sick at that time. People got pneumonia because it was cold in the station, and many people had colds.

You told me you needed some medicine and went to the metro station staff. So, were metro staff on duty at every station, and were they negotiating what people needed?

Yes. You could ask the metro staff, and they would somehow direct people. And if volunteers brought food, medicine, or warm clothes, the metro staff somehow managed that process. There were warehouses where they kept everything and then gave it to the people if needed. That's how it was, yes, the metro staff managed that process.

Could you say that the station was divided into certain areas, i.e., a sleeping area, a play area, a children's area, and an area for mothers with small children? Was there any such division at the station?

There was a separate area for children to play. A lot of people lived in the trains. Some lived on the platforms, and some lived on the floors above, so people lived all over the station; wherever they settled down, there they were. I remember there was an area where they gave out food also. And there was an area where they had classes with children. Teachers would come and teach them there. At our station, the train was just standing on one side; on the other side, people would periodically come through the tunnel. They would bring humanitarian aid.

In the documentary about the metro, a metro worker said that people with disabilities, pregnant women, or women with small children were accommodated in the trains. Was this the case at your station?

Yes, that's right, mothers with small children and seniors were mostly accommodated in the trains because it was warmer, more comfortable and easier to sleep. Well, mainly because it was warmer. In March, when it was -20°C, there was frost, and it was freezing in the station. People were sick and cold.

Were any tasks divided among the station's residents, such as food distribution, roll call of residents, etc?

Mostly, metro staff did these things, but there were also activists among the people who helped. They helped volunteers, and they helped those who were sick in the station who had a fever; they were taking care of them.



Was access to the station regulated in any way? Was there always someone at the entrance? Was there a list of the station's residents? Or did you just let anyone in who asked? How did you keep track of who was at the station?

For the first month, we did not track it; the only thing that was done was to close the station at night. The list of residents was already at the very end when we left the metro station. Some people from authorities came and asked for documents, whether people had official housing, and whether they had a place to go back to. But mostly, there was no such thing; the only thing was that police came through the station occasionally to check documents. Because it happened that thieves came in and tried to rob us. But the police were always at the station; they interacted with the metro staff. They just tried to keep an eye out for dangerous-looking people.

Do you know if all metro stations were open to people as bomb shelters?

As far as I know, all. The only thing is that the number of people at the stations varied. There were quite a few people at our station, but as far as I know, most people were at Heroiv Pratsi. Saltivka is at the end station. There were many people there, and they lived there longer; when we left the metro, people continued to live there for a long time. Some people were afraid even to go outside; people had different nervous disorders. There was constant shelling there. Our neighbourhood was shelled less. But there, both children and adults were afraid. The psychological state of people was difficult.

Also, referring to the documentary, they said the station was partially cleaned by the third month, and people were being moved from the trains to the platform. So we can say that not many people were left by the third month, May? Because you also said that you stayed there for two months and then left. That is, people were kicked out of the station. Were people provided with housing if they lost their homes because of the shelling?

People who had nowhere to go were transferred to dormitories. Authorities asked if people lost their accommodation, and they were settled in some authority-provided substitution. The metro was launched in June [24.05.2022], and the people who lived there were resettled.

Did the people in the metro mostly consist of Kharkiv residents, or did they also include many people from the region or other areas?

Well, as far as I remember, there were Kharkiv residents from different districts: from those areas where there was constant shelling and where there were already a lot of people at the station. There were many people from Horyzont [a residential complex located in the Industrial district of Kharkiv], where the Novi Budynky [a historical district and a large residential area in Kharkiv] is.



If we take two months, when you lived at the station, on what day or week can you say that, in principle, life at the station, with the same delivery of humanitarian aid or food, has stabilised? A regime was already established because, probably the first days, everything was still unclear and chaotic.

Yes. In the first days, people did not know how to behave, and the food was... Volunteers brought food there, but there was not enough food. Later, everything became normalised, and I remember some kind of microwave being brought there, and there were electric stoves. There was a corner where people could cook for themselves.

In other words, there was a kind of kitchen at the station.

Yes. At first, volunteers and activists cooked for everyone. But then someone was lacking food, so they decided to just put the food out so people could come and cook themselves if needed.

And this happened in just two weeks?

Well, maybe in two or three weeks. There was already a regime. Volunteers brought food. Some people took the food from the volunteers, and others cooked it themselves. Some people went home to cook. Some people only came to spend the night. They would go home during the day and return at night. And some lived permanently. It was different.

You said there was no shower at the station. What about the people who lived there permanently? Did they somehow go through the tunnel to another station where they could use it?

There were no showers, but there were sinks. People somehow arranged it in the women's toilet and were trying to wash themselves. I don't know; I didn't go there, we went home to wash because the house was close by. At first, my wife was afraid to go out, so I went home first. I went home to do the laundry and wash myself. And people at the station somehow washed their hair in the sinks. I don't know; it was challenging. There was no proper shower and no hot water. There was only cold water. Those far from home or whose houses were destroyed, heated water in kettles and washed in sinks. They tried to keep themselves clean. But it was also very dangerous because it was very cold at the station, and there was wind and a draft. And if you were at the station with a wet head, you could get very sick.

During the two months you were there, did you ever go home for the night?

We started leaving the station at the end of our stay, in May. For two months, we spent all our nights there, yes. It was scary at home.

That's the end of my questions. Perhaps you'd like to add something of your own, something I've missed but that is worth mentioning?

I would like to add that many good people supported and helped, were active. However, some people constantly caused trouble there, especially when humanitarian aid was coming, volunteers were coming, and there were these crowds. That's why I didn't like to stay there for a long time. There were also a lot of good, kind people who helped. I mean, it was very different. The war immediately shows the true face of people. There were many people I knew from my neighbourhood. I knew these people and saw how they behaved in wartime.



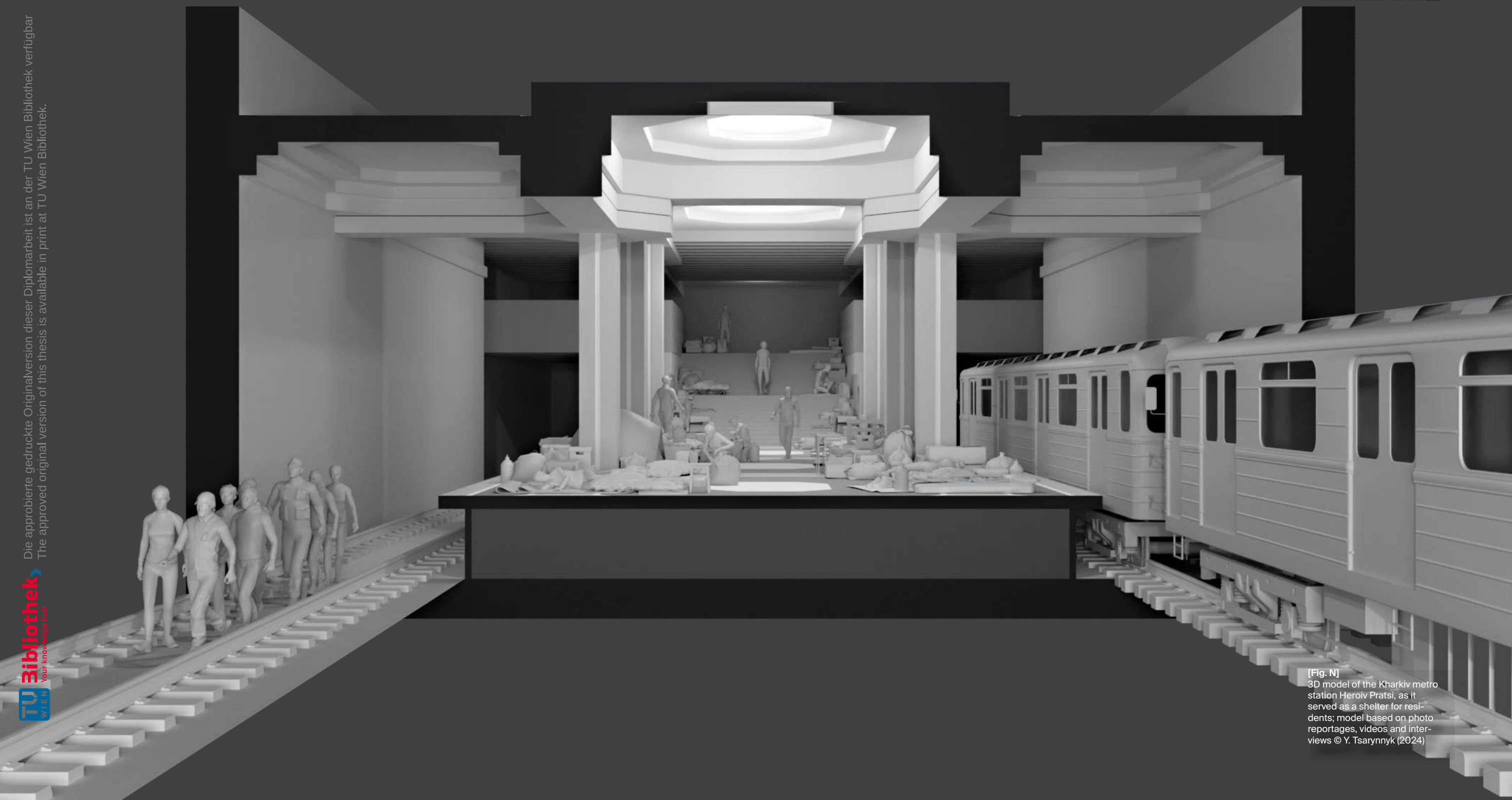


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[Fig. M]  
3D model of the Kharkiv metro station Heroiv Pratsi, as it served as a shelter for residents; model based on photo reportages, videos and interviews © Y. Tsarynyk (2024)



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[Fig. N]  
3D model of the Kharkiv metro station Heroiv Pratsi, as it served as a shelter for residents; model based on photo reportages, videos and interviews © Y. Tsarynyk (2024)



## Insights from the Case<sup>B01</sup>



The response of the Kharkiv metro during a conflict has provided important insights into the efficient utilisation of urban infrastructure during crises. From a spatial perspective, it emphasises the need to identify and use underutilised urban spaces to cater to the evolving needs of communities during emergencies. Additionally, this case study underscores the resilience and solidarity of communities in responding to disasters, thereby highlighting the crucial role of coordinated efforts in creating and supporting makeshift living arrangements within the metro system.

## Dormitory (as) Shelter for the Needs of the Disabled Seniors<sup>B02</sup>



The NGO "Through the War," led by architect Olha Kleitman, took the initiative to establish a shelter for seniors with disabilities. The organisation's task force concluded that the city lacked social services, resulting in numerous individuals needing accommodation and assistance. An NGO was granted access to a dormitory. It was prepared for the needs of disabled seniors. According to various sources and publication dates, the number of residents varied from 22 to 50. The non-governmental organisation took complete responsibility for providing care. Moreover, aid is extended to those who have accommodation but require assistance in medicine and food deliveries. Under the leadership of the NGO's director, the architectural bureau designed a future project for a shelter intended for seniors (NGO "Through the War" 2022).

**Full case study name:**  
Dormitory "Through The War"  
(as) Shelter for the Needs of the  
Disabled Seniors

# Metadata<sup>B02</sup>



## Start of Spatial Reaction

1 March 2022; approx.

## Reaction Rate

-5 days; approx.

## Functional Group Before

residential

## Element Before

dormitory

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

360 days +; continuing

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

indoor safe collective space



[Fig. 67] Case Study b02 Dormitory "Through The War" (as) Shelter for the Needs of the Disabled Seniors © Maryna Vereshchaka

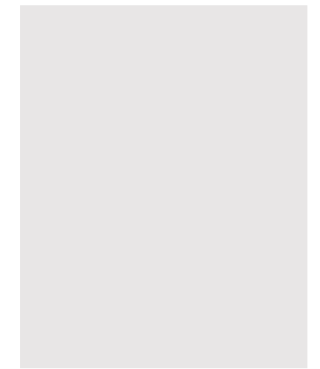
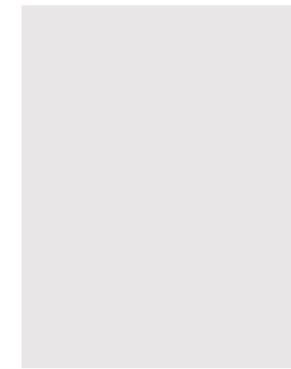
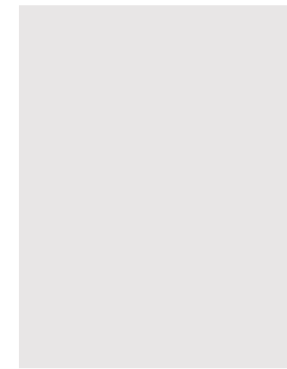
# Analysis<sup>B02</sup>



## Spatial Reactions



Shelter for Persons with Reduced Mobility



## Triggers

limited government capacities

## Outcomes

volunteer-driven service provision

## Provider

pro bono professional

NGO, charity org., volunteers

## User

persons with reduced mobility (PRM)

## Initiative

NGO, charity org., volunteers

## Insights from the Case<sup>B02</sup>



The case study of shelter for disabled seniors underscores the pressing need for social services during crises. Their swift action and comprehensive care model highlight the importance of proactive civil society engagement and collaborative design strategies in addressing urgent community needs. This initiative exemplifies resilience and resourcefulness in times of crisis, emphasising the critical role of non-governmental organisations in supporting vulnerable populations.

## Largest Residential Area in Ukraine (as) Tents in Debris Adapted for Living<sup>B03</sup>



Saltivka is the most heavily shelled area of Kharkiv and was one of Ukraine's largest residential areas with over 400,000 residents. However, extensive bombardment during the conflict has left 70% of its buildings damaged or destroyed, prompting many residents to evacuate. Despite the devastation, some individuals continue to inhabit the area, repurposing their damaged homes for storage while seeking makeshift shelters nearby, such as tents near their residences or within metro stations. Volunteers assisted with food and other essentials for the residents who chose to stay there.

**Full case study name:**  
Largest Residential Area in  
Ukraine – Saltivka (as) Tents in  
Debris Adapted for Living

# Metadata<sup>B03</sup>



## Start of Spatial Reaction

24 February 2022

## Reaction Rate

0 days

## Functional Group Before

residential

## Element Before

residential area

## End of Spatial Reaction

continues after 24 February 2023

## Reaction Duration

365 days +; continuing

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

tents and other temporary constructions



[Fig. 68] Case Study b03 Largest Residential Area in Ukraine - Saltivka (as) Tents in Debris Adapted for Living © Joel Gunter

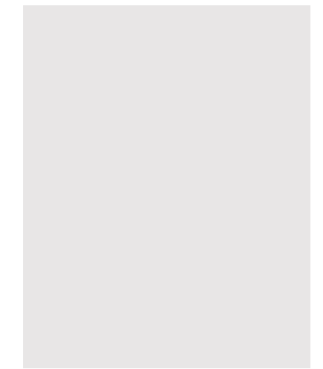
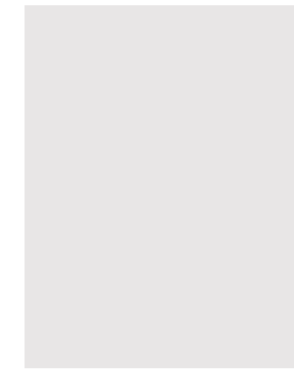
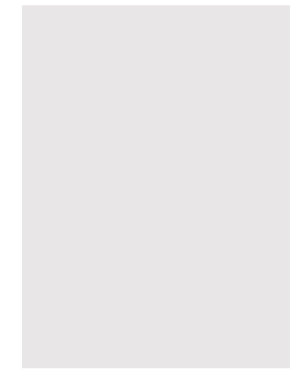
# Analysis<sup>B03</sup>



## Spatial Reactions



Settlement in Debris



## Triggers

destruction

## Outcomes

emerging of new design challenges

adapted urban pathways

## Provider

local community

NGO, charity org., volunteers

## User

local community

## Initiative

local community

## Insights from the Case<sup>B03</sup>



Leaving homes can be challenging for some people, even though staying may involve certain risks. These people usually include older individuals with limited financial resources, those who live alone, and those with a strong attachment to their residences. Consequently, strategies must be devised to aid such individuals, partially undertaken by volunteers who provided essential items. However, there was a lack of spatially defined solutions to improve living conditions for these people. The fact that they were hesitant to leave their residences highlights the lack of a distinct and feasible living alternative.

## Postal Offices (as) Points of Humanitarian Aid Distribution<sup>B04</sup>



"Nova Poshta" is a Ukrainian private logistics company leading in delivery services across Ukraine. Often, Ukrainian businesses with well-established logistics and a network of locations have adapted to wartime needs to maintain operations and remain proactive in society. In the first months of the full-scale invasion in dangerous areas of the country, Nova Poshta delivery branches opened as humanitarian aid distribution points. In the case of Kharkiv, such distribution continued for about six months. On September 21, the last announcement regarding the distribution of food kits was posted on the humanitarian aid Telegram channel for Kharkiv. By mid-September, almost the entire territory of the Kharkiv region had been de-occupied (Solodovnik 2022).

# Metadata<sup>B04</sup>



## Start of Spatial Reaction

03 March 2022

## Reaction Rate

-7 days

## Functional Group Before

delivery service

## Element Before

postal office

## End of Spatial Reaction

26 September 2022

## Reaction Duration

207 days; continuing where is needed

## Functional Group of Spatial Reaction

food and essential supplies

## Element of Spatial Reaction

storage space



[Fig. 69] Case Study b04 Postal Offices (as) Points of Humanitarian Aid Distribution based on Kharkiv Regional Military Administration © Yana Tsarynyk

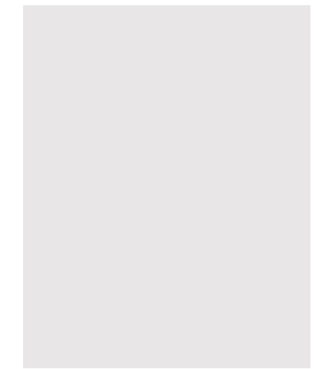
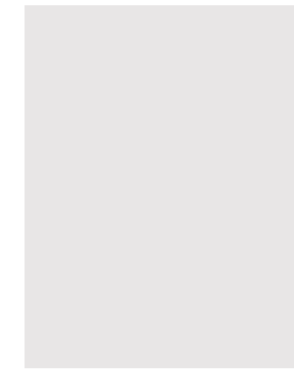
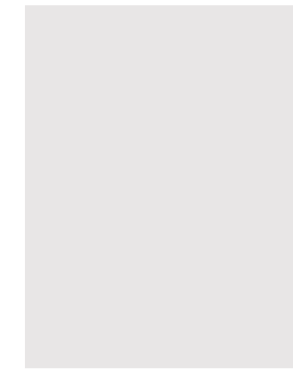
# Analysis<sup>B04</sup>



## Spatial Reactions



Humanitarian Hub



## Triggers

lack of supplies/ unadapted logistics

## Outcomes

development of new logistics

## Provider

pro bono professional

NGO, charity org., volunteers

## User

local community

## Initiative

pro bono professional

## Insights from the Case<sup>B04</sup>



The case study illustrates the shift in how postal branches operate, focusing on the method and mode of their activities rather than a change in their function. As a private entity, Nova Poshta swiftly adapted its operations to meet the demands of war. Its pre-established logistics and extensive network of locations facilitated the efficient provision of aid to people in need. This case study demonstrates the ability of private companies to adapt and respond during times of crisis. It showcases how a well-prepared logistics infrastructure can effectively support humanitarian efforts.

## Abandoned Basements (to) Bomb Shelters<sup>B05</sup>



The recommendations of the State Emergency Service of Ukraine outline the conditions under which shelters can be utilised. The key points include:

1. being located on basement or semi-basement floors, [...].
2. having at least two evacuation exits, one of which may be emergency ([...] if it accommodates less than 50 people, one evacuation exit is permissible);

Basements are considered the most common and easily accessible shelters due to their widespread availability. However, they are often abandoned and left unused. In August 2022, the charity fund "Volonterska" launched a project to refurbish such basements to be comfortable for people to stay in. The volunteer organisation established basement shelter standards based on Emergency Service recommendations. The following steps were taken to meet these standards:

- cleaning up debris,
- antifungal treatment and priming of walls,
- electrical wiring and lighting installation,
- placement of pallets for lying places,
- ventilation installation,
- installation of sinks and toilets

(Volonterska in Facebook post 20.08.2022).

Volunteers transformed 165 basements for 13,650 people in 6 months (Volonterska in Facebook post 24.02.2023). However, the charity fund suspended the project before reaching the initial goal of converting basements for 100,000 people due to other pressing needs for assistance, as stated by the co-founder Max Burtsev (Mankovska 2023).

# Metadata<sup>B05</sup>



## Start of Spatial Reaction

08 August 2022

## Reaction Rate

-165 days

## Functional Group Before

-

## Element Before

basement

## End of Spatial Reaction

24 February 2023; approx.

## Reaction Duration

200 days

## Functional Group of Spatial Reaction

security and defence

## Element of Spatial Reaction

indoor safe collective space

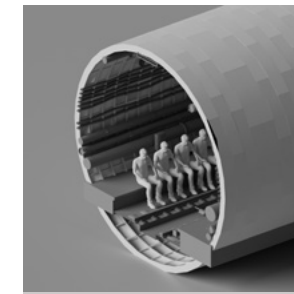


[Fig. 70] Case Study b05 Abandoned Basements (to) Bomb Shelters © Volonterska

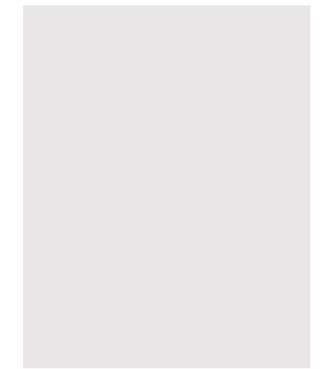
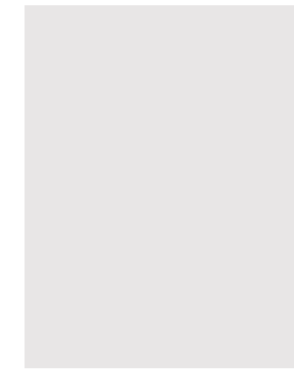
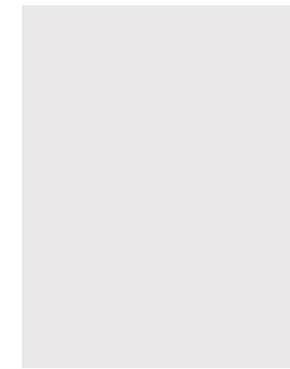
# Analysis<sup>B05</sup>



## Spatial Reactions



Bomb Shelter



## Triggers

limited government capacities

## Outcomes

volunteer-driven service provision

## Provider

NGO, charity org., volunteers

## User

local community

## Initiative

NGO, charity org., volunteers



## Insights from the Case<sup>B05</sup>



This case demonstrates how simple adjustments can enhance civilians' safety and comfort levels. Basements' structural characteristics make them a first choice for developing bomb shelters. They can be easily accessed and modified to meet specific requirements. Although the city administration is expected to take responsibility for making necessary adjustments, a local volunteer initiative appears to have taken the lead in fulfilling this role.

## Checkpoints (as) New Borders of a City<sup>B06</sup>



During armed conflicts, checkpoints exceed their functional role of control and inspection and become a significant military, spatial and social phenomenon in urban areas. Checkpoints are physical barriers that disrupt the flow of movement within cities. They were installed across Ukraine to verify citizens, especially during the first invasion period when there was a high risk of sabotage. In urban settings like Kharkiv, the sudden appearance of blockposts amid a peaceful environment signals a dramatic shift in the city's spatial dynamics. In Kharkiv, these blockposts became the sites of the city's first street battles with Russian armoured vehicles (BTRs) that entered the city. Moreover, blockposts evoke various emotions and perceptions among residents. While some may view them as necessary for security and protection, others perceive them as symbols of fear, uncertainty, and the loss of normality. An intriguing phenomenon is the installation of unofficial checkpoints. Civilians would set up barriers on roads and stop vehicles to check documents. This action helped to assert the feeling of control over the situation, albeit it further worsened the already prolonged and complex intercity travel during the early months of the full-scale war.

# Metadata<sup>B06</sup>



## Start of Spatial Reaction

24 February 2022

## Reaction Rate

0 days

## Functional Group Before

-

## Element Before

-

## End of Spatial Reaction

-

## Reaction Duration

365 days +; continuing

## Functional Group of Spatial Reaction

security and defence

## Element of Spatial Reaction

physical barrier

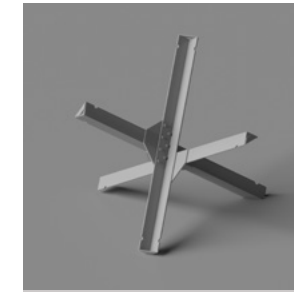


[Fig. 71] Case Study b06 Checkpoints (as) New Borders of a City © Gwara Media

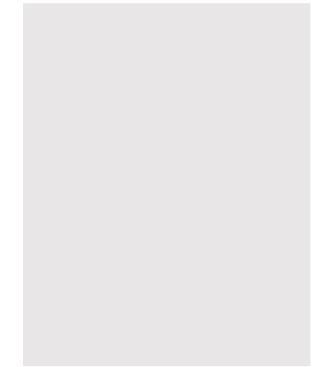
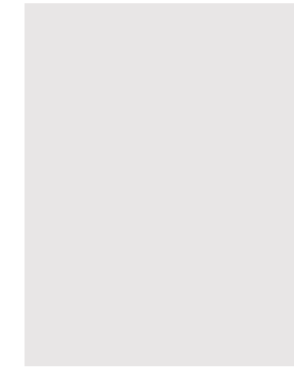
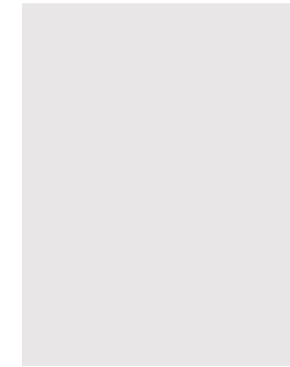
# Analysis<sup>B06</sup>



## Spatial Reactions



Checkpoint



## Triggers

security and defence measurements

## Outcomes

civil defence siren

curfew

emerging of urban defensive infrastructure

## Provider

city council (Regional Military Administration)

## User

-

## Initiative

city council (Regional Military Administration)

## Insights from the Case<sup>B06</sup>



Checkpoints can be seen as a physical manifestation of the proximity of conflict and a constant reminder of the potential for violence. They are not merely functional installations but rather complex spatial and social phenomena that profoundly impact urban environments and shape residents' perceptions of safety during armed conflict.

## Metro Tunnels (as) Route for Pride Parade<sup>B07</sup>



The parade is a public demonstration. Pride Parade is a demonstration of inclusivity, which aims to draw attention to the rights of people of diverse sexual orientations and gender identities and fight against discrimination and violence. Although the parade is not a space, it involves movement through space, which has certain boundaries. Typically, these boundaries encompass the most central parts of cities – main avenues, streets, and squares. When there is a constant threat of shelling in a city, public events and ceremonies are either not held or relocated to safe areas. In Kharkiv, the metro has also become a venue for such events. On September 25, 30 parade participants gathered at the "Kyivska" station and took a train ride to the "Maidan Konstytutsii" station with the banners "Rights are always on time" (Masenko 2022).

# Metadata<sup>B07</sup>



## Start of Spatial Reaction

25 September 2022

## Reaction Rate

-213 days; not indicative

## Functional Group Before

transport infrastructure

## Element Before

metro tunnel

## End of Spatial Reaction

1 day event; not indicative

## Reaction Duration

1 day event; not indicative

## Functional Group of Spatial Reaction

cultural

## Element of Spatial Reaction

underground stage



[Fig. 72] Case Study b07 Metro Tunnels (as) Route for Pride Parade © Anna Bobyrieva

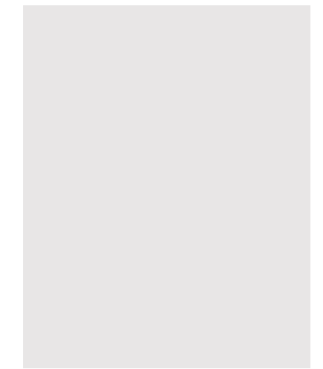
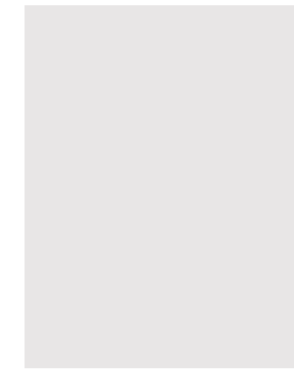
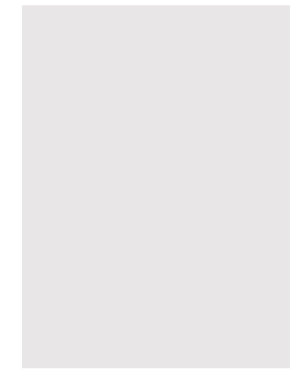
# Analysis<sup>B07</sup>



## Spatial Reactions



Underground Stage



## Triggers

heightened risk potential

## Outcomes

shifting of city to the underground level

curfew

civil defence siren

## Provider

local community

## User

local community

## Initiative

local community

## Insights from the Case<sup>B07</sup>



This case illustrates how martial law reshapes public spaces, infusing them with new significance and functions. Even unconventional venues, such as metro transport hubs, take on heightened roles during such times, becoming central to public gatherings and events. As martial law imposes restrictions on traditional avenues of expression, people adapt by utilising alternative spaces to voice their concerns and engage in civic activities.

## Underground Car Park of Shopping Mall (as) Cinema Hall<sup>B08</sup>



At the end of summer, free movie screenings for city residents kicked off in the underground parking lot of the shopping mall Nikolsky. The parking lot was transformed to accommodate a seating arrangement that could host around 80-90 individuals. The first movie screening occurred on August 26th (Kharkiv Cinema Club in Telegram post 26.08.2022), with films projected onto a screen. The last screening was at the end of October. In November, the original cinema of the mall was opened to visitors (Kharkiv Today 2022).

# Metadata<sup>B08</sup>



## Start of Spatial Reaction

15 August 2022

## Reaction Rate

-172 days

## Functional Group Before

transport infrastructure

## Element Before

underground garage

## End of Spatial Reaction

25 October 2022

## Reaction Duration

71 day

## Functional Group of Spatial Reaction

cultural

## Element of Spatial Reaction

underground stage



[Fig. 73] Case Study b08 Underground Car Park of Shopping Mall (as) Cinema Hall © Kharkiv Cinema Club

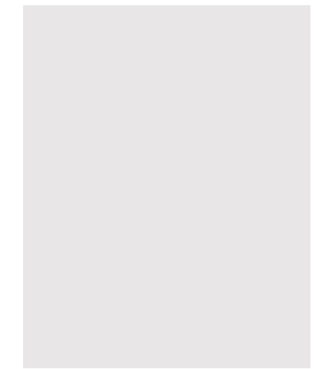
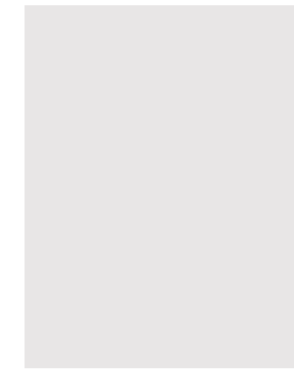
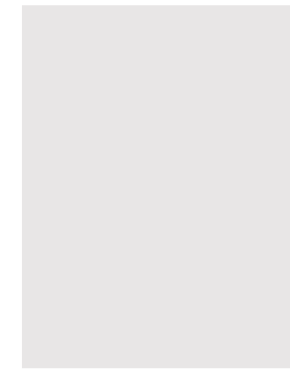
# Analysis<sup>B08</sup>



## Spatial Reactions



Underground Stage



## Triggers

heightened risk potential

## Outcomes

shifting of city to the underground level

curfew

civil defence siren

## Provider

local community

## User

local community

## Initiative

local community

## Insights from the Case<sup>B08</sup>



Large underground parking can be transformed into safe, flexible spaces for various functions. Parkings are typically simple in design and lack detailed infrastructure, except columns. This makes them highly adaptable for repurposing into other functional spaces with minimal effort. In cities with unsafe conditions, such an adaptive approach becomes particularly relevant. The underground cinema in Kharkiv is just one example of utilising large parking to create new functional areas that meet the community's needs or wishes.

## Metro Station (as) Concert House<sup>B09</sup>



On March 26, 2022, at the Istorychnyi Myzei metro station, the symbolic opening of the international music festival "Kharkiv Music Fest" took place, titled "Concert Amid Explosions." This festival has been held since 2018 at the initiative of the Community Foundation of Kharkiv "Toloka". Musicians used the staircase leading to the platform exit as their stage, with the audience positioned on the platform.

# Metadata<sup>B09</sup>



## Start of Spatial Reaction

26 March 2022

## Reaction Rate

-30 days; not indicative

## Functional Group Before

transport infrastructure

## Element Before

metro station

## End of Spatial Reaction

1 day event; not indicative

## Reaction Duration

1 day event; not indicative

## Functional Group of Spatial Reaction

cultural

## Element of Spatial Reaction

underground stage



[Fig. 74] Case Study b09 Underground Station (as) Concert House © Serhii Bobol/ KharkivTimes

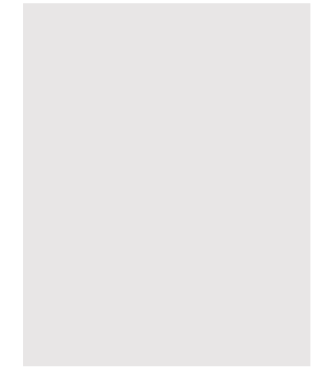
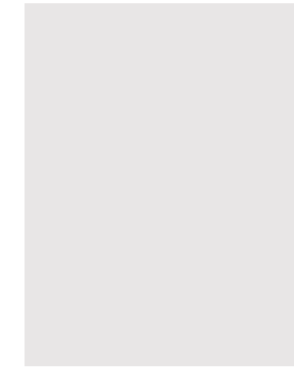
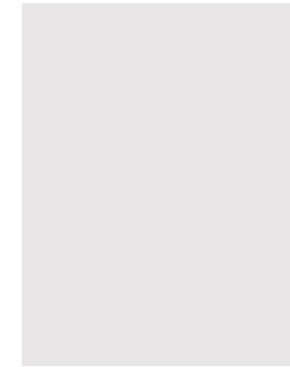
# Analysis<sup>B09</sup>



## Spatial Reactions



Underground Stage



## Triggers

heightened risk potential

## Outcomes

shifting of city to the underground level

curfew

civil defence siren

## Provider

NGO, charity org., volunteers

## User

local community

## Initiative

NGO, charity org., volunteers



## Insights from the Case<sup>B09</sup>



In times of danger, the usefulness of various city spaces is reevaluated. The metro system, typically employed for public transportation, has been transformed into a cultural destination. This adaptation illustrates the capacity of urban infrastructure to accommodate the community's needs during difficult circumstances.

## Center of Contemporary Art (as) Shelter for Artists and Friends<sup>B10</sup>



The Yermilov Center, a contemporary art hub established in 2012, occupies a two-story space spanning 1,500 square metres within the building of Kharkiv University. On the second day of a full-scale invasion, on February 25, 2022, individuals from a shared community – artists, their families, and friends gathered at the Yermilov Center. Within the first three days, the centre provided shelter to approximately 20 people. Residents established a system of self-governance, implementing rotational duty schedules. Meanwhile, children found entertainment with various exhibits, including one of them – a sandbox, while adults engaged in discussions. This improvised shelter remained operational until approximately the end of March. Space was divided into two main areas: sleeping and dining. Additionally, there was a medical corner and a room for cats, which one of the inhabitants brought. The upper floor of the centre was not utilised, serving merely as a play area for children.

**Full case study name:**

Center of Contemporary Art  
"Yermilov Center" (as) Shelter for  
Artists and Friends

# Metadata<sup>B10</sup>



## Start of Spatial Reaction

25 February 2022

## Reaction Rate

-1 day

## Functional Group Before

cultural

## Element Before

exhibition house

## End of Spatial Reaction

14 March 2022; approx.

## Reaction Duration

17 days; approx.

## Functional Group of Spatial Reaction

residential

## Element of Spatial Reaction

indoor safe collective space

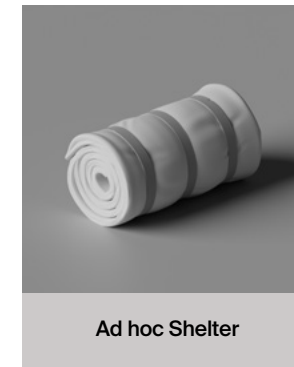


[Fig. 75] Case Study b10 Center of Contemporary Art "Yermilov Center" (as) Shelter for Artists and Friends © Yermilov Centre

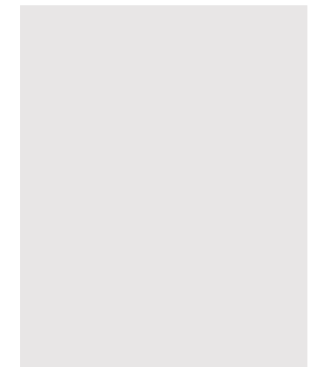
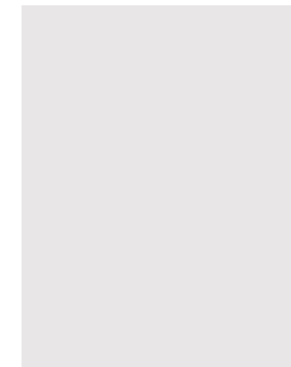
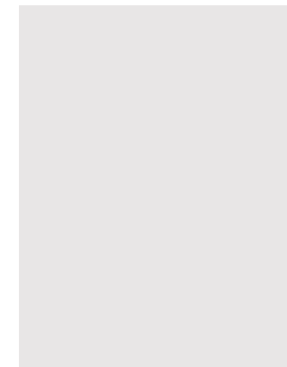
# Analysis<sup>B10</sup>



## Spatial Reactions



Ad hoc Shelter



## Triggers

short-range evacuation

## Outcomes

shifting of city to the underground level

adaptive use

## Provider

local community

## User

local community

## Initiative

on-site employee

## Insights from the Case<sup>B10</sup>



In times of threat, people tend to gravitate towards gathering, and so emerged the case of shelter in the Yermilov Center. Furthermore, a part of the centre is underground, automatically making it the simplest shelter. Additionally, the venues are well-equipped, as the centre is made to welcome the people. The basements of residential buildings could not provide such conditions. Therefore, establishing a shelter in the centre's venues was logical. At the beginning of the invasion, there was an increased concern about the possibility of sabotage. As a result, all individuals assembled at the location were vetted, and an invitation from a previously invited granted each attendee access.

## Monument of National Ukrainian Poet (during) Martial Law<sup>B11</sup>



According to a Ministry of Culture and Information Policy report, 207 cultural heritage sites in the Kharkiv region have been damaged or destroyed between February 24, 2022, and September 25, 2023. This makes the Kharkiv region the most affected area regarding cultural heritage damage. Most of these incidents, 172 objects, occurred in the Kharkiv district (Ministry of Culture and Information Policy of Ukraine 2023). Public utility companies and volunteers have undertaken measures to protect heritage sites within the city's jurisdiction. From open sources, it is known that efforts have been made to fortify the monument of the Ukrainian writer of national importance, Taras Shevchenko. As a protective measure, fifteen thousand sandbags have surrounded the 16-metre monument (Suspijne News 2022).

# Metadata<sup>B11</sup>



## Start of Spatial Reaction

23 March 2022

## Reaction Rate

-27 days

## Functional Group Before

cultural

## Element Before

city monument

## End of Spatial Reaction

-

## Reaction Duration

-

## Functional Group of Spatial Reaction

security and defence

## Element of Spatial Reaction

temporary modular structure



[Fig. 76] Case Study b11 Monument of National Ukrainian Poet (during) Martial Law © Marcus Yam/ Los Angeles Times

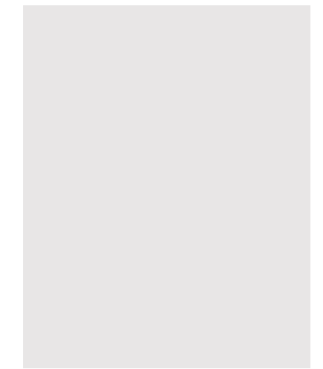
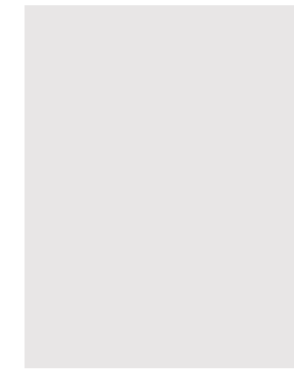
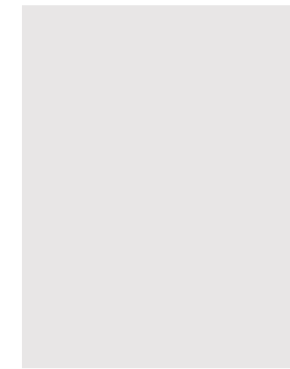
# Analysis<sup>B11</sup>



## Spatial Reactions



Shelter for Cultural Heritage



## Triggers

heritage protection

## Outcomes

emerging of urban defensive infrastructure

## Provider

city council

NGO, charity org., volunteers

## User

-

## Initiative

city council

NGO, charity org., volunteers

## Insights from the Case<sup>B11</sup>



Although monuments do not fulfil any practical or essential purpose, they still hold great significance for people and are often safeguarded, even in dangerous circumstances. The action of protecting is also triggered by the fact that monuments are often targeted for destruction as part of a broader Russian campaign of cultural erasure.

## Elimination of Physical and Symbolic Remnants of Russian Heritage<sup>B12</sup>



According to the law on decommunization (*Law of Ukraine on April 9, 2015 № 317-VIII*), the communist totalitarian regime is condemned in Ukraine, and the symbolism or any associated attributes are forbidden. According to this law, toponyms should also be renamed to their original (pre-Soviet) names or replaced with new ones. In 2022, Lenin's monuments are perceived as relics, and there are hardly any left, except perhaps in closed company areas, although less conspicuous monuments can still be found in cities. Since the start of the full-scale invasion in Ukraine, a decolonization movement has intensified. The most shelled residential area in Kharkiv – Saltivka, until May 11, 2022, appeared to be in the Moskovskyi district until it was renamed to Saltivskyi. Enthusiastic citizens in Kharkiv Telegram channels share photos of Soviet toponyms and still-standing monuments, which attracts media attention and leads to their dismantling.

# Metadata<sup>B12</sup>



## Start of Spatial Reaction

- existed before

## Reaction Rate

-

## Functional Group Before

cultural

## Element Before

city toponyms signs, monuments and other artefacts

## End of Spatial Reaction

-

## Reaction Duration

-

## Functional Group of Spatial Reaction

security and defence

## Element of Spatial Reaction

-

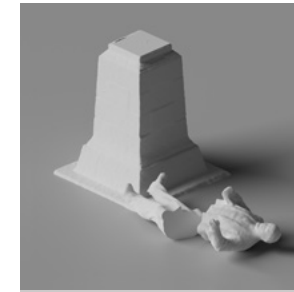


[Fig. 77] Case Study b12 Elimination of Physical and Symbolic Remnants of Russian Heritage © Gwara Media

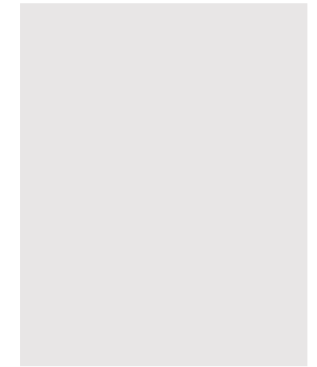
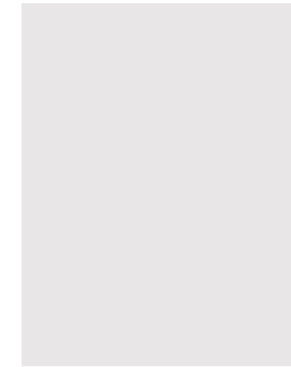
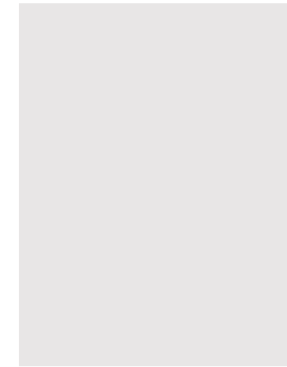
# Analysis<sup>B12</sup>



## Spatial Reactions



Erasing Russia's imprint



## Triggers

security and defence measurements

## Outcomes

civil defence siren

curfew

emerging of urban defensive infrastructure

## Provider

local community

city council

## User

-

## Initiative

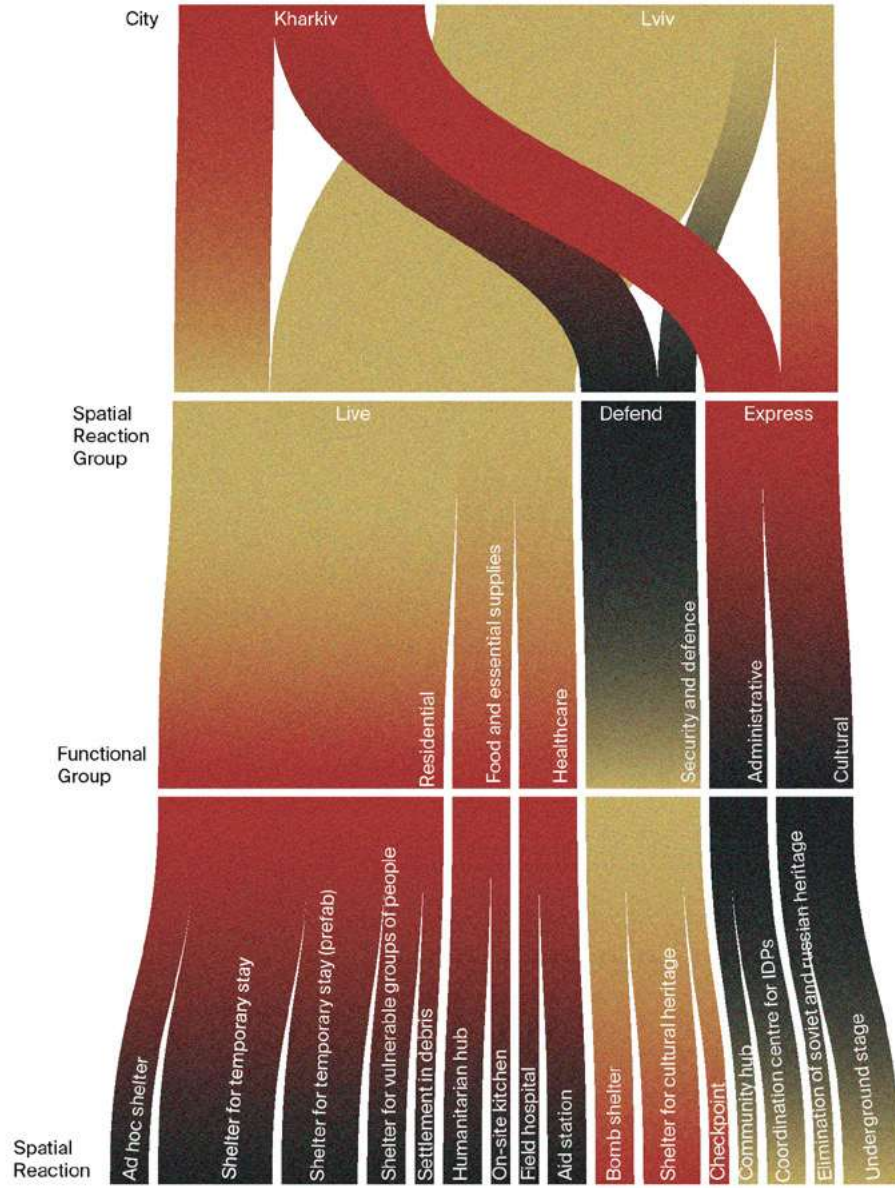
city council

local community

# Insights from the Case<sup>B12</sup>



Removing monuments and changing toponyms transforms the urban topography, creating a new aesthetic landscape that reflects contemporary values and the country's historical narrative. These measures mirror shifts in collective consciousness and perspectives on the past, contributing to the formation of a new identity.



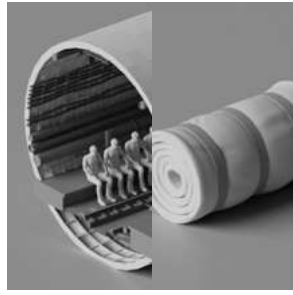
[Fig. 78]  
 Correlation: City-Spatial reaction group-Functional group-Spatial reaction © Y. Tsarynyk (2024)

# Chapter 6 Insights, Correlations and Conclusions

\*The insights, correlations and conclusions presented in this work are derived from the case studies researched within this work and represent a trend extrapolated from the gathered data.

## Insights; Correlations; Conclusions





**Kharkiv Metro Stations (as) Underground City**

In Kharkiv, people woke up to the first explosions. In the morning, the metro stations were full of people not going to work but hiding from the bombs.

**Kharkiv** ↑↑↑  
**24.02.2022**

**Lviv** ↓↓↓



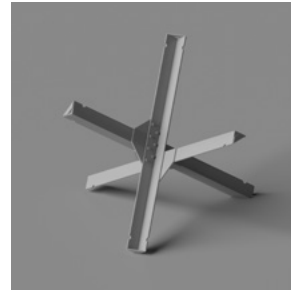
**Lviv Railway Station (as) First Hub for Arriving IDPs**

People began to flee the shelled regions, and the first evacuation trains carrying refugees arrived at the Lviv railway station.



**Largest Residential Area in Ukraine - Saltivka (as) Tents in Debris Adapted for Living**

Kharkiv's largest residential district experiences the heaviest shelling in the city.



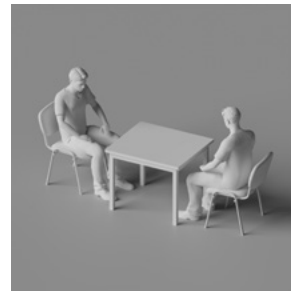
**Checkpoints (as) New Borders of a City**

Enemy armoured personnel carriers (BTRs) begin to enter the city – checkpoints and anti-tank barriers start appearing on the streets of Kharkiv.



**Lviv Palace Of Arts (as) Humanitarian Hub**

In the heart of the city centre, an exhibition centre has been transformed into a hub for receiving humanitarian aid. Supplies from abroad are pouring in, and residents are stepping forward to gather the much-needed items listed in various media announcements.



**Lviv Municipal Art Center (as) Community Hub for IDPs and citizens**

The staff at a small contemporary art centre have taken on the task of coordinating refugees, transforming their space into a hub for information exchange and citizen support.

**25.02.2022**



**Stadium "Arena Lviv" (as) Shelter for IDPs**

A reception centre for displaced people is opened in the stadium. People are sent there from the railway station to be officially registered as IDPs.



**Center of Contemporary Art "Yermilov Center" (as) Shelter for Artists and Friends**

Centre of contemporary art in Kharkiv organises temporary accommodation for friends and associates, as part of the Centre is located in the basement.

**28.02.2022**



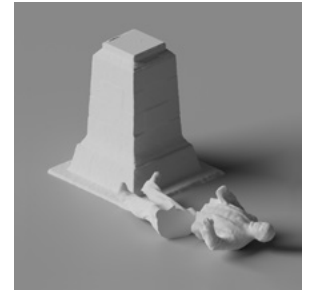
**City Monuments and Artefacts (during) Martial Law**

A public heritage organisation initiates efforts to safeguard monuments by relocating movable objects to secure locations or implementing measures to protect them in their original sites if they are immovable.



**Theatre Les Kurbas (as) Shelter for IDPs**

A theatre in the centre of the city opens its doors for the temporary accommodation of displaced people.



**Elimination of Soviet and Russian Heritage Symbol (during) Martial Law**

The wave of decommunization and decolonization is gaining new strength in people's consciousness and in the actions of the authorities.



### Dormitory "Through The War" (as) Shelter for the Needs of the Disabled Seniors

The NGO is making arrangements to establish an unused dormitory specifically for elderly individuals with disabilities.



### Postal Offices (as) Points of Humanitarian Aid Distribution

Private delivery post offices open to distribute humanitarian aid to the population.



### Monument of National Ukrainian Poet (during) Martial Law

Local authorities and volunteers collaborate to maintain and safeguard the monuments.



### Underground Station (as) Concert House

A concert is staged in a metro station.

## March 2022



### Underground Car Park of Shopping Mall (as) Field Hospital

A field hospital opens in the underground car park of a shopping centre.

## April 2022



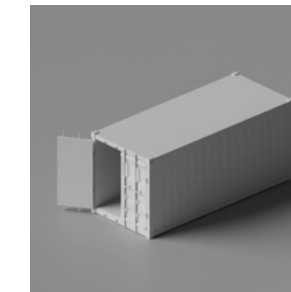
### Sports School (as) Shelter for IDPs "Urban Camp 1"

A coalition of NGOs, including architects, has converted a sports school into a temporary shelter, offering additional recreational activities for children.



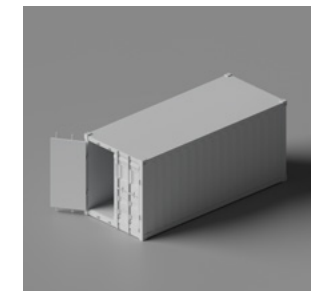
### Museum "Territory Of Terror" (as) Shelter for relocated museum from the city of Luhansk

A museum from Luhansk has been evacuated to the "Territory of Terror" museum in Lviv.



### Residential Camp 1 made with shipping containers

The city council quickly arranges the designated area in the park, installing the housing containers within 12 days.

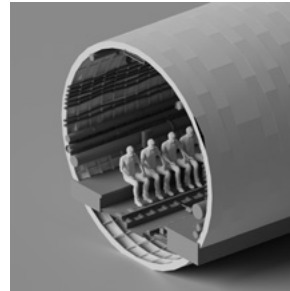


### Residential Camp 2 made with shipping containers

### Residential Camp 3 made with shipping containers

The city council opens two more container towns, each with a capacity of around 350 people.

## May 2022 June 2022



### Abandoned Basements (as) Bomb Shelters

The “Relive” project, initiated by a charity founded in April 2022, aimed to convert a number of basements into bomb shelters to provide protection for up to 100,000 residents of Kharkiv.



### Underground Car Park of Shopping Mall (as) Cinema Hall

The first mass screening since the full-scale invasion took place in the shopping centre’s underground car park.



### Underground Tunnels (as) Route for Pride Pa- rade

People with banners pass through 4 stations in Kharkiv metro. This is an act of pride parade.

July 2022

August 2022

September 2022

January 2023

February 2023

June 2023



### Temporary Housing for IDPs Specialised for Pregnant Women and Women with Infants “Un- broken Mothers”

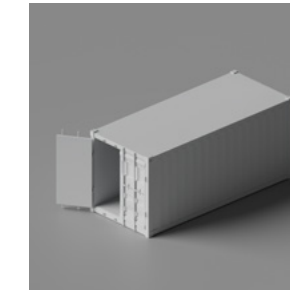
During the summer of 2022, an architectural firm collaborated with a public organisation and the city council to establish a temporary shelter for pregnant women and those with infants on an undeveloped plot adjacent to the park area.

### Kharkiv is almost entirely de-occupied



### Hostel (as) Shelter for IDPs “Safe Place”

Almost a year after the invasion, a shelter for IDPs was opened on the site of a former hostel, offering an expanded range of services: legal and social counselling, medical examinations, psychological support, leisure activities and workshops to facilitate integration.



### Residential Camp 4 made with shipping con- tainers (Winter Version)

A winter container town is opened, and people who have lived in other residential camps made out of shipping containers are relocated there. The container towns themselves are being preserved.



### Abandoned House of Culture (as) Shelter for IDPs “Urban Camp 2”

A year and a half after the full-scale invasion, thanks to the cooperation of NGOs and the city council, a temporary shelter with integrated functions of public leisure and street culture was opened. The building itself, renovated for these purposes, is a public building with an exhibition space that had been abandoned for several years. The building has already been reactivated in October 2022 to host various charity events.

Most of the case studies examined in this work emerged within the initial three months of the full-scale invasion. The early adaptations were more easily identifiable and documented due to the stark contrast between conditions before and after the invasion. Additionally, these case studies and their spatial transformations received significant media coverage before the situation became the new "normal."

Transportation hubs were among the first to react as evacuations became widespread. Metro stations in cities quickly transformed into bomb shelters. Meanwhile, cultural institutions, initially considered non-essential during wartime, swiftly adapted to the changing demands. These institutions demonstrated remarkable agility in their response, repurposing exhibition spaces – often empty rooms – to serve temporary needs such as humanitarian hubs or shelters. The aid provided to IDPs was comprehensive, including various forms of support like psychological or legal assistance. Notably, assistance was tailored to individual needs, reflecting a personalised approach. This efficacy can be attributed to the relatively autonomous, forward-thinking nature of cultural institutions, including municipal ones, which boast well-coordinated teams capable of creatively adapting processes – a distinction from the bureaucratic structure of the city council.

## Correlations

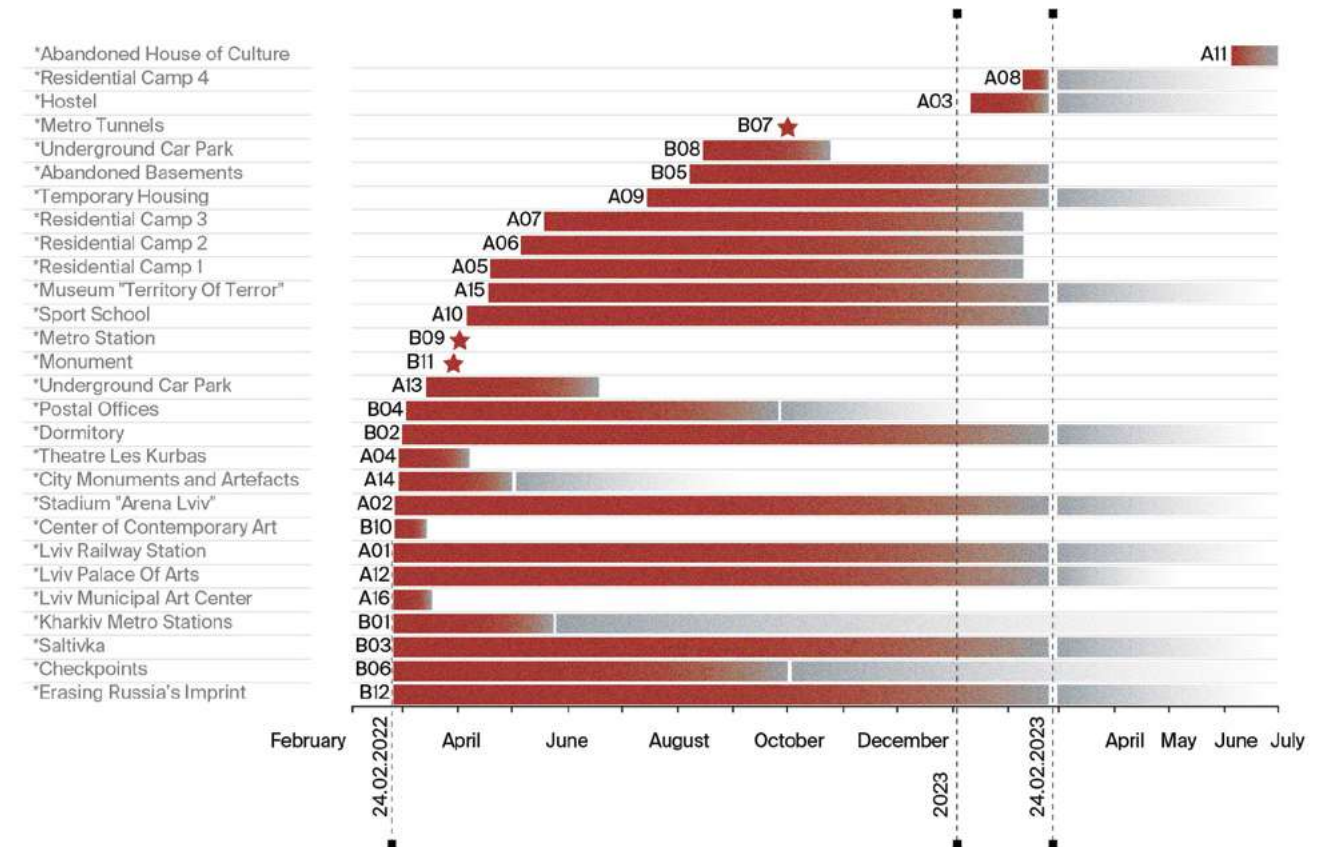
### Duration:

There are various factors that determine the duration of spatial reactions. The shortest reaction times are observed during events and concerts, where the space changes only during the time of the event. On the other hand, transport hubs have a permanent reaction time. For instance, even after the Kharkiv metro resumed operations three months after the full-scale invasion, people stayed at the stations for a long time because they were afraid to go to the surface. Additionally, metro stations across Ukraine continue to serve as bomb shelters to this day.

Process, such as the destruction of soviet monuments in the city, existed before the full-scale invasion, and it also extends over time with varying intensity. The same applies to the protection of monuments, which is primarily related to the security conditions in the city and, therefore, to urgency and funding.

The Saltivka neighbourhood is a remarkable example of the resilience and adaptability of residents to changing living conditions. Despite bearing the brunt of the shelling in Kharkiv, some residents remained in the area, requiring ongoing adaptation efforts

Cultural institutions reacted quickly, albeit briefly. They took the initiative to accommodate and integrate IDPs while the municipal structures set up a support system. Although all declared cultural cases have returned to their pre-war function, the theme of war is strongly present in the curation of exhibitions. Almost every institution has also integrated volunteer activities in parallel.



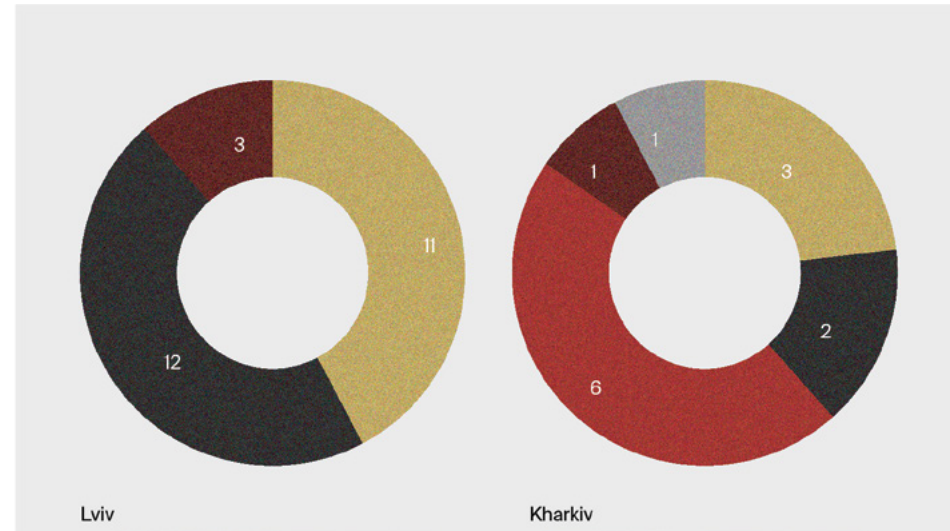
[Fig. 79]  
Duration of selected case studies © Y. Tsarynnyk (2024)

During the first three months, container cities were set up in Lviv. Three of them lasted only up to a year due to their unpreparedness for winter conditions, but they were considered to be temporary solutions. On the other hand, Kharkiv did not experience the emergence of container towns despite being faced with a wave of refugees from other Eastern regions. This is because the practice of container towns was introduced in Kharkiv at the beginning of the war in 2014 and was received negatively by both the city council and residents.

Improved solutions for IDPs were developed around six months after the full-scale invasion. This was due to better adaptation to the new context and the preparation processes that took place. All quality examples resulted from collaboration between volunteers, NGOs, and charity organisations.

### Initiative:

Initiatives for spatial reactions in Lviv are primarily led by volunteer and public organisations, which have been approved by the city council. Therefore, the city council is also mentioned in some case studies. In Kharkiv, citizens took the lead in the initiatives as they had to react quickly and could not wait for assistance.

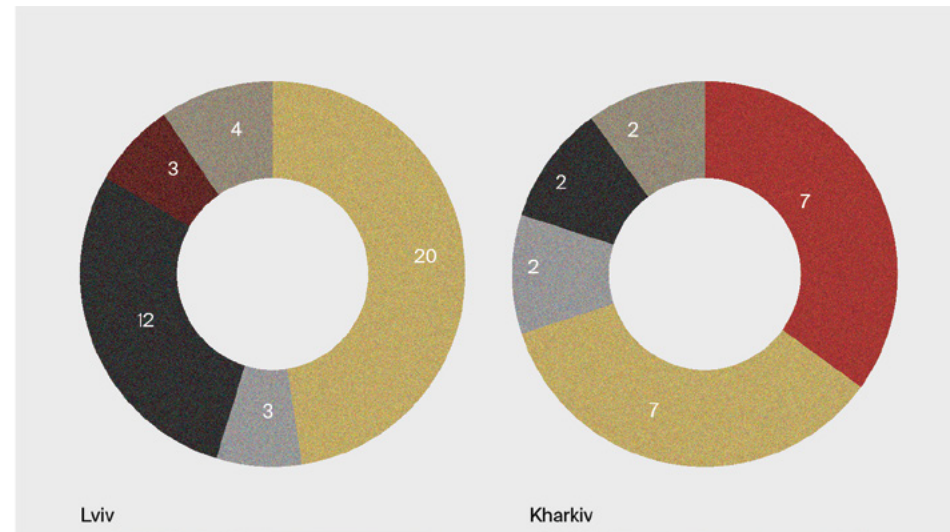


[Fig. 80] Initiative of selected case studies © Y. Tsarynnyk (2024)

### Provider

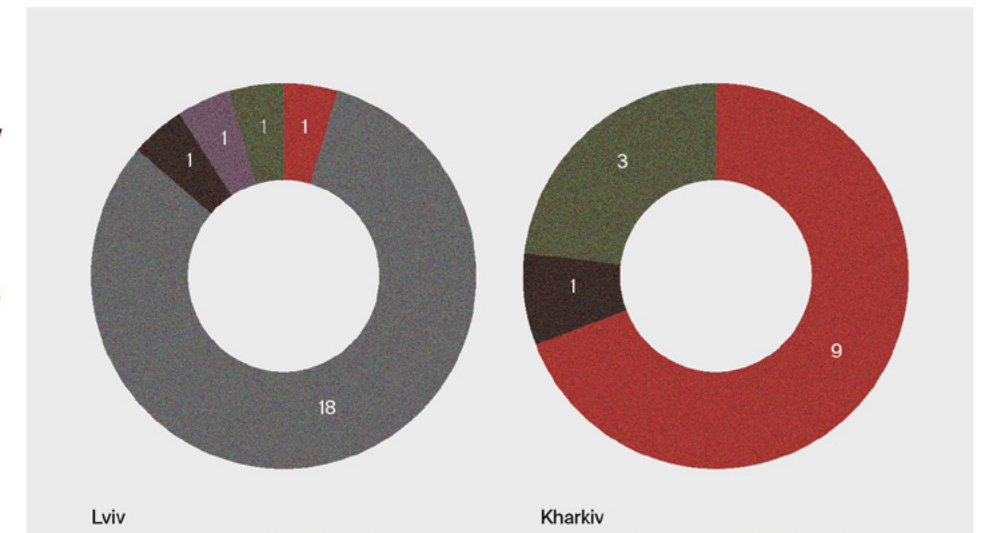
In Lviv, voluntary NGOs are leading the way, both in terms of provision and initiative. In Kharkiv, they share a leading position with the local community. It is important to note that in Lviv's case, the local community is not mentioned, as volunteering has been regulated by law. Therefore, in order to help, one must register as a volunteer or a public organisation, so volunteer organisations represent the local community in Lviv.

[Fig. 81] Provider of selected case studies © Y. Tsarynnyk (2024)



### User

In Lviv, the declared users are almost always IDPs. One case study involves a relocated institution, another a local community and the third a PRM (person with reduced mobility). The city's monuments are an exception, as they have no direct users. In Kharkiv, the local community is the primary initiator, provider and user. They have initiated and designed the process for themselves. Some case studies have no users as they are more about creating a context, such as the case study of checkpoints, the removal of soviet monuments and the protection of monuments of national importance.

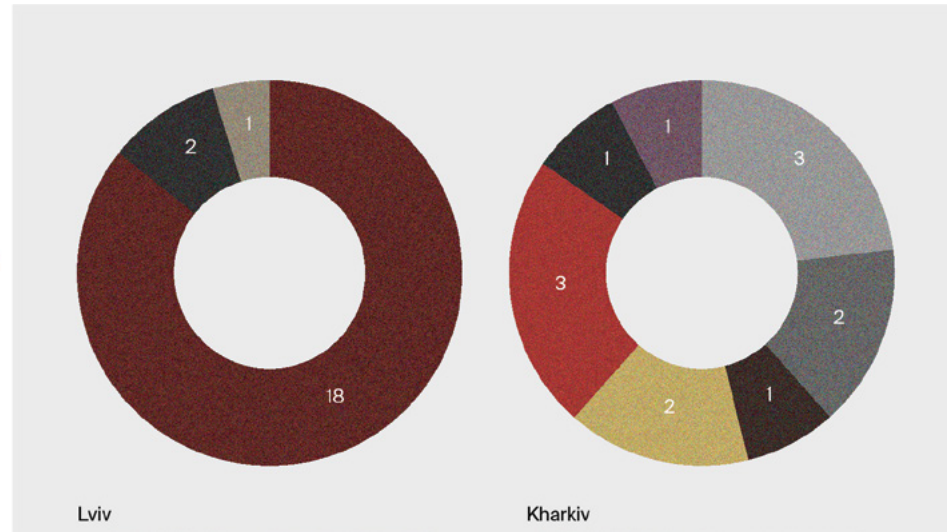


[Fig. 82] User of selected case studies © Y. Tsarynnyk (2024)

### Trigger

In Lviv, the influx of internally displaced persons (IDPs) played a key role in driving spatial adaptation. The increase in population and the need to accommodate and manage these people led to the transformation of various spaces in the city. In Kharkiv, the triggers in the selected case studies are more diverse. In the case of cultural events, due to the high-risk potential, safe spaces were arranged or used for the event, such as a pride parade and concert in the metro or watching a film in an underground garage. Short-range evacuation triggered a reaction of transforming the Kharkiv metro into a bomb shelter.

- destruction
- lack of supplies/ unadapt logistics
- limited government capacities
- increasing number of persons with reduced mobility
- security and defence measurements
- heritage protection
- heightened risk potential
- arrival of IDPs
- short-range evacuation



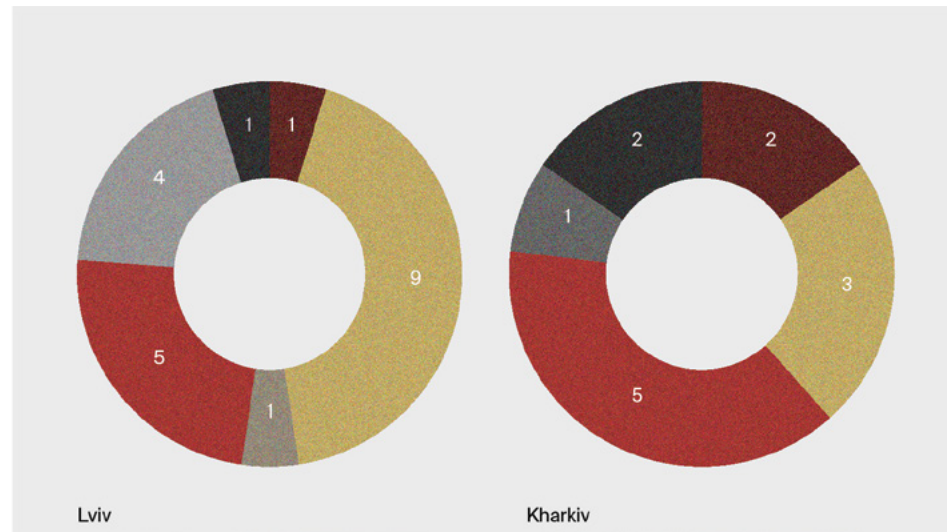
[Fig. 83] Trigger of selected case studies © Y. Tsarynnyk (2024)

### Functional group before

In both cities, the transport infrastructure and cultural facilities were found to be the most adaptable to spatial and operational change.

[Fig. 84] Function "before" of selected case studies © Y. Tsarynnyk (2024)

- delivery service
- educational
- cultural
- -
- transport infrastructure
- residential
- recreation area

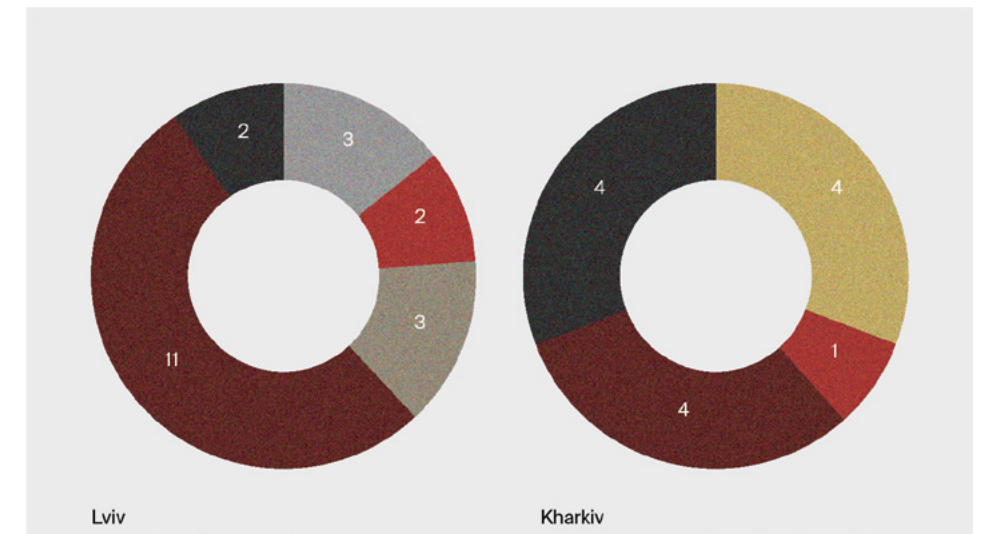


[Fig. 85] Function of spatial reaction © Y. Tsarynnyk (2024)

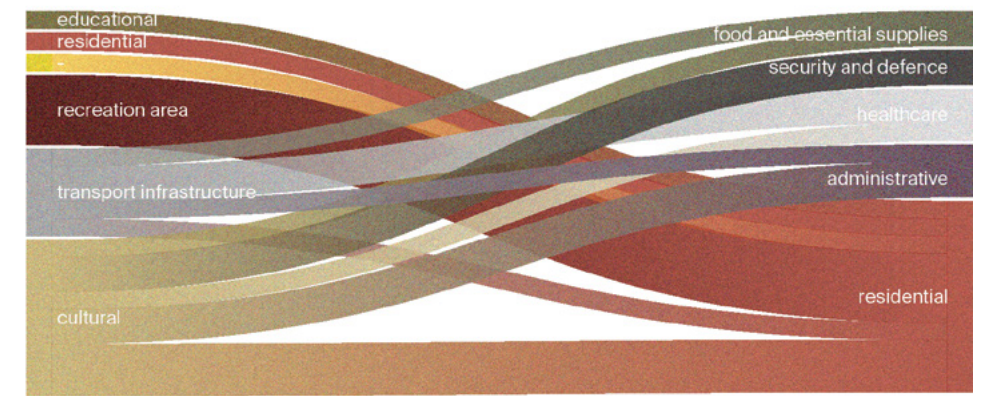
- healthcare
- cultural
- security and defence
- food and essential supplies
- residential
- administrative

### Functional group of spatial reaction

The selected case studies were most often converted into residential units. As previously reported in the belonging database, the residential sector is the civilian sector most affected. Both cities are also characterised by defensive reactions. In Lviv, this is the protection of monuments, while in Kharkiv, it is the centralised arrangement of bomb shelters in the basements of residential buildings and the establishment of checkpoints.



[Fig. 86] Correlations between function before and function of spatial reaction: Lviv © Y. Tsarynnyk (2024)

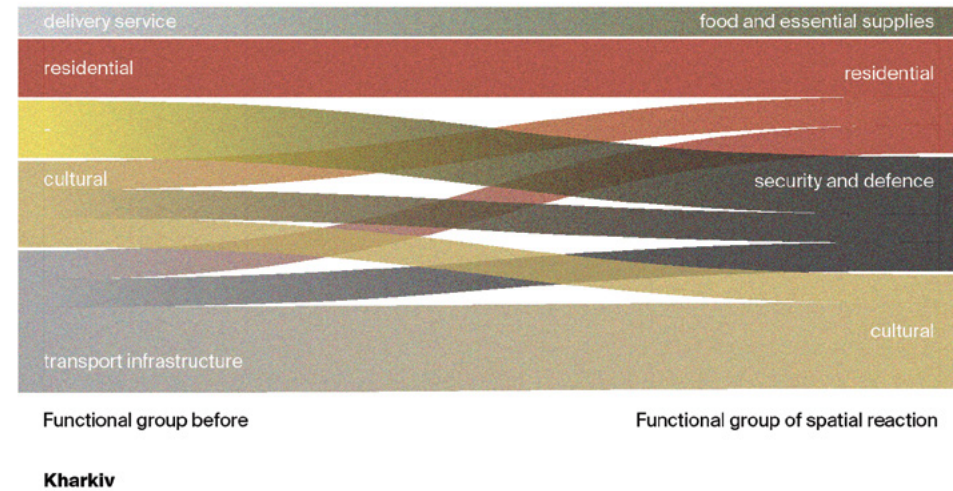


Functional group before

Functional group of spatial reaction

Lviv

[Fig. 86]  
Correlations between function before and function of spatial reaction: Kharkiv © Y. Tsarynyk (2024)



## Conclusions

### On cases:

We shape space according to our needs, conditions and contexts, and then those spaces carry information about those conditions and contexts. Creating space in critical situations such as war is not about finding visual expression and aesthetics but about arranging effective processes in a safe environment with or without available resources. The case studies presented in this thesis underscore this perspective.

This thesis analyses case studies represented by buildings, infrastructure elements and public spaces during the full-scale war and their adaptation through spatial reaction and its attributes, including trigger, outcome, provider, user and initiative. The case studies show a correlation between their spatial reaction and the unfolding scenario (front-border/rear-border city scenario). In the case of Lviv, located in the rear, spatial reactions mainly take the form of different accommodation strategies. On the other hand, the front-border city, represented by Kharkiv, shows a broader spectrum of adaptability, where multiple urban functions, beyond mere residential, are transformed in response to the war context. Although cultural functions in Kharkiv continue to exist within the urban environment, they are often expressed in non-traditional locations. For example, mass gatherings occur in underground spaces such as metro stations and underground garages. Even routine activities such as shopping were being replaced by the distribution of humanitarian aid, often through makeshift arrangements in post offices. The proliferation of military installations, such as checkpoints, has led to noticeable changes in how people perceive and navigate urban spaces. There is also a correlation between the front-border and the rear-border city scenario. As the situation in the frontline areas intensifies,

the number of evacuation trains arriving in the western "safe" regions increases. As a result, the number of spatial reactions aimed at providing accommodation for the arrivals also rises.

### On methodology:

Exploring the intersection of war and architecture is a complex and multidimensional research topic that involves various disciplines apart from architecture and urban studies, such as history, sociology, human geography and more. The common thread in architecture-related research, regardless of the focus, is the collection of data that can be transformed into a meaning of spatial dimension. The collection of data in this work has been primarily driven by the idea that it can provide an understanding of what is happening in the country as it resists armed invasion.

The nature and type of data collected suggested the key point on which the methodology is based - functional change. Functional change unites the non-homogeneous case studies, such as theatre, school, metro stations or tunnels, and monuments in the city centre. The transformation of spaces leading to the creation of new spaces can be analysed by breaking down this transformation into proposed constituent elements (trigger, outcome, provider, user, initiative). Thus, this analysis inspired the idea that urban transformations are best understood as a construct of actors and functions they are intended to provide. At least in critical situations, when priorities are reduced and urgent needs are prioritised.

The methodology used in this study has been tested in twenty-eight case studies. While these cases provided valuable insights, the sample size is insufficient to draw definitive conclusions about the functionality of the methodology. In order to establish causality and identify patterns with greater confidence, a significant increase in the number of case studies is essential to enable statistical analysis. It is therefore concluded that the potential of this method has not been fully tested.

While acknowledging the limitations of the research, it's important to highlight its strengths in organising, structuring and exploring spatial reactions within the proposed system. Furthermore, it lays the groundwork for further developments, including refining and increasing the granularity of spatial reaction analysis, tracking element changes, and developing a library of spatial adaptation solutions. For example, a more nuanced analysis of interior elements resulting from adaptation could be pursued, such as a bed in different contexts [15]. This method is not limited to a single level of analysis but allows exploration at different scales. From urban planning to object design, comparative studies can be conducted between cities, urban elements such as buildings, squares or infrastructure facilities, and even between specific interior components such as beds in theatres versus those in metro stations. This research, while not exhaustive, serves as a starting point for future exploration. It contributes to the ongoing discourse on spatial adaptation and attempts to understand this complex subject through a spatial dimension.

#### [15]

In case study a04 the bed was constructed from a modular stage system previously used to set up the stage for performance; in case study b04 the beds had a much more varied appearance: piles of blankets, air mattresses, carimats, makeshifts in tents. The bed itself was often used to spill over from sleeping, resting to home, an island of privacy surrounded by cardboard boxes, protecting from draughts and enclosing the private space.

## On adaptation:

What is war for the city? It can be referenced to grief, destruction, panic, an urbicide, and an uncertain future. But from the character of its phenomenon – it is a change: from stabilised surroundings to the unstable one, from safe – to unsafe, from making plans – to survive one more day, from the non-war condition to the war condition. And the city reacts with adaptation. From the earliest settlements to the sprawling metropolises of today, cities have been dynamic entities shaped by the ever-evolving needs and challenges of human civilization. Urban adaptation, the process through which cities adjust and respond to changing social, environmental, and economic conditions, lies at the heart of their resilience and longevity. Tracing the evolution of the city through the perspective of its defensive dimension helps to understand the dynamic of its physical adaptation; looking at the governing strategies provides an insight into regulatory strengths. What is interesting is not only paying attention to the specific artefacts of this adaptation in a particular historical period, or from the perspective of a particular discipline, but also understanding the nature of the adaptation mechanism. And if it is possible to comprehend it at all? Perhaps the most important lesson to be learnt from this work is that the adaptation mechanism is a system of connections. Adaptation, even if it is physical, spatial, cannot be answered only inside the discipline of architecture, even if it includes its social or technical dimension.

The conclusions of this work are linked to the following statements:

- The function is conditional.  
The realisation that architectural designs and initial plans do not always materialise as intended is an existing reflection within architectural discourse. Despite the planning and vision that architects invest in their designs, the built environment often deviates from the original project. This realisation underlines the dynamic nature of architectural practice, where external factors, unforeseen challenges and the evolving needs of users can significantly influence the outcome. It emphasises the importance of adaptability and resilience in architectural design and the need for architects to anticipate and respond effectively to the unpredictability inherent in the built environment.
- The function is conditional because of the adaptation.  
The more adaptation a space requires, the more conditional the division of functions. The greater the amplitude of change, the greater the need for adaptation.
- Adaptability is not determined by flexible space alone, but by the willingness of people to adapt that space.  
Critical circumstances, where people's lives or well-being are threatened, and comfort almost disappears as a priority, force unusual and creative adaptations that bring unforeseen revelations.
- Critical circumstances underline the importance of bottom-up initiatives.

[16]

Smith (2023) "organized urban shocks by their type and their temporal trajectory". Those types are: environmental (flood, tectonic, climate change), social (battles, disease & famine, out-migration, fire, riots & unrest), economic (drop in trade, drop in production, major shift in the economic system), political (change in capital status, conquest, revolution)."

" [...] bottom-up, processes – where individuals and local groups assemble, coordinate among themselves, and act, independently of governments and central institutions – are among the most important processes in cities, today and in the past" (Smith 2023). The case studies examined in this research confirm the transformative power of such bottom-up efforts. These case studies illustrate how ordinary people and grassroots organisations have used their agency to bring about meaningful urban change. Whether through the creation of voluntary organisations or other forms of collective action, these individuals have navigated legal frameworks to implement changes that meet the evolving needs of the communities. From repurposing urban spaces to accommodating new functionalities, these initiatives reflect local actors' resourcefulness and demonstrate their proactive engagement in shaping the built environment.

Adaptation is a fundamental process critical to the survival of entities ranging from cells to entire cities (cf. Smith 2023). In the context of urban environments, the ability of a city to persist and function effectively signifies the success of its adaptive mechanisms (cf. Smith 2023). Although the state of shock expressed by war [16] (cf. Smith 2023) has not yet passed, the mere existence of these adaptations signals a positive trajectory forward. In essence, the resilience of cities in the face of adversity underlines the importance of adaptation as a dynamic and ongoing process that is essential for urban survival and development.



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