

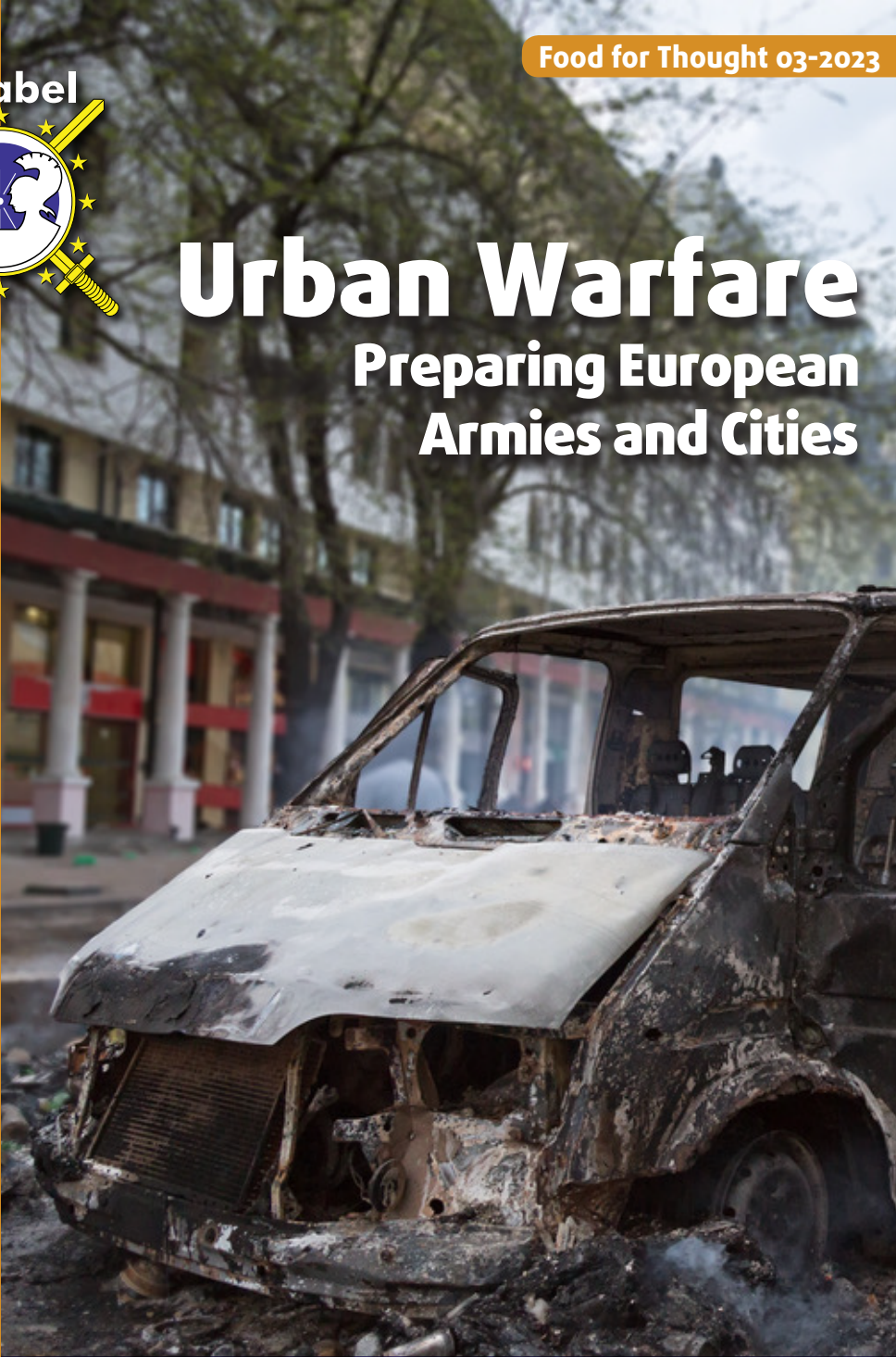
Finabel



# Urban Warfare

## Preparing European Armies and Cities

AN EXPERTISE FORUM CONTRIBUTING TO EUROPEAN  
ARMIES INTEROPERABILITY SINCE 1953



Written by Jimmy Horjus, Matteo Zanotti, Tom Mantelet, Raquel Velasco Ceballos, Domenico Farinelli  
Edited by Edward James Colombo  
Supervised by Nicola Maria Mossone

This Food for Thought paper is a document that gives an initial reflection on the theme. The content is not reflecting the positions of the member states but consists of elements that can initiate and feed the discussions and analyses in the domain of the theme. All our studies are available on [www.finabel.org](http://www.finabel.org)

## **DIRECTOR'S EDITORIAL**

With the ongoing war in Ukraine, the focus on urban warfare has returned to prominence in military reviews and analysis. Russian forces have engaged in urban battles in Kyiv, Mariupol, Kherson, and other Ukrainian cities. However, what is worth mentioning is the extreme difficulty they encountered to take these cities. For this reason, an overview of urban warfare is as important as it is urgent since the current situation can provide FINABEL's member states with a proactive tool to improve their urban doctrines and even their cities.

Probably cities are the most difficult environment for a military operation due to the presence of civilians, artificial obstacles, and possible threats. Nonetheless, the trend seems to suggest armies around the world consider the constant presence of urban battles in their operations. For this reason, European states should prepare to fight in such a difficult environment or even to defend themselves and prepare their cities to repel a possible attack from neighbouring enemies.

Urban warfare is particularly relevant, not least due to the world becoming more and more urbanised. This trend will cause an inevitable enlargement of the cities and a consequent increase in their strategic importance. Cities will surely become the main strategic objectives in a military operation, and understanding how to behave in these environments will provide a tremendous comparative advantage for the army that best manages to adapt.



**Mario Blokken**

Director PSec

## **TABLE OF CONTENTS**

<b>List of abbreviations</b>	<b>4</b>
<b>Introduction</b>	<b>5</b>
<b>Historical review of urban warfare cases</b>	<b>6</b>
<b>Battle of Grozny</b> (31 December 1994 - 13 March 1995)	<b>7</b>
<b>The Battle for Baghdad</b> (3-12 April 2003)	<b>11</b>
<b>The Battle of Shusha City</b> (4-10 November 2020)	<b>14</b>
<b>Analysis of urban warfare</b>	<b>17</b>
<b>Common points and evolution in historical cases</b>	<b>17</b>
<b>Urban warfare during the War in Ukraine:</b> <b>The Battle of Kyiv</b>	<b>19</b>
<b>Adaptation of European armies and cities to MOUT</b>	<b>23</b>
<b>European armies</b>	<b>24</b>
<b>European cities</b>	<b>26</b>
<b>Concluding remarks and recommendations</b>	<b>30</b>
<b>Bibliography</b>	<b>32</b>

## LIST OF ABBREVIATIONS

<b>AO</b>	Areas of operation
<b>APC</b>	Armoured personnel carrier
<b>APS</b>	Active protection system
<b>ATGM</b>	Anti-tank guided missile
<b>BTG</b>	Battalion tactical group
<b>CAS</b>	Close air support
<b>CEEC</b>	Central and Eastern European Cities
<b>ERA</b>	Explosive reactive armour
<b>EW</b>	Electronic warfare
<b>FFT</b>	Food For Thoughts
<b>ID</b>	Infantry division
<b>IFV</b>	Infantry fighting vehicle
<b>JTAC</b>	Joint terminal attack controller
<b>LI</b>	Light infantry
<b>MARDIV</b>	Marine division
<b>MOUT</b>	Military operation on urban terrain
<b>MRR</b>	Russian Motorised Infantry Regiment
<b>MVD</b>	Russian Internal Troops of the Ministry for Internal Affairs
<b>NCO</b>	Non-commissioned officer
<b>PSYOPS</b>	Psychological operations
<b>RWS</b>	Remote weapon systems
<b>SA</b>	Situational awareness
<b>TTP</b>	Tactics, techniques and procedures
<b>UAS</b>	Unmanned aerial systems
<b>UGV</b>	Unmanned ground vehicles

## INTRODUCTION

The war in Ukraine, especially the Kyiv operation, has highlighted the extreme difficulties for the Russian Army to conduct a military operation in urban terrain (MOUT). Recent history suggests that urban terrain is a complex environment, even for some of the most powerful armies in the world. City battles are colloquially known as urban warfare, i.e. the conduct of military actions and interventions in cities (Spencer, 2019). This is not a new phenomenon. Throughout history, cities have constantly served as battlegrounds, and many examples can be traced back from Carthage to Grozny (Rosenau, 1997) and now Ukraine. The reason for this is that cities are strategically important because they can harbour assets of historical, political, cultural, economic or military significance (De Graaf, 2004). MOUT can take different forms, from high-intensity conventional warfare to low-intensity war, counterinsurgency or humanitarian aid operations (Michel-Kleisbauer, 2020).

What makes urban terrain difficult is the amount of infrastructure, such as buildings, bridges and viaducts, as well as the distance between structures and their height influence visibility and overview. Distance between structures obstructs and restricts movement, while tall structures disproportionately affect vision and overview. Such characteristics of urban warfare disproportionately affect those on the ground whilst favouring the occupants of tall structures. “Sniper Alley” in Sarajevo, marked by its boulevard and surrounding high-rise buildings, became ill-famed during

the Siege of Sarajevo (1992-1996) as the distance between structures and their height influenced visibility and lethality as a result (Ristic, 2014).

In addition, similar to naval warfare, urban warfare adds a third dimension to the operational environment: the subsurface. Existing underground structures such as sewers, transportation systems and tunnels, or their creation, allow combatants to operate increasingly undetected compared to operations on or above the surface. Chechen rebels used the subterranean domain extensively during the Battle of Grozny, and the same goes for ISIS fighters in Iraq and Syria, especially during the 2017 Battle of Mosul (BBC, 2017). More recently, the Azovstal factory in Mariupol, with its extensive tunnel network, became famous for withstanding Russian attacks and allowing the Ukrainian defenders to move undetected. In short, adding an extra operational area further complicates urban warfare compared to non-urban warfare.

At the same time, the structures that define cities offer refuge to the under-armed against opponents that rely heavily on sensors as these structures negate signals. In the first phase of the war, Ukraine chose not to fight the Russians in the open ground, where Russia’s sensor-based capabilities would prevail but instead retreated into the cities to negate Russia’s advantages.

In addition, potential areas of operations (AOs) are increasingly becoming urbanised, with 55 per cent of people living in urban areas, a figure that is expected to increase to 68

per cent in 2050 (UN Department of Economic and Social Affairs, 2018). This increase can be contrasted with the general tendency of shrinking armies. As a result, smaller armies must fight in bigger cities. What does this mean for military operations in urban terrain? How should European armies adapt to an increased focus on MOUT? As Mark Milley, US Chair of the Joint Chiefs of Staff, stated in his speech at West Point, “you have to optimise yourselves for urban combat, not rural combat. That has huge implications for intelligence collection, vehicles and weapons design and development, logistics, camo and all the other aspects” (Milley, 2022)

Given the cities’ strategic importance, this paper will focus on conducting an effective MOUT and preparing a city to defend against it. As cities increasingly become battlegrounds, what does this mean for European armies and cities? Could a revised force design and an increased focus on MOUT training render armies better geared for urban warfare scenarios? And could defensive urban planning tip the balance of power even more in favour of the defender? With the return of war on the European continent, this question is especially relevant for Russia’s immediate vicinity countries such as Romania, Poland, Lithuania, Latvia, and Estonia.

## **HISTORICAL REVIEW OF URBAN WARFARE CASES**

To fully understand urban warfare, it is useful to look at recent history to identify the main elements that can help military leadership improve MOUT conduct. This paper elaborates an analytic model to analyse historical examples of urban warfare that can be applied to any MOUT in history. This model is composed of several elements to fully comprehend both the offensive and the defensive conduct of the parties involved. Firstly, it starts by studying the composition of offensive forces and their plan of invasion. It then goes through the composition of defensive forces and their plans to defend urban areas. Secondly, more operational elements are analysed in this model, such as the main weapons employed, the vehicles at the disposal of the forces and the analysis of artillery and air forces’ role in the battle. Therefore, this paper

will divide the battles into different phases, examining the differences among these phases to comprehend the adaptation and evolutions that the battlefield requires. The model is applied to historical cases, mainly to identify the mistakes committed by both the parties involved in the conflict, and to finally try to draw some lessons that can be useful in the future to conduct a successful urban operation, both defensively and offensively.

This paper will analyse three historical cases: the Battle of Grozny during the First Chechen War, the Battle for Baghdad during the Second Gulf War, and the Battle of Shusha City in the Second Nagorno-Karabakh War. These examples were chosen because of the coherency with the aims of this paper. In particular, the Battle of Grozny in 1994-1995 represents a clear example of a Russian pattern of urban

invasion. The offensive forces were forced to reorganise themselves after an initial loss to conquer the city successfully. The second example, the Battle for Baghdad in April 2003, is an example of a US urban operation. For this reason, several lessons can be learned by European armed forces as, being fellow NATO members, they will probably conduct future MOUT according to the American model. Finally, the Battle for Shusha City in November 2020 is a recent example of an urban battle, where it is possible to see the role of new technologies in urban warfare and to analyse the behaviour of different armed forces beyond the US and Russia. Moreover, all these examples were decisive battles for the final result of the entire war since the capture of these cities determined the success of one or the other actor. In addition, and following the aims of this paper, these battles were fought between two regular armies with conventional warfare tactics.

### **Battle of Grozny** **(31 December 1994 - 13 March 1995)**

The First Chechen War started in November 1994, when the Ingush opposition forces tried to conquer Chechnya's capital city Grozny to depose the independentist leader Dzhokhar Dudayev. The Ingush forces were supported by the Russian air force and weapons supplies, however, the Chechens succeeded in defending the city. At that point, the Ingush were forced to ask for direct Russian support. On December 11, 1994, President Yeltsin decided to send his troops into Chechnya to end the rebellion. To analyse the composition of Russian and Chechen forces, research

by Grozny's expert Timothy L. Thomas can be taken as the main reference. In the first phase of the war, Russia sent 23.800 troops from the armed forces and the Internal police Troops from the Ministry for Internal Affairs (MVD). However, it is reported that by the 5th of January 1995, a total number of 60.000 soldiers reached the city to join the battle. Russians were divided into brigades and regiments. They were mainly Motorised Infantry Regiments (MRR), Airborne Divisions, and Marine Regiments (Thomas, 2007, pp. 96).

Regarding Chechen forces, Dudayev and his Colonel Aslan Mashkadov had 15.000 soldiers at their disposal, consisting of Abkhazian and Muslim battalions, a special brigade, roughly 6.000 mercenaries and other Chechen and foreign volunteers and some criminals released from the jails to fight (*Ibidem*, pp.97). These 15.000 troops were divided into groups of 15/20 men, split into five or six squads of four people. According to Rupe, "each team had an anti-tank gunner, equipped with an RPG-7 or RPG-18, a machine gunner, an ammunition carrier, and a sniper" (Rupe, 1999, pp.21).

The Russian plan to conquer the city was based on Soviet doctrine, with a huge number of men and vehicles to induce fear and hopelessness in the enemy. Moreover, they estimated Chechens would have little willingness to defend the city and confront Russian troops. However, poor intelligence support, reconnaissance, and analysis led the Russians to underestimate the moral status and effective strength of the Chechen troops defending the city. Russian troops were divided into four columns, each with a different attack



trajectory. By analysing the lines of attack with a Grozny map, it is possible to identify the main objectives of the Russian columns. The main column was the “North Group”, commanded by General Major Pulikovskiy, to conquer Grozny airport, the highways in the north of the city, and the main objective of the operation, namely Grozny Presidential Palace. The “North Group” had the support of the “North-East Group”, commanded by General Lieutenant Rokhlin, who had the mission to conquer the Central Hospital. The third column was the “West Group”, at the orders of General Major Petruk, to occupy the central railway station and the southern oil fields. The last group, the “East Group”, commanded by General Major Staskov, had to occupy the Khankala Airport and reach Minutka Square to join the “North Group” in the occupation of the Presidential Palace. The Soviet doctrine inherited by the Russian armed forces expected the columns to conquer the main infrastructures and the suburbs to ensure control of the supply lines and the lines of communication.

After that, Russians should have entered the city with tanks, mechanised infantry units, armoured vehicles, and units on foot to converge on the main points of the city, certain that the Chechen resistance had surrendered after seeing this show of force. However, the Chechens were highly committed to defending the city. Colonel Mashkadov devised three concentric circles of defence around the Presidential Palace. Rupe describes the layout as having “The inner defence was at a radius of 1.5 km, the middle defence from 2 to 5 km from the palace, and the outermost defence extended to the city’s outskirts. The outer

and middle defences depended on strong points. The inner defence used prepared positions for tank and artillery fire” (Rupe, 1999, pp.20). The Chechen tactic was based on the avoidance of conventional battles, not to let Russian units manoeuvre, but instead, they focused on raids against MVD troops and the rear of the columns, employing 4-people groups to destroy armoured vehicles from the roofs and the windows of the buildings. The most important element of this tactic was its focus on quick decentralised combat in the town (Yakovleff, 2016). To do so, the Chechens could move rapidly in the city thanks to the vast underground net that permitted them to hide, move, and ambush Russian units without being noticed.

The Russian forces employed a total of 80 tanks, mainly T-72s and T-80s9, 208 infantry fighting vehicles (IFV) and various armoured personnel carriers (APC), along with 182 guns and mortars (Rupe, 1999, pp.20). On the other hand, the Chechens had 50 tanks, most of which were not operable, 100 IFVs and 60 guns and mortars, along with almost 150 anti-aircraft guns. As far as the air force was concerned, Russians had air supremacy over Grozny since, in the early phase of the war, they succeeded in destroying Chechen aircraft. Nonetheless, except for the preliminary operations, before entering the city, in the first moments, they decided to not fully exploit this air supremacy to avoid fratricide and friendly fire during the operations on the streets of the city. They also did not use enough air assets for reconnaissance and surveillance (Yakovleff, 2016). However, in the second phase, they used fixed-wing aircraft to conduct massive bombings raids on the city,

causing several civilian victims. In the preliminary operations, alongside the air force, the Russians heavily relied on artillery firepower, firing almost 4,000 rounds per day. They also used artillery as fire support during the fighting in the city. Lieutenant-Colonel Yakovleff

also reported the use of phosphorus, with an estimated average of one phosphorus round every five artillery rounds. Moreover, Russians used air-to-air artillery and “searchlights to cut light infantry (LI) and avoid fratricide” (Yakovleff, 2016).



**Figure 1: A Chechen soldier in front of Grozny's Presidential Palace.**

Source: Mikhail Evstafiev. Wikimedia Commons.

The Battle of Grozny can be divided into two main phases. The first phase started on December 31, 1994, and ended four days later on the 3rd of January 1995. During this phase, the Chechens inflicted huge losses on the Russian columns within the city, applying their tactics against unprepared, disjointed, and uncoordinated Russian units. Chechens employed “hit-and-run” tactics, with ambushes to destroy armoured vehicles with RPGs and machine guns. Their organisation

was fundamental to assure rapidity and precision in hitting mechanised units and their infantry escorts. Moreover, since the Chechens conducted attacks mainly on rooftops and high windows, the Russians did not have vehicles able to shoot at the correct angle to hit them. The result was that the Chechens were able to destroy tanks and armoured vehicles almost without even being targeted (Rupe, 1999). By the end of this phase, the Chechens had destroyed 20 Russian tanks out

of the 26 employed, 102 IFVs out of 120, and killed 800 men out of the 1.000 deployed in the operation (Yakovleff, 2016). This debacle led Russian military leaders to rethink their organisation and tactics. The reorganisation opened the second phase of the battle from the 5th of January to March 13, 1995. The Russians started to employ the urban warfare techniques learned at Stalingrad with combined armed forces, in which the infantry proceeded building-by-building with the support of tanks (Geibel, 1995). In this phase, artillery and air forces were also fundamental in granting support to the combined teams. This battle of attrition brought results, and on January 19, 1995, Russians controlled the Presidential Palace. However, the Battle for Grozny continued until April 1995, when Dudayev was assassinated. From this moment on, the Chechens rebels continued the war using guerrilla warfare and ambushes for another two years when Yeltsin decided to withdraw his troops from Chechnya.

If, in the end, Russia had won the battle, it could not be considered a clear victory due to the shocking losses and the number of destroyed vehicles they had. Moreover, this battle opened a great debate in Russia and the rest of the world about the mistakes they committed and the consequent lessons that can be learned from urban warfare. The mistakes committed by both parties involved are manifold, especially for the Russians. First, during the planning phase, the Russians were over-optimistic, underestimating Chechen capabilities and morale. Therefore, the first lesson refers to the planning phase; the plan must be based on the worst-case scenario, as otherwise, the troops would not be pre-

pared for such an eventuality. Another decisive mistake for the Russians was the lack of intelligence, analysis and reconnaissance. It is reported that Russian troops did not have detailed maps of the city and did not know what route they had to follow to reach an objective (Keller, 2000). The lesson for MOUT here is that in preparation for an urban assault, troops need to know exactly where they will go and what they should expect within the city.

Moreover, satellite reconnaissance and mapping are fundamental for coordinating and command and control. As Grau outlines, the Russians “lacked necessary, detailed, larger-scale maps in scale 1:25.000 or 1:12.500. Aerial photographs and current intelligence were essential for planning, but Russian satellites had been turned off to save money, and few aerial photography missions were conducted” (Grau, 1995, pp.3). Furthermore, the morale of both parties should be considered. In fact, on the one hand, the Chechens were strongly committed to defending Grozny, and the initial success gave them an additional boost. On the other hand, the Russians were not determined, and the failures contributed to a psychological debacle in their ranks. It is estimated that Russians faced 72% of psychological losses,  $\frac{2}{3}$  of which with psychosomatic effects (Yakovleff, 2016). Other Russian shortcomings were poor communication equipment and a fragmented chain of command. These two elements contributed to a high percentage of losses since the troops were sent into the city without the possibility of communicating with each other and adapting to the single situation. For this reason, in an urban environment, enabling

effective communication is fundamental and can prevent losses. However, the difference in the adaptability between the two forces determined the ending of the battle. The previous analysis suggests that, on the one hand, after an initial massive defeat, the Russians were able to reorganise and adapt to the Chechen tactics, shifting their organisation from columns to combined teams, proceeding building-by-building. On the other hand, the Chechen forces did not adapt to the Russian strategy change, making quick ambushes less effective. However, the Chechen forces adapted their strategy after the end of the battle, shifting to guerrilla warfare to force the Russians to retreat.

### The Battle for Baghdad (3-12 April 2003)

The second historical example taken into consideration by this paper is the Battle for Baghdad, which occurred between the 3rd and the 12th of April 2003, in the framework of the Second Gulf War. To complete the invasion of Iraq and depose Saddam Hussein, the US forces had to conquer Baghdad with a MOUT.

United States forces were composed of the 3rd Infantry Division (ID) and the 1st Marine Division (MARDIV), for a total amount of 30.000 troops. These divisions aimed to take control of the Saddam International Airport to guarantee a safe supply line and then proceed toward the “regime district” located in the western part of the city. The conquest of that district should have broken the morale of Iraqis by eliminating their leadership. The divisions were given three attack trajectories

to surround the city from the south, west, and north to achieve these objectives. After creating a cordon around the city, a combination of the air force and raids by mechanised units should have forced the Iraqi regime to surrender (Fiore, 2020). The Iraqi defence forces were constituted of 45.000 soldiers divided into hybrid groups of regular army and paramilitary organisations that had the task of ensuring Saddam’s control at the cost of undermining the coordinated defence of Baghdad. They were positioned in concentric lines, prepared for what they expected was a long siege of the city. Moreover, Iraq’s military leadership “used couriers to establish the city’s defences, constructed hasty barriers, and demolished the eastern Diyala River bridges to block US approach to eastern Baghdad” (*Ibidem*, pp.133).

Regarding the vehicles used in this battle, the US deployed and extensively used M1 Abrams, Bradley Fighting Vehicles, M113 armoured personnel carriers, LAV 25s and Amphibious Assault Vehicles. On the other hand, the main asset operated by the Iraqi forces was the T-72 Lion of Babylon main battle tank. The artillery played an important role in this battle. Whilst the US used it massively as fire support for the forces that entered the city, the Iraqis employed mainly air-defence artillery to dissuade US air operations. However, the US detained air supremacy in the skies over Iraq and was able to use airstrikes alongside land forces to cause the Iraqi regime to capitulate without a real assault. These airstrikes had the effect of weakening Iraqi morale, leading many of them to defect (Fiore, 2020). In addition, the US Air Force provided infantry troops with close air support (CAS) 24 hours

per day. US militaries also created a system of constant coverage in the city, with satellites, Global Hawks, and UAVs to monitor the situation and enable complete communication coverage. Considering all these operations, US flying assets made an estimated 1000 sorties per day in the initial phase of the battle (Sipress, 2003).

The Battle for Baghdad developed in different phases, in which the two sides tried to adapt to the changes with different levels of efficien-

cy. In the first phase, the 3rd ID's 1st and 2nd Brigades attacked Baghdad's outskirts in the south and the northwest. These attacks were conducted to storm the airport against weak and ineffective Iraqi forces. Moreover, Saddam Hussein facilitated US mechanised forces' advance toward the city, giving orders not to destroy roads and bridges. However, 1st MARDIV was late in the schedule of the attack since Iraqis destroyed the bridge over the Diyala River, which slowed down US forces.



**Figure 2 - US M1A1 Abrams under the “Victory Arch” in Baghdad.**

*Source: Technical Sergeant John L. Houghton, Jr., United States Air Force. Wikimedia Commons.*

Understanding the favourable moment, 3rd ID Commander Maj. Gen. Buford C. Blount III changed his strategy to maintain the impetus and the initiative, starting a second battle

phase. Indeed, the initial plan of seizing the city and weakening Iraqi morale was abandoned in favour of a tactic called “Thunder Run”, based on two rapid and consecutive

raids to penetrate the city in the direction of the “regime district” (Fiore, 2020). In this phase, US forces relied on long-range rockets to eliminate the enemy’s fire support as well as a self-propelled howitzer battalion that followed Thunder Runs, concentrating the fire on key intersections along US lines of operation (*Ibidem*, 2020). This tactic was extremely efficient as it permitted the armoured column to move forward without engaging in fights at every intersection. To defend against Thunder Runs, Iraqis relied on the Republican Guard, which organised a combined-arms brigade to counterattack US forces in the northwest to open new communications and supply lines in the city. Moreover, they placed mines on the trajectory of the second Thunder Run, slowing it. However, these efforts were effectively countered by US infantry, who continued their successful operations. The third phase started when Col. Perkins, the Thunder Run brigade commander, decided not only to conduct raids but to conquer and maintain the objectives to break the enemy’s command and control structure. This operation took control of the “regime district”, but heavy fighting occurred against an unexpectedly fierce Iraqi defence, but in the end, the 3rd ID conquered the objective (Johnson, Gereben, Allen, Cohen, Gentile, Hoobler, Schwille, Sollinger, Zeigler, 2019). The takeover of the “regime district” led the Iraqis to capitulate slowly. In this phase, they tried counterattacks with light weapons, but they were uncoordinated and ineffective. At that moment, US troops started to consolidate their control over the city against the last Iraqi resistance, which slowly resorted to guerrilla warfare. The Battle for Baghdad ended on the 12th of

April 2003 after nine days of fighting with a clear US victory, but it started a long phase in which US troops found themselves stuck in a hostile environment.

Even if the US troops achieved the ultimate victory in the Battle for Baghdad, there were mistakes committed by both sides from which some lessons can be drawn. First of all, the Iraqi defensive strategy was confused and unclear. Iraqi troops were not trusted by Saddam, who created mixed teams of militaries and paramilitaries, compromising effectiveness and union of intents. Moreover, Saddam’s order to leave intact roads and bridges not to destroy the city tremendously affected the US advance. As a result, mechanised vehicles were free to move around the city without big impediments. Here, a first lesson can be learned since the defensive side should be prepared to create obstacles for the enemy’s troops by any means necessary to avoid heavily reducing the big defensive advantage Saddam’s forces had in an urban environment. However, another Iraqi mistake occurred when they decided to destroy the bridge over the Diyala River. If, on the one hand, they created a natural barrier against the advance of the 1st MARDIV, on the other hand, they did not redeploy their forces to other parts of the city US troops focused the Thunder Runs on. The second lesson is, therefore, about the transition between different battle phases. Indeed, Iraqis could not anticipate the changes in US strategy and did not prepare to fight against Thunder Runs operations. Moreover, when they tried to counterattack, they resorted to uncoordinated actions, easily neutralised by the 3rd ID. Regarding the US troops, the one main mistake was the decision to accelerate the capitu-

lation of the Iraqi regime by first conquering the “regime district” with Thunder Runs operations. From a tactical point of view, these operations were perfect. However, the choice to focus primarily on the “regime district” and only after the other neighbourhoods of the city created further problems (Johnson, Gereben, Allen, Cohen, Gentile, Hoobler, Schwille, Sollinger, Zeigler, 2019). This decision pushed Iraqis to resort to guerrilla urban warfare while US authorities created a transition government. The guerrilla warfare and the new political situation led to US troops staying in Iraq until 2011. The lesson that US military leadership should have taken is that nowadays, a military operation should also include plans to ensure long-term stability (*Ibidem*, 2019). This lesson is followed by a second one, namely the concept that a perfect tactical operation does not always correspond to strategic success.

### The Battle of Shusha City (4-10 November 2020)

The third historical case analysed by this paper is the Battle for Shusha City, in November 2020, during the second war in Nagorno-Karabakh, between Azerbaijan and Armenia. The Azerbaijani and Armenian governments have claimed this region since the dissolution of the Soviet Union for historical and economic reasons. After the first conflict from 1992 to 1994, in which Armenia gained control of the region, in 2020, Azerbaijan broke the ceasefire agreement by opening the hostilities and conducting an effective invasion. The war started at the end of September 2020, with Azerbaijan, supported

by Türkiye, managing to enter Nagorno-Karabakh and constantly striking Armenian cities and troops, demonstrating their superiority with the help of the Bayraktar TB2 Turkish drones, unmanned vehicles, and long-range munitions. On the other side, Armenian armed forces, supported by Russia, could not organise a consistent defence of the region against the modern technologies employed by the Azerbaijani forces. Shusha City was the last Armenian stronghold on the Azerbaijani path towards Nagorno-Karabakh capital Stepanakert. This city is extremely fortified and difficult to assault since it was built on a high hill and surrounded on three sides by high vertical cliffs, and only one road to enter the city on the fourth side. Moreover, it has high cultural significance for both states and is located in the Lachin corridor, the strip that guarantees the link between Armenia and Nagorno-Karabakh. For these reasons, control of Shusha City was fundamental to the outcome of the conflict and domination of the region. Sources state that 400 Azerbaijani special forces assaulted the city. These troops were divided into four groups of one hundred each and surrounded the city from all directions (The Caspian Post, 2021). Moreover, another 6.000 Azerbaijani forces were ready to approach the city after the fighting for the Lachin corridor. On the Armenian side, 2.000 troops were stationed in the city to defend it against a preannounced attack. The Azerbaijani plan was based on Armenia’s actions in 1994 when the Armenians stealthily infiltrated by climbing the cliffs around the city (Spencer and Ghoorhoo, 2021). Therefore, by the end of October, Azerbaijani special forces approached the city through the sur-

rounding forests to reach the cliffs, avoiding the highly safeguarded Lachin corridor. The Armenian defensive plan was based mainly on ambushes in the territory around Shusha and the use of artillery to slow the advance of Azerbaijani troops (Kuznets, 2020). Regarding artillery, both sides employed massive use of artillery before and during the entry of the city to stress and test enemy resistance. Both sides had heavy artillery and mortars, but Azerbaijani forces employed Belarussian Polonez multiple-launch rocket systems. As for the air force, Azerbaijan had air supremacy, ensuring the control of the sky with Bayraktar TB2 Turkish drones employed for missiles,

reconnaissance, and targeting missions. They also used loitering munitions, such as the Israeli Harop (Spencer and Ghoorhoo, 2021). On the other hand, the Armenian forces' only possibility was to use Russian Orlan-10 drones for targeting missions. Regarding the vehicles and the weapons used, Armenians mainly operated T-72 tanks and other armoured vehicles, including the BMP-2 infantry fighting vehicle. Instead, Azerbaijani forces primarily used rocket-propelled grenades and portable anti-tank guided missiles. In addition, when they entered the city, they also employed armoured vehicles and tanks (Kuznets, 2020).



**Figure 3 - T-72 memorial at the Stepanakert-Shusha road.**

*Source: Julian Nyča, Wikimedia Commons.*

As with the other two battles analysed, the Battle of Shusha City presents different phases. The first phase started on November

5, with the Azerbaijanis blocking the supply lines toward Shusha, destroying the Hakari River bridge to interrupt the lines of com-



munication. At that moment, the city was surrounded on three sides. On 6 November, Azerbaijani special forces climbed the cliffs to penetrate the city, blocking access to the main road and started to engage Armenians' defensive positions with close-contact street fighting. This first phase of the Azerbaijani offensive ended on the 7th of November, when heavy fog limited the Azerbaijani's use of drones and aerial surveillance, allowing Armenians to gain the initiative. Without the technological advantage, Armenians were able to organise counterattacks in the city, incrementing their use of armoured vehicles that were temporarily less vulnerable to drones. However, Azerbaijani forces shifted very well from an offensive to a defensive posture and successfully resisted the counterattacks. Azerbaijan's successful defence enabled it to open the third phase of the battle, which saw them commencing an offensive within the city in a building-by-building operation. This last phase ended on the 9th of November when Azerbaijan declared victory and full control of the city.

Regarding the mistakes committed in this battle, it appears that Azerbaijani forces operated with minimal errors and instead exploited Armenian shortcomings. Looking at the geographic and strategic positioning of Shusha City, it could reasonably be concluded it is ideally suited for defence; Shusha is a stronghold on a high hill, with only one access route. However, Armenian forces failed to maintain the position due to the technological mismatch and a lack of creativity. As pointed out by John Spencer in his 2021 article, combined arms, long-range missiles, air superiority, and drones can be decisive in a MOUT if their

potential is fully exploited, as the Azerbaijanis did in Shusha (Spencer, 2021). However, the Armenians could have resisted this technological and tactical gap had they succeeded in learning the lessons of their successes in 1992. When Armenians conquered the city in the First Nagorno-Karabakh War, they did so by climbing the cliffs just as the Azerbaijanis did almost ten years later. Therefore, the Armenians neglected the defensive importance of securing the cliffs, leaving them insufficiently defended and highlighting a lack of creativity in defensive planning.

Furthermore, this battle presented some lessons for the future of MOUT. Firstly, the transition between offence and defence is fundamental in a single urban battle. After the first Azerbaijani offensive, the Armenians could still have won the battle with a counteroffensive. Still, the Azerbaijanis' efficient transition into a defensive posture denied Armenian efforts, allowing them to regain the initiative and eventually win the battle. A lesson can also be learned concerning the importance given to the weather. Despite the efficient planning and conduct of Azerbaijani operations, the fog almost compromised their entire battle, limiting the use of technology and enabling Armenians to organise a counteroffensive.

For this reason, in planning a military operation, the weather should also be considered a decisive factor that can modify and change the dynamics of the fighting. The last lesson that can be learned from the battle of Shusha City regards troop preparation for urban combat. Even if the Azerbaijani forces did have a significant technological advantage, they could not have completed the mission

without the courage and skill of their soldiers, who climbed the cliffs with light equipment to

penetrate the city (The Caspian Post, 2021).

## **ANALYSIS OF URBAN WARFARE**

The previous chapter discussed three case studies that will serve as a historical context for the goal of this chapter which is the analysis of urban warfare. This will be done by discerning the similarities in urban warfare based on the three case studies, while an analysis of urban warfare during the War in Ukraine will serve as an example of modern urban combat between industrialised and technologically advanced peers. Consequently, the key characteristics and insights from this chapter can be applied to European armies and cities, which will be discussed in the following chapter.

### **Common points and evolution in historical cases**

Combat operations in urban environments are defined by physical terrain, infrastructure and population. The first two pose problems for movement, the use of force and intelligence and also communications, while the latter is the most important challenge for urban warfare due to the presence of civilians (Michel-Kleisbauer, 2020).

Urban warfare normally follows a historically predictable pattern, beginning with fighting directly in the field and ending with one of the parties gaining control over the city (Fiore, 2020). There are some common points for urban battles that have been summarised by several authors (Rosenau, 1997; Konaev, 2019; Michel-Kleisbauer, 2020; Spencer,

2022):

1. Cities level the playing field, but normally the urban defender has the advantage. Cities normally favour the defender over the attacker, even if the defender's armed forces are technologically, numerically and materially inferior compared to the enemy. Thus, prepared urban defenders have the advantage.
2. Urban terrain diminishes the attacker's ability to gather intelligence and surveillance to engage at a distance, as obstacles prevent them from easily analysing the battlefield.
3. The defender can see and engage the attacker, while the attacker has limited cover. There is a tactical advantage as defenders can remain hidden inside and under buildings while the attackers are more exposed. In addition, the urban defender understands the urban environment, it is theirs.
4. Buildings can serve as fortified protection bunkers. There are structures in cities that are ideal for military defence purposes. Defending forces can also shape the urban area to ensure the best protection and safety to fight the adversaries, depending on the needs.
5. Attackers must use explosive force to enter buildings (either by destroying the building or preparing an attack with ex-

- plosive munition), which is more costly than defending.
6. The defender maintains the freedom to manoeuvre within the urban terrain. As they know the terrain well, they can use the infrastructure for defensive or offensive purposes and even construct obstacles.
  7. The underground domain serves as a defender's refuge through the creation of connecting tunnels between buildings or the exploitation of already existing underground networks.
  8. Neither the attacker nor the defender can concentrate their forces against the other on a specific geographical point. Strategically they need to be in different positions to cover the whole terrain and alternate offensive and defensive strategies depending on the situation, constantly shifting from the first to the latter and vice versa. This way, they can prevent ambushes or unexpected attacks while maintaining an advantageous strategic position against the enemy.



*Figure 4 - Destroyed urban landscape.*

Most of these characteristics of urban warfare can be found in the three case studies featured in chapter one. Still, there remain some points of divergence between these patterns of urban warfare and the three case studies. For example, the Battles for Grozny, Baghdad and Shusha demonstrate that terrain knowledge

does not provide the defender with a decisive edge over the attacker. Another point is that neither the attacker nor the defender can concentrate their forces on a single point against each other. This is evident, for example, in Grozny, where offensive forces used three different army groups to besiege the city from

different flanks, or in Baghdad, where the US forces also attacked from three different positions. Moreover, there are also similarities. For instance, in all the case studies, artillery fire, tanks and air forces were used with a reduced role for technology, except for the use of loitering drones in Shusha City. The duration of the urban war is another similarity that can be pointed out, which is influenced by the display of the city. These battles were generally short, lasting for days or only a few months. Still, as Peter Mansoor, a former US commander during the Battle for Baghdad has pointed out, “a single building can consume an entire battalion in a day’s fighting” (The Economist, 2022). The relatively short duration of modern sieges contrasts with testimonials of commanders and historical research that attest to the time-consuming and resource-draining effort required in MOUT. This discrepancy can be explained by the tendency mentioned in the introduction of smaller armies fighting in bigger cities. A smaller army does not only affect the attacker but also the defender. As Anthony King notes, urban warfare is increasingly evolving into “localised micro-sieges” (The Economist, 2022). Consequently, an explanation for the relatively short duration of urban battles could be that these micro-sieges are indeed time-consuming and resource-draining, in line with testimonials and historical research, but in the bigger picture, accelerate urban battles.

What is evident from this analysis is that cities remain strategically important for wars, armies need to seek both defensive and offensive strategies and joint force capabilities are needed to retain urban terrain. These are a combination of traditional elements, such as

bombs or infantry, with modern instruments, such as drones, like in the battle for Shusha (Spencer & Ghoorhoo, 2021). A current relevant example of this is the war in Ukraine, which allows for further analysis of urban warfare features while understanding the strategies that both Russian and Ukrainian forces employ.

## Urban warfare during the War in Ukraine: The Battle of Kyiv

### *Introductory remarks*

This part will concentrate on urban warfare during the War in Ukraine, focusing on the Battle of Kyiv because of its modern urban warfare implications. It will build upon the insights from the Battle of Grozny, laid out in chapter one, and the common points of urban warfare mentioned in the first part of this chapter. Russian MOUT will be discussed from a doctrinal point of view and contrasted with the execution of this doctrine in Ukraine. In the case of Kyiv, this contrast will shed light upon the mismatch between Russian doctrine, force design and goals. Similarly, the subsequent assessment of Ukraine’s defence of Kyiv offers insights into how to structure European armies and mount an effective urban defence.

### *Russian MOUT in Ukraine: disregarding doctrine, focus on psychological effects*

Russia has a long history of military operations in urban settings. The War in Ukraine has once more demonstrated Russia’s distinct modus operandi in an urban environment. Yet Russia does not have an urban warfare doctrine, and according to Michael Kofman,

“only a tiny slice of the force trains in urban warfare” (Kofman, 2022). Both the Soviet and Russian Army have been artillery armies. However, whereas the Soviet Army was a mobilisation army, the Russian Army is a largely professional force defined by a discrepancy between soldiers and equipment favouring the latter (*Ibidem*). This forced displacement, having few soldiers yet large numbers of equipment, especially artillery, has implications for urban warfare. As noted in the previous paragraph, the ability to execute combined arms operations is essential for urban warfare. Russia’s unbalanced force design inhibits the synchronisation of arms and units, further exacerbated by doctrinal choices and the prevailing military culture.

Soviet and Russian doctrine has relied on conducting a deep operation on the strategic and operational level whilst overwhelming the enemy on the tactical level through achieving and exploiting tactical breakthroughs. The deep operation is conducted with artillery, air power and troops behind enemy lines, thereby shaping the tactical level by thinning out enemy forces and disrupting their command-and-control centres (Sijbrandi, 2018). However, the first phase of the invasion of Ukraine demonstrated Russia’s complete disregard for its doctrine, as well as an inability to execute it even if it were willing to do so. During the Battle of Kyiv, the deep operation failed because the effectiveness of long-range (missile) artillery and air power was limited. Instead of solely targeting strategic and operational targets such as air defence, weapon depots, and command centres, civilians and civilian infrastructure were targeted to achieve psychological effects. Similar methods sur-

faced during the Battle of Grozny and Russia’s involvement in Syria, demonstrating a disregard for civilians caught in the crosshairs as well as international law.

At the same time, airlifted special forces and airborne troops were too unsupported, dispersed and limited in terms of soldiers and heavy equipment. As a result, they were unable to hold the terrain until relieved by the armoured advances coming from the north and northeast, making any breakthrough at the tactical level impossible. Russia’s choice to disregard its doctrine in the Battle of Kyiv by prioritising psychological effects over military effectiveness exposed Russian thinking on urban warfare as a psychological battle of minds.

### *Ukrainian MOUT: societal resilience and clear decision-making*

Whereas Russia, in the beginning, intentionally bypassed cities to maintain operational tempo, Ukraine actively chose to retreat into cities. This decision allowed the Ukrainians to negate Russia’s strengths and attack Russian supply lines from these tactical strongholds. Once Russian forces did enter cities, they faced not only the Ukrainian Army but also civilians.

The Ukrainian Army was reluctant to implement the political leadership’s decision to arm citizens in the first days of the war. According to Ukrainian military leaders, “it caused friendly-fire incidents and interference with their force’s operations”. However, as Ukrainian Interior Minister Denys Monastyrskyi puts it, armed civilians posed an “important deterrent” for both Russians and Ukrainian traitors. (Sonne, 2022).

The reality is that arming citizens allowed for

the continuous harassment of Russian troops, consequently turning every street corner into a battleground. Their involvement in defence of cities gave civilians a purpose and demonstrated Ukraine's determination. By handing over weapons to its citizens, Ukraine's political leadership effectively made it impossible to capitulate, as capitulation would come down to the decision of every individual citizen.

Because of Kyiv's significance, Ukraine did not initially choose to retreat fully into the city but created two defensive rings instead. The outer ring was placed in Kyiv's suburbs and surrounding areas, whereas the inner ring defended the capital. In preparation for the invasion, all command posts were moved into the field facing Russia's likely directions of attack. The outer ring, marked by the difficult terrain surrounding Kyiv, including water courses and dense forest, slowed down the Russian advance and reflects the disposition of Chechen defenders in the Battle of Grozny, as analysed in the first section.

In addition, the Ukrainian commander that led the defence of Kyiv, Oleksandr Syrksy, divided the city into sectors with an assigned commander while tactical decisions were to be made by officers on the ground (Ibid., 2022). This command structure is called 'mission command', in essence, a decentralised execution subsidiarity system, which provided the Ukrainians with a clear chain of command as well as tactical flexibility, allowing for a quick response to rapidly evolving developments.

### *Russia's war plan and the significance of Kyiv*

The capture of Kyiv played an essential part in Russia's overall war plan. It would have

decapitated Ukraine's military and political leadership and sent a strong message to the Ukrainian people and other countries willing to help Ukraine. Therefore, Russia dedicated several axes of attack to Kyiv. Some units were even sent to Belarus to have staging areas closer to Kyiv.

Russia's initial offensive plan was centred around Zelensky and Hostomel Airport. Special forces were included to take out Zelensky whilst airborne forces captured Hostomel Airport, just outside Kyiv. The former would create a shock effect and leave Ukraine without guidance, the latter would hand the Russian forces a runway to airlift reinforcements. With chapter two's common points of urban warfare in mind, it can be deduced that Russia identified the advantage of defenders and their chain of command as priority targets. The defender's advantage was to be negated by prioritising quality over quantity, as Russia's elite troops were from the outset involved in the Kyiv operation, while the chain of command was to be cut off at the head using special forces and hit squads that had infiltrated Kyiv before the invasion (Shuster, 2022).

### *Russian problems with MOUT and the defender's advantage in Kyiv*

Nevertheless, Russian troops struggled to overcome the defender's advantage. This was partly due to self-inflicted difficulties, including poor preparation, coordination, infantry, intelligence gathering and sharing, as well as supply and logistics problems. The latter is a long-standing problem that the 2008 reforms attempted to address by embedding a support platoon in the Battalion Tactical Group (BTG) structure. According to former

Deputy Defence Minister and senior Russian logistics officer General Dmitriy Bulgakov, a Russian BTG would be able to support itself for up to six days because of this (Lester W. Grau and Charles K. Bartles, 2022). However, despite the 2008 reforms, Russia's enduring inability to supply its troops continued to be on display in Ukraine, resulting in Bulgakov's dismissal as Deputy Minister. The

numerous accounts of Russian soldiers looting stores and homes and buying equipment themselves are a testament to this. Russia's supply problems should be attributed to a lack of preparation time, widespread corruption, general negligence, its non-expeditionary logistic system, lack of non-commissioned officers (NCOs) and a centralised command (Ti, 2022).



*Figure 5 - Destroyed Russian tank in Ukraine.*

Ukraine's defender's advantage in Kyiv was further enhanced because of its large underground network, barricades, and the size of the city. The vast underground network helped the defensive side to ambush, hide, and move stealthily from point A to point B, similar to the Grozny case. In the case of Kyiv,

however, the underground network enabled citizens to store supplies and protect families from aerial attacks and artillery (Steckelberg, Taylor, Mellen, Horton, Moriarty, 2022).

Furthermore, barricades were extensively used in Kyiv and other urban battles, such as the Siege of Mariupol. Here the paradox of ur-

ban warfare came into play, as according to John Spencer, “the more a city is bombed, the harder it is to conquer” (Spencer, 2022). The Russian strategy to target civilian infrastructure and buildings resulted in concrete and iron rubble that the Ukrainian defenders could use as strong points to defend or to prepare assaults and hide explosives. Similarly, the rubble and grouped vehicles such as school buses or trucks were used to redirect Russian troops toward more defensible streets, in which Ukrainians were prepared to fight. These zones were also pre-targeted by Ukrainian artillery, which would have fired easily against redirected Russian troops (*Ibidem*, 2022).

The third element that enabled Ukraine’s success was the sheer size of Kyiv, surface-wise. A population of almost 3 million people living on a surface of 839 square kilometres makes Kyiv the 7th most populous city in Europe

(World Population Review, 2022). On the one hand, these features allowed Ukrainians to gather a massive civilian force to organise the defence of the city. On the other hand, the surface area and relative troops’ limited numbers impeded Russia’s ability to control the city fully, resulting in the planning of a precise and surgical MOUT.

### *Concluding remarks*

This makes the Battle of Kyiv a textbook example of modern urban warfare, in which smaller armies must negotiate their way into bigger cities. Armies limit their chances of success when troops are not sufficiently led, prepared, equipped, supported, and coordinated to fight in these environments. These insights from the Battle for Kyiv and the historical case studies prompt a rethink in how European armies and cities are structured.

## **ADAPTATION OF EUROPEAN ARMIES AND CITIES TO MOUT**

The main lessons from the previous chapters pertinent to why cities are important and how they change warfare prompt a rethinking of European armies and cities. For example, should European militaries adapt to the increasingly uneven balance of smaller armies and bigger cities? And if so, how? Does an increased focus on MOUT necessitate a different doctrine, training, force design and equipment? And what are the best methods for a military to prepare and execute an effective MOUT? The first paragraph intends to answer these questions by characterising the

current force design of European armies and applying the findings of the previous chapters to future European training, equipment, force design and doctrine. The realisation that military operations will increasingly take place in urban terrain requires a paradigm shift in thinking about operations, concentrating on urban combat instead of rural combat, and requires a comprehensive, all-encompassing reorganisation of European armies.

Similarly, the increased volume of MOUT and vicinity of Central and Eastern European cities (CEEC) to current and potential bat-



tegrounds should impact urban planning to ensure civilian protection and give European defenders an edge over attackers. Therefore, the second paragraph attempts to characterise CEEC and make recommendations on making urban planning suitable for MOUT based on the insights from the previous chapters.

## European armies

### *European armies in the post-Cold War era: quality over quantity, focus on inferior adversaries*

Since the Cold War, European armies have increasingly been preparing for expeditionary operations against irregular forces, consequently adapting their armed forces. This resulted in the quantity being traded for quality. Smaller professional armies replaced large conscript armies, and equipment numbers dwindled in favour of so-called *Wunderwaffe* weapons that could alter the outcome of war through sheer technological superiority. The underlying reason was not so much of a military necessity but rather a result of political decision-making. Bluntly, relying on quality over quantity effectively generally translates to fewer body bags and fewer voters affected by military affairs.

However, the return of war to the European continent, as well as military mobilisation, poses European armies with the question of how to defend their home turf against peer and near-peer competitors. Competitors that can back up quality with quantity in personnel and equipment. Does quality over quantity still count in such a scenario? And in particular, does it count in an urban warfare scenario where defenders enjoy a natural

advantage? The previous chapters have shown that quantity is a significant asset in urban combat, especially if the numbers are backed up by adequate weapons and urban warfare training, terrain knowledge and decentralised command structures.

### *Modern urban warfare implications on doctrine, training, force design and equipment*

The expected preponderance of urban terrain in future military operations should be reflected in the military doctrine and training of European armies. This would improve the understanding of MOUT, its preparation and execution. The amount of urban warfare training should not only increase but also change in nature and add new elements.

One such essential element is underground warfare. Because modern armies rely on satellite navigation, drone surveillance, communication systems, and night-vision goggles, and much of the modern mining equipment does not work below the surface, the under-armed contender can be expected to make extensive use of the subterranean to negate their adversaries' strengths. In addition, subterranean environments bring new challenges, such as below-zero temperatures, absence of ambient light, lack of oxygen and presence of toxic gas. European armies are currently not trained and equipped for underground warfare. Following a recent urban tunnel warfare exercise by British Army engineers, participants stated that "you realise that unless you are properly drilled and have spent a long time down there, you're not moving fast" (The Economist, 2022).

Another element is training the ability to car-

ry out psychological operations (PSYOPS) aimed at civilians and military personnel. A key lesson from the War in Ukraine, although not new or original, should be that civilian and military morale and resilience can be decisive elements in warfare, and the Battle of Kyiv, in particular, has shown the role that PSYOPS can play in this. As a result, developing the ability to resist such actions should be an absolute priority for every army that has to deal with urban warfare (South, 2018).

Furthermore, as urban warfare is likely to turn into a series of small group battles, units must be prepared to split into several relatively autonomous sub-units, both for offensive and defensive purposes. Consequently, a higher degree of flexibility is requested for all the command-and-control structures. To negate the weaknesses of individual capabilities, these capabilities should operate in network-enabled synergy, i.e. combined arms units. This ensures independent yet connected units can solve different tasks. The core of these groups should be composed of mechanised infantry sporting tanks, IFVs and other types of armoured vehicles. Moreover, these groups should also include artillery units to clear the path, similar to the US Thunder Runs in Baghdad.

In addition, other specialists are required, such as medical specialists, engineers for bringing and putting down obstructions and creating tunnels, electronic warfare specialists and joint terminal attack controllers (JTAC) for guiding in air support (Karadeli, 2022). This tactical composition should be enforced through training and military drills to enhance interoperability and effectiveness. In such a fragmented context, operational effec-

tiveness will also very much depend on the quality of lower-level leadership (Rosenau, 1997).

This is why a flexible chain of command is indispensable, as it enables the forces to maintain the initiative. Urban terrain thwarts visibility and signals, consequently compromising a commander's ability to make informed decisions and communicate with units. The use of mission command, successfully employed by the Ukrainians during the Battle of Kyiv, mitigates some of the challenges that reduced visibility and communications pose.

The Russian *modus operandi* during urban battles in Ukraine has regularly involved sending in armoured vehicles alone or in tight columns, not supported by infantry. The isolated vehicles were easily picked off by other Ukrainian armoured vehicles or infantry equipped with anti-tank guided missiles (ATGMs), while the tight columns got bogged down by barricades and subsequently fell prey to enemy artillery or ATGMs. As urban operations instructor Jayson Geroux argues, this does not necessarily mean that armoured vehicles are obsolete in urban warfare. Geroux points out that the performance of armoured vehicles in urban warfare hinges on how tactics, techniques, and procedures (TTP) are executed (Geroux, 2022). In short, the operator plays an important role in the performance of a vehicle, something that other experts such as Rob Lee and Kofman have repeated (Lee and Kofman, 2022). In addition, Geroux maintains that armoured vehicles are indispensable for urban combat and speed up urban operations, provided that TTPs are executed well (Geroux, 2022).

To diminish vehicle vulnerability, dismounted

infantry and engineers should screen ahead of the vehicles. This makes them well-placed to timely spot anti-armour capabilities while advancing to clear ground- and underground-level structures (Spencer and Geroux, 2021 & 2021). A further advantage is that vehicles' active protection system (APS) and explosive reactive armour (ERA) do not result in collateral damage for dismounts when a vehicle is struck.

It is true. However, that armoured vehicles are vulnerable in urban environments due to their limited situational awareness (SA), the limited elevation of weapon systems and their role as a force multiplier, making them priority targets. Armies have attempted to mitigate these vulnerabilities by adding armour and external systems such as remote weapon systems (RWS), jammers, navigation systems and APS. However, these, in turn, regularly result in overcrowding already crowded turrets and increasing the number of dead spaces (Hawkes, 2022). Other solutions could be the integration of unmanned aerial systems (UAS), unmanned ground vehicles (UGV) and the internal integration of aforementioned systems to improve SA, as opposed to external integration.

### *Concluding remarks*

Although this FFT does not intend to offer an all-encompassing solution to the complex question of armoured vehicle development, it nevertheless maintains that military operations are increasingly conducted in urban environments, and that armoured vehicles should reflect this. As Geroux argues, armoured vehicles have a place in urban warfare. As *Wunderwaffen* do not exist, and every

capability has a weakness, a synergy between units and equipment remains vital in minimising weaknesses in Armed force capability. Ultimately, armoured vehicles are part of a wider, mutually reinforcing network, colloquially known as combined arms. As King framed it, this approach is the best guarantee for European armies to win localised micro-sieges, thereby overcoming the trend of smaller armies fighting in bigger cities. European armies do well to remember this when preparing for and executing MOUT.

## European cities

### *Characteristics of CEEC*

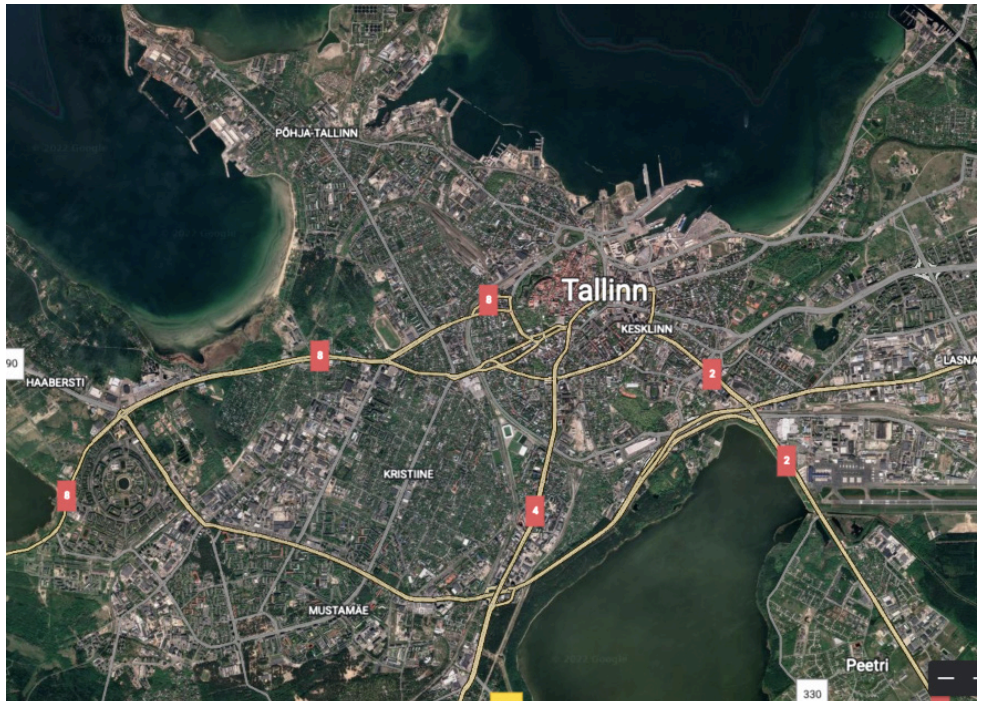
Like European armies, European cities must adapt to the preponderance of urban terrain in military operations by adopting urban planning schemes that balance civilian protection and strategic defence. CEECs have common patterns that could be used to adapt urban planning to defence planning. Most CEECs are built around a large historical core surrounded by a radial transit network or under irregular urban planning.

These two patterns are usually intertwined in CEEC as the heritage of historical European cultural identity and the need for quick expansion (Bertaud, 2004). What characterises a radial street pattern is the outward extension of streets in a semi or complete structure according to the terrain structure or depending on natural barriers. Such structures are designed to increase mobility flows into the city centre and are usually complemented with large rings or concentric loops around the city. On the other hand, irregular street patterns are defined by the emergence of suc-

cessive layers due to a re-urbanisation of the area or natural obstacles (US Department of the Army, 2017).

These patterns are well illustrated by Tallinn, the capital of Estonia. Large radial concentric

transits link the suburbs to the historical city centre, while natural obstacles such as water spots make the surrounding street patterns irregular.



**Figure. 6 - Satellite view of Tallinn.**

Source: Google Earth - Maxar Technologies

Such a diversity between irregular and radial urban structures is observable in the Baltic States, where the influence of communism is present throughout the repartition of industrial and residential suburbs. The rapid modernisation and the opening to capitalism after the fall of the Soviet Union required CEEC to build large suburbs serving the historical

centre by transit due to the unavoidable increase in motorisation. The absence of market mechanisms and real estate during the communist period impacted the spatial structure of CEEC, as decisions were mostly taken to “minimise the input rather than maximising the values” (Bertaud, 2004). In this aspect, this period is well illustrated under high-den-

city suburbs and unused industrial land close to city centres. On the other hand, transit ways need to be renovated to link suburbs to the city centre. Furthermore, most CEE capital cities are equipped or could be equipped with subways and underground systems to create rapid transit routes for the population. When looking at different CEECs, it is noticeable how terrain plays a role in their urban structures. Many main CEECs are crossed by rivers such as the Danube, the Vistula, the Daugava or the Neris river, and many others. Main cities were historically built around these rivers as must-haves for commercial and transiting roads. Furthermore, Baltic states' principal cities are located near the Baltic Sea, which also impacts their architecture as they will adopt a more linear or satellite urban pattern to maximise their access to the sea.

An urban satellite pattern is mostly observable around main cities with dependent smaller urban areas surrounding it. This pattern can be observed around every capital in Eastern or Central Europe. On the other hand, a linear urban pattern is usually due to terrain restrictions such as a body of water or natural terrain corridor, forming an elongated urban design (U.S Department of the Army, 2017).

### *Defensibility of CEEC*

The particular urban structure of CEECs makes them effective to defend. The radial street pattern makes it harder for attacking forces "to manoeuvre, resulting in a loss of momentum which can create congestion and, in this case, increases the risks of ambush" (US Department of the Army, 2017). As this system aims to create rapid transit toward the city centre, it is easier for the defenders

to decide which streets to block or to defend. Furthermore, it gives a certain advantage to the defensive forces to bring supplies and reinforcements, but also for moving quicker than the attacker to ambush due to the circular structure of the streets. In addition to the radial street structure, an irregular pattern also makes the terrain heavily unpredictable for the attacking forces, hiding natural obstacles and relief that could be used to divert the assailant. Nonetheless, it is the responsibility of the defender to make good use of natural obstacles and not make the mistake of overvaluing them, as has been observed in the battle of Shusha City.

Such a combination is to be exploited by the defensive forces to create kill zones during the assault phase by using natural or urban obstacles to block the enemy's penetration into the city (Fiore, 2020). Supported by enough firepower and adequate equipment, these kill zones would cause important losses to the enemy both in manpower and resources, delay its progress and allow time for evacuation or counterattacks from the defensive side.

A linear urban pattern shows effectiveness in developing a series of strong defensive positions to delay the attacker and plan counter-offensives (Department of the Army, 2017). The channelled nature of urban terrain creates depth, both for the attacking and defending forces. Whereas the defending forces must avoid the city becoming surrounded, such a linear pattern makes it more difficult for the attacker to deploy, combined with modern army decreased manpower. National borders are usually determined by natural barriers such as rivers, lakes or mountains. In this aspect, the linear urban pattern fits the

natural landscapes of CEEC borders. Therefore, cities that are significantly vulnerable to attack and are situated near important natural obstacles should plan their urban expansion linearly to these obstacles to counter “Blitzkrieg” invasions.

Following the linear structure of border cities, bigger inland cities could be built around a satellite urban pattern. This system “supports forces in the principal urban area at the hub with means of reinforcement, resupply, and evacuation. In some instances, these outlying areas are mutually supporting battle positions” (Department of the Army, 2017). Therefore, it would create the necessary tools and roads to effectively supply main cities in the event of an attack. Such a pattern goes well with a radial street pattern that allows rapid transit for supply or evacuation. Civilian evacuation routes must be already pinpointed and planned according to the proximity of the attacks. This is why a radial street pattern and a satellite urban structure make it easier to link every part of the city and evacuate towards a more secure urban area.

Whereas it has been previously mentioned that the presence of rivers around CEEC, such natural roads could also be used for evacuation and re-supply for the defensive forces. Furthermore, rivers are natural obstacles that could be transformed into strong defensive positions. Defenders should organise their defence, evacuation and supply behind this natural barrier, conduct their operations, and keep the battlefield on the other side. To do so, it is important for defending cities to prepare secure passage between the two sides. It could be done through mobile bridges or boats. Bridges are always an easy target for

attacking forces, artillery or air strikes. Moreover, it allows an easy transition between attacking and defending. Therefore, the defensive forces must allocate the necessary air defences or protection around these strategic passages.

Regarding safe passage, subways and underground transits are a keen interest for the defensive party. It allows undetected movements of troops and supplies while providing effective shelter against artillery or air strikes. Defenders must study the urban underground systems, especially during the siege phase. During the battle of Mariupol in Ukraine, underground systems were extremely useful in compromising Russian troops from taking control of the city. On the other hand, subways and rail systems represent an important asset for defenders during the approach phase. To prevent isolation, they must be able to quickly relocate and attribute a significant defensive force outside the urban area to avoid being surrounded. Mobility is extremely important in this matter. Fast access roads or subways to link opposing parts of the city while remaining hidden are a strategic advantage.

In the meantime, defensive forces want to ward off armoured vehicles or heavy weapons from penetrating the city. Therefore, rubble or mobile obstacles offer a perfect solution to delay the enemy’s advance. To further increase preventative measures, CEEC could place mobile roadblocks that could be closed or opened depending on their needs.

As previously mentioned, armies must protect citizens. However, principles of precaution, distinction and proportionality are often not well distinguished, especially for the attack-

ing forces. CEEC must integrate this vision of urban planning into residential areas, suburbs and buildings. As these parts of the city are usually eccentric to the historical centre and represent the largest population density, they could be a target for the attacking forces. High concrete buildings disturb artillery and create rubble or strong fortifications. Nonetheless, the population of these buildings, if not evacuated in time, are vulnerable. CEEC could therefore build bunkers or shelters to protect the inhabitants in these buildings. Lastly, the population's morale and communication are vital in defending cities. Defenders must expect the attacking forces to disturb communication lines and news feeds.

Such means could be achieved through cyber-attacks or precision strikes on specific infrastructure. CEEC must therefore secure communication lines with its population to prevent fake news and protect critical infrastructures to bolster resilience. The internet and data centres are increasingly necessary to effectively run government institutions in an era of increased digitalisation. CEEC could rely on private-public partnerships such as Cloud providers or internet providers, as has been done with Elon Musk's StarLink satellite system, keeping Ukraine connected when its internet faced massive Russian cyber-attacks (Lerman & Zakrzewski, 2022).

## **CONCLUDING REMARKS AND RECOMMENDATIONS**

The resurgent threat of a Russian invasion in Eastern Europe and the expected preponderance of MOUT because of increased urbanisation prompted this paper to reassess the implications of modern urban warfare on European armies and cities. The latter are important strategic objectives with political, military, economic, symbolic and cultural significance, influencing the dynamics and outcomes of wars. For this reason, it is important to understand what an increased emphasis on MOUT would mean for European armies and cities. To do this, this paper has first discussed three recent historical examples, making it the basis of a more general analysis of urban warfare in chapter two. This analysis has highlighted common patterns of urban warfare in recent history while analysing re-

cent urban combat between highly industrialised and technologically advanced peers in Ukraine.

The main insights about modern urban warfare are:

- Cities are valuable targets because of their political, military, economic, historical, cultural and symbolic significance.
- Structures render urban terrain difficult for military operations. This difficulty depends on the distance between structures, their height, and their amount. Structures inhibit visibility, communications, and movement.
- The presence of civilians adds another difficulty to MOUT. Civilians and civilian infrastructure should not be targeted under international humanitarian law,

consequently necessitating a much more cautious approach than in non-urban environments. Furthermore, civilians can decide to participate in military operations.

- The sub-surface adds a third domain to the operational environment.
- Cities level the playing field, but the urban defender has the advantage. This advantage derives from better visibility, the ability to hide and better knowledge of the terrain.
- Urban warfare tends to involve smaller armies fighting in bigger cities, resulting in localised micro-sieges.

The last chapter has built upon these insights to provide recommendations on how to adapt European armies:

1. **A combined arms approach.** To include all capabilities in small autonomous teams, that will be able to split and re-task.
2. **Quantity is a quality,** especially given the trend of smaller armies fighting in bigger cities.
3. **Increased MOUT training,** with a special focus on underground warfare.
4. **Ability to wage PSYOPS.** Morale is an important factor in warfare. Affecting enemy morale while being resilient to enemy PSYOPS decides battles.
5. **Implementing mission command.** This creates a clear chain of command and allows for operational flexibility. Mission command reduces limited visibility and communications in an urban environment.

Moreover, from the last chapter of this paper also some policy recommendations can be drawn about how to include civilian protection and military effectiveness in urban planning through:

1. **Consultations between urban planners, local governments, and militaries.** To provide cities with urban planning that can be effective for MOUTs in conflict times.
2. **Implementing best practices from other cities.** Taking the examples of other cities and historical cases is always a good idea.
3. **Applying linear urban planning and emphasising a satellite urban structure.** As the analysis conducted on CEEC cities proved
4. **Developing underground networks and roads linking city ends.** To improve the connection of distant points and communication.
5. **Securing lines of communication.** To always be able to coordinate and maintain situational awareness.
6. **Emphasising the construction of high concrete buildings, structures, underground shelters, and bunkers.** To use them as protection during the defence of the city.



## BIBLIOGRAPHY

- Arhirova H. and Karmanau Y. (2022). “Ukrainian resistance grows in Russian - occupied areas”. AP News. <https://apnews.com/article/russia-ukraine-kyiv-moscow-80812f4d70f133d2d1616d11154e0cba>.
- BBC. (2017). “How the battle for Mosul unfolded”. <https://www.bbc.com/news/world-middle-east-37702442>
- Bertaud, A. (2004). “The spatial structures of Central and Eastern European cities”. Contributions to Economics, 91–110. [https://doi.org/10.1007/3-7908-1727-9\\_5](https://doi.org/10.1007/3-7908-1727-9_5).
- Daryl G. Press. (1999). “Urban Warfare: Options, Problems and The Future”. Conference Summary. Retrieved from: [https://www.files.ethz.ch/isn/92711/Urban\\_Warfare.pdf](https://www.files.ethz.ch/isn/92711/Urban_Warfare.pdf).
- Eckel, M. (2022). Russian Officials Predicted A Quick Triumph In Ukraine. Did Bad Intelligence Skew Kremlin Decision-Making? <https://www.rferl.org/a/russia-invasion-ukraine-intelligence-putin/31748594.html>
- The Economist (2022, August 17). Mean streets. <https://www.economist.com/international/2022/08/17/armies-are-re-learning-how-to-fight-in-cities>
- Fiore Nicolas, Major. (2020). “The 2003 Battle of Baghdad: A Case Study of Urban Battle during Large-Scale Combat Operations”. Military Review September-October 2020, pp. 127-139. <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/September-October-2020/Fiore-Battle-Baghdad/>.
- Forces News, (8.04.2022). “How a makeshift urban warfare manual has helped Ukrainian fighters”. Forces News. <https://www.youtube.com/watch?v=KypbzVhoFVY>
- Geibel, A. (1995). “Caucasus Nightmare - Red Dawn in Chechnya: A Campaign Chronicle”. Armor, March-April 1995. <https://docplayer.net/84344306-Caucasus-nightmare-red-dawn-in-chechnya-a-campaign-chronicle-by-adam-geibel.html>.
- Geroux, J. (2022, October 9). Twitter thread on urban warfare. <https://twitter.com/Jayson-Geroux/status/1579160650667896832>
- Gillard, E.C. (2018). “Proportionality in the Conduct of Hostilities. The Incidental Harm Side of the Assessment”. Chatham House. Retrieved from <https://www.chathamhouse.org/sites/default/files/publications/research/2018-12-10-proportionality-conduct-hostilities-incident-harm-gillard-final.pdf>. Accessed 4 October 2022.
- Grau Lester W. (1995). “Changing Russian Urban Tactics: the Aftermath of the Battle for Grozny”. INSS Strategic Forum, number 38, July 1995.

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=r-ja&uact=8&ved=2ahUKEwjYr8aVgKH6AhUD8rsIHaz6Bz0QFnoECBcQA-Q&url=https%3A%2F%2Fcommunity.apan.org%2Fcfcs-file%2F\\_key%2F-docpreview-s%2F00-00-08-56-82%2F1995\\_2D00\\_07\\_2D00\\_01-Changing-Russian-Urban-Tactics-2D00\\_-The-Aftermath-of-the-Battle-2800\\_Grau\\_2900\\_.pdf&usg=AOvVaw1H4kBkKSTGiElBWCAPbyOE.](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=r-ja&uact=8&ved=2ahUKEwjYr8aVgKH6AhUD8rsIHaz6Bz0QFnoECBcQA-Q&url=https%3A%2F%2Fcommunity.apan.org%2Fcfcs-file%2F_key%2F-docpreview-s%2F00-00-08-56-82%2F1995_2D00_07_2D00_01-Changing-Russian-Urban-Tactics-2D00_-The-Aftermath-of-the-Battle-2800_Grau_2900_.pdf&usg=AOvVaw1H4kBkKSTGiElBWCAPbyOE.)

Grau Lester W., Bartles Charles K. (2022). “Getting to Know the Russian Battalion Tactical Group”. Royal United Services Institute. Retrieved from: <https://rusi.org/explore-our-research/publications/commentary/getting-know-russian-battalion-tactical-group>.

Grau Lester W., Thomas Timothy L. (2000). “Russian Lessons Learned From the Battles For Grozny”. Marine Corps Gazette, April 2000. [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiH3IHZ\\_6D6AhX4h-v0HHdS-Ci8QFnoECAwQAQ&url=https%3A%2F%2Fcommunity.apan.org%2F-cfs-file%2F\\_key%2Fdocpreview-s%2F00-00-00-78-27%2F2000\\_2D00\\_04\\_2D00\\_01-Russian-Lessons-Learned-From-the-Battles-For-Grozny-2800\\_Thomas\\_2900\\_.pdf&usg=AOvVaw319bbzAS\\_PukhSz0yUqtW9.](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiH3IHZ_6D6AhX4h-v0HHdS-Ci8QFnoECAwQAQ&url=https%3A%2F%2Fcommunity.apan.org%2F-cfs-file%2F_key%2Fdocpreview-s%2F00-00-00-78-27%2F2000_2D00_04_2D00_01-Russian-Lessons-Learned-From-the-Battles-For-Grozny-2800_Thomas_2900_.pdf&usg=AOvVaw319bbzAS_PukhSz0yUqtW9.)

Harvey B. (2022). “Putin’s Troops Mobilization Hits Russia’s Economy in Its Weak Spots”. Bloomberg. <https://www.bloomberg.com/news/articles/2022-09-27/putin-s-mobilization-hits-russia-s-economy-in-its-weak-spots>

Hawkes, J. (2022, Mar 24). Primer. AFV Situational Awareness. <https://www.tanknology.co.uk/post/afv-sa>

International Committee of the Red Cross. (2004, July). “What is International Humanitarian Law?” Retrieved from [https://www.icrc.org/en/doc/assets/files/other/what\\_is\\_ihl.pdf](https://www.icrc.org/en/doc/assets/files/other/what_is_ihl.pdf). Accessed 4 October 2022.

International Committee of the Red Cross. (2020, July 29). “Waging War in Cities: A Deadly Choice”. Retrieved from <https://www.icrc.org/en/document/waging-war-cities-deadly-choice>. Accessed 4 October 2022.

International Committee of the Red Cross. (2022, June 21). “Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences arising from the use of Explosive Weapons in Populated Areas”. Retrieved from <https://www.icrc.org/en/document/political-declaration-on-explosive-weapons>. Accessed 4 October 2022.

International Committee of the Red Cross. (2020, February 10). “Principles and Rules of International Humanitarian Law Applicable to the Use of Explosive Weapons in Populated Areas”. Retrieved from <https://www.dfa.ie/media/dfa/ourrolepolicies/peaceandsecurity/ewipa/ICRC-IHL-Written-Paper-Submission---10-February-2020.pdf>. Accessed 4 October 2022.

Jankowicz, M. (2022, March 7). Captured Russians said their leaders lied about the plan to invade Ukraine, leaving them unprepared for fierce resistance. <https://www.businessinsider.com/putin-lied-to-russian-soldiers-left-them-unprepared-attack-nyt-2022-3?international=true&r=US&IR=T>

Johnson D. (2019). “Urban legend: is combat in cities really inevitable?”. Texas National Security Review. <https://warontherocks.com/2019/05/urban-legend-is-combat-in-cities-really-inevitable/>

Johnson David E., Gereben Schaefer Agnes, Allen Brenna, Cohen Raphael S., Gentile Gian, Hoobler James, Schulle Michael, Sollinger Jerry M, Zeigler Sean M. (2019). “The U.S. Army and the Battle for Baghdad: Lessons Learned - And Still to Be Learned”. Rand Corporation. [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR3000/RR3076/RAND-RR3076.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR3000/RR3076/RAND-RR3076.pdf).

Karadeli Andreea Stoian. (2022). “Urban Warfare: The War of Today, The War of Tomorrow”. European Security & Defence. Accessed on October 7, 2022. Retrieved from: <https://euro-sd.com/2022/03/articles/exclusive/25295/urban-warfare-the-war-of-today-the-war-of-tomorrow/>.

Keller Brian A., Lieutenant Colonel. (2000). “Intelligence Support to Military Operations On Urbanized Terrain: Lessons Learned from the Battle of Grozny”. US Army War College. <https://apps.dtic.mil/sti/pdfs/ADA374901.pdf>.

Konaev M. (2019). “The future of urban warfare in the age of megacities”. Études de l’IFRI. [https://www.ifri.org/sites/default/files/atoms/files/konaev\\_urban\\_warfare\\_megacities\\_2019.pdf](https://www.ifri.org/sites/default/files/atoms/files/konaev_urban_warfare_megacities_2019.pdf).

Kofman, M. & Lee, R. (2022, June 2). Not Built for Purpose: The Russian Military’s Ill-Fated Force Design. <https://warontherocks.com/2022/06/not-built-for-purpose-the-russian-militarys-ill-fated-force-design/>

Kofman, M. (2022, August 19). Russia, Ukraine, And Urban Warfare. <https://mwi.usma.edu/studying-the-battle-of-kyiv-part-1/>

Kuznets Dmitry. (2020). “The Battle for Shusha: Fighting in Nagorno-Karabakh has reached a turning point”. Meduza. Accessed on September 28, 2022. <https://meduza.io/en/feature/2020/11/07/the-battle-for-shusha>.

Lerman, R., & Zakrzewski, C. (2022). “Elon Musk’s Starlink is keeping Ukrainians online when the traditional internet fails”. The Washington Post. Retrieved October 5, 2022. <https://www.washingtonpost.com/technology/2022/03/19/elon-musk-ukraine-starlink/>.

McCafferty Sean, Cadet. (2000). “Lessons Learned from the Battle of Grozny, 1994-1995”. West-point United States Military Academy. <https://smallwarsjournal.com/documents/mccafferty.pdf>.

McCarthy Rory, Borger Julian, Millar Stuart. (2003). “Battle for Baghdad begins”. The Guardian. Accessed on September 27, 2022. <https://www.theguardian.com/world/2003/mar/25/iraq.rorymccarthy>.

Michel-Kleisbauer, P. (2020). “STCTTS report: Urban Warfare”. NATO Parliamentary Assembly. <https://www.nato-pa.int/download-file?filename=%2Fsites%2Fdefault%2Ffiles%2F2020-10%2F040%20STCTTTTS%2020%20E%20REV.%201%20-%20RE-UISED%20-%20URBAN%20WARFARE.pdf>.

Milley, M (2022, May 21). General Milley Delivers 2022 West Point Commencements Speech. <https://www.youtube.com/watch?v=FGAXyP-Lm4>

Morales, Diane K. and Geary, Steve (2003). “Speed Kills: Supply Chain Lessons from the War in Iraq”. Retrieved from: <https://hbr.org/2003/11/speed-kills-supply-chain-lessons-from-the-war-in-iraq>

Neuman, N. (2017). “40th Round Table on Current Issues of International Humanitarian Law. The Additional Protocols 40 Years Later: New Conflicts, New Actors, New Perspectives”. Retrieved from <https://www.onlinelibrary.iihl.org/wp-content/uploads/2021/07/Sanremo-Roundtable-Principle-Precaution.pdf>. Accessed 4 October 2022.

Ogunc, Gokhan I. (2021). “The Effectiveness of Armoured Vehicles in Urban Warfare Conditions”. Defence Science Journal. Retrieved from: [https://www.researchgate.net/publication/348960360\\_The\\_Effectiveness\\_of\\_Armoured\\_Vehicles\\_in\\_Urban\\_Warfare\\_Conditions](https://www.researchgate.net/publication/348960360_The_Effectiveness_of_Armoured_Vehicles_in_Urban_Warfare_Conditions).

Oliker, Olga. (2001). “Russia’s Chechen Wars 1994-2000: Lessons from Urban Combat”. [https://www.rand.org/content/dam/rand/pubs/monograph\\_reports/MR1289/RAND\\_MR1289.pdf](https://www.rand.org/content/dam/rand/pubs/monograph_reports/MR1289/RAND_MR1289.pdf).

Ourdan, Rémy. (2020). “Haut-Karabakh: la bataille de Chouchi, clé du conflit dans la région, fait rage”. Le Monde. Accessed on September 28, 2022. [https://www.lemonde.fr/international/article/2020/11/07/la-bataille-de-chouchi-cle-du-conflit-au-haut-karabakh-fait-rage\\_6058893\\_3210.html](https://www.lemonde.fr/international/article/2020/11/07/la-bataille-de-chouchi-cle-du-conflit-au-haut-karabakh-fait-rage_6058893_3210.html).

Ristic. M. (2014) ‘Sniper Alley’: The Politics of Urban Violence in the Besieged Sarajevo. Built Environment. Vol. 40, no. 3. <https://www.jstor.org/stable/43296901>

Rosenau, W. G. (1997). “Every room is a new battle’: The lessons of modern warfare”. Studies in Conflict & Terrorism, 20(4), 371-394. <https://www.tandfonline.com/doi/abs/10.1080/10576109708436047?journalCode=uter20>.

Rupe Chad A., Captain. (1999). “The Battle of Grozny: Lessons for Military Operations on Urbanized Terrain”. <http://ciar.org/ttk/mbt/armor/armor-magazine/armor-mag.1999.mj/3groz99.pdf>

- Shamsi, T. (2021). “Human Shields in Urban Conflicts”. Retrieved from <https://www.dlpforum.org/2021/12/09/human-shields-in-urban-conflicts/>. Accessed 4 October 2022.
- Shuster, S. (2022, April 28). “Inside Zelensky’s World.” <https://time.com/6171277/volodymyr-zelensky-interview-ukraine-war/>
- Sipress Alan. (2003). “U.S. Forces Enter the Heart of Baghdad”. The Washington Post. Retrieved from: <https://www.washingtonpost.com/archive/business/technology/2003/04/05/us-forces-enter-the-heart-of-baghdad/638b4600-2a93-4004-8fa0-1d7ae6448aff/>.
- Sijbrandi, R. (2018). ‘Never send a man, if you can send a bullet’. <https://www.militairespec-tator.nl/thema/operaties/artikel/never-send-man-if-you-can-send-bullet>
- Sonne, P. & Khurshudyan, I. & Morgunov, S. & Khudov, K. (2022, August 24). “Battle for Kyiv: Ukrainian valor, Russian blunders combined to save the capital.”
- South Todd. (2018). “Soldiers, Marines rely on PSYOP, learning a city’s rhythm when training for urban warfare”. Army Times. Retrieved from: <https://www.armytimes.com/news/your-army/2018/03/06/soldiers-marines-rely-on-psyop-learning-a-citys-rhythm-when-training-for-urban-warfare/>.
- Spencer, J. & Geroux, J. (2021). The Battle of Mosul: A Comprehensive Case Study. <https://mwi.usma.edu/the-battle-of-mosul-a-comprehensive-case-study/>
- Spencer, J. & Geroux, J. (2021). A Case Study of the 1968 Battle of Hue. <https://mwi.usma.edu/a-case-study-of-the-1968-battle-of-hue/>
- Spencer, J. (2021). “The Eight Rules of Urban Warfare and Why We Must Work to Change Them”. Modern War Institute at West Point. Retrieved from: <https://mwi.usma.edu/the-eight-rules-of-urban-warfare-and-why-we-must-work-to-change-them/>.
- Spencer, J, Ghoorho, H. (2021). “The Battle of Shusha City and the Missed Lessons of the 2020 Nagorno-Karabakh War”. Modern War Institute. Accessed on September 27, 2022. <https://mwi.usma.edu/the-battle-of-shusha-city-and-the-missed-lessons-of-the-2020-nagorno-karabakh-war/>.
- Spencer, J. (2022). “Research visit 2020 Battle of Shusha CaliberAZ 22NOV21”. Accessed on September 30, 2022. Retrieved from: <https://www.youtube.com/watch?v=kbcVeBpVpb0>.
- Spencer, J. (2020, March 22). “The city is not neutral: Why urban warfare is so hard.” Modern War Institute. Retrieved October 5, 2022, from <https://mwi.usma.edu/city-not-neutral-urban-warfare-hard/>

Spencer, J. (2022). “The Mini-Manual for the Urban Defender Talking generally about the tactics used in Ukraine, Version 4”. [https://static1.squarespace.com/static/622cbafd4ab19b-7c0966d469/t/624b0fcc746c1e4ec5984cd6/1649086413544/Mini\\_Manual\\_Spencerv4\\_English\\_03APR22v2.pdf](https://static1.squarespace.com/static/622cbafd4ab19b-7c0966d469/t/624b0fcc746c1e4ec5984cd6/1649086413544/Mini_Manual_Spencerv4_English_03APR22v2.pdf)

Steckelberg Aaron, Taylor Adam, Mellen Ruby, Horton Alex, Moriarty Dylan. (2022). “Why Russia gave up on urban war in Kyiv and turned to big battles in the east”. The Washington Post. Accessed on October 10, 2022. Retrieved from: <https://www.washingtonpost.com/world/interactive/2022/kyiv-urban-warfare-russia-siege-donbas/>.

The Caspian Post. (2021). “Episode 18 | John Spencer: Shusha and the 2nd Karabakh War - key lessons for military strategists”. Accessed on September 30, 2022. Retrieved from: <https://www.youtube.com/watch?v=znEnzibxuKE>.

The Caspian Post. (2021). “The Battle of Shusha: Warcraft Has Changed, but Soldiers’ Sweat, Courage and Daring Remain Key to Military Success”. Accessed on September 30, 2022. Retrieved from: <https://caspianpost.com/en/post/perspectives/the-battle-of-shusha-warcraft-has-changed-but-soldiers-sweat-courage-and-daring-remain-key-to-military-success>.

Thomas Timothy L. (1997). “The Caucasus conflict and Russian security: The Russian armed forces confront Chechnya III. The battle for Grozny, 1-26 January 1995”. The Journal of Slavic Military Studies, 10:1, 50-108. <http://dx.doi.org/10.1080/13518049708430276>.

Thomas Timothy L. (1999). “The Battle of Grozny: Deadly Classroom for Urban Combat”. Parameters, Summer 1999, pp. 87-102. <https://press.armywarcollege.edu/cgi/viewcontent.cgi?article=1935&context=parameters>.

Ti, Ronald (2022, June). Russian Military Logistics. Russia’s War in Ukraine Series no. 3. [https://icds.ee/wp-content/uploads/dlm\\_uploads/2022/06/ICDS\\_Brief\\_Russias\\_War\\_in\\_Ukraine\\_No3\\_Ronald\\_Ti\\_June\\_2022.pdf](https://icds.ee/wp-content/uploads/dlm_uploads/2022/06/ICDS_Brief_Russias_War_in_Ukraine_No3_Ronald_Ti_June_2022.pdf)

Todd B. (2022, March 9). How Zelensky is using social media to dominate the information war. CNN. <https://edition.cnn.com/videos/media/2022/03/09/volodymyr-zelensky-social-media-ukraine-todd-dnt-intl-tsr-vpx.cnn>

Tyler Patrick E. (2003). “U.S. Ground Forces Sweep Toward Baghdad”. The New York Times. Accessed on September 28, 2022. <http://www.nytimes.com/2003/04/03/international/world-special/03MILI.html?pagewanted=all>.

United Nations Department of Economic and Social Affairs (2018, May 18). 68% of the world population projected to live in urban areas by 2050, says UN. <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>

United Nations Human Rights Office of the High Commissioner of Human Rights (2016, March). “Indiscriminate Attacks and Indiscriminate Weapons in International Humanitarian

Law”. Retrieved from [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/indiscriminate\\_weapons\\_legal\\_note\\_-\\_final\\_new\\_format\\_-\\_en\\_3.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/indiscriminate_weapons_legal_note_-_final_new_format_-_en_3.pdf). Accessed 4 October 2022.

Urban Warfare Project. (2021). “Inside the Battle of Shusha”. Accessed on September 30, 2022. Retrieved from: <https://podcasts.apple.com/it/podcast/inside-the-battle-of-shusha/id1490714950?i=1000541590213&cl=en>.

Urban Warfare Project. (2022). “Studying the Battle of Kyiv, Part 1”. Accessed on October 10, 2022. Retrieved from: <https://mwi.usma.edu/studying-the-battle-of-kyiv-part-1/>.

Vazquez, Daniel. (2020). “Is the Infantry Brigade Combat Team Becoming Obsolete?”. War on the Rocks. Retrieved from: <https://warontherocks.com/2020/04/is-the-infantry-brigade-combat-team-becoming-obsolete/>.

Vestner, T. (2019). “Addressing the Use of Human Shields”. Geneva Centre for Security Policy. Retrieved from [https://dam.gcsp.ch/files/doc/SSA\\_Addressing-the-use-of-human-shield](https://dam.gcsp.ch/files/doc/SSA_Addressing-the-use-of-human-shield). Accessed 4 October 2022.

Yakovleff, Lieutenant-General. (2016). “The First Battle of GROZNY: December 1994 - January 1995”. SHAPE Military History Society lecture. <https://shape.nato.int/history/information/the-first-battle-of-grozny>.

Ypiv W. (2022). “Stark photos show Ukrainians, and even a local brewery, making Molotov cocktails to defend their cities”. Insider. <https://www.insider.com/photos-ukrainians-make-molotov-cocktails-defend-cities-2022-2>.

Watling J., Reynolds N. (22.04.2022). “Operation Z: The Death Throes of an Imperial Delusion”. Royal United Services Institute for Defence and Security Studies. <https://static.rusi.org/special-report-202204-operation-z-web.pdf>.

Welt Cory, Bowen Andrew S. (2021). “Azerbaijan and Armenia: The Nagorno-Karabakh Conflict”. Congressional Research Service. <https://apps.dtic.mil/sti/pdfs/AD1147494.pdf>.

World Population Review. (2022). “Kiev Population 2022”. Accessed on October 11, 2022. Retrieved from: <https://worldpopulationreview.com/world-cities/kyiv-population>.

Created in 1953, the Finabel committee is the oldest military organisation for cooperation between European Armies: it was conceived as a forum for reflections, exchange studies, and proposals on common interest topics for the future of its members. Finabel, the only organisation at this level, strives at:

- Promoting interoperability and cooperation of armies, while seeking to bring together concepts, doctrines and procedures;
- Contributing to a common European understanding of land defence issues. Finabel focuses on doctrines, trainings, and the joint environment.

Finabel aims to be a multinational-, independent-, and apolitical actor for the European Armies of the EU Member States. The Finabel informal forum is based on consensus and equality of member states. Finabel favours fruitful contact among member states' officers and Chiefs of Staff in a spirit of open and mutual understanding via annual meetings.

Finabel contributes to reinforce interoperability among its member states in the framework of the North Atlantic Treaty Organisation (NATO), the EU, and *ad hoc* coalition; Finabel neither competes nor duplicates NATO or EU military structures but contributes to these organisations in its unique way. Initially focused on cooperation in armament's programmes, Finabel quickly shifted to the harmonisation of land doctrines. Consequently, before hoping to reach a shared capability approach and common equipment, a shared vision of force-engagement on the terrain should be obtained.

In the current setting, Finabel allows its member states to form Expert Task Groups for situations that require short-term solutions. In addition, Finabel is also a think tank that elaborates on current events concerning the operations of the land forces and provides comments by creating "Food for Thought papers" to address the topics. Finabel studies and Food for Thoughts are recommendations freely applied by its member, whose aim is to facilitate interoperability and improve the daily tasks of preparation, training, exercises, and engagement.



Tel: +32 (0)2 441 79 05 – GSM: +32 (0)483 712 193  
E-mail: [info@finabel.org](mailto:info@finabel.org)

You will find our studies at [www.finabel.org](http://www.finabel.org)



European Army Interoperability Centre



[www.linkedin.com/in/finabelEAIC](http://www.linkedin.com/in/finabelEAIC)



[@FinabelEAIC](https://www.facebook.com/FinabelEAIC)



[@FinabelEAIC](https://twitter.com/FinabelEAIC)