Understanding Urban Warfare and its Manifestation in Russia-Ukraine War

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Abstract

The article seeks to explicate urban warfare, its intricacies and devastating impact on civilian populations and infrastructure. Historically, many doctrinal manuals were produced emphasising that urban areas should not be added to war zones. However, as the centres of gravity, the cities have always been targets of fighting. Therefore, it is a prevalent thinking that future fights will take place in megacities and dense urban areas. The dynamics of urban warfare are relatively dissimilar from traditional warfare due to the complexity and density of critical infrastructures in urban settings. To unpack the complexity, this article raises following questions; a. Why do some states still prefer to wage urban warfare? b. How has technological sophistication altered the battles in urban areas? The data used for this article is secondary and collected from articles, official and unofficial websites, books and news. The article found that modern technologies and rapid urbanisation have altered the nature of warfare toward urban areas and technological sophistication has fundamentally changed the nature of warfare at strategic, operational and tactical levels. To prove the argument, an instance of the Russian-Ukraine war has been used which presents a clear picture of the conduct of urban warfare and the complexities attached to it.

Keywords: Urban Warfare, Cities, Military Operations, Technology, Russia-Ukraine War.

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Introduction

The phenomenon of urbanisation of warfare has been gaining scholarly attention from defence communities and military strategists. The cities have become the new arena where armed forces engage in military confrontation, subject to the complexity of urban terrain.[1] The U.S.-based research and development organisation, RAND Corporation calls urban warfare fighting in cities much different from combat in an open or defined theatre of operations.[2] Recent wars in cities across Syria, Iraq and Ukraine have intimated extensive damages which needs new understanding and preparations to hold such devastation. Urbanised warfare was a neglected phenomenon, particularly during the Cold War era. The general notion was that fighting *inside* the cities could be stopped during the war. Furthermore, wars could be fought on the open field.[3] However, the changing nature of war gradually changed the pattern of thinking. New wars have also changed the traditional concepts of manoeuvres and how to target the enemy. Even urban warfare gave a new understanding to the forces of the United States (U.S.) after the invasion of Iraq in 2003.[4]

In the early 21st century, the transformation of urban combat from open areas to cities provoked military strategists to develop new doctrinal strategies by employing the latest technology and smart weapons to avoid collateral damage. As rightly propounded by Anthony King regarding the nature of warfare in the 21st century "the longest and most intense battles have occurred in cities not in the field. The wars in Iraq, Syria, the Donbas, Libya and Yemen have been predominantly fought not only for but, often, actually inside cities."[5] Similarly, the Russia-Ukraine war has many instances of urban warfare.

The dilemma posed by the complex density of infrastructure and people inherent to urban areas provided an explicit difficulty to the armed forces as

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[1] David Johnson, "Urban Legend: Is Combat in Cities Inevitable?," *War on the Rocks*, May 7, 2019.

[2] "Urban Warfare", RAND Corporation, https://www.rand.org/topics/urban-warfare.html

[3] Karl Ljungkvist, "A New Horizon in Urban Warfare in Ukraine?," *Scandinavian Journal of Military Studies* 5, no. 1 (2022): 92.

[4] Louis A. Demarco, *Concert Hell: Urban Warfare from Stalingrad to Iraqi* (Osprey Publishing, 2012).

[5] Anthony King, *Urban Warfare in the Twenty-First Century* (Cambridge: Polity Press, 2021).

compared to traditional modes of engagement in open spaces.[6] One of the most pivotal tactics to destroy the will of the enemy is to attack the socio-cultural and economic spaces which are the centre of gravity.[7] Due to the complex nature of urban warfare, the engagement of the military in urban areas demands a deep understanding of legal frameworks and critical appraisal of the civilian population to avoid war crimes. The delineation of the urban environment is pertinent to apprise the changing nature of the latest technological advancement which entails the militaries to engage in operation while offsetting the number of civilian casualties.

The recent Russia-Ukraine war proves that the warring sides have been utilising the latest technologies to achieve their strategic objectives, also presenting the numerous complications linked to the war in cities. Thus, the case of the Russia-Ukraine war exemplifies the contemporary aspects of the urbanised war which (also) engenders the asymmetrical aspect that provides in-built leverages to smaller forces in contrast to superior attackers.[8] The dilemma is that states still use cities to gain their strategic objective. Therefore, the question arises while knowing the intricacies of urban warfare, why do some states still prefer urban warfare? Another odd is how technological sophistication altered the battles in urban areas. Straight answers to these questions are vague as the problem lies in the complexity of the subject. Thus, this article explores the intricate tactics of urban warfare and states inclination to enter into urban warfare. The example of the Russia-Ukraine war is used to show the relevance of urban warfare in the 21st century. The article is divided into three parts; first, it clarifies urban warfare and the role of technological advancement in urban operations; the second part sheds light on the role of digital information in urban warfare and the last part of the article presents certain aspects of the Russia-Ukraine war as a modern manifestation of urban warfare.

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[6] Jamison Jo Medby and Russell W. Glenn, "Challenges Posed By Urbanized Terrain," In *Street Smart: Intelligence Preparation of the Battlefield for Urban Operations*, 1st ed. 25-38 (RAND Corporation, 2002)

[7] Louis A. Demarco illustrated the example of the Byzantine Empire and Muslim forces. The successful siege of Byzantium by Muslim forces in 1453 not only ended the Byzantine Empire but also ended the prospective efforts to dominate the Middle East by Christians.

[8] A. Demarco illustrated the example of the Byzantine Empire and Muslim forces.

Urban Operations

The contemporary discourse around military operations in urban warfare focuses on the increasing level of population shift to urban areas and changing security environment i.e. asymmetric strategies which draw the forces to engage with adversary combatants in urban areas. [9] The contemporary discourse on urban warfare characterises the urban areas as central war zones such as East Aleppo and Donbas. The conduct of war changes due to historical linkages between warfare and urbanisation.[10] In every military operation, there are certain levels of risks associated with the tactical and operational strategies which need to be curtailed for the legitimacy of military operations. Similarly, there are some accidental and tactical risks associated with the operation in an urban setting. [11] The accidental risk causes the death of civilians (non-combatants) and damages to civilian infrastructure. The tactical risks associated with the loss of the soldier and lack of stated achievement on the part of the military to achieve the respective mission. The proportion of risk augmented in urban settings due to a dense ecosystem of urban landscape i.e. socio-political and economic networks. The counter-insurgency operations are considered one of the riskiest military acts in urban areas which requires separating the targeted enemy from the civilian population and at the same time driving legitimacy from the local population regarding the military operation.[12]

The rapid increase in urbanisation is taking place in developing areas where the provision of socio-economic opportunities is already fragile which makes the cities more vulnerable to civil unrest, human insecurity and natural disasters. According to one estimation, around 50 million people lives in war-ravaged cities of Syria, Yemen and Ukraine, as observer called urban warfare "combat in hell."[13] However, the use of technology is helping

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[9] Michael C. Desch, Why MOUT now?, in *Soldiers in Cities: Military Operations on Urban Terrain*, ed., Michael C. Desch, (2001)

[10] Alvina Hoffmann, "The Urbanisation of Warfare: Historical Development and Contemporary Challenges for International Humanitarian Law," *St Antony`s International Review* 12, no. 2 (2017): 176-189.

[11] John Spencer, "The Eight Rules of Urban Warfare and Why We Must Work to Change Them," *Modern War Institute* (2021). https://mwi.usma.edu/the-eight-rules-of-urban-warfare-and-why-we-must-work-to-change-them/

[12] Spencer, "The Eight Rules of Urban Warfare."

[13] Margarita Konaev, "As More Wars are Fought in Cities, New Technology can Help and Hurt," *Bulletin of the Atomic Scientists* (2016).

armies worldwide to be prepared for urban warfare. For instance, the People's Liberation Army (PLA) in China has been focusing on urban warfare to wage an island operation for the possible reunification of Taiwan by improving its tactics and strategies to move beyond the amphibious operations. PLA is not experienced to engage in urban terrain but they get the necessary lesson from other militaries due to the perceived threats to China and its business worldwide.[14] The conduct of virtual reality (VR) exercises laced with the latest technological military gear shows the preparations of China for such a situation. The use of VR gears to enhance combat effectiveness confirms the Chinese efforts for the groundwork. China is also working with private companies to enhance the training simulators for PLA and likewise to enhance "training environments."[15]

The above-mentioned instances are signalling the new emerging trends of warfare; these also indicate that the world has become increasingly urbanised and the armed forces are likely to fight in cities. Therefore, understanding of urban terrain is pivotal to situating the tactical and operational objectives by following the human and technological resources. There are three levels of war: i. tactical, ii. Operational and iii. Strategic. At the tactical level, the focus of military forces is primarily on military engagement and manoeuvres on the battlefield. The operational level concerns the employment of military forces through coordinated operations in the war theatre to attain a common objective and advantage over the enemy. The strategic level focuses on national policy which applies to all forms of war and relates directly to the outcome of the war. The strategic level is based on a 'strategic plan' which seeks to employ national instruments of power to attain strategic objectives.[16] The urban landscape is starkly different from open areas due to dense infrastructures and civilian populations. The urban terrain chiefly consists of infrastructure (both above

https://thebulletin.org/2016/12/as-more-wars-are-fought-in-cities-new-technology-can-help-and-hurt/

[14] Elsa B. Kania and Ian Burns Mc Caslin, "The PLA'S Evolving Outlook on Urban Warfare: Learning, Training, and Implications for Taiwan," *Institute for the Study of War* (2022).

[15] Parth Satam, "Chinese Soldiers Use 'Virtual Reality' To Prepare for Taiwan War? Video Shows Soldiers Practicing Close Combat Firing," *Eurasian Times,* December 24, 2022. https://eurasiantimes.com/chinese-soldiers-use-virtual-reality-to-prepare-for-taiwan-war-video/

[16] Maxwell AFB, "Three Levels of War," in *Air and Space Power Mentoring Guide* (AL: Air University Press, 1997).

the surface and underground), transportation network and populace (non-combatants having their social values).[17] To evaluate the urban terrain, one needs to trifurcate the operationalisation of urban settings to understand the feasibility of the armed forces engaging with the enemy in urban operations.

Firstly, the 'policing operation' focuses on a certain mode of engagement with irregular forces to offset the violence, and this operation is generally undertaken by peacekeeping forces with differential time-length of deployment. The opponent forces are not as skilled as the regular forces and their dearth of a well-coordination framework provides the qualitative edge to regular forces to separate the troublemakers from the civilian population.[18] Secondly, 'raids' are more dangerous than policing operations. The strategic stakes in raids are comparatively higher and involve the role of intelligence to locate the weak positions in which the opponent is located. Due to higher level of risk, the raids are conducted under the framework of humanitarian operation to justify the employment of mechanisms and danger involved in the operation. The raids are conducted to evacuate the hostages, arrest the leaders of enemy forces and control the weapons of mass destruction (WMD).[19] The U.S. forces have conducted several raids in Albania and Sierra Leone to evacuate their citizens from embassies. Thirdly, the category of sustained military combat involves higher military risks in which the regular forces would have to engage with enemy forces in the urban terrain where irregular forces might inflict damage to attacking forces. The case study of the Russian assault in Grozny can be cited as a contemporary example concerning 'sustained urban fighting.' These three categories illustrate the salient features of operations undertaken in urban terrain and how each is assessed based on military risks and strategic importance.[20]

The urban terrain provides a stimulating task for the military to engage with opponents at the tactical level. It requires espousing new perspectives and tactics to operationalise the comparatively demanding terrain in the urban setting. The exploratory study was conducted on Israel Defence Forces (IDF) soldiers to understand the personal dimension of the adoption

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[17] Fan Mun Poh, "The Art of Wall: A Different Look at Urban Operations," *Pointer* 39, no. 2 (2013): 41-48.

[18] Poh, "The Art of Wall: A Different Look at Urban Operations."

[19] Poh, "The Art of Wall: A Different Look at Urban Operations."

[20] Poh, "The Art of Wall: A Different Look at Urban Operations."

of post-heroic operations. The tunnel warfare conducted by IDF primarily focused on technological contours while omitting the perspective of the soldiers. The ethos of the warrior still resonates among the soldiers despite the distancing of combatants from the battlefield due to technological advancement.[21]

The concept of 'Urban Quad' is vital to appreciate the changing combat dynamics. The 'Urban Quad' comprises the man-made environment which includes infrastructure, population (social and political orientation), transport and a networked system of information. The multi-dimensional physical landscape of cities becomes dense when natural space is superimposed with high-rise buildings. The coastal areas present a cluster of complex intricacies with properties of social and economic importance. The blockade of coastal cities such as the port city of Hudaydah, might augment the humanitarian crisis which becomes critical due to sustained military operations. [22] Likewise, there are numerous nodal points in urban infrastructure, such as public health, culture, education, transport and their linkages that enable the flow of electricity and money to sustain the flow of city life.[23] Military forces need to apprise the structural dimensions of urban terrain to develop tactical manoeuvrability by offsetting the civilian and collateral damages.[24]

In the urban environment, militaries need to understand the positional strength of the enemy's forces and how the former can tactically neutralise the superiority of the latter. Once Sun Tzu was asked by a man, "How do I cope with a well-ordered enemy host about to attack me?" Sun Tzu replied, "Seize something he cherishes and he will conform to your desires."[25] This

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[21] Nehemia Stern, etal., "Tunnel Operations in the Israel Defence Forces: Adapting the Warrior Ethos to Post-Heroic Conflict," *Armed Forces & Society* 48, no. 2 (2022): 343-363.

[22] David Kilcullen and Gordon Pendleton, "Future Urban Conflict, Technology, and the Protection of Civilians: Real-World Challenges for NATO and Coalition Missions," *The Stimson Center* (2021).

[23] Kilcullen and Pendleton, "Future Urban Conflict, Technology, and the Protection of Civilians."

[24] As propounded by Louis A. Demarco in *Concert Hell: Urban Warfare from Stalingrad to Iraqi* that proper planning and meticulous appreciation of the urban environment are vital to subdue the enemy. "Capturing or Destroying the Enemy's Major Cities, and Most Importantly, Their Capital City, was the Surest Way to Achieve Victory in the Ancient World." p. 19

[25] Sun Tzu, *The Art of War*, 213.

statement can be rendered to clarify the Battle of Arnhem, the battle fought under Operation Market Garden during the WWII where the British 1st Airborne Division landed at Arnhem to capture bridges across the Nederrijn (Lower Rhine) but the British airborne troops were not relieved according to schedule. As a result, the 1st Airborne Division lost most of its strength. The 1st Airborne tactically applied the strategy of offensive defence against two armour divisions by seizing the terrain and mounting a stronger defence to force the enemy to retaliate by exposing itself at which point the enemy would be targeted. This instance highlights that the successful offensive-defence strategy is pertinent in the urban terrain to avoid civilian casualties and damage to networked infrastructure.[26]

The infrastructural implications in urban settings impact the efficacy of effective manoeuvrability. This factor features in the contemporary case study of the Russia-Ukraine war. Russian forces continued to shell the Ukrainian cities; however, the Russian forces faced logistical problems compounded further due to the simultaneous offence on cities. The relative inability to take the city by armed forces is a challenge not unique to the Russian predicament. Military operations in urban settings require the advancement in the professional infantry to engage in close-quarter battles with opponents which enhances the performance at the tactical level of the armed forces.[27]

Technological Advancements in Urban Warfare

During the 18th and 19th centuries, the technological sophistication for effective deployment in the conflict was initially focused on biological and chemical weapons. The sheer magnitude of these weapons systems gained credence when conventional modes of engagement on the battlefield failed which possibly augmented the fear in the psychological domain rather than in reality.[28] Australian Defence Forces are acclimatising their soldiers with tactical moves incongruous with the changing nature of warfare. By employing the latest technologies such as paint ammunition, the infantry

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[26] Mun Poh, 'The Art of Wall: A Different Look at Urban Operations."
[27] Anthony C. King, "Close Quarters Battle: Urban Combat and 'Special Forcification'," *Armed Forces & Society* 42, no. 2 (2016): 276-300.
[28] Science and Warfare, in *Weapons and Warfare,* ed. John Powell (California: Salem Press, 2010).

soldier conducted a simulated exercise to augment the complex decision-making competency among soldiers through navigating the urban environment.[29] The compression of time and space in urban warfare altered the battlefield visibility which required sophisticated weapons with enhanced accuracy and range. The contestation of the role of technology in urban warfare is based on both its effectiveness and application. The complexity of network-centric warfare in closed areas provided a technological edge to both sides of the conflict. The employment of the latest technological aspects i.e., information technology, cyberspace and images from private satellites would alter the symmetrical and asymmetrical balance of power in conflict. However, the framework of 21st century warfare requires synergy through the interplay of "diplomacy, information technology, military ops and economic incentive" to engage in five-dimensional warfare; aero-space, land, sea, electromagnetic and cyber. Russia initially hindered the Ukrainian defense of Kyiv by launching cyber-attacks on communication networks, however, the cyber operations didn't able to yield significant military objectives due to the resilience of the Ukrainian digital ecosystem. Additionally, for Russians, the non-cyber intelligence mechanisms i.e. human-centric intelligence and imagery, proved more valuable than cyber activities. Another deterrent factor to employ in cyber operations is unintended international impact through cyber-attacks outside of the war zone. The readiness and professionalism in the cyber and kinetic domain are pivotal to leveraging the strategic impact of cyber operations.[30]

Since the enlargement of the national security spectrum from the politico-military domain to the environment, the economy and society demand the protection of critical infrastructure through cutting-edge technology to safeguard the national security of the state. The wars are still conceived through "boots on the ground" as in pre-modern times. The Iraq invasion shows this dilemma. In the Iraq war, the U.S. marines were required in Fallujah for clearance operations and Abram Tanks roamed the

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[29] Taylor Lynch, "Soldiers Train for Urban Warfare," Defence Australia, (June 27, 2022), https://www.defence.gov.au/news-events/news/2022-06-27/soldiers-train-urban-warfare.

[30] Jon Bateman, Nick Beecroft, and Gavin Wilde, "What the Russian Invasion Reveals About the Future of Cyber Warfare," Carnegie Endowment for International Peace, December 19, 2022, https://carnegieendowment.org/2022/12/19/what-russian-invasion-reveals-about-future-of-cyber-warfare-pub-88667.

streets despite technological sophistications and smart weapons. The role of information technology and precision weapons might be a game-changer for armed forces to operate in dense urban environments. The role of satellite and network-based command and control systems will help in the appropriation of decision-making and avoid collateral damage. Yet, scholars have pointed out the little role of technology in fundamentally changing the domain of urban conflict. [31] The U.S. and China are competing in sophisticated technologies such as artificial intelligence to catalyse the relative advantage in geopolitical competition. The manifestation of AI-driven technological sophistication resides in unmanned aerial warfare, in which the U.S. in 2014 possessed more than 11,000. The US also augmenting its skills in AI-enabled warfare which focuses on cloud-computing and mining of big data to astronomically process the information. However, Russia has not been able to take place in the position of top-tier yet in the AI competition.[32]

The technological revolution has changed the nature of warfare which might lessen the role of soldiers to be physically present on the battlefield. Military experts called for the enhancement of the technological edge of the U.S. forces by combining the science and art of war to operate in difficult environments. To meet the future demands of the battlefield based on technological sophistication, the U.S. formed the Army Future Command (AFC) in 2018 for technical and innovative solutions.[33] According to the U.S. *Field Manual 3-0:* Operations "the increased number of megacities will present new challenges for militaries such as subterranean operations, population control, situational awareness and communications, and survivability for ground troops and aviation assets."[34] Future trends in the tech industry focused on Quantum Information Systems (QIS) which

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[31] Poh, "The Art of Wall: A Different Look at Urban Operations."

[32] Can Kasapoğlu and Barış Kırdemir. "Wars of None: Artificial Intelligence and The Future Of Conflict," *Centre for Economics and Foreign Policy Studies* (2019). http://www.jstor.org/stable/resrep21050.

[33] Daniel S Roper and Jessica D Grassetti, "Seizing the High Ground - United States Army Futures Command - Ausa," ILW spotlight (October 2018); 4, https://www.ausa.org/sites/default/files/publications/SL-18-4-Seizing-the-High-Ground-United-States-Army-Futures-Command.pdf

[34] Department of the Army. (2019), TRADOC PAM 525-92: The Operational Environment and the Changing Character of Warfare, https://adminpubs.tradoc.army.mil/pamphlets/ TP525-92.pdf; Todd South, "The Subterranean Battlefield: Warfare Is Going Underground, into Dark, Tight Spaces," *Army Times*, August 19, 2022, https://www.armytimes.com/news/your-army/2019/02/26/the-subterranean-battlefield-warfare-is-going-underground-into-dark-tight-spaces/.

provide a qualitative edge, unlike the traditional technology by providing navigation and positioning information in the GPS-denied areas. [35] Technological advancement is significant in urban warfare because the use of technologically sophisticated weapons would impact the intensity of collateral damage. The "data-driven combat" waged by Ukrainian planners and networked warfare by Russians has consequences for the employment of tactics.[36]

The positive role of technological progress is the transfer of aid delivery and a reduction in casualties due to precision-guided weapons. Almost every state relies on the cyber domain and according to the U.S. cyber command report — the future of warfare is in cyberspace. The interconnection of cyberspace with kinetic structures in the urban setting might enhance the role of parties who violate the International Humanitarian Law (IHL) to exploit the cyber domain. With technological advancement, the interpretation of law gets complicated as Brad Smith, president of Microsoft calls for a "Digital Geneva Convention."[37] The cyber means have nonetheless increased the cache of data available to adversaries and defenders to re-appropriate their tactical moves to avoid collateral damage in the complex urban setting.

The changing era of warfare will rely on unmanned technologies interlaced with artificial intelligence by focusing on; unmanned ground vehicles (UGVs), unmanned underwater vehicles (UUVs), and unmanned aerial systems (UASs) for reconnaissance, surveillance and

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[35] Alexander Kott, Kwong Choi, Brad Forch, Plotr Franaszczuk, Shashi Karna, Stephen Lee, Joseph Mait, Peter Reynolds, Brian Sadler, Ananthram Swami, & Bruce West, "Potential Science and Technology Game Changers for the Ground Warfare of 2050: Selected Projections made in 2017," *U.S. Army Research Laboratory* (2018). https://apps.dtic.mil /dtic/tr/fulltext/u2/1048402.pdf; Michael Waxler, "The Electromagnetic Spectrum: The Future of Warfare," *NCO Journal* 2019, https://www.armyupress.army.mil/ Journals/NCO-Journal/Archives/2019/April/emi/

[36] The Economist, "The War in Ukraine Shows How Technology Is Changing the Battlefield," *The Economist,* July 3, 2023, https://www.economist.com/special-report/2023/07/03/the-war-in-ukraine-shows-how-technology-is-changing-the-battlefield.

[37] Brad Smith, "The Need for a Digital Geneva Convention," Microsoft on the Issues, February 14, 2017, https://blogs.microsoft.com/on-the-issues/2017/02/14/need-digital-geneva-convention/

kinetic strike capabilities. [38] Contemporary technologies such as Uncrewed Aerial Systems (UAS) are pivotal to augmenting situational awareness by employing electronic warfare.

Role of Digital Information in Urban Warfare

The advancement in the technological sector, especially in communication technologies, change the dynamics of information gaps and the use of smartphones by citizens enable the exchange of visual and information which are an important aspect of apprising situational awareness in urban conflict. The weapons and ammunition have undergone a transition from tangible to partially intangible aspects. In the contemporary world, wars are not primarily fought in open spaces and their emplacement in the urban area requires the appreciation of the role of digital media for sharing of real-time information. The characterisation of digital media in conflict depends on endogenous factors of a political system in a state i.e., democratic or non-democratic. [39] The media ecology resulting from digital information by authoritarian states has de-employed smart gatekeeping which desynchronises the online spaces from the masses.[40]

The latest digital platforms such as *Instagram*, *Facebook*, *X* (formerly *Twitter*) etc. act as a force multiplier in contemporary warfare through the ubiquitous nature of media presence and availability of information. Social media is used by non-state actors to recruit fighters and propagandise their ideological narrative for legitimacy. The universal connectivity of users through social media was considered initially good, however, the deliberately designed features on social media arouse the urge to increase engagement in online spaces which would equally have implications for urban warfare.[41] During the early

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[38] Dan Sabbagh, "Killer Drones: How Many Are There and Who Do They Target?" *Guardian*, March 15, 2023, https://www.theguardian.com/news/2019/nov/18/killer-drones-how-many-uav-predator-reaper

[39] Andrew Hoskins and Pavel Shchelin, "Information War in the Russian Media Ecology: the Case of the Panama Paper," *Continuum: Journal of Media and Cultural Studies* 32, no. 2 (2018): 250-266

[40] Hoskins and Shchelin, "Information War in the Russian Media Ecology," 262.

[41] Knowledge at Wharton Staff, "Why Social Media Is the New Weapon in Modern Warfare," *Knowledge at Wharton*, January 17, 2019, https://knowledge.wharton.upenn.edu/article/singer-weaponization-social-media/

years of Arab Spring, the expected positive dividend of social media in the form of democratic advancement was eventually used by non-state actors to recruit potential fighters on the internet.

The impact of social media on warfare (weaponisation of social media) has changed strategic calculations. The vie for attention through media in urban warfare is not just focused on changing the ground result but also framing the information disseminated by the adversarial side as fake to augment their legitimacy. Research on the Russia-Ukraine war illustrated that consumers trust electronic media more as compared to digital media. As the user's ability to detect fake news increases, their trust in digital media decreases.[42] The social media landscape has played a significant role in the propagation of disinformation and propaganda during the Russia-Ukraine War. Social media sites have gained the status of real battlegrounds as both states have been using social media to influence global opinion and discredit each other. This illustrates the concerns emanating from the employment of social media i.e., informational domains and disinformation messaging in contemporary warfare.[43]

According to the latest statistics, around two-thirds of the population is socially connected through digital platforms such as *TikTok*, *X* (formerly *Twitter*), *Instagram* and *Facebook*. Online users are not just passive receivers of information, rather symbolic gestures would impact real-world scenarios. Social media have likewise changed the perception of war as historically photographers systematically register the war through photographs since the Crimean War of 1855. During the World War I, the medium of cinema gave impetus to the mixed perception of war after the release of *The Battle of the Somme*, a film in which documentary footage was juxtaposed with re-created acts. The Manchester Guardian stated their version regarding the nature of footage as, "This is what war means, and it is right that our people should be made to feel the horror of it and realise

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[42] Paraskevi EI.Skarpa, KonstantinosB. Simoglou, and Emmanouel Garoufallou, "Russo-Ukrainian War and Trust or Mistrust in Information: A Snapshot of Individuals' Perceptions in Greece," *Journalism and Media 4,* no. 3: 835-852. https://doi.org/10.3390/journalmedia4030052

[43] Adam Kowalski, "Disinformation and Russia's War of Aggression Against Ukraine: Threats and Governance Responses," *OECD Policy Responses* on the Impacts of the War in Ukraine, November 03, 2022 https://www.oecd.org/ukraine-hub/policy-responses/disinformation-and-russia-s-war-of-aggression-against-ukraine-37186bde/

that it is not merely a lively game that goes on in a newspaper."[44] The evolving nature of media and modern combat has somehow brought together the two previously separate activities i.e., "mass communication and intelligence" in the Russia-Ukraine war with impactful results.[45]

Russia-Ukraine War

It is pertinent to analyse the Russia-Ukraine war to acquaint with contemporary changes like warfare. Since the beginning of the Russia-Ukraine war, urban areas have been the main points of attack where intense fighting has taken place such as Kyiv, Mariupol or Kherson. It made the operation difficult for Russian as well as Ukrainian soldiers because of the presence of civilians in the areas. In the initial days of this war, the Russians were attacking but some counterattacks were conducted by Ukrainians, too, the special mention of Hostomel Airport, shows the sensitivities in the conduct of military operations.[46] The war between Ukraine and Russia, predominantly in eastern Ukraine, has many instances of urban warfare. The fighting in cities and towns led to substantial humanitarian and infrastructure problems. Both sides have been accusing each other of using urban areas for military operations, destroying civilian infrastructure. The conflict has affected many towns and minor settlements in Donetsk, Luhansk, Mariupol, and Sloviansk. In the embattled eastern region of Ukraine, Donetsk, the missile strike by Russia injured people, however, neither Russia nor Ukraine was able to make significant breakthroughs on the battlefield.[47]

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[44] Alex von Tunzekmann, "The Big Idea: can Social Media Change the Course of War?," *Guardian,* April 25 2022. https://www.theguardian.com/books/2022/apr/25/the-big-idea-can-social-media-change-the-course-of-war

[45] Peter Schrijver, "Ukraine's Fight on the Front Lines of the Information Environment — Modern War Institute," Modern War Institute, September 12, 2023, https://mwi.westpoint.edu/ukraines-fight-on-the-front-lines-of-the-information-environment/

[46] Ashleigh Stewart, "The battle of Hostomel: How Ukraine's unlikely victory changed the course of the war", *Global News*, February 18, 2023. https://globalnews.ca/news/9491396/ukraine-hostomel-battle-antonov-airport/

[47] Al Jazeera, "Russian Air Strikes Injure 10 in Donetsk, Ukraine Says*," Al Jazeera*, November 30, 2023, https://www.aljazeera.com/news/2023/11/30/russian-air-strikes-injure-10-in-donetsk-ukraine-says.

The different nature of urban combat (psychological and political values) as compared to conventional warfare demands the protection of the civilian population to avoid the violation of human rights and international humanitarian law (IHL) since urban warfare is considered an unavoidable war.[48] The Russia-Ukraine war provides a vast array of insight into modern warfare because the nature of the urban setting, having constituent elements of population and infrastructure, demands the re-evaluation of doctrine and training of modern forces.

In the contemporary nature of modern combat, states employ kinetic or non-kinetic means to attain their strategic objectives. There is an asymmetrical imbalance between Russia and Ukraine in terms of conventional power. Moreover, due to denial of swift victory, since Russia has relatively more conventional power as compared to Ukraine, the vulnerable civilian population and infrastructure in Ukraine are impacted by the attack by the adversary. There are many instances where the civilians are at the mercy of army personnel; one of the strikes by Russian forces hit the theatre in the Ukrainian city of Mariupol, where people were taking shelter along with the children.[49]

In the Russia-Ukraine war, both sides have been employing technologies needed in urban warfare to gain their respective strategic and political goals. Both the forces of Ukraine and Russia are constrained by the topography of cities, and the high-rise buildings have bound the forces to use equipment accordingly. The war is also showing challenges such as decentralised command and control, uncertainty in decision-making and targeting the areas. To meet such complex situations, Ukraine is seeking technological assistance, for which Western countries have provided the latest technology to challenge the asymmetrical advantage Russia enjoyed in the conventional domain. According to the media reports, the Biden administration sends military equipment to assist the Ukrainian forces. In this regard, the *BBC* reports that Ukraine employed modern military equipment

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[48] Amos C. Fox, "The Russo-Ukrainian War and the Principles of Urban Operations Small Wars Journal," 2022, https://smallwarsjournal.com/jrnl/art/russo-ukrainian-war-and-principles-urban-operations; Konaev and Brathwaite, "Russia's Ukraine War Shows Challenges of Urban Warfare."

[49] Lori Hinnant, Vasilisa Stepanenko, and Mstyslav Chernov, "AP Evidence Points to 600 Dead in Mariupol Theater Airstrike | AP News," *AP News*, October 26, 2023, https://apnews.com/article/russia-ukraine-war-mariupol-theater-c321a196fbd568899841b506afcac7a1.

such as HIMARS Rocket Launcher System (range: 50 miles), howitzers: M777 (range: 25 miles), anti-tank weapons, tanks: T-72M1 tank and Bayraktar TB2 drone.[50] The growing prevalence of new technologies in the urban battlefield enhance intelligence support and helps to locate the targeting of opponents' weapon system. The use of unmanned systems ─ drones ─ has been employed by the U.S., Russia and Israel in urban combat.[51]

The Russia-Ukraine war provides a pivotal example to analyse the technological capabilities employed in modern (urban) warfare. The deterrence factor in urban warfare is qualitatively and quantitatively different from the open battlefield. In the complex urban environment, the experts from multidisciplinary subjects focus on three aspects: "cyber-capabilities, new robotics and autonomous weapons, human modification and technologies."[52]

Both sides are also employing drone technology for tactical operations and to obtain information covertly without risking human life. Compared to Ukraine, Russia possesses the most advanced fleet of drones in the world.[53] The capabilities of the Armed Forces of the Russian Federation (AFRF) seemed inadequate in the domain of electronic warfare which leads to disorientation regarding the identity of fire.[54] The use of robotics in the urban terrain, in the same vein, raises serious ethical and legal concerns regarding the viability of artificial intelligence employed to operate the autonomous weapons system. The increasing inevitability of drones, known as 'killer robotics' in the Russia-Ukraine war for surveillance and dropping weapons have become an important feature of the contemporary battlefield. The functionality of

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[50] David Brown, Jake Horton and Tural Ahmedzade, "Ukraine Weapons: What Tanks and Other Equipment Are the World Giving?," *BBC News*, February 22, 2023, https://www.bbc.com/news/world-europe-62002218.

[51] Elsa B. Kania and Ian Burns McCaslin, "The PLA`S Evolving Outlook on Urban Warfare: Learning, Training, and Implications for Taiwan," *Institute for the Study of War*, 2022.

[52] IHL Symposium Report, "Emerging Military Technologies Applied to Urban Warfare," *International Review of the Red Cross* 99, no. 3 (2017): 1161-1174.

[53] "UAV and Drones: The Stealthy Weapon in the Ukraine-Russia Conflict," *Global Data*, https://www.globaldata.com/data-insights/macroeconomic/uav-and-drones-the-stealthy-weapon-in-the-ukraine-russia-conflict/

[54] Mykhaylo Zabrodskyi, etal., "Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February-July 2022," *Royal United Services Institute* (2022).

'killer robotic' provides a tactical advantage to forces in terms of information advantage over the adversary.

The contemporary employment of social media is an important determinant in the Russia-Ukraine war. It has become clear that wartime information with swift propagation can impact public opinion. Russian forces would have understood the role of social media in urban warfare and, consequently, targeted the mobile communication networks of Ukraine.[55] According to media reports, the air strike by Russia on the training camp allegedly became possible due to compromise of the location from the UK numbers. Russia also employs non-kinetic measure which falls in the grey zone area i.e., informative warfare to influence the cognitive terrain to outflank the adversaries.[56] In the contemporary ecosystem, social media plays a pivotal role as a significant channel of information. However, in the case of the Russia-Ukraine war, social media platforms have largely limited the spread of Russian propaganda, but the spectrum of restrictions for the Ukrainian government is far less. The underlying shift in the role of digital media as primary information providers will transform the information warfare to shape the respective narratives.[57]

The Russia-Ukraine war shows that Ukraine leveraged the defensive strategy integral to the urbanised environment for its bases of operations. It also demonstrates that the urbanisation of warfare has been providing a strategic advantage to the armed forces since the employment of decisive tactics in cities. Moreover, the control over cities has become pivotal in this war as Ukraine possesses a 70% urbanisation rate. The battle for Mariupol is an illustrative case of how the smaller forces of Ukraine employ the urban terrain to their advantage against the superior force. However, the reports regarding the efficacy of Russian forces against Ukraine showed low capabilities especially in cities, since the Russian model envisages the combination of siege warfare with indiscriminate bombardment to force

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[55] Alex von Tunzekmann, "The Big Idea: can Social Media Change the Course of War?," *Guardian,* April 25, 2022, https://www.theguardian.com/books/2022/apr/25/the-big-idea-can-social-media-change-the-course-of-war

[56] Daniel S. Hall, "America must Engage in the Fight for Strategic Cognitive Terrain," *Joint Force Quarterly* (2023): 75-86.

[57] Christian Perez and Anjana Nair, "Information Warfare in Russia's War in Ukraine," *Foreign Policy*, March 7, 2023, https://foreignpolicy.com/2022/08/22/information-warfare-in-russias-war-in-ukraine/.

Ukraine into submission. Hence, the Ukrainian defence strategy features that it drew the Russian forces into the streets to counterbalance or neutralize the artillery advantage of Russian forces.[58]

Conspicuously, the Russia-Ukraine war entailed the damaging effect on historical sites which are covered by the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict.[59] In addition to the cultural aspect, the number of casualties in the dense urban environment makes it difficult for the armed forces to develop a defensive posture. Margarita Konaev and Kristin J.H. Braithwaite articulate that urban warfare such as the Russia-Ukraine war is unavoidable since cities encapsulate political, psychological and cultural value, and the Russian forces inability to take the cities in swift move demands the re-evaluation of military strategies.[60]

It would not be wrong to say that to successfully execute the military operation, the military forces of Russia need to understand both the tangible and intangible reality of the urban terrain. The cultural and social learning primed the attackers to tackle the civilian population peacefully and engage their attention towards the enemy forces.

Conclusion

The article delineated the contemporary nature of warfare and its analytical distinction vis-a-vis the conventional domain. Urban warfare is considered as a new battleground with its contingencies concerning the decisive role of the latest technology and cache of big data. The cities represent the possible attainment of political objectives by engaging in urban conflict. The Russian invasion of Ukraine in 2022, to a large

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[58] Kristin Ljungkvist, "A New Horizon in Urban Warfare in Ukraine?," *Scandinavian Journal of Military Studies* 5, no. 1 (2022): 91-98, DOI: https://doi.org/10.31374/sjms.165

[59] Patrick Mendis, "The United States Must Rejoin UNESCO to Compete with China," *National Interest*, March 22, 2023, https://nationalinterest.org/feature/united-states-must-rejoin-unesco-compete-china-206334?page=0%2C1.

[60] Margarita Konaev and Kirstin J.H. Brathwaite, "Russia's Ukraine War Shows Challenges of Urban Warfare," *Foreign Policy*, April 4, 2022, https://foreignpolicy.com/2022/04/04/russia-ukraine-urban-warfare-kyiv-mariupol/.

extent, is concentrated in urban areas. The cities of Ukraine are one of the objectives. However, this urbanised war does not correspond to the type of urban war, strategic thinkers anticipated. The article articulates the differential nature of urban warfare from the conventional domain by analysing the case of the Russia-Ukraine war. The analysis is entwined with the appreciation of urban terrain and the changing nature of technology and digital media in urban combat.

The latest military equipment is laced with smart technologies to avoid collateral damage because of the presence of the civilian population and infrastructure. The decisive contribution of smart weapons would achieve strategic results through better situational awareness. In this situation, the soldiers find themselves in a complex and dynamic environment to face their opponents in urban terrain. Soldiers are not only required to acquaint themselves with the physical component of urban areas but they are also required to understand the socio-cultural dynamics of the civilian population for effective reinforcement of counter-insurgency operations.

In the Russia-Ukraine war, the urban terrain characterises a difficult and complex battlefield which requires re-evaluation of information warfare, collateral damage and technological sophistications, at strategic, operational and tactical levels. Further studies need to critically analyse the effects of urban conflict on the civilian population and the resilience measures which states may employ to safeguard the urban infrastructures. The academic community and military historians need to explore the qualitative and qualitative dimensions of urban warfare concerning contemporary conflicts. Moreover, the states should find feasible changes in training, doctrines and technologies to cope with new challenges.