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Lessons from the Russo-Ukrainian conflict: the primacy of logistics over strategy

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ABSTRACT

A commonly held view amongst strategists is that strategy leads logistics, and that military logistics, which is the science of sustainment and replenishment, is generally subordinate. The authors of this article contend that in fact the opposite is often true, that logistics frequently has primacy over strategy, and that it is the success or failure of logistics at lower levels of war which exerts the greater effect. The authors illustrate their arguments on this nexus between logistics and strategy, with examples from the current Russo-Ukrainian conflict highlighting how Russian logistic failures have contributed to failure of the strategic plan.

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Introduction

Logistics has often been described as the link between the strategic-level instruments of national power and their expression at the “lower” operational and battlefield level, described by some authors as the “timeless logistic-strategy nexus” (Erbel and Kinsey 2018, 521–3). This article acknowledges this common and widely held view, which holds that the main effects on logistics arise secondary to strategic considerations. However, despite the true importance of logistics becoming increasingly understood by strategists, this article contends that the link is not unidirectional and works strongly in the opposite direction. The authors argue that it is logistics that has a primacy fundamental to the successful execution of strategy, and not the view conventionally held by strategists that places logistics in a subordinate or secondary role. The principal argument of this article is that the success or failure of logistics leads and does not follow the successful execution of strategy and this principle will be illustrated in this article by using examples of logistic problems faced by the Russian Army during the ongoing invasion of Ukraine. The early phases of the invasion in particular have demonstrated how insufficient logistics has led to negative repercussions in an “upwards” direction, resulting in highly adverse effects on Russian strategic execution. Examples to illustrate this contention will be presented

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throughout this article as evidence of the inextricable (and oft overlooked) inter-relationship of strategy and logistics.

This article certainly recognises that the biggest Russian failing of this war has been at its strategic levels ranging from the failure of its precursor shaping operations to the flawed assumptions underlying its initial operational moves. The authors fully acknowledge that if the strategy encompasses the political origins of the invasion, then it is the strategy that sets the conditions for Russian logistics to fail and there is no dispute here on this point. The principal argument of this article is not that strategy has no significant effects, as this is manifestly incorrect; rather, the principal argument of the authors concerns the relative primacy of logistics to affect strategy, and not the other way around. Despite persistent misperceptions, this article will demonstrate that it is logistics that exerts prime strategic effects well beyond its main operational domain over strategy.

This article is divided into four sections. The first section sites logistics in its correct place with respect to the implementation of strategy and the conduct of war. This then leads to section two, which presents a brief account of Russian military logistics. Section three takes a more empirical focus and examines the poor performance of the Russian military in Ukraine, focusing on the inability of its military logistics to deliver the means to win the war as a major factor. Whilst not intending to present a formal “root cause analysis,” this section will attempt to present as objective a picture as practicable, especially given the conflicting strategic communications that are the inevitable result of warring parties attempting to shape the information space. The final section is the conclusion where the findings are presented.

A note on sources

As alluded to in the introduction, the Russo-Ukrainian war is an evolving informational space with multiple competing and conflicting strategic communication agendas. As far as is practicable, this article will reference “disinterested” third party commentators. In addition, given the current dearth of published academic work, it will be necessary to cite commentary from reputable internet sources which, whilst technically “unpublished sources,” are often refereed (as in the case of the “War on the Rocks” website, www.warontherocks.com from the reputable Texas National Security Review or the “Modern Warfare Institute” website, <https://mwi.usma.edu/>, from the US West Point Military academy).

Why logistics is pivotal to strategy

This initial section is concerned with understanding the nature of the relationship between logistics and strategy, referred to by the authors here as the “logistics-strategy nexus” (Erbel and Kinsey 2018, 521–3). An understanding of how this relationship is highly inter-dependent is critical in an explanation of why the Russian military has failed to achieve its strategic, operational, and tactical objectives in Ukraine to date.

As Erbel and Kinsey make clear in their article: “*Think Again – Supplying War: Reappraising Military Logistics and its Centrality to Strategy and War*” that military logistics is “a pivotal component of war, [an] ... arbiter of strategic opportunity ¹ [but] ... it is [also] heavily determined by strategic and operational planning.” As

noted previously, this relationship works strongly in the opposite direction. Regarding foreign and defence policy, decision-makers are responsible for making choices that enable any given strategic plan. Such strategic plans, whilst exerting their main influences at higher levels, have crucial influences on logistics at every level. Logistic systems are the end-result of such national security policies, as these policies determine the type and range of contingencies for which the state must prepare. In this sense, whilst logistics is quite reactive, it remains a critical enabler of expressed national policies.

Martin Van Creveld, in his intellectual *tour de force* “*Supplying War*” places equal importance on logistics and strategy (Van Creveld 2009). This observation is important, as it highlights the critical point that wars are not won by good strategy alone, but only when supported by good logistics. Alignment of intent and execution between decision-makers and crafters of strategy on the one hand, and the logistic “executors” of these grand plans working at the lower operational level on the other hand, is critical to successful execution of strategic plans.

Despite considerable changes to warfare over the last few decades, with the introduction of high-technology weapon platforms and innovation in military logistics such as the increasing incorporation of contracted commercial providers, its nature has remained constant (Jordan et al. 2008). This also continues to hold true of “[military] logistics as a key enabler of the execution of campaign plans for military operations” (Kinsey, C; Uttley Kinsey and Uttley 2012, 402). To paraphrase Tuttle: moving forces (force protection), sustaining personnel, weapon platforms and other support equipment and needs with the intention of achieving tactical, operational and strategic success has changed little since the time of ancient warfare (Tuttle 2005, 1–2). The point is that strategy throughout modern history has always rested on logistics. This is reinforced by Van Creveld in the following quote from his seminal work *Supplying War*:

Strategy, like politics, is said to be the art of the possible, but surely what is possible is determined not merely by numerical strengths, doctrine, intelligence, arms and tactic, but, in the first place, by the hardest facts of all: those concerning requirements, supplies available and expected, organization and administration, transportation and arteries of communication. Before a commander can even start thinking of . . . the whole rigmarole of strategy, he has – or ought – to make sure of his ability to supply his soldiers. (Van Creveld 2009, 1)

Whilst agreeing with Van Creveld, Uttley and Kinsey make the important point that military logistics must also correspond with the polity’s political goals, a factor which appears to be either missing or ill-conceived by Russia’s policy makers with respect to its political goals towards Ukraine. Russia’s initial political goals can be surmised with some accuracy as the capture of Kyiv, the downfall of the present Ukrainian government, the annexation of large swaths of Ukrainian territory: in short, no less than regime change. Not only has this strategy been exposed as flawed, but its execution has also been shown to be deficient (Gould-Davies 2022).

This partnership between strategy and logistics is a factor, which appears to have largely been absent, particularly during the opening stages of the Russian invasion of Ukraine. As Kinsey and Uttley point out, “defence logistics is a critical element of fighting power because it determines what military forces can be delivered to an operational theatre, the time it will take to deliver that force, the scale and scope of forces that can be

supported once there, and the tempo of operations” (Kinsey, C; Uttley Kinsey and Uttley 2012, 401–2). Clearly, the Russian General Staff has been deficient thus far in adhering to this maxim. It also appears that they have also failed to consider the ability of the Russian defence industrial infrastructure to meet the resultant logistical requirements which the Ukrainian “special operation” has produced, particularly as it has not culminated as quickly as assumed and compounded by an unexpected raft of Western-imposed economic sanctions.

Whether it is the absence of political goals in Ukraine or simply their ill-conceived nature, Russia’s application of its strategy and tactics in the country is being applied to an intelligent, responsive adversary whose survival is threatened existentially, and who have shown a high degree of resilience (Wilson 2022). The unexpected resilience of Ukraine is a contingency which appears to have been disregarded by the Russian General Staff in its campaign planning, particularly logistically. Instead, not only is Russia’s military logistics unable to meet the Kremlin’s political goals (as noted above) with regards to Ukraine, but the logistics provided is similarly constrained and cannot provide the variety of strategic, operational, and tactical options commanders need to achieve success. Ultimately, logistics is key to a commander’s ability to execute operational plans, and a poor or non-functioning logistics system will undermine such plans. Such a situation is unfolding in Ukraine at present (Dalsjö, Jonsson, and Norberg 2022, 8–10).

Leaving aside a critical analysis of Russia’s opening strategy (which lies outside the scope of this article but is well summarised elsewhere (Gould-Davies 2022)), the following sections will demonstrate the chokehold which logistics has over strategy. Where logistics is a critical determinant of successfully executed strategy, the other important point is that the “logistic-strategy nexus” is complex and inter-related. Logistics is executed at operational levels of war but is itself greatly influenced by decisions and actions taken by organisations existing at higher, political and strategic levels of war. It is from these bodies that strategy originates, and which themselves also reflect both command and control systems and philosophies, as well as doctrine and cultural and historical factors. The arguments in the sections that follow will show that logistics is indeed pivotal to strategy but that in turn, logistics has itself been substantially swayed by higher strategic influences. Thus, whilst at the time of writing this article, it would be quite premature to definitively establish the reasons behind Russia’s military logistic failures in Ukraine, what can be demonstrated at this stage is that logistics has indeed had significant effect and primacy over strategy. This resultant logistics has itself been the product of complex interactions between a diverse organisational strategic, command, doctrinal, cultural, and historical factors, many originating from strategic levels, further reinforcing the bi-directional nature of the strategy - logistics dynamic.

A cursory examination of military history over the past century repeatedly confirms the chokehold that logistics has over strategy. The exhaustion of the Imperial German Army in 1914 as the modified “Schlieffen Plan” reached its culminating point was as much due to logistic insufficiency as to an overambitious offensive strategy (Van Crevald 2009). On the other hand, it was a logistic “*tour de force*” supporting the largest amphibious forced entry operation in modern history that enabled the successful 1944 D-Day landings and the execution of Allied strategy as the “Second Front” was opened. Finally, the 1991 example of Operation “Desert Storm” in Kuwait is the most recent example of a successful strategic execution enabled not only by a multinational, coalition

large-scale combat operation, but one preceded by months of logistic preparation and planning (Pagonis and Krause 1992). The ongoing Russo-Ukrainian war provides yet another example of the persistence of the primacy of logistics over strategy. Before outlining this particular argument, the next section will present an account of Russian military logistics, orientating its discussion towards informing the situation existing at the commencement of the campaign. Particular reference will be made to linking operational logistic realities with strategic outcomes. This will set the scene for the discussion that follows.

A 'Potemkin' Army?

The expression “Potemkin village” has the meaning of an object or entity created for the purpose of hiding the truth. The origin of the phrase is supposed to have been a certain Gregoriy Potemkin in 18th-century Russia who (as the story goes) constructed a series of sham villages to demonstrate the prosperity of the Russian peasantry to a journeying Catherine the Great. This was done to conceal the fact of their abject poverty. Whilst the “Potemkin village” has since been debunked as a myth, the phrase has nevertheless entered the English language.²

The actual performance of all branches of the Russian military during the initial phases of the Ukrainian invasion have been so inconsistent with its perceived abilities that it has caused some Western commentators to utilise this phrase, labelling the Russian military as a “Potemkin army” (Shultz and Brimelow 2022). What is now apparent is that the 24th of February 2022, “special military operation” was conceived as a combined arms offensive over multiple axes based on fundamentally erroneous assumptions about the strength and quality of Ukrainian resistance. Many reputable Western commentators have deduced key operational decisions resulting from these assumptions. First, very little “notice to move” appears to have actually given to frontline units *vis a vis* an incursion across the national border. Second, it appears from the character of the initial advance of 24 February, that little more than a motorised movement with only token opposition was anticipated. Comparisons to Hitler’s *anschluss* of Austria in 1938 come to mind, with this particular historical event being essentially a motorised movement to incorporate territory into a “Greater Germany.” The parallels between the 1938 *Anschluss* and Russian propaganda denying Ukraine’s existence as a true nation state whilst justifying the need to incorporate it into a “Russian world” are obvious. This has further caused some commentators to further remark that the initial Russian motorised movement into Ukraine demonstrated all the characteristics of Russian *internal* domestic road movement (Kofman 2022). Supporting this view are observations such as that part of the initial spearhead of the northern advance towards Kyiv comprised Russian National Guard (“*Rosgvardia*”) elements travelling in unarmoured vehicles and not Russian ground combat troops (Kofman 2022). A Western analogy for such an action would have been for the 2003 Coalition invasion of Iraq to have been headed by US riot police and not by US military forces themselves. The use of *Rosgvardia* in this way strongly implies that military engagements with opposing Ukrainian forces were not expected, but rather stabilisation tasks which define *Rosgvardia*’s primary mission such as internal security enforcement, imposition of civil order, and law enforcement (Gresh 2020).

Quite aside from the situational assumptions likely made by Russian planners, the strategy of a combined arms offensive on multiple axes over a front extending well over a thousand kilometres would in itself cause significant stress to the armed forces of any current major power, particularly the United States of America. Such a multiple axis mobile advance was demonstrably handicapped by the inadequacies of Russia's military logistic system (Milevski 2022), (Ti Ronald 2022) which in turn led directly to the failure of both the Russian strategic plan (such as it existed or exists) and its operational execution. Evidence for this is shown by abandoned fighting vehicles immobilised due to lack of fuel (again probably due to inadequate logistics), the now infamous 70 km logistic vehicle traffic jam extending over the single road north of Kyiv and reported shortages of food and basic equipment (likely due to inadequate logistics). It is clear that the logistics provided was inadequate to sustain the required logistic demand. The following section will proceed to outline the operational failure to seize Kyiv by this northern offensive and link the strategic failure to primary logistic inadequacy.

Logistics over Strategy: the failure to seize Kyiv

The initial move to seize the Ukrainian capital, Kyiv was blocked by determined Ukrainian resistance. This was a major factor that led to the subsequent logistic traffic jams and the inability of Russian logistic elements to carry out forward replenishment and sustainment tasks. The fluidity of this relatively porous "frontline" has led to direct Ukrainian targeting of "soft-skinned" Russian logistic convoys, critically weakening the offensive. The northern offensive ended after approximately 6 weeks in March–April 2022 with the withdrawal of all Russian forces from this sector and the abandonment of all conquered territory in what the Russian General Staff called a "repositioning" (Epstein 2022).

The authors identify a number of key logistically based factors which have combined to produce the strategic failure of the northern offensive to seize Kyiv. The following sections will outline and briefly discuss each factor, highlighting the primacy of logistics over strategy in each instance.

Key Factor: Expeditionary operations require expeditionary logistics

The invasion of Ukraine is a classic expeditionary operation. Much like the US invasion of Iraq, this operation has required the projection of combat power over an "expeditionary distance." What actually constitutes an "expeditionary distance" is open to debate, but in general, it could be considered any distance over which extended and where robust replenishment must occur to sustain combat operations. Thus, a defensive operation would not normally be considered expeditionary in nature, but an amphibious operation in the form of a forced entry landing would be considered "expeditionary." Expeditionary logistics is hence required when forces operate at some distance from their national support base and is particularly demanding because every fundamental principle of logistic support including self-sufficiency, flexibility, robustness, and – particularly— independent mobility in transport and distribution systems, are pre-requisite elements for operational success. Distance remains a critical factor in conducting military operations, notwithstanding the effect of modern weaponry. In the area of logistics, the effect

of distance, particularly as described by Boulding's "Loss of Strength Gradient" theory remains relevant (Webb 2007). This is echoed by Prebilib's work, which in quantifying the effects of certain factors on logistic efficiency, identifies distance as a critical factor. Prebilib's work demonstrates that logistic effectiveness and distance are inversely proportional, with effectiveness reducing as distance increases (Prebilib 2006, 170–1). Despite the invasion being an expeditionary operation requiring correspondingly robust logistics, the critical factor was that the current Russian military logistic system is not organised, trained, or equipped to deliver the pre-requisite expeditionary logistics required for operational success. Reference should be made at this point to Russian operations in Syria being cited as an example of successful Russian "expeditionary logistics." The authors take the view that the Syrian deployment is essentially an air component deployment focussed on platform-based logistic support, with ground combat elements deployed primarily for airfield defence, alongside lesser numbers of special forces. This is an altogether different type of logistics provision to that required for large-scale combat operations. In comparison to the United States, the Russian military has yet to execute a comparable operation over distance requiring expeditionary logistics (Grady 2018).

A major reason for the dearth of recent Russian military expeditionary operations lies in the long-standing Russian concept of "active defence" and the way in which Russian logistics has been configured to support it. Briefly explained, "active defence" is a long-standing Russian defence strategic concept that integrates both offensive and stand-off distance strike capabilities on the foundational basis of solid area/territorial defence (Kofman et al. 2021, 10–17). Primarily defensive and somewhat reactive in nature, "active defence" could be considered the antithesis of expeditionary offensive doctrine. Russian logistics is configured to support this concept, which is also predicated on relatively fixed zones of defence. A recent example of this doctrine's currency was demonstrated by the *Zapad 21* exercise held in Belarus 4–6 months prior to the February 2022 invasion. *Zapad 21* was based on a scenario for defending Belarus against a NATO attack, classic "active defence" scripting (Clark and Barros 2021; Skogland, Listou, and Ekström 2022). The doctrine of "active defence" is an important key underlying factor in shaping Russian military behaviour.

The primacy of "active defence" shaping Russian logistics is consequently reflected in key characteristics of Russian logistic support. These include a heavy reliance on supply movement utilising immobile lines of support, which include railroads and fuel pipelines (Vershinin 2021). As Russian "active defence" focuses on defending its domestic frontages before expanding rapidly outwards into its immediate proximate territories, this places its principal areas of activity relatively close to fixed infrastructure such as railroads and pipelines. Current Russian military orders of battle consequently include substantial numbers of personnel dedicated to rail and fixed pipelines as compared to Western militaries, which have long since disbanded such specialist units since the end of the Cold War.³

In addition, as a consequence of their greater reliance on fixed infrastructure, Russian logistic formations possess markedly fewer trucks than equivalent western formations (Vershinin 2021). This results in difficulties for Russian units operating at any distance from rail points of disembarkation/loading, as the relative lack of motor transport reduces sustainment and replenishment capability, particularly when compared to

equivalent NATO echelons. Whilst this situation does not apply in the Donetsk area where Russian military effort is supported by proximate railway lines and internal lines of communications, such was the case in the northern sector of the front early in the invasion which placed invading Russian units at some distance from rail lines, reliant primarily on wheeled transport. In this sector, the movement of supplies was further significantly hampered by restricted road mobility resulting from the destruction of bridges and railways, as well as selective flooding of terrain to channel Russian movement (Spencer and Collins 2022).

Finally, the logistic distance issues hampering the Russian military have been further exacerbated by an element that cannot be duplicated in any training, being the presence of a determined, well-equipped, and motivated adversary. The key point to be noted is that for a number of reasons, underpinned by its underlying doctrine (and ultimately history), the Russian logistic system has been shown to be badly configured to provide the sustainment and replenishment needed for the ongoing expeditionary purpose which was intended by Russia's strategic decision makers.

The fundamental dichotomy underlying both Russian strategic planning and operational execution is that a strategy based on projecting combat power across an expeditionary distance cannot achieve its aims if the logistics it employs is unable to provide appropriate sustainment. The dichotomy lies in the divergence between the strategy driving the invasion linked to the inadequacy of the logistics that is supposed to sustain it. In summary, the lack of capacity of the Russian military logistic system to support large combat formations, particularly in the initial stages of the current Russo-Ukrainian war, has been critical (Milevski 2022, 5). The point that the failure of logistic execution underpins strategic planning (or perhaps more correctly in this instance the lack of it) underpins the arguments presented in this article. It is manifestly not strategy that has primacy here, but logistics.

Key Factor: the predominance of "push" logistics

"Push" and "pull" are terms used to differentiate between the two main generic types of logistic sustainment. This particular terminology refers literally to whether logistics is "pushed forward" according to schedules determined by non-frontline echelon determinants, or alternatively, is "pulled forward," with the key determinant being "consumer" need and usage rates (Ronald 2022). A closer examination of these two deceptively innocuous types of logistic sustainment (from a strategic point of view) exposes the interdependence of strategy and logistics that is the principal argument of this article and is the second key factor the authors highlighted here.

In the case of "pull" logistics, it is the end-user who creates the usage generating demand. "pull" logistics ideally generates a series of "demand signals" which drive the movement of sustainment forward through echelons. In the case of conflict, the end user is the unit at the "sharp end" (to use a phrase from Sir John Keegan's 1976 work *The Face of Battle*) which pulls sustainment from the notional "rear area" towards a notional "forward edge of battle area." Requests for materiel in the "pull" system are primarily centred on "real-time" demand and consumption. The main theoretical advantage of "pull" logistics is its responsiveness: in theory, given an effective and timely ordering system, it is the more appropriate arrangement for mitigating the invariable peaks and

troughs of demand resulting from the ebb and flow of battle. The critical enabler in “pull” logistics lies in the de-centralisation and delegation of “demand signal generation” to the unit which is actually at “the sharp end” of battle. Expressed more formally, it is the forward logistic control element embedded within its respective combat formation, exercising flexibility and independent thought, which is the key enabler of “pull” logistics. Such de-centralised command elements, whilst not altogether absent, are less well-represented in the Russian military system when compared to Western systems such as those of the USA or UK. This is a factor closely related ultimately to Russian command philosophy and is discussed below.

In contrast, “push” logistics represents the conceptual opposite of “pull” logistics. As its name implies, “push” logistics is primarily driven by sustainment that is largely pre-determined. In “push” systems, materiel and resources are literally pushed forward, typically according to pre-determined usage rates. By contrast to “pull” logistics that is fundamentally “consumption driven,” “push” logistics is driven primarily by usage schedules, often determined at higher echelon levels which are at some distance from the “sharp end” or front. By its very nature, “push” logistics is not as reliant on the key features of decentralised command and high levels of delegation displayed by military logistic systems that emphasise “pull” logistics.

The diagrams below are oversimplified representations of these two logistic conceptual systems. [Figure 1](#) represents “pull” logistics, and here the end user drives the feedback loop (the red arrow) for sustainment (the blue arrow), enabled by command delegation and a degree of independence. The entire feedback loop achieves a degree of logistic homeostasis with adjustments being made primarily by the end user. It is important to note that this representation of a “single demand and feedback loop” is an oversimplification that does not show the multiple feedback loops that exist between the end -user and the “pull” logistic system, because these systems tend to be complex and adaptive, possessing multiple parallel nodes, which confers intrinsic redundancy (Kim, Moon, and Moon 2017, 82–84). These are the key reasons underlying why “pull” systems empirically tend towards greater resilience than “push” systems.

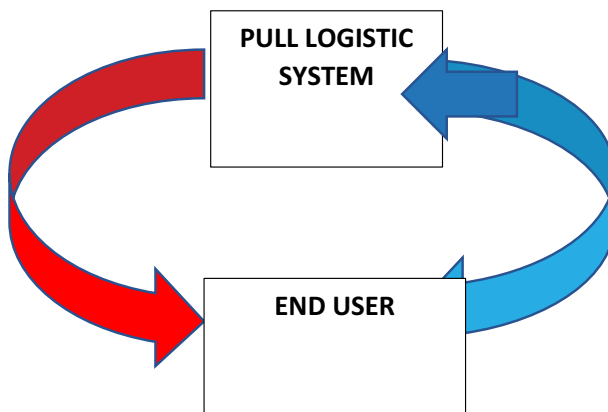


Figure 1. ‘Pull’ logistics: feedback and sustainment form a dynamic feedback loop. Resilience is built into this system through delegation and flexibility.



Figure 2. ‘Push’ logistics: minimal feedback plus sustainment driven by usage schedules. These form a ‘centrally driven system with poorly develop feedback loops. ‘Push’ logistics is shown here intentionally as a linear system, and where what feedback exists may break down under the critical stress of warfare (as shown by the lightning flash), it becomes unidirectional.

By contrast, [Figure 2](#) shows the “push” logistic system placing the locus of control centrally with secondary emphasis on feedback and flexibility on the part of the end user. This is a system that reflects centralised command and control. In the stress of battle, what little feedback exists may disappear, as shown by the “lightning bolt.” Hence by contrast to “pull” systems, because of the dominance of centrally directed logistic command and control, “push” systems tend to be channelled and lack multiple nodes. The tendency of “push” systems to lack collateral feedback loops is a major factor leading to lower levels of system resilience in these arrangements.

In these stylised representations of “pull” and “push” logistics, the relative sizes of the arrows are intended to represent the volume of movement and their relative importance. Thus, in [Figure 2](#), “push” logistic systems, feedback is less prominent, as reflected by the relative size of the red arrow, whereas centrally driven sustainment tends to be pushed forward according to perceived demand.

In reality, military logistic systems are seldom exclusively “push” or “pull” in nature and the mix will be modified according to a number of variables. One example related to Western military logistics is the extent to which contemporary supply chain management principles in widespread use in the commercial logistics sector have been adopted in military structures ([Acero et al. 2020](#), 3–5). Western military logistics features widespread use of “just in time” logistics, which is essentially a “pull” driven system focussed on cost efficiencies, and stock management. Most developments in logistics have their origin in the supply chain management discipline which is based heavily on the commercial sector. Contemporary management techniques such as Lean or “Six Sigma” have also been applied to military logistics to the same end, however with the important caveat that none of these approaches have been predicated on conflict situations.

Notwithstanding this, a given system will exert a greater or lesser influence and in the centrally driven, relatively inflexible logistic demand system of Russian military logistics it is “push” that predominates. It should be noted here in passing that legacy Soviet logistic systems have been described by certain commentators as one of the principal blockages to NATO interoperability and modernisation in former Warsaw Pact nations acquiring NATO membership over the past two decades or so ([Young 2016](#)). It is a reflection of the persistence of centrally driven, relatively inflexible logistic demand systems of Soviet logistics in these newer NATO member militaries that the persistence of central control, lack of peripheral decision making, and the territorial, non-expeditionary nature of these former Warsaw Pact militaries (formerly aligned with the Soviet Union) have all hindered successful integration. The prior use of “push” logistics

in such “new” NATO militaries is virtually universal. This example is given to contrast Western with Russian supply systems, acknowledging that no supply system is exclusively one (“push”) or the other (“pull”).

It is apparent from even a cursory examination of the fundamental differences between these two generic types of logistic sustainment that critical deficiencies could arise in the shifting, unpredictable battlespace of modern warfare. “Push” logistics works best if usage is relatively predictable, particularly regarding optimisation of resource allocation, but can be inflexible, particularly when usage has been determined by higher logistic echelons. When the amount of friction naturally present in military command systems is factored in, the time lag resulting exacerbates the inflexibility of “Push” logistics, handicapping its responsiveness. The comparative inflexibility of “Push” logistics when compared to demand-driven “pull” logistics is its greatest disadvantage. In a shifting, unpredictable operational battlespace obscured by a dense, “Clausewitzian fog of war,” a relatively annoying peacetime disadvantage can rapidly transform itself into a dangerous critical vulnerability. The inflexibility of Russian “Push” logistics in the unpredictable operational battlespace of the Northern Kyiv front exposed Russian critical vulnerabilities in logistics, leading to the dismal failure of its strategic plan. The predominance of “Push” systems in Russian military logistics is consistent with centrally driven, top-down command philosophies in the Russian military that are the ongoing legacy of deeply entrenched cultural and historical influences. The next section will discuss these influences to illustrate the extent to which they continue to shape the practice of Russian military logistics.

Key Factor: Centralised command versus mission command

Decentralised command is best typified by the “mission command” philosophy widely practised by Western militaries. This command philosophy emphasises delegation of responsibility, communication, subordinate understanding of higher mission intent, empowerment of subordinates, and appropriate intervention by higher command as determined by circumstances (Australian Army 2008, 2–3 to 2–5). The characteristics of decentralisation and delegation of decision making are key enablers of mission command. “Pull” logistics as practised in most Western military logistic systems reflect these mission command principles.

In contrast to Western mission command-driven logistic systems, the Russian logistic system similarly reflects its “ancestral,” inherited command philosophy. It is important to note here that “... Russia inherited its military logistics and combat service support system from the Soviets ...” (Grau and Bartles 2016, 314). The numerous challenges facing Russian military logisticians supplying the troops in Ukraine can in part be traced back to residual legacy doctrines dating from the Cold War, in which strong, controlling centralised relatively inflexible command are key features. The persistence of centralised command systems stands in contradistinction to de-centralised command systems prevalent in Western armies. It should also be noted here that such mission command principles have also been imparted by Western trainers to the Ukrainian military since 2014. Much of the success of smaller echelon Ukrainian units has been attributed to the adoption of Western ideas of mission command, as described in a recent 25 July 2022 editorial in *The Economist*.⁴

Returning to the Russian logistic system, “push” logistics predominates, requiring lesser degrees of delegation and much greater alignment with Russian top-down, directive, command philosophies. Centred on central command and control, these philosophies discourage middle management and individual decision making and initiative. In the words of one commentator “... The combination of ‘push’ logistics and centralised command result in the Russian military logistic system being even less responsive in the face of the unpredictable and inevitable variations in supply encountered in highly fluid battlespaces ...” (Ronald 2022, 3). The predictability that “push” logistic systems provide in military operations other than war, for example in relatively stable, peace support operations, becomes a wartime liability.

Taking the example of the initial phases of the Russian invasion of Ukraine, the expeditionary offensive strategy proposed was flawed if sustainment could not be achieved by a logistic system that turned out to be unprepared. In this instance, the situation of Russian centralised command and decision making is an example of how an effect expressed at higher, strategic levels, itself resonates to lower tactical and operational levels. Logistics certainly has primacy over strategy: however it does not exist in a vacuum and influences range up and down the organisational hierarchical chain.

Key Factor: Russian logistic personnel structures and their strategic effects

To understand how Russian personnel structures exert strategic effects, it is first necessary to outline the composition of a military logistic system. This will demonstrate that personnel support is an integral part of military logistics, and in support of the principal argument presented in this article has direct effects on strategy. This clarification is presented here to counter the commonly held definition of “logistics” which originates in the commercial sector. In the commercial sector, “logistics” is defined less formally and somewhat more narrowly, lacking several essential components of logistics according to military definitions. This includes omission of personnel support, which is generally not included in commercial logistics.

The wider-encompassing definition of “logistics” presented here is hence wider than that of “logistics” as understood in the commercial sector, which tends to be less well-defined, lacking a single, accepted definition, as is the case in military logistic doctrine. Commercial “logistics” tends to concentrate almost exclusively on supply chain management, delivery, transport, and warehousing, that is, on the provision and sustainment of materiel. The differences between commercial and military logistics are acknowledged, if not well studied (Rutner, Aviles, and Cox 2012).

Unlike commonly held views of commercial logistics (which concentrate in the main on transport, warehousing, and physical distribution) military logistics is defined by doctrine as a diverse collective of a logistic systems. NATO logistic doctrine describes six discrete logistic functional areas which as described in NATO’s capstone logistic doctrine publication, *Allied Joint Publication 4, “Logistics”* (NATO 2018, 5–5):

- (1) Supply
- (2) Materiel life cycle support

- (3) Equipment maintenance
- (4) Movement and Transportation
- (5) Services
- (6) Medical

The NATO category of “Services” (the fifth point listed above) includes personnel support. In this respect, the organisational system and its corresponding manning levels in the current Russian military logistic system are both handicapped by the relatively low ratio of logistic support personnel when compared to combat personnel (Berkowitz, Bonnie; Galocha Berkowitz and Galocha 2022), (Vershinin A 2021) (Ti Ronald 2022). Combat power can be measured by a multiplicity of indices. One obvious index is the number of combat soldiers, and whilst the reason for this is self-evident, an alternative index describing the number of logistic and support personnel is not as well-known. Support and logistic personnel enable the application of combat force, and the relative number of support personnel when compared to “sharp end” combat personnel itself can be turned into a ratio which represents the relative proportions of personnel proportionally allocated to both frontline and support roles. Whilst somewhat crude (and open to much variation and interpretation), this ratio of “combat” to “support” personnel nevertheless has value as a general indicator. The value for a modern army lies in reflecting relative force ratios in favour of logistic and support troops due to the essential nature of the former in enabling “frontline” combat power. This ratio is known as the “Tooth To Tail Ratio” or “T3R”. The T3R is the ratio of combat personnel (tooth) to support personnel (tail) derived by using gross numbers of personnel assigned to each broad function. Clearly, definitions of what comprises “support” and “combat” personnel are crucial, nevertheless the T3R can be used as a rough indication. The findings are that in virtually all Western militaries T3R’s are relatively low: for example, the US Army T3R has been quoted in the vicinity of 0.1, meaning that there are ten US Army “support” personnel for each one US Army “combat” soldier (Mc Grath 2012, 5–6). On the other hand, T3R’s are much higher in the Russian military. The equivalent T3R in the Russian military has been estimated to be around 6 by some estimates, reflecting “guesstimates” of 6 “combat” personnel for each one “support” personnel. The T3R of 6 for the Russian military overall is substantially higher than the US T3R of 0.1. However, imprecise these figures, both empirically and according to expert opinion, a significantly lower proportion of Russian logistic troops in equivalent-sized echelons seems well evident (Vershinin 2021).

The hollowness in Russian support personnel is exacerbated by two critical deficiencies. The first deficiency is represented by proportionally lower numbers of Senior Non-Commissioned Officer/Non-Commissioned Officers (SNCO/NCO) in Russian military units relative to comparably sized Western units. This manifests as a sizeable gap in the critical middle-management function that is frequently required to be able to “translate” higher orders from commanders into actual execution by the more numerous lower ranks (Grau and Bartles 2016, 9). Fewer numbers of SNCO/NCOs weaken the link between officers and enlisted personnel, which is critical in achieving effective command and control in the battlespace. One result of this “middle-management gap” appears to be reflected in the relatively high numbers of flag-ranked Russian officers dying in the course of duty thus far in the war, probably reflecting the need for officers to go forward

and exercise direct personal leadership in order to ensure orders are implemented, and in the process exposing themselves to direct fire.

The second critical deficiency exists in the relatively lower proportions of logistic maintenance personnel, of whom the majority are ranked at the SNCO/NCO level. This relative dearth of middle management technicians has been widely commented on by Russian military commentators (Grau and Bartles 2016, 325). This overall diminution of Russian military SNCO/NCO personnel has a compounding effect. The first effect is the lack of personnel at middle management roles as described in the preceding paragraph. The second effect is that key logistic repair and maintenance supervisory roles are fulfilled by the same SNCO/NCO personnel which are already deficient in numbers, exacerbating the overall shortfall.

The hollowness in Russian personnel structures and composition described here has effects on the delivery of sustainment which, in turn also has further effects on the execution of strategy itself. Strategic decision makers can formulate whatever strategic plan they wish, however, if a single critical element, such as sound middle management in the form of NCO's, required for effective force structures is absent, all of this strategising may well be in vain. As described in a previous sections ("A Potemkin army?") it is now established that the initial Russian invasion of Ukraine was predicated on minimal Ukrainian resistance and was thought to need little more than motorised movement to achieve regime change and operational success. When this assumption proved to be fatally incorrect, Russian strategic planners were then compelled to consider a major conflict against a near-peer adversary. In the emergent situation which then arose in this February–March 2022 period, Russian logistics – as reflected by shortfalls in personnel support and in the numbers of logistic, support personnel – could not sustain the change in strategy that was required consistent with a core logistic function being that of personnel support, as per the definition provided in *Allied Joint Publication 4 "Logistics"* as described previously. This is demonstrably another example of where logistics has primacy over strategy and not the reverse.

Key factor: Russian military corruption culture and logistics

A further factor impacting Russian military logistics is widespread corruption, which expresses itself in the diversion and wastage of considerable amounts of materiel, capability, and human talent (Cranny-Evans and Ivshina 2022). This is the final key factor that will be described here. Clearly corruption in the form of resource theft and diversion affects logistics, and this has been described in the Russian military procurement system by other commentators (Beliakova and Perlo-Freeman 2018). Widespread footage of logistic deficiencies which have been thought likely the result of theft or diversion have emerged since 24 February 2022. Examples such as leaking tyres on Russian logistic transport vehicles, empty explosive reactive armour boxes on Russian tanks, expired combat rations, and inadequate winter clothing have all evidenced a degree of resource diversion in Russia's logistic procurement and acquisition processes. These are graphic examples of logistic limitations impacting on resultant strategy, described as systemic corruption (Dalsjö, Jonsson, and Norberg 2022). Whilst the actual effect of institutional corruption is not readily quantifiable, it is clear that both corruption and resource diversion have nevertheless had effects that have manifested at the operational level.

24 February 2022: Occasional or systematic?

The primary contention made throughout this article is that the critical initial phases of the Russian invasion of Ukraine provide further evidence of the primacy of logistics over strategy. However, a separate question, but one that is both important and related, is whether the invasion is an occasional or systematic Russian example? Russian military history from World War Two suggests that the February 2022 offensive may well be an occasional example, and this counterargument could point to events such as Operation “Bagration,” the successful 1944 Russian offensive which resulted in the destruction of German Army Group Centre.⁵ This highly successful execution of the Soviet strategy of “deep battle” was nonetheless enabled by logistics, particularly in the form of motor transportation, provided through shipments rendered at considerable human and materiel cost to the Allies (Vlakancic 1992). However, close to eighty years separate 1944 from 2022, and in considering the question of whether the current war is an occasional or systematic case, it is worth examining more recent examples of Russian operations.

If 1989 is taken as a starting point, a brief examination of Russian military history since then suggests that the military operation undertaken by Russia in 2022 actually has no precedent. Whether labelled as a “war” or “special military operation,” the February 2022 offensive was initiated as a multi-front, multi-axis, multi-command combined arms operation undertaken across an international border extending over 1,500 kilometres. Recent Russian military history simply lacks comparable examples of this kind of operation. Russian military operations during the second Chechen War in 1999 lacked both the scope and width of the 2022 invasion and were undertaken over relatively manageable narrow frontages.⁶ Similarly, the 2008 Russian invasion of Georgia lacked the geographically extensive and multi-frontal nature of the 2022 Ukraine invasion: the result was no Georgian “Bagration” but rather a limited military operation intended to recapture limited amounts of territory supported by short, internal Russian logistic lines of communication. Finally, the 2014 Russian annexation of Crimea was not so much an “invasion” but a *coup de main* undertaken by large numbers of Russian troops already prepositioned in Crimea under an extant Status of Forces Agreement. Lastly, the creation of the two Donetsk “republics” was essentially a takeover engineered as an operation occurring below the threshold for triggering a conflict and not a major offensive operation. Given the lack of comparable examples involving the post-1989 Russian military, it is difficult to assess if the 2022 Russian invasion of Ukraine is an occasional, unique event, or rather one that is more typical and systematic. Notwithstanding this, the weight of evidence from both 20th century military history coupled with the discussion presented here supports the main contention of this article, which is that logistics is the chokepoint that holds ultimate primacy over strategy.

Conclusion

This article begins by acknowledging that a nexus exists between strategy and logistics, with the latter being the element which translates national instruments of power into their expression at operational or lower levels. The description then moved towards the primary contention that, whereas many commentators assume the primacy of the strategic art, in fact the opposite is mainly true: that it is the practice of logistics that more frequently leads, and does not necessarily follow, that of strategy. The authors recognise that the “strategic-

logistic nexus” is a bi-directional relationship, and do not dispute that the balance of elements is not static. It is acknowledged that strategy frequently determines the shape and impetus of logistics. However, according to the authors, the contrary dynamic holds truer, and that is that in the power dynamic of influence, the quantity that is dominant is logistics. Examples have been cited throughout this article taken from the current and ongoing Russo-Ukrainian war and these indicate that a major factor in Russia’s failure to achieve its apparent strategic goals has been the overall insufficiency of its military logistics. As the authors have outlined, the reasons are numerous. A final note here concerns the Russian chief of logistics, General Dmitry Bulgakov, who was reported by BBC World News on 24 September to have been sacked from his position by President Putin.⁷ Given a deeply entrenched and reactionary Russian Ministry of Defence culture, such an act may well be compared to that of arranging deckchairs on the “Titanic” after striking the iceberg. This sacking could also be viewed as an analogy of the primacy of logistics over strategy. Much like an invisible hand, it is logistics and its manifestation in operational level failures such as those described in this article from the current Russo-Ukrainian war, which have influence, and can reach upwards to strike down those busying themselves making strategic plans.

Notes

1. See Thomas M. Kane, *Military* (2001): “*Logistics and Strategic Performance*” (London: Frank Cass), for the linkage between military logistics and strategic performance.
2. <https://www.rbth.com/history/331767-potemkin-villages-myth-exposed> (Accessed 7 September 2022)
3. For example, by the end of the Cold War, the British Army had two military units responsible for moving uniformed personnel by rail. They were the 79 and 279 Railway Squadrons, both part of the Royal Logistic Corps, and disbanded in 2012 and 2014 after being progressively reduced in size. There was also a Royal Engineers specialist track building team, also now disbanded See: <https://bootcampmilitaryfitnessinstitute.com/2022/04/20/does-the-uk-military-have-any-railways/> (Accessed 26 September 2022)
4. <https://www.economist.com/the-economist-explains/2022/07/25/what-is-mission-command> (Accessed 24 September 2022)
5. <https://www.hoover.org/research/operation-bagrations-and-destruction-army-group-center>
6. See: <https://www.zois-berlin.de/en/publications/zois-spotlight/russias-wars-ukraine-and-chechnya-compared>
7. See: <https://www.bbc.com/news/world-europe-63021117> (Accessed 24 September 2022)

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