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Amirkhanyan, Zhirayr. "A Failure to Innovate: The Second Nagorno-Karabakh War." *The US Army War College Quarterly: Parameters* 52.1 (2022): 119-134.
<https://hdl.handle.net/10945/69270>

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The US Army War College Quarterly: Parameters

Manuscript 3133

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A Failure to Innovate: The Second Nagorno-Karabakh War

Zhirayr Amirkhanyan
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ABSTRACT: The root cause for the defeat of the Armenian forces in the second Nagorno-Karabakh War was flawed military doctrine inherited from the Soviet Union. This article analyzes the major problems faced by Armenia, uncovers the main reasons for unsuccessful innovation, tests empirical findings against some of the most authoritative theories in the field, and outlines current research on the conflict, while substantiating the analysis with established scholarship in the field of military innovation.

Keywords: Nagorno-Karabakh War, Armenia, Turkey, Thomas Kuhn, military innovation

Unleashed by Azerbaijani aggression on September 27, 2020, the Second Nagorno-Karabakh War concluded with the cease-fire on November 9, which many Armenians were quick to dub capitulation. This war was the latest entry in a conflict that has played out for more than three decades. The conflict emerged in 1988 in the wake of *Glasnost* in Soviet Union and saw the rise of a strong sense of self-determination by the largely Armenian population of the Nagorno-Karabakh Autonomous Oblast of Azerbaijan. Baku's attempts at quelling Nagorno-Karabakh's aspirations for independence by force escalated the conflict to a war in 1992. Eventually, with the Republic of Armenia's support, the Nagorno-Karabakh forces defeated Azerbaijan, liberated most of the territory, created a security belt by taking control of adjacent Azerbaijani districts, and forced a cease-fire in 1994, thus winning independence for the Nagorno-Karabakh Republic (later renamed the Republic of Artsakh). This agreement, however, failed to mature into full-fledged peace. Ongoing armed confrontation between the Republic of Artsakh and Azerbaijan, ultimately led to the Second Nagorno-Karabakh War.

The reasons for the defeat of the combined forces of the Republic of Artsakh and the Republic of Armenia in the Second Nagorno-Karabakh War are manifold. At first glance, insufficient resources allocated to defense and shortcomings in technology, operations, training, and mobilization led to Armenia's loss. These shortcomings, however, all originate from a flawed military doctrine inherited from the Soviet Union and based on attritional

warfare. Doctrine is defined here as the ways and methods of conducting operations or, as defined by the US Department of Defense (DoD) as “fundamental principles that guide the employment of . . . military forces in coordinated action to achieve a common objective.”¹ Armenian forces failed to adapt to the changing character of warfare and find viable solutions in the strategic, operational, and tactical levels of war due to a confluence of impediments to military innovation. Among the most salient of these impediments were unbalanced civil-military relations within the defense establishment and between the military and its political masters, as well as the entrenched values of the general staff of Armed Forces of the Republic of Armenia. While the first stumbling block prevented a robust civilian intervention to spur innovation, the latter obstructed the push for reform exerted by military professionals.

The complacency leading to Armenia’s defeat in the Second Nagorno-Karabakh War provides a critical lesson for modern militaries and their political masters: greater introspection is necessary to mitigate the main impediments to military innovation and reform. The arguments and evidence presented here show no single theory can provide exhaustive answers to diverse cases of military innovation. This overview of the outcome of the Second Nagorno-Karabakh War exposes the effects of lack of innovation, while looking to flawed doctrine as the main cause of defeat. It then addresses scholarship on how institutional change occurs and concludes with applying these theoretical frameworks to the changes, or lack thereof, made in the years between the First and Second Nagorno-Karabakh Wars.

1. *DOD Dictionary of Military and Associated Terms*, Office of the Chairman of the Joint Chiefs of Staff, (Washington, DC: Joint Chiefs of Staff, 2020), 114, last updated August 2021, <https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/dictionary.pdf?ver=QkmPX3lFZqhMjdEGeSoB4A%3d%3d>.

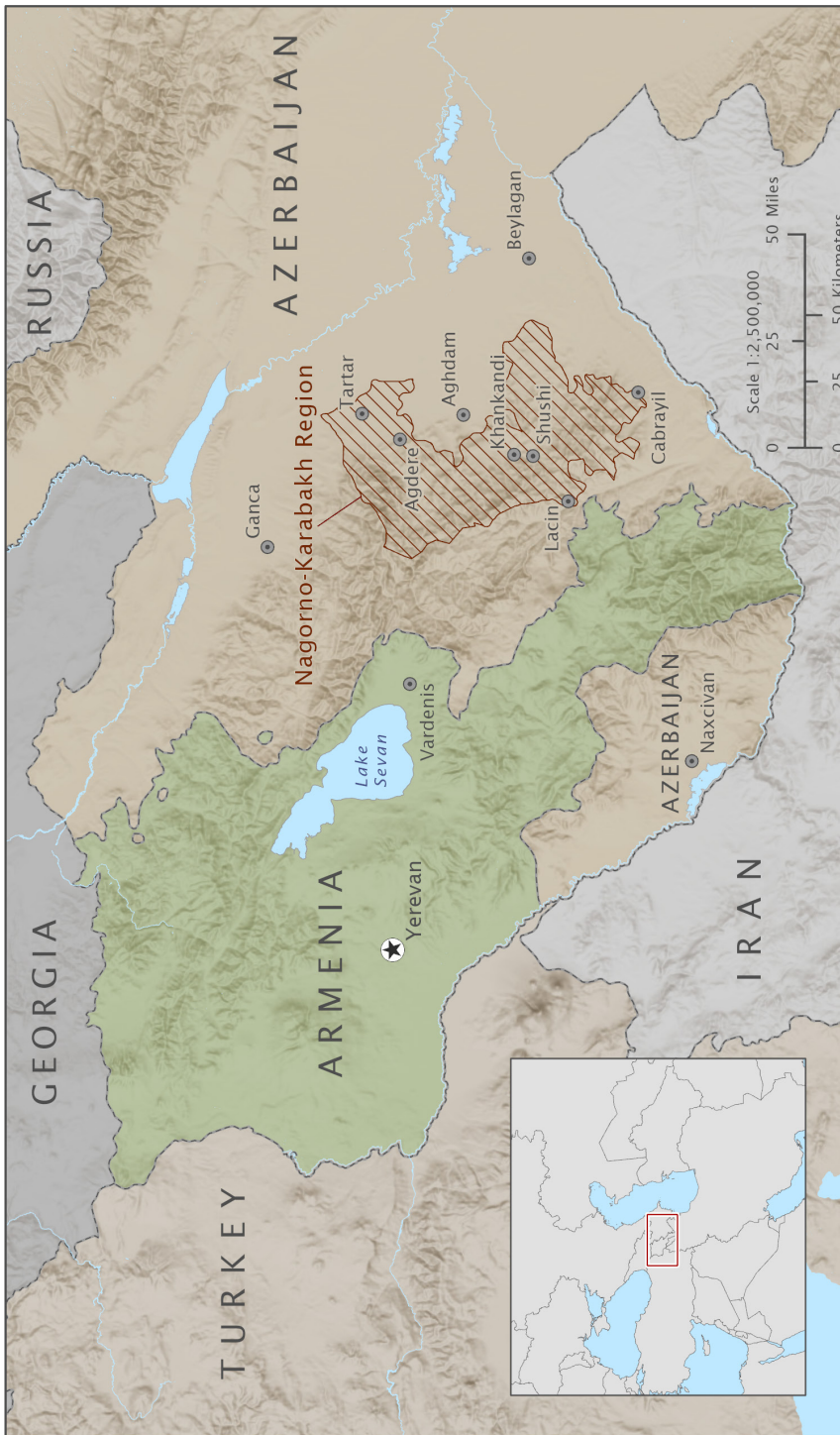


Figure 1. The Nagorno-Karabakh region
(Map by Pete McPhail)

Analysis of the Azerbaijani Victory

Officials and analysts have proposed several reasons for the war and Azerbaijan's eventual victory. Some Armenians attribute the debacle to treason amongst Armenian political and military leadership. Others claim Azerbaijan, Turkey, and Russia conspired against Armenia to settle the Nagorno-Karabakh conflict forcefully once and for all. Still others contend Azerbaijan enjoyed wholesale military support from Turkey and enlisted the services of a significant number of Syrian mercenaries affiliated with terrorist organizations, whereas Armenia was left on its own by Russia, its security guarantor.² Charges of treachery among the Armenian political and military establishment are merely conspiracy theories. There have been cases of panic and faintheartedness among Armenian decisionmakers and operators, however, though these cases are by-products of the problems that led to the fiasco and not the main cause.

More rational pundits point to the numerical advantages of the Azerbaijani forces against the Armenian opposition as the main cause of Armenian defeat. Looking at force correlation at the onset of hostilities reveals the belligerents could have been assigned equal odds whereby the Armenian side had enough defensive capacity to withstand the onslaught. One analyst, citing Azerbaijan's narrow margin in several major weapons systems, forecasted the conflict would not result in a serious alteration to borders since no side had resources to achieve a complete victory.³

An even greater number of analysts ascribe the Azerbaijani victory to their technological edge. Unmanned aerial vehicles (UAVs) played a significant role, inflicting great losses to Armenian personnel and military equipment. The use of UAVs in the Syrian and Libyan conflicts and the Nagorno-Karabakh war shows the utility of trading losses in drones for enemy fatalities in manpower and the advantage of beating the enemy in the race to faster integration of drone warfare technologies and techniques into military doctrine.⁴ Azerbaijan's successful use of drones proved a tactical sensation and reaffirmed the potentially devastating effects of airpower on ground forces with unsophisticated air defenses.

2. Cory Welt and Andrew S. Bowden, *Azerbaijan and Armenia: The Nagorno-Karabakh Conflict*, Congressional Research Service Report (CRS) R46651 (Washington, DC: CRS, January 7, 2021), 6, 12, <https://crsreports.congress.gov/product/pdf/R/R46651>.

3. Leonid Nersisyan, "Противостояние: что известно о боевом потенциале ВС Армении и Азербайджан," [Confrontation: What is Known about Combat Potentials of the AFs of the Republic of Armenia and the Republic of Azerbaijan], *Izvestija*, September 28, 2020, <https://iz.ru/1066374/leonid-nersisyan/protivostoianie-chto-izvestno-o-boevom-potenciale-vs-armenii-i-azerbaidzhana>.

4. Ridvan Bari Urcosta, "Drones in the Nagorno-Karabakh," *Small Wars Journal*, October 23, 2020, <https://smallwarsjournal.com/jrnl/art/drones-nagorno-karabakh>.

The Armenian forces' air defense system failed to mount viable resistance. More importantly, the Armenian forces' air defense system failed to put up a viable resistance, a setback attributable not only to the inventory of air defense systems per se but, more importantly, to the force structure they support.⁵ While the increasing variety of affordable UAVs can provide belligerents with air power at a fraction of the cost of maintaining a traditional air force, ground forces trained to fight in a "drone-saturated" battlespace are crucial.⁶ Well-trained and skilled personnel are still the most important asset on the modern battlefield, and they are key to employing weaponry properly and defending from enemy engagement.

The effective use of any weapon system should be studied within the larger continuum of sociological and doctrinal considerations that make up the two cardinal determinants of military readiness. Sociological considerations examine the extent to which a nation is ready to sacrifice funding and lives in a particular conflict. As the Nagorno-Karabakh wars make apparent, there was a limit to the sacrifices Armenian society was ready to make to continue the struggle for the security of Nagorno-Karabakh and Armenia against serious military threats from Azerbaijan and Turkey. Nor did Armenia's state policy toward the conflict and corresponding military strategy match the resources allocated to defense throughout the 26 years that elapsed since the end of the First Nagorno-Karabakh War of 1992–94.

A comparison of Armenian and Azerbaijani defense expenditures as a percentage of GDP reveals Armenia was *not* devoting a considerably larger share of its available national resources to defense. During the period 2000–19, Armenia's military expenditures as a percentage of GDP averaged 3.65 percent, not much higher than Azerbaijan and its average of 3.44 percent. Moreover, there have been periods when Azerbaijan's military expenditures as a share of GDP exceeded Armenia's expenditures by 0.3 to 0.9 percentage points (in 2006 and 2011–15).⁷ In this regard, a legitimate question to ask is whether Armenia was serious about its defense. With significant dissonance between military reality and investments, Armenia proved unready for the war and "steadily marched toward a military disaster."⁸

5. Michael Kofman, "A Look at the Military Lessons of the Nagorno-Karabakh Conflict," *Russia Matters*, December 14, 2020, <https://www.russiamatters.org/analysis/look-military-lessons-nagorno-karabakh-conflict>.

6. Robyn Dixon, "Azerbaijan's Drones Owned the Battlefield in Nagorno-Karabakh—and showed future of Warfare," *Washington Post* (website), November 11, 2020, https://www.washingtonpost.com/world/europe/nagorno-karabakh-drones-azerbaijan-aremenia/2020/11/11/441bcbd2-193d-11eb-8bda-814ca56e138b_story.html.

7. Stockholm International Peace Research Institute, SIPRI Military Expenditure Database, Data for all countries from 1988–2019 in constant, (2018), <https://www.sipri.org/sites/default/files/Data%20for%20all%20countries%20from%201988%E2%80%932019%20as%20a%20share%20of%20GDP.pdf>.

8. Kofman, "Military Lessons of the Nagorno-Karabakh."

Flawed Doctrine—the Main Reason for Armenia’s Defeat

The remainder of this article examines military innovation in the Armenian defense establishment through the determinant of readiness—doctrinal considerations. In hindsight, the Second Nagorno-Karabakh War clearly demonstrated the Armenian military was clinging to the dogmas of attritional war, whereas its foe was employing the precepts of maneuver warfare. Whereas the Armenian forces fought according to the *primer*—Soviet doctrine of land operations dated 1989—the Azerbaijani army had adopted the concept of light composite assault units in the early 2010s. These mobile groups could exploit the seams in the Armenian battle line of troops stretched thin along the perimeter of the forward edge of the battle area and attack objectives deep in the Armenian rear. This tactic exploited the other chief shortcoming of the Armenian army—a lack of mobile combined-arms and artillery units.⁹ The Armenian army had to rely on an obsolete system of cumbersome fortified areas and massive marching columns and proved unable to assign the necessary number of mobile teams, and thus became powerless against enemy action.

The mismatch between Armenia’s and Azerbaijan’s ways of war and was most apparent in the fight for Shushi, the strategically crucial town whose seizure decided the campaign’s fate. While the Azerbaijani army managed to bring its mobile assault units to the outskirts of Shushi, effectively sealing off the roads to the settlement, the Armenian command assumed its enemy’s infantry could not cope with the Armenian units without the support of tanks, artillery, and UAVs.¹⁰ The problem was the continued reliance on Soviet-legacy military thinking and operational art without attention to the peculiarities of Armenian military culture (that proved victorious in the First Nagorno-Karabakh War) or the changing character of warfare and specificities of the theater of operations. The Soviet military school overly focused on mathematical algorithms and operational art and had a hard time clarifying the boundary between the latter and military strategy, instead emphasizing human and material resources to be expended in attritional warfare.¹¹

9. Aleksey Ramm, “Карабах: бои без победы: Современное оружие не стало фактором успеха,” [Karabakh: Hostilities without Victory: Modern Weapons Have Not Become a Factor of Success], *Nezavisimoe Voennoe Obozrenie*, November 27, 2020, https://nvo.ng.ru/wars/2020-11-05/5_1116_wars.html.

10. Aleksey Ramm, “Карабахский провал: Падение Армении предопределила техническая несостоятельность,” [The Karabakh Downfall: The Fall of Armenia Was Predetermined by a Technical Destitution], *Nezavisimoe Voennoe Obozrenie*, December 10, 2020, 3, https://nvo.ng.ru/realty/2020-12-10/1_1121_karabakh.html.

11. Artsrun Hovhannisyán, Ռազմարվեստ, Հատոր II. Ցամաքային ներքում [*Military Art, Volume II: Land Breakthrough*] (Yerevan: Voskan Yerevantsi, 2020), 43.

Literature Review on Military Innovation

During the 26-year peace dividend following the First Nagorno-Karabakh War, Armenia needed a major innovation across its armed forces to create a unique Armenian way of war and attendant theory of victory. This section lays down the theoretical framework, which will determine the factors that either facilitate or hamper military innovation. It draws on scientific research, bureaucratic politics, and civil-military relations, but it begins with the definition of innovation and the scope of change it entails. As Peter Rosen posits, a major innovation implies a change in the concepts of operation, namely, the ideas governing the ways of using forces to win a campaign. A major innovation also involves alteration to the essential workings of the larger organization and priorities assigned to any given arm, while “downgrading or abandoning of older concepts of operation and possibly of a formerly dominant weapon.”¹² Major innovation embraces the marriage of technology and doctrine to produce a revolution in military affairs.¹³

First, to delineate the entities responsible for innovation in the Armenian armed forces and how they enact change, it is necessary to distinguish the different paths military innovation can take in diverse security situations. The balance of power theory clarifies the differences between organizational dynamics accompanying change. According to Barry Posen, the organizational dynamics necessary to effect change are more likely to occur during peace time, whereas during war they are likely to be overturned by both military leaders and statesmen. As the historical record shows, many militaries have been greatly imperiled and even destroyed outright when attacked by their foes amidst an ongoing reorganization.¹⁴

According to James Russell, however, the successful wartime adaptation of American units in the Anbar and Ninewa provinces of Iraq in 2005–07 goes contrary to prevailing theory, which argues that peacetime presents the most conducive circumstances for military innovation to happen.¹⁵ Indeed, the two most frequent catalysts of innovation are “a significant organizational challenge,” or “an emerging opportunity.”¹⁶ Russell goes on to define two directions of military innovation: top-down, and bottom-up. In peacetime, the impetus for innovation will likely come from the higher echelons of

12. Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1991), 7–8.

13. Bradd C. Hayes and Douglas V. Smith, Gregory A. Engel, *The Politics of Naval Innovation*, Research Report 4-94 (Newport, RI: US Naval War College, 1994), 3.

14. Posen, *Sources of Military Doctrine*, 30–31.

15. James A. Russell, *Innovation, Transformation, and War: Counterinsurgency Operations in Anbar and Ninewa Provinces, Iraq, 2005–2007* (Palo Alto, CA: Stanford University Press, 2011), 205.

16. John J. Garstka, “Patterns in Innovation,” in *Transforming Defense Capabilities: New Approaches for International Security*, ed. Scott Jasper, 57–78, (Boulder, CO: Lynne Rienner Publishers, 2009), 57.

command and be communicated through explicitly structured guidance. In wartime, new ideas typically arise organically from field units empowered through decentralized authority.¹⁷ An important point for the Armenian case is that peacetime innovation, often more systematic and deliberate, enables time to search for optimal solutions through trial and error. Military conflicts are fought with the army using equipment at hand, and operational possibilities during war are largely determined by decisions made long before the outbreak of hostilities.¹⁸

If innovation questions the established beliefs, a paradigm change in organizations, explanations, and models of describing and dealing with certain phenomena is required. According to Thomas Kuhn, paradigms in scientific research are universally recognized “achievements that for a time provide model problems and solutions to a community of practitioners.”¹⁹ These past achievements constitute a foundation of so-called normal science, upon which further practice is built. Since normal science cannot be used to uncover empirical and theoretical novelties, it is unable to lead to a paradigm change.

Paradigm changes occur in the course of scientific revolutions—extraordinary events encompassing the shift of professional commitments necessary to deal with anomalies of research outcomes that subvert the existing traditions of normal science. Scientific revolutions unfold through discoveries that establish a novelty of fact or inventions validating novelty of a theory. A discovery is achieved through the following phases of cognition: previous awareness of an anomaly, gradual and simultaneous emergence of both observational and conceptual recognition, a consequent change of paradigm categories and procedures often accompanied by resistance, and adjustment of conceptual categories so the previously anomalous has become the anticipated. An invention, on the other hand, represents a large-scale paradigm destruction following a crisis in normal problem-solving theory and techniques. A direct response to a crisis can be the emergence of a novel theory that will embrace certain solutions which were partially anticipated yet ignored prior to the crisis.²⁰

Sometimes, neither gradual understanding of new realities nor a dramatic crisis in old beliefs are enough to produce the paradigm change necessary for launching an innovation. Scholarship on bureaucratic politics posits one

17. Russell, *Innovation, Transformation, War*, 31.

18. Posen, *Sources of Military Doctrine*, 31.

19. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 2nd ed. (Chicago: University of Chicago Press, 1962), viii.

20. Kuhn, *Structure Scientific Revolutions*, 6, 10, 52, 62–64, 67–68, 74–75.

such obstacle to innovation is the tendency to treat institutions like the military as a single monolithic entity rather than as a federation of smaller suborganizations pursuing their parochial interests. As Graham Allison and Morton Galperin argue, an organizational policy, instead of being an output of one rational decisionmaker, is the product of a conglomerate of communities and political actors competing to have a say in the parent organization's decisions and actions. This bureaucratic politics model views organizations as actors focused not on a single overarching goal but rather on their own conceptions of national security and sectional and personal interests.²¹ Russell builds on this conclusion in his theory of military innovation and adaptation, postulating that successful military innovation should overcome bureaucratic resistance to change and alter the bureaucratic behavior of the organization.²²

The subfields of political science and civil-military relations provide additional insight into how the interests of, and relationships between, civilian and military entities unfold in the process of change and innovation. Posen contends military organizations are reluctant to innovate in peacetime if left to their own devices. Instead, innovation is spurred by the intervention of civilian leaders, who are assisted by “military mavericks”—senior military officers who provide technical knowledge and substantive expertise. Moreover, Posen argues more civilian intervention and less military autonomy will occur within a nation when waging a defensive war.²³

Deborah Avant's study of how the strategic relationships between politicians and bureaucracies affect military innovation takes a more moderate view of civilian influence. In her opinion, civilian choices on the organization of a military institution affect the degree of the latter's integrity—the ability to articulate and present a unified position on any issue of importance as political actors—and its preferences, which are biased toward specific responses. Her comparative analysis of British and American military innovation demonstrates the institutional division between the executive and legislative branches enabled the military to mitigate civilian control by appealing to the legislature when they were dissatisfied with the executive. As a result, while the US Army only reluctantly embraced counterinsurgency as its doctrine of necessity in Vietnam, British counterparts successfully adopted imperial warfare in the Boer War and fought that conflict to a

21. Graham T. Allison and Morton H. Halperin, “Bureaucratic Politics: A Paradigm and Some Policy Implications,” *World Politics* S24 (Spring 1972), *Theory and Policy in International Relations*, S42–43.

22. Russell, *Innovation, Transformation and War*, 24–25.

23. Posen, *Sources of Military Doctrine*, 50, 174–75, 224.

successful end.²⁴ Avant concludes the level of responsiveness of a military to the imperative for change is largely determined by its preferences, degree of integrity, and the type of civilian intervention necessary to promote innovation, which are all determined by the structure of domestic political institutions.²⁵

Rosen holds a diametrically differing position on the distribution of roles in military innovation between civilians and militaries. He suggests innovation in peacetime should be driven from within a military organization where all the civilians can do is support the senior military officers who (akin to Posen's military mavericks) formulate intellectual and organizational components of a strategy for innovation.²⁶ As Rosen contends, military innovation is an ideological struggle aimed at the redefinition of values that will legitimate the activities of a certain group in the military and the political community. This ideological struggle should concentrate on a new theory of victory and an appropriate way of war to achieve that victory. One of the ways to win in the struggle for innovation is to create new promotion pathways for young officers, who advocate a new way of war, allowing them to rise to senior ranks within a period of generational change.²⁷

Military Lessons Not Learned by Armenia

In the Armenian case, military innovation was likely to be motivated by top-level guidance, since the country enjoyed a peaceful quarter century and had enough time to prepare for its next military confrontation. The Second Nagorno-Karabakh War was preceded by two relatively major escalations in the conflict in April 2016 and July 2020. These flare-ups strengthened the belief of Armenian senior military leaders that future operations would be positional in nature and fought with an attritional approach against an opponent who pursued limited offensive objectives. Glaring issues identified in the wake of these hostilities in technological and operational domains were largely ignored.

In the technological realm, among the main deficiencies identified for the Armenian units were the enemy's incipient attack-drone capabilities and

24. Deborah D. Avant, "The Institutional Sources of Military Doctrine: Hegemons in Peripheral Wars," *International Studies Quarterly* 37, no. 4 (1993), 410–17.

25. Deborah D. Avant, *Political Institutions and Military Change: Lessons from Peripheral Wars* (Ithaca, NY: Cornell University Press, 1994), 12, 130.

26. Posen, *Sources of Military Doctrine*, 174–75; Rosen, *Winning Next War*, 21.

27. Rosen, *Winning Next War*, 19–20.

the vulnerability of their tanks' lack of active-reactive armor.²⁸ Oblivious to these new realities following the hostilities, the Armenian side dismissed the drone threat. According to the first deputy minister of defence: “it [is not] necessary to buy expensive drones when it is possible to hit the target with a conventional grenade launcher.”²⁹

In the operational realm, an important lesson to be gleaned from the hostilities in 2016 was the expanded deployment capacity of the Azerbaijani army. That operation tested Azerbaijan's capacity to use two railways around Nagorno-Karabakh—the first one running from the rear to the front and another larger one running parallel to the front—to raise troops rapidly on alert and redeploy them to the frontline. This mode of transportation proved indispensable for operational mobility manifested during the Second Nagorno-Karabakh War where the Azerbaijani army had at least tenfold the capacity of its opponent for the daily deployment of troops to the frontline.³⁰

Recalling the paradigm change, expounded by Kuhn, in doctrinal matters, an innovation might have been attained in Armenia through both discovery and invention.³¹ First, most of the phases of cognition described by Kuhn as precursor to discovery existed. The awareness of problems in the Armenian military's current philosophy of command and control and the larger notion of operational concepts, along with their observational and conceptual recognition, were formed long ago amongst farsighted defense professionals and consequently reflected in the high-level guidance documents issued by the minister of defense. Particularly, the ministerial vision issued to the force in 2018 and mid-2020, respectively, underscored the importance of overhauling forms and methods of warfare and communicated the imperative to eliminate complacency with outdated military thinking, weapons systems, combat manuals, and command and control practices.³²

Second, if the cognition necessary for the discovery described above was insufficient, a crisis in warfighting practices in the Armenian forces could have spurred the destruction of the doctrine³³ In the case of the Armenian

28. Илья Торпчий, “Карабах-2020: 50 тезисов о войне Азербайджана и Армении. Почему пала оборона Карабаха,” [Karabakh-2020: 50 Theses about the War between Azerbaijan and Armenia. Why the Defense of Karabakh Fell], ANI Armenian Research Center, November 25, 2020, <https://expert.ru/expert/2020/48/karabakh-2020-voenno-analiticheskij-razbor/>.

29. Urcosta, “Drones in the Nagorno-Karabakh.”

30. Urcosta, “Drones in the Nagorno-Karabakh.”

31. Kuhn, *Structure Scientific Revolutions*, viii, 6, 52.

32. Davit Tonoyan, “The Vision of the Minister of Defence of the Republic of Armenia,” July 9, 2018, 5, <https://mil.am/en/news/5402>; and Davit Tonoyan, “ՀՀ պաշտպանության նախարարի տեսլականը պաշտպանության ոլորտի և զինված ուժերի զարգացման առաջնահերթությունների վերաբերյալ,” [The Vision of the Minister of Defense of the Republic of Armenia on the Priorities of the Development of the Defense Sector and Armed Forces], June 9, 2020, 4–6, <https://mil.am/hy/news/7931>.

33. Kuhn, *Structure Scientific Revolutions*, 62–75.

military, an instance of crisis occurred in the command and control domain during the April War of 2016. Driven by the legacy of the Soviet system of directive (restrictive) control, and pending explicit orders, some units fell short of taking the initiative to react to the large-scale enemy assault. Even though there were definite assumptions about the weakness of the established model, however, no novel theory of command and control emerged as a response to the crisis.

Paradigm change failed in the Armenian military because it was not immune to the pathologies of the bureaucratic politics model described by Allison and Halperin.³⁴ It also proved unable to alter its behavior for, as Russell sees it, overcoming the resistance to change.³⁵

Indeed, bureaucratic infighting was in full swing in the Armenian military, whereby the parochial interests of various branches of the armed forces made the strategic planning process of the Armenian Army difficult to implement. The resultant tug-of-war was aggravated by ineffective civil-military relations and the weak leeway the nominal coordinating body—Strategic Planning Division of the General Staff—had in assigning priorities for branch requirements. Consequently, the strategic planning process resembled a clearinghouse for meeting the needs of the branches through the proportional cutting of corners to fit the defense budget, with no assignment of priorities. More important though, all alternatives generated by the general staff for army construction revolved around the same scientific algorithms, to be implemented by different options for force packages, which were all permeated by the same attritional mindset.

In the case of Armenia, the ideological struggle to see innovation through, as depicted by Rosen, was carried out by the Western-educated field-grade officers and Ministry of Defence's civilian experts.³⁶ They joined hands with the strategic planning division of the general staff to conduct two strategic defense review processes which strongly recommended the armed forces' doctrine undergo a thorough revision. Regrettably for Armenia, these efforts proved unsuccessful. The two main reasons for the outcome were the organized resistance of the general staff and the inability of the Ministry of Defence to surmount that resistance. The General Staff's organizational culture was antithetical to the idea of revising Armenian military doctrine. At the same time, the officers with Western professional military education who were aspiring military mavericks alluded to by Posen

34. Allison and Halperin, *Bureaucratic Politics*, 42–43.

35. Russell, *Innovation, Transformation and War*, 24–25.

36. Rosen, *Winning Next War*, 19–20.

were largely barred from promotions to key decision-making positions.³⁷ This factor impeded innovation, and it runs contrary to Rosen's key argument that attributes innovation's success to the creation of new promotion pathways for young champions of reform within the officer corps.³⁸

An even more important a factor for the success or failure of military innovation in Armenia was the state of civil-military relations in the defense establishment. The importance of civilian control over the military and the civil-military cooperation had been emphasized time and again and enshrined both in the legislation and the chain of command. Thus, taken at face value, civilian control was exercised through the civilian politicians and officials, who spanned the decision-making hierarchy from the commander in chief, through the minister of defence and his deputies, to the head of the Ministry of Defence's Defence Policy Department. The reality, however, was different and in most operational matters, the elected and appointed civilian masters largely deferred to the expertise of military professionals, thereby playing almost no role in technological and doctrinal innovations. To explain the causes of this phenomenon, one needs to borrow insights from Avant's institutional theory of military innovation.

According to Avant's analysis, an organizational dynamic akin to US civil-military relations before and during the Vietnam War also played out in Armenia.³⁹ The roots of the skewed relationships stretch back to 1992 and the founding of the national army, which used the Soviet model of army construction and way of war underpinned by relevant scientific algorithms. The degree of integrity within the general staff was high since all general officers and senior colonels were graduates of the same institution (Russian National War College) and/or had shared combat experience in the First Nagorno-Karabakh War. Thus, the general staff was able to put up a unified front in presenting its preferences for Armenian doctrine. These preferences were biased toward attritional warfare, a positional defense, and restrictive control and leaned heavily on air defense and artillery branches—to the detriment of a potent air component and an infantry arm, which was not agile enough to churn out units other than fortress defenders. Given the great attention Armenian heads of state paid to the affairs of the military and the paltry involvement of the parliament in doctrinal and equipment-specific matters, the senior leaders of the general staff were virtually free to bypass the ministry of defense and gain the support of state leadership for its preferences.

37. Posen, *Sources of Military Doctrine*, 174–75.

38. Rosen, *Winning Next War*, 20.

39. Avant, *Institutional Sources of Military Doctrine*, 415–17.

Recalling Posen's argument about the risky nature of wartime military innovation, the reluctance of the Armenian general staff to undergo major change is understandable, given the fact that since 1994 no peace accord had been signed with Azerbaijan and skirmishes along the border were an everyday occurrence. Given the protracted nature of the conflict, however, Armenia's leaders had to realize complete peace was an unlikely proposition and postponing major reorganization until after it came about was an unwise judgment.

The conservative stance of top military officers on innovation matters could be mitigated by the intervention of civilians, who, according to Posen, can spur change in peacetime. Moreover, in the light of Posen's other argument, the civilian dictate in military affairs had to be strong in Armenia since the country sought to maintain the status quo and was preparing to conduct explicitly defensive operations in a specific terrain against a specific enemy.⁴⁰ Nevertheless, the confluence of elected officials' deference to senior leaders in military matters and the relatively low level of the innovation-minded organizations and personalities within the military did not enable sufficient pressure to promote major innovation.

Conclusion

The main reason for the defeat of the Armenian forces in the Second Nagorno-Karabakh War was their failure to carry out major innovation in military doctrine and to adapt to the changed character of war. The Soviet-legacy operational concepts prevented the Armenian forces from conducting maneuver warfare during the war proper and preordained the decisions made apropos sources of military power well before the hot phase of the conflict. Examining the Armenian case through the lens of various established theories of military innovation leads to several conclusions, some troubling.

On the one hand, the Armenian innovation had all the chances to succeed as it met the fundamental requirements of Kuhn's paradigmatic change in terms of previous awareness of the new theory and the crisis to substantiate that understanding. Moreover, being, according to Russell, necessarily a top-down process, the innovation was carried out in preparation for a defensive war and, as Posen maintain+s, had to see more involvement by civilians. On the other hand, possible change was not accompanied by the creation of new promotional pathways as described by Rosen, which would allow "maverick" soldiers to bulldoze their concepts through.

40. Posen, *Sources of Military Doctrine*, 30–31, 50, 224.

Nor was Avant's organizational dynamics and the state of civil-military relations favorable for successful innovation, whereby the highly integrated general staff professed scientific approaches and advanced its biased preferences against the background of anemic civilian authority. As this case study demonstrates, the theoretical underpinnings auspicious for the success of military innovation in Armenia fell short of offsetting the ones that conspired to relegate it to the status of miscarried endeavor.

By way of a more general insight, military innovation has more chances to succeed if it is carried out in an environment where there is a consensus among civilian and military elites about the direction, substance, and timing of changes. Such an environment will create necessary support (manifested both in resource allocations and the promotion of key military personnel) for innovation efforts by the civilian leadership and will enable the military to devise a reform strategy and implementation plan that transcends most intra-organizational parochial interests and have an almost uniform buy-in. Divisions amongst elites will result in incoherent strategies and poor execution of programs of change, causing the atomization of military innovation efforts, which will yield suboptimal results and potentially bring about military calamities.

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