BOOK REVIEW

The Origins of Victory: How Disruptive Military Innovation Determines the Fates of Great Powers

Andrew F. Krepinevich Jr. (Yale University Press, 2023) 568

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Technology has remained an important factor in determining the outcome of wars. The subject has attracted the attention of numerous scholars who have extensively analysed the impact of technological advancements on military efficiency. In his book, "The Origins of Victory: How Disruptive Military Innovation Determines the Fates of Great Powers," Andrew F. Krepinevich Jr. studies the changing landscape of military competition in the 21st century. With the support of historical examples and his expertise as a military strategist, he explains that disruptive innovation is critical for military dominance, while failure to adapt to it exposes states to significant risks. The author argues that, in an era of military revolution, all major powers face a common task: to be the first to identify disruptive changes and take advantage of their potential earlier than others.

The book under review provides a preliminary assessment of disruptive changes in warfare in an era of increasing rivalry among great powers. It identifies characteristics

of a "maturing precision-warfare regime" and speculates about an overlapping successor revolution. The book consists of two parts. The first part identifies the prospective characteristics of the emerging competitive environment. The second part discusses the strategic significance of being the first military organization to identify and exploit a military revolution's potential. It explores the perils of failing to develop proficiency in new ways of war.

The book begins by examining the current state of military technology. The author posits that a disruptive change in combat called a military revolution, is currently underway. The latest military revolution is known as the Precision-Warfare Revolution. Russian military thinkers refer to this type of organization as a "reconnaissance-strike complex," in which combat networks manage and coordinate long-range reconnaissance and strike units. Krepinevich asserts that the era of precision warfare, once dominated by the United States (US), faces challenges from emerging powers such as China and Russia, which have significantly advanced their precision-strike capabilities.

As the precision-warfare system develops, there is another revolution underway due to the developments in commercial technologies like Artificial Intelligence (AI), synthetic biology, 3D printing, and quantum computing, along with military technologies like directed energy weapons and hypersonic missiles. Krepinevich posits that the US may not necessarily be the first to "exploit this new emerging revolution." To "identify and exploit the next big thing in warfare," the US military must comprehend the key features of this revolution and develop the necessary capabilities, doctrines, and structures to engage in this new form

of warfare more efficiently than its adversaries.

Since the industrial age began, military technology and strategies have significantly advanced in speed, range, communication, scouting, protective armour, and precision firepower, expanding warfare into new domains. The author outlines four key periods of disruptive military change since the mid-19th century: the Railroad, Rifle, and Telegraph Revolution; the Fisher Revolution in maritime warfare; the Interwar Revolution with mechanization, aviation, and radar; and the Precision-Warfare Revolution. He identifies common patterns in these periods to guide military leaders in resource allocation for competitive advantage.

The author maintains that the advent of nuclear weapons in 1945 signified a key moment in military history. The destructive power of nuclear weapons changed the very nature of warfare. Their massive destructive potential rendered war counterproductive as a tool for achieving political goals. The author opines that this Nuclear Revolution or the Firepower Revolution implied a "unique departure from previous military revolutions," hence, making nuclear weapons stand alone.

Furthermore, Krepinevich highlights the rapid emergence of IT-related technologies and their risks in the military domain, particularly focusing on AI. He argues that AI advancements will significantly impact military dynamics and warfare, with automation of strike systems like drones lowering the threshold for conflict initiation. Unlike nuclear weapons, applications of AI are widespread,

making it a double-edged sword due to the opacity of its decision-making processes. This opacity adds value and dangers to AI. Advancements in AI also critically impact the cyber domain, and militaries not adopting AI risk substantial disadvantages.

Recent advancements in hypersonic weapons have led the US, China, and Russia to compete for their development due to their high speed, unusual trajectories, extreme manoeuvrability, and massive kinetic energy, which can disrupt the strategic balance. The author is of the view that deterrence strategies are becoming less effective due to precision warfare, the spread of destructive capabilities to smaller powers and non-state groups, and advancements in cognitive and social sciences. These factors complicate the creation and execution of deterrence plans. This argument appears weak because the effectiveness of deterrence strategies, particularly among nuclear-armed states, remains robust. The example of India-Pakistan, US-China, and US-Russia (despite a long conventional confrontation in Ukraine (backed by the US), war remains localized due to fear of the use of nuclear weapons). Indeed, the US and China demonstrate how nuclear deterrence continues to prevent full-scale wars between rivals, contradicting the author's argument. While precision warfare and the spread of destructive capabilities to smaller powers and non-state actors present new challenges, they do not diminish the core principles and effectiveness of nuclear deterrence among major powers. Destructive capabilities and disruptive technologies certainly add renewed challenges to the existing regional and global security settings without undermining the value of nuclear deterrence.

The second part of the book provides case studies of the British Royal Navy, the German Military, the US Navy, and the US Air Force during the late nineteenth and twentieth centuries. The author elaborates on how these militaries were engaged in disruptive innovation that favoured them in the military balance. He aptly quotes the Italian General and Airpower theorist, General Giulio Douhet, who said, "Victory will smile upon those who anticipate changes in the character of war, not upon those who wait to adapt themselves after changes occur."

The author also highlights the role of operational concepts in shaping military structures and doctrines. For example, Germany's Blitzkrieg strategy used advancements in aviation and mechanization to achieve rapid territorial gains, unlike the prolonged trench warfare of World War I (WWI). According to Krepinevich, understanding operational challenges and constantly adapting strategies is essential to address evolving threats effectively.

The book is useful for readers without prior military knowledge and is relevant in the context of the rising great power competition focusing primarily on the US military and its challenges, with limited attention to other major powers. This narrow focus may leave readers desiring a more comprehensive analysis that includes the perspectives and strategies of other significant global military powers such as China, and Russia.

Although published in 2023, it does not discuss recent conflicts such as the Russia-Ukraine conflict, which has provided new insights into modern warfare and the applica-

tion of technological advancements on the battlefield. This omission is notable, as it could have enriched the discussion with practical examples of current military strategies and innovations in real-world conflicts. Nevertheless, the book remains valuable for those interested in military history, the military-technical revolution, military innovation, and national security studies. Its provides insights into the evolution of military technology and the importance of anticipating disruptive changes offer critical lessons for military strategists and policymakers.

Reviewed by Iraj Abid, Research Officer at the Center for International Strategic Studies (CISSS), Sindh.