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Capturing the Character of Future War

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Abstract: This essay proposes a conceptual framework combining elements of Clausewitz's *On War* with trend-forecasting techniques to describe future operational environments. This framework captures how the interaction of megatrends—the rate of technological change, the composition of the international system, and the strength of state governance—shapes the character of competition, confrontation, and conflict in each period. We argue this framework can help military officers build the future force.

How should military officers describe the future operational environment? In February 25, 2016, testifying before the House Armed Services Committee, US Air Force General and EUCOM Commander, General Philip M. Breedlove referred to a resurgent Russia as an existential threat.[1] Moscow continues to challenge multiple NATO members while investing in a military-modernization program that includes significant increases in autonomous systems. Despite those facts, Russia has a gross domestic product the size of Italy, and it spent less on defense in 2015 than Saudi Arabia.[2]

The Islamic State continues to hold terrain in multiple countries, and it has been a magnet for foreign fighters. The group is pressing a 21st-century terror campaign by attacking European cities and waging complex operations in the cyber domain, including the use of social media and hacking the names and addresses of adversaries in an effort to encourage lone-wolf attacks.[3] Yet, the group has lost, by some estimates, as much as 40 percent of its territory in Iraq and Syria, multiple leaders, and as many as 10,000 fighters since 2014.[4]

From the Islamic States' use of cyber and traditional guerilla and terror tactics to Russian experiments of combining massive fires with drones and broad-spectrum information warfare in Ukraine, there are signs the future of warfare may already be here. Just as the Spanish Civil War (1936-1939) and the 1973 Arab-Israeli Conflict were harbingers of future conflict, we may be at the juncture where events from Eastern

1 Lisa Ferdinando, "Breedlove: Russia, Instability Threaten US, European Security Interests," DoD News, Defense Media Activity, February 25, 2016, http://www.defense.gov/News-Article-View/Article/673338/breedlove-russia-instability-threaten-us-european-security-interests.

2 Russian GDP (USD, market prices) in 2014 was $1.8 trillion while Italy was $2.1 trillion based on World Bank data, April 30, 2016, http://data.worldbank.org/; and Russian defense spending according to SIPRI was $66 billion. SIPRI, April 20, 2016, http://www.sipri.org/research/armaments/milex/milex_database.

3 On recent Islamic State hacking, see Jack Detsch and Sara Sorcher, "Thousands of New Yorkers Named as Apparent Islamic State Targets," *Christian Science Monitor Passcode,* April 27, 2016, http://www.csmonitor.com/World/Passcode/2016/0427/Thousands-of-New-Yorkers-named-as-apparent-Islamic-State-targets; and Evan Perez, Catherine E. Shoichet, and Wes Bruer, "Hacker Who Allegedly Passed US Military Data to ISIS Arrested in Malaysia," CNN, October 19, 2015, http://www.cnn.com/2015/10/15/politics/malaysian-hacker-isis-military-data/.

4 Liz Sly, "In Syria and Iraq, the Islamic State is in Retreat on Multiple Fronts," *The Washington Post*, March 24, 2016, https://www.washingtonpost.com/world/middle_east/in-syria-and-iraq-the-islamic-state-is-in-retreat-on-multiple-fronts/2016/03/24/a0e33774-f101-11e5-a2a3-d4e9697917d1_story.html.

Ukraine to Syria and Iraq signal how warfare is likely to evolve and shape the world of 2030 to 2050.

Describing the future character of war should be a central task for the military profession.[5] As bureaucracies, resourcing strategies, and programming processes increase in complexity, often unnecessarily, senior leaders need to make long-term bets on whether to innovate by combining legacy forces with new concepts and incremental improvements or to invent breakthrough capabilities for future contingencies. The future force is built now to be used later. Failing to meet that task abdicates a central responsibility of the military profession.

This article introduces an analytical framework for describing the future operational environment based on integrating Clausewitz's concept of the character of war unique to each period with trend analysis techniques common in scenario-planning.[6] We contend macro-trends—specifically, the rate of technological change and through it the available means of coercion, the composition of the international system, and the degree to which political units in that system can secure their internal domains—interact in a trinity-like manner. As these trends interact, they produce an emergent character of war. To describe the future operational environment, military professionals should first define the likely future character of war and use the resulting forecasts to develop new concepts and modernization priorities.

The article proceeds by establishing what the character of war is and uses the construct to situate a new approach to describing the future operational environment. From this vantage point, we look at major findings in future studies by the Army and the broader US national security community since the 1970s, highlighting how the interaction of technology, the international system, and governance tends to produce evolutionary as opposed to revolutionary change.[7] Of the three legs of this triad, two are composed of institutions, and institutions exist, in part, because they resist change. This resistance to change—whether derived from cultural, legal, moral, etc., reasons—means even significant technological breakthroughs are incorporated into the character of war incrementally resulting in a gradual evolution of that character. The effect is that, to borrow from Shakespeare, the past remains the prologue. The article concludes with a discussion of the importance of expanding Army efforts to describe the future operational environment.

The Character of War

The idea that while war has an enduring nature, it also has a changing character unique to each historical period comes from *On War*. In Book One, Clausewitz stated that "from the enemy's character, from his institutions, the state of his affairs and his general situation, each side, using the laws of probability, forms an estimate of the opponent's

5 For an overview of the military as a profession and how it influences innovation, see Benjamin Jensen, *Forging the Sword: Doctrinal Change in the US Army* (Palo Alto, CA: Stanford University Press, 2016).

6 The seminal work in this space remains Peter Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World* (New York, NY: Bantam Doubleday, 1991).

7 For an overview of the difference between evolutionary and revolutionary change in military theory and practice, see MacGregor Know and Williamson Murray, eds., *The Dynamics of Military Revolution, 1300-2050* (New York, NY: Cambridge University Press, 2001).

likely course of action."[8] In Book Three, Clausewitz linked the idea of an identifiable character of war to planning, asserting that "all planning, particularly strategic planning, must pay attention to the character of contemporary warfare."[9] In Book Eight, Clausewitz argued that "the aims a belligerent adapts and the resources he employs, must be governed by the particular characteristic of his own position; but they will also conform to the spirit of the age and to its general character."[10] In numerous places, Clausewitz highlighted how failing to understand the character of war leads to disaster. In discussing the Prussian defeat in 1806, he chastised Prussian generals for misapplying the tactics of Frederick the Great, the oblique order, against a Napoleonic enemy waging a new type of warfare.[11]

The character of war, the co-mingling of the motives and circumstances governing uses of force to compel an adversary to do one's will, is an emergent phenomenon. [12] In Book Six, Clausewitz stated "in war, more than anywhere else, it is the whole that governs all the parts, stamps them with its character and alters them radically."[13] In other words, when forecasting the future operational environment, analysts should start by charting how broad trends condition the choices available to actors engaged in strategic competition, confrontation, and conflict.

The idea of a unique character of war features prominently in military studies historically. Helmuth von Moltke the Elder (1800-1890) hypothesized new material conditions, such as railroads and telegraphs, changed the speed of mobilization and the character of war. Despite their differences, Russian military theorists Marshal Aleksander A. Svechin (1878-1938) and Marshal Mikhail Tukhachevsky (1893-1937) believed the material conditions of the industrial age called for a departure with the Jominian conceptualization of ground maneuver prevalent since Napoleon.[14] Major General J.F.C. Fuller, architect of Plan 1919, sought a science of war based on technology and mysticism.[15] For Stephen Biddle, victory on the 20th-century battlefield was a function of the modern system of force employment (combined arms maneuver).[16]

After the Cold War, numerous scholars and practitioners sought to define the character of what former Army Chief of Staff General Gordon Sullivan called "post-industrial warfare."[17] John Arquilla and

8 Carl von Clausewitz, *On War*, eds. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1989), 80.

9 Ibid., 220.

10 Ibid., 594.

11 Ibid., 154-155.

12 Emergence is a concept from complex systems. For the relationship between modern research into complexity science and Clausewitz's treatment of war, see Alan Beyerchen, "Clausewitz, Nonlinearity and the Unpredictability of War," *International Security* 17 no. 3 (Winter, 1992): 59-90. For the implications of complex systems for international relations, see Robert Jervis, *System Effects: Complexity in Political and Social Life* (Princeton, NJ: Princeton University Press, 1999); and Randall Schweller, *Maxwell's Demon and the Golden AppleGlobal Discord in the New Millennium* (Baltimore, MD: John Hopkins University Press, 2014).

13 Clausewitz, *On War*, 484.

14 Jacob W. Kipp, "The Origins of Soviet Operational Art, 1917-1936," in Michael D. Krause and R. Cody Phillips, *Historical Perspectives of the Operational Art* (Washington, DC: Center of Military History, 2007).

15 J.F.C. Fuller, *The Foundations of the Science of War* (London: Hutchinson and Company, 1926).

16 Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern War* (Princeton, NJ: Princeton University Press, 2010).

17 General Gordon Sullivan first used the term in a 1992 speech at the Land Warfare Forum.

David Ronfeldt hypothesized the emergence of netwar as non-state actors structured as networks engaged in transnational competition.[18] Observing the complexity of conflicts in West Africa and the Balkans in the early 1990s, Robert Kaplan argued there was a breakdown in the old state order leading to a new era of struggles defined by resource competition, pandemics, urbanization, demographic shifts, and state failure.[19] Martin van Creveld argued that a shift away from wars between states to a new era of religious and ethnic conflict challenged many of the philosophical assumptions inherent in western military thought.[20] Former British Army General, Sir Rupert Anthony Smith, proposed that modern war reflects a shift from the paradigm of industrial war to war amongst the people.

The question becomes what forces coalesce to produce a paradigmatic shift in warfare. Borrowing from the Marxist concept of a mode of production, Mary Kaldor hypothesized a new mode of warfare defined by internationalized intrastate identity conflicts, illicit economic networks, and guerilla tactics.[21] As seen in Russian actions in Crimea in 2014, these conflicts can be a hybrid, mixing conventional capabilities and irregular warfare.[22] Similar to Kaldor's modes of warfare, William Lind and Thomas Hammes suggested distinct, identifiable generations of warfare paralleling larger technological change. Modern war was in the fourth generation, involving the use of all available networks (e.g., social, economic, political) to compel an adversary and avoid costly conflict.[23] Antoine J. Bousquet proposed that the character of war tends to reflect the dominant scientific paradigm of the period.[24] War evolved from a Newtonian mechanistic struggle of Napoleonic armies to the current network-based struggle between complex, self-organizing groups like terrorist movements.

The idea of an emergent, interactive character to war can be contrasted with work on enduring national ways of war. A way of war is a transhistorical approach to the conflict by a political community. Three

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18 John Arquilla and David Ronfeldt, *The Advent of Netwar* (Santa Monica, CA: RAND Corporation, 1996) and *Networks and Netwars: The Future of Terror, Crime, and Militancy* (Santa Monica, CA: RAND Corporation, 2001).

19 Robert D. Kaplan "The Coming Anarchy: How Scarcity, Crime, Overpopulation, Tribalism, and Disease are Rapidly Destroying the Social Fabric of Our Planet," *The Atlantic*, February 1, 1994 and *The Coming Anarchy: Shattering the Dreams of the Post-Cold War* (New York, NY: Vintage Press, 2001).

20 Martin van Creveld, *The Transformation of War: The Most Radical Reinterpretation of Armed Conflict Since Clausewitz* (New York, NY: Free Press, 1991).

21 Mary Kaldor, *Old and New Wars: Organized Violence in a Global World* (Palo Alto, CA: Stanford University Press, 1999). For an overview of the "new wars" literature, see Martin Shaw, "The Contemporary Mode of Warfare? Mary Kaldor's Theory of New Wars," *Review of International Political Economy* 7, no. 1 (Spring 2000): 171-180; and Mary Kaldor, "In Defence of New Wars," *Stability: International Journal of Security and Development* 2 no. 1 (2013): 4.

22 The leading authority on hybrid warfare is Frank Hoffman. See Frank Hoffman and James N. Mattis, "Future Warfare: The Rise of Hybrid Wars," *Proceedings* (November 2005), http://www.usni.org/magazines/proceedings/2005-11/future-warfare-rise-hybrid-wars (accessed February 15, 2015). For an overview of the broader literature Hoffman spawned, see Timothy McCulloh and Richard Johnson, *Hybrid Warfare* (Tampa, FL: Joint Special Operations University Press, 2013). For a historical overview of the concept of hybrid warfare, see Williamson Murray and Peter Mansoor, eds., *Hybrid Warfare* (New York, NY: Cambridge University Press, 2012).

23 T.X. Hammes, *The Sling and the Stone: On War in the 21st Century* (New York, NY: Zenith Press, 2006), i.

24 Antoine J. Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York, NY: Columbia University Press, 2009) and "Chaoplexic Warfare or the Future of Military Organization," *International Affairs* 84, no. 5 (September 2008): 915-929.

examples highlight this point. In Russell Weigley's original treatment, the American way of war referred to the preferred strategy of attrition and overwhelming force, as seen in Ulysses S. Grant's emphasis on destroying the Army of Northern Virginia and the application of US airpower in the strategic bombing of Axis cities in World War II.[25] This changed over time, as Max Boot claimed the industrial way of warfare shifted after the introduction of widespread precision targeting.[26] With respect to Germany, Robert Citino argued for a distinctly German way of war organized around offensive solutions to defensive vulnerabilities between the Thirty Years War and the fall of the Third Reich.[27] Liddell Hart claimed there is a distinct British way of war based on economic pressure exercised through sea control, mobility, and surprise.[28]

Assessing the Character of Future War

We propose a trinity-like framework for describing how major trends interact to shape the future operational environment. The combination of the rate of technological change, the composition of the international system, and the strength of state governance shape the emergent character of war and by proxy the motives and circumstances governing how political actors will use force to compel their adversaries.[29]

Our approach assumes even cooperative systems have competition under conditions of information asymmetry and ambiguity (i.e., fog and friction prevail). Therefore, political actors employ strategies to achieve positions of relative advantage to one another that can include acts of force to compel their opponent (war both in the overt act and indirect signaling that occurs through generating forces and posturing). The interaction of the rate of technological change, the structure of the international system, and the governance capacity of the state shapes how actors compete with one another. For instance, the rate of technological innovation—for example, how fast artificial intelligence (AI), quantum computing, or autonomous systems emerge—will likely determine the coercive tools available to state and non-state actors seeking to challenge US interests.

Seen in this light, the character of war tends to define the circumstances in which conflict, as well as preparations for conflict, occur. These circumstances are informed by trends. Trends describe

25 Russell Weigley, *The American Way of War* (Bloomington, IN: Indiana University Press, 1977). For a description of an earlier, pre-industrial American way of war, see John Grenier, *The First Way of War: American War Making on the Frontier, 1607–1814* (New York, NY: Cambridge University Press, 2005). For an analysis of a new American way of war brought on by the proliferation of precision targeting, see Max Boot, *War Made New: Weapons, Warriors, and the Making of the Modern World* (New York, NY: Gotham Press, 2007). For an interesting contrast to both Max Boot and Russell Weigley, see Antulio J. Echevarria II, *Reconsidering the American Way of War* (Washington, DC: Georgetown University Press, 2014). In the work, Echevarria also challenges the idea of enduring national ways of war.

26 Max Boot, "The New American Way of War," *Foreign Affairs* 82 no. 4 (July/August 2003).

27 Robert Citino, *The German Way of War: From the Thirty Years' War to the Third Reich* (Lawrence, KS: University of Kansas Press, 2005).

28 Sir Basil Henry Liddell Hart, *The British Way of Warfare* (London: Faber and Faber, 1932).

29 The idea that war is an act of force to compel an adversary comes from Clausewitz, *On War*, 75.

macro-tendencies likely to shape the future.[30] According to the *Oxford English Dictionary*, a trend describes a direction of change. Analysts use frameworks to categorize trends such as social, technology, environmental, economic, and political (STEEP).[31] To speak of trends is to make a bet about the types of driving forces likely to influence the future. Contemporary US Army doctrine uses trends to describe future conflict. Unified Land Operations (ULO) argue that the operational environment, which is "a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander" is influenced by the following trends: globalization, urbanization, failed/failing states, and the diffusion of information technology. [32]

Imagining the Future: 1970-2020

The trinity-like framework we propose synthesizes individual observations made in future studies since the 1970s into a larger analytical framework. After the Vietnam War, most such studies saw a future of fragmentation globally, beginning first with the international system and moving later to the "atom" of that system, the state itself. The 1974 *Astarita Report* commissioned by Chief of Staff of the Army General Creighton Abrams concluded that although the United States would "retain its relative standing as the dominate world power," its "preeminence" would be inhibited by the rise of Western Europe, Japan, and China.[33] Alongside the United States and the Soviet Union, the report argued these states would be the "primary actors on the world stage."[34] The document emphasized the power of states in a competitive system, focusing less on technological change than on relative military and economic power as the primary drivers of strategy. In this, the authors foresaw the world moving from a bipolar configuration to one in which those main actors had to share the stage with others. Other than noting a "shrinking world economy" and the growth of multi-national corporations—a particular type of non-state actor—this was not a world in which the state itself was challenged.[35]

In the 1982 *Airland Battle 2000* commissioned by US Army Training and Doctrine Command (TRADOC) Commanding General Donn Starry, the authors noted trends tend to interact and produce the environment in which militaries apply, design, and generate forces.[36] In the document, the authors list a variety of factors, including increased foreign investment in technology, the proliferation of arms, rising populations in the developing world, growing worldwide urbanization,

30 Tessa Cramer, Patrick van der Duin, Christiannne Heselmans, "Trend Analysis," in *Foresight in Organizations: Methods and Tools,* ed. Patrick van der Duin (New York, NY: Routledge, 2016), 135. For other definitions of trends, see Spyros Makridakis and Steven Wheelwright, *Handbook of Forecasting* (New York, NY: John Wiley & Sons, 1982); Raymond Martin, *Trend Forecasters Handbook* (London: Laurence King Publishing, 2010); and Henrik Vejlgaard, *Anatomy of a Trend* (Copenhagen: Confetti Publishing, 2008).

31 Schwartz, *The Art of the Long View*.

32 Department of the Army, *ADRP 3-0: Unified Land Operations* (Washington, DC: Department of the Army, May 2012), 1-1.

33 Harry G. Summers Jr., *The Astarita Report*: *A Military Strategy for the Multipolar World* (Carlisle, PA: Strategic Studies Institute, 1974), 10.

34 Ibid., 12.

35 Ibid., 8.

36 TRADOC, *Airland Battle 2000* (Fort Monroe, VA: TRADOC, 1982), 3.

political and economic interdependence, and the US transition to an information-based society as trends defining the character of war. The document predicted these trends would interact with the "scarcity of energy and other critical resources and the attendant rise of other potential world powers" and signaled a "shift to a multipolar situation."[37] In this view of the future, the composition of the international system interacts with technological trends such as the proliferation of arms, technology investments, a transition to an information-based society, and with conditions the authors believed would likely result in challenges to state authority, such as urbanization and rising populations.

Written 12 years later at the behest of Army Chief of Staff Gordon Sullivan, TRADOC's *Force XXI Operations*, cited similar trends, as elements of instability defining the strategic environment. The document argued, "The world's geopolitical framework will continue to undergo dramatic restructuring, accompanied by a wide array of economic, technical, societal, religious, cultural, and physical alterations. History shows that change of this scope, scale, and pace increases global tension and disorder."[38] The document listed, among other things, shifting power balances at the regional and subnational level, nationalism, rejection of the West, demographics, technological acceleration, information technology, and environmental risks as trends shaping the character of war.

Specifically, this futures document addressed how technology changed the character of war and the stability of the state. *Force XXI* noted information technology was "expected to make a thousand fold advance over the next 20 years."[39] This would, the publication argued, "revolutionize—and indeed have begun to revolutionize—how nations, organizations, and people interact" by challenging "the relevance of traditional organizational and management principles."[40] Thus it saw a future that would be characterized, in part, by growing "rivalries between states and non-state groups for power," while the "ability of a government to govern effectively is being eroded," and indeed, the power of information technology itself was "challeng[ing] the authority of long-standing institutions and the meanings of terms such as *sovereignty*."[41]

Similar to future studies commissioned by the Army, larger national security foresight initiatives also highlighted the interaction of technology, the international system, and governance. In 1997, the first of the National Intelligence Council's *Global Trends* reports saw a continuation of these two trends: growing fragmentation in the international system and a weakening state. Noting that in 1997, "most conflicts are internal, not between states," the *Global Trends 2010* forecasted that an international system "based primarily on relations between states, not developments within them" was "drawing to an end."[42] Arguing that even stable states "will still find that they are losing control of significant parts of their national agenda due to," among other things," the continuing revolution

37 Ibid., 4.

38 TRADOC, *Force XXI Operations* (Fort Monroe, VA, TRADOC, 1994), 2-1.

39 *Force XXI*, 1-5.

40 Ibid.

41 Ibid., 2-1 and 2-2 (emphasis original).

42 National Intelligence Council, *Global Trends 2010*, https://www.dni.gov/index.php/about/organization/national-intelligence-council-global-trends/global-trends-2010.

in information technology," the report asserted non-state actors "will not supplant the power of governments," but "they will weaken them."[43]

At the dawn of the 21st century, then, the international system was to have moved from its unipolar "moment" to a more multipolar system, and the state itself was to have weakened, but not have been displaced from its place of primacy in that system. After the turn of the century, later futures studies saw the continuation of these two trends.[44] But in those studies, technology—and the accelerating pace of innovation—began to play a more key role in the shaping the future.

To be clear, technology was a consideration—at least an implicit consideration—in each of the studies discussed above, in particular, information technology.[45] Indeed, it would be hard to conclude anything other than that the state of technology—and the rate of invention— play key roles in shaping the future. As a tool or technology, Archimedes' lever does "move the world." It is arguable that from that simplistic, albeit metaphorical, lever through the wonders of the Industrial Revolution—all one, two, three, or four of them, depending on who you ask—technology played a significant role in shaping the future.

That said, beginning in the early 2000s, it appears technology began to become a more prominent player in futures studies. For instance, after acknowledging "few predicted the profound influence of information technology"—a cautionary statement about the perils in attempting to predict breakthroughs, if there ever was one—the NIC's *Global Trends 2015* concluded science and technology would be one of the key drivers shaping the future.[46] The report noted "[m]ost experts agree[d] that the [information technology] revolution represents the most significant global transformation since the Industrial Revolution."[47] In this report, joining information technology, which was mentioned in earlier studies, were biotechnology—forecasted to "drive medical breakthroughs"—and advanced materials.[48]

Many of today's futures studies mirror these three larger trends. First, regarding the fragmentation of the international system and governance, the NIC's *Global Trends 2030* sees the "diffusion of power among countries and from countries to informal networks will have a dramatic impact by 2030."[49] This diffusion of "economic and political power" was catalyzed, according to AT Kearney, a global management consulting firm, by the fact that since the 2008 financial crisis, the United States has "receded from the global stage," while "rising regional powers...

43 Ibid. Interestingly, the report also cited globalization and economic expansion as the two other causes of this loss "of control." Although both globalization and economic expansion are interrelated, technology plays a key role in both.

44 For instance, *Global Trends 2015* predicted that states "will continue to be the dominate players on the world stage," but that "governments will have less and less control" over transactions across their borders and that "although the United States will continue to be a major force in the world community," there will also be an "increasing number[] of important actors on the world stage." *Global Trends 2015,* 9-10, 13.

45 *Force XXI*, 2-2. Interesting *The Astarita Report* refers to information technology in passing to explain, in part, the Army's difficulty in articulating the "security argument." *The Astarita Report*, 9.

46 *Global Trends 2015*, 9.

47 Ibid.

48 Ibid.

49 *Global Trends 2030*, 15.

have increased their political influence in line with growing economic strength."[50]

Similarly, like earlier studies, these see an important—and growing—role for non-state actors. The *Global Trends 2030* goes so far as to present a scenario for 2030 it labels the "non-state world."[51] As the number and influence of non-state actors grow, they will "create pervasive challenges to nation-state power and influence,"and will "complicate decision making."[52] These complications, in turn, make governing more difficult, which weakens the state.

Despite the prominent appearance of the other two trends, technology continues to play a key—if not the most important—role in these studies. Thus, in many of these studies, the potential of emerging technologies is fully realized, and the consequence of that realization is societies are fundamentally disrupted. For example, "mass production" is seen as "increasingly...replaced with on-demand, custom manufacturing."[53] "[R]obotics could eliminate the need for human labor entirely in some manufacturing environments," raising the specter of increased unemployment and unrest. And nanotechnology allows "an ability to create composite or new materials."[54]

Going forward, the most disruptive of these possible technologies is the potential for artificial intelligence (AI), empowered by quantum computers.[55] It is interesting to note that although information technology has been referred to repeatedly in earlier futures studies, today's studies show the important and growing role of artificial intelligence. As one study argued, "the first company or country to create and deploy advanced artificial intelligence might acquire a decisive advantage" over its competitors.[56] Since the 1970s, future studies have seen a global environment with more actors who matter, empowered by technology the development of which is increasing at a faster rate. In some ways, these trends are not surprising. No hegemon has ever stayed hegemonic forever. The state itself is not the only principle along which a community could organize itself. Before the Peace of Westphalia, it was not the West's organizing principle.

These studies demonstrate the importance of considering what has not changed. Despite repeated prognostications of the failed state in these studies, the state remains the most important player on the international stage. More importantly, there is no clear indication of what would replace the state as the government for a geographic area. Similarly, the relative diminishment of the United States is generally caveated with the notation that it is likely to remain the world's most important state into the foreseeable future.

The forces of continuity are as strong, if not stronger, than the forces of change. Large trends take time to emerge, often eclipsing increasingly short attention spans prone to a historical perspectives. Too often, staffs

50 *Global Trends* 2015 to 2025, 4.
51 *Global Trends* 2030, 128.
52 *For the Next 40*, 3; and Global Trends, vii.
53 *For for the Next 40*, 5.
54 *Global Trends 2030*, 87; and Miller, 31.
55 Ibid., 23.
56 *Global Trends 2015* to 2025, 23.

begin the task of describing the future operational environment assuming change as opposed to appreciating continuity. Furthermore, they do not grade their homework by implementing systematic processes that assess whether or not their earlier forecasts came to fruition.

Conclusion: Integrating Foresight Initiatives into the Army

The military profession requires an analytical process for describing the future operational environment. If the first act of judgment is to understand the war you are fighting, the second act is to anticipate the next war, knowing full well the inherent uncertainty and contingency involved in the task. To that end, we propose a trinity-like framework based on Clausewitz's concept of the character of war, arguing that the emergent interaction of technology, the composition of the international system, and governance trends shape the circumstances in which actors engage in strategic competition. Of note, many of these trends appear in earlier future studies. What this article offers is a means of conceptualizing how the interaction of these trends produces an emergent character of war.

Given the importance of futures research to the military, the question becomes how to integrate foresight initiatives designed to describe the future character of war into the institutional Army. While the Army has institutional processes like Exercise Unified Quest nested within larger government exercises like the National Intelligence Council *Global Trends* and Joint Staff/OSD studies like the J*oint Operational Environment*, *Quadrennial Defense Revie*w, and *National Military Strategy*, the profession of arms needs a more vibrant and competitive marketplace of ideas that invests uniformed personnel with the responsibility to describe the changing character of war. Many times, existing bureaucratic processes for describing the future—even when guided by thought leaders—suffer from the pitfalls of all routinized staff work. They tend to become non-controversial, consensus documents often bent by existing equities, which reflect the views of a small group of experts true to the original Delphi Method pioneered at RAND in the 1950s.[57] The thinkers become trapped in bureaucracy's iron cage.

To offset this effect, the Army could create a more competitive marketplace of ideas for describing future operational environments. Rather than rely solely on large institutional processes, senior leaders could use small, diverse groups of officers, senior leaders hand selected for their professional competency, analytical attributes, and imagination. This cohort could be placed in an incubator. Incubators are "informal subunits established outside of the hierarchy" where military leaders engage in problem-directed searches for new ideas.[58] If you look at many of the Army's major futures exercises and significant doctrinal developments since the 1970s like *The Astarita Report*, they relied on these small groups separated from the bureaucracy.

The emergence of incubators reflects the fact that the profession of arms, by necessity, has developed coping mechanisms for the size and rigidity of modern military bureaucracy. Rather than cut non-standard

57 Olaf Helmer-Hirschberg, *Analysis of the Future: The Delphi Method* (Santa Monica, CA: RAND, 1967).

58 Jensen, *Forging the Sword*, 1.

assignments in incubator-like entities in periods of declining budgets and force structure, the leadership should preserve and incentivize them. Any mechanism that helps a military organization describe the future character of war and through it a range of potential warfighting concepts is, as Barry Watts and Williamson Murray highlight in their study of the interwar period, the "*sine qua non* of successful peacetime military innovation."[59]

In addition, competing incubators should produce future forecasts that are rigorous, replicable, and testable. The problem with most futures work is forecasts are rarely subject to testing or updating based on the unfolding operational environment as it actually occurs and unforeseen events. Just as the Intelligence Preparation of the Environment (IPOE) process produces named areas of interests (NAIs) to determine whether or not the predicted enemy course of action is coming to pass, futures work should produce clear indications and warnings that allow analysts to determine whether or not the character of warfare is evolving as forecast.

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59 Barry Watts and Williamson Murray, "Military Innovation in Peacetime," in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millet (New York, NY: Cambridge University Press, 1996), 410.