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# Rolling the Iron Dice

The Increasing Chance of Conflict Protraction

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## About the Author



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## About the Defense Program

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**The ongoing Russian experiences in Ukraine indicate a need to reevaluate U.S. thinking and consider the potential of protraction in the context of a hypothetical U.S.-PRC conflict.**

## **Executive Summary**

**T**he prospect of a Sino-American war looms on the horizon. No scenario for such a conflict has garnered more interest than the potential invasion of Taiwan by the People's Republic of China (PRC). In the United States, discussions have focused on the early days of a conflict, in particular sinking the PRC's amphibious fleet.<sup>1</sup> Both the United States and the PRC place great emphasis on offensive military operations that heavily use the fruits of the precision strike revolution (PSR).<sup>2</sup>

This focus on early offensive action leads immediately to considerations of forces and weapons. U.S. defense planners are unsurprisingly most comfortable with the dynamics of short, sharp wars, having spent the past decade focused on deterring or defeating adversary *faits accomplis*, short and often opportunistic campaigns of aggression. Speed, political sophistication, and immediate military overmatch seemed to be the key ingredients for victory. Russia's seizure of Crimea in 2014 was seen as a template for other future aggressors to follow.<sup>3</sup> Prolonged wars of attrition, particularly those involving the United States, were thought no longer possible. Russia's subsequent invasion of Ukraine in 2022 turned this vision on its head, demonstrating the military and political consequences of trying and failing to obtain a similar *fait accompli* on a larger scale.

The ongoing Russian experiences in Ukraine indicate a need to reevaluate such thinking and consider the potential of protraction in the context of a hypothetical U.S.-PRC conflict. Most work on this topic has considered only the initial days and weeks of hostilities, usually over Taiwan or in the South or East China Seas.<sup>4</sup> There has been comparably little discussion of what comes after.<sup>5</sup>

There are three key concepts that inform the following discussions: exhaustion, sanctuary, and protraction. Exhaustion is the point when large-scale offensive operations are no longer possible as offensive military capabilities have been used up. Afterward, some period of reconstitution and recovery is needed. This requires sanctuary, the relative freedom from attack sufficient for the rebuilding of military forces and capacities. Protraction occurs after at least one cycle of exhaustion and recovery. It is closely tied to pre-conflict leadership beliefs about the length of the looming war. A simplified definition of a protracted war is a conflict that lasts longer than leaders expect; it is a mismatch between political-military expectations and reality.

Doctrinal developments in both the PRC and the United States, influenced by improvements in

technology, place significant emphasis on the early stages of conflict and rapid, offensive operations. The emphasis by both the PRC and the United States on the early stages of the conflict can be seen in the PRC's system destruction warfare and United States' denial-centric concepts that aim for rapid decisive results.<sup>6</sup> These approaches focus almost exclusively on the operational level of war, ignoring strategic factors animating the conflict and shaping its termination. Should PRC President Xi Jinping commit the PLA to seizing Taiwan by force, enter a war with the United States, and "roll the iron dice," protraction appears increasingly likely, contrary to most contemporary military thinking and preparation.

There are four characteristics of any potential Sino-American conflict that increase the likelihood of protraction:

1. *The Quest for Decisive Conventional Victory:* The United States and PRC are reliant on theories of victory that stress the ability of advanced conventional weapons to destroy and disrupt the other's combat power. Both sides confront geographic and operational realities that make it possible for each to significantly hurt the other but lack mechanisms capable of achieving a knockout blow. Furthermore, peer states historically have struggled in pursuit of such aims through military force. Both the United States and the PRC conflate operational objectives with strategic effects.
2. *The Sanctuary of Mutual Exhaustion:* Both the United States and the PRC would expend tremendous quantities of munitions during the opening phases of conflict, creating a key condition for protraction: sanctuary—that is, freedom from attack, to rearm.<sup>7</sup> While non-kinetic and economic tools may disrupt and constrain reconstitution and preparation for further military activity, they cannot fully prevent it. Mutual exhaustion increases the likelihood of protraction.
3. *The Peril of the Strategic Nuclear Cliff:* Nuclear weapons would have a significant paradoxical impact on any U.S.-PRC conflict. They would both constrain and accelerate the conflict as both sides engage in tacit bargaining over acceptable conventional targets while attempting to maintain escalation dominance. The nuclear "cliff" places constraints on conventional military operations while promoting risk-seeking behavior to maintain escalation dominance.<sup>8</sup> Balancing the conventional and nuclear conflict dynamics increases the likelihood of protraction.
4. *The Gulf Between Culmination and Termination:* Fighting would continue long past the point where one may rationally conclude it should end.<sup>9</sup> Put another way, military culmination would not immediately lead to political termination.<sup>10</sup> The nature of the conflict, information warfare, and cognitive factors combine to prevent the belligerents from reaching a negotiated outcome. Leadership and the public are unable to seek peace because of either misperceptions or inaccurate information about the true state of the conflict.

These characteristics are the reasons why conflict protraction appears to be increasingly likely in a future Sino-American conflict involving the adversaries' core interests. This study offers both recommendations and follow-on questions. The following recommendations are deliberately broad, as this initial effort does not possess sufficient analytic precision to provide specifics. Future efforts aim to provide that detail. The U.S. defense community should:

1. *Plan for "After Denial":* Defense planners must expand the conversation beyond achieving immediate military denial to better consider what comes afterward: ultimate strategic victory. The United States must build a durable strategy for confronting the full scope of the military challenge the PRC poses. By only focusing on a narrow, albeit vital, set of operational challenges and conditions, the United States foregoes other potential sources of strength and deterrence.
2. *Consider Protraction Pathways:* Part of understanding the likelihood and impacts of protraction is to consider a wide array of different pathways that end in a protracted conflict. There is an urgent need to consider this array of U.S.-PRC conflict scenarios to answer three fundamental questions. First, what are the potential U.S.-PRC conflicts that could protract? Second, how likely is protraction? Third, what is the nature of the protracted conflict that ensues? This effort would allow the United States to create a range of resilient deterrent strategies.
3. *Scale the Industrial Base:* The U.S. defense industrial base presently lacks the ability to support large-scale combat operations for a prolonged period. This includes replacing spent munitions, reconstituting lost military platforms, and scaling production of new capabilities. Greater support for the defense industrial base, broadening the potential supplier base, and exploring novel pathways to increase industrial fungibility all may offer new options should conflict protract.

4. *Align Targets, Weapons, and Strategy:* There is a lack of fluency in operational and tactical matters in the strategic analysis community. Simultaneously, many working at the operational and tactical levels lack understanding of the strategic dynamics at play. Helping decisionmakers at all levels to understand this trade space and make informed decisions is needed when considering U.S. options in protracted conflict.
5. *Achieve Humility in Analysis:* Conflict protraction against a near-peer competitor is more complicated than the defense planning scenarios used since the end of the Cold War. Strategic and campaign analysts must recognize the limitations of their tools and communicate them to decision-makers adequately and concisely. Analysis can reveal interesting and potentially dangerous challenges but is unlikely to provide the precision or detail that many desire.
2. *Information Denial and Conflict Termination:* What will the impact of information warfare be on ending a conflict? There is an urgent need to study the impacts of information warfare and strategic blinding on conflict termination. How leaders and the broader population perceive and understand the future battlespace or, as the case may be, misperceive and misunderstand, will determine the potential for conflict termination.
3. *Deterrence by Attrition and Wars of Endurance:* How do deterrent approaches need to change to reflect the potential for long wars of endurance? There is a need for new defensively dominant warfighting approaches to prevail in a long war of endurance combined with a model of deterrence by attrition to forestall conflict.
4. *Long Wars and Competition:* How will the next war shape the follow-on strategic competition? Wars between nuclear armed peers are unlikely to end in the total strategic defeat of either side. U.S. strategists must consider how gains and losses in the next conflict may impact the United States' subsequent position in strategic competition with the PRC.

Accompanying these recommendations are four areas for further inquiry:

1. *Nuclear Brinkmanship and Conventional War:* What limits will both sides place on their conventional operations out of fear of, or respect for, the other sides' nuclear options? U.S. scholars need to consider the connectivity between conflict protraction and nuclear brinkmanship. It is not clear that the United States and the PRC share a similar vision for the role of nuclear arms or their influence on conventional conflicts, heightening the chances for misperceptions and inadvertent escalation.

The potential for a conflict between the United States and China to devolve into a protracted war is disquieting. Most contemporary discussion, planning, and doctrine is mute on how conflicts protract, or what the United States should do if it finds itself in such a prolonged conflict. Ignoring this threat makes it no less real.

## Introduction: Protraction, A Harsh Reality

**T**he prospect of a Sino-American war looms on the horizon. While U.S. defense planners have considered the potential threat posed by the People’s Republic of China since at least 2001, it has moved dramatically to the fore over the past five years.<sup>11</sup> No scenario for U.S.-PRC conflict has garnered more interest than the potential invasion of Taiwan.

Current U.S. and PRC thinking about future war places great importance on offensive operations. Most of the discussion in the United States has focused on the early days of a conflict and on sinking the PRC’s amphibious fleet.<sup>12</sup> Both nations seek to capitalize on first-mover advantages seemingly conferred by the precision strike revolution (PSR) to degrade adversary capabilities and cement an early lead in conflict.<sup>13</sup> This impetus for early action echoes the way that European militaries thought about warfare prior to the outbreak of hostilities in 1914.<sup>14</sup>

The American focus on early offensive action and halting the invasion flows naturally into discussions about forces and weapons. It is also unsurprising that U.S. defense planners are most comfortable with the dynamics of short, sharp wars. Over the past decade, U.S. defense planners have focused on deterring adversary *faits accomplis*, short and often opportunistic campaigns of aggression that obtain operational and strategic objectives before defenders can effectively respond. Speed and

political obfuscation seemed to be the key ingredients for potential adversary victory, with Russia’s seizure of Crimea in 2014 serving as the template for other aggressors to follow.<sup>15</sup>

Revisionist states such as the PRC and Russia appeared to see approaches to territorial conquest that stressed subversion and speed as the only viable conventional pathways for achieving their goals. The *fait accompli* thinking was applied to several major flashpoints, ranging from the oft debated “Baltic Scenario”—a rapid invasion of the Baltic states by Russia—to the potential invasion of Taiwan by the PRC.<sup>16</sup> In these cases, the aggressors’ presumed operational concepts were remarkably similar: seize territory before locally overawed defenders can be supported by powerful distant allies, namely the United States. Beyond the political shock of initial military failures on U.S. allies and partners, retaking territory from entrenched aggressors would leave U.S. leaders facing high casualty projections and potential nuclear threats, thus discouraging them from intervening and locking in the benefits of aggression.

The dominance of *fait accompli* thinking led to a commonly held belief that prolonged wars of attrition, particularly those involving the United States, were no longer possible. Russia’s 2022 invasion of Ukraine turned this conventional wisdom on its head, demonstrating the protracted military and political consequences of trying and failing to obtain a *fait accompli* on a larger scale than Crimea. Modern, high-intensity conflicts were

not expected to last more than a few months. At the time of this writing, the conflict in Ukraine continues in its second year.

Before Russia demonstrated that long wars and attritional conflict remain possible, only a few Western analysts considered what protracted conflict might look like in the 21st century.<sup>17</sup> The approaches of “distant blockade” and “offshore control” scratched the surface.<sup>18</sup> However, they did not fully consider the implications of protraction and instead sought lower-risk, indirect solutions to an inherently high-risk challenge—a potential war with the PRC. Recent studies have more fully considered the potential implications of a “long war” with the PRC,<sup>19</sup> but no study has fully grappled with reasons behind the increasing chances for protraction.



*Pro-Russian forces participate in the illegal seizure of Crimea in March 2014. This operation is a quintessential example of a successful *fait accompli*. (Sasha Maksymenko/CC 2.0)*

It is vital to define three key terms for this study: exhaustion, sanctuary, and protraction. Exhaustion is the point where future, large-scale offensive operations are no longer possible as offensive military capabilities have been used up. Afterward, some period of reconstitution and recovery is needed. This requires sanctuary, the relative freedom from attack sufficient for the rebuilding of military forces and capacities. A simplistic definition of a protracted war is one that lasts longer than leaders expect. It occurs after at least one cycle of exhaustion and recovery. It is closely tied to pre-conflict leadership beliefs about the length of the looming war. There is no set time that makes a conflict protracted. Instead, protraction depends on a complex set of factors such as conflict intensity, political will, and relative military power. For example, a war with a series of bloody battles could enter the protracted phase much sooner than a war with a series of cautious engagements. Ultimately, protraction represents a mismatch between political-military expectations and reality.

Should President Xi commit the PLA to seizing Taiwan by force, enter a war with the United States, and “roll the iron dice,” protraction is an increasingly likely outcome due to four distinct, yet interrelated characteristics. First, both sides are focused on achieving rapid conventional victory, which requires a huge expenditure of advanced

munitions. Second, this expenditure leads to rapid depletion of immediate stockpiles, which then causes the conflict to ebb. This permits both sides the freedom from attack needed to rebuild. Third, nuclear arms paradoxically constrain and accelerate the conflict. The U.S. and PRC will need to balance a desire to maintain escalation dominance with a need to prevent the emergence of dangerous escalation patterns. Fourth, battlefield outcomes do not necessarily translate into political objectives. Changes in the nature and conduct of war, specific to a long-distance air and maritime war, only intensify this fact.

This study has four main parts and concludes with a detailed discussion of these four characteristics. The first section, “A Search for Quick Victory,” explores how history and doctrine create a powerful impetus for swift action in the Western military tradition. The second section, “The Promise of Precision Strike,” traces the application of technology over the past 40-plus years in pursuit of rapid, decisive action. The third section, “The Short War Fallacy,” considers how doctrine and technology are applied in the context of a hypothetical U.S.-PRC conflict. The fourth and final section, “The Four Characteristics of Protraction,” combines the arguments from the prior sections to contend that protraction is the increasingly likely future scenario for which the United States must prepare.

Ultimately, this study is envisioned as the first step in a larger intellectual effort. It does not claim to possess answers to many of its questions. The chief recommendation of this effort is that U.S. defense planners and strategic analysts must broaden their focus. Collectively, U.S. strategic analysts must become more adept at thinking through the various pathways leading to protraction as well as the elements of conflict and competition that will set us on these paths. Against an opponent with China’s military and industrial resources, rapid victory is increasingly unlikely.



*The PRC’s military capabilities have expanded dramatically over the past 30 years. Long-range missiles, such as the DF-17, would play a key role in any PRC military operation in the Western Pacific. (Greg Baker/AFP via Getty Images)*



## A Search for Quick Victory

**T**hroughout history, leaders have sought quick, decisive victories. Strong states, secure in their own power, see possible value and minimal risk in such endeavors.<sup>20</sup> Meanwhile, weak powers perceive quick victories as a way of upending the status quo despite overarching imbalances.<sup>21</sup> Beyond the prospect of maximizing gains while minimizing losses, short, sharp wars may be viewed as more morally defensible than long, grinding wars of attrition.<sup>22</sup> Advances in technology also can cause leaders to believe that a short war is possible, even likely, if they offer to upend prior military-technical paradigms.

For the purposes of this study, political leadership's focus on achieving victory with minimum resources and on short timelines is less important than the translation of political factors into military doctrine. Dominant military doctrines stress the importance of concentration of forces in pursuit of decisive battle. Battles of annihilation are viewed as the preferred form of warfare and are thusly lionized where they occur.<sup>23</sup> For example, there is continuous study and emulation of Hannibal's envelopment tactics at Cannae.<sup>24</sup> This veneration eclipses the reality that Carthage goes on to lose the war.

This section explores how the Western military canon focuses on quick, decisive battles. It argues that this is so deeply ingrained in the overarching strategic culture that it casts an indelible mark on all military activities. This sets the stage for capability and concept developments seeking dominant pathways for decisive, rapid victory.

### Napoleonic Shadows

In the Western military canon, there are no theoreticians with greater impact than the Prussian Carl von Clausewitz (1780–1831) and the Swiss Antoine-Henri Jomini (1779–1869). Clausewitz is the more lionized of the pair, lauded for his understanding of

the inextricable links between warfare and politics. His focus on the ephemeral aspects of warfare—chance, violence, and genius—rejected the more rationale, scientific approach of Jomini. While Jomini's rules-based guidelines for warfare clash with Clausewitz's fluidity, both stress the importance of rapid action.

Clausewitz is inseparable from Western military thought in the post-Napoleonic era. He repeatedly emphasized the importance of concentrating forces at a specific point in space and time to achieve victory and, in doing so, annihilating the enemy's forces.<sup>25</sup> His concept of a decisive or essential point has become today's "center of gravity."<sup>26</sup> Following his death in 1831, Clausewitz's Prussian compatriots and subsequent German descendants adopted them wholeheartedly.<sup>27</sup> They embraced a view of total war described by historian Cathal Nolan as one that "aspired to make war as Napoleon did, with climatic battle the purest and highest expression of its true nature, or one did not really know how to make war. Movement to seek the destruction of the enemy's armies was brilliance."<sup>28</sup> Today, warfighting approaches are cut from this cloth. They embrace Clausewitz's focus on concentration of forces and swiftness of action while ignoring his cautions regarding constraint and contingency.



*The victorious Prince Otto von Bismarck meets with the defeated French Emperor Louis Napoleon III following the latter's defeat at the Battle of Sedan in 1870. The Franco-Prussian War (1870–71) conformed to the Clausewitzian ideal. (Hulton Archive/Getty Images)*

Despite continual criticism, Jomini's ideas—shaped by a strong degree of scientific determinism and seeking a degree of managerial certainty—have as much impact on Western thinking as those of Clausewitz.<sup>29</sup> During the U.S. Civil War, Jomini was the major theorist with whom military leaders were familiar.<sup>30</sup> Given the central role the Civil War plays in American military culture, it is unsurprising that the U.S. military maintains a strong, often unstated affinity to Jomini.<sup>31</sup>

Jomini's work has significant overlap with his Prussian contemporary and critic. He stressed the importance of concentrated, massed attacks and “aggressive, offensive action.”<sup>32</sup> Similar to Clausewitz, he saw warfare as a series of attacks against a succession of decisive points.<sup>33</sup> The concept of interior and exterior lines, a core tenet of strategic analysis, comes directly from Jomini.<sup>34</sup> The idea of directly striking an adversary's superior interior position is echoed in numerous modern concepts, including the precision strike revolution (PSR) discussed in the next chapter.<sup>35</sup>

### Sea and Sky

Warfare in the 20th century saw transformational revolutions on the sea and in the sky. Clausewitz and Jomini's ideas of concentration and decisive action helped to guide the development of new doctrines to best harness the impacts of new technologies on these domains.

## The Western way of war consistently draws on Clausewitz and Jomini to stress the importance of decisive battle as a prerequisite for strategic victory.

On the sea, the vision of Alfred Thayer Mahan (1840–1914), stressing the importance of seapower and the command of this domain for national power, stands alone to this day.<sup>36</sup> Major naval engagements such as Jutland, Pearl Harbor, and Midway are perfect examples of Mahan's approach, which emphasized concentration and decisive battle against the enemy's main fleet element.<sup>37</sup> He also advocated attacking adversary maritime commerce to achieve victory without the toil and exposure of a long ground war. In these ways, Mahan translated the ground-centric focus on decisive action, centers of gravity, and concentration to the high seas.

In the air, early airpower advocates saw the sky as a way to circumvent the limitations and defenses of ground and sea to strike decisively at the heart of enemy power.<sup>38</sup>

The earliest thinkers saw their domain, like Mahan with the oceans, as the “decisive field” of future wars.<sup>39</sup> The ability of airpower to strike directly at an adversary's key points with aggressive, offensive, massed action can be traced back to the ideas of Clausewitz and Jomini.<sup>40</sup> Their continued emphasis on the unique advantages conferred by air operations to “wield offensive power so great it defies human imagination” can be seen today in discussions surrounding precision strike.<sup>41</sup>

The Western way of war consistently draws on Clausewitz and Jomini to stress the importance of decisive battle as a prerequisite for strategic victory. Their theories continue to impact development in new domains, such as space and cyber. As the next section explores, their ideas have shaped the dominant way of war over the past 40 years, and they are undoubtedly shaping U.S. thinking about a potential conflict with the PRC. As Prussian military approaches dominated thinking about future war during the World Wars, American thinking is defining and shaping a shared, modern way of war.

## The Promise of Precision Strike for Quick Victory

To understand the course of a hypothetical U.S.-PRC conflict, it is vital to trace the development of the modern way of war as past ideas shape the military forces and strategies of the future. The PSR is the dominant warfighting regime of the past 40 years. The PSR has been known by various names, to include the Military Technical Revolution and Revolution in Military Affairs. The PSR closely connects sensors with weapons through real-time battlefield communication networks, leading to significant improvements in accuracy over ever-increasing ranges. This study uses the term PSR to separate it from other military revolutions and create additional specificity.

The PSR blends technological innovation and doctrinal development in an attempt to achieve decisive effects and rapid victory. The promise of the PSR is the ability to strike directly at the most important aspects of the enemy's power. While this concept is most associated with the American way of war, it has diffused globally with the PRC adopting its focus on decisiveness and speed. Ultimately, the concepts of the PSR are embedded in both U.S. and PRC concepts for waging high-intensity peer warfare.

This section explores the rise of the PSR to confront a wholly different challenge in Europe, PRC reactions to the

application of the PSR during the Gulf War, and the subsequent intertwined evolution of the PSR until the present. It will trace how the ability to fight from range is changing conflict dynamics and setting the stage for a fulsome discussion on how a hypothetical war over Taiwan would unfold. The core ideas of the PSR remain unchanged: create decisive, conventional battlefield effects through the synthesis of advanced sensors, communications networks, and precision weapons.<sup>42</sup> The problems have changed, but the solution remains the same.

### **The Birth of Precision—The Soviet Union and the Gulf War**

The PSR aimed to give the United States a pathway to defeat a numerically larger invasion force with a qualitatively superior conventional force.<sup>43</sup> It was intended to defeat the mass of Soviet armored echelons pouring across the intra-German border, the pacing challenge for non-nuclear, Cold War force planning.<sup>44</sup> It aimed to reduce or even eliminate the exceptionally risky prospect of needing to use tactical nuclear arms to arrest a Soviet invasion.<sup>45</sup> The PSR portended a shift in the character of battle and offered the potential for the numerically inferior forces of NATO to hold against the forces of the Warsaw Pact.<sup>46</sup> This way of war allowed NATO forces to

directly strike Soviet rear echelons, slow their advance, and maximize the impact of the Alliance’s perceived superiority in tactical aviation.

The PSR is not a single “thing” but rather a collection of sensing, communications, and strike capabilities that together create revolutionary effects. These capabilities permit precision strikes across the depth of the operational and strategic battlespace, not simply at the tactical level.<sup>47</sup> During the Cold War, this meant tracking and striking Soviet armored forces well behind the front lines.<sup>48</sup> This increase in battlefield depth denies an adversary a rear sanctuary, that is, freedom from attack, traditionally conferred by range. In addition, mobile and relocatable targets could be struck by “brilliant,” or smart, munitions with the ability to automatically recognize targets.<sup>49</sup>

The PSR was not limited to land warfare. It dramatically amplified airpower’s effectiveness by transforming the airpower paradigm from needing multiple sorties per target to striking multiple targets per sortie.<sup>50</sup> It also impacted naval combat, supercharging the impact of antiship missiles, and created a far more dangerous environment for surface ships. The United States achieved “accuracy independent of range,” massively increasing the lethality of its military, while simultaneously reducing risk to its force. This is the true promise of the PSR.



*Precision weapons allowed coalition forces to rapidly destroy Iraqi resistance during Operation Desert Storm in 1991. This Iraqi hardened aircraft shelter was destroyed by a single bomb. (U.S. Department of Defense)*

The PSR, thankfully, never was put to the test as originally intended. It first was exercised, to dramatic effect, during the 1991 Gulf War. This conflict has been portrayed as the dawn of modern precision strike warfare.<sup>51</sup> Saddam Hussein's relatively sophisticated air defenses were quickly disemboweled by cruise missiles and precision bombs.<sup>52</sup> After Saddam's forces had been subjected to relentless attacks from the air, his Soviet-style ground forces were rapidly defeated in 100 hours by the advanced, networked ground forces of the United States and its coalition partners.<sup>53</sup>

After the resounding successes of the Gulf War, countless reports heralded this as a transformative moment for the primacy of precision strike capabilities. Planners behind the air campaign, such as John Warden and David Deptula, codified their approaches into effects-based doctrines, approaches that sought to create time-limited impacts rather than complete destruction.<sup>54</sup> For example, adversary command and control need only be disrupted for key periods rather than destroyed outright. According to proponents, such operations could deliver rapid decisive results with less resources than previous ways of war.<sup>55</sup> While the United States seemingly stood alone after the Gulf War, prominent theorists did not see this campaign as the zenith of the PSR, but rather as a nascent step into a brand-new world. Dr. Andrew Krepinevich argued:

[t]here appears to be much room for improvement in terms of systems integration. In the Gulf War the problem was not that the United States had not won the information war; rather, it was that the United States did not come close to its potential to move the most useful information rapidly to those who needed it most.<sup>56</sup>

The revolution did not stop, it deepened, accelerated, proliferated, and mutated. The United States and the PRC would become locked into a move-countermove cycle of military developments centered around the PSR.

### **The PRC Reaction: With Chinese Characteristics**

The PRC has been developing the PSR with Chinese characteristics since at least the early 1990s.<sup>57</sup> Before the Gulf War, PRC military figures were aware of the ongoing development of the PSR in both the United States and the Soviet Union.<sup>58</sup> It is difficult to overstate the impact the Gulf War had on the PRC broadly and the People's Liberation Army (PLA) specifically. As M. Taylor Fravel relays:

[b]etween March and June 1991, the PLA leadership held a series of high-level meetings to study the Gulf War. In his capacity as CMC [Central Military Commission] chairman, Jiang Zemin attended at least four of these sessions, underscoring the importance that the CMC and the party attached to the exercise.<sup>59</sup>

The Gulf War and the subsequent Third Taiwan Strait Crisis (1995–96) accelerated the PLA's adoption of the PSR. Over the next decade, it would issue a succession of new defense concepts that stressed the importance of technology and information on achieving victory in modern wars.<sup>60</sup> PLA scholars were keenly interested in how to break an advanced adversary's (plainly the United States') ability to launch long-range precision strikes by targeting command, control, and logistics capabilities.<sup>61</sup> Unlike early U.S. PSR concepts that focused on attacking Soviet reinforcements, the PLA emphasized attacking the flow of information critical to enabling precision strikes as part of a concept known as system destruction warfare.<sup>62</sup> The clear intent was to prevent the U.S. from running its Gulf War playbook in East Asia.

The PRC's development of the PSR has not been a simple case of copying or mimicking Western approaches. While there is a clear throughline from U.S. concepts to PLA approaches, China's approach to long-range precision strike nests within its Active Defense concept that stresses force preservation in the face of a superior enemy while gaining long-term advantages in a gradual fashion.<sup>63</sup>

**Just as the United States seemingly is convinced of the first-mover power of precision strike warfare, so too, it appears, is the PLA.**

Despite a tacitly defensive scope, Active Defense presents an offensive vision of rapid, overwhelming war should conflict become inevitable.<sup>64</sup> Just as the United States seemingly is convinced of the first-mover power of precision strike warfare, so too, it appears, is the PLA. Chief among these offensive approaches is what the PLA terms the "shashoujian," or the assassin's mace, technologies and concepts aimed at defeating the PSR and suited to "winning as quickly as possible."<sup>65</sup> The PLA's concepts for precision strike call for rapid, offensive actions against an adversary's sensing, communications, command, and logistics systems. There is a heavy emphasis on space systems and electromagnetic warfare,<sup>66</sup> as well as the targeting of adversary air and sea bases that enable power projection.

### Move, Countermove

In light of these Chinese developments, U.S. planners and strategists began to consider changes to U.S. warfighting concepts that were centered around long-range precision strikes. These considerations focused on the perceived anti-access/area-denial (A2/AD) problem. The A2/AD problem originally identified precision ballistic and cruise missile attacks against airbases as well as long-range surface to air missiles (SAMs) as the primary threats to U.S. operations.<sup>67</sup> Over time, it grew to include a wide array of asymmetric challenges such as cyberattacks and anti-satellite weapons.

With the A2/AD challenge as a guide stone, the American concept of Air Sea Battle (ASB) began to take shape in the late 2000s. The public concept for ASB is best understood through two papers published by the Center for Strategic and Budgetary Assessments in 2010.<sup>68</sup> At its core, ASB sought to enable the United States to defeat Chinese aggression. More generally, it was an indictment of the American way of war, which was dependent on launching precision strikes from close-in airbases and aircraft carriers and assured access to space. To defeat China's warfighting strategy, ASB called for a blinding campaign to knock out PLA sensors and networks, fighting from longer ranges, and relying heavily on access-insensitive submarines instead of surface warships. Air Sea Battle focused on counter-information while doubling down on core U.S. technological competencies such as stealth, sensors, and networks.

While ASB was never completely adopted, its ideas and focus on decisive, rapid action remain dominant.<sup>69</sup> The focus on denial, defeating the initial invasion, and the development of a "theory of not losing" vis-a-vis a potential PRC amphibious invasion of Taiwan is built on core PSR concepts.<sup>70</sup> The PSR is central to U.S. concepts such as Joint All Domain Operations (JADO), which stresses the importance of information in pursuit of "decision advantage."<sup>71</sup> JADO aims to connect any sensor with the right weapon and overwhelm adversaries through massed yet dispersed weapons.<sup>72</sup> This vision of the future doubles down on the precision strike way of war.

The PRC similarly has continued to evolve its own warfighting concepts with a continual eye on U.S. developments. This is best shown by recently translated works such as the *2020 Science of Military Strategy (SMS)*, which includes a notable emphasis on the role of information warfare as the PLA has identified information as the lifeblood and potential Achilles heel of U.S. power projection. If an adversary cannot see or talk, it cannot fight. For example, the *SMS* states:

Network and [electromagnetic spectrum] EMS warfare seeks to use information control measures to control enemy's C2 links and joint operations systems, and its effects can be *as powerful as a nuclear strike* to produce a powerful deterrent, and even directly achieve the objective of war.<sup>73</sup>

The United States and the PRC envision future war in terms of competing, offensive dominant systems. Victory is presumed to go to whoever knocks out the other's key military capabilities first. The PSR is fundamentally a solution to a discrete operational challenge. While both sides believe that this will confer an asymmetric military advantage and deliver it to decisive victory, such approaches rarely address the core interests and disagreements that truly animate conflict.

## The Short War Fallacy

The prior section describes the development of a way of war in both the United States and the PRC that seeks rapid victory through the destruction of the opponent's ability to wage war, a 21st century version of the "cult of the offensive." Historically, many states enter conflict with such beliefs only to find themselves embroiled in a long war. This section argues that the short war fallacy is a pervasive feature of military and strategic planning. Rolling the iron dice—going to war—carries an underappreciated risk of conflict protraction, a risk clearly present in a hypothetical war with the PRC.

### A Brief History of "Short Wars"

The short war fallacy, the belief that a conflict can be brought swiftly to conclusion by an elegantly executed military strategy, is best exemplified by World War I. In the leadup to this conflict, numerous leaders envisioned the looming war as short and decisive. Most famously, Kaiser Wilhelm II told his forces that they would "be home before the leaves have fallen from the trees" at the onset of the war in August 1914.<sup>74</sup>

The Schlieffen Plan is the quintessential example of a plan built on the belief in rapid decisive action, a product of the "cult of the offensive."<sup>75</sup> German leaders believed that offense was the dominant way of war and the solution to their strategic dilemmas.<sup>76</sup> The cult of the offensive was not a uniquely German phenomenon.<sup>77</sup> All European powers were fixated on rapid mobilization timelines.<sup>78</sup> The prospect of quick victories evaporated as the conflict stalemated. A war of maneuver and decisive action became one of endurance and attrition.<sup>79</sup>



French troops going “over the top” and advancing. World War I stands as a stark reminder as to what can happen when pre-conflict expectations meet the realities of war. (General Photographic Agency/Getty Images)

The supposed brilliance of early operational designs eschewed Clausewitz’s enduring maxim, that war is but an extension of the political.<sup>80</sup>

The lessons of World War I have not been learned, and the lure of decisive victory through a short war remains as strong as ever. U.S. experiences in Iraq both in 1991 and during the conventional phases of the conflict in 2003 further amplified the siren song of the short war. In both cases, the conventional periods of ground conflict can be measured in weeks.<sup>81</sup> However, the United States possessed dramatic military overmatch in capabilities in both cases. Conventional protraction was impossible. The long counterinsurgency campaign that then consumed the U.S. military was viewed as an aberration in the same way that Vietnam was viewed during 1970s.<sup>82</sup>

Russia’s experiences during the disastrous opening phase of the current Ukraine War further demonstrates that the fallacy is alive and well. In February 2022, one of the initial Russian operational thrusts was directed against Kiev.<sup>83</sup> This coup de main was intended to quickly seize the capital, destroy the existing government, and deliver a quick victory to Russia.<sup>84</sup> The hubris, miscalculations, and disasters that led to Russia’s failing in its initial aims are well documented.<sup>85</sup> Russian forces were not “greeted as liberators,” and stiff Ukrainian resistance transformed Putin’s short, sharp conflict into a grinding, industrial war.<sup>86</sup>

The Ukraine War is a wake-up call on both sides of the Atlantic. Prolonged high-intensity conflict is not a relic of a bygone age. These kinds of wars remain possible and create titanic industrial requirements.<sup>87</sup> The industrial requirements should not be surprising. U.S. combat operations during Operation Inherent Resolve in Iraq and Syria consumed, on average, 30,000 air-delivered weapons per year between 2015 and 2017.<sup>88</sup>

Despite the vast consumption of precision weapons during past conflicts, the United States has been caught flat-footed. To support the conflict in Ukraine, the United States is increasing its production of 155-mm artillery shells from roughly 14,000 to 90,000 rounds per month to meet the voracious demands of industrial conflict.<sup>89</sup> Furthermore, ramping this production takes months or even

years.<sup>90</sup> These production figures and ramp rates are for relatively simple artillery rounds. The sophisticated precision weapons needed to fight a war in the Indo-Pacific will be produced more slowly, and production increases will take even longer. These facts of life underscore the scale needed for long wars of endurance.

The United States has fallen prey to the short war fallacy and the requirements of peacetime industrial efficiency.<sup>91</sup> Senior policymakers struggled to fully comprehend what the conflict in Ukraine portended, even as events were transpiring.<sup>92</sup> When considering a conflict involving the United States and the PRC, planners and policymakers only conceptualize a limited span of conflict. The specter of attrition and an industrial war of endurance looms, largely ignored, beyond any conflict’s opening phases.<sup>93</sup>

### A U.S.-PRC War

There are a range of plausible conflict scenarios involving the United States and the PRC.<sup>94</sup> The most plausible appears to be a conflict over Taiwan given statements made by U.S. President Joe Biden and Xi Jinping.<sup>95</sup> The U.S. Department of Defense’s authoritative 2022 China Military Power Report outlines four broad classes of military options that China could pursue against Taiwan: “air and maritime blockade,” “limited force or coercive options,” “air and missile campaign,” and “invasion of Taiwan.”<sup>96</sup>

This report focuses on the Taiwan invasion scenario given the central role it plays in the minds of U.S. analysts. It assumes that the PRC has been unsuccessful in deterring or delaying U.S. entry into the conflict and that U.S. forces are prepared both operationally and politically to respond.<sup>97</sup> The following description is based on the way a U.S.-PRC conflict has played out in a broad array of wargames and other analyses.<sup>98</sup> It is vital to realize that once the conflict begins, the reliance on long-range precision strike, the doctrinal impetus for decisive action, and the strategic pursuit of quick victory combine to create powerful structural factors that shape the actions of both the United States and the PRC.

The opening phase of conflict sees widespread, mutual destruction. Both sides quickly proceed through well-rehearsed strikes against pre-planned targets, rapidly consuming stockpiles of preferred weapons. They seek decisive action by targeting the foundations of each other's combat capabilities in keeping with their operational concepts for precision strike. The PLA seeks to paralyze U.S. battle networks and negate the maximum amount of U.S. combat power possible in the Western Pacific with long-range missile strikes. The United States, at a minimum, likely seeks to destroy large portions of the People's Liberation Army Navy (PLAN) transporting the invasion force. There will be considerable operational pressure to degrade PLA long-range strike capabilities on mainland China, though such attacks may carry escalatory risk.<sup>99</sup> Recurring wargaming suggests that this initial phase of conflict devolves into some form of a stalemate. One side may be marginally advantaged from a tactical perspective, but neither is able to resolve the core political differences behind the conflict. In these games, strategic, political victory is not on the horizon.<sup>100</sup> In all cases, the losses are titanic.<sup>101</sup>

This conflict is shaped by unique features of the air and maritime domain, given the geography of East Asia. The three most important aspects of this conflict are the material scale of an attempted PLA invasion, the inherent vulnerability of surface ships, and the difficulty of delivering massed fires at Pacific distances. Delivering tens of thousands of tons of men and matériel across a hundred miles of exposed air and water creates obvious targets for the enemy.<sup>102</sup> Ships are vulnerable to advanced antiship missiles and submarines.<sup>103</sup> Striking hundreds of targets a thousand-plus miles away is a slow, logistically challenging, and ultimately expensive proposition.<sup>104</sup>

New tactics and technologies, such as autonomous systems and directed energy weapons, may alleviate some of these challenges, but they cannot be avoided. The finite capacity of advanced munitions, the lifeblood of the early campaign, is instructive. The PLA has the launcher capacity to shoot the entirety of its medium-range ballistic missiles in two salvos.<sup>105</sup> The U.S. can expend the entire planned buy of 7,500 air launched, conventional, long-range land attack cruise missiles with five sorties of the 75-strong B-52 fleet.<sup>106</sup> Moving large quantities of men and matériel or delivering large amounts of fire from long range is difficult, regardless of opposition. Doing it in the face of a determined adversary only adds to the difficulty.

These structural factors shape a potential U.S.-PRC conflict over Taiwan and strongly suggest the likelihood of a protracted conflict. They are the reason that analytic conclusions of numerous wargames are strongly clustered around a set of findings that include the importance of advanced munitions, pre-conflict

U.S. posture that enables rapid response, and the challenges of amphibious operations.<sup>107</sup> However, these structural factors have the greatest impacts on the initial days of a conflict when determining the outcome of initial military operations. Analyses are more muted on what comes after.

For conflicts to protract, one or both parties must simply decline to "give up." Even if the PRC were to be denied its initial war



Members of Congress consider their options during an April 2023 CNAS wargame. Wargames are a key tool for considering the implications of future conflict. (House Creative Services)

aim, the capture of Taiwan, it does not follow that hostilities would end immediately, given the centrality of this mission to the legitimacy of the Chinese Communist Party.<sup>108</sup> Proponents of the short war fallacy point to hypothetical losses in the early conflict as if it is self-evident that conflict must cease after such shocking expenditures. This ignores the deep commitments driving the behavior of the PRC, Taiwan, the United States, and even Japan in any conflict.<sup>109</sup> These commitments, and the influence they have on both sides' decision-makers, cannot be eroded through precision strikes alone.

Analytic efforts, regardless of the methodology, struggle to capture the intricacies and challenges of a long fight. Wargames and campaign analysis can provide some suggestions, but as they move beyond the researched starting conditions, confidence in their accuracy diminishes. From a wargaming perspective, it is often difficult for players, steeped in the logic of the "early conflict," to shift mental models and understand how the conflict is changing under their feet. From a campaign analysis perspective, it is inherently difficult to construct flexible models that allow for rapid exploration of a range of strategies or incorporate changing objectives. Campaign analysis also reports numbers of targets destroyed and sorties flown, not political objectives achieved. It is important to be clear-eyed and honest about the resolution of the tools at the disposal of U.S. analysts.

**Proponents of the short war fallacy point to hypothetical losses in the early conflict as if it is self-evident that conflict must cease after such shocking expenditures.**

When the Germans retreated at the First Battle of the Marne and the inadequacy of the Schlieffen Plan was laid bare, the war did not end. It continued. All belligerents remained committed to the war even after collectively experiencing more than 1.4 million casualties in the first six months of conflict on the Western Front.<sup>110</sup> Should President Xi "roll the iron dice" and commit the PLA and the PRC's national honor in pursuit of some object of his ambition, the historical record suggests he will remain committed to conflict even if the PLA faces setbacks.

## Four Characteristics of Conflict Protraction

The prior sections discussed the powerful forces pushing militaries to seek out rapid, decisive victory through the application of superior technologies and tactics. They covered how past leaders have succumbed to the temptation of the short war and how analyses of a future war with the PRC generally have failed to grapple with potential conflict protraction. Political, geographic, industrial, technological, and strategic structures combine to create powerful forces for protraction. This section argues that, between the United States and the PRC, a long war is more likely than a short war due to four key characteristics. These begin with immediate tactical considerations and move, step-by-step, to broader strategic factors that impact the perceptions and behaviors of the United States and the PRC.

Some may argue that other factors such as expansive political objectives, inability to achieve decisive military effects, and strategy selection are the characteristics truly behind conflict protraction. However, these factors are all decisions made by leaders, and they overlook the reasons shaping these decisions. Ultimately, the increasing chance for protraction is driven by these four characteristics: a quest for decisive conventional victory, the sanctuary of mutual exhaustion, the peril of the strategic nuclear cliff, and the gulf between termination and culmination.

### A Quest for Decisive Conventional Victory

This characteristic of protraction sets the initial conditions. The dominant warfighting approaches of both the United States and the PRC stress destroying the adversary's offensive capabilities and relevant supporting systems. They do not address each side's ability to send additional forces into battle nor their capacity for creating new weapons and units, the fundamental ability to continue the war. Both sides are inappropriately using the Gulf War as a model, which does not account for evenly matched levels of national power.

Additionally, both sides are vastly underestimating their operational challenges even when framed in a "limited" manner. There is an intrinsic belief in the power of precision strikes combined with the continual allure of decisive battle.<sup>111</sup> Despite these hopes, it will be tremendously difficult to achieve the results both sides imagine. Focusing on the immediate point of attack and seeking quick victory are enduring military axioms. They do not ensure success when peer states go to war.



Fundamentally, the United States and the PRC would attack each other’s tactical and operational centers of gravity. Neither nation would address the other’s strategic sources of power, nor the points of friction that bring the two powers to blows. Their respective warfighting approaches, empowered by the PSR, are appropriate for limited wars against overawed opponents. They would not work against an adversary that can “take a punch” and keep on going.

There is a “target-centric” approach to the U.S. and the PRC military strategies. Advanced conventional arms make it easier than ever to precisely target the tactical and operational foundations of military power, which are highly appealing to policymakers seeking the apparent promises of a denial strategy.<sup>112</sup> However, there is not a clear, traceable causal logic between striking these tactical and operational military capabilities and the defined strategic objectives of both sides. A target-centric approach does not address the strategic incompatibilities between the two belligerents. The application of precision warfare against terrorist networks over the past 20 years has shown that, while precision attacks slow and degrade these organizations, victory cannot be rendered through the exquisite targeting.<sup>113</sup> Without political resolution, the conflict continues.

In coalescing around denial strategies, U.S. strategists have accepted the logic that suggests preventing the PRC from achieving its immediate military objective

will create conditions for conflict termination and, more importantly, create a powerful deterrent effect preventing the PRC from ever invading.<sup>114</sup> Ignoring the aforementioned issues with this argument, achieving denial is far more challenging than often realized. It requires the expenditure of an underappreciated quantity of resources on an exceptionally short timeline. This temporal problem is specifically acute in the context of any Taiwan scenario as the relative distances from bases to operational areas heavily disadvantage the United States.

The majority of U.S. combat power must come either from dispersed stand-in forces that have to accept a form of logistical poverty to maintain survivability in the face of the PLA’s long-range strike capabilities, or from stand-off forces that must transit to launch points from distant, more secure bases. Consider the “tyranny of distance.” It is approximately 100 nautical miles from the Chinese coastline to Taiwan. It is approximately 1,500 nautical miles from Guam, the nearest piece of sovereign U.S. territory, to the Chinese coastline. The five closest PLA air bases are an average of 200 nautical miles from Taipei; the five closest U.S. airbases average 1,000 miles.<sup>115</sup> These ranges are familiar to most who have looked at this theater. They tell you little about their impact on combat power, especially when considering aircraft operations. Figures 1 and 2 provide more context on the comparative impact of range on potential U.S. and PRC operations.

FIGURE 1: SORTIES PER DAY V. RANGE

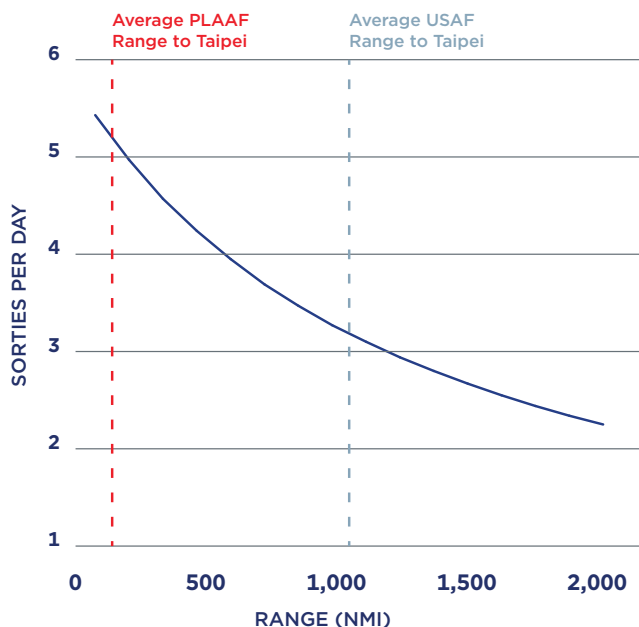
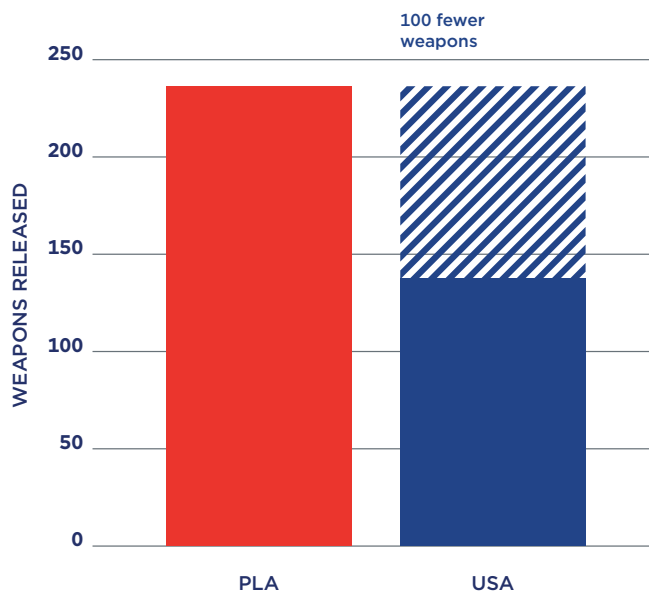


FIGURE 2: IMPACT OF RANGE



Figures based on author’s calculations.

Figure 1 shows the numbers of sorties per day that can be sustained at a given range assuming an aircraft with a 480-knot airspeed, one-hour time on station, and three-hour turn time.<sup>116</sup> The vertical lines of the chart show the difference between the sortie generation capabilities of the two actors informed solely by geography. This difference works out to a rough doubling of sorties per day when comparing the two sides.

Going one step further, assume that each sortie can deliver four weapons into the battlespace, agnostic to the type of weapons. Figure 2 translates this difference in sorties to a difference in weapons showing that on a per squadron (12 aircraft) basis, the United States can introduce approximately 100 fewer air delivered weapons day to day. Simply put, range dramatically limits U.S. combat power. This of course ignores the fact that there are more than 15 airbases within the Eastern Theater Command alone.<sup>117</sup>

Conceptualizations of denial operations vastly understate their munitions intensity. Prominent former DoD leadership has discussed the need to quickly destroy 450 PLAN ships.<sup>118</sup> At first glance, one might

assume that this would take less than 1,000 missiles, assuming roughly two missiles per ship.<sup>119</sup> With the weapons release capabilities previously outlined, that seems achievable in less than two days. However, these ships are defended with missile defenses that will attrite incoming attacks, and the PLA will undertake spirited efforts to “kill the archer”—destroying U.S. aircraft and ships—prior to missile launch.

If one coarsely assumes that the PLA has two chances to defeat an incoming missile and each chance has a 50 percent probability of success, that equates to 3,600 rounds or four and a half days of weapons delivery given the preceding analysis. This simple math ignores the friction introduced by a determined adversary shooting back, the need to find and track moving targets in a cluttered battlespace, or the prodigious logistics requirements for operating in a distributed manner. This drives home a key point: What transpires quickly on the tabletop during a wargame or within a computer during a simulation will take considerably longer in real life. The conflict protracts because even limited denial goals are exceptionally challenging in the face of a concerted, technologically advanced adversary.

The PLA faces operational challenges that similarly appear infeasible on a rapid timeline. Two are worth highlighting here, the amphibious invasion itself and attacking U.S. bases and ships. The first of these challenges is different in kind from those facing the United States given its inherently offensive nature and inclusion of large numbers of ground forces. The second of these challenges is akin to those previously discussed.

The first challenge is conducting and sustaining an unprecedented contested amphibious operation. Many of the issues with this operation are well understood.<sup>120</sup> This is a tremendously complex undertaking without factoring in active efforts to defeat the landing short of the beach. A simple analysis of the ground combat aspect of this invasion provides useful yardsticks. Assume the PLA lands the totality of its allocated forces on the island and the Taiwanese can complete a full mobilization. A RAND report on Taiwan’s reserve forces suggests this results in a force ratio of 1:1.5 in favor of Taiwan.<sup>121</sup>

Using Lanchester’s Square Law as a coarse analytic tool reveals that the PLA needs to achieve a lethality ratio greater than 2.25:1 to succeed in an attritional battle. As a point of comparison, the Imperial Japanese Army achieved a lethality ratio of roughly 5:1 in the defense of Iwo Jima during World War II.<sup>122</sup> Put

simply, the PLA needs to be twice as lethal *on the offense* as the Imperial Japanese Army was on the defense fighting from exceptionally well-prepared fortifications.

In this theoretical exchange, both sides would suffer near total casualties. If forces cease being effective after 50 percent casualties, both sides reach this point roughly simultaneously.<sup>123</sup> This suggests some form of stalemated ground combat with mutual exhaustion rather than decisive victory. The PLA achieving a favorable lethality ratio when conducting an offensive amphibious operation, even when backed by significant air and missile power, is a historically suspect proposition.<sup>124</sup>

These numbers, while ignoring a significant amount of operational and technological complexity, hint at the challenges of achieving decisive impacts on the battlefield given the forces involved. They reinforce suggestions that the PRC may seek alternative approaches, like blockade, to break Taiwan’s defensive capabilities.<sup>125</sup> For the PLA, preventing the United States from reinforcing and resupplying Taiwan appears vital to avoid this attritional battle.<sup>126</sup> These alternative approaches are time consuming and accept the inherent logic of protraction: Strategic changes require a considerable investment in time.

**U.S. and PRC warfighting approaches are likely to disrupt the initial operational period but do not resolve the deep strategic issues at the core of the conflict.**

The second challenge is attacking logistics, bases, information systems, and headquarters across the Indo-Pacific. The PLA has considerable capabilities for attacking airbases within the First Island Chain, and increasingly within the Second Island Chain.<sup>127</sup> However, the PLA cannot launch large-scale attacks against forces or bases beyond the Second Island Chain through conventional means.<sup>128</sup>

Moreover, while the PLA can attempt to destroy close-in American forces and bases, it must be prepared to conduct operations under long-range bombardment as the United States possesses the ability to deliver large numbers of strikes from its territory. For example, three squadrons of 12 B-52s operating from U.S. bases in Alaska potentially could achieve a sortie rate of .7 sorties per day.<sup>129</sup> This sortie rate translates into 2,520 long-range cruise missiles over five days of conflict. This volume of fire would present considerable challenges to PLA operations. While the PRC has the advantage of geography and rocket-based firepower within the Second Island Chain, U.S. global power-projection capabilities remain an asymmetric challenge for the PLA.

U.S. and PRC warfighting approaches are likely to disrupt the initial operational period but do not resolve the deep strategic issues at the core of the conflict. Crucially, rapid operations focused on the destruction of fielded forces and theater sustainment capabilities do not address the ability of either side to continue to generate forces at the strategic level.

### The Sanctuary of Mutual Exhaustion

In the quest for decisive conventional victory, the use of relatively scarce resources in the pursuit of immediate tactical objectives does not translate into strategic victory. The consumption of these resources leads to the next characteristic of protraction. Joshua Rovner observes that a state must be able to recover relatively free from attack if a conflict is to protract.<sup>130</sup> Belligerents need a safe haven, sanctuary, to withdraw in the lulls between battles and campaigns to rebuild the capacities and capabilities for combat. Sanctuary is not an absolute as a state can still come under attack. However, it must still be able to meaningfully rebuild its forces for sanctuary to exist. Without this, protraction is increasingly difficult, as one or both belligerents simply will run out of the tools to continue the conflict.<sup>131</sup>



*A U.S. B-24 Liberator bomber returns to base after a mission striking German targets. Despite heavy attacks, German industry was surprisingly resilient over the course of World War II. (Keystone/Getty Images)*

After an intensive initial-phase period of fighting, the belligerents likely will run low on relevant munitions, which means that they have the time and space to reconstitute forces sufficiently free from attack.<sup>132</sup> Precision weapons can reach hundreds or thousands of miles beyond the frontlines. Proponents argue that this capability leads to a swift victory because there are no safe places for the enemy to rebuild. The sanctuary of mutual exhaustion is not simply a function of geography or defenses. Rather, it comes from a lack of resources needed to continue offensive operations. War becomes brief spurts of violence punctuated by long periods of reconstitution. The sanctuary of mutual exhaustion does not persist indefinitely as states rebuild their capabilities and capacities. Rather, it is a meaningful ebb in the conflict where both sides slow and/or pause offensive operations.

This is akin to the “shell famine” that afflicted armies during World War I. It took over two years for nations to ramp production to meet the requirements of an artillery-centric conflict.<sup>133</sup> This lesson is being relearned in Ukraine with the United States, its allies, and partners finding themselves unable to meet the demand of Ukrainian artillerists and impacted offensive operations.<sup>134</sup>

Some military analysts may argue that strikes alone are not enough to prevent the rebuilding of military forces. They point to the inability of strategic bombing during World War II to curtail the German economy as proof that airpower cannot deny sanctuary; however, this is an oversimplified observation. While the German defense industry, despite heavy bombardment, maintained a relatively high level of production until the end of the war, strategic bombardment of the oil industry curtailed German industrial output, showing the importance of target selection.<sup>135</sup>

Simultaneously, German industry was tremendously resilient in the face of repeated attacks. It is very unlikely that today's industry has a similar degree of resiliency. Today's weapons require highly specialized facilities to be produced.<sup>136</sup> The lack of industrial fungibility means a dramatic decrease in industrial resiliency under the conditions of high-intensity conflict. While industrial substitution during World War II took place over several years, it is difficult to imagine converting a Ford Motors plant to produce an F-35 on a comparable timeline.<sup>137</sup>

Others may argue that non-kinetic and economic tools can be more disruptive to reconstitution. This argument either overstates their impact or tacitly accepts a protracted war. While it is true that these capabilities can be disruptive, they cannot, by themselves, stop efforts to regenerate forces. For example, cyberattacks have a limited shelf life and are carefully tailored weapons.<sup>138</sup> These aspects correlate directly to increased risks of detection and neutralization that decrease their utility within the context of a conflict.<sup>139</sup> Ultimately, cyber effects are a complement to, not a substitute for, kinetic ones.<sup>140</sup>

## **Belligerents need a safe haven, sanctuary, to withdraw in the lulls between battles and campaigns to rebuild the capacities and capabilities for combat.**

Economic tools like sanctions have the same practical impacts as the offshore balancing strategy.<sup>141</sup> Blockades and sanctions are not historically effective in preventing the short-term rebuilding of an adversary's military capabilities.<sup>142</sup> Offshore balancing, blockades, and sanctions are a tacit acceptance of a long war. Furthermore, states are likely to stockpile key resources and seek, albeit painfully, economic substations to maintain and replenish their combat power.<sup>143</sup> It is impossible to fully deny sanctuary through these means alone.

In a potential U.S.-PRC conflict, the economics of replenishment are significantly more taxing than those of the past. The scale of the production lines when compared to the consumption rates is staggering. For example, the long-range precision weapons industrial base can only manage to produce tens of rounds per month. These arms are the backbone of a conventional campaign in the Indo-Pacific. Their production complexity is such that while it may be possible to increase production rates, it is not possible to have production outputs match the consumption inputs.

The relationship between weapon range and production complexity is an important variable to highlight. Using annual buys as a fair proxy for production rate, in Fiscal Year 2023 DoD procured 669 JASSM class weapons—a long-range standoff weapon—and 4,674 Guided Multiple Launch Rocket Systems—a short-range indirect-fire weapon.<sup>144</sup> This is roughly a seven-times difference in production, clearly showing how long-range precision weapons are intrinsically more challenging and expensive to produce.

The technologically intensive nature of modern, high-end conflict means the pain of reconstitution is felt more acutely than in past conflicts. If the sole methods for striking the adversary need weapons that are exhausted in days to weeks and cannot be rebuilt rapidly, the conflict ebbs. During World War I, in Ukraine and elsewhere, the conflict ebbed but never truly fully abated. The geography of the Indo-Pacific with distances measured in thousands of miles makes it conceivable that the sanctuary of mutual exhaustion is not simply an ebb in the conflict but rather a full pause in combat operations.

While the popular imagination often focuses on cataclysmic battles, these moments make up a bare fraction of the duration of any conflict. War is long periods of boredom punctuated by moments of sheer terror. Combatants must recover their strength and rebuild their capabilities. As important as this always has been in the course of human history, victory or defeat in a U.S.-China conflict seems to be predicated on who is most effective in repairing, rebuilding, and augmenting its capabilities and capacities in the lulls between the fighting. This is due to the power of, yet relative scarcity of, the weapons that would be used to wage this war.

The quest for decisive conventional victory and its massed expenditure of munitions combines with the inherent challenges of replenishment to create a sanctuary of mutual exhaustion that sets the conditions for a protracted conflict. Sanctuary cannot be denied through other means. While non-kinetic and economic tools can constrain reconstitution, they cannot stop it. These factors create the material conditions for protraction. These material conditions ultimately require political choices for protraction to be realized.

### **The Peril of the Strategic Nuclear Cliff**

Nuclear weapons would significantly impact both the military conduct of a U.S.-PRC conflict and the respective leadership's political choices. Empirical research on the behavior of nuclear armed states involved in crises with other nuclear powers suggests that leaders will be far more risk-acceptant than often realized in pursuit of



*New ICBMs are paraded for the 70th anniversary of the PRC's founding. As the PRC's nuclear arsenal grows in quantity and capacity, it is likely to take on a greater role in shaping China's strategic relationships. (Greg Baker/AFP via Getty Images)*

favorable crisis termination.<sup>145</sup> The United States and the PRC likely would seek to control escalation while simultaneously maintaining escalation dominance. This paradoxically constrains and accelerates the conventional conflict. The conflict constraints—the limits on acceptable conventional targets—are in direct tension with the previously described operational concepts the PRC and the United States favor, which stress strikes against command, control, and information systems. The conflict accelerants, conventional vertical escalation to maintain war control, are drivers of conflict expansion. Taken together, this form of escalation management is a major characteristic of protraction.

China has possessed nuclear arms since 1964 and has long had a distinct view about the utility of these arms. Mao famously viewed them almost with derision, questioning their utility.<sup>146</sup> This, in part, led China to develop a nuclear posture based on the idea of minimum credible deterrence.<sup>147</sup> The upshot of this decision was the development of an arsenal that was qualitatively and quantitatively inferior to those maintained by the United States or the Russian Federation. The Chinese qualitative nuclear modernization, apparent for at least the past decade, is now joined by a significant quantitative expansion.<sup>148</sup> The 2022 China Military Power Report indicated a projected PLA nuclear capability of 1,500 warheads by 2035, placing it within 50 warheads of the limits in the

New START treaty governing U.S. and Russian arsenals.<sup>149</sup> Clearly, Chinese leadership has changed its view of nuclear arms. This change necessitates a re-imagining of the U.S.-Chinese strategic nuclear relationship and the risks inherent to any militarized crisis or conflict between the two states.<sup>150</sup>

The United States and the PRC would fight any war along the strategic nuclear cliff. This metaphor ties back to the original meaning of the term brinkmanship. States are playing a dangerous game along the “brink,” seeking to manipulate risk to achieve strategic advantage.<sup>151</sup> In the U.S.-PRC context, these likely interactions are new or, at a minimum, unfamiliar to both sides. Following the end of the Cold War, the specter for general nuclear war largely receded from the international stage, with concerns focused on loose nuclear material, pariah states, and regional instability.<sup>152</sup> The focus on regional, conventional conflicts meant the study of nuclear issues and the consideration of conventional-nuclear integration atrophied in the United States. The prospect of a conventional conflict between two nuclear-armed peers has renewed consideration of the impact of nuclear arms on the dynamics between global, peer competitors.

There is a new, dangerous dynamic at the intersection of long-range conventional strikes, conflict objectives, and strategic escalation management. The strategic nuclear cliff limits states' conventional military

operations, a constraint in direct tension with the U.S. and PRC warfighting concepts. Furthermore, it insulates the strategic concerns at the core of a U.S.-PRC war from direct military action. These two states must balance grinding down the will of the other without plunging off the cliff to general nuclear war. The need to balance at the precipice of the cliff is a major force for protraction in a U.S.-PRC conflict. The cliff does not preclude conventional military operations. It defines what operations are acceptable.

The experiences of the Gulf War led militaries around the world to accept targeting paradigms that stress strategic and operational decapitation as key to rapid victory. A nation's leadership and its nuclear arsenal is at the center of "effects-based" or "system of systems" concepts to decomposing state power.<sup>153</sup> However, the strategic nuclear cliff removes such targets from consideration. If leadership is concerned with survival of themselves or their nuclear arsenal, it can create a powerful incentive for use. The "use it or lose it" proposition has been well studied by strategic scholars who have come to understand the significant escalatory pressures it creates.<sup>154</sup>

The explicit threats to information systems embedded in both PLA and U.S. operational concepts are potentially more concerning than direct decapitation strikes due to their much higher likelihood of occurring. Commingled ISR and C2 capabilities, systems with both strategic and conventional roles, create similar, yet possibly unconsidered, escalatory pressures equal to overt leadership strikes.<sup>155</sup> For example, the destruction of key ISR capabilities as part of a conventional blinding campaign creates dangerous escalation pressures if those systems supported a launch on warning concept for the strategic arsenal.

By defining the range of acceptable strikes, nuclear arms constrain the initial set of conventional military options. This subsequently creates expansionary pathways. As states are not able to strike all their desired targets at the beginning of the war, conventional escalation options remain available further into the conflict. Such options likely would not exist if states could conduct unconstrained precision strike warfare from the first day. These escalation options lead to tacit bargaining over acceptable targets as the conflict progresses.<sup>156</sup>

Nuclear escalation risks are embedded within this bargaining activity as conventional warfighting concepts are entangled with the strategic nuclear arms by intentional design, operational necessity, or both.<sup>157</sup> This entanglement limits what targets the opposing

side views as acceptable. This will have a particularly large impact on many of the information warfare concepts described here. However, it is unclear if both sides view these limits in the same ways. The combination of precision strike and nuclear escalation dynamics creates unfactored risks that, over the past 30 years, have been inappropriately segregated.

Tactical nuclear arms are a special case with related yet unique dynamics. It is not clear that the use of a tactical nuclear weapon would lead immediately to an all-out exchange. The belief in a seemingly automatic progression from tactical to strategic nuclear use, prominent during the Cold War, is questioned by the development of discrete, precision nuclear arms and associated targeting doctrines.<sup>158</sup> A risk-acceptant actor could leverage a precisely targeted, low-yield weapon to push a conflict to the very edge of the nuclear cliff, leaving the other actor with few, if any, options short of strategic escalation.<sup>159</sup> The potential for conflict expansion to the tactical nuclear domain in the pursuit of conflict termination is largely beyond the scope of this immediate paper. It is a crucial area for further study.

Ultimately, the United States and the PRC would balance conventional warfighting requirements with nuclear risks. The way these belligerents view the balance is not fixed; it changes due to tacit bargaining over the range of acceptable conventional targets. Targets that are likely to have started the conflict as off limits may become viable as the conflict continues. The desire to maintain war control through conventional vertical escalation, getting as close to the edge of the nuclear cliff as possible, drives conflict expansion. Combining the impetus for war control with the initial dampening effects of nuclear arms creates a powerful element of protraction.

### **The Gulf Between Culmination and Termination**

These three preceding characteristics highlight the gulf between military culmination, when there is nothing left to be gained by fighting, and political termination, when the political differences at the heart of the conflict are resolved.<sup>160</sup> Recent U.S. experiences against less powerful opponents have left analysts and policymakers dangerously unaware of the difference between these cases and a potential peer conflict. In most prior conflicts, U.S. operational successes were achieved short of U.S. military exhaustion. This made lesser adversaries more vulnerable to potential regime change or other compellence measures. Adversaries consequently acquiesced to U.S. political demands soon after early U.S. operational success or shifted to an array of irregular warfare approaches. The PRC likely is to be under no such pressure.

Military campaigns culminate through exhaustion or by achieving operational goals. Political aims, especially those that involve large territorial gains or changes to the international system, are achieved through a complex combination of factors, including multiple supporting military campaigns. A war between the United States and the PRC would be a limited conflict between peer competitors.<sup>161</sup> Neither side is presumed to seek the wholesale replacement of the other's ruling structure, but rather seek the constraint of the other's power or modification of their policy.<sup>162</sup> The limited nature of the conflict means termination would occur through some negotiated settlement, whether formal treaty, armistice, or some other arrangement. In this conflict, achieving military aims through military force is difficult due to elements outlined in the prior sections. Achieving political aims is even more challenging.

A bargaining model of conflict provides a foundation for showing how differences in information, perception, and interests shape termination.<sup>163</sup> Belligerents make choices with incomplete information and gain new knowledge about the capabilities and resolve of the adversary through the course of the war. The information exchange changes expectations about the outcome of the war, alters the perceived costs of fighting, and ultimately creates the conditions for a negotiated settlement.<sup>164</sup> Goals and interests evolve as new information becomes available; they are not fixed.<sup>165</sup> These changes add complexity to the termination process.

Two related mechanisms are responsible for the gulf between termination and culmination in this conflict. First, the conflict's structure and the precision strike way of war dramatically impact the information available to leaders on both sides. These impacts prevent the formation of a shared understanding and bargained resolution to the conflict. Simultaneously, cognitive factors shape how leaders react to this "poisoned" information environment in ways that bias conflict continuation over resolution. These cognitive factors help to explain why leaders on either side can react differently to receiving the same information.

The rate at which belligerents gain new information plays a major impact on the political decisions to conclude the war. Information technologies, many key parts of the precision strike revolution, seemingly supercharge this process. Social media and cell phones transport the front lines to the living rooms around the world.<sup>166</sup> This suggests that modern conflicts should end quickly as leaders rapidly and correctly understand the relative balance of power and then seek some negotiated resolution.

Experiences in Ukraine invalidate this suggestion given that conflict's protracted state. This has critical implications for thinking about a U.S.-PRC conflict. Ukraine demonstrates the illusion of technological transparency.<sup>167</sup> The perceptions of senior military and political leaders are not shaped by direct contact on the battlefield. Rather, tactical units gain information and pass it on to higher-level elements in a game of telephone. At each step, the information passed along is influenced by different perceptions, beliefs, and biases.<sup>168</sup>

Furthermore, the illusion of technological transparency is actively undermined by information warfare. Prior sections described the PLA's approach to future conflict with its heavy emphasis on corrupting information or stopping its flow between U.S. forces. The United States also is considering the importance of information warfare in future conflicts.<sup>169</sup> The Air Sea Battle concept explicitly detailed a blinding campaign that targeted PLA satellites and other sensors aimed at degrading the PLA's ISR capabilities for both offensive and defensive reasons.<sup>170</sup> PLA and U.S. approaches reduce, potentially dramatically, the absolute ability of each side to actively perceive the battlespace and gain new information. Such approaches further corrode leaders' ability to accurately understand the course of a conflict.



*U.S. and PRC leadership have engaged in periodic, often contentious diplomatic exchanges to include the March 2021 meeting in Alaska pictured here. Some negotiated settlement almost certainly would be required to end a conflict. (Frederic J. Brown/Pool/AFP via Getty Images)*

Whether due to corruption by games of telephone or by information warfare, the majority of the information that reaches senior leaders is a biased and incomplete picture of the battlefield, showing tactical success and failures, not strategic outcomes. Videos of drone strikes are an excellent example, revealing only a biased sliver of the conflict. Leadership does not gain new, accurate knowledge about the adversary's overall capabilities and resolve nor understand attrition and effectiveness. Perceiving which side is winning or losing is tremendously difficult when provided with only parts of the overall picture.<sup>171</sup> These aspects prevent the formation of a shared understanding of the conflict, which is necessary for termination to occur.

Additionally, cognitive factors shape leadership reactions to the imperfect information they do receive in ways that further hinder termination. Prospect theory, a theory of human decision-making, provides useful tools for translating perception into action. This theory argues that actors are more likely to accept risk when losing than when winning.<sup>172</sup> Understanding where actors see themselves on this continuum is vital to understanding their behavior.<sup>173</sup> The imperfect nature of the information reaching leadership means that they may perceive themselves to be winning when actually losing, and vice versa. This can be responsible for decisions that appear illogical, such as continuing a conflict, but actually conform to the axioms of prospect theory.

Prospect theory also highlights two phenomena with significant impacts on decision-making. These impacts have powerful yet unrecognized effects on protraction. The first phenomenon, the instant endowment effect, explains how actors quickly accept new gains (compared to losses) and then react to their loss.<sup>174</sup> From a conflict perspective, this can place "both parties . . . in the domain of losses and be more risk seeking than expected-utility theory would predict" as both sides experience the loss of recent military advantage not as a return to the status quo, but rather a defeat.<sup>175</sup>

The second phenomenon, framing effects, are pre-existing beliefs and biases that shape reactions to new information. Beliefs about military skill or the value of a particular weapon are good examples. The ambiguous nature of information in war is problematic as leaders and the public are more likely to believe ambiguous information in line with prior beliefs and desires. For example, if you believed in U.S. technological superiority at the outset, it may take you years to believe that your torpedoes don't work as you thought they did.<sup>176</sup>

These phenomena combine to skew leaders toward protraction especially under the previously described

imperfect, biased information environment. Leaders appear to more heavily weigh positively ambiguous information that confirms prior beliefs of military superiority.<sup>177</sup> This leads to the perception of gains and the creation of an instant endowment. Per prospect theory, any reductions from this new baseline, even if it based on a faulty understanding of the conflict, will lead to risk-acceptant leadership behavior. Cessation may even be viewed as a loss itself. While this may seem counter-intuitive, one merely needs to look at the reactions to "stopping" the Gulf War short of Baghdad as an example of this phenomenon.<sup>178</sup>

Applying these phenomena to a hypothetical U.S.-PRC conflict, one could consider simultaneous reactions to successful U.S. strikes against PRC amphibious forces and successful PRC strikes against U.S. airbases. Both sides perceive that they have achieved meaningful operational objectives and will update their perceptions accordingly. If the PRC is then successful in blunting subsequent U.S. strikes and the United States is successful at restoring airbase capabilities, both sides perceive these as losses, not a return to the operational status quo. Subsequently, they accept additional risks leading to the deepening and extension of the conflict.

The nature of modern information exchange and the impacts of information warfare inhibit leadership from accurately understanding the battlefield. Cognitive factors further impact their ability to correctly perceive the balance of power and conflict trajectory. When combined, these factors create the foundational political characteristic of conflict protraction.<sup>179</sup>

## Conclusions (or How I Learned to Stop Worrying and Accept Protraction)

**P**rotraction, more likely than not, will be a feature of any future U.S.-PRC conflict that involves the core strategic differences between the two nations. Even seemingly limited conflicts may become arenas in which both sides feel their current and/or future leadership of the international system may be at stake.

The four conflict characteristics that push toward protraction within the context of a U.S.-PRC war emphasize the integrated, multifaceted nature of protraction. In many ways, the four characteristics form a continuum beginning with the tactical and the industrial and ending with the political decisions at the root of any conflict. Better understanding how a Sino-American conflict may protract and U.S. options within a protracted conflict



requires changes to the status quo within the U.S. defense community combined with continued study. Five areas seem most relevant and urgent for the U.S. defense community: planning for “after denial,” considering different scenarios, scaling the industrial base, aligning targets, weapons, and strategy, and finally achieving humility in analysis. These are ordered from most immediate and tangible to esoteric and broad. Furthermore, these recommendations are high-level because further analysis is needed to develop more concrete steps. This study was an initial exploration of a complex and poorly understood problem and thus lacks the analytic precision necessary for that level of detail. Future efforts will provide that needed specificity.

## Recommendations

### *Plan for “After Denial”*

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There is an urgent need to expand the conversation from questions of immediate military denial toward protracted warfare approaches and what constitutes strategic victory. There remain compelling reasons to pursue operational denial at the outset of a conflict, but it does not, however, guarantee victory or foreclose the possibility of conflict protraction. The United States must move beyond denial to build a durable strategy for confronting the full scope of the military challenge posed by the PRC. By only focusing on a narrow, albeit vital, operational challenge, the United States invites strategic or operational surprise and likely forgoes other potential sources of strength and deterrence.

### *Consider Protraction Pathways Scenarios*

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Part of understanding the likelihood and impacts of protraction is to consider a wide array of different pathways that end in a protracted conflict. Unlike during the Cold War, when there was a single dominant force planning question, a larger set of plausible pathways exists between the United States and the PRC that could end in a protracted conflict. The nature of a protracted conflict is highly dependent upon how the conflict unfolds. For these reasons, there is an urgent need to consider a wide array of plausible U.S.-PRC conflict scenarios. This exploration would answer three fundamental questions. First, what are the potential U.S.-PRC conflicts that could protract? Second, how likely is each conflict to protract? Third, what is the nature of the protracted conflict that ensues? Such an effort would allow the United States to create a range of resilient deterrent strategies.

### *Scale the Industrial Base*

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The U.S. industrial base lacks the scale to support large scale, protracted combat operations. This lack of scale applies not only to munitions production but also platforms. The United States cannot reconstitute any lost combat capabilities whether through planned expenditure or attrition on timelines that are not measured in years. Following the end of the Cold War, the United States deliberately shed industrial capacity to reduce costs and reap the peace dividend. The time is past to re-scale the industrial base, broaden the potential supplier base, and explore novel pathways to increase industrial fungibility. This strategy must include approaches for greater integration of commercial and off-the-shelf capabilities to achieve the needed scale in a cost-effective manner. However, in some key areas, there will be no substitute for paying a premium to maintain wartime surge capacities during peacetime.

### *Align Targets, Weapons, and Strategy*

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Many in the strategic analysis community lack fluency in operational and tactical matters. Simultaneously, many working at the operational and tactical levels lack understanding of the strategic dynamics at play. No place is this more evident than in any discussion about munitions. Tactical decisions about what weapons to use, what targets to prosecute, and in what order have significant operational and strategic implications. Furthermore, the weapons available are a function of the delivery platform and the target characteristics. This interactive space has profound implications for everything from industrial policy to tactical employment. Helping decision-makers at all levels understand this trade space and make informed decisions is needed when considering U.S. options in protracted conflict.

### *Achieve Humility in Analysis*

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This is probably the most important of the recommendations. Conflict protraction against a near-peer competitor is more complicated than the defense planning scenarios used since the end of the Cold War. However, the analytic approaches adopted during and after the Cold War are inadequate to fully disaggregate multi-domain, global operations lasting for months to years. Strategic and campaign analysts must recognize the limitations of their tools. Analysis can reveal interesting and potentially dangerous challenges but is unlikely to provide the precision of detail in protracted conflict that many desire.

Beyond these five recommendations, this study also identified four areas for future study. These are ideas that were explored only minimally during this work. They represent key intellectual puzzles that must be solved to better understand the implications of protraction as well as the causes.

### Areas for Future Study

#### *Nuclear Brinkmanship and Conventional War*

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What limits will both sides place on their conventional operations out of fear of, or respect for, the other sides' nuclear options? There is, thankfully, limited precedent for two nuclear-armed powers engaging in high-intensity conventional conflict and no precedent for these states engaging in protracted conventional war. Within the confines of a potential U.S.-PRC war, it is not clear that the two states view nuclear arms in the same way. Strategic dialogues between the United States and Russia built a greater degree of shared understanding as to the role and impacts of these arms. It is not apparent that a similar understanding exists between the United States and the PRC. This suggests that strategic interactions between these two states are rife for misunderstanding and inadvertent escalation in the nuclear domain during a conventional conflict. Considerable work is needed to engage, if possible, with the PRC on this vital issue. Regardless of the feasibility of this rapprochement, U.S. scholars need to more fully consider the connection between protracted conventional conflicts and nuclear brinkmanship.

#### *Information Denial and Conflict Termination*

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What will the impact of information denial be on ending a conflict? Given the focus on strategic blinding and information warfare concepts, it is apparent that detailed study of the impacts of these concepts and technologies on conflict termination is required. The majority of the conflict termination literature has been focused on historical cases. There is an urgent need to extend consideration to future cases given the impact of information warfare on the political domain of conflict. Furthermore, it is unclear how ongoing technological changes will shift political dynamics during wars. How leaders and the general population perceive and understand the future battlespace—or, as the case may be, misperceive and misunderstand it—will be a determinant of the potential for conflict termination.

#### *Deterrence by Attrition and Wars of Endurance*

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How do deterrent approaches need to change to reflect that potential for long wars of endurance? The likelihood of protracted conflict between the United States and the PRC necessitates new defensive warfighting approaches and technologies to prevail in a long war of endurance. Additionally, the United States needs a model of deterrence by attrition that potentially could forestall conflict. At a minimum, this would need to demonstrate sustainable scale and resiliency in the areas of industrial production, defense in depth, and offensive sustainment. Beyond these areas, there is a need to consider how deterrence by attrition would impact leadership's willingness to go to war. Effectively shaping and winning the battle of wills between competitors in the pre-conflict stage achieves meaningful deterrent effects. These pre-conflict elements also have significant impacts on war control and ultimately termination in wars of endurance should deterrence fail.

#### *Long Wars and Competition*

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How will the next war shape the follow-on strategic competition? Wars between nuclear-armed peers are unlikely to end in the total defeat of either side. Even long protracted conflicts between two such states are likely to produce only marginal changes in the overall balance of power. This suggests that such conflicts nest within a larger period of competition. There is historical precedent for this phenomenon with the Anglo-French wars of the 17th, 18th, and early 19th centuries being the best examples. Should the unthinkable happen and the United States and the PRC find themselves in a war, it is likely that this will be the first in a larger series of conflicts seeking to address the future of the international system. In this way, U.S. strategists must consider how achieving marginal, positional gains in serial conflicts can achieve durable strategic effects and meet the systemic challenges posed by today's PRC.

The potential of a protracted, high-intensity war between the United States and the PRC is a sobering and disquieting topic. At no point should one confuse discussion and analysis of this future world with advocacy for its creation. However, it is only by looking in the dark, dangerous, and often uncomfortable corners of the current and possible future international system that we can hope to avoid them. Protracted war is the uninvited dinner guest of those who theorize about future war. Ignoring it makes it no less real.

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