Chapter 1

Introduction

By Thomas F. Lynch III

This chapter establishes the return of Great Power competition (GPC) as the fully acknowledged, dominant paradigm of interstate relations in 2017 after a 25-year absence from mainstream thinking. It establishes that competition is not synonymous with confrontation and clash and that GPC features a continuum of friendly-to-confrontational interactions between the competitors. The chapter notes the important linkage between GPC and Great Power transitions, observing that power transitions do portend greater instability and possible military clash (war). It establishes that Great Powers compete for an array of interests with a mixture of hard and soft power tools. It also defines a Great Power as one with three major characteristics in comparison to other states: unusual capabilities, use of those capabilities to pursue broad foreign policy interests beyond its immediate neighborhood, and a perception by other states that it is a major player. This makes the United States, China, and Russia today's Great Powers. After a brief introduction of the volume's 15 chapters, this chapter provides a short analytical evaluation of 4 relevant topics to contemporary GPC that cannot be addressed fully herein: space, cyberspace, homeland security, and climate change.

Great Power competition (GPC) is a framework for understanding global interstate relations that dominated global political affairs for centuries prior to World War II. Many past GPC eras have featured multiple powerful states jockeying for relative status and position. During the Cold War (1945–1991), GPC played out as a two-state competitive dyad between the United States and the Soviet Union. After lying dormant during a relatively short two-decade period of post–Cold War globalization and American international ascendance, the construct of GPC returned to the vocabulary of international relations and security studies in earnest during the late 2010s.[1]

The National Security Strategy of 2017 openly advanced the idea that America and fellow Great Powers, Russia and China, had transitioned formally from a more than 20-year period of collaboration and cooperation into one of competition.[2] In Washington, DC, 2017 was the year of fully acknowledged Great Power rivalry.[3] The National Security Strategy simultaneously identified three additional threats to U.S. security: North Korea, Iran, and transnational terrorist and criminal organizations, but it clearly focused American security

> "China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity. They are determined to make economies less free and less fair, to grow their militaries, and to control information and data to repress their societies and expand their influence. . . . These competitions require the United States to rethink the policies of the past two decades—policies based on the assumption that engagement with rivals and their inclusion in international institutions and global commerce would turn them into benign actors and trustworthy partners. For the most part, this premise turned out to be false."
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> —National Security Strategy of the United States of America, *December 2017*

and future prosperity on the ability to compete with the two emerging Great Powers headquartered in Moscow and Beijing.[4]

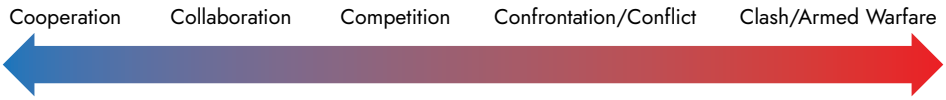
The United States National Defense Strategy of 2018 defined the central challenge to U.S. and Western prosperity and security as the reemergence of long-term strategic competition with those it classified as "revisionist powers," particularly Russia and China.[5] It also observed that the emerging security environment would now be characterized by rapid technological advancements and a changing character of war. Specifically, technological changes would both broaden and unhelpfully blur the lines of competition and conflict.[6]

Debates about the meaning and relevance of GPC have been prominently featured in strategic discussions from 2017 to 2020. Beneath the surface of these discussions lurks another historic feature of GPC: *Great Power transition*. Transition is concerned with differential state growth rates and the impact on relative power between and among the states. A transition of differentiated power levels generates new relationships and the formation of new political and economic entities. One byproduct of differential state growth is a high potential for conflict when a challenger (or challengers) to a dominant country approaches the stage of relative equivalence of power, and specifically when the challenger is dissatisfied with the status quo.[7]

Strategic analysts and political scientists have haggled over the precise definition and detail of *greatness*, *power*, and *competition* in a raft of literature.[8] A complete analysis of these debates and disputes is beyond the scope of this volume, but a few elements of these debates are important to set the scene for the chapters that follow.

First, competition is not synonymous with conflict. To a worrisome degree, some Western pundits have begun to conflate competition with clash, asserting that most if not all interactions between and among the three contemporary Great Powers must now be confrontational or even more extreme.[9] Students and policy practitioners of this new era need to be mindful that competition exists on a continuum of interactions among states, nonstate actors, and some super-empowered individuals (see figure 1.1). On one end of the spectrum is cooperation. *Cooperating states* are exceptionally aligned in geopolitical goals and means of achieving them, thus able to pursue means of attaining them harmoniously. *Collaborating states* have similar goals and a general agreement on the means of achieving them. *Competing states* recognize that some, but not most, of their major goals are compatible and simultaneously disagree on the best means for attaining mutual gains in their remaining aligned goals. *Confrontational states* are characterized by incompatible aims in almost all major goals and in general conflict about what constitutes legitimate means for attainment of national goals. On the far end of the interaction continuum is the undesirable

Figure 1.1. Continuum of Major State Interaction Postures



environment where state goals are perceived as so incompatible, and even threatening, that the dominant form of state-to-state interaction devolves into armed conflict.[10]

As it exists on a continuum of interactions, competition features elements of collaboration and some aspects of cooperation. At the same time, competition is not conflict, and it is definitely not a clash between states (or armed warfare). And yet the ongoing move toward a competitive-dominant interactive framework among the three most mighty states and several others in the new era of GPC interweaves more elements of conflict and confrontation into competition and more preparations for clash than witnessed in recent history. Recent history was dominated by a preference for cooperation and collaboration among the major states of the post–Cold War era—an era that came to be known in some circles as an ascent of a liberal international order.[11] This volume proceeds from the perspective that the emerging era of GPC, while not exactly the same as previous eras with two or more competitive powers, now features three dominant states with robust capabilities in the major areas of power interactions. These states have moved from a phase of generally cooperative and collaborative interactions to those now dominated by competitive and confrontational dynamics.[12]

Second, power is a multifaceted construct having to do with a state's ability to attain its aims vis-à-vis another. Max Weber defined the essence of *power* as the "probability that one actor within a social relationship will be in a position to carry out his own will despite resistance."[13] Power has absolute, relative, and transitional properties. Scholars have long referred to power as relative to the type of actor, the goals the actor seeks, and the kind of relationships at play. Assessing relative power between states is an inherently challenging task.[14] Power exists in two major dimensions: hard power (or the *coercive* use of military power and leveraging economic power as a *payoff*) and soft power (which includes cooperative and collaborative interactions that attain influence by *attraction*: partnered economic arrangements, ideological appeal, cultural and social engagements, diplomatic acumen, and reciprocal information exchanges).[15] The term *smart power* is sometimes today used for policy choices that display an effective mix of coercive hard power and the persuasion and attraction of soft power in the pursuit of national interests.[16] More recently, the term *sharp power* has become vogue as a phrase to describe state actions that twist soft power attributes in a manipulative or confrontational manner, especially the co-option of culture, educational institutions, media, and entertainment interactions by one state in a manner aimed to undermine or severely distort the political system or social order of another.[17] The contributors in this volume provide thoughts on these different kinds of power and their relevance to the competition between the Great Powers today. Contributors also indicate the role of these kinds of Great Power relationships with other countries and global institutions.

Third, the notions of what constitutes "greatness" as an actor on the international stage are addressed in an operational manner throughout the majority of this volume. The framework of GPC tacitly acknowledges that not all players in the international arena of today are

as equally important as the others. At the same time, Great Powers act on and interact with international entities, states, nongovernmental actors, and critical individuals (such as Apple's Tim Cook, Tesla's Elon Musk, or Virgin's Richard Branson) in a manner that critically impacts the prospects for relative gain and relative loss in the varying areas of competition between them. An operationalized definition for a Great Power state has three substantive features: capabilities, behavior, and status attribution by other states in the system. First, a Great Power is a state that has unusual capabilities—in comparison to other states—with which to pursue its interests and to influence interstate relations. Second, a Great Power uses those capabilities to pursue broad foreign policy interests beyond its immediate neighborhood. Finally, that state's relative status is perceived by other states to be major in nature, and the other states act toward that state accordingly.[18] Using this operational definition, this volume—for the most part—considers there to be three Great Powers in the contemporary era: the United States, Russia, and China.[19] Only in chapter 10 is there analysis of Russia as though it is not a contemporary Great Power.

Intent, Audience, and Contributors

This volume provides a succinct, expert, and nuanced understanding of important emerging dimensions of GPC today. It primarily focuses on the critical interactions and activities among the United States, China, and Russia. It simultaneously develops many of the major implications of these interactions for other state and for nonstate actors and processes. Therefore, its analyses and recommendations are generally framed for the years from 2020 to 2025. The speed and pace of change in global power relationships and activities requires an update of credible analysis by mid-decade. Indeed, impactful events such as the 2019–2020 novel coronavirus (COVID-19) pandemic will generate important changes that are beginning to take shape only as this volume is published.

As begun in this chapter, contributors provide readers with text, analysis, and notes that reference primary documents and sources to the fullest extent possible. Where such sources are not available, the contributors cite and then note for reference the most prominent and influential secondary sources and analytical pieces available in the field. The volume is designed to enable each reader to gain access to the best and most relevant writings on the topics of contemporary GPC.

The volume is written with chapters that are short, are self-contained for standalone use, and tie back to the central themes of GPC developed in early chapters (chapters 2–4). Each chapter and the overall elements of the volume's key findings and conclusions are for graduate-level students within professional military institutions, graduate students in civilian political science and national strategy programs, and mid- to upper-level career civil servants in the U.S. interagency community and other security establishments. Volume editors and authors hope that individual chapters and combinations of chapters will be of use to students and policy practitioners both in an academic setting and for personal study and understanding.

The contributors include many who have been directly engaged as thought leaders and policymaking pioneers grappling with the emerging contours of GPC. One contributor helped write the 2018 National Defense Strategy, working on that project directly for then–Secretary of Defense James Mattis. Another contributor has served as a subject matter

expert and consultant to U.S. Cyber Command. Two others are regular consultants and advisers for military and civilian U.S. Government organizations focusing on strategic deterrence and weapons of mass destruction. Others have served across the U.S. military and wider interagency community and intelligence organizations as subject matter consultants and as red-teaming leaders on China—providing uniquely informed insights on the key dimensions of China's rise and interaction on the world stage. One contributor has been instrumental in developing U.S. and allied military leaders' understanding about the future of terrorism and counterterrorism in an era of GPC. Two of the main chapter contributors have provided direct analysis and recommendation about the implications to the U.S. military from the emerging GPC dynamics across South Asia, the Middle East, and the Indo-Pacific region. Last, one contributor has been a leading public voice for understanding how the competitive space of social media has become and will continue to evolve as a critical nexus between Great Powers and their surrogates—aiming to generate power and influence in the emerging era.

Each chapter includes original author research, analysis, and insights—much of it generated from direct contact with senior U.S. Government policymakers and other global security leaders. Some chapters include text drawn from pieces the contributors have published elsewhere in recent years. All chapters feature original, updated analysis and insights for understanding GPC in the specific period from 2020 to 2025 and beyond.

Sections and Overviews

This strategic assessment of the new era of GPC is organized into 4 discrete sections and a total of 15 numbered chapters that include a couplet chapter, chapters 3a and 3b.
The first section focuses on conceptualizing this new era of GPC. Its four chapters undertake a focused assessment of historic cases of Great Power rivalry among three or more parties and generates important lessons for the current era. It then provides an overview of the major geostrategic dynamics and technological competitive aspects of the present Great Power rivalry among China, Russia, and the United States.

Chapter 2 takes a short, focused historical look at past eras of GPC. Thomas Lynch and Frank Hoffman survey the major understandings of Great Power identities and transitions in historic eras of GPC. From this survey, they conclude that past eras featuring major power transitions trended toward direct military clash (war) between the rising and declining state absent an atypical exercise in sage Great Power leadership. They also develop five universally applicable aspects/categories of interstate competition and the competitive elements in each: political and diplomatic, informational, ideological, military, and economic. The authors then apply these categories to an analysis of the dynamics of major state competition in four GPC case studies, focusing on the most critical dyadic rivalries in each: France–the United Kingdom (UK) (late 18th and 19th centuries), UK-Germany (late 19th and 20th centuries), the United States–UK (late 19th and 20th centuries), and the United States–Japan (early 20th century). All were contested in eras of multiple Great Power rivals with one ascendant Great Power worried about relative power decline in the face of at least one rising challenger and under conditions of emergent, disruptive technological change. Thus, they are cases with strong parallels to current GPC. The chapter concludes with a

summary of major insights and a framework for analysis of contemporary GPC tethered to relevant historical vignettes.

Chapter 3a looks at contemporary Great Power geostrategic dynamics in light of declared strategies and revealed strategic preference forces. It focuses on the main strategies and relationship dynamics among the United States, China, and Russia in 2020; how these dynamics developed; and where they should be anticipated to evolve by 2025. Phillip Saunders and Thomas Lynch utilize the five key categories of interstate activities important in past GPC eras developed in chapter 2 to assess the most critical aspects of emerging competitive postures and strategies of the three Great Powers. The authors make an analytic evaluation of relative strategic interest force by the Great Powers in various regions of the world, indicating how these could impact forthcoming GPC dynamics.

Chapter 3b extends beyond chapter 3a by analyzing contemporary GPC dynamics from the perspective of state power assets and the tool sets available to the three Great Power protagonists—evaluating their objective means to achieve the strategic preferences established in chapter 3a. Utilizing the main competitive elements defined in the five key categories of past GPC eras developed in chapter 2, the authors provide an array of quantitative and qualitative measures that evaluate the main power dynamics at play between the contemporary Great Powers. They assess Great Power relative present strengths and future trajectories. Chapters establish that—for the foreseeable future—Russia's tool kit makes it an urgent but transient security challenger to the United States, while China's growing power tools make it the long-term challenger to American national interests and global policy preferences.

Chapter 4 takes a focused look at contemporary Great Power competition through the lens of technological competitive factors central to the ongoing fourth industrial revolution. This revolution describes the blurring of boundaries among the physical, digital, and biological worlds. It is a fusion of advances in artificial intelligence (AI), robotics, the Internet of Things, 3D printing (additive manufacturing), genetic engineering, quantum computing, energy, and biotechnology. Authors T.X. Hammes and Diane DiEuliis trace these technologies that most impact GPC in the short term and explain the importance of each individually. They also describe how together these technologies will revolutionize the global economy. The authors then indicate how these factors impact the economic growth potential and the relative strategic interests and power positioning of the three Great Powers.

The second section of the book takes up from chapter 4 with a featured focus on the critical dynamics of technology, innovation, and the evolving character of war in a new era of Great Power competition.

In chapter 5, T.X. Hammes begins this four-chapter part with specific attention to key technologies that are leading to a revolution of small, smart, and cheap in emerging warfare. He focuses on the important role of autonomous weapons. Hammes also tackles some dimensions and implications of hypersonic weapons for GPC and conflict. He concludes with thoughts about how small, smart, cheap, and super-fast weaponry will impact the dynamics of defense competition in the coming 5 years and, perhaps, the possibility of Great Power conflict in the distant future.

Chapter 6 looks directly at the emerging impact of AI, quantum computing, and 5G wireless technologies for GPC. Richard Andres explains that where control of industrial resources was once key to geopolitical power, today control of information resources is the

most important factor. The chapter examines the Sino-American competition in these critical technologies and explains why China's state-led ascent in them is a serious challenge to American power and a key element of the ongoing GPC.

Chapter 7 addresses the contemporary dynamics and strategic implications of social media that influence operations technologies for Great Power competition and conflict. Todd Helmus of RAND explains why foreign propaganda campaigns on social media platforms have become prolific. The chapter reviews how three key U.S. adversaries—Russia, China, and the so-called Islamic State—have exploited modern technologies to attain political objectives. It evaluates the aims, capabilities, and limitations of online propaganda practiced by each of these American adversaries, concluding with recommendations for the United States to counter their use of online propaganda in the new era of GPC.

Chapter 8 focuses on weapons of mass destruction (WMD) and strategic deterrence in the emerging era of GPC. Paul Bernstein and his co-authors assess the prospects for nuclear competition between the Great Powers and the potential role of biological and chemical weapons in Russian and Chinese strategies for various forms of competition and conflict. They identify both geopolitical and technology drivers of future competition in WMD and the steps the United States should take to manage strategic and operational risk in this important and potentially volatile area of GPC.

The third section of this strategic assessment examines selected geostrategic interactions in the new era of GPC.

Chapter 9 examines the Indo-Pacific competitive space—perhaps the most contentious geopolitical region in the emerging GPC era. Thomas Lynch, James Przystup, and Phillip Saunders develop American and Chinese strategic visions for the region, formerly described as the Asia-Pacific. They highlight the divergence of strategic interests between America's "Free and Open Indo-Pacific" vision and China's "community of common interest" framework. Then the chapter conducts an analytical comparison of relative Chinese and American strengths in the competitive categories of political and diplomatic, ideological, informational, and military and economic. The analysis reveals a mixture of relative power advantages, indicating that despite growing regional tensions between the two Great Powers, there are opportunities to both secure stability and pursue selected collaboration if both parties identify and accept their relative power limitations.

Chapter 10 takes a direct and comparative look at Russia, North Korea, and Iran as a grouping of "rogue, disruptive, and spoiler states." In doing so, the chapter treats Russia in a manner that diverges from its treatment in other chapters, and more like those contemporary scholars who view Moscow as more of a nuclear weapons–led, muscle-bound declining state with a disruptive rather than a constructive global worldview.[20] The chapter develops key motivations and activities for rogue state activities and the new era of GPC. It explains why Russian, Iranian, and North Korean provocative behaviors are not uniformly harmful to the United States or beneficial for China. It further elucidates that the prospect of a robust and fully cooperative anti-U.S. rogue axis remains remote. It recommends appropriate U.S. strategic principles to meet these rogue state realities in a new era of GPC.

Chapter 11 addresses the future of counterterrorism missions by the U.S. military in the era of GPC. Kim Cragin and her co-authors assess that, over the next 3 to 5 years, Great Power competition likely will constrain the ability of U.S. forces to achieve even limited

counterterrorism objectives. They explore the insights from America's recent counterterrorism experiences in Syria—where Russia was extensively involved—demonstrating that lessons from that experience inform the future of U.S. counterterrorism operations. The chapter then explores the long-lasting regional rivalry between Iran and Saudi Arabia, explaining how this contest will exacerbate future threats to the United States from violent extremist organizations (VEOs). Then it demonstrates how Australia and similar countries might help reduce VEO risks to the United States, even as Washington shifts strategic priorities toward GPC. The chapter finally summarizes the VEO risks that America's military should prioritize and the new authorities and technologies it should pursue for counterterrorism success in GPC.

Chapter 12 asks the question, "Whither Europe in the era of GPC?" Steven Kramer and Irene Kyriakopoulos trace Europe's recent history: its lost promise, its major troubles, its relations with the three contemporary Great Powers, and its potential for evolution and regeneration. The authors explain how Europe in 2020 is a region troubled by recent financial, migration, and pandemic crises and one questioning the future of the transatlantic security alliance. They document the resilience of Europe in the face of these troubles and provide an understanding of how the experiment of post–World War II Europe should be expected to evolve between now and 2025.

Chapter 13 concludes the third section with a look at the competing visions and activities for the Great Powers in several critical regions of the world: the Middle East, Africa, Latin America, and the Arctic. Bryce Loidolt and his co-authors take an analytical look at the strategies and impacts of Chinese and Russian competitive activities across these regions. They trace regional receptivity to and potential repercussions from them. The chapter finds that the challenges posed to the United States are rarely grounded in an ideological commitment to Beijing's global vision or Moscow's cynicism. This points to the need for American regional strategies that appreciate the diverse challenges that China and Russia pose and American approaches that avoid pulling important U.S. regional partners into an unrestricted zero-sum competition.

The fourth section of the book features two chapters that ask "for what" and "how best" can the United States prepare to compete successfully in the era of GPC.

In chapter 14, Frank Hoffman provides a framework for thinking about U.S. competitive alternatives for the emerging era of GPC. He sketches out the elements of five possible strategy alternatives for the United States with its primary competitor, China. He reviews the key features of one collaborative alternative (bilateral bargain), two mainly competitive alternatives (managed competition and enhanced balancing), and two predominantly confrontational ones (compression and contested primacy), focusing on each one's suitability, feasibility, and sustainability. The chapter details how each alternative leverages relative American and Chinese strengths and weaknesses and the international and domestic support likely for each. The author concludes that an American strategy of "enhanced balancing" best prepares America for successful competition with China.

Chapter 15 concludes the volume with a short summary and substantive extension of major insights about GPC. Thomas Lynch evaluates the main features of evolving GPC. He then situates major contemporary GPC dynamics in the context of past periods. The chapter offers an interim assessment about what the COVID-19 pandemic will mean for

dominant GPC trends, assessing that these are likely to accelerate rather than be supplanted by new ones. The chapter flags three main imperatives for U.S. competitiveness in the Sino-American dyadic rivalry, especially the wise choice of strategic allies and partners. It concludes with a historically framed assessment of four important dynamics for American success in a long-haul competition with China: firmness with flexibility, prioritization of partnerships and alliances, confronting China's leaders rather than its people, and playing for time.

Finally, this volume features two appendixes. The first appendix is a selected bibliography of critical documents, books, and articles featured within book chapters. The second is an original, Web-only selected database compiled in the research for this volume titled "Contemporary Great Power Dynamics." This modest catalogue of focused data provides readers with a ready reference for nine of the most significant quantitative indicators of relative state status (gross domestic product [GDP], GDP per capita, composite index of national capability, population, birthrate, level of industrialization, percentage of global financial markets, and innovation rank). Each indicator is provided for the three contemporary Great Powers and five other states. This data is measured for 7 different years between 1980 and 2025. Some of this data is assimilated and assessed in chapter 3b. Mainly, this appendix is intended as a one-stop reader resource for follow-on investigations and as a living document that will be updated periodically by the research team in the Institute for National Strategic Studies at the National Defense University. The Contemporary Great Power Dynamics Matrix can be found at the following URL: https://ndupress.ndu.edu/Contemporary-GPC-Dynamics-Matrix/.

Important GPC Topics Without Individual Chapters

There is no way to cover all the rich and varied topics that might be addressed in a full assessment of the new era of GPC. Reader attention could not be expected to withstand a barrage of separate chapters on every potential topic of relevance in a single volume. As a consequence, there are some interesting topics involving GPC that could not fit into these pages as standalone contributions. Many such topics are mentioned in context within several chapters, including the emerging implications of the COVID-19 pandemic. All also are covered in an authoritative manner in other publications. Among these, four topics stand out for specific mention and reader attention: space, cyberspace, homeland security, and climate change. It is likely that these topics will evolve significantly over the next half-decade—generating worthy chapter topics for the final years of the 2020s. For now, this chapter flags some key elements in these areas for contemporary Great Powers. It also offers readers some detailed reference sources that provide more insight into how these areas now impact emerging GPC.

Space

The United States and the Soviet Union competed in space for decades during the Cold War. After a two-decade period of U.S.-Russian space cooperation and relative absence of Chinese space activity, outer space has once again become a key location for measuring relative power and conducting GPC.[21] In early 2019, echoing calls for a U.S. Space Force, then–Chairman of the U.S. Joint Chiefs of Staff General Joseph Dunford reiterated the need

for the Nation to be intensely engaged on all five interactive domains (land, sea, air, space, and cyberspace) to stay competitive with Russia and China.[22] Currently, NASA is working on a Moon-to-Mars mission that, in theory, will give the United States a more competitive edge.[23] Despite an evolving competition, the United States remains tethered to a cooperative and codependent framework of working with Russia in space. As of 2020, Washington still uses the Russian Soyuz system to bring astronauts to the International Space Station, and the Lunar Gateway program remains a joint U.S.-Russian effort to ease access to the Moon.[24]

Meanwhile, during a reorganization of its military in 2015, China created a "space force" aimed at operating satellites and running counterspace missions, including a homegrown GPS system named the Beidou Navigation Satellite System, which has grown from 1 to 54 satellites from December 2011 to March 2020.[25] In 2019, former U.S. Acting Defense Secretary Patrick Shanahan stressed that Russia and China have weaponized space and that the United States now must join suit.[26]

A growing number of space-capable nations are filling Earth's orbits with a high volume of satellites contesting a shrinking number of orbital spaces.[27] In addition to the three Great Powers, seven other states in 2020 are reported as developing or considering the development of one or more types of counterspace systems.[28] Intensifying GPC is a driver of antisatellite (ASAT) development and use, including high-profile tests by India in 2019 and a series of them by Russia including one in April 2020.[29] Recognized norms, standards, and treaties do not exist to divvy up the limited volume of space or to regulate the risk from ASAT proliferation. The absence of a multilateral cooperative framework for Great Power interactions in space makes it more likely that competition may beget confrontation in this medium.[30]

Cyberspace

The pursuit of competitive advantage and confrontational dominance extends far outside the arena of conventional warfare. Cyberspace has emerged as a new Great Power battlespace and has motivated the United States, Russia, and China to develop their own cyber attack and defense capabilities.[31] The current U.S. Defense Cyber Strategy is aimed at preventing aggressive actors, specifically Russia and China, from conducting campaigns that impact the United States and its allies.[32] U.S. Cyber Command has focused efforts on thwarting clandestine Russian intelligence and civilian proxy agent interference like that which occurred during the 2016 U.S. national elections.[33] Chinese cyber espionage historically has been aimed at the U.S. commercial sector, but Beijing's 2015 military strategy placed increasing cyber emphasis on domestic security—protecting its infrastructure from foreign interference and allowing its military to integrate further with the technological scene.[34] Russian cyber operations are more aggressive and aimed at laying the groundwork for future major military and infrastructure disruptions.[35]

The cyber medium for competition will become increasingly important to defend as Great Power dynamics drive greater and more sophisticated cyber innovations.[36] Chapter 6 provides some important analysis about the wide-ranging dynamics of GPC in cyberspace. But chapter 6 is limited by the need to address additional critical factors involving computing automation, AI, and big data analytics.[37]

Homeland Security

The dominant construct for homeland security during the past 30 years has been that of defense from catastrophic terrorist attack. From the 1990s through the early 2010s, only the very latent risk of unforetold nuclear exchange between the United States and Russia stood outside the dominant paradigm of homeland protection from the threat of terrorism. With the dawn of openly announced GPC, the straitjacket on homeland security thinking has been removed. As North Korea launched nuclear-capable missiles in 2017 with a range to threaten the United States (and interestingly also Moscow and Beijing), the prospects for other nuclear weapons–capable states to attain global reach came astride as a major feature of the new global order.

Simultaneously, targeted cyber and social media activities against military, national, and civilian infrastructure capacity became—during the 2010s—a more substantive threat with ongoing homeland security implications. Finally, the emergence of unmanned platforms capable of operations against targets inside a national sovereign space launched from outside platforms on the ground, at sea, in the air, and from space are becoming far more significant than even a year or two ago. The 2018 National Defense Strategy states that "the homeland is no longer a sanctuary," and "[d]efending the homeland from attack" is the number one defense objective listed for the United States as new threats develop on both private and public fronts.[38] Russian and Chinese views on this also are changing, with Beijing looking inward toward bolstering social and economic stability and Chinese Communist Party dominance.

While chapters in this volume address many of the GPC competitive dynamics with homeland security implications—including those involving nuclear weapons, biochemical weapons, unmanned platforms, and social media—there are several other new dynamics at play in the rapidly evolving construct of homeland security in an era of GPC.[39]

Climate Change

Over the past decade, the multifaceted implications of climate change and humankind's role in that change have grown in salience while remaining contentious. Fossil fuels, textiles, plastics, and meat production industries have been placed under scrutiny for generating high levels of carbon pollutants damaging to water sources, the air, ambient temperatures, and the wider ecosystems they touch. While some countries and leaders resist the science attributing human activity for climate change, others contend that our world is in a climate emergency.[40] Younger generations have become increasingly animated, with some ascribing "climate change anxiety" to the idea that many of the world's youth under 30 are anxious about the impending doom of wider Earth ecosystems during their lifetimes.

Almost 5 years ago, in December 2015, 175 of the world's governments adopted the Paris Climate Agreement to arrest increasing man-made stressors on the Earth's ecosystems. The Paris Agreement focused on keeping global warming below 2 degrees Celsius by capping and apportioning greenhouse emission percentages among the signatory nations. That agreement resulted from two decades of international negotiations, but unanimous consensus about the urgency of the problem or the imperative for significant restraint of human activities remained elusive.

China and the United States are the world's biggest economies and also the biggest consumers of global natural resources and polluters.[41] China is the world's largest polluter, producing 30 percent of global carbon emissions.[42] It signed and ratified the Paris Agreement in 2016 but remains the country most obviously afflicted by growing climate challenges. More than a half billion of its citizens live near oceans and face rising sea levels. Major Chinese cities are overwhelmed by smog and other air pollution requiring face mask protection and threatening pulmonary health. Chinese rivers have been ruined by decades of unregulated toxic waste.[43] The United States is currently the second worst polluter, producing 15 percent of global carbon emissions.[44] In 2017, the Trump administration announced its intention to quit the Paris Agreement and began the year-long process of withdrawal in late 2019. Absent a change in policy, the United States will exit the agreement in November 2020. America's carbon emissions percentage is projected to increase after its planned Paris Agreement exit.[45] Russia is the world's fourth largest producer of global carbon emissions with nearly 5 percent of the total.[46] In 2019, Russia finally ratified the Paris Agreement after a 3-year delay. But as of early 2020, Russia has not taken any actual measures to reduce greenhouse emissions. The government initially attempted to take small measures by imposing emissions quotas, but the Russian Union of Industrialists and Entrepreneurs lobbied against these measures and prevented their implementation.[47]

The World Health Organization states that climate change is an evolving human health crisis, slower moving but no less ominous than deadly pandemics for the future of global prosperity and stability.[48] The economic and security implications of accelerating climate change on land, at sea, and in the air are only now coming into view. Over the coming years, the changing climate will shape Great Power natural endowments and national security in at least three important ways.[49] First, rising global temperatures will affect resource availability. The changes will shift productive agriculture toward the Earth's poles while making crop growth more difficult near the equator. Russia and Canada may be relative winners in new arable land, but uncertainties remain. Second, as the world transitions from fossil fuels to renewable energy sources, the relative importance of carbon resources will shift. Here, the United States has an inherent advantage over China, but less so with Russia. Third, as the Great Powers—and especially the United States and China—jockey for the competitive edge in high-tech industries and renewable energy technology, competition over critical mineral resources in major producing countries such as Australia, Brazil, Chile, Congo, and South Africa will intensify.

It remains difficult to predict precisely how climate change will impact Great Power competition into the future. Although natural endowment factors altered by climate change could become a point of contention between the United States and China, increasing risk of confrontation, these factors may also become a source of collaboration and cooperation. Washington and Beijing could work together on critical minerals, including research and development on less destructive ways to mine and refine these materials. Moreover, as climate change challenges agricultural productivity worldwide, international cooperation and trade could play an important part in adapting to changing conditions.[50] Only one thing seems certain: Climate change will matter to new patterns of Great Power competition. Greater clarity about the dominant patterns will be present by mid-decade. Moreover, there are other major climate change factors influencing the dynamics of GPC in the emerging era.[51]

Transitions

This volume now turns to framing the backdrop for a new era of Great Power competition. Its first section sketches the key areas of historic GPC and assesses lessons from four representative past eras. Then in two "couplet" chapters, the section takes a look at contemporary GPC geostrategic dynamics, major power strategies, and available resources for competition. The section finishes with a chapter about the impact of emerging, revolutionary technological factors influencing the dynamics of emerging GPC.

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Notes

[1] For examples, see Robert Kagan, *The Return of History and the End of Dreams* (New York: Vintage Books, 2009); Aaron L. Friedberg, *A Contest for Supremacy*: *China, America, and the Struggle for Mastery in Asia* (New York: Norton, 2011); John Mearsheimer, *The Tragedy of Great Power Politics* (New York: Norton, 2014); Shivshankar Menon, "How Great Power Competition Has Changed," Brookings, May 4, 2015, available at <https://www.brookings.edu/blog/order-from-chaos/2015/05/04/how-great-power-competition-has-changed/>; Max Fisher, "The New Era of Great Power Competition," *Vox*, April 13, 2016, available at <www.vox.com/2016/4/13/11421352/ash-carter-deterrence-power-competition>; Uri Freidman, "The New Concept Everyone in Washington Is Talking About," *The Atlantic*, August 6, 2019, available at <www.theatlantic.com/politics/archive/2019/08/what-genesis-great-power-competition/595405/>.

[2] *National Security Strategy of the United States of America* (Washington, DC: The White House, December 2017), 2–3, available at <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

[3] *Rivalry* is the relationship between two or more actors (states) who regularly compete, while *competition* is the action taken to contest ascendance in a particular field. Rivalry describes the reciprocal competition between two or more states for ascendance.

[4] *National Security Strategy of the United States of America*, 2–4.

[5] *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* (Washington, DC: Department of Defense, 2018), 2, available at <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

[6] *National Security Strategy of the United States of America*, 4–5.

[7] Ronald L. Tammen, Jacek Kugler, and Doug Lemke, "Power Transition Theory," Trans-Research Consortium Work Paper #1, December 2011, available at <https://static1.squarespace.com/static/576ef1a0be65941edd80fcf7/t/578d56e22e69cfbb1192c4cf/1468880611440/Power+Transition+Theory.pdf>. For a detailed look at power transition theory, see A.F.K. Organski, *World Politics*, 2nd ed. (New York: Knopf, 1968); A.F.K. Organski and Jacek Kugler, *The War Ledger* (Chicago: University of Chicago Press, 1980); Jacek Kugler and Douglas Lemke, eds., *Parity and War: Evaluations and Extensions of the War Ledger* (Ann Arbor: University of Michigan Press, 1996). Related transition theories of hegemonic decline and global cycles are found in Robert Gilpin, *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981); George Modelski, *Long Cycles in World Politics* (New York: Palgrave Macmillan, 1987), respectively.

[8] Thomas J. Wright, *All Measures Short of War: The Context for the 21st Century and the Future of American Power* (New Haven: Yale University Press, 2017); Ali Wyne, "America's Blind Ambition Could Make It a Victim of Global Competition," *The National Interest*, February 11, 2019, available at <https://nationalinterest.org/feature/americas-blind-ambition-could-make-it-victim-global-competition-44227>.

[9] For examples of this tendency in 2018–2020, see Geoff Hertenstein, "DIME Without the 'M' is DIE: A Case for Conventional Military Power in Modern Strategy Discourse," *Strategy Bridge*, September 22, 2019, available at <https://thestrategybridge.org/the-bridge/2019/9/22/dime-without-the-m-is-die-a-case-for-conventional-military-power-in-modern-strategy-discourse>; Nikki Haley, "How to Confront an Advancing Threat from China," *Foreign Affairs*, July 18, 2019, available at <www.foreignaffairs.com/articles/china/2019-07-18/how-confront-advancing-threat-china>; Matthew Kroenig, *The Return of Great Power Rivalry* (Oxford: Oxford University Press, 2020).

[10] This continuum is an original construct for this volume. It was developed from several major writings on the range of major state-to-state interactions, especially those found in Charles Glaser, *Rational Theory of International Politics: The Logic of Competition and Cooperation* (Princeton: Princeton University Press, 1986); Robert Jervis, "Cooperation Under the Security Dilemma," *World Politics* 30, no. 2 (January 1978), 167–214; Robert Koehane, *After Hegemony* (Princeton: Princeton University Press, 1984), 51–52; Kenneth N. Waltz, "Structural Realism After the Cold War," *International Security* 25, no.1 (Summer 2000), 5–41.

[11] See G. John Ikenberry, *Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order* (Princeton: Princeton University Press, 2011), especially 35–75, 132–145. For a discussion of how the liberal international order has been used as a shorthand for three separate but related phenomena—the creation of a rules-based order enshrined in institutions, the establishment of alliance relationships with the United States as security guarantor, and the propagation of liberal values—see "Is There a Liberal International Order?" *Strategic Survey 2018: The Annual Assessment of Geopolitics* (London: International Institute for Strategic Studies, 2018), 23–32.

[12] This approach differs from the one advanced by RAND analyst Michael Mazarr and his colleagues that focuses on separate Great Powers or major players. The major analytical difference is established in the paragraph after next with an operational definition of what constitutes a Great Power. For the RAND take on why contemporary global interactions do not qualify as a period of Great Power competition, see Michael J. Mazarr et al., *Understanding the Emerging Era of International Competition: Theoretical and Historical Perspectives*, RR2726 (Santa Monica, CA: RAND, 2018).

[13] Max Weber, cited in Isidor Wallimann, Nicholas C. Tatsis, and George V. Zito, "On Max Weber's Definition of Power," *The Australian and New Zealand Journal of Sociology* 13, no. 3 (December 1977), 231–235, available at <https://doi.org/10.1177/144078337701300308>.

[14] This challenge dates to the philosophical writings of Sir Francis Bacon and his construct of scientific knowledge as the necessary essence of political power. See Timothy Paterson, "The Secular Control of Scientific Power in the Political Philosophy of Francis Bacon," *Polity* 21, no. 3 (Spring 1989), 457–480. Estimating state power—particularly relative military power—continues to be a subject of deep discussion and debate. See A.W. Marshall, *Problems of Estimating Military Power* (Santa Monica, CA: RAND, 1966), available at <https://www.rand.org/pubs/papers/P3417.html>.

[15] The most resonant operational definitions of *hard power* and *soft power* are best developed in two books by Harvard political scientist Joseph Nye, Jr. See *Bound to Lead: The Changing Nature of American Power* (New York: Basic Books, 1990); *The Paradox of American Power* (London: Oxford University Press, 2002).

[16] The term *smart power* was coined by Nye in the early 2000s to respond to what he identified as a growing misperception that his writings asserted that soft power alone could produce effective foreign policy, as he explained in "Get Smart: Combining Hard and Soft Power," *Foreign Affairs* 88, no. 4 (July/August 2009).

[17] *Sharp power* has been developed and promulgated by U.S. National Endowment for Democracy employees Christopher Walker and Jessica Ludwig and focused mainly on what they view as the deliberate efforts of China and Russia to craft this new category of power. See Christopher Walker, "What Is 'Sharp Power'?" *Journal of Democracy* 29, no. 3 (July 2018), 9–13; Christopher Walker, Shanthi Kalathil, and Jessica Ludwig, "Forget Hearts and Minds," *Foreign Policy*, September 14, 2018, available at <https://foreignpolicy.com/2018/09/14/forget-hearts-and-minds-sharp-power/>. Sharp power is controversial and not fully accepted. Joseph Nye rejects it as but a longstanding form of hard power. He writes, sharp power is the "deceptive use of information for hostile purposes" and one that has been practiced by the intelligence and information services of democracies as well as those of authoritarian regimes. See Joseph S. Nye, Jr., "How Sharp Power Threatens Soft Power," *Foreign Affairs*, January 24, 2018, available at <www.foreignaffairs.com/articles/china/2018-01-24/how-sharp-power-threatens-soft-power>. China has labeled the expression as one concocted by the West to vilify China and without merit. See Xin Liu, "What Is Sharp Power? It's Nothing But 'Unsmart' Power," *USC Center on Public Diplomacy CPD*, November 15, 2018, available at <https://www.uscpublicdiplomacy.org/blog/what-sharp-power-it%E2%80%99s-nothing-%E2%80%9Cunsmart%E2%80%9D-power>.

[18] This operational definition is taken from Thomas J. Volgy et al., "Major Power Status in International Politics," in *Major Powers and the Quest for Status in International Politics: Global and Regional Perspectives*, ed. Thomas J. Volgy et al. (New York: Palgrave Macmillan, 2011), 1–26. Their definition derives from an amalgam of several other classic efforts at defining Great Power status, including the following historic references: J. David Singer and Melvin Small, "Formal Alliances, 1815–1939: A Quantitative Description," *Journal of Peace Research* 3, no. 1 (March 1966); Jack Levy, *War in the Modern Great Power System: 1495–1975* (Lexington: University Press of Kentucky, 1983); John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: Norton, 2001); and Benjamin O. Fordham, "Who Wants to Be a Major Power? Explaining the Expansion of Foreign Policy Ambition," *Journal of Peace Research* 48, no. 5 (2011), 587–603.

[19] As noted, this formal definition precludes inclusion of the other eight states listed in the RAND study of 2018. The other states in that study, including India, Japan, Turkey, and Brazil, do not meet the operational definition. They have no truly unusual capabilities. They do not use unique capabilities globally to pursue broad policy interests. Finally, they are not perceived as "Great" by other states. They do matter in consideration of GPC interactions, but in 2020 are not contemporary Great Powers. See Mazarr et al., *Understanding the Emerging Era of International Competition*.

[20] For contemporary scholars who view Russia as less of a Great Power and more of a disruptor state, see Wyne, "America's Blind Ambition Could Make It a Victim of Global Competition"; David J. Kramer, "Russia Is No Great Power Competitor," *The American Interest*, April 24, 2019, available at <www.the-american-interest.com/2019/04/24/russia-is-no-great-power-competitor/>; Timothy Frye, "Putin Touts Russia as a Great Power. But He's Made It a Weak One," *Washington Post*, June 6, 2019, available at <www.washingtonpost.com/opinions/2019/06/06/putin-touts-russia-great-power-hes-made-it-weak-one/>.

[21] Christian Trotti and Mark Massa, "Lessons from Apollo: Industry and Great-Power Competition," Atlantic Council, July 26, 2019, available at <https://www.atlanticcouncil.org/blogs/new-atlanticist/lessons-from-apollo-industry-and-great-power-competition/>.

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[23] Trotti and Massa, "Lessons from Apollo."

[24] "Why Does America Still Use Soyuz Rockets to Put Its Astronauts in Space?" *The Economist*, October 16, 2018, available at <www.economist.com/the-economist-explains/2018/10/16/why-does-america-still-use-soyuz-rockets-to-put-its-astronauts-in-space>; Trotti and Massa, "Lessons from Apollo."

[25] Kevin L. Pollpeter, Michael S. Chase, and Eric Heginbotham, *The Creation of the PLA Strategic Support Force and Its Implications for Chinese Military Space Operations*, RR2058 (Santa Monica, CA: RAND, 2017), available at <https://www.rand.org/pubs/research_reports/RR2058.html>.

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[27] As of late 2018, there were reportedly 6,000 satellites among 24,000 Earth-orbiting space objects (satellites, space objects, space debris) being tracked by the U.S. Space Surveillance Network (SSN). Another 100 satellites per year—mainly commercial but also governmental—are forecast to join an increasingly crowded Earth orbit during the 2020s. SSN is a component of the U.S. Space Command and is the only agency in the world tracking and forecasting collision risks for space objects. SSN has no authority for space orbit management and can only alert commercial companies about potential risk of collision in the event that a model forecasts such risks. See "Space Surveillance," *Science Direct*, available at <www.sciencedirect.com/topics/engineering/space-surveillance>; Alexandra Witze, "The Quest to Conquer Earth's Space Junk Problem," *Nature*, September 5, 2018, available at <www.nature.com/articles/d41586-018-06170-1>.

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[29] Nathan Strout and Aaron Mehta, "Russia Conducted Anti-Satellite Missile Test, Says U.S. Space Command," *C4ISR*, April 16, 2020, available at <www.c4isrnet.com/battlefield-tech/space/2020/04/15/russia-conducted-anti-satellite-missile-test-says-us-space-command/>;

Aaron Mehta, "Indian Anti-Satellite Test Shows Importance of Space Force, Shanahan Says," *Defense News*, March 27, 2019, available at <www.defensenews.com/global/asia-pacific/2019/03/27/in-wake-of-indian-anti-satellite-test-shanahan-urges-thoughtfulness-in-space/>.

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[32] "Fact Sheet: 2018 DoD Cyber Strategy and Cyber Posture Review," Department of Defense, available at <https://dodcio.defense.gov/Portals/0/Documents/Factsheet_for_Strategy_and_CPR_FINAL.pdf>.

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