Contributors

Heritage Experts

Dakota L. Wood is Senior Research Fellow for Defense Programs in the Center for National Defense, of the Kathryn and Shelby Cullom Davis Institute for National Security and Foreign Policy, at The Heritage Foundation. He served for two decades as an officer in the U.S. Marine Corps, including service as a strategic analyst for the Commandant of the Marine Corps and the Secretary of Defense's Director of Net Assessment.

James Jay Carafano, PhD, is Vice President for the Davis Institute and E. W. Richardson Fellow at The Heritage Foundation. He served for 25 years as a U.S. Army officer and has taught at a number of universities, including the National Defense University.

Thomas W. Spoehr, Lieutenant General, U.S. Army (Ret.), is Director of the Center for National Defense. Before joining The Heritage Foundation, he served America for more than 36 years in the Army.

Frederico Bartels is Policy Analyst for Defense Budgeting in the Center for National Defense. Before joining The Heritage Foundation, he served for three years as a Policy Analyst with Concerned Veterans for America.

Thomas Callender is Senior Research Fellow for Defense Programs in the Center for National Defense. Before joining Heritage, he served for five years as Director for Capabilities in the Capabilities and Concepts Directorate of the Office of the Deputy Under Secretary of the Navy for Policy.

Dean Cheng is a Senior Research Fellow in the Asian Studies Center of the Davis Institute. He specializes in China's military and foreign policy.

Luke Coffey is Director of the Douglas and Sarah Allison Center for Foreign Policy of the Davis Institute. He joined Heritage after service as Senior Special Advisor to the Secretary of State for Defence of the United Kingdom.

Michaela Dodge is Senior Policy Analyst for Defense and Strategic Policy in the Center for National Defense. She specializes in missile defense, nuclear weapons modernization, and arms control.

Nile Gardiner, PhD, is Director of the Margaret Thatcher Center for Freedom of the Davis Institute. He served as foreign policy researcher in the Private Office of former Prime Minister Margaret Thatcher of the United Kingdom.

Bruce Klingner is Senior Research Fellow for Northeast Asia in the Asian Studies Center. He served for two decades at the Central Intelligence Agency and the Defense Intelligence Agency.

Daniel Kochis is a Policy Analyst in European Affairs in the Margaret Thatcher Center for Freedom, where he specializes in trans-Atlantic security issues including NATO, U.S.–Russia relations, and the Arctic.

Walter Lohman is Director of the Asian Studies Center. He has served on the staff of the Senate Committee on Foreign Relations, in the Office of Senator John McCain, and as Executive Director of the U.S.–ASEAN Business Council.

James Phillips is Senior Research Fellow for Middle Eastern Affairs in the Allison Center. He has also served at the Congressional Research Service and at the East–West Center.

Brian Slattery is a former Policy Analyst for National Security in the Center for National Defense, where he supported production of the *Index of U.S. Military Strength* for four years.

John Venable is Senior Research Fellow for Defense Policy in the Center for National Defense. A 25-year veteran of the U.S. Air Force and F-16 pilot, he served in three combat operations, was commander of the Thunderbirds, and earned the rank of colonel before retiring.

Rachel Zissimos is a Research Associate in the Center for National Defense. She focuses on Department of Defense Energy and Industrial Base policy in addition to supporting production of the *Index of U.S. Military Strength*.

External Reviewers and Expert Contributors

Patrick M. Cronin, PhD, is a Senior Advisor and Senior Director of the Asia–Pacific Security Program at the Center for a New American Security (CNAS).

G. Alexander Crowther, PhD, is Senior Research Fellow for NATO/Europe and Cyber at the Institute for National Strategic Studies at the National Defense University.

Harry Foster is Director of Analysis at the Telemus Group.

Brad Glosserman is Executive Director of the Pacific Forum at the Center for Strategic and International Studies.

David Isby is a Washington-based defense analyst and consultant.

David E. Johnson, PhD, is a Senior Fellow at the Center for Strategic and Budgetary Assessments.

Roy D. Kamphausen is Senior Vice President for Research and Director of the Washington, D.C., Office of the National Bureau of Asian Research.

Jeff M. Smith is Director of Asian Security Programs and Kraemer Strategy Fellow at the American Foreign Policy Council.

Douglas E. Streusand, PhD, is a Professor of International Relations at the U.S. Marine Corps Command and Staff College.

Larry M. Wortzel, PhD, is Adjunct Research Professor at the U.S. Army War College.

Acknowledgments

While no publication of this type is possible without the contributions of a great many people, there usually are a few special contributors whose talents, work ethic, and willingness to go the extra mile make it something quite special.

Policy Analyst for National Security Brian Slattery was the linchpin of production success, working with the authors, editors, and graphics and production professionals who made this *Index* a reality, both in print and on the Web. Rachel Zissimos, Research Associate in the Center for National Defense, contributed with specialized research, writing, fact-checking, ably handling production management duties as needed, and overseeing additional research by interns brought on to support the project. On that note, Heritage Young Leaders Program interns Zachary Olden, Andrew Nagode, and Jordan Bernstein contributed significant research that helped to inform the findings of the *2018 Index*.

As with past editions, Senior Copy Editor William T. Poole was instrumental not only in maintaining a consistent tone throughout this multi-author document—a challenging feat all its own—but also in checking every reference to ensure accuracy of reporting and coherence throughout the *Index* while also updating text that, though still current, can become stale when carried from one year to the next. Data Graphics Services Manager John Fleming, ably assisted by Data Graphics Specialist and Editorial Associate Luke Karnick, once again gave visual life to text and statistics to convey a message with maximum impact. Creative Director Melissa Bluey, assisted by the detailed efforts of Art Director Jay Simon and Digital Strategy Director Maria Sousa, ensured that the presentation of *Index* materials was tuned to account for changes in content delivery as our world becomes increasingly digital, portable, and driven by social media.

We believe that this *Index* helps to provide a better informed understanding and wider appreciation of America's ability to "provide for the common defence" that undergirds The Heritage Foundation's vision of "an America where freedom, opportunity, prosperity, and civil society flourish." Judging by reception of the *Index* during this past year—some 480,000 unique visitors to the *2017 Index* website alone, a sixfold increase over our inaugural *Index* released in 2015—we are encouraged that so many Americans are similarly concerned about the state of affairs in and the multitude of factors affecting our country.

The Heritage Foundation seeks a better life for Americans, which requires a stronger economy, a stronger society, and a stronger defense.

To help measure the state of the economy, our Institute for Economic Freedom and Opportunity publishes the annual *Index of Economic Freedom*.

To help measure the state of society, our Institute for Family, Community, and Opportunity publishes the annual *Index of Culture and Opportunity*.

And to help Americans everywhere more fully understand the state of our defenses, our Kathryn and Shelby Cullom Davis Institute for National Security and Foreign Policy is publishing this fourth annual edition of the *Index of U.S. Military Strength*.

In addition to acknowledging all of those who helped to prepare this edition, very special recognition is due to Mr. Philip and Dr. Patricia Bilden and two Heritage members who wished to remain anonymous, whose generous financial support made the *2018 Index of U.S. Military Strength* possible.

Finally, as always, The Heritage Foundation also expresses its profound appreciation to the members of the U.S. armed forces who continue to protect the liberty of the American people in an increasingly dangerous world.

Preface

Edwin J. Feulner, PhD

Since the inaugural *2015 Index of U.S. Military Strength*, subsequent editions have demonstrated an unsettling trend, and the *2018 Index* leaves no room for interpretation: Our military has undoubtedly grown weaker. Service chiefs confirm these findings in testimony and reports to Congress. Yet, despite widespread agreement, critical maintenance and modernization efforts continue to be deferred and underfunded. Personnel and platforms decline in number as threats proliferate. The result is a force of growing age and declining capability, tasked with greater responsibilities but apportioned fewer resources.

Meanwhile, our competitors and enemies are spending more and acting more aggressively. Russian technological advances in ground combat vehicles rival and may even surpass our own; North Korea's nuclear weapons threaten regional forces as well as the U.S. homeland; and China is cementing its territorial claims in contested waters, militarizing islands, and building the beginnings of a blue-water navy.

Although the U.S. remains the world's dominant military power, recent developments should demonstrate that this status in not assured. In 2017, General Joseph Dunford, Chairman of the Joint Chiefs of Staff, warned that "without sustained, sufficient, and predictable funding...we will lose our ability to project power" within the next five years.

Global power projection enables the military to defeat threats before they can reach U.S. shores, protect shipping lanes that support global commerce, and provide reassurance and support to U.S. allies. It is a critical component of America's security and economic prosperity—and it is at risk.

As U.S. military strength continues to deteriorate, more and more people are taking notice. Since November 2016, when the *2017 Index* was launched online, there have been nearly 950,000 page views—a fivefold increase since the inaugural 2015 edition.

There is also movement on Capitol Hill. Both the House and Senate versions of the FY 2018 appropriations bills authorize defense spending that is above statutorily enacted budget caps and even above the levels requested in the President's budget. Congress understands the sad current state of military readiness and the consequences of sustained underinvestment in military capabilities and programs. Yet it continues to trip on its own shoelaces.

It continues to be our aim to inform Congress about the issues facing our military and nation, but after five years of arbitrary defense budget caps, it is time for Congress to stop discussing the problem and do something to solve it. The problem is clear, and the solution is simple: *Fund the military at a level that matches the importance of securing the country and our national interests.* In other words, stop squabbling and pass a budget that will truly provide for the common defense.

Edwin J. Feulner, PhD, President
The Heritage Foundation
October 2017

Introduction

The United States maintains a military force primarily to protect the homeland from attack and to protect its interests abroad. Although there are secondary uses for the military—such as assisting civil authorities in times of emergency or deterring enemies—that amplify other elements of national power such as diplomacy or economic initiatives, America's armed forces exist above all else so that the U.S. can physically impose its will on an enemy and change the conditions of a threatening situation by force or the threat of force.

Each year, The Heritage Foundation's *Index of U.S. Military Strength* gauges the ability of the U.S. military to perform its missions in today's world and how the condition of the military has changed from the preceding year.

The United States prefers to lead through "soft" elements of national power: diplomacy, economic incentives, and cultural exchanges. When soft approaches such as diplomacy work, that success often owes much to the knowledge of all involved that U.S. "hard power" stands ready, if silently, in the diplomatic background. Soft approaches cost less in manpower and treasure than military action costs and do not carry the same risk of damage and loss of life, but when confronted by physical threats to U.S. national security interests, soft power cannot substitute for raw military power. In fact, an absence of military power or the perception that one's hard power is insufficient to protect one's interests often invites challenges that soft power is ill-equipped to address. Thus, hard power and soft power are complementary and mutually reinforcing.

The continuing decline of America's military hard power is thoroughly documented and quantified in this report. More difficult to quantify, however, are the growing threats to the U.S. and its allies that are engendered by the perception of American weakness abroad and doubts about America's resolve to act when its interests are threatened. The anecdotal evidence is consistent with direct conversations between Heritage scholars and high-level diplomatic and military officials from countries around the world: The perception of American weakness is destabilizing many parts of the world, prompting old friends to question their reliance on America's assurances. For decades, the perception of American strength and resolve has served as a deterrent to adventurous bad actors and tyrannical dictators. Regrettably, both that perception and, as a consequence, its deterrent effect are eroding. The result is an increasingly dangerous world threatening a significantly weaker America.

It is therefore critical to understand the condition of the United States military with respect to America's vital national security interests, the threats to those interests, and the context within which the U.S. might have to use hard power. It is likewise important to know how these three areas—operating environments, threats, and the posture of the U.S. military—change over time, given that such changes can have substantial implications for defense policies and investments.

In the opening paragraph of the U.S. Constitution, "We the People" stated that among their handful of purposes in establishing the Constitution was to "provide for the common defence." The enumeration of limited powers for the federal government in the Constitution includes the powers of Congress "To declare

War," "To raise and support Armies," "To provide and maintain a Navy," "To provide for calling forth the Militia," and "To provide for organizing, arming, and disciplining, the Militia" and the power of the President as "Commander in Chief of the Army and Navy of the United States, and of the Militia of the several States, when called into the actual Service of the United States." With such constitutional priority given to defense of the nation and its vital interests, one might expect the federal government to produce a standardized, consistent reference work on the state of the nation's security. Yet no such single volume exists, especially in the public domain, to allow comparisons from year to year. Recently, the Department of Defense has moved to restrict reporting of force readiness even further. Thus, the American people and even the government itself are prevented from understanding whether investments made in defense are achieving their desired results.

What is needed is a publicly accessible reference document that uses a consistent, methodical, repeatable approach to assessing defense requirements and capabilities. The Heritage Foundation's *Index of U.S. Military Strength*, an annual assessment of the state of America's hard power, fills this void, addressing both the geographical and functional environments relevant to the United States' vital national interests and threats that rise to a level that puts or has the strong potential to put those interests at risk.

Any assessment of the adequacy of military power requires two primary reference points: a clear statement of U.S. vital security interests and an objective requirement for the military's capacity for operations that serve as a benchmark against which to measure current capacity. A review of relevant top-level national security documents issued by a long string of presidential Administrations makes clear that three interests are consistently stated:

- Defense of the homeland;
- Successful conclusion of a major war that has the potential to destabilize a region of critical interest to the U.S.; and
- Preservation of freedom of movement within the global commons: the sea, air, outer-space, and cyberspace domains through which the world conducts business.

Every President has recognized that one of the fundamental purposes of the U.S. military is to protect America from attack. While going to war has always been controversial, the decision to do so has been based consistently on the conclusion that one or more vital U.S. interests are at stake.

This *Index* embraces the "two-war requirement"—the ability to handle two major wars or two major regional contingencies (MRCs) successfully at the same time or in closely overlapping time frames—as the most compelling rationale for sizing U.S. military forces. In the *2015 Index*, Dr. Daniel Gouré provided a detailed defense of this approach in his essay, "Building the Right Military for a New Era: The Need for an Enduring Analytic Framework," which is further elaborated upon in the military capabilities assessment section. The basic argument, however, is this: The nation should have the ability to engage and defeat one opponent and still have the ability to guard against competitor opportunism (i.e., to preclude someone's exploiting the perceived opportunity to move against U.S. interests while America is engaged elsewhere).

The *Index* is descriptive, not prescriptive, reviewing the current condition of its subjects within the assessed year and describing how conditions have changed from the previous year, informed by the baseline condition established by the inaugural *2015 Index*. In short, the *Index* answers the question, "Have conditions improved or worsened during the assessed year?"

This study also assesses the U.S. military against the two-war benchmark and various metrics explained further in the military capabilities section. Importantly, this study measures the hard power needed to win conventional wars rather than the general utility of the military relative to the breadth of tasks it

might be (and usually is) assigned to advance U.S. interests short of war.

Assessing the World and the Need for Hard Power

The assessment portion of the *Index* is composed of three major sections that address the aforementioned areas of primary interest: America's military power, the operating environments within or through which it must operate, and threats to U.S. vital national interests. For each of these areas, this publication provides context, explaining why a given topic is addressed and how it relates to understanding the nature of America's hard-power requirements.

The authors of this study used a five-category scoring system that ranged from "very poor" to "excellent" or "very weak" to "very strong" as appropriate to each topic. This particular approach was selected as the best way to capture meaningful gradations while avoiding the appearance that a high level of precision was possible given the nature of the issues and the information that was publicly available.

Some factors are quantitative and lend themselves to discrete measurement; others are very qualitative in nature and can be assessed only through an informed understanding of the material that leads to an informed judgment call.

Purely quantitative measures alone tell only a part of the story when it comes to the relevance, utility, and effectiveness of hard power. Assessing military power or the nature of an operating environment using only quantitative metrics can lead to misinformed conclusions. For example, the mere existence of a large fleet of very modern tanks has little to do with the effectiveness of the armored force in actual battle if the employment concept is irrelevant to modern armored warfare. (Imagine, for example, a battle in rugged mountains.) Also, experience and demonstrated proficiency are often decisive factors in war—so much so that numerically smaller or qualitatively inferior but well-trained and experienced forces can defeat a larger or qualitatively superior adversary.

However digital and quantitative the world has become thanks to the explosion of advanced technologies, it is still very much a qualitative place, and judgment calls have to be made in the absence of certainty. We strive to be as objective and evenhanded as possible in our approach and transparent in our methodology and sources of information so that readers can understand why we came to the conclusions we reached and perhaps reach their own. The end result will be a more informed debate about what the United States needs in military capabilities to deal with the world as it is. A detailed discussion of scoring is provided in each assessment section.

In our assessment, we begin with the operating environment because it provides the geostrategic stage upon which the U.S. attends to its interests: the various states that would play significant roles in any regional contingency; the terrain that enables or restricts military operations; the infrastructure—ports, airfields, roads, and rail networks (or lack thereof)—on which U.S. forces would depend; and the types of linkages and relationships the U.S. has with a region and major actors within it that cause the U.S. to have interests in the area or that facilitate effective operations. Major actors within each region are identified, described, and assessed in terms of alliances, political stability, the presence of U.S. military forces and relationships, and the maturity of critical infrastructure.

Our assessment focuses on three key regions—Europe, the Middle East, and Asia—because of their importance relative to U.S. vital security interests. This does not mean that we view Latin America and Africa as unimportant. Rather, it means that the security challenges within these regions do not currently rise to the level of direct threats to America's vital security interests as we have defined them. We addressed their current condition in the *2015 Index* and will provide an updated assessment when it is warranted.

Next is a discussion of threats to U.S. vital interests. Here we identify the countries that pose the greatest current or potential threats

to U.S. vital interests based on two overarching factors: their behavior and their capability. We accept the classic definition of "threat" as a combination of intent and capability, but while capability has attributes that can be quantified, intent is difficult to measure. We concluded that "observed behavior" serves as a reasonable surrogate for intent because it is the clearest manifestation of intent.

We based our selection of threat countries and non-state actors on their historical behavior and explicit policies or formal statements vis-à-vis U.S. interests, scoring them in two areas: the degree of provocative behavior that they exhibited during the year and their ability to pose a credible threat to U.S. interests irrespective of intent. For example, a state full of bluster but with only a moderate ability to act accordingly poses a lesser threat, while a state that has great capabilities and a pattern of bellicose behavior opposed to U.S. interests still warrants attention even if it is relatively quiet in a given year.

Finally, we address the status of U.S. military power in three areas: capability (or modernity), capacity, and readiness. Do U.S. forces possess operational capabilities that are relevant to modern warfare? Can they defeat the military forces of an opposing country? Do they have a sufficient amount of such capabilities? Is the force sufficiently trained and its equipment materially ready to win in combat? All of these are fundamental to success even if they are not de facto determinants of success (something we explain further in the section). We also address the condition of the United States' nuclear weapons capability, assessing it in areas that are unique to this military component and critical to understanding its real-world viability and effectiveness as a strategic deterrent.

Topical Essays

The *2018 Index* departs from the previous *Index* themes of strategic, regional, and functional topics to focus on the domains in and through which military operations are conducted. Nearly all discussions of military power and the forces used to wield it focus on the forces themselves or the areas of competition between forces as evolving technologies are harnessed to gain advantage over an enemy. Seldom does one read about the domains themselves that shape the nature of employment and the characteristics of the forces used. The characteristics of the domains both facilitate and inhibit operations, impose constraints, and make demands on time, energy, firepower, cost, size, and durability associated with military actions.

Our authors take on the challenge of describing the various operating domains available to military forces—land, sea, air, space, and cyberspace—and how they inform the design of platforms, the size and endurance of forces, and expectations for how easily (or not) the U.S. military can accomplish objectives.

- Dr. James Jay Carafano leads off with "America's Joint Force and the Domains of Warfare," an overview of the concept of "jointness," an idea much larger than U.S. forces simply acting in concert with each other. Per Dr. Carafano, "The future focus of jointness will be on ensuring that U.S. armed forces retain the ability to operate effectively in all domains in a theater...and to exploit the ability to use advantages in one domain to operate in another."

- Dr. David E. Johnson, in "An Overview of Land Warfare," notes that "the land domain has the greatest ability to create operational friction." Land is not only where people live, but also where challenges to the conduct of war are most apparent. Land forces must contend directly with cities, forests, mountains, deserts, and the impact of weather. The physicality of the land domain makes operations hard, but once forces are established, dislodging them is quite difficult as well.

- The vastness of the oceans and the characteristics of water impose their own challenges on the projection of military

power via the seas. In "The Naval Warfare Domain," Thomas Callender explores how the breadth, depth, salinity, and physical properties of the maritime domain affect naval forces and how they operate. Callender explains how the seas have their own "terrain" that provides cover and avenues through which to advance, much as land does for ground forces, while also imposing obstacles to rapid movement and sustained presence.

- Harry Foster provides a deeply informed primer on the complexities of air operations with "The Air Domain and the Challenges of Modern Air Warfare." "*The speed* possible in the air domain shrinks time" and provides advantages in vantage, maneuverability, flexibility, and range but also imposes limitations on payload, persistence, and the ability to mask one's actions in such a transparent medium. Foster provides the "why" for each of these and concludes with thoughts on the evolving nature of competition in this domain.

- In "Space 201: Thinking About the Space Domain," Dean Cheng provides the basis for understanding how space can be leveraged to support the protection of national security interests and why it is so costly to do so. Space, arguably the harshest and most technically challenging of operating environments, is crucial to modern military operations. Cheng helps the reader understand why maintaining mastery of it, especially relative to competitors, is essential.

- Finally, Dr. G. Alexander Crowther tackles the always mentioned but consistently misunderstood world of cyber in "National Defense and the Cyber Domain." Dr. Crowther outlines the players, roles, and infrastructure of the cyber domain but takes the discussion further in pointing out that "[h]umans are the weakest link in the cybersecurity system. Unlike the physical world, in which potential human activity is limited by geographic and space limitations...[e]veryone who has a desktop, laptop, or smartphone is an actor and a potential problem." He concludes by observing that "[a]lthough military leaders understand the importance of cyber and information, not all understand the scope of the opportunities and challenges that cyber provides." This essay should help in that regard.

Scoring U.S. Military Strength Relative to Vital National Interests

The purpose of this *Index* is to make the national debate about defense capabilities better informed by assessing the ability of the U.S. military to defend against current threats to U.S. vital national interests within the context of the world as it is. Each of the elements can change from year to year: the stability of regions and access to them by America's military forces; the various threats as they improve or lose capabilities and change their behavior; and the United States' armed forces themselves as they adjust to evolving fiscal realities and attempt to balance readiness, capacity (size and quantity), and capability (how modern they are) in ways that enable them to carry out their assigned missions successfully.

Each region of the world has its own set of characteristics that include terrain; man-made infrastructure (roads, rail lines, ports, airfields, power grids, etc.); and states with which the United States has relationships. In each case, these traits combine to create an environment that is either favorable or problematic when it comes to U.S. forces operating against threats in the region.

Various states and nonstate actors within these regions possess the ability to threaten—and have consistently behaved in ways that threaten—America's interests. Fortunately for the U.S., these major threat actors are currently few in number and continue to be confined to three regions—Europe, the Middle East, and Asia—thus enabling the U.S. (if it will do so) to focus its resources and efforts accordingly.

As for the condition of America's military services, they continue to be beset by aging equipment, shrinking numbers, rising costs, and problematic funding: four factors that have accelerated over the past year at a time when threats to U.S. interests continue to rise.

These four elements interact with each other in ways that are difficult to measure in concrete terms and impossible to forecast with any certainty. Nevertheless, the exercise of describing them and characterizing their general condition is worthwhile because it informs debates about defense policies and the allocation of resources that are necessary for the U.S. military to carry out its assigned duties. Further, as seen in this *2018 Index*, noting how conditions have changed from the preceding year helps to shed light on the effect that policies, decisions, and actions have on security affairs involving the interests of the United States, its allies and friends, and its enemies.

It should be borne in mind that each annual *Index* assesses conditions as they are for the assessed year. This *2018 Index of U.S. Military Strength* describes changes that occurred during the preceding year, with updates current as of mid-September 2017.

Assessments for U.S. Military Power, Global Operating Environment, and Threats to Vital U.S. Interests are shown in the Executive Summary that follows. Factors that would push things toward "bad" (the left side of the scales) tend to move more quickly than those that improve one's situation, especially when it comes to the material condition of the U.S. military.

Of the three areas measured—U.S. Military Power, Global Operating Environment, and Threats to Vital U.S. Interests—the U.S. can directly control only one: its own military. The condition of the U.S. military can influence the other two because a weakened America arguably emboldens challenges to its interests and loses potential allies, while a militarily strong America deters opportunism and draws partners to its side from across the globe.

Conclusion

During the decades since the end of the Second World War, the United States has underwritten and taken the lead in maintaining a global order that has benefited more people in more ways than at any other period in history. Now, however, that American-led order is under stress, and some have wondered whether it will break apart entirely. Fiscal and economic burdens continue to plague nations; violent, extremist ideologies threaten the stability of entire regions; state and nonstate opportunists seek to exploit upheavals; and major states compete to establish dominant positions in their respective regions.

America's leadership role remains in question, and its security interests are under significant pressure. Challenges are growing, old allies are not what they once were, and the U.S. is increasingly bedeviled by debt that constrains its ability to sustain its forces commensurate with its interests.

Informed deliberations on the status of the United States' military power are therefore desperately needed. This *Index of U.S. Military Strength* can help to inform the debate.

Methodology

The assessment portion of the *Index of U.S. Military Strength* is composed of three major sections that address America's military power, the operating environments within or through which it must operate, and threats to U.S. vital national interests.

The authors of this study used a five-category scoring system that ranged from "very poor" to "excellent" or "very weak" to "very strong" as appropriate to each topic. This particular approach was selected to capture meaningful gradations while avoiding the appearance that a high level of precision was possible given the nature of the issues and the information that was publicly available.

Some factors are quantitative and lend themselves to discrete measurement; others are very qualitative in nature and can be assessed only through an informed understanding of the material that leads to a judgment call. Further, conditions in each of the areas assessed are changing throughout the year, so any measurement is based on the information at hand and must necessarily be viewed as a snapshot in time. While this is not entirely satisfactory when it comes to reaching conclusions on the status of a given matter, especially the adequacy of military power (and will be quite unsatisfactory for some readers), we understand that senior officials in decision-making positions will never have a comprehensive set of inarguable hard data on which to base a decision.

Purely quantitative measures alone tell only part of the story when it comes to the relevance, utility, and effectiveness of hard power. In fact, assessing military power or the nature of an operating environment using only quantitative metrics can lead to misinformed conclusions. Raw numbers are a very important component, but they tell only a part of the story of war. Similarly, experience and demonstrated proficiency are often decisive factors in war, but they are nearly impossible to measure.

This *Index*'s assessment of the ***global operating environment*** focused on three key regions—Europe, the Middle East, and Asia—because of their importance relative to U.S. vital security interests.

For ***threats to U.S. vital interests***, the *Index* identifies the countries that pose the greatest current or potential threats to U.S. vital interests based on two overarching factors: their behavior and their capability. The classic definition of "threat" considers the combination of intent and capability, but intent cannot be clearly measured, so "observed behavior" is used as a reasonable surrogate since it is the clearest manifestation of intent. The selection of threat countries is based on their historical behavior and explicit policies or formal statements vis-à-vis U.S. interests, scoring them in two areas: the degree of provocative behavior that they exhibited during the year and their ability to pose a credible threat to U.S. interests irrespective of intent.

Finally, the ***status of U.S. military power*** is addressed in three areas: capability (or modernity), capacity, and readiness. All three are fundamental to success even if they are not de facto determinants of success, something we explain further in the section. Also addressed is the condition of the United States' nuclear weapons capability, assessing it in areas that

are unique to this military component and critical to understanding its real-world viability and effectiveness as a strategic deterrent.

Assessing the Global Operating Environment

Not all of the factors that characterize an operating environment are equal, but each contributes to the degree to which a particular operating environment is favorable or unfavorable to future U.S. military operations. Our assessment of the operating environment utilized a five-point scale, ranging from "very poor" to "excellent" conditions and covering four regional characteristics of greatest relevance to the conduct of military operations:

1. **Very Poor.** Significant hurdles exist for military operations. Physical infrastructure is insufficient or nonexistent, and the region is politically unstable. The U.S. military is poorly placed or absent, and alliances are nonexistent or diffuse.

2. **Unfavorable.** A challenging operating environment for military operations is marked by inadequate infrastructure, weak alliances, and recurring political instability. The U.S. military is inadequately placed in the region.

3. **Moderate.** A neutral to moderately favorable operating environment is characterized by adequate infrastructure, a moderate alliance structure, and acceptable levels of regional political stability. The U.S. military is adequately placed.

4. **Favorable.** A favorable operating environment includes good infrastructure, strong alliances, and a stable political environment. The U.S. military is well placed in the region for future operations.

5. **Excellent.** An extremely favorable operating environment includes well-established and well-maintained infrastructure; strong, capable allies; and a stable political environment. The U.S. military is exceptionally well placed to defend U.S. interests.

The key regional characteristics consisted of:

a. **Alliances.** Alliances are important for interoperability and collective defense as allies would be more likely to lend support to U.S. military operations. Various indicators provide insight into the strength or health of an alliance. These include whether the U.S. trains regularly with countries in the region, has good interoperability with the forces of an ally, and shares intelligence with nations in the region.

b. **Political Stability.** Political stability brings predictability for military planners when considering such things as transit, basing, and overflight rights for U.S. military operations. The overall degree of political stability indicates whether U.S. military actions would be hindered or enabled and considers, for example, whether transfers of power in the region are generally peaceful and whether there been any recent instances of political instability in the region.

c. **U.S. Military Positioning.** Having military forces based or equipment and supplies staged in a region greatly facilitates the ability of the United States to respond to crises and, presumably, achieve successes in critical "first battles" more quickly. Being routinely present in a region also assists in maintaining familiarity with its characteristics and the various actors that might try to assist or thwart U.S. actions. With this in mind, we assessed whether or not the U.S. military was well-positioned in the region. Again, indicators included bases, troop presence, prepositioned equipment, and recent examples of military operations (including training and humanitarian) launched from the region.

d. **Infrastructure.** Modern, reliable, and suitable infrastructure is essential to military operations. Airfields, ports, rail lines, canals, and paved roads enable the U.S. to stage, launch operations from, and logistically sustain combat operations. We combined expert knowledge of regions with publicly available information on critical infrastructure to arrive at our overall assessment of this metric.

Assessing Threats to U.S. Vital Interests

To make the threats identified herein measurable and relatable to the challenges of operating environments and adequacy of American military power, *Index* staff and outside reviewers evaluated separately the threats according to their level of provocation (i.e., their observed behavior) and their actual capability to pose a credible threat to U.S. interests on a scale of 1 to 5, with 1 representing a very high threat capability or level of belligerency. This scale corresponds to the tone of the five-point scales used to score the operating environment and military capabilities in that 1 is bad for U.S. interests and 5 is very favorable.

Based on these evaluations, provocative behavior was characterized according to five descending categories: benign (5); assertive (4); testing (3); aggressive (2); and hostile (1). Staff also characterized the capabilities of a threat actor according to five categories: marginal (5); aspirational (4); capable (3); gathering (2); and formidable (1). Those characterizations—behavior and capability—form two halves of the overall threat level.

Assessing U.S. Military Power

Also assessed is the adequacy of the United States' defense posture as it pertains to a conventional understanding of "hard power," defined as the ability of American military forces to engage and defeat an enemy's forces in battle at a scale commensurate with the vital national interests of the U.S. The assessment draws on both quantitative and qualitative aspects of military forces, informed by an experience-based understanding of military operations and the expertise of the authors and internal and external reviewers.

It is important to note that military effectiveness is as much an art as it is a science. Specific military capabilities represented in weapons, platforms, and military units can be used individually to some effect. Practitioners of war, however, have learned that combining the tools of war in various ways and orchestrating their tactical employment in series or simultaneously can dramatically amplify the effectiveness of the force committed to battle.

The point is that a great number of factors make it possible for a military force to locate, close with, and destroy an enemy, but not many of them are easily measured. The scope of this specific project does not extend to analysis of everything that makes hard power possible; it focuses on the status of the hard power itself.

This *Index* assesses the state of military affairs for U.S. forces in three areas: capability, capacity, and readiness.

Capability. Capability is scored based on the current state of combat equipment. This involves four factors: the age of key platforms relative to their expected life span; whether the required capability is being met by legacy or modern equipment; the scope of improvement or replacement programs relative to the operational requirement; and the overall health and stability (financial and technological) of modernization programs.

This *Index* focused on primary combat units and combat platforms (e.g., tanks, ships, and airplanes) and elected not to include the array of system and component upgrades that keep an older platform viable over time, such as a new radar, missile, or communications suite. New technologies grafted onto aging platforms ensure that U.S. military forces keep pace with technological innovations relevant to the modern battlefield, but at some point, the platforms themselves are no longer viable and must be replaced. Modernized sub-systems and components do not entirely substitute for aging platforms, and it is the platform itself that is usually the more challenging item to field. In this sense, primary combat platforms serve

as representative measures of force modernity just as combat forces are a useful surrogate measure for the overall military that includes a range of support units, systems, and infrastructure.

In addition, it is assumed that modernization programs should replace current capacity at a one-to-one ratio; less than a one-to-one replacement assumes risk, because even if the newer system is presumably better than the older, until it is proven in actual combat, having fewer systems lessens the capacity of the force, which is an important factor if combat against a peer competitor carries with it the likelihood of attrition. For modernization programs, only Major Defense Acquisition Programs (MDAPs) are scored.

The capability score uses a five-grade scale. Each service receives one capability score that is a non-weighted aggregate of scores for four categories: (1) Age of Equipment, (2) Modernity of Capability, (3) Size of Modernization Program, and (4) Health of Modernization Program. General criteria for the capability categories are:

Age of Equipment

- **Very Weak:** Equipment age is past 80 percent of expected life span.
- **Weak:** Equipment age is 61 percent–80 percent of expected life span.
- **Marginal:** Equipment age is 41 percent–60 percent of expected life span.
- **Strong:** Equipment age is 21 percent–40 percent of expected life span.
- **Very Strong:** Equipment age is 20 percent or less of expected life span.

Capability of Equipment

- **Very Weak:** Majority (over 80 percent) of capability relies on legacy platforms.
- **Weak:** 60 percent–79 percent of capability relies on legacy platforms.
- **Marginal:** 40 percent–59 percent of capability is legacy platforms.
- **Strong:** 20 percent–39 percent of capability is legacy platforms.
- **Very Strong:** Less than 20 percent of capability is legacy platforms.

Size of Modernization Program

- **Very Weak:** Modernization program is significantly too small or inappropriate to sustain current capability or program in place.
- **Weak:** Modernization programs are smaller than current capability size.
- **Marginal:** Modernization programs are appropriate to sustain current capability size.
- **Strong:** Modernization programs will increase current capability size.
- **Very Strong:** Modernization programs will vastly expand capability size.

Health of Modernization Program

- **Very Weak:** Modernization programs facing significant problems; too far behind schedule (five-plus years); cannot replace current capability before retirement; lacking sufficient investment to advance; cost overruns including Nunn–McCurdy breach. (A Nunn–McCurdy breach occurs when the cost of a new item exceeds the most recently approved amount by 25 percent or more or if it exceeds the originally approved amount by 50 percent or more. See Title 10, U.S.C. § 2433, Unit Cost Reports (UCRs).)
- **Weak:** Facing procurement problems; behind schedule (three–five years); difficult to replace current equipment on time or insufficient funding; cost overruns enough to trigger an Acquisition Program Baseline (APB) breach.

- **Marginal:** Facing few problems; behind schedule by one–two years but can replace equipment with some delay or experience some funding cuts; some cost growth but not within objectives.

- **Strong:** Facing no procurement problems; can replace equipment with no delays; within cost estimates.

- **Very Strong:** Performing better than DOD plans, including lower actual costs.

Capacity. To score capacity, the service's size (be it end strength or number of platforms) is compared to the force size required to meet a simultaneous or nearly simultaneous two-war or two–major regional contingency (MRC) benchmark. This benchmark consists of the force needed to fight and win two MRCs and a 20 percent margin that serves as a strategic reserve. A strategic reserve is necessary because deployment of 100 percent of the force at any one time is highly unlikely. Not only do ongoing requirements like training or sustainment and maintenance of equipment make it infeasible for the entirety of the force to be available for deployment, but committing 100 percent of the force would leave no resources available to handle unexpected situations.

Thus, a "marginal" capacity score would exactly meet a two-MRC force size, a "strong" capacity score would equate to a plus–10 percent margin for strategic reserve, and a "very strong" score would equate to a 20 percent margin.

Capacity Score Definitions

- **Very Weak:** 0 percent–37 percent of the two-MRC benchmark.

- **Weak:** 38 percent–74 percent of the two-MRC benchmark.

- **Marginal:** 75 percent–82 percent of the two-MRC benchmark.

- **Strong:** 83 percent–91 percent of the two-MRC benchmark.

- **Very Strong:** 92 percent–100 percent of the two-MRC benchmark.

Readiness. The readiness scores are from the military services' own assessments of readiness based on their requirements. These are not comprehensive reviews of all readiness input factors, but rather rely on the public statements of the military services regarding the state of their readiness.

It should be noted that even a "strong" or "very strong" score does not indicate that 100 percent of the force is ready; it simply indicates that the service is meeting 100 percent of its own readiness requirements. Often, these requirements assume that a percentage of the military at any one time will not be fit for deployment. Because of this, even if readiness is graded as "strong" or "marginal," there is still a gap in readiness that will have significant implications for immediate combat effectiveness and the ability to deploy quickly. Thus, anything short of meeting 100 percent of readiness requirements assumes risk and is therefore problematic.

Further, a service's assessment of its readiness occurs within its size or capacity at that time and as dictated by the Defense Strategic Guidance, National Military Strategy, and related top-level documents generated by the Administration and senior Defense officials. It does not account for the size-related "readiness" of the force to meet national security requirements assessed as needed by this *Index*. Thus, for a service to be assessed as "very strong" would mean that 80 percent–100 percent of the existing force in a service meets that service's requirements for being "ready" even if the size of the service is less than that required to meet the two-MRC benchmark. Therefore, it is important for the reader to keep this in mind when considering the actual readiness of the force to protect U.S. national security interests against the challenges presented by threats around the world.

Readiness Score Definitions

- **Very Weak:** 0 percent–19 percent of service's requirements.

- **Weak:** 20 percent–39 percent of service's requirements.
- **Marginal:** 40 percent–59 percent of service's requirements.
- **Strong:** 60 percent–79 percent of service's requirements.
- **Very Strong:** 80 percent–100 percent of service's requirements.

Executive Summary

"The U.S. military is only marginally able to meet the demands of defending America's vital national interests."

The United States maintains a military force primarily to protect the homeland from attack and to protect its interests abroad. There are secondary uses—for example, to assist civil authorities in times of disaster or to deter opponents from threatening America's interests—but this force's primary purpose is to make it possible for the U.S. to physically impose its will on an enemy when necessary.

It is therefore critical that the condition of the United States military with respect to America's vital national security interests, threats to those interests, and the context within which the U.S. might have to use "hard power" be understood. Knowing how these three areas—operating environments, threats, and the posture of the U.S. military—change over time, given that such changes can have substantial implications for defense policies and investment, is likewise important.

Each year, The Heritage Foundation's *Index of U.S. Military Strength* employs a standardized, consistent set of criteria, accessible both to government officials and to the American public, to gauge the ability of the U.S. military to perform its missions in today's world. The inaugural 2015 edition established a baseline assessment on which each annual edition builds, assessing the state of affairs for its respective year and measuring how key factors have changed from the previous year.

What the *Index* Assesses

The *Index of U.S. Military Strength* assesses the ease or difficulty of operating in key regions based on existing alliances, regional political stability, the presence of U. S. military forces, and the condition of key infrastructure. Threats are assessed based on the behavior and physical capabilities of actors that pose challenges to U.S. vital national interests. The condition of America's military power is measured in terms of its capability or modernity, capacity for operations, and readiness to handle assigned missions successfully. This framework provides a single-source reference for policymakers and other Americans who seek to know whether our military power is up to the task of defending our national interests.

Any discussion of the aggregate capacity and breadth of the military power needed to address threats to U.S. security interests requires a clear understanding of precisely what interests must be defended. Three vital interests have been specified consistently and in various ways by a string of Administrations over the past few decades:

- **Defense** of the homeland;
- **Successful conclusion** of a major war that has the potential to destabilize a region of critical interest to the U.S.; and
- **Preservation** of freedom of movement within the global commons (the sea, air, outer-space, and cyberspace domains) through which the world conducts its business.

To defend these interests effectively on a global scale, the United States needs a military force of sufficient size, or what is known in the Pentagon as capacity. The many factors involved make determining how big the military should be a complex exercise, but successive Administrations, Congresses, and Department of Defense staffs have managed to arrive at a surprisingly consistent force-sizing rationale: an ability to handle two major wars or major regional contingencies (MRCs) simultaneously or in closely overlapping time frames. This two-war or two-MRC requirement is embraced in this *Index*.

At the core of this requirement is the conviction that the United States should be able to engage and decisively defeat one major opponent and simultaneously have the wherewithal to do the same with another to preclude opportunistic exploitation by any competitor. Since World War II, the U.S. has found itself involved in a major "hot" war every 15–20 years while simultaneously maintaining substantial combat forces in Europe and several other regions. The size of the total force roughly approximated the two-MRC model. Accordingly, our assessment of the adequacy of today's U.S. military is based on the ability of America's armed forces to engage and defeat two major competitors at roughly the same time.

This *Index*'s benchmark for a two-MRC force is derived from a review of the forces used for each major war that the U.S. has undertaken since World War II and the major defense studies completed by the federal government over the past 30 years. We concluded that a standing (i.e., Active Duty component) two-MRC–capable Joint Force would consist of:

- **Army:** 50 brigade combat teams (BCTs);
- **Navy:** at least 346 surface combatants and 624 strike aircraft;
- **Air Force:** 1,200 fighter/ground-attack aircraft; and
- **Marine Corps:** 36 battalions.

This recommended force does not account for homeland defense missions that would accompany a period of major conflict and are generally handled by Reserve and National Guard forces. Nor does it constitute the totality of the Joint Force, which includes the array of supporting and combat-enabling functions essential to the conduct of any military operation: logistics; transportation (land, sea, and air); health services; communications and data handling; and force generation (recruiting, training, and education), to name a very few. Rather, these are combat forces that are the most recognizable elements of America's hard power but that also can be viewed as surrogate measures for the size and capability of the larger Joint Force.

The Global Operating Environment

Looking at the world as an environment in which U.S. forces would operate to protect America's interests, the *Index* focused on three regions—Europe, the Middle East, and Asia—because of the intersection of our vital interests and actors able to challenge them.

Europe. For the most part, Europe remains a stable, mature, and friendly environment, home to America's oldest and closest allies, although the migrant and refugee crises are straining the economies and societies of many European nations. The U.S. is tied to Europe by treaty, robust economic bonds, and deeply rooted cultural linkages. In general, America's partners in the region are politically stable; possess mature (though increasingly debt-laden) economies; and have fairly modern (but shrinking) militaries. America's longtime presence in the region, Europe's well-established basing and support infrastructure, and the framework for coordinated action provided by NATO make the region quite favorable for military operations. A more muscular, belligerent Russia has caused a review of U.S. force posture on the continent, spurring reinvestment of U.S. military capabilities through programs like the European Reassurance Initiative.

The Middle East. The Middle East, by contrast, continues to be a deeply troubled

Operating Environment: Europe

	VERY POOR	UNFAVORABLE	MODERATE	FAVORABLE	EXCELLENT
Alliances				✓	
Political Stability				✓	
U.S. Military Posture			✓		
Infrastructure				✓	
OVERALL				✓	

Operating Environment: Middle East

	VERY POOR	UNFAVORABLE	MODERATE	FAVORABLE	EXCELLENT
Alliances			✓		
Political Stability	✓				
U.S. Military Posture			✓		
Infrastructure			✓		
OVERALL			✓		

Operating Environment: Asia

	VERY POOR	UNFAVORABLE	MODERATE	FAVORABLE	EXCELLENT
Alliances				✓	
Political Stability			✓		
U.S. Military Posture				✓	
Infrastructure				✓	
OVERALL				✓	

Global Operating Environment

	VERY POOR	UNFAVORABLE	MODERATE	FAVORABLE	EXCELLENT
Europe				✓	
Middle East			✓		
Asia				✓	
OVERALL				✓	

Global Operating Environment

VERY POOR	UNFAVORABLE	MODERATE	FAVORABLE	EXCELLENT

area riven with conflict, ruled by authoritarian regimes, and home to a variety of terrorist and other destabilizing entities. Though the United States does enjoy a few strong partnerships in the region, its interests are beset by security and political challenges, transnational terrorism rooted in the region, and the maturing threat of a nuclear Iran. Offsetting these challenges to some extent are the U.S. military's experience in the region and the basing infrastructure that it has developed and leveraged for nearly 25 years, although these positive elements are decaying as a consequence of continued upheaval in Syria; Iran's pursuit of weapons that threaten both the U.S. and Europe, as well as its continued support of such terrorist groups as Hezbollah; and the increasingly problematic political environment in countries that historically have hosted U.S. forces (Qatar, for example).

Asia. Though the region includes longstanding U.S. allies that are stable and possess advanced economies, the tyranny of distance makes U.S. military operations in the region difficult in terms of the time and sealift and airlift required, a challenge that is only exacerbated as the size of the U.S. military continues to shrink. The region is critical to U.S. economic interests because Asian markets account for 40 percent of U.S. trade; consequently, the increasingly aggressive postures of China and North Korea have caused concern. In 2017, China was more overtly aggressive in pressing its claims to disputed islands and waters. Both South Korea and Japan have expressed alarm over North Korea's intentions, especially with respect to its missile program. Combined with a slight decrease in political stability across the region, Asia as an operating environment has trended toward more challenging for the U.S. in 2017.

Summarizing the condition of each region enables us to get a sense of how they compare in terms of the challenge the U.S. would have in projecting military power and sustaining combat operations in each one.

As a whole, the global operating environment currently rates a score of "favorable," meaning that the United States should be able to project military power anywhere in the world as necessary to defend its interests without substantial opposition or high levels of risk, but conditions could easily tip this aggregate score into the "moderate" category if conditions continue to degrade in both Asia and the Middle East in 2018.

Threats to U.S. Interests

Our selection of threat actors discounted troublesome states and non-state entities that lacked the physical ability to pose a meaningful threat to vital U.S. security interests. This reduced the population of all potential threats to a half-dozen that possessed the means to threaten U.S. vital interests and exhibited a pattern of provocative behavior that should draw the focus of U.S. defense planning. This *Index* characterizes their behavior and military capabilities on five-point, descending scales.

All of the six threat actors selected—Russia, China, Iran, North Korea, and terrorist groups in the Middle East and Afghanistan—remained actual or potential threats to U.S. interests over the past year. All amply demonstrated a commitment to expanding their capabilities to pursue their respective interests that directly challenged those of the U.S. All also continued or increased their aggressive behavior when compared to the 2016 *Index*.

Worryingly, all of the six noted threat actors now rank "high" on the scale of threats to U.S. interests, with Russia coming close to being elevated to "severe" from its past score of "high."

Russia and China continue to be the most worrisome, both because of the ongoing modernization and expansion of their offensive military capabilities and because of the more enduring effect they are having within their respective regions. Russia has maintained its active involvement in the conflict in Ukraine, has been more assertive in the Baltic Sea region, and has continued to insert itself into the Syrian conflict. China's provocative behavior continues to include militarization of islands that it has built in highly disputed international waters of the South China Sea. China

Threat Categories

Behavior	HOSTILE	AGGRESSIVE	TESTING	ASSERTIVE	BENIGN
Capability	FORMIDABLE	GATHERING	CAPABLE	ASPIRATIONAL	MARGINAL

Behavior of Threats

	HOSTILE	AGGRESSIVE	TESTING	ASSERTIVE	BENIGN
Russia		✓			
Iran		✓			
Middle East Terrorism		✓			
Af-Pak Terrorism		✓			
China			✓		
North Korea		✓			
OVERALL		✓			

Capability of Threats

	FORMIDABLE	GATHERING	CAPABLE	ASPIRATIONAL	MARGINAL
Russia	✓				
Iran		✓			
Middle East Terrorism			✓		
Af-Pak Terrorism			✓		
China	✓				
North Korea		✓			
OVERALL		✓			

Threats to U.S. Vital Interests

	SEVERE	HIGH	ELEVATED	GUARDED	LOW
Russia		✓			
Iran		✓			
Middle East Terrorism		✓			
Af-Pak Terrorism		✓			
China		✓			
North Korea		✓			
OVERALL		✓			

Threats to U.S. Vital Interests

SEVERE	HIGH	ELEVATED	GUARDED	LOW

also continues its aggressive naval tactics to intimidate such neighboring countries as Japan and the Philippines and continues to bully other countries that try to exercise their right to navigate international waters in the region.

North Korea has executed an alarming number of missile tests: 18 as of early August 2017 compared to 21 for all of 2016. These tests have demonstrated the commitment of Kim Jong-un's regime to fielding a force of short-range, medium-range, and long-range ballistic, cruise, and submarine-launched missiles, presumably with the ability to carry nuclear warheads. The latest tests have hinted at North Korea's ability to reach targets in the United States. These developments, combined with its increasingly hostile rhetoric toward the West over the past year, make North Korea the most volatile threat addressed in the *Index*.

Terrorism based in Afghanistan continues to challenge the stability of that country. To the extent that various groups based in the region straddling the border with Pakistan remain potent and active, they also remain a threat in being to the stability of Pakistan, which is a matter of concern given Pakistan's status as a nuclear power and its sustained frictions with India, also a nuclear power.

In addition, Iran's efforts to develop more advanced military capabilities and its active support of the various terrorist groups operating in the Middle East continue to undermine regional security conditions and therefore to threaten the regional interests of the U.S.

With these threats taken together, the globalized threat to U.S. vital national interests as a whole during 2017 remained "high."

The Status of U.S. Military Power

Finally, we assessed the military power of the United States in three areas: capability, capacity, and readiness. We approached this assessment by military service as the clearest way to link military force size, modernization programs, unit readiness, and (in general terms) the functional combat power (land, sea, and air) represented by each service. We treated the United States' nuclear capability as a separate entity given its truly unique characteristics and constituent elements, from the weapons themselves to the supporting infrastructure that is fundamentally different from the infrastructure that supports conventional capabilities.

These three areas of assessment (capability, capacity, and readiness) are central to the overarching questions of whether the U.S. has a sufficient quantity of appropriately modern military power and whether military units are able to conduct military operations on demand and effectively.

As reported in all previous editions of the *Index*, the common theme across the services and the U.S. nuclear enterprise is one of force degradation resulting from many years of underinvestment, poor execution of modernization programs, and the negative effects of budget sequestration (cuts in funding) on readiness and capacity. While the military has been heavily engaged in operations, primarily in the Middle East but elsewhere as well, since September 11, 2001, experience is both ephemeral and context-sensitive. Valuable combat experience is lost as the servicemembers who individually gained experience leave the force, and it maintains direct relevance only for future operations of a similar type: Counterinsurgency operations in Iraq, for example, are fundamentally different from major conventional operations against a state like Iran or China.

Thus, although the current Joint Force is experienced in some types of operations, it lacks experience with high-end, major combat operations, and it is still aged and shrinking in its capacity for operations.

In the aggregate, the United States' military posture is rated **"marginal"** and is trending toward **"weak,"** a condition unchanged from the *2017 Index*.

Overall, the *2018 Index* concludes that the current U.S. military force is likely capable of meeting the demands of a single major regional conflict while also attending to various presence and engagement activities but that it would be very hard-pressed to do more and certainly would be ill-equipped to handle two nearly simultaneous major regional contingencies. The limits imposed on defense spending and the programmatic volatility created by continuing resolutions, passed in lieu of formal budgets approved on schedule, have kept the military services small, aging, and under significant pressure. Essential maintenance continues to be deferred; the availability of fewer units for operational deployments increases the frequency and length of deployments; and old equipment continues to be extended while programmed replacements are either delayed or beset by developmental difficulties.

The military services have continued to prioritize readiness for current operations by shifting funding to deployed or soon-to-deploy units while sacrificing the ability to keep non-deployed units in "ready" condition; delaying, reducing, extending, or canceling modernization programs; and sustaining the reduction in size and number of military units. While Congress and the new Administration have taken some positive steps to fund readiness in 2017 more robustly, they have not overturned the Budget Control Act that caps defense spending. Without a real commitment to increases in modernization, capacity, and readiness accounts over the next few years, America's military branches will continue to be strained to meet the missions they are called upon to fulfill.

As currently postured, the U.S. military is only marginally able to meet the demands of defending America's vital national interests.

We characterized the services and the nuclear enterprise on a five-category scale ranging from "very weak" to "very strong," benchmarked against criteria elaborated in the full report. These characterizations should not be construed as reflecting the competence of individual servicemembers or the professionalism of the services or Joint Force as a whole; nor do they speak to the U.S. military's strength relative to other militaries around the world. Rather, they are assessments of the institutional, programmatic, and material health or viability of America's hard military power.

Our analysis concluded with these assessments:

- **Army as "Weak."** The Army's score remained "weak" for reasons similar to those cited in previous editions of the *Index*. The Army has continued to trade end strength and modernization for improved readiness in some units for current operations. However, accepting risks in these areas has enabled the Army to keep only one-third of its force at acceptable levels of readiness, and even for units deployed abroad, the Army has had to increase its reliance on contracted support to meet maintenance requirements. Budget cuts have affected combat units disproportionately: Over the past few years, a 16 percent reduction in total end strength has led to a 32 percent reduction in the number of brigade combat teams and similar reductions in the number of combat aviation brigades. In summary, the Army is too small for the tasks it is assigned, its equipment continues to age, and it struggles to improve the readiness of its operating forces. Concerned by the prospect of a "hollow force" (i.e., units that exist on paper but are woefully understaffed), Army officials, instead

of using a 2017 congressional authorization to increase end strength by creating more units, chose merely to increase the level of staffing in existing units.

- **Navy as "Marginal."** The Navy's readiness score returned to the *2016 Index*'s score of "marginal." While the Navy is maintaining a solid global presence (slightly more than one-third of the fleet is deployed on any given day), it has little ability to surge to meet wartime demands. As in 2016, the Navy's decision to defer maintenance has kept ships at sea but also has affected the Navy's ability to deploy. With scores of "weak" in capability (largely because of old platforms and troubled modernization programs) and "marginal" in capacity, the Navy remained just able to meet operational requirements in 2017. Continuing budget shortfalls in its shipbuilding account will hinder the Navy's ability to improve its situation, both materially and quantitatively, for the next several years—an even larger problem considering that the Navy has revised its assessment of how many ships it needs to 355 instead of the 308 for which it has been budgeting in its 30-year shipbuilding plan.

- **Air Force as "Marginal."** Although the Air Force's overall score remains the same as last year's, a clearer picture of the USAF's aircraft inventory yielded a significant drop in deliverable fighter capacity: The Air Force possesses 923 combat-coded tactical fighter aircraft, 236 below last year's capacity assessment and 277 below the *Index* assessment of 1,200 needed to meet a two-MRC level of military strength. While the Air Force's readiness score remained "marginal," this assessed area continues to trend downward due to increasing evidence of training and maintenance shortfalls, as well as pilots' own assessments of their forces obtained by The Heritage Foundation through personal interviews. Combined with a continued capability score of "marginal," the Air Force's overall military strength score continues to trend downward at a time when America's dominance in the air domain is increasingly challenged by the technological advances of potential adversaries.

- **Marine Corps as "Weak."** The Corps continues to deal with readiness challenges driven by the combined effects of high operational tempo and low levels of funding. Aviation remained the largest challenge for the Corps in 2017 as maintenance and flight hour shortfalls combined with old platforms to cause the service to self-assess a dire state of readiness. The Corps' modernization programs are on track, but it will take several years for new equipment to be produced and fielded; ground combat systems, in particular, are long overdue for replacement. Unlike in past years, the Corps did not publicly provide detailed information about the status of its active-duty force with respect to its state of readiness for combat. The Corps has said the deploy-to-dwell ratio for its active force has dipped below 1:2, revealing increased stress on the force. This, combined with a clear assessment of poor aviation readiness, drove the Marine Corps' overall strength score from "marginal" to "weak" in 2017, making it the only service to drop to a lower category.

- **Nuclear Capabilities as "Marginal."** Warhead modernization, warhead/system testing, and adequate investment in the intellectual and talent underpinnings of the nuclear enterprise continue to be the chief problems facing America's nuclear capability. Delivery platform modernization continued to receive strong support from Congress and the Administration during 2017, with major investments in next-generation bomber and ballistic-missile submarine programs, but the force

depends on a very limited set of weapons (in number of designs) and models that are quite old, in stark contrast to the aggressive programs of competitor states. Of continued concern is the "marginal" score for "Allied Assurance" at a time when Russia has rattled its nuclear saber in a number of recent provocative exercises; China has been more aggressive in militarily pressing its claims to the South and East China Seas; North Korea is investing heavily in a submarine-launched ballistic missile capability; and Iran retains its nuclear infrastructure program as a key feature of the Joint Comprehensive Plan of Action (JCPOA) meant to restrain Iran's nuclear program. The aggressive pace of North Korea's missile testing, which purportedly is tied to its nuclear aspirations, is of particular concern.

U.S. Military Power

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Army		✓			
Navy			✓		
Air Force			✓		
Marine Corps		✓			
Nuclear			✓		
OVERALL			✓		

U.S. Military Power: Army

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity		✓			
Capability			✓		
Readiness		✓			
OVERALL		✓			

U.S. Military Power: Navy

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity			✓		
Capability		✓			
Readiness			✓		
OVERALL			✓		

U.S. Military Power: Air Force

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity			✓		
Capability			✓		
Readiness			✓		
OVERALL			✓		

U.S. Military Power: Marine Corps

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity		✓			
Capability			✓		
Readiness		✓			
OVERALL		✓			

U.S. Military Power: Nuclear

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Warhead Surety				✓	
Delivery Platform Reliability				✓	
Warhead Modernization		✓			
Delivery Systems Modernization				✓	
Nuclear Weapons Complex		✓			
National Labs Talent			✓		
Force Readiness			✓		
Allied Assurance			✓		
Nuclear Test Readiness		✓			
OVERALL			✓		