The finding that single-variable measures of power turn out to be just as effective as more complex indexes for purposes of rank ordering countries—even when they focus on entirely different variables altogether—suggests that exercises in rank ordering may not indicate very much about what makes countries “really” powerful. Such exercises point to how countries compare against one another by some gross measures, but they are not grounded in a clear understanding of what makes certain nations powerful or why some nations can be said to have more power than others. Further, in focusing on rank ordering to the neglect of almost all else, the traditional approaches to measuring power offered an “extensive” rather than “intensive” picture that depicts the global distribution of capabilities but does not enable a close and detailed scrutiny of any specific target country. Finally, most traditional indexes fail to incorporate qualitative factors that describe state capacity, presumably the most important variable that recent research suggests must be incorporated in any adequate assessment of individual national capabilities.

The key limitation of the traditional approaches, therefore, is not that they are wrong but that their methodology is inappropriate for intensively investigating the national power of a few candidate great powers of specific interest to the United States.
ASSESSING THE POWER CAPABILITY OF SPECIFIC TARGET COUNTRIES

For the intelligence community, developing a universal hierarchy of national power capabilities is an interesting effort, but one that is clearly of secondary importance. The primary objective must be to assess the power capability of a few critical countries, one at a time. These countries must be investigated “intensively” in order to assess both the extent and the depth of their capabilities, and such investigations must proceed in accordance with some standardized “template” so as to enable both diachronic comparisons of progress and synoptic comparisons among a small group of peers. The conceptual underpinnings of this template are inspired by the work of Schumpeter, Rostow, Gilpin, Kennedy, and Modelski and Thompson and are depicted in Figure 1.

This graphic suggests that national power is ultimately a product of the interaction of two components: a country’s ability to dominate the cycles of economic innovation at a given point in time and, thereafter, to utilize the fruits of this domination to produce effective military capabilities. Those capabilities in turn reinforce existing economic advantages while producing a stable political order which, though maintained primarily for the country’s own strategic advantage, also provides benefits for the international system as a whole. The ability to dominate the cycles of innovation in the international economy is the critical mainspring beneath the production of power: this implies that national power has fundamentally material components, without which all other manifestations would be devoid of substance. More importantly, however, the ability to innovate—understood in the Schumpeterian sense as the creation of new products and methods of production, the opening of new markets and the

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3Gilpin, op. cit.

4Kennedy, op. cit.

5Modelski and Thompson, op. cit. (1996).
discovery of new raw materials, and the pioneering of new forms of commercial organization\(^6\)—is critical precisely because it allows for \textit{differential rates of capital accumulation between states}.

Thanks to the interrelatedness of all economic activity, major innovations typically appear “clustered” at particular times and in particular economic sectors. This clustering arises because important innovations usually spawn multiple, derivative improvements which grow out of the “creative disequilibrium” that emerges whenever any significantly new products, processes, and organizations forms are introduced in society. Over time, these clusters of related innovations give rise to a new “leading sector” of economic activity that sustains itself mainly because the new innovations, generating supernormal profits, tend to discourage investment in other sectors of the economy in the initial phases of the product cycle. The new leading sector—fueled principally by the outgrowth of productive activities generated by the new innovation—then tends to slowly supplant previously dominant industries and drives a powerful expansion of the economy which, over time, produces consequential effects that reverberate throughout the international economic system. While these effects usually take the form of technology diffusion, product and process imitation, and derivative innovation, the strategic consequences of the generative innovations are that they enable—at least temporarily—productive superiority in the originating country. This superiority derives from the fact that the new leading sectors are, at least initially, concentrated in the countries in which the original innovations occurred, and “it is precisely th[is] uneven dis-

\(^6\)Schumpeter, op. cit. (1934), p. 66.
tribution of innovation at the core that causes temporary gaps be-
tween different countries.”

How certain countries come to achieve dominance in some leading
sectors is a complex phenomenon that cannot be examined here in
any detail. Suffice it to say that the evidence suggests that entities
achieving such dominance in the past were those with:

- relatively efficient domestic markets that enabled smooth access
to resources and credit;
- relatively open societies that encouraged economic innovation
and encouraged creativity;
- relatively ordered institutional arrangements for safeguarding
property rights and ensuring peaceful dispute resolution;
- conscientious political leadership that valued power and control
in international politics;
- sensitivity to global competition and responsiveness to the inter-
national problems of the time.

The evidence also suggests that dominance of the leading sector is
never permanent or timeless, as diffusion, imitation, and competitive
innovations occurring elsewhere combine with the ubiquitous phe-
nomenon of diminishing returns to account for both the decline of
preexisting economic leaders and the rise of new commercial com-
petitors. This phenomenon implies that the nature of the leading
sectors will change over time and that all measures of national power
must, therefore, allow the performance of potential competitors to
be measured relative to both the leading sectors at present—in order

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7Nicole Bousquet, “From Hegemony to Competition: Cycles of the Core?” in Terence
K. Hopkins and Immanuel Wallerstein (eds.), Processes of the World-System (Beverly

8Modelski and Thompson, op. cit. (1996), pp. 51–62. See also William R. Thompson,
“Uneven Economic Growth, Systemic Challenges, and Global Wars,” International

9For one reading of the mechanics underlying this process, see Bousquet, op. cit. For
others, see Karen A. Rasler and William R. Thompson, “War and the Economic Growth
and Christopher Chase-Dunn and Joan Sokolovsky, “Interstate System and Capitalist
to assess the effects of diffusion and imitation, if any—and the lead-
ing sectors of the future—a difficult exercise that involves, among
other things, continual sensitivity to the kinds of innovations that
appear poised to form the leading sectors of tomorrow.10

Irrespective of how successful these analytic efforts may be, the fact
remains that the uneven distribution of innovations generally ac-
counts for why some countries are able to secure superior rates of
capital accumulation, and the historical record illustrated in Figure 2
seems to suggest that—as a slight twist on Mackinder might have it—
“who dominates the leading sectors, dominates the world.”

THE RELATIONSHIP AMONG ECONOMIC INNOVATION,
MILITARY CAPABILITIES, AND HEGEMONY

Even though the advantages in capital accumulation accruing as a
result of successful innovations may never be permanent over histor-
ical time, they are usually substantial enough to allow their posses-
sors to utilize these resources to develop “hegemonic potential” in
the form of effective military forces. As Bousquet noted succinctly,

thanks to these major innovations, the entity wherein they occur
finds itself in a position of production supremacy within the world-
economy, and eventually obtains other dimensions characteristic of
authentic hegemony, namely commercial and financial supremacy,
and political leadership coupled with military supremacy.11

In a power-political sense, therefore, the ultimate value in being able
to dominate the leading sectors of the global economy is that it
makes attaining and maintaining hegemony possible. It has already
been demonstrated, for example, that securing an early lead in the
cycle of innovation is critical for producing hegemony because initial
economic dominance usually allows the innovating state to fend off
later challengers.12 These challengers no doubt arise for all the rea-

10 A good example of such an effort can be found in Steven W. Popper, Caroline S.
Wagner, and Eric V. Larson, New Forces at Work (Santa Monica, CA: RAND, MR-1008-
OSTP, 1998).


sons alluded to earlier, but their inability to match the early innovator’s advantages in accumulated economic resources results—or, at least, has resulted historically—in a failure to successfully replace any extant hegemonies through war.\(^\text{13}\) This outcome may also obtain because “the country creating a major cluster of innovations often finds immediate military applications and [both] propels itself to hegemonic status [and maintains that status] by that mechanism as well.”\(^\text{14}\)

The causal logic underlying the production of hegemony illustrated in Figure 1 allows for the possibility that innovations in military power could—through the mechanisms of war and conquest—allow a country to achieve hegemony even before, properly speaking, it dominates the cycles of innovation in the international economy. In

fact, as early as 1941, barely a few years after Schumpeter’s path-breaking work on economic innovation was published, Albert Rose argued that “modern war may [in fact] be the innovation par excellence in the Schumpeterian system, and as such, the dominant cause of long waves in economic activity.”\textsuperscript{15} There is no reason in principle why military innovation—rather than economic innovation—cannot allow a candidate great power to secure control of the international system as a prelude to reorganizing that system in order to sustain future economic dominance as a precondition for continued hegemonic control.\textsuperscript{16} Consequently, the emphasis on mastery over economic processes in this analysis (rather than over military capabilities \textit{ab initio}) ought to be viewed primarily as a methodological point of entry into the overall logic, which is cyclic and mutually reinforcing and can be explicated in either direction: enduring great power capabilities, and by implication claims to political hegemony, can be \textit{generated} either as a result of domination over the cycles of innovation in the international economy or as a result of the creation of hegemonic potential in the form of superior military capabilities. Ensuring that the hegemony generated as a result of either of these processes \textit{endures}, however, requires the country in question—sooner or later—to \textit{both} dominate the cycles of economic innovation and sustain the production of superior military capabilities. In the final instance, the latter simply cannot be assured without achieving the former.

Having admitted this, however, the production of effective military instruments, usually as a result of (or in tandem with) the predominance established in the economic realm, remains important for hegemony because military forces remain the final arbiter of disputes in the “anarchic” realm of international politics. The country that has the most effective military instruments—understood as an amalgam of technology, doctrine, training, and organization—can shape the operations of the international system to its advantage: it can define and enforce, as it were, “the rules of the game.” This is in


\textsuperscript{16}As Thompson, op. cit. (1983, p. 347) notes, for example, in the context of early modern Europe, “it has not always been a truism, contrary to [Paul] Kennedy, that naval strength depends upon economic strength for naval strength was required first to facilitate the very creation of much of the global elite’s newfound wealth.”
fact the most useful conceptualization of the meaning of hegemony in international politics, since it shifts the emphasis away from simple balances of capability to what such balances produce in terms of power-political effects. The most useful conceptualization of the meaning of hegemony in international politics, since it shifts the emphasis away from simple balances of capability to what such balances produce in terms of power-political effects.\textsuperscript{17} Since international politics remains a realm without a formal authority, order is produced ultimately by those entities capable of dominating the system by force, that is, countries that can develop and field highly sophisticated military forces capable of performing the most demanding military operations that might have to be mounted against a diverse variety of adversaries. Countries that have military forces of such puissance can use these coercive capabilities to both reinforce the existing economic and political concentrations of power in the system and sustain alliance arrangements and international regimes that favor their interests. This implies that the military capabilities of most interest to a framework that seeks to measure national power are those which are readily usable in the customary violence of international politics and which promise effective dominance over a country’s most significant competitors.

These brief remarks about the substantive underpinnings of the framework advanced in this report are intended to emphasize the following issues.

First, it is assumed that countries will remain the most important units of the international system in comparison to individuals, non-government actors, and transnational organizations, at least where issues of “high politics”—those issues relating to order and governance—are concerned. In this environment, countries will continue as the ultimate arbiters of their own political choices, and while these choices will be limited by the actions and capabilities of others, countries will nonetheless continue to employ power in defense of their own interests.

Second, while the roots of national power no doubt derive from a country’s ability to dominate the leading sectors of the global economy, the most important manifestation of power will continue to be military capability because it pertains to the domain of survival and conditions the freedom of action enjoyed by entities in an environ-

\textsuperscript{17}Goldstein, op. cit., p. 281ff.
ment where there is no other overarching ideological or moral constraint on national action.

Third, where military capability is concerned, the ability to conduct diverse conventional operations effectively will remain critical because, even though nuclear weapons have become the *ultima ratio regum* in international politics, their relative inefficacy in most situations other than those involving national survival implies that their utility will continue to be significant but highly restricted. The ability to conduct different and sophisticated forms of conventional warfare will, therefore, remain the critical index of national power because of its undiminished utility, flexibility, responsiveness, and credibility.\(^{18}\)

Thanks to changes in technology and in the mode of production more generally, the ability to conduct *efficacious* conventional warfare, however, will increasingly depend on a country’s ability to incorporate emerging technologies in its military operations, especially its ability to master “information-dominant” operations. While the full extent of what is entailed by this locution is as yet unclear, it is becoming more and more obvious that the ability to exploit the information technology revolution will bequeath its possessors great advantages, especially relative to competitors who may still be locked in the pursuit of the attrition and maneuver strategies followed in the past.\(^{19}\) The ability to engage in such operations effectively, thus, not only promises to increase the power capabilities of a country relative to competitors who engage in an older mode of warfighting, but it also promises to advantage a country against competitors who may either use “information-dominant” operations less effectively or lack the structural depth to engage in such competition intensively over a long period. Arguably, “information-dominant” operations in the context of conventional warfare may also offer some advantages even against competitors armed with small numbers of nuclear weapons or other weapons of mass destruction, and they arguably

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offer other kinds of advantages in “low-intensity conflicts” and in “operations other than war” as well.20

The ability to conduct “information-dominant” operations in the context of conventional warfare implies that, when measuring national power, attention ought to focus ultimately on assessing a country’s warfighting capabilities, understood at least in terms of combat proficiency. This proficiency, in turn, ought to be metered by a force’s ability to effectively conduct the most complex military operations possible given the technologies, doctrines, and organizational forms available to it today or potentially available in the foreseeable future. Because the most potent and flexible conventional warfighting capabilities are the ones that require information-exploiting technologies in various forms—from advanced sensor systems at one end, through flexible and redundant command and control systems, all the way to sophisticated weapons and munitions—the methodology for assessing combat proficiency used by the framework offered in this report implicitly reflects an interest in assessing whether a country is integrating, would be interested in integrating, or is capable of integrating advanced information-intensive technologies into its armed forces.

On balance, therefore, the template for assessing national power offered in this report is based on the presumption that because the “leading sector” today—information and communications technology—affects the economic, political, and strategic capabilities of a country in very significant ways, a comprehensive scrutiny of national power must begin by assessing whether a country can participate in the evolving knowledge revolution, and to what degree, and end by assessing whether it is pursuing efforts to translate (or is capable of translating) the fruits of this revolution into effective military capabilities.

DEFINING NATIONAL POWER

National power can be defined simply as a country’s capacity to pursue strategic goals through purposeful action. This view of national

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power suggests two distinct but related dimensions of capacity: an external dimension, which consists of a nation’s capacity to affect the global environment through its economic, political, and military potential, and an internal dimension, which consists of a nation’s capacity to transform the resources of its society into “actionable knowledge” that produces the best civilian and military technologies possible. Any effort at creating a useful national power profile must incorporate variables that capture these two dimensions.

The revised framework for measuring national power, illustrated in Figure 3, attempts to capture both these dimensions of national power in terms of three distinct realms.

The first realm, “national resources,” seeks to capture the “building blocks” a country needs if it is to develop modes of production that enable it to dominate the cycles of innovation in the global economy and increase its hegemonic potential through the creation of highly sophisticated military forces capable of effectively executing the most demanding military operations against a diverse variety of adversaries. Since the beginning of the current international system, these “building blocks” have usually been measured by variables such as population, size of territory, economic strength (usually...
measured in terms of GNP/GDP), and natural resources.\textsuperscript{21} Not surprisingly, these are the indicators commonly identified by the traditional approaches to measuring power, and they cannot be—and have not been—simply jettisoned. They remain important and, more critically, indicate the thresholds through which countries must pass if they are to become important political and military actors in the international system. Consequently, they are incorporated in this revised framework for measuring national power, but in the context of other, newer qualitative variables that speak to a country’s wider ability to incorporate a science-based knowledge revolution in its economic life. This ability to incorporate newer and ever more effective forms of “actionable knowledge” in every realm of material life is critical because it contributes to creating the foundations for new forms of military power. The “building blocks” of national power identified in this framework are therefore discussed here under the rubric of (1) technology, (2) enterprise, (3) human resources, (4) financial/capital resources, and (5) physical resources.

The second realm, “national performance,” seeks to capture the mechanisms that enable countries to convert the “building blocks” identified in the first realm, which represent latent power, into tangible forms of usable power. The objective of introducing this dimension of national power is to move beyond the traditional view of countries as “bordered power-containers”\textsuperscript{22} to something that models them as active social structures consisting of state and societal actors and institutions, all of which exist in an environment populated by many similar such entities abroad. Introducing this dimension allows the framework to capture an element that most traditional measures of power do not accommodate: the relationship a state has with its own society and the consequences thereof for national power capability. In particular, this level of analysis allows the analyst to assess the levels of external pressures confronting a given country as well as how aware and responsive a particular state-society complex is to the new resources that must be


\textsuperscript{22}Anthony Giddens, \textit{The Nation-State and Violence} (Berkeley: University of California Press, 1985), p. 121.
produced if it is to develop the capability to both dominate the cycles of innovation and transform that dominance into effective hegemonic potential. Including variables like the infrastructural and ideational capacity of a country enables the analyst to characterize the state’s capacity for: discerning the most appropriate socio-technical production choices for augmenting its own power in the face of the prevailing and prospective challenges imposed by both economic processes and international competition; developing the appropriate resources to dominate both the cycles of innovation and the processes of international politics; and, finally, transforming existing resources into effective capital instruments for securing favorable outcomes in both the productive and the coercive arenas internationally. At this level of “national performance,” the three variables to be examined are: (1) the external constraints emerging from the international system, (2) the infrastructural capacity of a given state, and (3) its ideational resources.

The third realm, “military capability,” seeks to capture the manifest signs of national power that are ultimately personified by the combat proficiency of a country’s military force. Military capabilities may be treated almost as the “outputs” of national power production process because they represent the effective coercive strength that a country can bring to bear against any competitors, which is, in the “anarchic” system of international politics, its first line of defense. In the framework illustrated in Figure 3, military capabilities are understood to be a resultant product of the continual, cyclic, interaction of both national resources and national performance: resources may be “building blocks,” but these building blocks, far from existing in nature, must be consciously produced as a result of human artifice, which is captured, however imperfectly, by the domain of national performance. The institutions inhabiting this latter realm, in turn, rely on the resources they have produced both to maintain themselves internally and to expand their own (or their country’s) power externally, and the most important manifestation of this external power is military capability. Many traditional indexes of national power incorporated military capabilities in some form or another, though this was usually done through the use of summary variables like the levels of military expenditure or the gross size of the armed forces. The kind of capabilities focused on in this framework seek a greater level of detail. Toward that end, the examination of
military capability as a vector of national power is patterned analogously to the larger framework for assessing national power. It identifies:

- The strategic resources a military receives from the government it serves, which include defense budgets, manpower, military infrastructure, combat RDT&E institutions, the defense industrial base, and the warfighting inventory and support;

- The variables bearing upon the means by which these resources are converted into effective capabilities—for example, the threats facing a country and the strategy developed to cope with them, the structure of civil-military relations, the density of foreign military-to-military relations, the nature of doctrine, training, and organization, and the potential and capacity for innovation; and

- The capabilities of the combat force itself, understood via a spectrum of warfighting competencies which may be attained to a greater or lesser degree and which may be compared across countries.

In viewing national power in this disaggregated way, it is important to recognize the three distinctive features of this approach. First, while the "country" remains the nominal unit of analysis, it is in fact decomposed into many constituent parts like state and society, each of which has relative capabilities to be gauged. Thus, for example, the quality of the societal base is assessed in the realm of national resources when the level of technology present, the innovativeness of its entrepreneurs, and the skills and quality of its population as represented by its human capital are assessed. Societal character also surfaces in the context of national performance when a nation’s ideational resources in the form of its commitment to wealth and power are assessed. Similarly, state capacity, understood as the effectiveness of a country’s governing institutions, is also scrutinized directly in the realm of national performance where, under the rubric of infrastructural capacity, the examination focuses on how legitimate the state is, the extent to which it penetrates society, and how well it can extract resources from society for its own ends. This argument, that the social structures of a country matter in any assessment of national power, implies a fortiori that the state-society
complex is itself an element in the production of a country’s power and therefore that national power capabilities cannot be treated as exogenous to the ordering structures within a country. The systematic inclusion of such a variable should make the suggested measures more sensitive to the changing nature of power in the postindustrial age. Besides such novel elements, the framework also incorporates more traditional measures, such as those relating to geography when it includes raw physical resources as one component of overall national power.

Second, while the country as the nominal unit of analysis is decomposed in the manner described above to provide a more fine-grained assessment of national power, the interdependencies within its various internal components are also implicitly recognized. Thus, for example, while the societal base may be examined in terms of the levels of technology present, the extent of innovativeness among its entrepreneurs, and the skills and quality of its population as represented by its human capital, there is no doubt that these societal attributes are also clearly a product in some sense or another of specific state choices and actions. By expanding the notion of resources beyond physical assets to include such broad attributes, the framework implicitly argues that the most useful resources in the postindustrial age may not necessarily be natural resources and, consequently, that any useful assessment of national power in the postindustrial age must account for the underpinnings of such power from the oft-forgotten perspective of the capital production choices that any given state makes. By treating resources in the broadest sense possible, this framework then explicitly incorporates interdependency between state and society and thus can help account for how aware and responsive a state-society complex must be to the new resources it will have to produce, if the country is to simultaneously sustain a productive society at the leading edge of economic innovation and keep up with the changing demands of adequacy as military technology, doctrine, organization, and concepts of operation continue to rapidly evolve.

Third, while the broad relationship between state and society is incorporated within this organizing framework, the framework itself is indifferent to any particular normative model of state-society rela-
tions. Following Katzenstein’s pathbreaking work on the subject, it has become customary among many scholars of international politics, especially political realists, to define national strength by reference to the degree of political and economic centralization, such that the existence of centralized political systems is automatically treated as making for stronger countries. This view of national power, deriving in large part from the experience of the rise of absolute monarchies in early modern Europe, however, produces explanatory anomalies. The most conspicuous anomaly remains the United States, a powerful country which by Katzenstein’s criteria possesses both a weak state and a weak society. The United States, however, is just one of many such anomalies because, as Kugler’s and Domke’s research has demonstrated, there appears to be no systematic relationship between political centralization and a country’s national power, especially when understood ultimately as its military capacity. This finding should not be entirely surprising, because both the United States and Great Britain before it remain powerful examples of weak states that nonetheless produced immense national power, both in economic terms and as manifested through a powerful military. The relevant criterion for national power may therefore not be whether a country has a strong or a weak state in relation to its society, but whether it has a minimally effective state—irrespective of what state capacities relative to its society may be. This framework, therefore, seeks to explore the predicates of a minimally effective state without in any way privileging strong states–weak societies or strong societies–weak states (or any other combination, for that matter) as normatively desirable for the production of national power.

While such a framework is intended to be comprehensive precisely because it is meant—eventually—to function as the conceptual foundation for a “national power profile” that can be used to “measure” and “compare” the capabilities of a few candidate great powers of interest to the United States, the template as depicted in Figure 3 does not incorporate any system of internal weights that prioritizes one set of variables relative to another. While it would be

24Kugler and Domke, op. cit., p. 40.
useful, other things being equal, to have such a weighting system, developing one that is both universal and coherent is extremely difficult and perhaps impossible. It may also be unnecessary so long as the objective is to develop *evaluative* measures of national power. The meaning of “evaluative” in this context is the opposite of “automatic”: since the framework is not intended to replicate a mechanical computer but rather to provide an ordering structure that helps regional or national analysts to systematically reach and compare judgments about the power capabilities of a few states, it is hoped that the users themselves would supply—either explicitly or implicitly—any weights they believe are justified on the basis of their knowledge of a specific country. This framework aims to simply identify those variables that arguably are critically necessary for the production of national power in the postindustrial age: collecting empirical data relating to the variables identified in the framework would assist in the formation of more sophisticated judgments about national capability and would allow observers to go beyond simple indicators like GNP or military capital stocks when faced with assertions that some “candidate great powers” may or may not be poised to materialize as true peer competitors of the United States.25

With this as a backdrop, the next three chapters elaborate the revised framework for measuring national power in three distinct realms: national resources, national performance, and military capability.

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25The appendix in this report seeks to assist this process by providing a short list of the most important indicators of national power in the postindustrial age. These indicators are based on the template offered in Figure 3, and to the degree that they represent the minimally necessary information requirements for judging national capabilities, they may be treated as implicit weights that define the most important components of national power from the perspective of the intelligence community.