IMPROVING UNITED STATES ECONOMIC COMPETITIVENESS IN THE GLOBAL MARKET

August 2021
The Analytic Exchange Program (AEP)

The Department of Homeland Security (DHS) Office of Intelligence and Analysis (I&A) has a robust Private Sector Engagement (PSE) section whose mission is to ensure that private sector decision-makers are equipped with the intelligence and information necessary to fulfill their mission. In today’s dynamic and ever-evolving threat environment, it is not only important for the public and private sector to maintain situational awareness, but also to actively coordinate and collaborate. It is only by building partnerships and proactively sharing information we can grow our knowledge base and protect the nation – as well as the private organizations within it.

Every year, public and private sector subject matter experts are paired up to develop unclassified analytic deliverables of interest to the US government (USG) and private sector analysts through the Public-Private Analytic Exchange Program. The Department of Homeland Security serves as the Executive Agent of this program on behalf of the Office of the Director of National Intelligence.

This annual program provides an opportunity to bring together the United States Intelligence Community (USIC) personnel with individuals and organizations outside the intelligence community to explore ideas and alternative perspectives, gain insights, or generate new knowledge and recommendations on how to improve upon USIC priorities and further other national security goals. Participants include USG (federal, state, and local) and private sector analysts.

This program enables government, the USIC, and private sector analysts to gain a greater understanding of how their distinct missions can benefit from public-private collaboration on topics of mutual interest. Teams publish unclassified analytic deliverables which are disseminated across the government and private sector and are available to the public. Teams have been asked to present their work at various conferences and association events. Past deliverables may be found at https://www.dhs.gov/aep-deliverables.

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Abstract

This paper will examine the current state of United States (US) competitiveness in the global economy and provide recommendations on how the US can improve and sustain its economic competitiveness, especially relative to other nations such as the People’s Republic of China (PRC). It will also explore how the USG and private US companies could work more closely to improve US competitiveness in the global market. To manage the complexity of multifaceted challenges to the US economy and various industry sectors from competitors and foreign adversaries, it is essential for true collaboration among the government and its private sector partners.

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I. Introduction

**Improving US Competitiveness in the Global Market:** This topic will examine the growing threat from foreign countries and state-backed companies to US competitiveness and influence on the world stage. It will also explore how the USG and private US companies could work more closely to improve American competitiveness in the global market.

A. Our Approach and Methodology

Given the broad nature of our assigned topic, we have conducted extensive research, interviewed experts from a variety of relevant fields from the public and private sector, and reviewed the existing body of literature. We have deliberately taken a broad, holistic approach to assessing US competitiveness in the global market. Going beyond the original research prompt assigned by ODNI-AEP, our group established the following guideposts for our research findings and recommendations:

1. Look beyond national security – address the problem of securing the defense industrial base.
2. Think about how to counter China and its Belt & Road Initiative (BRI) – to explore the broader definition of US global economic competitiveness.
3. Our foundational hypothesis is that strengthening American domestic economic infrastructure is necessary to strengthen our competitiveness and economic influence abroad.
4. The primary objective of this paper is to create actionable recommendations for both federal government and corporate executives, and to encourage active cross-sector cooperation at all levels to achieve the common goal of ensuring US global economic competitiveness in order to protect America’s security and sustain our material prosperity through the rest of the 21st century.

B. Leveraging Existing Efforts

This report does not contain original research or novel findings. Rather, we have assembled and synthesized existing research, policy proposals, and governmental efforts. First, we define “economic competitiveness” and propose a composite of existing indices to quantitatively and objectively measure US competitiveness. Then, we identify the emergence of a National Industrial Strategy, which we advocate as necessary to enhance US economic competitiveness. We summarize how the US should counter the economic and technological threats posed by the PRC. Thereafter, we provide analysis and recommendations on strengthening public-private partnerships through engagement, collaboration, and incentives, investing in critical resources and technology, and investing in Intellectual Property (IP) protections and K-12 education. We believe a long-term, deliberate, and methodical strategy for enhancing US global economic competitiveness should be enacted across all sectors of society, consistent with America’s tradition of liberal democracy, free-market capitalism, and global leadership of an international, rules-based order. This strategy will not only allow the US to successfully compete and peacefully co-exist (and even cooperate) with China and other great power competitors, but will
ensure the long-term investments in US people, infrastructure, and innovation necessary to secure broad-based economic prosperity across America and the world in the decades to come.

II. Defining and Measuring Economic Competitiveness

**Recommendation:** The US must define measures for economic competitiveness beginning with defining Economic Security itself. In collaboration with the private sector, the USG should establish metrics that the public and private sector agree are achievable, quantifiable, and sustainable.

![Figure 1. Our Approach to Defining and Measuring US Economic Competitiveness](image)

C. Defining Economic Competitiveness

To identify ways in which the US can improve its “competitiveness in the global market,” the USG needs to articulate a definition of economic competitiveness. Harvard Business School’s (HBS) US Competitiveness Project in 2011 defined US competitiveness as:

“The extent that firms operating in the US can (1) compete successfully in the global economy while also (2) supporting high and rising living standards for the average
American. Company success without worker prosperity is not true competitiveness and is unsustainable. 

Figure 2. HBS Report on State of US Competitiveness 2019, Pg. 5

According to the World Bank:

“Rapid, private sector-led growth is essential for ending extreme poverty and boosting shared prosperity…but growth by itself is not enough. Patterns of growth and trends in income inequality also matter if poor are to benefit…. Governments will need to ensure economy-wide incentive frameworks for broad-based growth, and aggressively work to improve the business climate and human capital. This, in turn, depends on coordinated global actions to ensure an open multilateral trading system.”

Robert Atkinson of the Information Technology & Innovation Foundation explained in his April 2020 Report on “The Case for a National Industrial Strategy (NIS) to Counter China’s Technological Rise” as:

“Competitiveness refers to favorable international terms of trade (e.g., relatively better trade balance or currency values). This is achieved by relatively stronger traded sectors: sectors wherein a significant share of output can easily be sold internationally, as opposed to local-serving sectors (e.g., grocery stores, barber shops, etc.). A variety of industries can generate competitiveness, including low value-added ones (e.g., call

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1 Harvard Business School, The US Competitiveness Project is a research-led effort that focuses on the roles that business leaders can play in improving the US business environment to help firms operating in the US compete successfully: https://www.hbs.edu/competitiveness/faq/Pages/default.aspx
centers); natural-resource sectors that rely on extraction (e.g., natural gas, agriculture, mining, etc.); and high value-added, higher-wage sectors (e.g., autos, semiconductors, drugs, etc.) The latter do more to sustainably boost living standards than the former two and should be the focus of any competitiveness strategy. A competitiveness policy includes a wide array of policies and programs designed to boost a nation’s traded-sector competencies, many of which may be quite general in scope and application (e.g., better STEM education).³”

The Council on Competitiveness, an industry group that traces its roots to the Reagan-era Commission on Industrial Competitiveness, takes a technology competition-based view:

“...today’s threats to our economy have only grown through globalization. Today’s competition is a race to see who will innovate and develop key technologies in artificial intelligence (AI), the Internet of Things (IoT) and 3D printing, to name a few. Future prosperity and an increased standard of living is in the balance.”

While useful from a macroeconomics standpoint, traditional measures of economic competitiveness (e.g., GDP growth rate, rate of capital inflows and outflows via foreign direct investment (FDI), GDP per capita, and trade balances) are insufficient in capturing a nation’s actual ability to compete in the global economy successfully and sustainably, nor its ability to raise living standards for its population. In fact, these traditional measures may be counterproductive due to their focus on short-term, financial activities, rather than output that measures true, enduring, and holistic value such as the ability to improve the quality of life and well-being of a nation’s citizens, create transformative new technologies through IP, or ensure the security and self-sufficiency of a nation.

There are many “non-traditional,” holistic metrics – many of them collected through rigorous scientific methods. There has been a growing trend over the last two decades amongst economists and the global finance industry to incorporate ESG (environmental, social, governance) concerns into measures of economic growth. Indeed, over the last decade, climate change and social inequality have driven these issues to the forefront of discussions related to human survival and social cohesion. Some of these ESG measures are captured as “resilience” measures.⁴ A nation’s ability to prepare for and recover from a major catastrophe, whether climate change-induced natural disaster or manmade threats such as war or terrorism, is a matter of national survival and a kind of competitive advantage currently unaccounted for by traditional measures. This has been particularly pronounced with the disruption to global economies due to the ongoing COVID pandemic.

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⁴ https://oneconcerninc.medium.com/the-business-case-for-resilience-d043823cbe4
We propose our own definition of US economic competitiveness:

**The ability for the US to continually improve the prosperity, security, and quality of life for all Americans by ensuring that American companies and workers can achieve a sustainable competitive advantage in the global economy. This advantage can be achieved through public-private investments in technology innovation and human capital, and strengthening the domestic business climate and international trade environment.**

### D. Measuring Economic Competitiveness

Beyond defining economic competitiveness, we must be able to measure US economic competitiveness using common metrics against historic US “performance” and against the performance of other nations. Ideally, these measurements would be a composite of leading traditional and non-traditional indicators that not only measure current levels of economic prosperity, but also point to the economic potential of a nation. A combination of rigorous, established, and trusted US and international organizations already compile indices and measures that could inform a common set of US global economic competitiveness metrics. The following proposed framework lists major factors contributing to US economic competitiveness, along with examples of existing measures. These form a potential baseline of existing scholarship and methodology from which a universal, composite measure may be derived.

#### 1) Overall competitiveness:

a) World Economic Forum’s Global Economic Report, useful to define and measure US competitiveness, relative to other nations.\(^5\)

b) Top-ranked Swiss business School International Institute for Management Development (IMD) has an annual World Competitiveness Ranking that “analyzes and ranks countries according to how they manage their competencies to achieve long-term value creation. An economy’s competitiveness cannot be reduced only to GDP and productivity because enterprises also must cope with political, social, and cultural dimensions. Governments therefore need to provide an environment characterized by efficient infrastructures, institutions and policies that encourage sustainable value creation by the enterprises” (in 2021, the US ranked 10\(^{th}\) on IMD’s ranking).\(^6\)

c) The Legatum Institute, a UK-based think tank has created The Legatum Prosperity Index, “a framework that assesses countries on the promotion of their residents’ flourishing, reflecting both economic and social wellbeing. The Council on Competitiveness offered letter grades on policymakers’ progress on its recommendations to protect American competitiveness from 2013-2018. It identifies key technology areas that deserve investments in federal R&D investment and the competitive threat posed by other nations.”\(^7\)

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\(^5\) [https://www.weforum.org/reports](https://www.weforum.org/reports)

\(^6\) [https://www.imd.org/centers/world-competitiveness-center/rankings/world-competitiveness/](https://www.imd.org/centers/world-competitiveness-center/rankings/world-competitiveness/)

\(^7\) [https://www.prosperity.com/about/summary](https://www.prosperity.com/about/summary)
i) Legatum’s index uses 12 pillars of prosperity split into 66 discrete policy-focused elements and 294 different indicators from 80 different data sources. The US ranks 18th on this index.\(^8\)

2) **Composite, human-centered measures: UN Development Programs**
   a) Human Development Index is a holistic assembly of measures related to income, employment, inequality, gender development, trade and financial flows, inequality, poverty, health, education, demography, security, environmental sustainability, and socio-economic sustainability.\(^9,10\)

   ![Figure 3. UN Human Development Index Framework](image)

   b) Though it is difficult to compare the US to other countries, the HDI shows the US ranks 17th overall in 2020.\(^11\)

3) **Innovation:** The foundational pillar of economic competitiveness.
   a) The World Intellectual Property Organization produces an Annual Innovation Index.\(^12\)
      i) In the Global Innovation Index 2020, the US placed 3rd behind second place Sweden and first place Switzerland.
      ii) In the 2020 ranking of The Top 100 Science and Technology Clusters, three US cities scored in the top 10 clusters (San Jose-San Francisco, CA: #5; Boston-Cambridge, MA: #7; New York City, NY: #8).\(^13\)
   b) The Council on Competitiveness offered letter grades on policymakers’ progress on its recommendations to protect American competitiveness from 2013-2018. It identified key technology areas that deserve investments in federal R&D investment and the competitive threat posed by other nations.\(^14\)

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8. [https://www.prosperity.com/rankings](https://www.prosperity.com/rankings)
4) **Health and Wellness**: The Global Wellness Institute lists several happiness and wellbeing indices, including:\(^\text{15}\)

a) Bloomberg Healthiest Countries Index\(^\text{16}\)

b) OECD Better Life Index, which compares “well-being across countries, based on 11 topics the OECD has identified as essential, in the areas of material living conditions and quality of life”\(^\text{17}\)

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\(^{15}\) https://globalwellnessinstitute.org/industry-research/happiness-wellbeing-index/


\(^{17}\) https://www.oecdbetterlifeindex.org/#/1111111111
5) **Economic dynamism**: Captures the “ease of doing business,” with a focus on rates of entrepreneurship, and rates of business formation.
   a) US think tank, the Heritage Foundation, creates an annual Index of Economic Freedom. For 2021, it ranks the US 20th (Singapore is 1st).18

6) **Governance and institutional integrity**: Strong rule of law serves as the best defense against corruption, intrusive bureaucracy, and state interference, and is essential to competitive countries:
   a) The international NGO Transparency International creates an annual Corruption Perceptions Index. For 2020, it ranked the US as 25/180, down six places since 2012.19

7) **Internal disparities**: Aggregating overall US performance may obfuscate vast disparities across states and regions. Thus, a breakdown of competitiveness and economic performance amongst states, if not smaller units (e.g., Census tracts, Metropolitan Statistical Areas, HUB Zones, Opportunity Zones, etc.) may be helpful for further analysis.
   a) Comparison of state economies comparison (using BEA, BLS, US Census data).20
   b) The American Legislative Exchange Council “is the largest nonpartisan, voluntary membership organization of state legislators in the United States.” The council has created [www.richstatespoorstates.org](http://www.richstatespoorstates.org) as a publicly available tool to compare tax policies by state.

8) **Productivity**: The UN’s International Labor Organization compiles statistic on labor productivity. They define labor productivity as “an important economic indicator that is closely linked to economic growth, competitiveness, and living standards within an economy. Labor productivity represents the total volume of output (measured in terms of Gross Domestic Product, GDP) produced per unit of labor (measured in terms of the number of employed persons or hours worked) during a given time reference period.” In the 2019 ranking the US ranks 6/189.

9) **Education**: The National Center for Education and the Economy compiles metrics such as Organization of Economic Cooperation and Development’s (OECD) Program for International Student Assessment (PISA) performance, equity, and education spending to compare the performance of leading education systems, including the US system. The US scored below the OECD average on several metrics.21

10) **Infrastructure**:  
    a) The American Society of Civil Engineers notes that by 2039 “nearly $13 trillion is needed across 11 infrastructure areas: highways, bridges, rail, transit, drinking water, stormwater, wastewater, electricity, airports, seaports and inland waterways. With planned investments in infrastructure currently totaling $7.3 trillion, that leaves a $5.6 trillion investment gap by 2039.”22

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18 [https://www.heritage.org/index/ranking](http://https://www.heritage.org/index/ranking)  
b) The G20 group of nations has established a Global Infrastructure Hub Infrastructure Outlook which compares infrastructure investments by sector, for each nation. This measure does not rank countries but identifies the gaps in infrastructure spending.23

11) Resilience and Sustainability:

a) Health Security: John Hopkins University and The Economist Intelligence Unit have created the Global Health Security (GHS) Index as “the first comprehensive assessment and benchmarking of health security and related capabilities across the 195 countries that make up the States Parties to the International Health Regulations (IHR [2005]).”24 This index ranked the US 1/195 countries. National resilience in general, and pandemic preparedness and response, has become a new form of national power.25

b) Disaster Preparedness. Former FEMA director Craig Fugate argues26 for the inclusion of Resilience, in addition to the Environment, Sustainability and Governance metrics for governments, investors, and companies given disasters cost the US $190 billion in 2020, up 50% from 2019. NOAA estimates from 1980-2020, the US has suffered from $1.9 trillion in damages from weather and climate disasters.27 Measuring our nation’s resilience and ability to recover from and withstand these disasters is a key component of economic competitiveness. The World Economic Forum explains the importance of measuring resilience28 and suggests City Resilience Index as a good collection of metrics.29

These frameworks and metrics offer a potential baseline and starting point for ideas on how the US could measure its own economic competitiveness, in a meaningful and measurable way, against other countries. The USG should create an authorized entity composed of a board of academics, government leaders, and corporate executives to establish a formal definition and authoritative metrics to annually measure and assess US global economic competitiveness. These metrics and the report they create could then serve as waypoints and indicators for how to adjust policies and economic drivers.

III. Sizing up the Competition: Where Does the US Stand?

Recommendation: The USG, through a collaborative effort directed by the private sector, should continually assess US performance relative to its established competitiveness – for the purposes of measuring incremental progress towards long-term objectives vice short-term market performance. Further, this USG-led and private-sector-directed analysis should take a holistic and objective look at its economic competitiveness strengths and weaknesses to define and refine these long-term objectives.

23 https://outlook.gihub.org/
24 https://www.ghsindex.org/about/
27 https://www.ncdc.noaa.gov/billions/
29 https://www.cityresilienceindex.org/#/
A. Benchmarking US competitiveness

From the composite indices of competitiveness metrics above, the USG could take the lead in identifying Key Performance Indicators (KPIs) or benchmarks to be used by the USG, the private sector, and individual US citizens to measure US performance in achieving “economic competitiveness” and progress against the collective agreed upon objectives. The Office of Management and Budget (OPM) is well versed in this approach via its www.performance.gov effort. Multiple agencies (see Appendix: Data Sources), such as the Treasury Department, produce public economic metrics. The difference here is in measuring long-term economic competitiveness rather than short-term economic performance.

Using these metrics, the US could take a comprehensive and objective look at its strengths and weaknesses (e.g., Strengths/Weaknesses/Opportunities/Threats (SWOT) style analysis) and define its long-term objectives to mobilize resources, policies, and market incentives accordingly.

B. Is the US economy declining in competitiveness?

There is a fundamental assumption amongst many public intellectuals and pundits that the US’ place is declining as the largest and most innovative and globally competitive economy. Is this true?

One particular industry expert believes that long-overdue investment in modernizing America’s public infrastructure is important to ensuring long-term US global competitiveness, from an economics and security perspective. This applies beyond securing the defense industrial base, to include investing in strong public education and digital infrastructure. Other industry experts echoed this belief, stating the US should not be complacent given the large and focused investment that many advanced economies in Asia (including the PRC) have made in infrastructure, R&D, and public education.

If we start with the framework and sample metrics outlined in the previous section, we can attempt to answer this question.
### Latest Human Development Index Ranking

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<th>Rank</th>
<th>Country</th>
<th>HDI value (2019)</th>
<th>Life expectancy at birth (years) SDG3</th>
<th>Years of schooling (years) SDG 4.3</th>
<th>Mean years of schooling (years) SDG 4.6</th>
<th>GNI per capita (PPP $) SDG 8.5</th>
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<td>12.3</td>
<td>62,985</td>
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<tr>
<td>18</td>
<td>Austria</td>
<td>0.922</td>
<td>81.5</td>
<td>16.1</td>
<td>12.5</td>
<td>56,197</td>
</tr>
<tr>
<td>19</td>
<td>Israel</td>
<td>0.919</td>
<td>83.0</td>
<td>16.2</td>
<td>13.0</td>
<td>49,187</td>
</tr>
<tr>
<td>19</td>
<td>Japan</td>
<td>0.919</td>
<td>84.6</td>
<td>15.2</td>
<td>12.9</td>
<td>42,032</td>
</tr>
</tbody>
</table>

By some measures, real and perceived, the US has declined in economic competitiveness, relative to its historic dominance. China is perceived to be on the rapid rise to surpass the US in such areas as infrastructure development, technology R&D, education, and manufacturing capacity. Other, smaller nations have risen rapidly or occupied world-leading competitive advantage in certain high-technology industries—for example Taiwan for semiconductors, South Korea for consumer electronics, and Israel for defense technology. Yet, no single nation appears to displace nor replicate the role of the US, in scale or impact.

IV. National Industrial Strategy

**Recommendation:** The USG and private sector must have a cohesive, coordinated National Industrial Strategy (NIS) and a means to execute it.

The urgency of COVID-19 exposed vulnerabilities in US economic resilience, industrial supply chains, and manufacturing capacity. Yet the pandemic also highlighted the soaring heights to which US scientific and technological innovation are capable of achieving when directed well—specifically in the development, testing, and distribution of multiple COVID vaccines. Mr. Atkinson, of the Information Technology & Innovation Foundation, argues the current nature of

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challenges facing US advanced industry competitiveness demand a modern NIS that will ensure “long-term competitive and economic resilience.” He defines Industrial Strategy as:

“An industrial strategy is a set of policies and programs focused on a select group of industries (and technologies) to help assure national economic well-being. An industrial strategy is the intentional set of policies focused on supporting key high-value-added, non-natural resource-based traded sectors identified as critical to a nation’s economic competitiveness and security. Enacting an industrial strategy enhances competitiveness. But the converse may not be true. Competitiveness can also be attained in ways that don’t include targeting sectors, and result in expanded output in non-key sectors such as natural resources and low-value-added exports.”

A NIS is not a centralized economic command structure with five-year plans and massive state-owned enterprises. It also should not reflect “crony capitalism” that picks specific companies to serve as national champions like Korean chaebols or Japanese zaibatsu. The following section outlines recommendations for how to devise and execute a long-term strategy to sustain America’s global competitive advantages, consistent with American values and history as a democratic, free-market society. It will be up to the executive leaders throughout the government – both federal and state – and their private sector counterparts to determine the actual industrial strategy. Mr. Atkinson outlines a useful continuum of industrial strategy, ranging from “laissez fair” to “picking winners” of Figure 8.

Figure 8. From ITIF, "The Case for National Industrial Strategy to Counter China's Technological Rise", "What Industrial Strategy is Not"
Mr. Deese notes that over the last 40 years in the US (as exposed by the COVID-19 pandemic), “[The US] private sector and public policy approach to domestic production prioritized low, short-term costs over security, sustainability, and resilience. This was the wake-up call.”

A NIS must balance being inclusive of multiple and often competing interests and activities, while simultaneously articulating a clear vision and set of priorities. Previous attempts to articulate a NIS include:


- RAND Corporation’s 2016 publication, “US International Economic Strategy in a Turbulent World,” which “focuses on policy choices in the areas of maintaining and improving the rules-based international economic system; working with China and better integrating it into the existing system; supporting the economic growth of allies, friends, and partners; and using economic tools to change unwanted behavior and counter adversaries.”


- For a Department of Defense view of “economic security,” this 2018 Joint Forces Quarterly article on “The USG’s Approach to Economic Security: Focus on Campaign Activities.”

- Dr. Mir Sadat notes in a 2020 article titled “Why innovation is so important to American global leadership” that American technological and industrial innovation has been the driver of American strength and prosperity since the dawn of the industrial age, but “today’s digital age-innovations create platforms that provide asymmetric capabilities for America’s adversaries to undermine our privacy rights, democratic ideals, economic success, global influence and national security. Global competitors such as China invest along all cycles of their industries to dominate global markets and snuff out competing technologies. China also finances its quasi-private sector to disadvantage US companies.” He advocates the establishment of a national innovation policy to “to modernize government; coordinate between the government, industry and academia; transform monopolistic or oligopolistic markets into competitive sectors; and ensure that America regains global economic leadership through foreign partnerships.”

areas of focus including ramping up R&D funding, reforming, government procurement, workforce training, and government enhancing opportunities for innovators to compete in international, rules-based, free market.35


Figure 9. From Council on Competitiveness, 2018 Clarion Call, Pg. 9

B. Other Considerations

Formalizing the development and execution of a comprehensive US strategy first demands a non-partisan, objective understanding of competitive threats and the global economic landscape, just as US national security strategy requires trusted, objective sources of intelligence. Second, there must be buy-in across a broad array of stakeholders from the public to private industry to state and local governments. Third, a long-term, evidence-based, methodical approach must be insulated by partisan politics. To achieve this goal, current and future administrations and private sector partners should consider the following:

1. **Protect from partisanship.** The HBS US Competitiveness in 2019 identified “hyper partisan, gridlocked politics” and lobbying by businesses and special interests as the central reason why “despite a decade of steady economic growth since the Great Recession, America has done remarkably little to address underlying structural weaknesses in the country’s economy and society. The nation has squandered the recovery,” refusing to use economic growth to reduce public debt, build buffers against

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36 [https://www.uschamberfoundation.org/bhq/national-competitiveness-strategy-7-pillars](https://www.uschamberfoundation.org/bhq/national-competitiveness-strategy-7-pillars)
future recessions, or make long-term social or infrastructure investments as was done in past generations. A modern NIS must avoid these mistakes.

2. **Unity and Coordination of Effort:** Given the breadth and reach of a NIS across most, if not all, federal agencies, public-private partnerships, in coordination with state, local, tribal, and territorial efforts, and work directly with the public, a centralized coordination body would be required. One possibility is an expansion or merger of the Council of Economic Advisors (CEA) and the National Economic Council (NSC) similar to the National Security Council (NSC) or the current Office of the Director of National Intelligence (ODNI). The specifics of organizational structure are less important than ensuring that policies and initiatives don’t work at cross-purposes to achieving national competitiveness outcomes. Mr. Atkinson’s ITIF report includes some specific organizational suggestions in the section “The Outlines of a National Advanced Industry Competitiveness Strategy”37 which could serve as a primer.

3. **US Should Invest in Itself.** Professor Laura Tyson of the Haas School of Business-UC Berkeley notes that in US vs. PRC economic competition, it is not about “stopping China,” but rather the US’ lack of investment in its future and its people that stymies US competitiveness. In her analysis of the S3T infrastructure plan proposed by the Biden Administration, Prof. Tyson noted it presented an opportunity to demonstrate that a “market democratic system can function at the highest level of competition, innovation, efficiency, and job creation” more so than an autocracy. She viewed the plan favorably to invest in physical infrastructure to include water systems, roads, and bridges, human capital, and worker training, and in R&D spending to stimulate innovation. Prof. Tyson explained that the development of the COVID vaccines was an example of how government-funded R&D, procurement, and distribution can boost US economic competitiveness.38

4. **Global Engagement.** The recommendations from the 2016 RAND proclaimed “the rules-based international system that has evolved since the end of World War II is as beneficial now as it has ever been and should be maintained and improved by key players.”39 As Mr. Deese noted in June of 2021, industrial strategy, economic policy, national security, and foreign policy are intertwined and success in one arena should provide benefits to other arenas as well. American trading partners and allies around the world were anxious about US disengagement from multi-lateral institutions and trading regimes during the Trump Administration and subsequent withdrawal from the Trans-Pacific Partnership championed under the Obama Administration. While many traditional Asian allies, even South Korea and Japan, are hedging their bets between US or PRC economic dominance in the region, these allies also eagerly look to the US to

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continue its leadership role by participating in – and strengthening – the “rules-based international order” governing global commerce and economic competition.

5. **Human Factors.** The NIS should not forget real, human factors such as employment, wage growth, social progress, health and environmental protections, worker safety and rights, the impacts of automation, a holistic appraisal of outsourcing and offshoring, and the role of skilled and unskilled immigration in shoring up certain industries.

6. **Soft Power.** We should not discount the “soft” power of the US which goes beyond the influence and goodwill of aid, trade, and investment. This includes factors such as English as the global language of business, the “attractiveness” of the US’ popular culture, media, consumer brands, educational institutions, popularity as an immigration destination for the “best and brightest,” and reputation overseas.  

V. **Economic Competitiveness of US vs. PRC**  

**Recommendation:** The US must have a long-term economic strategy that accounts for the rapid and long-term rise of China’s economy. The fundamental pillars of a National Industrial Strategy will drive this strategic approach with the PRC. Strengthening domestic infrastructure, R&D, and education will strengthen America’s competitive position vis-à-vis China. Furthermore, renewed engagement in alliances and multi-lateral institutions will create a more predictable environment for our allies and for American export markets, and channels for constructive engagement with the PRC.

The PRC poses a unique challenge to the US because of its application of economics and inclusion of traditional businesses in its Civil-Military Fusion regime. Further, the PRC can compel domestic companies to cooperate with centrally planned economic packages, national security laws, and intelligence gathering to advance its competitiveness. To counter this challenge, the US should resume and re-invigorate its traditional place as the standard-bearer of the international rules-based order and facilitate China’s place within the global community under this paradigm. Steady, principled, and firm engagement with the world and with China is in America’s best long-term interest. This is particularly true for America’s traditional leadership on major global issues (e.g., climate change, disaster response, pandemic response, cybersecurity, and counterterrorism).

The Council on Foreign Relations (CFR)’s independent task force on China’s BRI noted that US retreat from the world merely created a vacuum that the PRC eagerly filled with BRI investment. The US must offer a compelling model for other nations to follow. At the same time, CFR argues that “The United States has a clear interest in adopting a strategy that both

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https://foreignpolicy.com/2021/03/31/china-wants-a-rules-based-international-order-too/

41 https://www.e-ir.info/2020/07/03/the-state-of-chinas-soft-power-in-2020/

pressures China to alter its BRI practices and provides an effective alternative to BRI – one that promotes sustainable infrastructure, upholds high environmental and anticorruption standards, ensures US companies can operate on a level playing field, and assists countries in preserving their political independence.\(^\text{43}\)

For a comprehensive assessment of PRC’s BRI, we recommend:

- The Council on Foreign Relations’ (CFR) Independent Task Force Report No. 79, “China’s Belt and Road: Implications for the United States”\(^\text{44}\)
- The Center for Strategic and International Studies (CSIS) “China Power” series on BRI\(^\text{45}\)

AidData, a research lab of the University of William & Mary, compiled and geolocated data for Chinese government-financed BRI projects between 2000-2014, covering 3,485 projects worth $273.6 billion US Dollar (USD) in total financing.\(^\text{46}\) The infographic map below (Figure 11) shows a clear preference for emerging markets in Africa, Southeast Asia, and South America.\(^\text{47}\)

\[\begin{align*}
\text{Figure 10. W&M Global Research Institute’s “AidData”: How China is Financing is Fueling Megaprojects Around the World}
\end{align*}\]


\(^{45}\) https://chinapower.csis.org/tag/belt-and-road-initiative/

\(^{46}\) https://www.aiddata.org/data/geocoded-chinese-global-official-finance-dataset

\(^{47}\) Map courtesy of Visual Capitalist: https://www.visualcapitalist.com/global-chinese-financing-is-fueling-megaprojects
A. Is the PRC replacing the US?

American intellectuals seem to love prophesying “American declinism.” However, America still maintains its posture as the global leader and is seeing significant bipartisan support in countering the economic and security threat from the PRC.\(^{48}\) To get a contextual, qualitative answer to the question of how competitive the US economy remains, we interviewed several experts in international economic relations between the US and Asia. Each independently concluded, from their respective conversations with executives and political leaders in the region, that the US is indeed the indispensable nation and economy. While many of these Asian nations’ industries and firms competed against American industry, they were also intertwined with American capital, whether in the form of multi-nationals, intertwined supply chains and human resource pools, or investor capital.

The US has a plethora of tools at its disposal to wield its global economic power in the service of its economic interests including, but not limited to international trade, aid and investment platforms and policies. The US would benefit from a long-term, deliberate strategy that provides focus to citizens and industry alike, re-assurance to its allies, and pressure on its adversaries. It must be driven by a clear-eyed vision of what the US economy should be and should not be driven by an irrational fear of being displaced by China as the sole, global economic superpower.

B. Countering PRC global economic influence

Each of the Asia experts we interviewed independently believed that all the Asian countries outside of China (e.g., ASEAN, South Korea, Japan) were quite anxious about a world absent American leadership and engagement in setting standards, leading cooperation, serving as the global currency holder, and enforcing rules in the international economy. Many did not view any other nation—including the European Union (EU) as a whole, nor even China as offering any true substitute for America in this role.

When speaking about the perception of BRI amongst developing countries, experts had noted that most nations participated out of a sense of reluctance. They understood the onerous terms and the possibility of a “debt trap.” But from their perspective, developing nations felt there were no comparable alternatives from the US, the World Bank, or the West or were equally cynical about the intentions of Western nations and their colonialist history. Thus, BRI is one of the developing nations’ few available options for accessing FDI for large projects.

The Asia Society Policy Institute and the Rhodium Group have created a useful dashboard to assess the performance of China’s policy reforms compared to the US and international standards. This type of benchmark offers a useful framework to assess US performance relative to China’s.\(^{49}\)

https://www.foreignaffairs.com/articles/china/2020-12-03/china-challenge-can-help-america-avert-decline

\(^{49}\) https://chinadashboard.gist.asiasociety.org/china-dashboard/
In a forthcoming report by Business Executives for National Security, the BRI policy is highly dependent on access to USD through sovereign foreign exchange reserves and debt raised by state-owned policy and commercial banks. This is chiefly due to the fact the renminbi’s (RMB) relative insignificance in global finance. The Chinese economy contributes 10% of globally traded goods, yet the RMB accounts for just 1.76% of global payments and 4.3% of the foreign exchange market. There are several reasons for this, including the Chinese Communist Party’s strict capital controls, their restrictions on issuance of private debt, and their continued refusal to permit the RMB to become fully convertible. As a result, partner firms and contractors engaged in BRI projects generally prefer that the contracts be executed, like most global transactions, in US dollars. Entities that invest in China through these mechanisms are facilitating the Chinese Communist Party’s financing of the BRI, making them key parts of the debt trap diplomacy that the BRI has come to engender. Therefore, a clear opportunity exists – largely through a lens of Environmental, Social, and Governance standards – where US institutional investors can limit China’s ability to raise capital for BRI projects through China’s bond market.

Figure 11. Asia Society Policy Institute and Rhodium Group “China Dashboard”

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50 https://www.bens.org/
51 https://www.regulationasia.com/china-to-promote-cross-border-use-of-renminbi-says-pboc/
Bloomberg recently published analysis of Chinese economic growth data (as measured by Per Capita GDP, PPP, and other traditional measures). This analysis examines multiple scenarios, accounting for major factors such as an aging population, unsustainable fiscal debt, international isolation, and financial crises. In a best-case scenario with everything going right, China’s GDP could surpass the US as early as 2031. However, other scenarios show that China’s economic size may never surpass the US. Thus, as much as the PRC touts its inevitable rise as the largest economy in the world, many other factors may delay or prevent such an outcome.\textsuperscript{54}

\textit{Figure 12. Bloomberg Analysis of China’s GDP Growth Scenarios}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure12}
\caption{China as Number 1? Reform failure, international isolation, and financial crisis could halt China's rise}
\end{figure}

C. Countering PRC technological rise

\textbf{PRC Directed Technology Transfer.} First, there is the immediate problem of “technology transfer” or “IP theft,” which the Commission on the Theft of American Intellectual Property estimates as inflicting over $1.2 trillion in economic damages to the US economy as of 2017 and probably growing worse.\textsuperscript{55} Furthermore, the PRC employs a web of relationships, capital, and coercion that provides access to, incentives for, and leverage over Chinese international venture capital firms, investment companies, technology firms, and prominent tycoons (e.g., Alibaba founder Jack Ma). This all-encompassing, authoritarian model ensures the PRC (particularly

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{54} \url{https://www.bloomberg.com/news/features/2021-07-05/when-will-china-s-economy-beat-the-u-s-to-become-no-1-why-it-may-never-happen}
\end{itemize}
\end{footnotesize}
under the consolidated power of President Xi Jinping) can directly subordinate China’s commercial technological innovation to achieve the aims of the state. Under Xi’s leadership, the PRC has managed to co-opt some aspects of the international capital markets to achieve its aims. As Steve Blank notes, “China’s Military-Civil Fusion and National Intelligence Law stacks the deck against every US and Western company. You’re not competing against an individual Chinese company; you’re competing against the Chinese government.”

Indeed, China’s Five-Year Plan “could help shape the direction of high-tech industries (and emerging technologies) laden with venture capital-backed startups.” Analysts estimate that Chinese VC-backed companies raised more than $57 billion USD in 2020, with 2021 deals on peace to exceed these amounts. Start-ups and venture investors may be tempted to yield control or IP in exchange for lucrative PRC-based capital and market access. A coherent NIS that provides strong and consistent incentives to keep or attract start-up innovation to the US would be vital – ideally led or at least tied into existing efforts such as the Committee on Foreign Investment in the United States (CFIUS) for example.

**Figure 13. Council on Competitiveness, 2018 Clarion Call, Pg. 34**

![Figure 11. Vehicles for Chinese Technology Transfer from the United States](source: China's Technology Transfer Strategy: How Chinese Investments in Emerging Technology Enable A Strategic Competitor to Access the Crown Jewels of U.S. Innovation, Defense Innovation Unit Experimental, January 2018.)

**Understanding China’s Technological Roadmap.** While the overall NIS should be broader than just countering PRC technical capabilities, it is important to understand the PRC’s own stated economic and technological roadmap, which it publicizes via its own Five-Year Plans. In

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58 Department of Treasury. [https://home.treasury.gov/policy-issues/international/the-committee-on-foreign-investment-in-the-united-states-cfius/cfius-overview](https://home.treasury.gov/policy-issues/international/the-committee-on-foreign-investment-in-the-united-states-cfius/cfius-overview)

the latest, 14th-Five Year Plan for 2021-2025, the PRC explicitly names seven strategic, “frontier technologies” that it would prioritize for the next five years and beyond:

- Artificial Intelligence
- Quantum information (including quantum computing)
- Integrated circuits or semiconductors
- Brain science
- Genomics and biotechnology
- Clinical medicine and health
- Deep space, deep earth, deep sea, and polar research

While its clear IP theft has allowed PRC to leapfrog years of development in critical military technologies, the significant PRC talent pool of genuinely gifted scientists, engineers, and entrepreneurs (many educated and tested in the West), as well as large and varied state investment in R&D, infrastructure, education, and innovation cannot be dismissed or ignored.

**Digital Authoritarianism.** The PRC is using modern internet technologies as well as the global infrastructure for financing technological innovation to expand its digital infrastructure footprint around the world, export a technology-facilitated model of authoritarian governance, acquire “dual-use” (civilian and military) technological advantages by any means available, and subvert US dominance in technological innovation. However, there is also an opportunity for US companies to meet domestic and international demand for “smart cities” tech that also respects personal privacy and civil liberties.

1. **Smart Cities, Surveillance, and Control.** One PRC industrial strategy that has been deliberate is exporting “smart cities” digital infrastructure via the BRI. These surveillance technologies include: sensors, 5G networking equipment, and cloud computing infrastructure cyber monitoring tools. China has also deemed Artificial Intelligence / Machine Learning (AI/ML) technologies a national priority. State funds and powerful players in the PRC are some of the biggest investors and sponsors of internet companies, including the world’s e-commerce, fintech, and social media platforms. These online platforms have protected market share, resulting in capture of large swaths of China’s population—vast data stores that can be used to train sophisticated AI/ML algorithms to detect and predict behavioral patterns. The benign uses of “smart cities” technologies harness IoT sensors, 5G networks, cloud, and AI/ML to promote the safety, security, efficient movement and resilience of large urban networks including transportation, public safety, law enforcement, and utilities. However, the more nefarious use of “smart cities” tech is in piloting an Orwellian Panopticon digital surveillance state characterized by facial recognition, social credit scoring, movement tracking which the PRC has tested on its own populous cities and especially in the Xinjiang Uyghur Autonomous Region.

2. **Fragmented Global Internet.** This technology arena poses a threat, given the PRC’s eagerness to export its infrastructure industry know-how, and governance model of

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61 [https://www.cnbc.com/2021/03/05/china-to-focus-on-frontier-tech-from-chips-to-quantum-computing.html](https://www.cnbc.com/2021/03/05/china-to-focus-on-frontier-tech-from-chips-to-quantum-computing.html)
62 [https://www.ft.com/content/76fdac7c-7076-47a4-bcb0-7e75af0aadab](https://www.ft.com/content/76fdac7c-7076-47a4-bcb0-7e75af0aadab)
“digital authoritarianism.” Indeed, China is purposefully creating an alternative model for the (historically US-dominated) global internet itself by using its telecoms providers to build a “Digital Silk Road” and locking nations in the PRC technology ecosystem. This poses one of the most dangerous challenges to the international, rules-based order, US global economic competitiveness and US national security.

3. **US Civil-Military Alliance.** Stanford University professor, serial entrepreneur, and venture capitalist Steve Blank has long advised various USG agencies, especially the Department of Defense, on how acquire or develop innovative technologies or commercialize technologies from federal labs. He notes, that for the first time in history, modern military technology innovation is driven by consumer demand and profit, rather than traditional defense companies. Some of these commercial innovators are Chinese companies (i.e., state- and privately-owned). He explains the PRC’s “Military-Civil Fusion,” which integrates Chinese industry and academia in the quest to acquire, develop, or improve technologies with military applications for the People’s Liberation Army (PLA). China uses its National Intelligence Law that mandates citizens and even international companies operating in China to cooperate with PRC’s state defense and intelligence work.

   a. To counter this fusion, Mr. Blank argues for US to create a “civil-military alliance” whereby the US couples “the $150 billion a year US venture capitalists spend to fund new ventures with the speed and urgency that the DOD now requires. We need to leverage the inherent advantages of a capitalist democracy and align public and private sector incentives to drive technology advances.” Unlike the PRC’s state-driven model, the US model is “driven by incentives, not coercion,” by “public-private partnerships, not government control”—since the uniquely American style of entrepreneurial innovation is able to operate with the creativity, speed, and scale that state-driven PRC rivals (or even traditional US defense manufacturers) are unable to keep up with and to anticipate the disruptive technologies that will win the next war.

VI. Public-Private Partnerships

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64 [https://www.brookings.edu/techstream/the-consequences-of-a-fragmenting-less-global-internet/](https://www.brookings.edu/techstream/the-consequences-of-a-fragmenting-less-global-internet/)


**Recommendation:** The USG and private-sector corporations should strengthen ties in the form of better and stronger Public-Private Partnerships (PPP), better government tax, trade, and investment incentives, more engagement programs, and synchronization of R&D efforts.

A. Engaging Private Sector Support

Collaboration between the public and private sectors has long been a struggle given the oft-diverging motivations of their ultimate goals. In an increasingly globalized economy, a strong partnership between public entities and private institutions is essential for the continued maintenance of an evolving and competitive economy. Headways have been made in recent years as historic gaps in technology and information among such entities have been shrinking as both sides having significant upsides through enhancing partnership initiatives. In particular, issue areas such as advanced technologies, infrastructure, environment, healthcare, and national security are ripe targets for PPP that strategically benefit the US economy and increase its stance as a global leader. While terms like PPP have been in circulation for many years, this type of unique engagement requires more than authorizing additional funds for a given project or task. Ensuring a seamless partnership requires a whole of government and whole of economy approach to foster long-standing relationships and blended priorities. The recent Operation Warp Speed (OWS) provides an example of effective collaboration between the USG and private sector, which was a PPP initiated by the USG to facilitate and accelerate the development, manufacturing, and distribution of COVID-19 vaccines, therapeutics, and diagnostics. This partnership delivered government approved COVID-19 vaccines to the population effectively and efficiently. These programs must maintain transparency among industry competitors and balance nationwide needs while protecting public health, safety, and economic well-being. To be successful, these programs operate on the underlying understanding that private sector niche holders can foresee future requirements and help government entities modernize skillfully and economically. PPPs may also provide counsel to the government and educate officials on the needs of industry to drive the economy.

The USG and private sector partnership is essential to developing and maintaining a strong economy. The growth and development of new technologies, e-commerce, and other continued marketplace advancements are generating rapid change in the global economy. It is therefore vital that the private sector and USG communicate and share information (as permitted by regulation) regarding threats to our economy, including IP rights violations and illicit substances entering our market. Efficiently and effectively processing goods and people across our borders is crucial to support our nation’s economy, promote job growth, and help the private sector remain competitive in an evolving global economy. This requires reducing barriers to the efficient flow of trade and travel, streamlining and unifying processes and procedures, and applying effective risk management techniques to facilitate legitimate travel and trade.

B. Public-Private Partnerships & Incentives

The pervasive obstacle in merging the interests of a government entity with its capitalist counterpart is the profit-driven motivation of the private sector; whereas the typical government

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68 https://ppp.worldbank.org/public-private-partnership/overview/what-are-public-private-partnerships
entity has no incentive to induce a profit or pay shareholders. While any given company surely does not want to be the poster child for the next ransomware attack or concede to handing over trade secrets to the Chinese Communist Party, these actions are often viewed as ancillary to core business motivations. For example, the Colonial Pipeline failed to undergo a federal security audit last year by the Department of Homeland Security’s (DHS) Transportation Security Administration.  

Strict enforcement of penalties is not the solution to foment a stronger bond between infrastructure operators and federal regulators, though reasonable incentives – such as through the issuance of cyber insurance and applicable premiums for cooperating with federal authorities – may be one method to ensure an adequate security measure. Conversely, many large US companies have no alternative to doing business in or with China. The “Forced Technology Transfer” problem is significant in China, and this is also an area where the State Department can intervene and take a strong stance to protect US companies. Initiatives such as these can bolster American businesses and lead to more successful advancements in technology, which in turn will strengthen the US economy. Another option may include the most direct form of incentivization which is through specially established tax credits, similar to the use of research & design or renewable energy credits issued at the federal and state level.

US trade policy has an opportunity to play an integral role in facilitating a safe and effective national economy, not only through appropriately allocating tariffs and duties, or managing the trade balance by limiting particular imports or exports, but by appending stipulations which reward US companies for information sharing and hardening their technical and physical infrastructure. By recoupling private sector incentives to a broader public interest, the nation will simultaneously build resilience that will unquestionably support and enhance the US economy.

For example, the future of the Department of Defense’s military dominance, and more generally advanced technology within the USG, go hand-in-hand with the private sector and relies on relationships with US industry for commercialization and academia for “ideas” and early-stage technology. The days of emerging technologies coming from a core industrial base are all but over, and the government must diversify its ability to work with the private sector and academia unabated. While dated models that proliferated new technologies through a government-led industrial base were key to maintaining national and economic security in the past, the US is now in an era of industrial base 2.0 where equal-footed relationships with academia and a highly diversified private sector are essential.

The government should potentially be more focused on providing non-dilutive funding and seed capital to startups, academia, private-sector-led research, and working on creating new models to permit investments. In this environment, technologies should be dual-use for the private sector to obtain such government funds in a more systematic than opportunistic approach which reduces

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69 https://www.wsj.com/articles/colonial-pipeline-missed-requested-security-review-before-hack-11622067027
73 https://www.uscc.gov/research/how-chinese-companies-facilitate-technology-transfer-united-states
friction. Certain current programs – such as the Small Business Innovation Research program\textsuperscript{75} – are effective, but many are still lagging and do not validate cross-agency or departmental priorities. One solution to minimize this friction would be legislation to remove outdated restrictions in the current Federal Acquisition Regulation\textsuperscript{76} or simply overhaul the statute altogether, with a renewed focus on speed, agility, and to mandate intergovernmental integration across multiple sectors.

C. Program Implementation

A secondary obstacle in cross-sector collaboration and government partnership relates to the transmission of sensitive information from the government to the general public or corporate entities, and then the horizontal flow of proprietary information between competitors. Current federally-sponsored programs exist to embolden the relationships between the public and private sectors on national security matters – to name a few, IT-ISAC,\textsuperscript{77} DSAC,\textsuperscript{78} OSAC,\textsuperscript{79} CTPAT,\textsuperscript{80} CSI\textsuperscript{81} – but motivation may still be driven mostly by effect on a company’s profitability and restrictions on what the government is willing to share. The US Customs and Border Protection (CBP) has taken a particularly progressive approach in establishing relationships with the private sector to enhance US economic security. Given the agency’s leading focus on international trade, they are uniquely positioned to ensuring US global economic competitiveness is maintained. Some examples of successful PPPs within the CBP Office of Trade include: engagement through the Commercial Customs Operations Advisory Committee (COAC); customs broker examination testing; the e-Allegation process, in which stakeholders report industry concerns to CBP; IP rights recording and field education regarding proprietary trademarks; the Global Business Identifier (GBI) program; the use of blockchain to promote food safety; environmental industry partnering on behalf of the Maritime Safe Act; and sharing knowledge to protect the environment and identify forced labor. PPPs should pursue increased engagement with relevant stakeholders to discuss how to maintain and grow a competitive economy. Holding more collaborative “workshop” type meetings can increase the government’s understanding of private sector partners and vice-versa. An example of this is the CBP-sponsored GBI Deep Dive held with the trade community through the COAC to better understand the USG’s goals, challenges, and benefits regarding the global trade industry.

Trade intelligence leverages industry knowledge and expertise to enhance the effectiveness of USG enforcement actions. Representatives from the private sector work to identify issues of mutual interest and provides government agencies – such as CBP – with targeting, enforcement, and intelligence information. This information and intelligence allows government agencies to better their targeting capabilities, detect bad actors earlier in the supply chain, respond to risks on a real-time basis and anticipate new threats before they fully emerge. The more successful the

\begin{thebibliography}{99}
\item \textsuperscript{75} https://www.sbir.gov/
\item \textsuperscript{76} 48 CFR 1: https://www.law.cornell.edu/cfr/text/48/chapter-1
\item \textsuperscript{77} https://www.it-isac.org/
\item \textsuperscript{78} https://www.dsac.gov/
\item \textsuperscript{79} https://www.osac.gov/
\item \textsuperscript{80} https://www.cbp.gov/border-security/ports-entry/cargo-security/ctpat
\item \textsuperscript{81} https://www.cbp.gov/border-security/ports-entry/cargo-security/csi/csi-brief
\end{thebibliography}
USG and private sector are in sharing and managing information, the greater the flow of commerce in and out of the US.

Conversely, the sheer multitude of government-sponsored programs have the potential to confuse participants on both sides and overlap with other government agencies. Industry-led organizations such as the Business Alliance for Secure Commerce also offer opportunities for additional transparency and should be embraced by government agencies as avenues to access the private sector. A whole-of-government approach is necessary to maximize efficiency whereby paving the way for economic advantage.

An effective way to build strong ties between the public and private sector could be to establish a formalized program that “trades” corporate executives for senior executive service government employees on a temporary basis. The Chicago Booth Review takes an unbiased look at the pros, cons, and ethical concerns, but it seems that if conflicts-of-interest precautions and ethical principles are maintained, there would be a significant economic benefit to both parties involved. Legislative measures or independent committees have a potential to mitigate such concerns, and perhaps formalizing a “revolving door” program could maintain a high level of transparency and opportunity.

Certain programs presently exist, such as the State Department’s Professional Fellows Program or various think-tank fellowships available to the US military. However, a revolving door for certain individuals is wholly insufficient to completely mitigate cultural divides. A topic much discussed over the past several decades is that of a national service program. Among the many directly tangible results of such a program, national service would be geared toward young adults whereby breaking down cultural barriers at an early age. According to Time Magazine, a national service program can “prioritize[e] the strength and health of our democracy [and] can provide economic opportunity while preserving the planet for the next generation.” Beyond simply breaking down cultural barriers and giving citizens an experience with the federal government, such a program can provide significant social and economic benefits, including employment opportunities by addressing long-term issues, such as the environment and poverty, which require a nationwide approach to resolve. Another novel concept recently proposed are civilian reserve corps, such as a contingent dedicated to cybersecurity matters. This can be applied to numerous industry sectors, though cybersecurity is undeniably one of the most pressing concerns plaguing the US economy and national security. Both of the aforementioned initiatives have a potential to facilitate broad collaboration and promote the national economy and federal government in acting as a unified entity when working to enhance US economic security and preserving a significant competitive advantage.

82 https://www.wbasco.org/en/institutional-page/about-us
83 https://review.chicagobooth.edu/public-policy/2017/article/should-we-stop-revolving-door
84 https://exchanges.state.gov/non-us/program/professional-fellows-program
D. Effective Collaboration

According to a recent *Foreign Affairs* article, there is undoubtedly a narrowing gap between information and technology that had typically been reserved for government agencies and that of the private sector. With the rapid advancement in technology and transmission of information, it has become more important than ever for US businesses to maintain strong partnerships with its government counterparts. Commercial research and design is rapidly advancing and going in a vastly different direction than government research and design. As one example, major US technological companies are leading the role in artificial Intelligence research, and it would be highly inefficient for the government to utilize tax dollars for the same overlapping purpose. The government is often unable to recruit or retain the appropriate talent pool due to salary gaps and other workplace cultural differences. Much of the technology being designed in the private sector in a variety of fields, including quantum computing, hypersonic aerodynamics, and other autonomous technologies have a dual-use capability. The use of technologies like machine learning, blockchain, and IOTA Tangle benefit government and the private sector, and PPPs can ensure the USG and its private sector partners use the same or complementary technologies. In one example, the Defense Advanced Research Projects Agency (DARPA) – the primary Department of Defense agency responsible for emerging technology research and development – has a budget a quarter of at least one US technology company’s Artificial Intelligence division. It is critical for the government to focus on funding technologies in critical industry sectors that may have a dual-use ability to support national security applications and simultaneously benefit US companies and commercial interests.

VII. Critical Resources & Technology, Investment Security, and Trade

**Recommendation:** The US must invest in stronger protections of critical resources and dual-use technologies, IP, private sector investment, and free trade agreements to counter China’s aggressive expansion.

A. Critical Resources

Historically, conflicts and wars are often in the pursuit of either greater land, treasure, or power, typically decided by small-arms, tanks, and other tools of war. However, in recent years there has been an additional weapon added to the arsenal in great power competition – economics and trade. An excellent example of its use was during the Cold War. Many argue that economics was the driving force behind the ultimate dismantling of the Soviet Union and the subsequent

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86 [https://www.foreignaffairs.com/articles/united-states/2021-03-09/declining-market-secrets](https://www.foreignaffairs.com/articles/united-states/2021-03-09/declining-market-secrets)
However, there is currently an ongoing evolution in the way economics and capital play a role in conflicts and wars regardless of their temperature. This change is causing a blurring of the lines around commercial capabilities which have dual-use applications of significance to economic interests and military operations. This blurring means the days of categorizing items as either a weapon or not a weapon are long gone. Consequently, many items designed for or derived from commercial applications are not singularly used only for peaceful purposes anymore; these items and how they are being pursued, acquired, and deployed have been militarized.

For many years, the USG has invested or incentivized commercial entities to produce goods which have an additional benefit to the US military (e.g., GPS, night vision, and unmanned vehicles or drones). These products were mostly made in domestic production lines with little impact from the global supply chains or international trade at a macro-level. However, in recent years there has been a dramatic increase in the prevalence of dual-use technologies, an increase in adoptability and interoperability, and a rise in appetite for consumption by foreign companies and militaries to include China.

The PRC has begun using their economic might to strengthen commercial and military capabilities. Much of China’s pursuits are external and rely heavily on the research, development, and production quality of other countries. China incentivizes companies – either wittingly or unwittingly – in foreign countries to manufacture products which ultimately can or will be integrated into China’s domestic production lines. This is strategically executed so that it can be replicated domestically while simultaneously advancing the development of dual-use commercial products for their own use. China’s deployment of its economic power through its capital is allowing it to position itself as a leader in commercial capabilities while increasing its military at the same time. This is a permutation in the use of economics as a tool of warfare vastly different than how it was being used during the Cold War. Beijing effectively uses capital and trade as an instrument of territorial expansion as well as geopolitical and strategic posturing by building islands and controlling scarce resources.

While PRC intentions are not always certain, its use of its economic weight as a function of gathering land, treasure, or power without weapons of war is undeniable. As such, understanding Beijing’s military-civilian fusion, particularly as it pertains to its global economic ambition, is imperative. Further, it is critical that policy makers continue to fence off critical technologies, susceptible manufacturing, production lines, and supply chains to counter China’s aggressive expansion. The US needs contingency plans and deployable financial resources to address China’s economic activities in the same way that military strategists plan ways to counter

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offensives in a military campaign. Addressing this leading challenge of the 21st Century will also help carve a path for allies and partners to mimic, as appropriate, to address the same threat they are seeing arise from the use of financial instruments and economics as a non-kinetic warfare domain.

At present, the US has a rigid regulatory process when it comes to reviewing and regulating foreign investment, protecting international trade laws, and limiting the sale or transfer of critical technologies. This regulatory framework is geared, in part, towards protecting American IP. In 2018, the US passed the Foreign Investment Risk Review Modernization Act (FIRRMA), which expanded the scope of transactions to be reviewed by the Committee on Foreign Investment in the United States (CFIUS). Complementing this “stick” was a “carrot,” found in the form of a Department of Defense investment platform – appropriately named Trusted Capital Marketplace. These developments granted offensive and defensive capabilities to serve as a platform for the US to address the growing threat from Chinese economic activities. However useful this paradigm may be, it lacks a singular and properly coordinating department. Likewise, it does not fully incorporate nor leverage the strength of the US private sector, which invests magnitudes more into critical and emerging technologies than the USG ever could or should.

B. Intellectual Property Enforcement

IP Rights enforcement also protects the American people. Counterfeit goods are often of inferior quality and may not meet US health and safety standards. For example, counterfeit medications may contain additives that can endanger one’s health or even cause death; illegitimate ball bearings used in industrial manufacturing may pose safety risks and reduce productivity; and illicit electronics may contain faulty wiring that can overheat or even combust.

In some cases, the private sector is uniquely positioned to support USG trade enforcement efforts. For example, private companies will often be the first to be aware of IPR violations because they receive complaints directly from consumers. Without enforcement by the USG, counterfeit items could deprive legitimate companies of revenue or even destroy their brands. And while the potential for competition exists, working collaboratively benefits both parties - private companies are more profitable with IPR protections and the international facilitation of trade and goods that the government can enact. Preventing illicit substances from entering the US market and combatting IPR violations are shared goals of the USG and private sector organizations.

C. Investment Security and Foreign Direct Investment

Europe has a much more open and accessible regulatory environment at present but will see some addition regulatory layers of its invisible wall being built in late 2020, into 2021, and beyond. Unfortunately, European partners are even further behind the US in the “stick” and “carrot” aspects of addressing economics as warfare domain. Europe does not have an effective way to review or stop the salvo of investments coming from China.

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93 Personal interview with subject matter expert. 19 May 2021.
The delta between the two technologically advanced continents creates regulatory arbitrage and sets the stage for Europe to be the next battleground of economic competition and even economic warfare. Capital from the US, China, and European countries is moving in and out of European companies and markets in different ways than ever seen before. The US, China, and many European countries are continuing to invest in and advance domestic capabilities in the next generation of dual-use technologies like quantum computing, AI, space platforms, and biotechnologies. For the US to maintain its global competitiveness, it must ensure that it can protect its technologies and critical sectors, incentivize markets to respond to the needs of government and society, and optimize its financial output by leveraging private sector investments in the US and Europe. This will help thwart the use of economics and financial instruments by foreign actors looking to take advantage gaps in the market to acquire dual-use technologies, control investment ecosystems, and diminish US competitiveness at home and abroad.

According to a forthcoming report by Business Executives for National Security, over the past decade, the flow of US FDI into China has remained on a slow but steady uptrend as US businesses attempted to position for China’s longer term economic growth potential by taking ownership, building, and investing in onshore businesses. The US Trade Representative estimates US cumulative FDI into China at $120bn vs. China’s FDI into the US of a little less than $40bn. Chinese outbound FDI has been primarily politically driven with a large surge after the promulgation of China’s “Made in China 2025” industrial policy blueprint in May 2015. At that time, the Party-state exhorted both public and private sector Chinese actors to seek outside technology and know-how through foreign investment as can be seen in the chart below from the Rhodium group.95

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Despite years of healthy investment returns, especially in digital business models, there is now recognition of the need for more careful delineation between investment vehicles that retain Chinese exposure and those which can meet their return targets without it. The past two years have witnessed a major reconsideration of such topical issues as China’s appropriateness from an ESG perspective as well as labor practices in supply chains in addition to the competition issues mentioned above.

D. Free Trade

US free trade agreements (FTAs) have resulted in decades of vibrant US economic growth through trade liberalization, increased competitiveness, and higher living standards for Americans, residents of partner countries, and individuals across the globe.

Despite the World Trade Organization’s establishment of international standards to facilitate and reduce trade barriers, tariffs and non-tariff barriers continue to limit US trade potential with many countries. US FTAs have liberalized trade and opened markets by reducing or eliminating these tariffs and non-tariff barriers with our trading partners. This allows US producers to export goods to new markets, expanding their customer base and ability to import quality goods and materials from partner countries at a more competitive price.

Over the years, the increased competitiveness and efficiencies created between our domestic and foreign industries have allowed each partner country to specialize. Specialization allows for innovation, which results in the availability of higher quality goods at more competitive prices, the result of the reductions in protectionism and government subsidies.
Ultimately, FTAs help increase per capita income through the reduction or elimination of tariffs, which results in higher living standards for US consumers. US consumers also benefit from year-round access to seasonal goods (e.g., agricultural produce) as well as a broader variety of goods to choose from at various levels of quality and price.

Without FTAs, the US would be at a competitive disadvantage against countries that have embraced globalization. Countries that have adopted FTAs are working together to achieve economic growth, development, and prosperity. FTAs promote technological innovation and offer opportunities for partner countries to collaborate on supply chain security, border security, cybersecurity, and other current and emerging global challenges.

VIII. The Education System and Intellectual Property

Recommendation: America’s ability to generate IP, critical for its economic competitiveness, requires a workforce capable of creative innovation. The US must invest and reform its public education system, to prepare students to become this workforce of the future.

Overall decline in quality in America’s public education system may lead to long term economic disadvantage for the US when competing with other countries particularly if the creation, and the protection, of new IP suffers. A decrease in the creation of IP as well as the violation thereof will likely have a deleterious effect in the realm of Green Technology, Advanced Manufacturing, and Information Technology. IP accounts for 38 percent of the US GDP and without the skills and education that lead to the creation of IP, the US will be at an increasing disadvantage globally. In short, lack of education leads to less IP creation meaning less jobs etc.; economies are built on IP.

A. The Importance of Intellectual Property

Demand for IP rights has historically tracked with global economic performance. America’s IP-intensive sectors account for nearly 45 million US jobs, is worth an estimated $6.6 trillion dollars and accounts for 38 percent of the total US GDP. Furthermore, IP accounts for 52 percent of all US merchandise exports amounting to roughly $842 billion and accounts for more than 40 percent of US economic growth and employment. In 2020, China led world in international patent applications followed by the US, Japan, the Republic of Korea, and Germany, and seeing a 16 percent increase over 2019 vice the US which saw a 3% increase over the same time period.

According to an Organisation for Economic Co-operation and Development (OECD) and European Union Intellectual Property Office (EUIPO) study released in March 2019, global trade in counterfeit and pirated goods reached $509 billion in 2016, accounting for 3 percent of

96 https://www.theglobalipcenter.com/resources/why-is-ip-important/
97 https://www.theglobalipcenter.com/resources/why-is-ip-important/
the global trade in goods for that year.\textsuperscript{99} According to the same study, China (combined with Hong Kong) accounted for 63 percent of the world exports of counterfeit goods in 2016 valued at $322 billion.\textsuperscript{100}

B. How does Education Equate to IP?

Every major new industry to include automobiles, semiconductors, and biotech, among others, was launched based on IP-protected innovation. The recent implementation of mRNA technology that enabled a COVID vaccine to be produced within months of the virus’ discovery is probably one of the most poignant examples. While there has been a recent recognition that small businesses need to better understand IP and the laws that protect it, there has not been a clear approach to bridging the gap in schools; enabling creative design or understanding what IP is or how it is created is critical.\textsuperscript{101}

C. Current Challenges

In the US, kindergarten through 12\textsuperscript{th} grade (K-12) public educational system faces a myriad of internal and external challenges to revamp school curriculums and cultures to help US public schools prepare students to enter a dynamic and globally competitive technological workforce. K-12 school staff and administration (e.g., teachers, principals, and district leaders) are currently faced with real-world decision-making in preparation for the workforce of the future on careers that have not been clearly defined (or in some cases even imagined), let alone identified and created. For example, 10 years ago space tourism was not a realistic sector, but is now a very real likelihood. With burgeoning sectors such as these, identifying the jobs that such an industry requires are both hard to imagine and more importantly begin training students at a young age to be prepared to enter. There is simply no way to know what will be required. Compounding the issue, opinions differ on how important preparing students for the future workforce really is. More than half of the 586 school and district leaders who responded to a December 2019 survey conducted by a leading, independent educational research center noted updating curriculum to get students ready for the jobs of the future is a top priority, yet 39 percent said their districts were paying at least some attention to this issue, while only 10 percent of respondents said that workforce preparation was getting only a “little” focus, and only two of the educators surveyed said their districts weren’t considering the issue at all.\textsuperscript{102} Despite the varying degree of opinion,


the consensus underlying concern for school administrators appears to be that students will not be prepared for gainful employment if changes are not made to the curriculum right now.

While preparing students for the future of work is a top priority, according to research conducted by an independent educational research center, there are at least five big challenges that need to be addressed regarding decision-making preparing for the future of work:

1. Differing perspectives on what public schools should focus on: College preparation vs. Workforce preparation
2. Limited Success Models and Limited Resources
3. Standardized Testing Pressure
4. Rapid Pace of Technological Change
5. Creating Meaningful Internships

D. Differing Perspectives on Focus

Parents mistakenly see career preparation in K-12, as well as career and technical education, as a “lesser” option for students who are not college ready. In fact, 42 percent of educators surveyed cited the perception that schools are supposed to get students ready for college – not actual work – as one of the biggest barriers to offering curricula to address the skills students will need for the jobs of the future. Another 31 percent pointed to the attitude that career-related curricula is for students who don’t plan to pursue a postsecondary education, a belief many educators say is misguided.

IX. Conclusion

The US is entering a new phase in the recognition of its own global competitiveness. Decades of economic success, technological leaps, and military prowess are beginning to encounter headwinds from both internal and external forces. Some of these challenges arise from waning investment or innovation in upgrading legacy systems that powered US economic strength in the 20th century: our public infrastructure, international alliances, technological R&D, PPP systems, regulatory incentives, and public education. The lack of any concentrated National Industrial Strategy (NIS) has resulted in short-term corporate decisions and governmental policies that created unintended side effects such technological disadvantages, socio-economic inequality, and environmental degradation. Other tests are posed by a rise in the relative economic strength and technological prowess of the PRC, which is rooted in decades of technology theft, centralized economic planning, and civil-military fusion. While these issues are significant and will require a strategic and robust response, the US is poised to defeat these headwinds.

For the US to facilitate driving domestic and global economic growth, the US should create a framework of incentives to improve economic competitiveness by:
1. Establishing a NIS framework and leadership mechanism for (i) understanding long-term issues that affect the US ability to maintain its competitive advantage in the present and future, including the countering of malign foreign influence, and (ii) implementing a long-term economic strategy that accounts for the rapid and long-term rise of China’s economy

2. Enhancing Public-Private Partnerships between the USG and private sector through executive- or legislative-directed programs that promote collaboration and incentivizes.

3. Protecting US access to critical resources, dual-use technologies, IP, capital investment, and trade relationships

4. Ensuring the US education system is adequately preparing the next generation of the workforce for future needs and challenges which face the nation

5. Bolstering foreign direct investment and free trade while concurrently applying investment security protocols that do not upset the flow of information and goods, and ensuring the nation has access to critical resources and technology

6. Creating a program that would match private investments with public investment dollars and resources into critical companies, technologies, or industries determined to serve economic or national security requirements. This cost-share model would incentivize the private sector and reduce investment risk while leveraging capital to the USG’s benefit

For the US to maintain economic and national security, the USG must continue to foster deep and meaningful relationships with the private sector and foreign allied governments. These relationships will cultivate a next generation view of the world order and ensure policies and procedures continue to facilitate legitimate trade and the flow of goods, ideas, people, and capital, while balancing the importance of national security goals. A unified, whole of government approach that is responsive to changes in the global marketplace will support a cost-effective international trade system and fuel prospering economies. Alignment between government and private sector priorities – guided by incentivizes for participation – will accelerate the cohesion between countries and people, giving new growth to economies.

Globalization has made the world smaller, as countries work together towards common goals of economic security, growth, and development. Globalization encourages free markets and a competitive global marketplace. The US is already a competitive leader in the global market, but a significant complexity exists in maintaining its global economic advantage as other countries develop their economies or seek to harm the US. The nation must find new innovative ways through a “whole-of-society” approach to continually enhance its economic competitiveness and long-term economic goals.
Appendix A: Data Sources and Reference Documents

Defining economic competitiveness

3. Global Business Alliance “Investing in America”. A focus area of this group is in encouraging FDI to the US. https://globalbusiness.org
4. WEF Global Competitiveness Report 2020: https://www.weforum.org/reports
   a. Visualization of this data: https://www.visualcapitalist.com/most-competitive-economies/
   b. https://tradingeconomics.com/united-states/competitiveness-rank
5. IMD World Competitiveness Center, World Competitiveness Rankings, 2020 Results: https://www.imd.org/wcc/world-competitiveness-center-rankings/world-competitiveness-ranking-2020/
7. Legatum Prosperity Index: https://www.prosperity.com/rankings
10. Global Wellness Institute…list of Happiness and Wellbeing Indices: https://globalwellnessinstitute.org/industry-research/happiness-wellbeing-index/
    a. OECD Better Life Index: http://www.oecdbetterlifeindex.org/#/1111111111
    a. See pg. 29 for top 200 cities for sustainable competitiveness
15. https://www.richstatespoorstates.org/all-states/
18. https://www.cityresilienceindex.org/#/
Reports on PRC and BRI
3. https://chinadashboard.gist.asiasociety.org/china-dashboard/
4. Smart Cities: https://www.ft.com/content/76fdac7c-7076-47a4-bcb0-7e75af0aadab
11. https://www.cnbc.com/2021/03/05/china-to-focus-on-frontier-tech-from-chips-to-quantum-computing.html
17. AidData data; map courtesy of Visual Capitalist: https://www.visualcapitalist.com/global-chinese-financing-is-fueling-megaprojects

National Industrial Strategy
   https://www.rand.org/pubs/research_reports/RR1521.html
   https://www.nap.edu/read/5902/chapter/24
14. NIST Manufacturing Extension Partnership (MEP), Global Competitiveness.
15. https://www.uschamberfoundation.org/bhq/national-competitiveness-strategy-7-pillars