

Potential Near- and Long-Term Responses

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$$\text{U.S. Global Competitiveness} \propto \frac{\text{Capabilities and Investments}}{\text{Threats/Interference}}$$

Five Key Actions to Move the Needle

- Lead with our values
- Don't play to not lose
 - Untie our hands
 - Invest in talent development on a massive scale
 - Plan beyond the visible horizon

#1. Lead With Our (American + Research) Values

- The **principles** by which we operate
- Always there to **renormalize** us when disagreements occur or confusion arises
- **Uncompromising** – absolutely necessary and an inseparable dimension of research
- Our **North Star**

Our National and Research Values

- Honesty
- Integrity
- Transparency
- Accountability
- Openness
- Freedom of inquiry
- Sharing
- Collaboration
- Merit-based competition
- Mutual respect
- Fairness
- impartiality
- Inclusivity
- Objectivity
- Civil debate
- Reciprocity
- Principled international collaboration
- Other...

$$\text{Global Competitiveness} \propto \frac{\text{Capabilities and Investments}}{\text{Threats/Interference **to our VALUES**}}$$

Because values underpin the research process itself, threats to our values translate into threats to research and thus to our national and economic security

How Do We Do It?

- Strengthen and actively promote **messaging** and **continuous conversation** on **values** to deepen **cultural norms**
 - Executive and Legislative Branches of Government
 - Federal agencies
 - Academic institutions at all levels
 - Research groups
- **Link values** to research security measures and open science
- Highlight values as a benefit to performing research **in the U.S.** and in **international collaborations**

#2. Don't Play to Not Lose

- The balance between trying to maintain **global leadership** (offense) and preventing our adversaries from obtaining **global dominance** (defense) has shifted dramatically
- This is **intentional** on the part of our adversaries and increasingly forces the U.S. to expend more effort on defense

#2a. Untie our Hands

- Funding agencies, researchers, and institutions are **drowning in regulations** with no end of increases in sight
- Regulations and compliance are **vital**, but major reform is needed
- Some **progress** has been made recently but not nearly enough
- We are approaching the **50%** level of time spent by researchers on research vs time spent on administrative activities
- The COVID pandemic showed value in **a different approach**

#2a. How Do We Do It?

- OMB/OIRA and OSTP work with COGR, AAU, APLU, FDP and others to identify specific research regulations and policies that can be **changed or suspended under Executive Order**
- Identify desired **outcomes** against baseline data
- Possibly target specific **areas of research** and types of institutions
- Conduct a **5-year program** coordinated by OSTP/NSTC and overseen by multi-sector working group (gov't, academia, industry)
- Perform an ongoing **assessment** and consider expanding as effort proceeds

#2b. Invest in Talent Development on a Massive Scale

- As noted by the National Science Board, **Talent is the Treasure**
- Many excellent programs exist, but none on a **national scale** across all areas of S&T, including social/behavioral/economic
- Some **other nations** understand this notion & are pursuing it aggressively
- We've done it before
 - The GI Bill
 - **National Defense Education Act**
 - Post 9/11 Veterans Educational Assistance Act

#2b. How Do We Do It?

- Educate, within 8 years, an additional **2 million people** across a spectrum of areas & degrees/certificates, and include
 - Those pursuing degrees in **K-12 education**
 - An **international recruitment** component with special stay provisions
 - **Broadening participation** across a wide spectrum (Missing Millions)
 - A meaningful **service component** to the Nation or **cost-sharing**
- Utilize **AI/ML** to enhance/democratize learning (e.g., tutoring)
- Begin with **Executive Order** and **Emergency Authorization** from Congress

#2c. Plan Beyond the Visible Horizon

- The U.S. has no comprehensive S&T plan and is challenged by its **inherent structure**
 - **Decentralized** multi-sector structure challenges planning/coordination
 - Funding agency budgets/priorities are **spread across Congress**
 - Interagency collaboration often depends on **intangibles**
- We plan for the next **budget cycle or election**, though we do have a few quadrennial assessments and plans
- Some of our competitors think **MUCH longer term**

#2c. Plan Beyond the Visible Horizon

- The U.S. has created **moonshots, ARPAs, and major legislation** (COMPETES and CHIPS+Science) with positive results...
- ...but in somewhat of a **VACUUM** owing to the absence of a **truly long-term (25-year) vision for the Nation**
- This short-term thinking is **no longer a viable option**
- The vacuum already is being filled by those increasingly able to change the **fundamental balance of world power**

#2c. How Do We Do It?

- Develop a **multi-sector, whole-of-nation, 25-year S&T vision for the U.S.**, framing its ambitions and approaches in a global scientific as well as geopolitical context. This is NOT about choosing topics/technologies!
- Craft an associated **5-year S&T strategic research and talent development roadmap** with expected agency roles and desire. This IS about choosing topics/technologies; and
- Ensure **accountability and progress** for performance against shared, strategic goals via an **independent, multi-sector board**