



## BEYOND “FORTRESS AMERICA” National Security Controls on Science and Technology in a Globalized World (2009)

The national security controls that regulate access to and export of science and technology are broken. As currently structured, many of these controls undermine our national and homeland security and stifle American engagement in the global economy, as well as research in science and technology. Fixing these controls does not mean putting an end to them, but implementing reforms based on the realities of the risks and opportunities of today’s threats to the nation.

### How Did We Get Where We Are?

During the Cold War, the United States was the international center of scientific knowledge and technology. U.S. national security depended on maintaining the technological superiority of our military forces against the quantitatively superior military forces of the Soviet bloc. To help ensure its superiority, the United States established a system of national security controls to prevent the leakage of military-related goods and technologies, including so-called dual-use technologies that could give military advantages to our adversaries. This system was codified in export, visa, and classification laws and regulations. In addition, the U.S. and our allies forged multilateral controls on the international transfer of militarily sensitive goods and technologies so as to act in concert. While far from perfect, this system met the needs of the Cold War reality of a bipolar power struggle with a known and well-characterized enemy.

### How Have Global Conditions Changed?

Today, world conditions are very different. Our adversaries are diffuse; they range from sovereign states to small terrorist cells without state affiliation. There is no longer a consensus in the western alliance about who its adversaries are or how they should be contained. Many of the most important technologies for continued military superiority originate in the commercial sector rather than in the military sector. Furthermore, such technological capabilities increasingly arise from scientific and engineering research taking place around the world, not just in the United States. Today, for example, the United States has lost its dominance in fields such as semi-conductor manufacturing. As economic conditions have improved in China, India, and other countries, many young people who would have come to the United States to study or work in science and technology now opt to stay home for their education or to return to their home country after graduate school in the U.S. All these changes mean that American security and prosperity now depend on maintaining active engagement with worldwide developments in science and technology, and with the global economy.

While the United States remains a world leader in advanced science and technology, it no longer dominates; it is now *among* the leaders. We are increasingly interdependent with the rest of the world. What is the United States doing to reap benefits from its increased interdependence? Instead of promoting engagement, the United States is required by our current system of controls to turn inward. Our visa controls have made it more difficult or less attractive for talented foreign professionals to come and learn what is great about this country, or to stay and help grow the American economy. Our export controls retard both the U.S. and its allies from sharing access to military technology, reduce the capability and strength of America's defense industrial base, and handicap American business from competing globally.

### **Examples of National Security Controls that Harm U.S. National Security and Prosperity**

Department of Homeland Security would like to consider installing counter-MANPADS on American commercial planes, but are prevented from doing so by export controls.

Unmanned Aerial Vehicles (UAVs) are well-suited to in-theater surveillance where U.S. and allied forces work closely together. However, export regulations restrict either their export or exchange of information because UAVs are classified as cruise missiles based on range and payload.

Alcatel and Bell Labs formed a joint venture in China, Alcatel Shanghai Bell. Chinese researchers exploring 4G wireless systems may collaborate with their colleagues in Alcatel's laboratory in Germany. However, export controls preclude the participation of 4G researchers in Alcatel's New Jersey lab.

These unintended consequences arise from policies that were crafted for an earlier era. In the name of maintaining superiority, the United States now runs the risk of becoming less competitive and less prosperous; we run the risk of actually weakening our national security. The Cold War mentality of "Fortress America" cripples our ability to confront the very real dangers of altered world conditions.

### **Recommendations**

The National Research Council's Committee on Science, Security, and Prosperity, structured its recommendations into three areas: reforming the export control process, ensuring scientific and technological competitiveness, and improving the non-immigrant visa system that regulates the entry into the United States of foreign science and engineering students, scholars, and professionals. In the committee's view, it is important to act immediately, within the boundaries of the President's authority to make the changes that will stem a serious decline affecting broad areas of the nation's security and economy.

#### **Recommendation 1**

The President should restructure the export control process within the federal government so that the balancing of interests can be achieved more efficiently and harm can be prevented to the nation's security and technology base; in addition to promoting U.S. economic competitiveness.

- A. Recognize the interdependence of national security and economic competitiveness factors in making export control decisions with respect to individual requests for licenses through a principle-based system.
  1. Maintain the value of protecting traditional U.S. national security in export control policy.
  2. Recognize that today this value must be balanced against the equally important value of maintaining and enhancing the scientific and technological competitiveness of the United States.
  3. Allow openness and engagement to prevail unless a compelling case can be made for restrictions.
  4. Articulate a rational basis for each restriction. Restrictions on unclassified technology should be implemented only when:

- a. The U.S. alone, or the U.S. and cooperating allies, possess technology that leads not only to identifiable military advantage, but to an advantage that is likely to persist for a significant period of time (i.e., the time needed to field a system based on that technology);
  - b. The U.S., or the U.S. acting together with allies, control the technology such that they can prevent it from moving into the hands of possible adversaries;
  - c. The restrictions do not impose costs and inefficiencies that are disproportionate to the restrictions' security benefits; and
  - d. Restrictions are re-examined and re-adjusted periodically to ensure they remain appropriate.
5. Protect the capability to "run faster".
  6. Treat weapons separately – but define them narrowly and precisely.
  7. Recognize the "global public good" nature of health-related technologies.
- B. Apply "sunset" requirements to all items on export control lists that are controlled unilaterally by the U.S., and require findings to be made every 12 months that removing controls on an item would present a substantial risk to national security.
- C. Establish as a new administrative entity a coordinating center for export controls, with responsibilities for coordinating all interfaces with persons or entities seeking export licenses and expediting agency processes with respect to the granting or denial of export licenses. This small coordinating entity would be administratively located with the National Security Council. It would be responsible for:
- Receiving all applications for export licenses;
  - Determining whether the Department of Commerce or the Department of State should handle the license application and dispatch the application to the appropriate agency for a decision;
  - Maintaining timetables for decision making on license applications so that applications do not languish;
  - Receiving decisions on applications from the designated agencies and distributing these decisions to applicants;
  - Receiving appeals of licensing decisions and petitions for review of sunset decisions, and delivering these to the appellate panel (see description below);
  - Maintaining timetables for decisions on appeal;
  - Receiving decisions on appeals and distributing these decisions to applicants;
  - Providing administrative support to the appellate panel (see description below); and
  - Monitoring and oversight of the sunset process.
- D. Establish an independent export license appeals panel to hear and decide disputes about whether export licenses are required, whether particular decisions to grant or deny licenses were made properly, and whether sunset requirements have been carried out properly. An independent, neutral decision-making authority is required to break the logjams in the system caused by philosophical differences and varying interpretations of statutory, regulatory, and executive order language. Two kinds of issues can be resolved quickly and effectively using an appellate decision-making panel:
- First, if the agency makes a decision (either requiring or not requiring a license), and a party or a government agency believes the matter was wrongly decided, there is an avenue to resolve these differences.
  - Second, if the agency fails to remove an item or category of items from the control list under the sunset requirement, or does not act at all within the one-year time period for review of each item on the list, an affected party could appeal either to reverse the agency's determination, or to require the agency to act in a timely way to make the necessary determination.

The committee recommends that an independent export license appeals panel be constituted, appointed by the President or the National Security Advisor. Panel members would serve a five-year term. The panel would be co-located with the coordinating center and would be housed, for administrative purposes, under the same organizational umbrella.

## Recommendation 2

The President should direct that executive authorities under the Arms Export Control Act and the Export Administration Act be administered to assure the scientific and technological competitiveness of the United States, which is a prerequisite for both national security and economic prosperity.

- A. Maintain the Fundamental Research Exemption that protects unclassified research, as provided by National Security Decision Directive 189, and ensure that it is properly implemented.
- B. Create an economic competitiveness exemption that eliminates export controls on dual-use technologies where they, or their functional equivalents, are available without restriction in open markets outside the United States.

## Recommendation 3

The President should maintain and enhance access to the reservoir of human talent from foreign sources to strengthen the U.S. science and technology base.

Traditionally, the United States had to worry about science and technology flowing out of the country. In today's conditions, the U.S. must make sure that advanced science and technology will continue to *flow into* the country. For this reason, the U.S. visa regulations as applied to credentialed foreign scientists should ensure that the U.S. has access to the best talent. Science and engineering degree-holders who prefer, after graduation, to work in the U.S. should have ready access to permission for long-term stays. Granting this access for highly trained technical and scientific personnel is an important way of augmenting a critical segment of the workforce. The U.S. cannot protect U.S. jobs by denying entry to foreign professionals; jobs will simply go abroad. It is important for both the national security and economic prosperity to maintain the flow of human talent into the United States.

- A. Streamline the visa process for credentialed short-term visitors in science and technology fields.
- B. Extend the duration of stay for science and engineering graduates with advanced degrees.
- C. Include expert vouching by qualified U.S. scientists in the non-immigrant visa process for well-known scholars and researchers.
- D. Institute skills-based preferential processing with respect to visa applications.

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