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Erosion of the U.S. Industrial Base and its National Security Implications

Mr. Chairman, members of the Commission, ladies and gentlemen. I'm honored to be here to share the outcome of my many years of systems scientific research on both the auto industry as well as the military industrial base. The U.S. industrial base including the automotive sector is eroding, and this situation has enormous national security implications. It has made the United States so dependent on foreign countries for critical components and systems that it may have lost its ability to control its supply chains. The defense portion of the industrial base cannot be separated from the overall base. The offshoring of the U.S. auto industry alone is exacerbating this situation – the auto industry has such an enormous footprint on the overall U.S. industrial base, that when it erodes, it will take a great deal of defense capability with it.

The United States has also become dependent on countries such as China, India, Japan, Russia, France and Germany for critical auto *and* weapons technology. It is conceivable that at some time in the future a government could tell its local suppliers not to sell critical components to the United States because they do not agree with U.S. foreign policy. If we were ever to have a war with China, we could experience difficulties simply by having them cut off all shipments to the United States and hurting our economy without even firing a shot.

The federal government, and in particular, the Department of Defense, does not manage the country's industrial base as a "system," but it needs to at least understand system characteristics. We need DoD to understand its key weapon system supply chains down to raw materials. In many cases, the United States is unable to manufacture critical military equipment. This situation is not officially documented and monitored, but it needs to be. Knowing industry averages, I suspect that there is a significant presence of Chinese parts in our weapon systems, but we do not know where they are. This risk is significant. China is becoming the manufacturing capital of the world.

U.S. government agencies are fiefdoms that rarely compare notes to see how their collective policies might affect a company or an industry. Interagency cooperation is among many things that need to change in the future.

U.S. corporations increasingly act as large social systems with a global focus. But ask the CEOs of the Fortune 500 to describe the issues on their minds and, more than likely, national security or the disintegration of the U.S. industrial base would not be among them. Under the American financial and regulatory system, public companies are supposed to rank their shareholders at the top of the loyalty scale, except in times of emergency. A new vision of national security is needed that includes cooperation between government and industry and includes the economic element of national power merging with diplomacy and defense. National security requires a healthy market-based economy, with a strong industrial base of globally competitive industries continuously improving quality and productivity including the auto industry in its entirety.

The very ability of the United States to remain a superpower is at stake.

Offshoring the *auto* industry could make the U.S. military industrial base in the United States completely unable to comply with American preference legislation because the erosion of the auto industrial base also erodes defense. General Motors, Ford, Delphi, Northrop-Grumman, Boeing, Lockheed Martin – they all share the bottom of the industrial base.

The United States cannot sustain the kind of growth it has enjoyed for the last several decades if the industrial base continues to steadily erode. Increasingly, a number of U.S. companies in specific industries find it impossible to compete in world markets. This is of particular concern for the industrial base that supplies the U.S. military, automotive and aerospace.

According to Alan Tonelson of the U.S. Business and Industry Council, import penetration rate data is a critical metric that the U.S. Government needs to track, but does not. According to Tonelson and Peter Kim in a *Washington Times* article, "in recent years most industries producing goods in the United States have been steadily losing their home market – the world's biggest, most important and most competitive – to products from overseas. In other words, numerous U.S. industries are facing the kind of import tide that has pushed General Motors and Ford dangerously close to receivership. Moreover, this weakness shows up in so-called smokestack and high-tech industries alike. Unless this rising import penetration is reversed, the nation's long-time global industrial leadership and all the benefits it has generated will be irretrievably lost."

The import penetration data that USBIC has looked at by NAICS industry codes indicates that the import penetration has steadily increased across the board for many industries and dangerously fast from 1997 to 2004. From 1997 to 2004, the import penetration of aircraft (traditionally an American manufacturing powerhouse) increased from 15.24% percent to 24.51 percent. Aircraft engines and engine parts suffered a greater increase—from 39.99 percent to 51.62 percent.

In the same 8-year period, import penetration rates for relays and industrial controls increased from 24.07 percent to 46.0 percent, for analytical laboratory instruments from 29.88 percent to 44.67 percent, for metal-cutting machine tools from 58.56 percent to

72.03 percent, for metal-forming machine tools from 62.72 percent to 88.97 percent, for special dies and tools from 7.70 percent to 12.53 percent and for turbine and turbine generator sets from 25.42 percent to 49.39 percent. Speed changers, high speed drives and gears, from 38.53 percent to 63.10 percent.

Many of these specific increases in import penetration over the eight year period are stunning for such a short period of time.

USBIC has written extensively on these trends and I would encourage the Commission to look at their body of work.

Globalization and the intense pressure applied by Wall Street to U.S. companies encourages indiscriminant cost cutting, a measure that frequently works in the short term, but often creates losses in the long term.

The "better, faster, cheaper" mentality sometimes sacrifices long-term gains by forcing a company to offshore work to low-wage countries in the near term. These decisions can come back to haunt a company. This is especially the case when the work acquired is of inferior quality, a critical core competency of the company is lost or the accessibility of an essential item is put in jeopardy. Many stories are known in the auto industry, but rarely will anyone come forward with their story for fear their customer will demand increased or costly inspections.

The United States does not have control over foreign shipping. Enemies can easily disrupt the economy just by sinking ships that feed the industrial base and consumer culture. The United States is vulnerable because of its dependence on foreign parts, services and fuel to maintain economic growth, not to mention military capability.

Global purchasing organizations in industry and the military are not sufficiently looking at the risks of potential disruption of supply lines. They tend to be rewarded for getting commodities less expensively, and nothing else.

In a global economy, the rules of engagement are different. Just look at the results of the brief longshoremen's strike a few years back on the West Coast and the billions of dollars per day that it cost the nation.

A Specific Military Issue

The Defense Department's Diminishing Manufacturing Sources and Material Shortages (DMSMS) program, monitors spare part shortages regardless of cause.

DMSMS is the loss or impending loss of manufacturers or suppliers of critical items and raw materials due to production discontinuance. DMSMS can be caused by rapid changes in item or material technology, uneconomical production requirements, foreign source competition, federal environmental or safety requirements, and limited availability or increasing cost of items and raw materials used in the manufacturing process.

The problem is further complicated by a reduction in the industrial base dedicated to production of military equipment. In fact, the Defense Department now accounts for less than one-half of 1 percent of total microelectronic component sales, for example. In addition, aging fleets of ships and aircraft have lost their original supplier-base of constituent mechanical, hydraulic and other components.

The DMSMS database is an example of how badly the industrial base is deteriorating. According to the Government Industry Data Exchange Program (GIDEP), in 2002, "1,523 manufacturers reported 253,832 DMSMS parts.

According to the Air Force DMSMS Guide, "In today's high-tech Air Force, the ultimate performance of aircraft, missiles, and numerous other weapon systems depends on a multitude of important and often complex components. When one of these components (e.g. a microcircuit) becomes obsolete or unavailable, the impact can extend throughout the weapon system affecting cost and system readiness." The services are all trying to "lessen or eliminate the risks caused by parts non-availability before the weapon system is adversely affected."

The commercial manufacturers increasingly lose interest in supporting the military market because it is so small. Many manufacturing companies find that it is not economically feasible to support very small volumes over long periods of time.

All the services have DMSMS issues.

As an example for the DMSMS effort at the Air Force Research Laboratory at Wright-Patterson AFB, "DMSMS impacts every weapon system in the inventory – past, present and future…."

The Air Force has said that DMSMS is driven by many factors but one reason is the extended weapon system's life in the Air Force inventory. For example, B-52s may be used more than 94 years, C-130s, more than 79 years, C-135s, more than 86 years and the F-15, more than 51 years. None of these planes was designed to fly that long.

So, mission capable systems and readiness are put at risk if DMSMS issues are left unresolved. What is not always understood is the reality that the auto industry affects DMSMS at DoD because the industrial infrastructure that supports the Department of Defense is shared by the auto industry. When a tier supplier to the automobile industry goes under whether it is a machine tool company or in micro-electronics, it reduces DoD's ability to function and solve its DMSMS problems.

Manufacturing

When government R&D investment in an industry deteriorates, it is only a matter of time before an industry is in trouble. Manufacturing R&D by the federal government is declining. According to *Manufacturing News*, "in the mid 1990s, the government was spending $1.5 billion on manufacturing related R&D, including such programs as

Technologies Enabling Agile Manufacturing at the Energy Department and $500 million in electronics manufacturing programs at DARPA. Both of those programs have been discontinued."

Shipbuilding and Repair

In May 2001, the U.S. Department of Commerce's Office of Strategic Industries and Economic Security, in partnership with the Carderock Division of the Naval Surface Warfare Center, completed a three-year national security assessment of the U.S. shipbuilding and repair industry. Some of the findings were disconcerting though related to both DMSMS and the auto industry.

According to the study, employment in the industry has "dropped sharply since the early 1980s, when total private employment was close to 180,000 workers. Survey estimates indicated that employment would decline to about 83,500 in 2000." In addition, "orders for U.S. warships have declined 60 percent during the 10 years since the end of the Cold War."

Young people no longer view working in a shipyard as a viable way to make a living. Consequently, according to DOC, "survey responses indicate that labor shortages have reduced profits, impacted construction costs, and delayed project completion for most shipyards."

According to the study, the basis for U.S. ship-building superiority has been the research and development expertise that currently resides in Navy's laboratories, acquisition commands, and certain shipbuilders and universities. "Collectively, these organizations have conceived and designed most of the state-of-the-art hull, mechanical, electrical, power projection, air defense and undersea warfare capabilities that are operational today. With reduced research and development budgets, some of that capability now is becoming fragmented." Many lower tier companies supply to both the auto industry and shipbuilding, but the auto industry is much larger.

This situation in shipbuilding also exists in other industries, such as machine tools, the high performance explosives and explosive components industry, cartridge and propellant actuated device sector and welding and ***all of these industries share the bottom of the base with the auto industry.***

We need to maintain a capability to be globally competitive in product and process innovation – we must regain our manufacturing prowess and leadership. We cannot become a country that manufactures little. We need to reinvigorate the Manufacturing Extension Partnership program at the National Institute of Standards and Technology.

We need to prioritize those technologies that are critical to regaining and then maintaining leadership and competitive advantage in the overall industrial base so China does not become the world's leader in technologies we need to be a superpower. China is becoming the manufacturing capital of the world. A small example is that Chinese

officials have publicly stated they want to become the foundry capital of the world to have a world-wide monopoly on cast parts. The Casting Emissions Reduction Program (CERP) of the U.S. Army is an excellent example of ways that Congress can provide mechanisms for industry and the military to work together to stem the erosion of the industrial base to everyone's benefit.

We need to increase our investment in R&D to produce the leading edge knowledge, capabilities and patents the country must have to remain an economic and military superpower. This means we must increase funding to the national laboratories not only from Energy, Commerce and Defense but across the board.

We also need to rethink our trade, offset and CFIUS policies to encourage the maintenance of high value-added jobs inside the country and we need to reform those national systems that are keeping our industry uncompetitive including pension and health care, particularly in the auto industry. The bankruptcy of Delphi is only the first of many dominos to fall if we don't do something dramatic about this situation. CFIUS must be completely rethought. Having General Motors under the control of foreigners is not the answer. Many foreign entities buy U.S. assets not to use them, but to dismantle them. Even Daimler's takeover of Chrysler removed serious capabilities to Germany, though no one will go on the record with specifics.

The Department of Defense regularly implies that the U.S. industrial base is healthy. DoD does not take into consideration all the systems that compose their piece of the industrial base, nor how their systems interact with others such as autos.

Cooperation between government and industry is essential because there are elements of the U.S. industrial base that are disintegrating, and are putting the national security of the United States at risk. Unless we look at the industrial base as a system, we do not even see the problem or the possible military implications. We also are not even asking whether or not a U.S. "owned" industrial base matters, and we must explore this issue as a nation.

The White House, Congress and the entire spectrum of the agencies and departments of the federal government need to understand these issues. At the moment they do not. Unless something changes, the U.S. may cease to be a superpower.

Thank you for listening, and I look forward to your questions.