CHAPTER 4

A CASE STUDY OF THE AUTOMOTIVE INDUSTRY THAT ILLUSTRATES CHALLENGES TO U.S. MANUFACTURING AND THE U.S. DEFENSE INDUSTRIAL BASE

The Commission shall investigate and report on—

"ECONOMIC TRANSFERS—The qualitative and quantitative nature of the transfer of United States production activities to the People's Republic of China, including the relocation of high technology, manufacturing, and research and development facilities, the impact of such transfers on United States national security, the adequacy of United States export control laws, and the effect of such transfers on United States economic security and employment."

"UNITED STATES-CHINA BILATERAL PROGRAMS—Science and technology programs, the degree of non-compliance by the People's Republic of China with agreements between the United States and the People's Republic of China on prison labor imports and intellectual property rights, and United States enforcement policies with respect to such agreements."

"WORLD TRADE ORGANIZATION COMPLIANCE—The compliance of the People's Republic of China with its accession agreement to the world Trade Organization (WTO)."

Key Findings

- China's automobile production capacity already exceeds domestic demand by 10 percent to 20 percent.[1] This overcapacity is projected to grow to 8 million vehicles by 2010 and it is very likely that China will begin exporting vehicles to the United States within the next five to ten years. Chinese industrial subsidies, undervaluation of China's currency, discriminatory tariff rates, tax breaks, and a host of other unfair trade practices will make the price of Chinese vehicle imports artificially low in foreign markets. The U.S. auto industry will find it difficult to compete with unfairly-priced imports and likely will lose an additional share of the domestic market.
- Serious intellectual property violations by Chinese companies are harming U.S. consumers and American manufacturers. Auto parts are being counterfeited, intentionally misrepresented, and sold as genuine—all in direct violation of both China's trademark laws, which clearly are not being enforced, and China's World

Trade Organization (WTO) obligations. American citizens are being put at risk as inferior Chinese counterfeit auto parts find their way under the hoods of vehicles driven on our streets, while U.S. companies lose significant market share and brand reputation to such counterfeit goods.

- Chinese regulations currently require automakers to exceed a 40 percent domestic content requirement or face higher tariffs on the imported auto parts. These discriminatory tariffs pressure China-based auto assembly companies to use parts manufactured in China rather than U.S.-manufactured parts. This violates the promises China made, and the legal obligations it assumed, as part of its accession to the WTO. These regulations are intended to force U.S. and other manufacturers to shift parts production to China, resulting in U.S. manufacturers losing business and U.S. workers losing jobs.
- China's WTO-illegal trade practices are serving to hollow out the U.S. manufacturing base. The loss of America's sophisticated manufacturing capabilities has serious national security implications. As the U.S. manufacturing base diminishes, the U.S. military risks losing its ability to easily, quickly, and reliably procure much-needed weapons systems, components, and spare parts. With a smaller industrial base to draw from, military leaders are increasingly concerned about maintaining warfare capabilities, especially in the event of actions not supported by the People's Republic of China.
- As the U.S. defense establishment becomes increasingly reliant on the private sector for commercial off-the-shelf parts and components, the military risks losing control of its supply chain.
- The problems with which American car makers and parts manufacturers are struggling exemplify the challenges that the U.S. industrial base faces as China expands its industrial prowess and continues to utilize unfair trade advantages.

Overview

Within little more than a decade, China has gone from nearly banning the private ownership of cars to directing huge investments into vehicle production by state-owned auto manufacturers. In 2005 China produced nearly five times as many motor vehicles as it had produced annually in the 1990's.[2] In 2002 and 2003 alone, the growth rate for auto sales exceeded 60 percent.[3] China now stands as the second largest market for vehicle sales and the third largest vehicle producer in the world.

U.S. auto assembly companies and parts manufacturers alike view China with a mixture of enthusiasm and alarm. Businesses see enormous opportunities in the growing automobile market and the low-cost manufacturing base that China has to offer. They also face a host of unfair trade practices that are seriously affecting the ability of American manufacturers to compete on a level playing field. The Commission held a hearing in Dearborn, Michigan in July 2006 to examine how the rise of China's auto and auto-parts industries is affecting the U.S. industrial base, with a particular focus on the implications for American workers, investors, companies, and national security.

The Commission chose to study the U.S. auto and auto parts industries because of the significant impact these industries have on the wider American industrial base. Many of the problems and issues the auto and auto parts sectors face are symptomatic of the overall issues confronting America's industrial economy.

China's Auto and Auto Parts Strategy

Since China's accession to the WTO, the Chinese government has placed a growing emphasis on developing world-class auto and auto-parts industries. Beijing views the creation of these industries as a fundamental step in achieving the technologically advanced industrial base it seeks to develop. The Chinese Communist Party has designated the auto industry as a "pillar industry" and has formulated a number of strategies to accelerate its development. As the Chinese government begins to recognize that a strong automobile industry plays an important role in industrial development, the U.S. auto sector is declining.

China's tenth Five-Year Plan, adopted in 2001, stressed the importance of establishing joint ventures among Chinese and foreign auto manufacturers and suppliers in order to develop business and technology transfer opportunities.[4] As foreign companies grew reluctant to share core technologies with their Chinese partners due to China's rampant IPR violations, the Chinese government and Chinese companies began using four other key tactics: 1) purchasing companies with certain desired expertise in complex manufacturing, 2) hiring engineering services firms to obtain key knowledge of product development and new technology, 3) co-developing new products with foreign partners, and 4) collaborating with major global suppliers willing to supply crucial components and systems for indigenously manufactured vehicles.[5]

The latest Five-Year Plan—the eleventh—adopted in 2006, identifies Chinese manufacturing skills as an area that requires additional state support. Specifically, this Plan states:

> *Upgrade the Auto Industry: Enhance the auto industry's ability for independent innovation; accelerate the development of auto engines; auto electronics; and key assemblies and parts that possess independent intellectual property. Give play to the role of mainstay enterprise in increasing the market share of proprietary passenger cars . . . Guide enterprise to merge and reorganize during the course of competition so as to form enterprise capable of producing 1 million automobiles each year.*[6]

According to Bruce Belzowski, Senior Researcher from the University of Michigan's Office for the Study of Automotive Transportation, "The Chinese do not seem to be focused on internal expansion of the industrial sector, but instead see structural upgrades as the goal for the next five years."[7] The auto industry is seen as a main driver of technological innovation.

Other auto-related objectives of the current Five-Year Plan include, "developing indigenous technological innovation capabilities and self-controlled intellectual property; reducing overcapacity and overheated investment; and encouraging energy efficient vehicle

technology," according to John Moavenzedah, Executive Director of the MIT International Motor Vehicle Program.[8]

The importance that China places on its vehicle industry is also evident in the 2004 National Development and Reform Commission report on China's Automobile Industry Development Policy. The report set the standards for foreign ownership, environmental protections, traffic safety, brand strategy, foreign investment, and energy security. The policy emphasized the need to restrict foreign vehicle manufacturers to a maximum 50 percent stake in joint ventures with a maximum of two Chinese partners.[9] The Chinese government also places tariffs of 25 percent on all imported vehicles and 10 percent to 15 percent on all auto parts. (In comparison, the United States places a mere 2.5 percent tariff on both most imported autos and most auto parts.) These and other restrictive policies readily demonstrate the "infant industry" approach the Chinese government takes with the auto industry—protecting local players until they can compete on the international market.[10]

Chinese New Motor Vehicle Sales (in units)

	2002	2003	2004
Personal Use Vehicles	1,358,908	2,428,405	2,786,866
Commercial Use Vehicles	2,211,540	2,545,555	2,873,981
Total Motor Vehicles	3,570,448	4,973,960	5,660,847

Source: Department of Commerce Report, 2006

China uses a variety of means to stimulate domestic auto sales. The government subsidizes gasoline production to hold its price around $2 per gallon. Regional and local governments offer discounted land for factories and loans from state banks.[11] The municipality of Shanghai even built a $320 million, state of the art, 5.4 kilometer race track to fuel "car-mania." These moves and other incentives have helped to quadruple the number of passenger cars on the road from six million in 2000 to nearly 24 million in 2006. In line with Beijing's ambitions, car sales rose 54 percent for the first quarter of 2006.[12] These policies are helping China's citizens to leap from a transportation system based on bicycles to one dependent on autos—all in the space of a decade. With a strong domestic base, China will achieve the economies of scale far more rapidly that will allow it to become a global player in the auto and auto parts industries.

Export-led growth has been a major component of China's overall economic development plan for several decades. China's industrial strategy encourages Chinese-controlled foreign partnerships to secure advanced technology and know-how in order to develop and export higher value-added goods. Few industries illustrate this strategy better than the Chinese auto industry. Capacity has already outstripped domestic demand by 10 percent to 20 percent and China has begun exporting domestically manufactured vehicles to Europe and Australia.[13] According to a report by Robert W. Baird Limited, a London-based securities firm, "exports should grow substantially over the next few years, with Chinese original

equipment manufacturers pursuing exports particularly aggressively . . . Global original equipment manufacturers (joint ventures with Western partners) have already begun exporting from China . . . global manufacturers will likely begin exporting from the country as advancements in the local supply chain reduce costs and allow more efficient production." [14]

The Commission toured such a joint venture during its June 2006 fact-finding trip to China. In Wuhan, Dongfeng Motor Company Ltd. teamed up with Citroen and Peugeot to produce nine different models from a single, fully-integrated stamping, welding, painting, and assembly line—a feat of engineering and just-in-time delivery. Dongfeng officials said that there were no plans to export their product, but the high-end Citroen Triumphe parked at the end of the assembly line seemed to tell a different story. The car, selling for $25,000 in China, is priced far from the reach of all but the wealthiest drivers but would be a strong competitor at that price in the United States and Europe.

China's Impact on the American Auto Sector

The export of Chinese manufactured vehicles to the United States in the near future will further complicate the situation for American automobile assemblers. Chinese nameplates have yet to appear in the American market, but plans already are underway to produce cars in China and sell them in the United States. Experts predict that Chinese companies such as Geely Automobile Company and Chery Automotive Company could begin exporting vehicles to the United States within the next five to 10 years. Chery Automotive has announced plans to export cars to the United States by 2009.[15] Geely has targeted entering the U.S. market somewhere between 2009 and 2011.[16]

The arrival of Chinese-produced cars in the United States will bring additional challenges to the American Big Three (Ford, General Motors, and the Chrysler portion of Daimler-Chrysler). The Big Three already have lost significant market share to foreign automobile manufacturers over the last several decades. In 2005 the share of the U.S. market held by Detroit's automakers fell 2.6 percent to just 56.8 percent overall, a record low. For 2005, GM announced domestic losses of $8.6 billion, its second worst showing in history. More recently, Ford announced a 2006 third quarter loss of $5.8 billion, it worst quarter since 1992.[17] Meanwhile, some analysts expect Big Three production to contract further in 2006, their volume replaced both by U.S.-based Japanese, Korean, and German manufacturers, and by imports.[18]

Losses in market share are also having a devastating effect on the American parts manufacturing community. Even though foreign transplants have moved their assembly facilities into the United States and are providing American workers jobs at these plants, the U.S. manufacturing economy is still losing out overall. Primarily, this is because the Big Three source more of their parts from U.S.-based manufacturers than do the foreign transplants operating in the United States. The foreign transplants also tend to keep some high value-added operations—research and development, engineering and design and marketing—back at the headquarters in Japan, Korea, or Germany. According to the Level Field

Institute, "There are 20 times more R&D workers in Michigan alone than the 14 Japanese auto manufacturers operating in the U.S. employ nationwide. Ford, GM, and Daimler-Chrysler spend $16 billion in research per year. In Michigan alone, 65,000 employees conduct research at approximately 200 facilities."[19] A strong, fully-integrated, U.S.-based auto industry also supplies a greater stimulus to the U.S. industrial base than the foreign nameplates because American car makers support a larger number of domestic producers than do their foreign competitors.[20]

To offset such current and projected losses, American manufacturers have looked beyond the U.S. market. China's motor vehicle sales growth rate of 15 percent and total sales of 5.92 million vehicles in 2005 have justified the interest of American auto manufacturers in investing in China where they thus far have done very well.[21] In 2005 General Motors became China's leading auto supplier, selling over 665,000 vehicles and capturing 11.2 percent of the market. Last year Ford produced 82,225 vehicles in China and increased sales by 46 percent.[22] U.S. exports of cars and light trucks to China reached $340 million in 2005, up 253 percent for the year. China has lowered import tariffs and quotas that once made these kinds of sales impossible because it has been required to do so as a result of acceding to the WTO, although further improvement is still needed. Nevertheless, the Big Three's plans emphasize investing in Chinese production rather than attempting to export to China from U.S. plants, resulting in creation of fewer jobs here in the United States.

The advantages the China-based auto industry enjoys are plentiful. Recently, Beijing began offering low interest rates to domestic carmakers with the stated intent of lifting the domestic market share of Chinese nameplates from 20 percent to 60 percent.[23] Chinese laws offer low tax rates to foreign firms investing in China and protect them with import tariffs of 25 percent on cars and some auto parts. Added to that is the huge subsidy provided by an undervalued renminbi. Chinese currency manipulation enhances the price competitiveness of all manufactured goods that are exported to the United States.[24] China also rebates its Value Added Tax on products that are exported from China, reducing costs an additional 17 percent.[25]

But U.S. automakers are facing a dilemma. Currently, investing in China seems to make good business sense. Servicing the rapidly growing Chinese market can yield high profits. But with China's requirements that foreign auto firms form joint ventures with domestic companies, and that control of such companies must rest in Chinese hands, U.S. auto companies are transferring technology, management acumen, and design and engineering know-how to potential competitors. Soon, U.S. manufacturers will find themselves competing against Chinese firms that they themselves have armed with cutting edge skills.

Fearing that Beijing is about to reverse the policy of attracting foreign investment in autos by revoking the tax breaks, cheap land, and favorable loan terms, U.S. auto companies are afraid to speak out. Openly criticizing the unfair trade practices that many American businesses face in China sometimes has resulted in retaliation by the Chinese government. During the Commission's June trip to

Beijing, Shanghai, Wuhan and Hong Kong, American business representatives complained privately about a wide range of Chinese government practices they said discriminated against foreigners. Yet none was willing to be quoted about the theft of intellectual property, arbitrary tax and regulatory rulings, the arbitrary decisions of the courts, or a host of other problems. The reason: the fear of retaliation by Chinese authorities and the loss of special privileges afforded foreign firms. Indeed, representatives of the Big Three explained their unwillingness to testify at the Commission hearing in Dearborn by citing the potential displeasure of Chinese officials and the possibility of retaliation.

China's Impact on American Auto Parts Manufacturers

Many American auto parts makers already are struggling to survive. China ranks just behind Japan ($16.4 billion) and Germany ($6.7 billion) in the value of auto parts shipped to the United States. By contrast, the United States exported $55.1 billion in parts in 2005, but nearly 80 percent of those were bound for Mexico and Canada where most were assembled into cars that were exported back to the United States. In all, the U.S. imported $5.4 billion in parts from China in 2005, 10 times the amount of U.S. parts exported to China.[26]

China's lack of effective intellectual property rights enforcement is also working against many American parts manufacturers who face the copying of their products and the theft of their brand names. As U.S. manufacturers shift production to China, they are forced to compete against counterfeit versions of their own products. As Terrence Keating, President of Accuride Corporation, told the Commission, although "the product may be a duplicate in style, [the] quality of some of the products falls far short of the standards required to protect the safety of the American motorist. The warranty claims filed as a result of these knock-off products are creating a negative economic and safety impact."[27] He further testified "that it is very difficult to estimate the negative impact of these knock-off products in lost market share, damaged brand name, and overall value, but it safe to say that is it very significant."[28]

On September 14, 2006 the United States, Canada, and the European Union filed a formal complaint against China in the WTO over the issue of 25 percent tariffs placed on some imported auto parts. The complaint was filed after consultations with China on the matter broke down. The basis for the complaint is that China has imposed a domestic content penalty on cars composed of more than 60 percent (by value) of imported parts, an action prohibited by WTO rules.

Under Beijing's 2004 dictates, if a car assembled in China is composed of more than 60 percent imported parts, a 25 percent tariff is to be levied on those parts rather than the usual 10 percent tariff. This is more than twice the normal tariff rate for auto parts, but equal to the tariff rate on a finished, imported car.[29] The higher tariff appears to have three purposes: (1) to encourage the domestic sourcing of parts used by the Chinese auto industry; (2) to discourage the purchase of imported parts; and (3) to persuade parts makers based in the United States, Canada, and Europe to move their operations to China. According to U.S. auto executives,

Chinese authorities have asked U.S.-based auto companies to pressure the Bush Administration to drop the WTO case.

There is a growing exodus of American parts makers to China. Joint ventures by auto assembly companies in China have been pressuring U.S. suppliers to relocate to China to service factories there. To further encourage investment by U.S.-based parts manufacturers in China, Beijing imposes no joint venture requirements on foreign parts suppliers and does not limit their equity positions in any joint ventures in which they are engaged. According to the U.S. Department of Commerce, most of the world's largest tier one suppliers (direct suppliers of original equipment) already have located plants and research facilities in China.

The continued shift of parts manufacturing to China will have severe consequences for U.S. employment. The U.S. Bureau of Labor Statistics reported that auto parts production in the United States accounted for 743,600 jobs, or 67.6 percent of the 1.1 million workers involved in overall auto manufacturing in 2005. The parts industry is already reeling from a combination of imported parts and production cut-backs by their biggest customers—Detroit's Big Three. The Original Equipment Suppliers Association predicts a decline of 11 percent in employment in the sector between 2003 and 2010. These losses would come on top of a huge industry consolidation now underway. While there were 30,000 companies in the North American auto supply chain in 1990, there were just 8,000 in 2004, according to the association.[30]

These effects are being felt throughout industrial America. Young workers entering the labor force no longer see a manufacturing sector capable of offering them reliable long-term employment, several witnesses told the Commission. Furthermore, U.S. manufacturers competing against Chinese goods now have such small margins that they no longer are able to finance the training that new workers need.[31] Consequently, the average age of the workforce in this industry is rising sharply, and many of its workers are approaching their retirement.[32] Mark Schmidt, President of Atlas Tool, Inc., testified to the Commission that once the skill sets of tool and die manufacturing are lost, it will take a major and expensive effort, and a substantial period of time, to reconstitute those skills in America. He insisted that this loss will permanently damage the defense industry and national security.[33]

Meanwhile, many of those companies that have survived are in distress. More than a dozen major U.S. suppliers filed for bankruptcy protection in 2005. The largest, Delphi, filed for Chapter 11 bankruptcy protection in October 2005 while the second largest, Visteon, received a bailout from Ford. Industry analysts predict that of the 800 parts makers in business in 2000, only 100 will remain by 2010 due to bankruptcies, mergers, acquisitions, and migration to other lines of work.[34] The debt of twenty of the top 29 supplier companies in North America with public debt carried junk bond ratings at the end of 2005, according to an assessment by Automotive News.[35]

China's Impact on the U.S. Defense Industrial Base

The weakening of the U.S. automotive and automotive parts industries is affecting the American domestic industrial base and has

several national security implications. For example the industries that produce Advanced Technology Products are being threatened. The average automobile contains 18 microprocessors, a variety of sensors, and other components that require a high degree of technological know-how. As sourcing for these domestic high tech components dwindles, so too does America's high tech prowess. For Advanced Technology Products[36], in 2005 the United States had a $47 billion trade deficit with China, a 30 percent increase over 2004.[37]

American technical prowess also will be affected by the decline of some companies and industries not usually associated with Silicon Valley, as the withering of the U.S. auto industry undermines them. For example, Mr. Schmidt testified before the Commission that his family-owned tool and die shop has contributed to the development of both the F/A–22 Raptor fighter plane and the Space Shuttle programs. It is under siege as the auto industry reduces purchases of its products.

Because the United States is no longer capable of producing all the manufactured goods it consumes, it has become increasingly reliant on foreign nations. This dependency is the natural outcome of an increasingly globalized world. However, unfair trade practices employed by foreign nations also play a large part in the decline of U.S. industrial capabilities and are undermining U.S. national security. China's undervalued currency, high import tariffs, illegal tax breaks, joint venture requirements, inadequate commitment to the rule of law, and shoddy protection of intellectual property all undermine our ability to maintain the robust and competitive industrial base that our military needs to operate securely and at 100 percent.

America's industrial deterioration has had an impact on the institutions responsible for defending U.S. national security. As the military has become increasingly reliant on the private sector to provide it with the parts and components it needs to operate, it has exposed itself to the vagaries of the global supply chain. This problem has been exacerbated as the military has become increasingly reliant on commercial off-the-shelf technologies.[38] A loss of access to necessary components easily could diminish our ability to keep our armed forces operational and effective.[39] China, which is now the source of critical components, could damage the U.S. defense establishment by slowing the supply of those components.

As Department of Defense policies increasingly call for reliance on acquiring and using commercial off-the-shelf items, it becomes commensurately more difficult to comply with laws that limit the amount of foreign components in U.S. defense systems—partly because the domestic sources of such items are disappearing. For example, the Berry Amendment[40] was intended to "restrict Department of Defense expenditure of funds for supplies consisting in whole or in part of certain items, including textiles and certain metals, not grown or produced in the U.S. and its possessions."[41] As U.S. production capabilities shift overseas, the components available on the open market have become integrated into the global supply chain. Consequently, it has become nearly impossible to fully trace the origin of these components. In an attempt to limit costs and harness the high level of innovation of the private sector,

the U.S. defense establishment is exposing its supply chain to elements beyond its control.

The growing amount of private sourcing for the military also prevents the Pentagon from exercising prudent inventory control. Brian Suma of the U.S. Army's Diminishing Manufacturing Sources and Material Shortages system testified before the Commission that his agency is fighting a difficult battle against obsolescence with ever fewer resources. As many of the Army's traditional suppliers go out of business, it is becoming more difficult to locate the components the Army needs to keep equipment operational.[43] Randall Gaeremink, Associate Director of Engineering at the Tank-automotive and Armaments R&D and Engineering Center, testified that the Army already is running at full capacity to keep its existing arsenal operational. In fact, in order to keep operational some weapons systems currently being used in Iraq, at times the Army has been forced to rely on components cannibalized from other systems because the original manufacturer of those components has gone out of business.[44] Furthermore, Mr. Gaeremink testified that maintaining an industrial surge capacity to fight a protracted, large-scale war is no longer feasible given the deterioration of the industrial base.[45]

Producing finished vehicles and weapons systems has become even more challenging as production of components shifts overseas. The longer the supply chain is, the more likely it is that a minor disruption in the supply of a critical part will affect a weapons system. This is particularly true in the case of the most complex weapons systems. Modern battle tanks without their complex thermal and infrared sights are less effective. A bottleneck abroad in the production of such critical components, particularly during a war when supply lines can be disrupted, could ground fighter jets and sideline armored personnel carriers—or if a complete weapon system or vehicle available only from a foreign supplier cannot be obtained in the first instance, U.S. troops could be forced to prosecute a conflict without it.

Opto-Electronics: An Automobile Component and Vital Defense Technology

According to a 2006 study by the U.S. Department of Commerce's Bureau of Industry and Security, while imaging and sensor technology previously was employed primarily for military purposes, uses in commercial industry have increased significantly in the last 10 years, including uses by the automotive industry.[46] The military uses imagery and sensor technology in applications such as target recognition; the automotive industry applies this technology to night driving. "The primary driving force for increased defense sales during the [Commerce Department's] survey period [2001–2005] was the requirement for imaging and sensors equipment for the Iraq and Afghanistan operations. Non-defense sales growth during the same period reflected heightened demand for imaging and sensors equipment

Opto-Electronics: An Automobile Component and Vital Defense Technology—Continued

by law enforcement, electronics, firefighting, medical, and automotive industries."[47] U.S. firms continue to dominate in this defense sector for imaging and sensor technology, while Japan, France, Korea, China, and other nations are meeting commercial demand.[48]

According to the study, from 2001 to 2005 China experienced the second largest growth rate in this sector, 159 percent, behind Belgium-Luxembourg. China also is one of the fastest growing markets for commercial applications of imaging and sensors. However, due to current U.S. export controls on these products, many U.S. companies are not bidding to supply these items to foreign purchasers, and the products then are supplied by companies in other nations. This includes China, whose exports of dual-use thermal imaging cameras are gaining market share.

China will be a major factor in the next ten years of the opto-electronics industry. In his testimony before the House Committee on Small Business in 2003, Professor Siva Sivananthan, an infrared technology expert, stated that "China, India, Israel, France, Germany, and the UK are all investing heavily in developing new systems and technologies. They also have growing markets outside the U.S."[49] The National Intelligence Council agreed that China is "making heavy investments" in this industry and that it is "actively courting foreign participation in the form of advanced technology and critical components."[50] The Council also agreed with Professor Sivananthan's statement that "The eroding U.S. industrial base [and] the lack of innovations developed by small businesses and universities combined with growing foreign efforts are clearly a recipe for the loss of U.S. supremacy and an increasing reliance on foreign suppliers." Professor Sivananthan further testified that the automotive industry's model of supplying infrared materials and components from specialized domestic suppliers allows the component suppliers to perform their own engineering.[51] However since 2003, automotive component suppliers such as Visteon and Delphi have succumbed to financial difficulties, partly due to competition from China.

In response to Professor Sivananthan's disconcerting testimony, the National Intelligence Council conducted a study[52] of infrared imaging systems. While the United States currently is the leader in this technology, the Council's study estimated that a combination of China's centrally planned focus on developing night vision technology and its economic position to exploit export opportunities will enable China to gain a significant capacity and move into second place in the world by 2014, surpassing all other nations except the United States. It is significant to note that two nations China will surpass, France and Israel,

Opto-Electronics: An Automobile Component and Vital Defense Technology—Continued

are cooperating with China to enable it to achieve this technological development. The Council recommended adopting and strictly enforcing export controls to prevent the transfer of U.S. high performance infrared technology and to relax export controls of low-performance imaging technology in order to enable U.S. manufacturers to compete against Chinese producers.[53] Representatives of the U.S. industry who responded to the Commerce Department study echoed this concern.[54]

The success of the future imagery and sensor industry is directly linked with the automotive industry. U.S. industry is most responsive to changes in the imagery and sensor industry that occur within the automotive sector. Between 2001 and 2004, export controls on sensors and cameras were amended to permit additional foreign sales. The only significant increase in exports resulting from these amendments was in the export of night vision cameras used in automobiles produced by foreign manufacturers.[55]

In order to preserve a functioning, viable imagery and sensor industry that is crucial to our defense industrial base, it is critical to maintain a robust automotive components manufacturing sector in the United States. Specifically addressing electronics and sensor manufacturing, the President's Council of Advisors on Science and Technology determined in 2004 that the research-to-manufacturing process is not sequential—i.e., moving in a single direction—but rather that it "results from an R&D-manufacturing 'ecosystem,' consisting of basic R&D, pre-competitive development, prototyping, product development, and manufacturing, with successful avenues of research and development being assisted by an understanding of the manufacturing situation as it presently exists. Design, product development, and process evolution all benefit from proximity to manufacturing, so that new ideas can be tested and discussed with those working 'on the ground.'"[56]

In summary: If the United States wants to maintain its lead in this field that is of such consequence to U.S. defense, it must maintain a vibrant domestic industry. In order for the domestic industry to remain vibrant, it must have sufficiently strong domestic and foreign sales to generate the profits necessary to support the "R&D-manufacturing 'ecosystem'" the National Intelligence Council identified as crucial to the industry. As the leading civilian customer of the U.S. opto-electronics firms, the auto industry is key to this equation, and if the U.S. auto industry atrophies, the U.S. opto-electronics industry will be threatened. China is taking the steps to become one of the world's leading opto-electronics producers; should the U.S. industry falter, the United States could become dependent on China and other nations for opto-electronics required by U.S. high tech-dependent weapons systems.

RECOMMENDATIONS

- The Commission recommends that Congress support the Administration's WTO dispute resolution case against China's proposed imposition of a 25 percent tariff on imported auto parts.
- The Commission recommends that Congress fully fund programs such as the Commerce Department's Manufacturing Extension Partnership Program (a nationwide network of expertise and advice to aid small and medium-sized American manufacturers) that provide counsel on such matters as worker training, process technology, information technology, and supply chain integration to help U.S. manufacturers compete globally.[1]
- The Commission recommends that Congress require the U.S. Department of Defense to trace the supply chains of all components of critical weapons systems.

ENDNOTES

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