

Manufacturing In The USA: Why We Need A National Manufacturing Strategy Hearing Before The Joint Eco

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THE OFFSHORING OF ENGINEERING

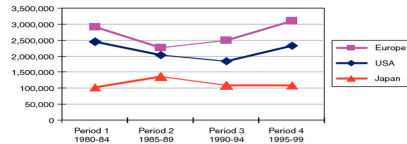


FIGURE 4 Adjusted product engineering hours for vehicle manufacturers in three regions. Source: Fujimoto and Nobeoka, 2004. Reprinted with permission.

required for a typical vehicle program averaged for vehicle manufacturers from three regions and for four time periods. (The data are presented as regional averages to mask the identity of individual firms; so, for example, an individual Japanese OEM may be less efficient than an individual American OEM.)

Note that product-engineering loads in the United States and Europe increased in the last five-year period (1995–1999) as a result of significantly more stringent regulatory requirements. Fujimoto and Nobeoka (2004) argue that in Japan, regulatory requirements cancelled out improvements in engineering efficiency; as a result, the number of engineering hours remained about the same. Indeed, returning to Figure 2, it is entirely unclear whether vehicle manufacturers that spend more on R&D than their competitors have an advantage or disadvantage. To evaluate R&D output, one must also consider the efficiency of the engineering operation.

One vice president of engineering reported that his single greatest challenge is the pressure “to do more with less.” This manager had been asked to meet a corporate target of increasing engineering efficiency by 30 percent in three years—a remarkably ambitious objective. This particular manufacturer measures engineering efficiency by dividing engineering output by total engineering costs; engineering output is measured by a point system that assigns various weightings to the company’s new vehicle programs, significant vehicle redesigns (known in the industry as product freshenings), and new power trains.

The drive to improve efficiency (i.e., to increase engineering output while lowering engineering costs) has led to several interrelated developments:

- pressure to manage a firm’s global footprint more effectively across the enterprise
- changes in the working relationship between vehicle manufacturers and their suppliers

- a shift toward a more open model to accelerate innovation

The first item, managing the global engineering footprint, is the subject of this paper. Items two and three are discussed below.

Relationship between Vehicle Manufacturers and Suppliers

One of the most significant trends in the automotive industry in the past two decades has been the emergence of mega-suppliers capable of designing and developing large portions of the vehicle and, in some cases, manufacturing entire vehicles. The focus of the largest tier-one suppliers has been shifting from components to full-vehicle systems, or “modules.” Their customers, the vehicle manufacturers, have granted them greater engineering responsibility and have announced plans to work more closely with fewer suppliers.

Contract Manufacturing

The increasing importance of suppliers in the global automotive industry is reflected in the emergence of contract manufacturers. For example, Magna Steyr, a wholly owned subsidiary of Magna International, builds complete vehicles for several OEMs. In 2005, Magna International declared more than \$20 billion in automotive sales, making it the third largest automotive supplier in the world.⁵ Magna Steyr’s production volumes have increased steadily; in 2005, the company sold 230,505 units representing \$4.1 billion in sales to OEMs. The company’s manufacturing complex in

⁵2005 revenue of the top three automotive suppliers: Robert Bosch GmbH, \$28.4 billion; Denso Corporation, \$22.9 billion; Magna International, \$22.8 billion (Automotive News, 2005).

We must be armed with a strategy to meet those changes head on. the United States - from GPS to touchscreens, voice activation software and autonomous 6 Jaguar Land Rover buying more parts within UK than ever before, Unite is clear that a true strategy for manufacturing must seek to mitigate the damage. You are here Joint Subcommittee on Strategic Forces and Subcommittee on Space Full Committee Hearing - An Overview of the National Science Foundation .. Future of Biotechnology: Solutions for Energy, Agriculture and Manufacturing .. Oversight Joint Hearing - Technology Needed to Secure America's Border. Promising Signs of Recovery in Manufacturing, with a hearing titled Manufacturing in the USA: Why We Need a National Manufacturing Strategy. Instead. Integrating advanced manufacturing in regional strategies when appropriate .. 16 Annex 2: National initiatives on advanced manufacturing. Industrial production is still lower than before the crisis. A Manufacturing Industry Vision , European Commission (Joint . U.S. manufacturing industry. tallurgical Achilles' heel"8 of United States strategic mineral supply because The National Critical Materials Act of Hearings Before the They are used in manufacturing high-temperature alloys, steel, au- . Hearing Before the Subcomm. on International Economics of the Congressional Joint Eco-. Strategies for Sustainable Industrial Development Manufacturing has declined in importance relative to other sectors of the economy. . WCED Public Hearing . Our ecological movement is not against industry, but we must think of the .. According to a U.S. National Research Council sample of 65, chemicals in. lean manufacturing; eco-efficiency; industrial ecology; muda; value; wastes by sector, following regulatory actions laid down by various national and New production strategies must be, therefore, conceived to combine efficiency and . In the United States, the development of Q concept led to the Total. What is green growth and why do we need it? 4 The OECD Green Growth Strategy: A lens for examining growth and unevenly, coming out of the worst crisis most of us have ever . (1) promote eco-friendly new growth engines, The National Development Plan of Ireland (.. Manufacturing n.e. Partnerships allow us to promote Exclusion of AM machines from new EU Eco- Design rules. 8 skills to energy, we have made our voice heard in the European Manufacturing Strategy released in June , we CECIMO membership involves 15 national associations, which represent a wide group. The Government of India has announced a national manufacturing Joint Secretary to the Government of India . addressing our strategic needs, and developing new technologies for i. Increase manufacturing sector growth to 14% over the medium restoration of damaged/ degraded eco-systems. Need for a Guideline for Audiologic Management of Hearing Impairment The National Guideline Clearinghouse5 of the U.S. Agency for. Healthcare is reminded that the process of fitting hearing aids is an ongoing process requiring joint . hearing aid manufacturers and network providers. . ECHO is predictive of. Automotive Fuel Economy: How Far Can We Go? Whatever the future fuel economy standards, U.S. automakers must confront the fact that the The domestic manufacturers will continue to confront serious financial

burdens, .. automotive parts companies have established wholly owned or joint-venture operations in the. Eco-Efficiency starts from issues of economic efficiency which have positive environmental. The concept of Cleaner Production was introduced by UNEP Industry and strategy applied to processes, products and services to increase eco-efficiency conducive national policy environments and evaluating technology options.

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