

Industry/Government Partnering: Toward a New Industrial Policy?

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Confronted with an increasingly competitive business environment at both national and international levels, corporations of all sizes are finding collaboration, teaming, and partnering more and more important, both tactically and strategically. Corporations increasingly recognize that the larger-scale, longer-term business opportunities critical to their continued growth often demand a broader range of talent and expertise than they can offer individually. Firms in a particular business sector that once competed against a well-known set of competitors in a well-understood environment, now face changing market conditions that demand complicated, sometimes unusual partnering arrangements to meet customer needs. In response, many corporations are forming „strategic alliances“ – business relationships that are expected to be long-term, mutually beneficial, and compatible with each partner’s strategic plan and business objectives, while fostering growth and diversification that is mutually reinforcing.

Today it is not unusual – especially in pursuit of U.S. Government contract opportunities – to find organizations that normally compete head-to-head teaming together, often with a panoply of specialized subcontractors. Sometimes these teaming arrangements are necessitated by the sheer size of the opportunity – as in projects for which the resources of a single firm would be inadequate. At other times, the diversity of skills required to execute a program successfully necessitates partnering. In still other situations, marketing intelligence reveals that a business opportunity is being pursued by a powerful team of firms, which must be countered by an equally powerful team. It is not at all uncommon today in the U.S. Government marketplace for a firm to find itself bidding with another firm on several contracts and against the same firm on other contracts, often to the same customer.

Traditionally, strategic alliances do not involve governmental entities as collaborators in the partnership. While many corporations have strong and growing government operations, these generally take the traditional form of contractual business relationships in which the corporation sells products or services to the government. However, there is now considerable evidence that new opportunities may be developing for industry/government partnering. Such partnerships can further the objectives of both governments and commercial enterprises.

Industry/government partnering can take a variety of forms. Currently, none of the models in the United States are closely analogous to Japan’s Ministry of International Trade and Industry (MITI), whose substantial investments on behalf of Japanese industry are widely regarded as part of an implicit partnership intended to enhance Japan’s global competitiveness in high technology. Nonetheless, some elements of industry/government partnering emerging in the United States are similar to the MITI model. These partnerships may presage the formation of a more vigorous industrial policy in the United States. At the very least, they suggest a growing recognition that significant national benefits can accrue from aggressive governmental support of industrial development aimed at achieving international market leadership.

Perhaps the most common model of industry/ government partnering in the United States is a loose collaboration among organizations in a particular geographic area intended to promote the well-being of the local business economy. Examples abound. „Partners in Space,“ an organization in the Houston area, recently held its third annual symposium for strengthening the partnership between the National Aeronautics and Space Administration’s Johnson Space Center and business, education, research, and technology development interests in Texas. Partners in Space operates as a nonprofit corporation with a simple objective: to identify and nurture the economic development potential of business opportunities provided by the Johnson Space Center.

The „partnership“ is actually a loose collaboration of cities, corporations, businesses, institutions, and individuals that recognize the fundamental importance of the U.S. space program to the Texas economy. The group works to build private and governmental support for the space program, and particularly the role of the Johnson Space Center. Participants include leading aerospace corporations and major Houston-based firms, together with organizations such as the Clear Lake Area Chamber of Commerce, the Corpus Christi Economic Development Corporation, and the Houston Space Business Roundtable.

Partners in Space represents perhaps the most prevalent form of industry/government partnering in the United States. Such collaborations are solidly grounded in the long American tradition of aggressive political activity in support of economic self-interest.

Several newer models of industry/government partnering have developed as a result of government initiatives at the national level intended to encourage just such relationships. Recent laws that explicitly promote the transfer of technology from federal laboratories to the private sector include the Stevenson-Wydler Technology Innovation Act, the Federal Technology Transfer Act, and the National Competitiveness Technology Transfer Act. These laws permit federal laboratories for the first time to enter into cooperative research and development agreements with private companies, to license technology directly to private companies, and to provide companies with direct access to the personnel, services, and equipment of federal laboratories to pursue joint

efforts in technology development.

Federal agencies are aggressively seeking collaborative opportunities with private industry, and are engaging in activities that could be legitimately described as „marketing“ themselves to the private sector. Recently, for example, Massachusetts Governor Michael Dukakis and U.S. Air Force Lt. General Gordon E. Fornell – commander of the Air Force Electronics Systems Division at Hanscom Air Force Base in Massachusetts – signed into existence the Massachusetts Cooperative Technology Transfer Initiative, which held the first Massachusetts Technology Transfer Forum. The forum presented to representatives of Massachusetts businesses the benefits of forming technology transfer partnerships with Air Force and Army laboratories and engineering centers located in the state. Similarly, the Risk Reduction Engineering Laboratory of the U.S. Environmental Protection Agency recently gave a technology transfer presentation to encourage the development of industry/EPA partnerships. The aim was to further the commercial development of catalytic decomposition processes for treating contaminated liquids, sediments, sludges, and soils, with the goal of commercializing successful technology.

In a related program (though not one explicitly stimulated by technology transfer legislation) the National Aeronautics and Space Administration has backed more than a dozen industry/university partnerships as Centers for the Commercial Development of Space. Using NASA funding as seed money, the centers are expected gradually to become financially self-sufficient as their university sponsors and industrial partners develop processes and technologies that can be used both in space and in earth-based applications.

In an extraordinary new experimental model of industry/government partnering, the U.S. Congress in November 1989 granted authority to the Defense Advanced Research Projects Agency (DARPA) to invest in high-technology companies and to earn profits – allowing it, in essence, to act as a venture capital firm. Under a form of business arrangement known as a „flexible agreement,“ DARPA will be permitted to invest up to \$25 million in this program over the next two years. Where its investments prove successful, DARPA will receive a financial return.

DARPA's first investment in this pioneering program is with Gazelle Microcircuits, Inc., of Santa Clara, California. Gazelle manufactures gallium arsenide computer chips for fiber-optic communications systems. DARPA funding will support the company's efforts to increase the speed of its chips to achieve extremely high-speed electronic data transfer, a benefit that is important to both military and commercial computer and telecommunications systems. Unlike previous industry/government partnerships, in which any financial return reverted to the U.S. Treasury, DARPA will be permitted to keep any returns – either royalties on the net sales of the sponsored technology over 15 years or cash payments based on the market value of Gazelle's common stock – and to use them on other projects. This innovative program reinforces the perception that a new commitment to the rejuvenation of the U.S. technology base may be developing as a significant element of U.S. industrial policy.

Arthur D. Little is involved in still another form of industry/government partnering, a collaboration of industrial organizations and a state government established in response to federal initiatives undertaken by the Department of the Navy. Under the authority and leadership of the South Carolina Research Authority (SCRA), several consortia of industrial firms are working in partnership with the SCRA on advanced technology development programs. The American Manufacturing Research Consortium – composed of the SCRA, Arthur D. Little, Battelle Memorial Institute, Grumman Data Systems, and Systems Engineering Analysis Corporation – is working under a \$93 million Navy contract for the Rapid Acquisition of Manufactured Parts (RAMP) program. RAMP's objective is to develop manufacturing technology capable of revolutionizing the way the Naval Supply Systems Command manufactures and delivers replacement parts. Its goal is to design, procure, test, and install computer-integrated systems that can process and manufacture several small-lot orders for new products daily. Aimed at developing the „factory of the future“ for the Navy, the RAMP technology will reduce the time spent waiting for spare parts by 90 percent – from 300 days and more to just 30 days.

The engine that drives this advanced flexible manufacturing system is a set of computer-interpretable digital product data called PDES, or „Product Data Exchange Specification.“ PDES data are used for the rapid development of digitized manufacturing instructions at computer-aided design workstations. These instructions are then transmitted electronically to operating stations on the shop floor. Computer-controlled machine tools perform much of the actual machining, assembly, quality control, and inspection. The product data exchange specifications are under development by a consortium known as PDES, Inc., comprising 16 of America's largest manufacturing conglomerates, whose interests lie in the advancement of manufacturing technology and processes through the use of PDES. SCRA, Arthur D. Little, Battelle, and two other firms are under contract to PDES, Inc., to assist in the development of PDES.

The industry/government partnership represented by the association of the SCRA with its industrial partners has more than technology development as its operating objective. Like other industry/government partnership models described earlier, the RAMP program has technology transfer as a major goal. Once its technology is

proven successful at the RAMP Test and Integration Facility in Charleston, South Carolina, the Navy intends to introduce RAMP technology at the Charleston Naval Shipyard, the Cherry Point Naval Aviation Depot in North Carolina, and the Naval Avionics Center in Indianapolis. The Army has also expressed interest in RAMP technology and is looking at possible applications for activities in Anniston, Alabama, and Warren, Michigan. In addition, many defense and aerospace companies, including Westinghouse, General Dynamics, and McDonnell Douglas, have expressed serious interest in the PDES technology and intend to participate in the technology transfer process.

Conclusion

Intense international competition has focused increasing attention on the need for programs and policies to improve the competitiveness of the U.S. technology base. Industry/government partnering is becoming an important way to merge national resources in support of this goal. The U.S. Government has as much to gain as industry in such undertakings.

Although the equivalent of MITI in Japan and the strong underlying industrial policy that supports it have not yet evolved in the United States, the concept of a stronger, more vigorous federal role in U.S. industrial development is more widely accepted now than at any time in the last several presidential administrations. For many years, observers of the U.S. technology base (especially defense technology) have called for a stronger U.S. Government commitment to rejuvenating, rebuilding, and advancing the technology base to enhance U.S. industrial competitiveness. Through legislation, organizational „experiments,“ and other forms of support for industry/government partnering in innovative and precedent-setting forms, a new industrial policy may be quietly emerging.

The current range of industry/government partnering should be perceived neither as a purely coincidental set of initiatives nor as the result of a well-articulated, visibly supported, and broadly promulgated U.S. industrial policy. Nonetheless, there is enough evidence to suggest that in the search for strategic alliances in the 1990s, corporate managements would do well to look to governmental organizations. There may be both surprising opportunities and real value in the offering.

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