TECHNOLOGY MANAGEMENT

by

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It is clear that we are in the midst of a major economic transition which inevitably will require major segments of our older capital-intensive industries to make significant economic adjustments. At the same time, however, there will be unparalleled opportunities for new jobs, growth, and increased profits. By the end of this century the work of most people in the country will be significantly different from what they are doing today.

Part of the transition is explained by the fact that we are experiencing a world-wide explosion in new technologies. Microelectronics, biogenetics, robotics, new materials, information sciences, and other new technologies are the foundation of our future economic growth. But these new technologies will make some major capital investments uneconomic before the end of their planned lives. In steel, open-hearth furnaces can no longer compete with basic oxygen furnace technology, or the potential of new Swedish plasma technology. And in just a few years, we can

expect graphite fiber reinforced plastics that are stronger than steel and lighter than aluminum to significantly compete for our metal markets.

However, depending on our national reaction, the total impact can be positive. The delivery of new inventions, no matter who is the initial originator, to the marketplace can create an array of new businesses, and new businesses mean new jobs. Clearly, the Federal Government's contribution could be significant if tapped. It funds or performs about half of all the R&D done in the country and about 70 percent of the basic research. Its laboratories employ about 1/6 of the country's R&D workers. But notwithstanding, all indicators signal that commercial products and processes are not evolving from this funding in quantities that could be reasonably expected.

Our economic recovery and long-term economic well-being heavily depend upon high technology industries such as aerospace, etc. continuing to make contributions. American leadership in world technology is not necessarily assured even through the 1980s. Our dominance already is eroding in steel, automobiles, machine tools, and consumer electronics.

Part of the reason for his erosion is that other nations are rapidly expanding their technological activities. Ten years ago the United States, with five percent of the world's population, generated about 70 percent of the world's technology. Currently, we generate about 50 percent of it, and by 1990 we may only be

contributing 30 percent, despite the fact that America will be doing more and more R&D every year. While the pie is getting larger, the other 95 percent of the world will be increasingly engaged in dividing it.

Another reason is the advent of "targeted industry" strategies. Pioneered by Japan, this approach is now being initiated by other foreign nations. Basically, and simply put, in each of the targeted industries, significant economies of scale are achieved by concentrating the number of participants, by limiting imports, by directing Government procurement, and by emphasizing R&D investment in manufacturing improvements.

Firms then export targeted products to the United States and other foreign markets at prices based on anticipated, rather than current costs. (Some of these products were initially invented in performance of Government R&D). Targeting practices result in an increased market share; benefiting from economies of scale. Costs eventually slip below prices.

In the face of all this, what strategic options do we have? First, we could accept the gradual shut-down of many of our industries. Clearly, this option is unacceptable. Second, we can surrender to pressure to raise trade barriers. Pressure to do this will continue until our economy stabilizes or as long as foreign competitors are perceived as taking unreciprocated advantage of our open markets.

Rather than accepting mass exit from some industries or raising trade barriers, there is a third option--we can remove barriers and disincentives to increased exports of our products and services; we can better mobilize our own resources and capabilities; we can remove barriers to increased productivity and innovation; and we can provide incentives for collaborative and innovative technological efforts that will allow us to compete with foreign Government "targeted industry" policies. Meeting the competitive challenge this way makes far more sense than isolating ourselves and allocating resources inefficiently through protectionism.

Even though the Federal Government must fund R&D necessary for our national defense and basic, long-term, high-risk research in the nondefense sector, the Administration believes that Federal support for R&D demonstrations and commercial development should continue to be reduced. It is the private sector's and not the Government's responsibility to fund the commercialization of new products and processes even if created with Government funding. The Government's role is to remove barriers and create a conducive environment to the introduction of new inventions to the marketplace whenever they arise.

We are making progress on creating this environment and commercialization of Government funded inventions. Existing law gives small businesses and nonprofit institutions the right to title to inventions resulting from their performance of

Federally-funded R&D. As, in the last Congress, the Department of Commerce is supporting a bill (S. 2171) which amends the small business/university law so that all contractors, regardless of size, will have the same rights without discriminatory conditions. Clear ownership of patent rights in many instances is the key incentive to obtaining risk capital necessary to bring an idea to the marketplace. Under current law with its new incentives, we are already observing large increases in invention reporting to HHS, Agriculture, and NSF--the primary agencies supporting university-based and nonprofit research. In the meantime, until additional legislation such as S. 2171, passes the Government-wide policy will be to give, to the fullest extent allowed by law, all Government contractors and grantees ownership of inventions arising from their performance of Federally-funded R&D subject to agency rights to use for mission purposes.

This policy is represented in a February 18, 1983 President's Memorandum on Government patent policy. The Memo is implemented by Part 27 of the FAR, which was published in the March 30, Federal Register. The Memo and FAR supercede previous Presidential Memos which basically provided for agency discretion to dispose of Government funded inventions in any manner they chose. In practice, this resulted in most instances in Government ownership and a Government patent portfolio of 28,000 patents of which less than four percent have been licensed. As

you can see - the reversal of policy implemented by Part 27 probably represents one of the more significant changes found in the FAR.

In addition to mandating contractor ownership, the Memo also authorized agencies to waive any of the rights retained by the Government or the obligations of the performer if the agency determines that this is in the public interest or the contract involves a substantial contribution by the contractor to the work undertaken. So an agency, could for example, waive its license to use for mission purposes, its reporting requirements, march-in rights etc. under appropriate circumstances.

Further, as reflected in Part 27, the memo directs the agencies to protect the confidentiality of invention disclosures submitted to the Government in accord of law 35 U.S.C. 205.

Last, the memo and Part 27 provide that the principle of contractor ownership is applicable to all statutory programs including those that provide specifically that inventions be made available to the public. This part of the Memo is aimed at reversing Government ownership interpretations some agencies such as Interior, EPA, etc. had placed on the so-called Long amendments which were added to a number of appropriation bills during the 1960's by Senator Long. (Laws such as the Space Act and the Atomic and Nonnuclear Energy Acts which clearly require Government ownership of course are not altered by the President's

Memo). S. 2171 (the Dole bill) intends to repeal these statutes and bring the entire Government under the principle of the President's Memo as well as mandating it in law.

The Department of Commerce did not become involved in the drafting of Part 27, until the public comments on what was to be the last draft prompted the Vice President to require its withdrawal on the basis that it did not comply with law, regulation or the President's Memo of February 18. The AIA was very active in gaining withdrawal. It was Commerce's responsibility as lead agency on Government patent policy to assure that these problems were corrected. We assisted the drafting with the following principles as our primary goal:

- Uniform treatment of all classes and tiers of performers.
- Establishment of a process for contractor reporting, electing, and protecting inventions which parallels normal business practices.
- Reliance on positive incentives rather than surveillance and penalties to foster contractor invention reporting.
- Due process procedures to permit contractors to protect inventions which they have invested in from unreasonable march-in by the Government.

In short, we were looking for minimal Government intervention and optimum incentive to develop resulting inventions.

What did we get?

The March 30, Part 27 clearly provides for contractor ownership of resulting inventions subject to some limited exceptions which must be identified and justified by the Government at the time of contracting. All provisions aimed at gaining commercial rights in contractor background inventions have been eliminated. The broader exceptions previously available to DOD have been eliminated. A due process procedure and an appeal is provided in the exercise of the Government's march-in rights.

Contractor ownership is accomplished through the use of either of two different clauses. The short form clause is to be used by all agencies when contracting with small businesses, universities and nonprofits and with other categories of contractors when dealing with the Federal agencies with the exception of DOD, DOE and NASA. The use of the Long form clause is to be used only with contractors other than small businesses, universities and nonprofits when contracting with DOD, DOE and NASA. The Long form clause was developed at the urging of DOD, DOE and NASA. These agencies argued that additional control of certain contractors was necessary to assure that all inventions which the agencies wish to establish a Government license in, are promptly reported.

The Long form clause differs from the short form in four principle ways:

- o It requires reporting of inventions six months from the time it is conceived rather than the short form requirement which triggers reporting after the invention is reported by the employee/inventor to the contractor.
- o It requires the establishment of an internal contractor reporting system along that prescribed by the clause.
- o It provides for examination of contractor's records for unreported inventions.
- o It includes a withholding of payments provision for failure to report or establish the internal reporting system within the clause's prescribed periods.

DOD, DOE, and NASA argue that these provisions are necessary to preclude either inadvertent nonreporting of inventions or calculated nonreporting for the purpose of maintaining the invention as a trade secret.

Given these differences between the clauses it is clear that Commerce did not entirely achieve its goals. Commerce's skepticism about the need for the Long form clause seems to be shared by the Air Force Systems Command who has requested permission to use the short form clause.

Notwithstanding, we believe that 95 percent of what we wanted was achieved. Most important, Part 27 gives a clear signal that the Government is moving away from interferring with

the contractor's invention rights in the belief that this is the best way to stimulate commercial development of Government funded inventions.