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Today, I should like to raise a few questions and propose a few answers. The questions can be easily stated: first, why do so many small, high technology companies avoid government contracts; second, why do the bidders on government contracts usually not include the most experienced and best qualified companies in the field; and third, how can the Congress change the situation.

The answers require an understanding of the factors which motivate small businessmen. Starting with fundamentals, the goal of a company is to make profits ... to maximize return on investment. The small, high technology company that has a product to sell usually finds itself competing with large companies that have much greater financial muscle and marketing clout. If the small company is to succeed it must have a superior product and a means for protecting its product's superiority. If the small company's new product shows market acceptance, big companies will try to jump in with similar products and overwhelm the small company with massive advertising, well-developed channels of distribution, and sophisticated marketing approaches. The small, high technology company's principal protection in the commercial market is its proprietary "know-how" and patent protection. This is the way my company evaluates its position. We will not enter a new market unless we have some protected technological advantage; and our reaction is typical.

When the government is looking for a company to do research and development in a field where we have experience, we are very cautious about submitting a proposal. Even though we may be as well qualified as any bidder, we become concerned that we may compromise our patent rights by accepting a contract. Many government agencies require that small businesses who accept contracts with them not only give the government title to any patents coming out of the work, but also give the government background patent rights; that is, the right to use patents already obtained and paid for by the company. As a further affront, the government usually takes a rather cavalier attitude toward protection of any of the company's proprietary information or "know-how" which is submitted with a proposal. All too often, proprietary information supplied by one company later appears in another company's proposal. It is no wonder that many companies which have important new technologies with significant patent implications, carefully avoid becoming entangled with the government.

Not all research oriented companies view patent rights in the manner I have just described. Some firms' principal business is soliciting government contracts. They attach little or no importance to patent rights and commercialization because obtaining government contracts is an end in itself. Such companies are not necessarily the most qualified to do the work; rather they are the most experienced at writing government proposals. Most defense and aerospace contractors fit this category; however, as the government expands into areas where commercialization is important, it needs contractors who understand and regularly deal in the commercial world. Commercialization or public use is the ultimate goal of most research and development sponsored by the Departments of Energy, Transportation, the Interior, and Health, Education and Welfare. It is ironic that these very agencies whose ultimate goal is to stimulate commercialization of technology normally use very restrictive patent provisions in their contracts whereas the Department of Defense, whose ultimate goal is not commercialization, is much more reasonable. It normally gives title to inventions to the contractor.

The current patent provisions in government contracts have led to many peculiar situations. Patent provisions that are intended to help civilian agencies often help only the military. Patent provisions that are intended to stimulate the U.S. economy often only provide business and jobs overseas. Perhaps a few examples would be useful.

About two months ago my company had a new idea for an air quality monitoring system. This type of air monitoring system had important potential applications both to the military for the detection of chemical warfare agents and to civilian agencies for the measurement of air pollutants and toxic gases in the workplace. It looked like patents would result when we reduced the idea to practice. Our decision was to submit an unsolicited proposal only to the military agency because if we received a military contract we would have been able to retain title to patents developed under the contract. With the two civilian agencies, the National Institute for Occupational Safety and Health, and the Environmental Protection Agency, we would have been required to relinquish our patent rights.

As another example, a friend of mine who is President of a four year old research and development company had an idea a few years ago for a metal extraction and recovery process that could represent a major break-through in the mining and metal processing industries. In order to obtain government support for the original development, the company had to assign U.S. patent rights to the government, but the company was allowed to retain foreign patent rights. Now, after three years and several hundred thousand dollars of research and development effort, they feel that the process is approaching practical reality. They have explored commercialization with more than ten U.S. companies, most of them in the mining industry. Not one expressed strong interest,

principally because exclusive rights could not be offered. Finally, they did find one interested firm — in Japan. They offered the Japanese company exclusive patent rights in Japan and the Japanese company has taken an aggressive position in the pursuit of commercialization. This is a typical case where the U.S. system encourages the export of technology leading to foreign sales, foreign production, foreign jobs, and has an adverse effect on the U.S. economy. I could have presented many other examples with different products, different agencies and different companies, but with the same general scenerio and the same general conclusion.

The types of problems presented here are not new. I could have easily provided numerous examples of small businessmen's problems with the patent provisions in government contracts going back ten or twenty years ago. In fact, the five year time interval between the Wright Brothers' first successful flight in 1903 and their first airplane sale to the U.S. Government in 1908 is attributable largely to the Wright Brothers' concern about the protection of their proprietary data and patent position during their dealings with the U.S. Department of War.

As early as 1965, it was clear that patent regulations under government contracts were not leading to the proper incentives. In that year, the Federal Council for Science & Technology set up the Committee on Government Patent Policy to assess how this policy was working in practice and to provide the information necessary to objectively modify the policy. As an outgrowth of this activity Harbridge House published an excellent, multi-volume Government Patent Policy Study. The data presented, the cases examined, and the conclusions reached are just as valid today as they were then (their Summary and Analysis of Findings is included as Appendix I to this statement). The only difference is that after more than a decade of ignoring their conclusions we find ourselves with an unfavorable balance of trade, a rapidly declining technological superiority over foreign countries and serious economic problems at home. As a further step, the President issued a Government Patent Policy Memorandum in 1971 (see Appendix II to this statement) providing agency heads with additional authority to permit contractors to obtain greater rights to inventions where necessary to achieve utilization. However, as the old proverb goes, "you can lead a horse to water, but you can't make him drink." The Presidential Memorandum gives agencies the authority to award greater patent rights to contractors, but it doesn't mandate a specific course of action. Contracting officers are not going to go out on a limb. Such bureaucrats will avoid potential criticism by limiting, as much as possible, the patent rights they provide to a contractor. They will take the safe approach even though it may not be in the national interest.

For example, my company is a participant in a government program involving over 40 small business contractors. The original program announcement stated that contractors could get broader patent rights in accordance with the President's Patent Policy Memorandum of 1971. However, when the contracts were written up, the broader patents right clause was excluded from the contract provisions. The broader patent rights clause was added only when I insisted that it be inserted. Most of the other small business contractors have settled on less than they were led to expect, and now hope that they can work out a more favorable patent arrangement at the completion of their contracts.

The remaining question I should like to address is "What can Congress do?" There have been many patent bills considered and reviewed over the years. The arguments for one or another are often technical and complex. Finally, now for the first time, the focus is on one bill. This bill is not perfect, but it will provide a major improvement over existing patent regulations and it has a broad base of support. I come here today representing both the American Association of Small Research Companies, the only national organization of small research-based businesses, and also the Smaller Business Association of New England (SBANE), the largest regional small business organization in the U.S. Both of these associations are behind the bill. Additionally, in February of this year, the bill was endorsed by the Small Business Science and Technology Conference.

Further support comes from both the Patent Policy Subcommittee and the Government Procurement Subcommittee of the President's Domestic Review of Industrial Innovation. These panels of business leaders have explicitly recommended that the commercial rights under government supported research should be transferred to the private sector. They have indicated that the implementation of this recommendation could have a major impact on industrial innovation (see the section of the Draft Report on Patent Policy included as Appendix III to this statement).

This legislation has a broad base of support both within the Congress and among the informed public. The opportunity for passage of a significant piece of new legislation is here. I hope you will act upon it because it will increase domestic jobs, allow more effective use of technology, improve business opportunities, and benefit our economy.