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CASE STUDIES

EXAMINING THE ROLE OF GOVERNMENT R & D CONTRACT FUNDING

IN THE EARLY HISTORY OF HIGH TECHNOLOGY COMPANIES

CONTRACT NO. SBA-2633-OA-79

SUMMARY OF THE RESULTS

This project was to prepare case studies of the early stages of the evolution and growth of thirty-three currently successful, innovative high technology companies. The primary source of information was an interview with a founder of the company. Of particular importance were examinations of the factors integral to their commercial success and the role, if any, played by government research and development contracts in the company histories.

The following seven hypotheses, formulated to help structure the study, were generally supported by the case histories:

Hypothesis 1: A long gestation period is required between the conception of an idea and profitable sales of a high technology invention.

Hypothesis 2: Government R & D contracts provided an important source of cash flow required during the early years of a significant percentage of these high technology companies.

Hypothesis 3: Government R & D contracts provided an important source of funding for the development of technology and expertise used commercially by the company.

Hypothesis 4: Most of the cost of innovation occurs not in the initial research stage, but rather in the later phase of development, manufacturing and marketing.

Hypothesis 5: In those instances where the government was not the ultimate buyer of products developed, government R & D contract money alone was insufficient to accomplish successful commercialization.

Hypothesis 6: Market forces were the critical factor in successful commercialization. Technology push without market forces was insufficient to make a viable business.

Hypothesis 7: The dominance of government R & D contracts in the growth of a high technology company is reduced as a function of increases in firm size during the company life cycle.

The study documents the enormous technological contribution made by these companies toward the solution of our nation's social and economic problems. Their ability to create jobs is significant, even among the older, mature companies that normally produce few new jobs.

The availability of government R & D contracts was frequently an important incentive for companies' formation and a key factor in early survival. But government funding is somewhat erratic and undependable and abrupt changes in government research and procurement policies posed severe problems for many companies in our study. In addition, procurement guidelines and procedures tend to inhibit the kinds of market orientation and business attitudes necessary to commercialize technology.

Some of the other conclusions that seemed significant related to: the importance of funding unsolicited proposals; the prevalence of anti-business attitudes in some government agencies; the strong geographic variations in the use of government R & D contract funds, the use of SBA loans and assistance, the role of universities and the role of venture capital; and the preponderance of companies started by a team of founders rather than an individual entrepreneur.