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The Effects of Domestic Policies of the Federal Government Upon Innovation by Small Businesses

Advisory Committee on Industrial Innovation

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August 9, 1979

To the Advisory Subcommittee on Regulation of Industry Structure and Competition

Gentlemen:

Domestic Policy Review - Innovation

This is in the nature of a status report on the subject DPR.

While we have had nothing but silence from the White House and the Administration since submitting our report some months ago, let me assure you that the subject is not dead. As a matter of fact, this week I have been talking with Secretary Kreps and this morning with Dr. Baruch, who assures me that the delay in White House action has been related, in part, to the "crisis in confidence" and the "Cabinet overhaul," and that the Executive Branch is now prepared to move.

Dr. Baruch advised that something in the neighborhood of three-dozen recommendations had been forwarded to the President and that perhaps 33 have now been cleared, and we should see them being unfolded as best suits the White House staff tactical plan.

As more news develops, I'll keep you informed.

Yours very truly,

JWH:jf
THE EFFECTS OF DOMESTIC POLICIES OF THE FEDERAL GOVERNMENT UPON INNOVATION BY SMALL BUSINESSES


May 1, 1979

NOTICE: This report represents the views of the several members from small business who served on the Advisory Committee on Industrial Innovation, an advisory committee that was convened by and reported to the Secretary of Commerce. This report of the committee members from small businesses does not necessarily represent the views of the Department of Commerce, the Small Business Administration, or any other agency of the Federal Government.
INTRODUCTION

In mid-1978 President Carter ordered a review of the impact of federal policies upon industrial innovation. The President directed Secretary of Commerce Juanita Krepps to supervise this study, and she appointed an Industrial Advisory Committee to work under the direction of Dr. Jordan Baruch, Assistant Secretary for Science and Technology to advise her on this project. This Industrial Advisory Committee was composed of approximately one hundred and fifty business executives who were divided into seven subcommittees to analyse specific areas of federal policy and their impact upon private decision making relative to innovation.

While most members of the several subcommittees were from large corporations, each group included one executive from small business who participated in the work of the Committee and made contributions to the draft reports that were produced. Because the small business representation was limited in comparison to the much larger representation of large corporations, one would expect that the subcommittee draft reports would not analyse the small business situation in appreciable depth. There is however, almost universal recognition by the seven subcommittees that small businesses make a large contribution to innovation, and that the policies, laws, regulations and procedures of the Federal Government impose a very heavy burden upon small business innovation.

Upon completion of the draft reports of the seven subcommittees, the small business representatives decided that an additional report should be prepared on the specific impact of federal policies upon innovation in small businesses, and how federal policies might be revised to again stimulate innovation in this important sector of the economy. We wish to emphasize that our report is not a minority report expressing disagreements with the subcommittees, but a supplement to address the importance, and the unique role and problems of small innovative enterprises in America. We wish to place emphasis upon certain areas of the draft reports and make additional recommendations of our own.

Without detracting from the strong vigor of our recommendations, it must be noted that there are diverse opinions amongst our Committee members with respect to emphasis, priority, and details of our recommendations.
THE AD-HOC COMMITTEE OF SMALL BUSINESS MEMBERS*

George S. Lockwood, Acting Chairman  
President  
Monterey Abalone Farms  
Monterey, California  
(Member--Subcommittee on Environment, Health and Safety Regulations)

Wayne H. Coloney  
Chairman and Chief Executive Officer  
Wayne H. Coloney Company  
Tallahassee, Florida  
(Member--Subcommittee on Procurement and Direct Support of Research and Development)

Eugene M. Lang  
President  
REFAC Technological Development Corporation  
New York, New York  
(Member--Subcommittee on Economic and Trade Policy)

Duane Pearsall  
President  
Small Business Development Corporation  
Littleton, Colorado  
(Member--Subcommittee on Industry Structure and Competition)

Eric Schellin, Esq.  
Attorney at Law  
Arlington, Virginia  
(Member--Subcommittee on Patents and Information)

Dr. Robert C. Springborn  
President  
Springborn Laboratories  
Enfield, Connecticut  
(Member--Subcommittee on Procurement and Direct Support of Research and Development)

*The membership listed after each name indicates the Subcommittee of the Industrial Innovation Advisory Committee upon which the individual served.
SUMMARY OF CONCLUSIONS

Innovation is an essential ingredient for creating jobs, controlling inflation, and for economic and social growth.

Small businesses make a disproportionately large contribution to innovation. There is something fundamental about this unusual ability of small firms to innovate that must be preserved for the sake of healthy economic and social growth.

If the U.S. desires to bring inflation under control, to create new and better jobs, and to continue to enjoy the economic and social benefits of innovation, individual entrepreneurs and their small companies must be free to innovate. Unfortunately, the environment for small business innovation has greatly deteriorated during the past decade.

The creative processes in small businesses are pronouncedly different from large corporations and institutions. There is a lack of awareness within government of how small independent innovators create and how federal policies determine the climate for small business innovation.

A wide array of federal policies adversely impact upon small innovative businesses, including:

--Federal tax, pension fund and security policies that have virtually eliminated all forms of capital from small innovative business ventures;

--Government regulations that treat large and small firms equally that are, in fact, discriminatory against small firms;

--Federal funding for research and development where the most innovative sector of the American economy, small science and technology based enterprises, are virtually excluded from effective participation;

--Federal procurement policies that similarly exclude small innovative firms;

--Patent policies that have resulted in the diminution of the value of patent protection for independent inventors and small businesses.

With sufficient amendments to Domestic Policies to provide relief for small creative enterprises, a major renaissance in anti-inflationary innovation will emerge with concomitant social and economic growth. Such amendments will require a major departure from current policies affecting small businesses in capital acquisition, regulation, R & D funding, procurement and patents.
SUMMARY OF RECOMMENDATIONS

1. Changes in the federal tax code to again encourage the flow of capital into small innovative businesses.

2. Changes in ERISA policies to return a portion of our national flow of savings to high-risk innovation.

3. Changes in security laws and regulations to remove obstacles for innovative enterprises to acquire seed, start-up and expansion capital.

4. Changes in regulatory policies to remove adverse discrimination against the small innovator.

5. Changes in federal R & D funding policies to produce substantially greater results by awarding a larger share to small businesses.

6. Changes in federal procurement policies to allow greater participation by small businesses on a more equitable basis.

7. Strengthening our weakened patent system, and making changes in federal policies to recognize and protect initial exclusivity as an essential requirement for successful innovation.

Specific details for these recommendations are included at the end of this report.
THE EFFECTS OF DOMESTIC POLICIES OF THE FEDERAL GOVERNMENT UPON INNOVATION BY SMALL BUSINESSES.

Innovation is an essential ingredient for economic and social growth. It is the driving force that increases productivity and that results in new products, processes and services. Innovations create new and better jobs, reduce production costs and prices, increase foreign sales, and increases real personal income so that our citizens can finance major advancements in the qualities of life such as better education, improved health care, increased longevity, and more leisure and recreation.

Without innovation, economic stagnation occurs resulting in rising prices, decreased employment, and increased foreign competition—all symptoms of stagnation induced inflation. Inflation, our nation's major problem is, in our opinion, a direct result of a large decline in private sector innovation over the past decade.

To a large extent, the mandates of the United States electorate to fulfill basic social and human needs of our citizens requires a rapid rate of economic growth. Such social and economic growth can only occur with vigorous private sector innovation.

SMALL BUSINESSES MAKE A DISPROPORTIONATELY LARGE CONTRIBUTION TO INNOVATION.

The economic history of the United States is replete with examples of small innovators making major contributions. From the late 1700's through the 1970's a major source of technological advancement was the result of individual inventors and entrepreneurs working independently of our large industrial corporations, universities, and government laboratories. This is particularly true in situations where radically new concepts have been introduced.

In our early history we had Eli Whitney in 1793 with his cotton gin and Robert Fulton with the steamboat in the 1840's. These two innovations had an enormous impact on young America. Later came the railroads. Next, in telecommunications, we had Morse and Bell, whose contributions greatly accelerated the growth of our economy. Similarly, Edison, Westinghouse, McCormack, the Wright Brothers, Ford and DeForest made introductions that laid the foundation for further economic advancements. This is only a partial list. All of these innovators were small guys.

The same trend continued after World War II with the success stories of Land at Polaroid and Watson at International Business Machines. During the 1960's we saw the emergence of companies such as Xerox, Digital Equipment and Hewlett-Packard, each beginning as individuals with their small companies who were free and able to innovate. In addition to these better known names, there were thousands of small high-technology companies spawned during the 1950's that have created major growth in our economy and have increased the quantity and quality of employment.
A recent study by the National Science Foundation concluded that in the post World War II period, firms with less than one thousand employees were responsible for half of the "most significant new industrial products and processes." Firms with one-hundred or fewer employees produced twenty-four percent of such innovations. In addition, the cost per innovation in a small firm was found to be less than in a large firm since small firms produced twenty-four times more major innovations per research and development dollar expended as did large firms. Yet small firms conduct only three percent of United States research and development. While there is much innovation that can only occur in large resourceful companies, small firms are often more adventurous and have a greater propensity for risk taking, and accordingly are able to move faster and use resources more efficiently than large companies. We believe that there is something fundamental about the unusual ability of small firms to innovate that must be preserved for the sake of healthy economic and social growth in the United States.

SMALL INNOVATIVE BUSINESSES CREATE JOBS AND TAX REVENUES AT A RAPID RATE.

The role of small innovative businesses in stimulating economic growth can be seen from two recent studies. The first, by the Massachusetts Institute of Technology Development Foundation, shows compounded average annual growth from 1969 to 1974 for the following three groups of companies:

<table>
<thead>
<tr>
<th>Sales</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature Companies</td>
<td>11.4% 0.6%</td>
</tr>
<tr>
<td>Innovative Companies</td>
<td>13.2% 4.3%</td>
</tr>
<tr>
<td>Young High-technology Companies</td>
<td>42.5% 40.7%</td>
</tr>
</tbody>
</table>

In this study, Mature Companies were Bethlehem Steel, DuPont, General Electric, General Foods, International Paper and Proctor & Gamble. Innovative Companies were Polaroid, Minnesota Mining and Manufacturing, International Business Machines, Xerox, and Texas Instruments. Young High-technology Companies included Data General, National Semiconductor, Compugraphics, Digital Equipment, and Marion Laboratories. The companies selected in each group were, in every case, leaders in their particular industry.

The M.I.T. report states:

"It is worth noting that during the five year period, the six mature companies with combined sales of $36 billion in 1974 experienced a net gain of only 25,000 jobs, whereas the five young, high-technology companies with combined sales of only $857 million had a net increase in employment of almost 35,000 jobs. The five innovative companies with combined sales of $21 billion during the same period created 106,000 jobs."
This study also observed that the Innovative Companies produced three times the level of tax revenues as a percentage of sales as did the mature firms.

Conclusions similar to those mentioned above emerged from a study of 269 firms by the American Electronic Association. In February 1978, Dr. Edwin V. Zschau of the A.E.A. presented the results of that study to the Senate Select Committee on Small Business. The report showed the following growth of employment for new established firms as contrasted to more mature companies:

<table>
<thead>
<tr>
<th>Years Since Founding</th>
<th>Stage of Development</th>
<th>Employment Growth Rates in 1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>20+</td>
<td>Mature</td>
<td>0.5%</td>
</tr>
<tr>
<td>10-20</td>
<td>Teenage</td>
<td>17.4%</td>
</tr>
<tr>
<td>5-10</td>
<td>Developing</td>
<td>27.4%</td>
</tr>
<tr>
<td>15</td>
<td>Start-up</td>
<td>57.7%</td>
</tr>
</tbody>
</table>

Dr. Zschau also reported that annual benefits to the economy realized in 1976 for each $100 of equity capital that had been invested in Start-up companies founded between 1971 and 1975 were:

- foreign sales $70 per year
- personal income taxes $15 per year
- federal corporate taxes $15 per year
- state and local taxes $5 per year
- total taxes $35 per year

This data shows that the benefits of investment in small innovative ventures are large (e.g., jobs are created and these jobs are kept at home--exports are created instead of imports--a new $35 per year flow in tax revenues is realised for each $100 initial investment). This large and powerful flow of benefits starts soon after the investment is made, and the benefits are substantially greater than those of large corporations.

The huge benefits derived from a favorable climate for small business innovation is apparent from this review of the contributions to economic growth made by individual entrepreneurs and their small companies. If the U.S. desires to bring inflation under control and to continue to enjoy the economic and social benefits of innovation, individual entrepreneurs and their small companies must be free to engage in innovation.
THE ENVIRONMENT FOR SMALL BUSINESS INNOVATION IS NOT HEALTHY.

It is clear to us that innovation is the keystone of economic and social growth, and that individual entrepreneurs and their small innovative businesses have contributed a disproportionately large share of innovation. It is also clear that the climate for the formation and nurturing of small innovative enterprises in America has suffered a major deterioration over the past ten years and as a result innovation has withered.

There are no concise indices for innovation, although productivity is one measurable result. From the close of World War II until the mid-1960's, the average annual productivity increase for each manufacturing worker was approximately 4.1 percent. From the late 1960's through the mid 1970's, it averaged 1.6 percent per year. In 1978 it was 1.0 percent, and some economists are predicting a rate of 0.4 percent for 1979. This is a ten fold decline that has occurred steadily over the past fifteen years.

Similar trends of a substantial downward nature can be observed in the flow of capital to small firms. In the seven years from 1969 through 1975, the amount of capital acquired by small firms with less than $5 million in net worth from public markets declined from approximately $1,500 million to approximately $15 million--a 100 fold decrease. No significant improvement has occurred in the past three years. However, during this period of catastrophic decline, capital raised by all corporations in the public security markets increased from $28 billion in 1972 to over $41 billion in 1975, or an increase of approximately 50 percent. This 100 fold decline in capital flow to small innovative enterprises is indicative of the decline in small business innovation because risk-capital is an essential ingredient of innovation.

Without precise indices for small business innovation, it is impossible for us to quantify this key factor accurately. It is our observation as experienced entrepreneurs in our respective industries however, that the vigor in small business innovation has substantially declined. We would estimate that this decline amounts to a level of 10 percent (or less) of the average innovation from 1950 to 1970--or at least a ten fold decline. We regret that we cannot be more precise in estimating this important factor, but we believe that this estimate, based upon our personal observations, is realistic.

In our opinion, a renaissance in innovation in America is possible, but a basic systemic change must first occur in governmental policies affecting small innovative businesses. The needs of innovators, their incentives to innovate, and obstacles to their creativity are often substantially different for small firms than for large mature corporations. In most cases government policy-makers and administrators fail to recognize this critical difference between large and small businesses. As a result, major constraints to innovation unintentionally imposed by government must be modified if a rebirth of vigorous innovation is to occur in the United States.
THE DISTINCTIVE CHARACTERISTICS OF THE CREATIVE PROCESS IN SMALL BUSINESS.

Creative processes in small businesses have some pronounced differences from the creative processes in large corporations. In both cases, however, the processes usually have the following steps in common:

. **Conception**—the use of scientific, market or other knowledge to conceive a new product, process or service to fill a need.

. **Reduction to practice**—taking this concept from an idea into a practical reality, such as a first-model prototype.

. **Start-up**—adapting the first-model prototype for production and sales.

. **Expansion**—with successful early production, expansion of production and sales.

With success, a concept moves laboriously through these stages until the firm and its markets mature. Significant employment and tax revenues are generated during the later stages of this process.

Until maturity is achieved and expansion levels out, this creative process is usually a struggle for the innovator and his small firm—

-- a struggle to obtain adequate capital (usually in several increments);

-- a struggle to make the breakthroughs necessary to overcome the never ending unexpected obstacles;

-- a struggle to make the first precious sale (or to get the first proposal accepted), to meet an optimistic delivery schedule, and to keep the first customers happy;

-- a struggle to keep development costs and initial production costs within available capital;

-- a struggle to collect accounts-receivable and other payments in time to meet the next payroll (a particular struggle when selling to the government);

-- a struggle to convince the banker that sales, production cost, and cash flow projections are realistic and that customers will pay on schedule;

-- a struggle to acquire and motivate a team of capable scientific, engineering, production and management talent.

There is usually a delicate balance between success and failure in this struggle.
The capital required for this creative process is usually acquired from individual outside sources and not from a flow of earnings as is the case of large corporations; a critical difference between large and small firms.

Entrepreneurs often spend 15 hours per day, seven days a week, to meet this challenge. Time and personal energy are the most precious assets in this process. The intensity of this struggle, requiring the strong personal commitment of the innovator, is usually much greater in a small business than in a large corporation. The willingness of the small business innovator to undertake this intense struggle is one significant reason why small businesses make disproportionately large contributions to innovation. The intensity of this struggle and the vigorous commitment with which it is executed by the entrepreneur is a unique component of small business innovation.

WHAT INCENTIVES MOTIVATE THE SMALL INNOVATOR TO MEET THIS STRUGGLE?

New concepts are only generated from individuals, and creative individuals need an environment that is conducive for creation with rewards, recognition, profits, freedoms, and the availability of capital, basic knowledge and other tools with which to create. There appears to us to be a lack of understanding within government of how individuals create in the private sector, and how they implement their creations--particularly small independent innovators.

The stimulation of setting out on one's own, trying his own ideas, working in an environment with few disapproval levels, that permits and encourages new approaches and even radical ideas, and has a "put your entire personal assets on the line" element of risk, coupled with a chance for a reward of above average wealth for his intense labors, are important motivations for the innovator in small businesses that are different from large corporations.

During the historically innovative 1950's and 1960's, and even into the early 1970's, there was a steady stream of individuals who were motivated to leave large corporations, universities and government to form small scientific and technical businesses. This stream is now a dribble. There was, at that time, a favorable climate where the creative individual had freedom to innovate and had access to capital.

Since then many governmental disapproval levels and obstacles have emerged, risks have gone up, rewards have come down--and at the same time the availability of capital for small American enterprises has declined to an all time low. The entrepreneurial climate is now dismal and a substantial portion of the community of the technically creative are dispirited. There are mountains to be climbed that are going unclimbed. There is useful scientific knowledge that has been developed in our universities and elsewhere that is not being used to fill social and economic needs. There are products to be developed and manufactured
that are still only ideas in inventors heads. There are innovative businesses that should be started that are not being started. This inability for creative individuals to undertake is of great concern to this Committee.

FEDERAL POLICIES DETERMINE THE ENTREPRENEURIAL CLIMATE

There is a wide array of federal policies that adversely impact upon small business entrepreneurs that have resulted in the arrest of this heretofore highly innovative sector of our society. The federal policies that determine the entrepreneurial climate are in the following areas:

- Capital. Availability. Unlike large corporations that fund R & D and other innovative investments from cash flows from mature products, a small business innovator must acquire capital from outside sources. Federal tax, pension fund and security policies have virtually eliminated all forms of seed, start-up, and expansion capital from small innovative business ventures.

- Regulation. Two essential requirements for the creative individual are time and freedom to create. Both time and freedom are being consumed with the ever increasing scope of government regulatory activities that have emerged since 1970. Interferences and delays by government compound the entrepreneur's struggle, sap his creative energy, and increase the risk of failure. Many small firms are unable to understand and comply with government regulatory processes and to effectively participate in law and rule-making that have a life or death impact upon their firms. The present system of applying regulations equally to large and small businesses heavily discriminates against small businesses.

- Federal Funding for R & D. In recent years, federal support for R & D has declined as a percentage of GNP and has become highly concentrated in a few large companies, universities and federal laboratories. While direct support for applied research and development at these institutions has grown, the most innovative sector of the American economy, small science and technology based enterprises, are virtually excluded from effective participation in federally funded applied research.

- Federal Procurement. The largest buyer of goods and services in the world is the U.S. government. The process of selling in this market and meeting government specifications chews the small innovative business to bits. There is little room for innovation within federal supply specifications and procurement procedures. The effect of these procedures is to prevent small business participation and deny the government of potential sources of innovation that would lower procurement costs, and provide new and improved products and services. In the interest of innovation and of good procurement, small innovative firms should be provided greater participation in this important market.
Patents. The historic keystone to inventiveness and information transfer has been our U.S. patent system. Patent grants have provided the small innovator protection against competition by large resourceful firms, and this protection has often provided incentives for capital acquisition. Unfortunately in recent years the value of patents has weakened considerably due to inadequate Patent and Trademark Office procedures resulting in adverse judicial decisions. In addition, substantial uncertainty has emerged as a result of a wide range of interpretations within the federal judiciary of patent law. At the present time, over fifty percent of patents contested at the circuit court level are invalidated, and the cost of defending such suits is prohibitive for a small firm. A return to a strong patent system is essential for a rebirth in innovation.

THESE SAME FEDERAL POLICIES FORCE CONCENTRATION OF INNOVATION INTO FEWER AND FEWER LARGE FIRMS.

Simultaneous with the decline in the formation of new innovative enterprises there has been a concurrent acquisition of existing small innovative companies by large corporations. The unfortunate trends in the above policy areas is forcing concentration:

- Those federal policies affecting capital acquisition, coupled with the U.S. corporate income tax rate structure, force rapidly expanding small businesses to seek big firms with capital resource in order to obtain expansion capital;

- Estate tax considerations force many small innovative firms to sell their companies to large public firms. The highly restrictive security exchange policies accent this problem.

- In some industries the regulatory burden is beyond the ability of small firms to handle, while in others it is a major deterrent to creativity;

- In federal procurement, small firms (even those with outstanding products) cannot compete with large companies that specialize in this market;

- The weakened patent system forces the small patent holder into litigation with expenses so great that the small business cannot protect its rights against larger infringers, including government.

In order to acquire capital to meet expansion needs; to avoid high estate taxes; to obtain federal regulatory permits; to sell a new product to the government; or to defend its patents, it is frequently necessary for the small innovative firm to sell out to a larger firm with greater resources. When this occurs, the research and development budgets are often soon cut and the innovative entrepreneurs leave the firm. A creative independent organization is changed into a static dependent one.
SOME GENERAL CONCLUSIONS

1. Technological innovation is essential to control inflation. And, it is essential if we are to fill our pressing social and human needs.

2. Independent entrepreneurs and their small businesses have made a disproportionately large contribution to anti-inflationary innovation. Unfortunately, small business creativity is blocked by a wide array of federal policies.

3. A renaissance in innovation is possible. The removal of unintended government inhibitors would allow small businesses to innovate again.

4. A fundamental reason for the decline in innovation is the failure of federal policy-makers and administrators to recognize the contributions from small firms to technological innovation, and their failure to recognize that small innovative firms cannot accommodate the burdens of government as readily as large companies. The burden of government upon small innovators is disproportionately large and often overwhelming. Government policies and regulations that treat large and small firms equally are, in fact, discriminatory against small firms.

5. When government recognizes the destructive nature of this disproportionate and overwhelming burden upon the small innovator, and when sufficient amendments to domestic policies are accomplished to allow relief, a major renaissance in anti-inflationary innovation will emerge in America with concomitant social and economic growth. For this to occur, a major departure is necessary from current federal policies affecting small businesses in capital acquisition, regulation, R & D funding, procurement, and patents.

Specific recommendations follow for each of these policy areas.

* * *

CAPITAL AVAILABILITY AND RETENTION

An essential ingredient for innovation is capital, and the lack of seed, start-up and expansion capital is probably the major factor throttling innovation by small businesses. Unfortunately, significant changes have occurred in tax laws, security exchange regulations, and federally mandated pension fund management policies during the past decade that have drastically reduced the flow of capital into new innovative businesses.
THE CAPITAL ALLOCATION PROCESS FOR SMALL BUSINESS INNOVATION IS SIGNIFICANTLY DIFFERENT THAN FOR BIG CORPORATIONS.

Innovation in large corporations is largely financed from the flow of earnings from mature products, and in many cases, sophisticated rate-of-return analyses are used to allocate this cash flow into promising areas of research, product development, and facility expansion. In addition, the profitable corporation receives an immediate income-tax benefit of approximately fifty percent for research and innovation related expenses, and a ten percent tax credit for related capital expenditures.

In contrast, the small independent innovator without a cash flow from one or more mature products must usually acquire his capital from external sources, often in several increments. No tax credits are available to the independent innovator until his new product becomes profitable. The net effect is that the small guy must raise from outside sources more than twice the amount of capital for the same innovation as a large corporation.

The disparity between the small business and the large corporation is further increased since debt capital is unavailable to the small firm to finance innovation, at least not until first profitability for the new product occurs. While debt is an important source of capital for large corporations, it is less available to small firms.

Furthermore, during the capital intensive stage of early and rapid expansion where initial profitability occurs, the high corporate income tax rate structure prevents the small firm from accumulating sufficient retained earnings to finance the internal expansion of its new product. In order to expand and protect its new market successes, the small enterprise must often turn to outside sources for capital. In contrast, the large corporation with mature business lines is usually able to supply all stages of capital from earnings of existing products.

In acquiring capital for each stage of innovation—seed, start-up and expansion—the federal tax code adversely and substantially discriminates against the small creative business.

FEDERAL SECURITY POLICIES ALSO DISCRIMINATE AGAINST INNOVATION.

The rules of the Security Exchange Commission that are established to prevent investment fraud, act to exclude from capital markets small innovative enterprises that do not have a proven flow of earnings from mature products. The registration and reporting requirements of the SEC are prohibitively costly to the small enterprise. In essence, the SEC is doing its job of preventing fraud by preventing all types of small businesses—both good and bad—from access to public markets.

Large corporations can afford access to public capital markets but small innovative firms are virtually excluded.
FEDERAL TAX LAWS DISCOURAGE INDIVIDUAL INVESTORS FROM MAKING INNOVATIVE INVESTMENTS.

Individual investors in the towns and cities across America in the past have played an important role in providing seed, start-up and expansion capital for innovation. In many (if not most) cases of significant innovation, individual investors have been the only source of seed capital for the independent innovator to move from concepts into practical realities.

Unfortunately, changes in tax policies over the past ten years now favor areas for investment for individual investors other than innovation. Retirement funding, real estate, oil and gas drilling, and agriculture receive favorable tax treatment while innovation does not. We do not believe that real estate speculation and cattle feed lots are as important to healthy economic growth as is technological innovation—yet real estate and cattle feeding are favored and innovation is not. Innovation cannot compete for capital with these activities that are favored in the tax code.

Of additional concern to us are federal policies that encourage retirement funding. In 1970, legislation was passed to encourage retirement savings by providing tax-sheltered Individual Retirement Account (IRA) and Keogh plans so that the savings of doctors, lawyers, businessmen, and others with high income would be channeled into professionally managed institutional investment pools. In 1973, pension fund management policy legislation (ERISA) was passed requiring that such pools be managed by a "prudent man rule" that essentially precludes the use of this savings flow for small innovative businesses. Where prior to 1970 a substantial supply of savings throughout America was available for local enterprising inventors and entrepreneurs, this flow of savings is now diverted into tax sheltered centralized institutional investment pools that are precluded by law from investing in local promising ventures.

This combination of IRA-Keogh-ERISA acts like a huge vacuum sweeper moving around the country extracting innovative capital and placing it into large centralized funds where it is invested in the securities of governments, in large corporations, and into real estate. Hundreds of billions of dollars have been removed from local discretionary investments and locked up. In our opinion, this tax code induced removal of local discretionary investment decision making has caused a major disaster for innovation. This shift in investment decision making has been particularly disastrous for high-risk seed capital needs where ideas are first reduced to realities by using funds provided by friends, relatives, and personal acquaintances of the inventor on the local scene.

SPECIAL CONSIDERATIONS FOR SMALL INNOVATIVE BUSINESSES ARE NECESSARY.

It is our opinion that large amounts of risk-capital will again flow into small innovative businesses if federal tax laws are changed to put small business innovation at a parity with large corporations—and
at a parity with other investment alternatives for independent individual investors. Without such parity discrimination is occurring where small businesses cannot compete for capital for innovation.

Special considerations are necessary for our highly innovative sector of the economy and an amended tax code, changes in SEC policies, and revised ERISA rules are essential for the stimulation of a badly needed renaissance in anti-inflation innovation. It is the opinion of the members of this Committee that the following recommendations should be undertaken:

RECOMMENDATION # 1--CHANGES IN THE FEDERAL TAX CODE.

A new class of equity security be created for start-up innovative businesses that would couple the benefits of limited partnerships with the benefits of Sub-chapter "S" Corporations. This new equity class would possess the following features:

--limited liability protection,
--include up to one hundred investors,
--allow corporated investors,
--allow the use of cash basis accounting for tax determinations,
--allow operating losses and investment tax credits to flow through to individual funding investors in the year occurred,
--allow specialized equipment and instrumentation for research, development or testing to be expensed in the year purchased;

This new class of stock and its benefits should be available to small businesses that spend in excess of five percent of their gross sales revenues in research and development as determined by Generally Accepted Accounting Principals (GAAP).

Allow investors in small science and technology based firms to defer paying capital gains taxes on equity investments, provided the gains are reinvested in other small science and technology based firms within two years;

Reduce the federal tax on gains from capital investments in small science and technology firms to a level of fifty percent of the otherwise applicable capital gains rate, if the investment is held for a minimum of five years;

Allow small science and technology firms to carry forward losses for a period of ten years instead of five years;
. Restore the Qualified Stock Option Plan for key employees in small science and technology firms, and establish the period for exercising stock options at ten years;

. Provide for a twenty-five percent tax credit for research and development related expenditures by small businesses (as currently allowed in Canada);

. Revise the corporate income tax rate to provide greater retention of earnings during the initial start-up and growth phases for small science and technology firms;

. Allow small business concerns to establish and retain a "reserve for research and development" in profitable years to be used in periods of business stress, with the maximum level of this reserve being ten percent of gross revenues;

. Treat license royalties as capital gains instead of ordinary income;

. Eliminate the existing tax liabilities for overseas joint ventures in which the small business investment consists of a contribution of know how and technical information;

. Permit small businesses to take double deductions of expenses directly related to export market development;

RECOMMENDATION # 2--CHANGES IN INVESTMENT MANAGEMENT POLICIES.

. Modify ERISA to allow up to five percent of pension fund portfolios to be invested in small businesses;

. Encourage state investment pools to invest a larger percentage of their holdings in small innovative businesses.

RECOMMENDATION # 3--CHANGES IN SECURITY EXCHANGE LAWS AND REGULATIONS.

. Exempt from SEC registration offerings of equity securities for innovative businesses outlined in Recommendation # 1 of less than two million dollars;

. Change the charter of the Security Exchange Commission to specify the encouragement of the flow of capital into small innovative enterprises as well as to protect the public investor.

The objective of these first three recommendations is to remove unintended obstacles that have arisen and to provide incentives for the allocation of seed, start-up, and expansion capital to promising innovative ventures, by:
Providing tax parity for small innovative firms equal to that of large corporations;

Providing tax parity for investments in innovation equal to that provided for alternate investment opportunities for independent investors;

Allowing greater retention of retained earnings for early expansion;

Removing SEC discrimination;

Releasing locked-up capital in retirement funds.

We believe that the loss in tax revenues from these recommendations will be miniscule when compared to increased tax revenues to be received within several years of enacting these changes. The tax umbrella that would be provided for stimulating small business innovation would not be applicable to the large earning flows for large mature corporations nor would they be available for non-innovative individual investments. While we appreciate that our recommendations might result in some compromises in investor protection against fraud and losses, and that there may be some problems of definition and of administrative convenience, we believe that these costs will be minor compared to the overall societal benefits resulting from the rebirth in anti-inflation innovation that would follow.

* * *

REGULATION.

During the past decade, a new regulatory environment has emerged to fulfill a wide variety of social "mandates". This environment includes new agencies such as OSHA, EPA, CPSC, NTSB and EEOC, in addition to expanded jurisdictions of existing agencies such as FDA, SEC, FTC, DOE, DOT, Justice, Corps of Engineers and others involved in the regulation of business in one way or another. We believe that the mission of each of these agencies is well intended and, if only one (or a few) of them were impacting upon small innovative businesses, their impact could be absorbed within the creative process. Unfortunately, for many small businesses there is mandatory involvement with a wide range of agencies and, in some cases, the laws and regulations being enforced were intended for large sources of hazards, or for some other purpose than to control the new field being pioneered by the innovator.

In some new fields, the regulatory environment is so intense and so diverse that the whole of this impact is greater than the sum of the parts. The small guy is overwhelmed by the law-making, rule-making, and enforcement processes of regulation. This intense diverse regulatory environment is contributing to inflation in two ways--by impeding innovation (particularly innovation in small enterprises)--and by adding significantly to business costs.
REGULATION IS A MAJOR DETERRENT ON THE CREATIVE PROCESS.

The overwhelming nature of widespread regulation results in an adverse interference with the innovative process, pushing the balance away from success. The innovator's most precious assets of time and energy are drained. Expensive delays are experienced, and the creative entrepreneur and his scientists and engineers are kept on the defensive—not on the offensive that is necessary for their success.

In addition to regulations contributing to inflation, a serious consequence of this new regulatory environment is that economic progress is distorted in favor of those fields where government involvement is minimal and where innovation can occur relatively untrammeled. In those fields where regulation is diverse and intense, greatly reduced entrepreneurial activities are experience, and only those innovators who can map and navigate the governmental process can succeed.

The costs of regulation to the innovative process in small business are large and real.

GOVERNMENT FAILS TO RECOGNIZE THE DISPROPORTIONATELY HEAVY IMPACT OF THE REGULATORY PROCESS UPON SMALL BUSINESS INNOVATION.

When approaching government, the small businessman often encounters a presumption of harm and dishonesty, or at best, indifference, and not a sympathetic understanding of the peculiar needs and problems of the small guy attempting to be creative. The legislative and rule-making processes are impossible forums for his participation and his bureaucratic adversaries have substantially greater influence and credibility in these processes. Laws, rules, policies and procedures often are made for "administrative convenience"—and such administrative conveniences usually become an inconvenience for the innovator. As a society we must address the question of whose convenience is more important—the bureaucrat's or the innovator's?

During the 1970's, "due process of law" in American democracy has become an unfamiliar phenomenon to the small innovator—the process is closed to him—and grossly discriminates against him. This adversary regulatory process in America today has caused the remaining few small innovators to consider government as an alien power committed to their destruction.

The small innovative business cannot deal with this intense and diverse regulatory environment as readily as can the large corporation. If a re-birth of innovation is to occur, government must recognize this adverse discrimination and a major departure from current regulatory processes that affect small innovative businesses is necessary.
In view of this deleterious impact of federal regulation upon small business enterprises, and the serious consequences of inflation and stymied innovation, we wish to make the following recommendations:

RECOMMENDATION # 4--CHANGES IN REGULATORY POLICIES.

A thorough revision of the regulations and operating procedures of OSHA as they relate to small innovative business to include:

--A general exemption from OSHA, except where the accident history of a particular industry or firm is substantially greater than average, and in such cases, the burden should be upon OSHA to justify action; and

--The prohibition of first instance citations except in extreme cases.

In all regulatory activities, the burden should be placed upon each regulatory agency to establish a cause of concern before requiring regulatory compliance by a small business. Minimum levels of impact should be statutorily defined thereby exempting small businesses in all but extreme and justifiable cases.

Substantial strengthening of the Regulatory Council to include:

--participation by the Small Business Administration;

--requiring all regulatory agencies to balance the risks of a hazard against the economic costs, with thorough consideration of specific impacts of proposed regulations upon small business creative processes;

--the use of "performance standards" and not "method standards" in those cases where regulatory standards are clearly justified;

--wherever possible, return to reliance upon standards associations with federally mandated standards being the last resort;

--improved congressional oversight of the regulatory process as it relates to small innovative businesses.

Provide product liability and recall insurance at reasonable costs for small businesses, with exemptions from recalls except in the most extreme cases; and the establishment of statutory limits of liability for product failures similar to Workman's Compensation Insurance.
The OSHA problem is particularly serious for small innovative enterprises that have to deal with this agency, and a revision in OSHA policies and practices is necessary. Some members of our Committee believe that it would be in the best interest of workplace safety as well as of industrial innovation to eliminate OSHA entirely. Others agree, but believe that this may be politically impractical. Still others are of the opinion that government can improve workplace safety with the significant amendments to present policies and procedures that we are proposing.

The recently published report Making Prevention Pay by the Inner-Agency Taskforce on Workplace Safety and Health concludes that OSHA has failed to make an improvement in workplace safety during the past decade. And, it is clear to us that the burden of this program on small innovative businesses is discriminatory and highly adverse. In addition, OSHA is an agency that has generated an enormous amount of litigation, and in cases of appealed OSHA citations, over fifty percent have been vacated. Yet, litigation is not a form of relief for small innovative businesses—the OSHA rule-making and appeals process, and judiciary relief, is a costly and time consuming game that small enterprises cannot play. Therefore, the burdens of citations should not be placed upon small businesses, at least in the first instance, and we urge that the burden be placed upon government to demonstrate on a case by case basis that unusually great hazards exist before OSHA can exercise jurisdiction in the case of small businesses.

In most other areas of regulation, it is our opinion that the burden of compliance for small business enterprises should be substantially reduced, and in many cases can be eliminated without materially compromising the overall objectives of the subject regulation. It is virtually impossible for the struggling innovator to comply with the never ending forms, mandated reports, applications, investigations, inspections, permits, licenses, standards, variances, checklists, guidelines, plans, study-sessions, pubic meetings, rule-makings, non-rule makings, hearings, non-hearings, burdens of proof, appeals, etc., and to accommodate the rapidly growing enforcement budgets at all levels of government to "make businesses comply." The language of government is a strange tongue written by lawyers for judges that is as incomprehensible to the small innovator as is the regulatory process itself. This government problem is more than simply a paperwork blitz—it is a major consumer of time, energy, and capital, and is sometimes absolutely prohibitive.

We believe that it is essential that a clearly specified level of impact or hazard exposure be established before a business is regulated, to allow the entrepreneur to innovate without the burden of regulation consuming his precious time, drive and capital, and in causing inordinate delays for him to learn the appropriate rules, accomplish their compliance, and obtain appropriate permits. The burden is particularly onerous upon the innovating entrepreneur attempting to do something new since most existing laws are intended to eliminate some other form of evil.
The new regulatory environment is another example of how government polices unfairly discriminate against small innovative firms by treating them the same as big corporations. Some big corporations can survive in this regulatory game—they can enter law making and rule making procedures, retain experts to ply the most subtle interpretations of the rules, and can afford the time and costs of appeals and litigations, etc.,--the small guys simply cannot because "the due process" is too time consuming, costly, and technically overbearing. If the small guy tries, the balance in his struggle for survival weighs heavily towards failure. Therefore, we strongly believe that reasonable exemptions are necessary for small firms if our sector of the economy is to be revitalized as a major source of non-inflationary innovation.

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DIRECT FUNDING OF R & D BY THE FEDERAL GOVERNMENT.

Economists consistently state that technological innovation is the principle contributor to U.S. economic power and is necessary in order to continue to advance our standard of living. And research and development is one of the critical ingredients of innovation. Economists also state that the social return on R & D is high with some estimating it to be twice the private return. For these reasons, together with the anti-inflationary impact of innovation, we believe that it is important to increase our national investment in R & D.

FEDERAL SUPPORT FOR R & D HAS DECLINED AND HAS BECOME CONCENTRATED.

While we believe it is important to increase our national investment in R & D, this investment, as a percentage of Gross National Product (GNP), has been declining since 1968, while that of some countries (Japan in particular) has continued to rise. One-half of our R & D investment is privately financed and one-half is from federal sources; with one-half the federal R & D being for defense. While industrial R & D expenditures have held their own as a percentage of GNP during the last twenty years, government R & D has not kept up with the growth in GNP. In the federal area, small business receives only three and one-half percent of federal R & D expenditures.

Of additional concern to us is that four agencies—defense, space, energy, and HEW—fund eighty-eight percent of federal R & D. Similarly, there is a concentration of U.S. industrial R & D into a few industries and into a few companies. According to Science Indicators, 1976, six industries account for eight-five percent of total U.S. industrial R & D. Ten companies do thirty-six percent, and thirty-one do over sixty-percent. Greater than eighty percent of industry's R & D is carried out by only two hundred firms.
We believe that this concentration of private R & D into a few large firms is not in our national interest. While there is such a great concentration of private R & D, it is small business that has accounted for one-half of our total major innovations over the past twenty years and it did so while conducting only three percent of the total U.S. R & D. This is a powerful testimony for the contributions and effectiveness of small innovative businesses. Science Indicators also reports that during the twenty year period from 1953 to 1973, small businesses contributed twenty-four times the number of major innovations per dollar of R & D as did large firms. In addition, the total cost for maintaining a scientist or engineer in R & D for a small business has averaged one-half of that for large firms. It is further reported that inventors in universities contributed far less frequently.

In view of these facts, we must ask why so much of our federal R & D is awarded to large firms, federal laboratories and universities, and so little to small business since technological innovation is critical to our social-economic progress. We believe that a larger share of federally funded R & D awarded to small businesses would produce substantially greater results.

REVISED INCENTIVES WILL STIMULATE PRIVATE INNOVATION.

One of the critical obstacles to more productive R & D funding is the lack of recognition within government that innovation usually does not result from research findings without proper incentives to put these findings to work. The objective pursued by most federal R & D recipients is to meet the precise specifications required by the government and not to pursue innovative ideas and commercialization of results. This requirement to pursue narrow objectives prevents innovation. In universities the incentive is to uncover new knowledge and to publish these findings in scientific journals—not to produce innovations for commercialization in the private sector.

Sometimes federally funded applied R & D in universities and government laboratories is aimed at preventing a private firm from gaining a technological lead, or in duplicating private technological successes with the objective of public disclosure. Such competition with the private sector, particularly with small firms, is a substantial disincentive to the innovator and to his sources of capital.

We believe that greater private sector utilization of scientific knowledge generated by federally funded research is desirable, and commend the Small Business Innovation Program of the National Science Foundation as a successful model. This imaginative program is directed specifically at converting research on federal objectives into innovation in the private sector. It provides incentives for the small science and technology based firm, venture capital firms, private investors, large companies and universities to work together to explore and finance advanced concepts leading to new products, processes and services. This program provides strong incentives for the utilization of science to do new things.
The members of our Committee believe that it is essential that governmental policy-makers concerned with innovation make better utilization of incentives for the commercialization of research knowledge. We also believe that government must take steps to assure that the disincentives to private initiative of deliberate pre-emptive and duplicatory work, and competition with the private sector at universities or government laboratories be prohibited, and that steps be taken to ensure that this prohibition is enforced.

AN ADVANCING SCIENTIFIC ENVIRONMENT IS ESSENTIAL FOR INNOVATION.

The final concern of the Committee is the health of science in America. U.S. science clearly leads the world with fifty percent of the total science based Nobel prizes during the past thirty years. While this science excellence has existed since World War II, the industrial competitiveness of U.S. technology has declined, and much of the benefits of our excellence in science has been transferred overseas. We have received little in return, except that we now import large amounts of foreign goods made possible by our scientific advancements. We must point out that small business does not establish and train our overseas technological competitors--small innovative businesses create jobs, income, and exports at home.

We must also comment upon what we believe to be an unhealthy mix of basic and applied research at our universities that is mandated by federal funding requirements. We support the principal that universities are a proper environment for much of our basic research. However, government support to universities for applied research has increased more than six times during the past twenty years, while industry's percentage has declined from approximately fifty percent to twenty percent.

Federal laboratories and non-profit institutions have also prospered in applied research funding. We must respectfully point out, however, that major innovations have not come out of our universities, federal laboratories, and non-profit institutions with a frequency comparable to those emanating from small businesses. We must again ask why we do not have more applied research conducted by small businesses.

While some individuals may claim that applied research in universities is necessary to train an increasing number of scientists and engineers, a 1979 Department of Labor report states that forty-seven percent of those who received doctorates between 1970 and 1977 were not able to get jobs in fields that required that level of education, and that this problem is projected to persist through 1985.

In summary, the Committee believes that there is a need to increase federal R & D expenditures and that this increase should go in new directions.
RECOMMENDATION # 5--CHANGES IN POLICIES FOR FEDERAL FUNDING OF R & D

. The decline in R & D expenditures as a percentage of Gross National Product must be arrested and re-directed upwards towards the goal of three percent by 1985.

. This increase should be heavily directed towards basic research at universities and applied research and development in the private sector, with strong incentives for commercialization.

. There should be decreased emphasis on applied research in universities, federal laboratories and non-profit institutions, particularly where such applied work might preempt private initiative or is duplicatory or competitive with private sector activities.

. Each federal agency should be directed to allocate at least ten percent of its R & D budgets to small business and increase current levels by one percent of its budget each year until the ten percent minimum is established, starting in 1980.

. Each year, starting in 1980, each agency with a budget of over $100 million for R & D should allocate at least one percent of its R & D budget to the small business program using the same format as that of the National Science Foundation but with their own research topics, and review and awards procedures. This program should be coordinated by an Inner-Agency Small Business R & D Committee chaired by the Small Business Administration.

. A clear federal policy should be established and enforced to prohibit federal funds from being used to finance projects that are competitive with or duplicatory of private sector technological developments, or in any other ways might prevent the establishment by small businesses of exclusive technological or intellectual properties in new areas of non-defense technological advancement.

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FEDERAL PROCUREMENT POLICIES.

The U.S. government is the largest purchaser of goods and services in the world. Federal procurement policies greatly affect the ability and incentives for government contractors to innovate.

Unfortunately, federal procurement rules and their administration are grossly discriminatory against small businesses. Large corporations
are able to follow changing trends well in advance in procurement and to influence specifications to favor their companies. They know the system, can handle it, and can afford large government marketing staffs to effectively compete. Small businesses, which have historically provided fifty percent of the most significant innovations, are essentially precluded from this process. We do not believe this is in the national interest. Small businesses need a greater opportunity to participate.

At present, the federal procurement system chews the small innovator to bits. The small firm has little negotiating power and cases of unfair discriminatory treatment against small innovative businesses are legion. For example, patent policies in some agencies result in patent rights being awarded to large contractors, yet small firms rarely are able to obtain patent rights under similar circumstances. In addition there are cases where patent rights developed at the expense of a small business have been required to be assigned to the government for use by others as a condition of the small firm obtaining a government contract.

Small businesses are further discriminated against in government payment procedures. Delays occur in receiving payments and the small business is less able to obtain low cost loans to carry overdue government receivables. In addition, debt service is not a reimbursable cost.

It is the opinion of this Committee that changes should be initiated in procurement policies in order to encourage and allow greater participation by small innovative businesses on a more equitable basis.

RECOMMENDATION # 6--CHANGES IN FEDERAL PROCUREMENT POLICIES.

- Cost sharing requirements for research and development awards for small businesses shall be eliminated and negotiated, fees shall be allowed on all R & D awards;

- No federal agency shall exclude small business from a fair and equitable opportunity to compete on a merit basis on the same terms as other participants;

- No agency shall restrict opportunities for small businesses to submit unsolicited proposals and shall give such proposals a fair review based upon their merit. Each agency shall provide small firms opportunities to receive sole source awards;

- Independent research and development costs, and bid and proposal costs, shall be allowable costs for small business firms at a rate for small businesses of at least two times the level allowed for large businesses.

- A separate set of simplified Federal Acquisition Regulations should be developed to apply to small business firms;

- All proposals submitted by small business must be awarded or declined within four months of submission;
Proposal evaluations shall consider total costs relative to the work proposed, and not consider overhead or indirect cost rates due to variations in institutional and company accounting practices;

Fee negotiations shall take into consideration the level of interest rates and shall be higher in times of high interest rates than in times of low interest rates. All debt service costs shall be allowable costs for small businesses, and procedures should be instituted for prompt payments to small businesses, with late payment penalties;

Every federal agency should study policies and procedures that discriminate against small businesses, and to institute changes that will equalize opportunity without harming the public interest.

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PATENTS.

OUR PATENT SYSTEM HAS WEAKENED.

It is with alarm and consternation that we report two major weaknesses that have emerged in the patent system in recent years that are damaging incentives for innovation, particularly by small science and technology businesses. The usefulness of patents has diminished dramatically.

The first weakness is that judicial decisions, at the trial court level, are resulting in fifty percent of the patents issued by the U.S. Patent and Trademark Office being declared invalid when contested. In the ten circuit courts of appeal, this figure becomes seventy-two percent. As a result, the innovator seeking patent protection is inviting expensive litigation to test the validity of his patent, and the odds greatly favor his potential competitor, often a resourceful large corporation wishing to use his technology. A basic reason for such judicial invalidities is that the Patent Office did not have available to it, or was unable to identify, or failed to use, prior art that the courts declare as pre-emptive.

The second major weakness is that the cost incurred in defensive patent litigation sometimes approximates $250,000, which is usually an impossible burden for a small business. These developments are inhibiting to innovation and place the small innovative business in a position of not being able to benefit from the patent protection to which it is entitled and that may be necessary for its success.

It must be recognized that the reliability of patents is the keystone in the commitment of funds to carry out the commercialization of a patented (or potentially patentable) invention. Few entrepreneurs and investors are willing to risk time, energy and funds in the com-
mercialization of an invention in a free market economy knowing that the path they are pioneering may soon be trod upon by others, including large firms with greater resources and with preferential access to the market for the new invention. As a result, the only legal method to protect newly pioneered technology is by maintaining new technology as a trade secret. Tying-up significant discoveries and inventions in trade secrets is not in the public interest since knowledge transfer does not occur for others to use.

OTHER GOVERNMENT AGENCIES FAIL TO RECOGNIZE THE NECESSITY OF INITIAL EXCLUSIVITY FOR SUCCESSFUL INNOVATION.

Although our constitutionally provided federal patent system is intended to provide exclusive protection to inventors with novel contributions, the importance of this policy of exclusivity is frequently ignored by government. We believe that a change in attitude within government about exclusivity of technology by small business would substantially enhance innovation. Small firms pioneering new techniques are often treated as large resourceful corporations attempting to monopolize markets. In some cases government vigorously attempts to pre-empt or duplicate technology being pioneered by small firms in order to prevent initial exclusivity. The result is that in such fields where government R & D activities are pre-emptive or competitive, interest by entrepreneurs and risk capital sources diminishes. This Committee believes that there must be a greater awareness within government that exclusivity is frequently a substantial motivation in decisions to pioneer new fields.

It is unfortunate that the benefits of patent protection of initial exclusivity have greatly diminished for small businesses and this trend favors large resourceful corporations that can afford expensive litigation. It is the small innovative businesses that make a far greater contribution to innovation in America that are being deprived of the protection necessary for them to become established. We therefore have the following recommendations for strengthening incentives for innovation provided by the patent system:

RECOMMENDATION # 7--CHANGES IN PATENT POLICIES.

- The Patent and Trademark Office should develop a practical and effective computer based search and retrieval system for its own use and public access, with particular concern for its usefulness for small business firms.

- A new mandatory re-examination procedure should be instituted in the Patent and Trademark Office whereby a litigant who raises a defense of invalidity of a patent based on new found heretofore unconsidered art should first test the assertion of invalidity in the patent office where the most expert opinions exist at a much reduced cost.
The budget of the patent office should be increased sufficiently to allow for more thorough searching of prior art using the most modern search technology.

The patent laws should be amended to recognize that the reliability of patents is a keystone in the commitment of funds to carry out commercializations of patented inventions, and incontestability should be mandated after a period of time so as to result in absolute reliability, except in cases of fraud.

Legislation should be passed to give small businesses title to inventions made under government contracts, with the provision that commercialization be undertaken in a reasonable time. If such commercialization is not undertaken, title should revert to the government and the government should license small businesses. As an alternative, small business should be able to obtain title to inventions developed under government awards if they invest an amount of capital at least equal to the amount of the R & D award under which the invention occurred. Likewise, with inventions made in national laboratories, the government should preferentially license small business concerns.

Small businesses should be able to obtain (with appropriate restrictions) compulsory licenses through suitable proceedings in cases where uncommercialized patents block entry into new markets.

The Justice Department should be required to undertake competitive impact studies for taking anti-trust action against small business when a small business is attempting to exploit the full property rights afforded by its patent.

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This report is only a brief compilation of the recommendations that we believe are important to lead to a renaissance in anti-inflationary technological innovation by small business enterprises. We hope that we have articulated the distinctive characteristics of the creative process in small businesses that are substantially different than the creative processes in large corporations. In most cases, the same government regulations, policies and processes applied to all businesses, in effect, discriminate against small innovative businesses.

The necessary exemptions and the special needs of small innovative businesses are usually discarded by federal policy makers because it is feared that they will be applied to all industry. Yet we believe that special considerations are useful and tolerable if restricted by ceilings to levels meaningful to our sector of the American innovative community.
The issue of special treatment for small innovative enterprises in the formulation of laws, policies and governmental processes, is more than a matter of equity--it is a matter of national concern because of the far reaching ramifications of innovation in economic and social growth and the disproportionately large contributions of independent innovators. The potential for continued innovative contributions from small business is far too great to continue to be ignored, and meaningful special considerations must be made.

With the removal of the disincentives that are now imposed upon small innovative businesses, we are confident that the amazing resourcefulness of American innovators will again emerge and result in material social and economic growth for our country.