The original documents are located in Box 34, folder "Transition Reports (1977) - Commerce Department: Consolidated Issues (6)" of the John Marsh Files at the Gerald R. Ford Presidential Library.

U.S. DEPARTMENT OF COMMERCE

BRIEFING HANDBOOK

CONSOLIDATED ISSUES BOOK III OF 4

SCIENCE AND TECHNOLOGY

- Resource Assurance: Skilled S&T Manpower Development.
- Resource Assurance: Adequate and Stable Basic R&D Support.
- Government Loans and Grants for Industrial Research and Development
- Federal Support of Industrial R&D: Tax Measures
- Educational Publications
- Credibility of Scientific Information
- Innovation Information for State and Local Governments
- Consumer Technology Information Services
- Standards Generation
- Funding of Commercialization of Selected Government Inventions
- Stimulation of Innovations Through Federal Procurement Policy
- Federal Patent Policy
- Modifications of Antitrust Laws to Permit Cooperative R&D
- Modification of Regulatory Inhibitions of Innovation
- Treasury Initiatives for New Technical Enterprises
- International Standards
- Improved Export Control of Design and Manufacturing Technology
- Technological Support of Less-developed Countries

Office of Environmental Affairs

- o Environmental Energy Conservation in Industry
- o Improvement of Environment Impact Procedures for Industry Projects
- o Impact of Environmental Law and Regulation

Office of Product Standards

- o Implementation by Department of Commerce and other members of the Interagency Committee of Standards Policy (ICSP) of the policy principles developed by ICSP to be followed uniformly by all Federal agencies in working with non-Federal standards-setting bodies.
- o The National Voluntary Laboratory Accreditation Program
- o Institution of the National Voluntary Consumer Product Information Labeling Program

National Bureau of Standards

- o DOC Responsibility for Governmentwide ADP Planning System and PL 89-306
- o Recycled Oil - Congressional Pressures and Measurement Realities
- o Department of Commerce Response to S. 3555 "The National Voluntary Standards and Certification Act of 1976."

Office of Telecommunications

- o Rewriting the Communications Act of 1934
- o Consumer Communications Reform Act
- o Formulation of a National Telecommunications Agenda
- o Telecommunications Organization and Roles

Patent and Trademark Office

- Patent Reform Legislation
- Patent Examination Quality
- Improved Paper Handling
- Trademark Registration Treaty

RESOURCE ASSURANCE: SKILLED S&T MANPOWER DEVELOPMENT

Issue: Skilled manpower development for S&T is too often out of phase and focus with demand.

Background and Analysis: Federal employment, subsidies to manpower and education (some $10.6 billion in 1975), and procurement have a major impact on S&T manpower demand. No innovation can be produced and brought to market without some participation of scientists and engineers.

After a rapid growth of manpower in engineering and science in the postwar years - in large measure the product of the GI Bill - sharp declines occurred in these labor markets in the late sixties and early seventies. Federal expenditures declined in engineering-sensitive activities in relative and absolute (real) terms, and these brought about a sharp fall in starting salaries as well as in the number of students entering this field. At the same time, the alternate conditions of over and under supply have led to substantial increases in costs of R&D scientists and engineers.

It is suggested that the space program distorted the labor market for R&D and other scientists and engineers more than any other Federal action in the funding of R&D in the history of the country.

There is also evidence that the United States has fallen behind in comparability of employment of civilian R&D scientists and engineers against other industrially developed nations. Western Europe and Japan were 30 percent ahead of the United States in the percentage of GNP spent on civilian R&D during the 1960's. The number of scientists and engineers engaged in R&D per 10,000 population has increased between 1963 and 1973 in all major countries (USSR, Japan, West Germany, France) but not in the United States since 1969.

Possible Action: The AS/S&T should work with OSTP to develop coordinated Government policies which are required to assure a long-term supply of skilled S&T manpower, including blue collar craftsmen, with an appropriate occupational and skill mix.

A long-term skilled manpower supply was provided satisfactorily by market forces in the past. The post-Sputnik emergence of Federal advanced technology efforts upset the supply-demand balance; first draining S&T talent away from the civilian

economy, later causing a massive shift of S&T professionals to other jobs. Also there is evidence that the mix of specific skills needed by our advanced technology economy is not matched by the current output of professional and paraprofessional schools. It has been reported, for example, that in 1974 our engineering schools produced fewer mining engineers than was the demand of one company in the mining industry. The demand of the mining industry in that year was quite atypical, but the fact that the number of graduates was not sufficient to meet the demand of one company illustrates the point.

On the other hand, political pressures in the Government may not be inducive to wise management of technical manpower. In addition, formulation of optimal policy in an environment of dynamic technologies, hundreds of agencies and thousands of educational institutions, might be very difficult if not impossible, and such a program could be considered another Government "intrusion" in the historically free market process of supply and demand.

RESOURCE ASSURANCE: ADEQUATE AND STABLE BASIC R&D SUPPORT

Issue: Federal R&D programs are erratic and unpredictable, leading to feast-or-famine situations in the market, and appear to adversely affect our international competitiveness.

Background and Analysis: Disquieting trends in U.S. science and technology performance may be due in part to the fluctuating and relatively low level of Federal support of basic R&D. Federal Government's expenditures on basic R&D amounted to 0.26 percent of GNP in 1965, the same percent in 1969, 0.25 percent in 1970, 0.22 percent in 1971 and 1972, and 0.20 percent in 1973-75. This slide, coupled with mounting inflation has had a negative impact on the conduct of basic R&D. Many universities, the government's prime contractors for basic R&D, have been brought near bankruptcy in this period. Companies are finding it difficult in a climate of inflation, recession, and small profit margins to spend much on long-range research. In addition, many in the private sector have complained that the Mansfield Amendment, which requires that funds provided by the Defense Department to companies for independent, long-term R&D must be spent on mission-related work, has curtailed the amount of long-range research that can be done in that sector. The recent decrease in the number of radical innovations, usually the result of basic R&D, may reflect a suboptimal degree of Federal funding for basic R&D.

Possible Actions:

(a) Under OSTP leadership, the AS/S&T should work with other agencies to determine an appropriate level of basic R&D, consistent with the economy's long-term need and its ability to support R&D, and to make this level reasonably stable over time.

Basic R&D is a sine qua non of sustained technological innovation, especially of "radical" or "pivotal" types of innovation. Stability in support will allow better planned, more efficient R&D. On the other hand, it will be difficult to find objective criteria for determining an appropriate level of basic R&D support. Perhaps present support levels could lead to more results if more industry-university cooperation were promoted.

(b) The Administration should conduct a study of the impact of the Mansfield Amendment on basic R&D and if found detrimental to the country's interest, propose that the Mansfield Amendment be repealed.

The emphasis of the Mansfield Amendment on relevant, targeted DoD research may be detrimental to the conduct of the basic

research which is necessary for sustained technological development of the country. Since DoD provides a substantial proportion of the Federal funds for basic R&D, a change of policy in DoD research dollars could have a large impact.

**GOVERNMENT LOANS AND GRANTS FOR INDUSTRIAL R&D

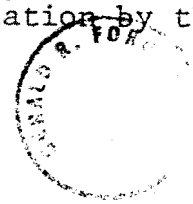
Issue: Much industrial research of a generic and "overhead" nature needs to be performed, but because the benefits cannot be captured by an individual firm, the research is not funded.

Background and Analysis: The U.S. Government has funded specific applied research and engineering in a number of technical fields, in response to its responsibility for

- providing society or assuring its provision with public goods, most notably national defense, public safety, education, health care, certain types of transportation, and communication;
- ensuring that the quality of the physical environment is preserved and improved;
- conducting its own operations, especially those which collect, process, communicate, and preserve large masses of information;
- aiding industry that is fragmented into units too small to carry out effective technology development, such as in farming and food processing, minerals utilization, and fishery technology; and
- exploiting technological opportunities of clearly national impact or avoiding national loss of prestige when risks and costs are too high to be undertaken solely by private interests; examples are the exploration of space, and the development of nuclear and solar energy technologies.

The Morrill Act of 1863, an expression of U-S. Government support for general technological innovation in the private sector, enabled the establishment, by direct grant of Federal land and money of state-operated colleges to promote the agricultural and mechanical arts and to train their practioners. Much of the development of U.S. agriculture as well as the pre-World War II U.S. manufacturing industry relied heavily on the applied research and engineering performed in the "Aggie" colleges and by their graduates.

Today, however, there is no similar, broadly based Federal program for promoting general technology development in the private sector. Rather, each Federal agency promotes the creation and development of new technology related to its subject mission. In general, the guiding beliefs behind Federal activities affecting the development, diffusion and exploitation of technology in manufacturing have been that commercially applicable manufacturing technology is only developed by the private sector, and that the self-interest of each firm acting in the market place will ensure optimum diffusion of the technology to other firms and its exploitation by them.



The lack of Federal applied research support in this field is notably in contrast to Federal policies in two other technology-intensive fields: agriculture and health care. In both these fields there are planned, coordinated, and well-funded Federal programs to provide the stimulus needed for rapid technology diffusion and exploitation. Two years ago, a new technology for combatting corn blight was rapidly developed and diffused by the USDA. The most recent example is President Ford's request for $135M to innoculate all U.S. citizens in just a few months with the swine flue vaccine.

Possible actions:

(a) Establish a DoC Industrial R&D Support Program.

Direct support of industrial R&D, based on the success of some foreign nations, has been frequently recommended for U.S. Government adoption. Such a program is not without risk, both of failure and of criticism. The U.S. Government has successfully supported much applied research in solid-state electronics, but its support of alternative automotive power systems has been unsuccessful.

An experimental DoC industrial R&D program focused on problems generic to a large number of firms is a possible action. These funds would be used to support R&D of high potential and general interest to an entire industrial sector, e.g., catalytic processes, combustion technology, programmable production techniques, industrial enzymes, ultra-precision machining, etc. Most of the projects would arise from unsolicited proposals, to allow maximum private sector initiative and participation in the choice of projects. These funds would supplement mission agency (such as DoD, ERDA, and EPA) funds which often do not carry research to the point of successful commercialization or which focus on more specific projects.

The suggested DoC program would be a small analog of the DoD programs for supporting (1) the development of technology relevant to DoD-purchased items, and (2) diffusing technological innovation in manufacturing processes employed to produce DoD material. The payoff is large; on some 60 manufacturing innovations studied, the payoff is 15:1 on investment. Much of this technological innovation will only slowly, if ever, reach the attention of the majority of U.S. manufacturing firms in the absence of a concerted DoC program.

(b) Alternatively, request DoC participation in NSF's RANN Program.

The National Science Foundation operates a limited applied research and engineering grants program -- Research Applied to National Needs (RANN). A possible action would be for DoC to participate in the management of the RANN program in order to emphasize applied research and engineering which would benefit the manufacturing and services sectors.

The advantage of this action would be the avoidance of the "new program" image.

The major disadvantages would be the lack of truly effective DoC influence on the level of R&D funding; the academic orientation of NSF management, including its grants and contracts office; and the competing demands from non-industrial applied research.

(c) Establish a Federal Institute for Industrial R&D (FIIRD).

This would disburse Congress-appropriated funds in the form of grants, or through cost-sharing arrangements, for generic, "bottle-neck" or some other R&D which would be in the long-term interest of society but not be undertaken by private sector in response to other options either because of a too great uncertainty, too great cost of the project, or too great fragmentation of the industry which would be the primary beneficiary of the project. Examples of R&D projects that might be carried out under this program include research on prevention of corrosion, combustion efficiency, computer-aided quality control of products, industrial robots, programmable automation of manufactured processes, recycling of materials, automation and other technological improvements in processes applicable in service industries, etc.

The program would assure the availability of funds for meritorious projects which otherwise would not be undertaken given the kind of socio-economic philosophy we have; it is a way for the society to make timely use of major technological opportunities as they become available. In cooperative R&D arrangements, the ratio of the net increase of private outlays on R&D to the expenditures of public funds might be quite high. Most, if not all, governments of other industrialized countries support such R&D as a matter of course.

In some cases, however, the program could undertake projects which eventually private industry might do itself and, therefore, there might be some substitution of public funds for private funds. The program would generate some proprietary issues unless the Federal patent policy is simplified. Moreover, Government bureaucracy might not have a good feel for which projects should be funded.

*FEDERAL SUPPORT OF INDUSTRIAL R&D: TAX MEASURES

Issue: Should additional tax incentives be given to stimulate innovation in business firms?

Background and Analysis: A variety of tax incentives now exists to stimulate capital investment, mineral exploration and to achieve other objectives. None of these are intended specifically to encourage technological innovation. R&D expense is now tax deductible as ordinary business expense. To the extent that firms expect returns on R&D expenditures to exceed returns from alternative investments, if they consider them on par with all other investments, a tax incentive for R&D now exists. However, few businessmen consider them that today (because of risk) and most if not all other market economies treat private expenditures on R&D the same way.

Existing tax laws may delay technological innovation. Accelerated depreciation and investment tax credits may tend to speed up investment in current state-of-the-art capital goods and thus attract capital away from investment in technology in the future. Also, tax laws are generally broadly applicable to all firms; this "shotgun" approach gives tax breaks to those who do not make investments in R&D. At least at the theoretical level it is generally accepted that if public benefits resulting from private investments in R&D exceed the returns on this investment, and this is the case with most private R&D yielding economy-wide productivity increases and/or improvements in the external value of the dollar, tax credits to private investors are warranted.

Possible actions:

(a) Request ETIP in cooperation with the Treasury Department to conduct experiments and studies in which tax breaks are examined for their effect on innovation (Congressional approval may be needed).

This incremental approach would yield valuable information at modest cost.

(b) Recommend that the Congress consider the likely effect of tax changes on technological innovation.

This would require advance studies by OTA, CBO, Library of Congress, Joint Economic Committee, or others. In view of the chaotic state of tax laws and pressures for special favors, this issue may be ignored in tax reform.

The tax changes to be considered in the studies of (a) and (b) would include the following possibilities:

(1) Substantially increase the tax investment credit for R&D plant from the present 10 percent to, e.g., 25 percent.

The program would be economy-wide. There would be some net increase in R&D, and it would be easy to administer. There would be no interference in private decision-making by bureaucrats, nor would there be any proprietary issues.

On the other hand, the net increase in R&D would probably be relatively small even though costly to the Treasury, because the credits would have to be available not only to those performers who would not do the R&D unless such increased credits were available, but also to those who would do it anyway. Hence, the ratio of the net increase in private outlays on R&D to the expenditures of public funds would be low. Moreover, the policy would provide an opportunity for fraud because of frequent indistinguishability of R&D plant from production plant. At the present time the climate is against tax credits.

(2) Increase tax depreciation allowances for R&D plant.

The program would be economy-wide, might result in some increase in R&D, and would be easy to administer. There would be no interference in private decision-making by bureaucrats, nor would there be any proprietary issues.

However, depreciation represents only a small fraction of total cost of R&D, and an increase in depreciation would only mean a temporary postponement of tax payment, rather than forgiveness of the tax. Thus, the net increase in private outlays on R&D could be very small, if not nil, because of the small marginal incentive.

(3) Provide new special tax credits or equivalent cash payments (to those having no tax burden) to industrial R&D performers, with R&D defined in accordance with the Financial Accounting Standards Board concept or some other standard specifically designed for the purpose.

The program would be economy-wide. There would be some increase in R&D, the size of which would depend on the size of the tax credit or equivalent cash payment. It would be easy to administer and there would be little or no growth of bureaucracy (unless the R&D eligible for the incentive were not well defined).

Furthermore, there would be little or no interference in private decision-making by bureaucrats; nor would there be proprietary issues.

On the other hand, the kind of incentives that would substantially increase industrial R&D throughout the economy would subsidize not only incremental R&D but also ongoing projects, and the latter would be tantamount to substitution of public funds for private funds. Hence, the ratio of the net increase in private outlays on R&D to the net expenditures of public funds would be very low, if not nil. Moreover, the policy would be conducive to fraud, as is probably the case with all broad policies. At the present time the climate is against tax credits, especially new tax credits.

(4) Trade the present tax credit for investment in plant and equipment (10 percent) for tax credit or equivalent cash payments for expenditures on industrial R&D.

The basic rationale for the present tax credit for investment in plant and equipment is promotion of modernization and productivity growth. Some careful recent studies have come to the conclusion, however, that investments in plant and equipment are largely a function of pressure of demand on industries' capacity and not of these tax incentives. Consequently, from the overall social policy point of view, the tax credit for investment in plant and equipment might be considered as a tool of income redistribution and not a tool for promoting productivity growth, and hence, growth of income. From this it follows that to the extent the trade of tax credit for R&D expenditures for tax credit on plant and equipment would generate more R&D and, hence, growth in productivity, etc., the trade-off would be beneficial to society. Moreover, the trade-off would not require additional tax expenditures for the purpose.

However, in an inflationary economy, tax credit for expenditures on plant and equipment helps to counteract antiquated rates of depreciation and, therefore, the policy might socially be equitable even though formally it might look as if it were a tool of income redistribution. Thus considered, both sets of tax incentives might be necessary. However, as things are now, it seems rather ridiculous to use the excuse of social desire to improve productivity to essentially offset the adverse impact of inflation. The trade-off would most probably be also opposed by the business community, especially non-technology-intensive industries; macroeconomists; and, perhaps, even quite a few people in the Government.

(5) Provide new tax credits or equivalent cash payments (to those having no tax burden) for incremental (e.g., above the level of the most recent 3-year average) industrial R&D.

The policy would be economy-wide, and would undoubtedly increase the private outlays on R&D (the size of which would depend on the size of the tax credit or equivalent cash payment); there would be little or no substitution of public funds for private funds; and the ratio of the net increase in the private outlays to the expenditures of public funds would most likely be relatively high. Moreover, the program would be relatively easy to administer and there would be little or no growth of bureaucracy and little or no interference in private decision-making. Nor would there be any proprietary issues.

On the other hand, the policy would appear to penalize companies presently doing appreciable R&D. (However, if a 3-year moving average were accepted as a base for a given year's credit, the discrimination favoring firms which had not done much R&D in the past would disappear over time.) Moreover, the policy would be conducive to usual types of fraud. Again, at the present time the climate is against tax credits, especially new tax credit.

(6) Provide new tax credits or equivalent cash payments (to those having no tax burden) for incremental R&D in chemicals and capital goods industries.

This policy would increase the private outlays on R&D (the size would depend on the size of the incentive) in the industries whose output has traditionally been most conducive to domestic productivity growth and favorable foreign trade performance for the economy at large; there would be little or no substitution of public funds for private funds; and the ratio of the net increase in the private outlays to the expenditures of public funds would most probably be high. The program would be relatively easy to administer and there would be little or no growth of bureaucracy. Moreover, there would be little or no interference in private decision-making, nor would there be proprietary issues.

On the other hand, the policy would appear to penalize companies presently doing appreciable R&D. (However, if a 3-year moving average were accepted as a base for a given year's credit, the discrimination favoring firms which had not done much R&D in the past would disappear over time.) In addition, the policy would be conducive to usual types of fraud, and at the present time the climate is against tax credits, especially new tax credit.

Notwithstanding all cons and problems, either option (4) -- trade the present tax credit for investment in plant and equipment for credit for industrial R&D, or option (5) -- provide new tax credits or equivalent cash payments for incremental industrial R&D, merit serious consideration.

EDUCATIONAL PUBLICATIONS

Issue: There is lacking a systematic effort to generate and distribute publications to inform the general public about the consequences of major technological developments and decisions.

Background and Analysis:

An informed and sophisticated electorate is essential to the best use of technology in a technology-intensive society. The responsibility of the Government to inform the public about anticipated consequences of governmental actions is well established. It has been argued that the Government has a responsibility to inform the public about consequences of any anticipated changes, whether due to Government action, technology, natural forces, or any other factor. Almost every U.S. department and agency has now in effect public information policies and operations which seek to inform the public. Some of the outputs have been outstandingly effective, and warmly welcomed. Recent NBS educational publications on energy conservation are one example. Many USDA consumer pamphlets are also effective. Under a more formal approach, the whole NBS standards program, including physical standards and "paper" standards, is a means for advancing public understanding of technology.

These efforts involve comparatively unambiguous issues. For many other technological changes the issues are complex and many-valued and a suitable educational program would be most difficult to present. The other side of the coin is that a significant fraction of the public is both unwilling and unable to comprehend the whole picture.

There is no question of the need to take -- and continue -- action along these lines.

Possible actions:

(a) Continue present system under which individual Federal agencies prepare and distribute educational publications whenever they see a need to inform individuals about technological changes.

Some examples show that the present approach can be effective. Moreover, no new organizational structure would be required, and there would be no additional demand on budgets.

On the other hand, many present publications are ineffective. Technological problems are too complex to present in a haphazard fashion, with the outputs of some agencies contradicting the

outputs of others. At present, many technological changes are not properly handled, and effective use is not made of TV and other media.

(b) Increase agency efforts for education and provide a central coordinating office.

A coordinated approach could have a greater educational impact, with fewer important issues being inadvertently neglected. This would, however, require budget increases, and coordinating offices without management and budgetary authority are seldom effective.

(c) Reduce Government effort, and assume the task would be taken over by private publishers who are better at promoting sales of publications.

This approach utilizes the skills of the private sector, and reduces Government manpower and budget requirements.

However, it is likely that only "best seller" issues would receive attention and coverage would be very haphazard. It would be easy for partisan viewpoints to prevail.

CREDIBILITY OF SCIENTIFIC INFORMATION

Issue: How should procedures be improved by which scientific information and (often disputed) interpretations, relevant to controversial governmental decisions, are placed before policy makers and the general public.

Background and Analysis: Many policy decisions of national (and international) importance rely in considerable part on sophisticated scientific data and their interpretation. Neither decision makers nor the interested public can readily judge the reliability and objectivity of such information, especially when scientists disagree over the validity and significance of the available data. Recent instances include the issues of: safety of nuclear power; effectiveness of proposed ABM defense systems; possible threats to the "atmospheric shield" by SST's and aerosol sprays; and a host of other complex problems.

Such information and interpretations are made available today mainly through (a) publication and discussion in scientific journals, (b) reports by advisory panels or task forces of technical experts, and (c) presentations in public forums, such as Congressional hearings and meetings of the National Academies and professional societies. Significant shortcomings have been widely noted: rhetoric and emotionalism displace scientific objectivity; opposing experts fail to confront each others' arguments; implicit assumptions and "mind-sets" go unexplicated. Informed decision-making is impeded. Eloquent descriptions of the deficiencies, and tentative prescriptions of remedies, have come from industry, academia, and government itself. To cite Senator Jackson: "One often wishes that advisers with different points of view would confront each other directly and in public so that hidden or unstated assumptions could be revealed and the different modes of analysis explored."

Possible actions:

(a) Continue working with OSTP to institute a "science court," in which impartial experts would examine data and direct adversary argumentation, yielding an assessment of the credibility of scientific information (separated from value judgments) bearing on major national issues.

This approach would provide an inexpensive and efficient means to clarify the scientific facts and uncertainties, clearing the way for more rapid adoption of valuable technological innovations and rejection of harmful ones.

On the other hand, it could not compensate for gaps in relevant data, might unduly expand the influence of Science's "senior elite," and could find troublesome the identification and

extraction of "the scientific component" of heated public issues.

(b) Adopt (a) on an experimental time-limited basis.

A science court experiment would permit a flexible exploratory approach to the evolvement of a new institution with a most difficult role.

However, a "likely to be transient" Court might not command the same commitment and dedication from participants.

(c) Work through existing institutions (professional societies, universities) to better sensitize and train scientists concerning maintenance of objectivity and integrity as "expert witnesses" on controversial issues.

This approach would avoid the radical step of introducing a Science Court.

Its necessarily slow pace and its continuing reliance on ability to maintain objectivity under stress mark it as a worthwhile supplement to (a) or (b) rather than a substitute.

**INNOVATION INFORMATION FOR STATE AND LOCAL GOVERNMENTS

Issue: There is need for an innovation information system serving state and local governments.

Background and Analysis:

Serving the technological and other innovation needs of state and local governments is seriously hampered by the lack of an effective information system serving that sector. The sheer number of state and local governments - 38,000 receive revenue sharing funds - makes an information delivery system difficult. Employment in this sector increased 165 percent from 1950 to 1973, and productivity has not significantly improved.

Since productivity increases in state and local governments will be closely related to capital goods, purchases and investments (e.g., computers, telecommunication devices, trucks), U.S. industry has a large stake. There is yet, however, no coordinated governmental program to bring the full Federal, state and local governmental resources to bear on the needs of state and local governments.

The situation is analogous to the pre-1965 situation in U.S. education. There were large Federal educational laboratories spending hundreds of millions on applied research and 20,000 school districts untouched by the research results, but receiving several billions of dollars for support of traditional practices. There was no mechanism for rapidly bridging the gap between research and practice; education was a non-technology sector.

A solution in education was the establishment by the Office of Education of an educational innovation information system (ERIC). This system is like other Federal mission-oriented information systems; it collects, organizes, and supplies copies of publications relevant to educational innovation.

Other branches of state and local governments have also suddenly been thrust into a situation in which innovation is necessary, but they lack an integrated information system serving their needs. They also have a great need for applied research focused on their problems, and the President has repeatedly stressed the need to integrate this requirement into Federal R&D programs. An integrated information system would assist in collecting and organizing research needs of state and local governments.

Presently, the Federal Government has several scattered small pilot programs in these areas. A Federal Laboratories Consortium with 70 member laboratories operates in a semi-official way to assist state and local governments to become more capable of utilizing technology, and to have their needs for technology better

addressed by the Federal R&D program. NSF/RANN's Intergovernmental Science program has supported, through Public Technology, Inc., demonstration projects in 27 cities; the Council of State Governments and National Conference of State Legislators also have supported demonstration projects.

Possible actions:

(a) Create an information clearinghouse to collect, organize, and disseminate technological innovation information for state and local governments.

Although this action would be a positive response to the policy statements listed above, it would require a small additional staff to manage the program, and considerable (ca. $1/2 million) money to develop the nationwide collection apparatus, to pay for the organization and promotion of the information, and to underwrite the initial use of the clearinghouse by state and local governments.

(b) Consolidate the existing field demonstration Federal programs into a single continuing Federal program.

This possible action would recognize the continuing need for referral, interpretive, stimulative, and demonstration services in order to obtain the desired innovation in state and local governments. This sector is similar to agriculture (especially in earlier times) and education in its fragmentation, sensitivity to influences (sometimes capricious) beyond its control, and general unawareness of the possibilities offered by technological innovation. It will probably require a continuing Federal program for 10 to 20 years or more to incubate the essential re-orientation of state and local governments.

(c) Propose establishing a policy-making responsibility for effective transfer of Federally developed technology to state and local governments within the new Office of Science and Technology Policy.

This Office should work with the private sector, state and local governments and Federal Government organizations in identifying the most effective transfer mechanisms and with Federal policy-making bodies such as the Office of Management and Budget and the Civil Service Commission in planning for and implementing the funding and staffing requirements of an effective program.

A broad policy plus resources to implement this policy will be required to make significant impact in a reasonable time. Involvement of the state and local as well as private sector in the planning will assure the support of reasonable transfer mechanisms.

On the other hand, OSTP is not an operating agency; to date policy level action has not been followed up by problem solving.

(d) Provide categorical grants to the States to aid them in developing internal means to express their technological needs and work toward meeting them, drawing on any resources available.

Since problems often involve much more than the technological component in their solution, individuals close to the need will be most effective in providing an affordable solution.

However, lack of understanding of the Federal system and specialized interests of state and local employees will make it difficult to maintain a broad network of technology transfer agents.

Options (a)-(d) could all benefit from broad Federal support for technology transfer provided, e.g., by mandating that each agency creating significant technological output should place at least a fixed fraction of their manpower in the dissemination activities serving state and local governments; and by supporting the establishment of training opportunities for technology transfer agents in Federal organizations.

**CONSUMER TECHNOLOGY INFORMATION SERVICES

Issue: Insufficient information on consumer products and services results in extensive economic loss.

Background and Analysis: Consumer problems with products and product servicing are costly -- products are discarded prematurely, materials are wasted, much time and resources are devoted to resolving consumer complaints, sales are lost, and consumers are unable to make the rational choices necessary to maximize satisfaction from limited incomes.

A recent study has indicated that Americans find something wrong with 28 percent of their purchases of goods and services; of these they complain about 33 percent; of the latter only 57 percent result eventually in consumer satisfaction.

Possible Actions:

(a) Expand the Departmental effort to provide consumer information services on product performance and product servicing, and to increase the Department's consumer technical education focus.

Such an expanded effort would consist of three interrelated technical facets -- provision of product performance information, provision of product servicing information (such as for automotive and TV repair), and an increased education focus for consumers, retailers, servicing personnel, and manufacturers in order to promote more efficient consumer purchasing decisions based on sound technology. Much technical expertise to conduct this effort exists in the Department, especially in the Office of Product Standards and the National Bureau of Standards.

This comprehensive and coordinated national consumer services effort should reduce consumer financial loss and dissatisfaction, facilitate product and servicing investment decisions, stimulate competition and sales based on quality and price, reduce manufacturer liability insurance costs, and reduce State and local expenditures now required to process consumer complaints.

There are, however, technological and other limitations to such an effort. For example, some products may have so many

significant performance characteristics that selection for labeling purposes may result in uneconomic allocation of productive resources. Additional resources would also be required for effective implementation. In addition, the cooperation needed from the private sector cannot be taken for granted. Cooperation by other agencies should also be sought.

On the other hand, resolution of the consumer information problem is unlikely to occur in the absence of a comprehensive, coordinated attack. The Federal Government is in the unique position of being able to serve the interests of all Americans; that is, all those who are impacted by the problem -- consumers, manufacturers, distributors and retailers, even State and local government. The fact that the benefits of the program will be disaggregated extensively among consumers and business also calls for a Federally coordinated effort.

(b) Proceed with existing efforts supplemented by the proposed National Voluntary Consumer Product Information Labeling Program.

In this case, no special DoC effort would be made to develop an effective program to provide information on product servicing or provide the extensive education focus found in (a) above. This more restricted approach would probably have a lower benefit-cost ratio because unlike in (a) there would be a lower tendency for individual, yet related projects, to reinforce each other, and a smaller opportunity to eliminate wasteful conflicts and overlapping. It would, however, not require as much resource expenditure as in (a) above.

STANDARDS GENERATION

Issue: Lack of a clear cut, national standards policy inhibits economic growth and the public interest.

Background and Analysis: The first problem identified in the 1974 report on Voluntary Industrial Standards in the United States by the House Committee on Science and Astronautics was "the lack of a national policy for domestic and international standardization."

The proposed Voluntary Standards and Certification Act of 1976 (S.3555) contained the following findings, inter alia:

> Section 3(9) "The procedures for promulgating standards, for accepting products for testing, inspection, and certification, and for insuring aggrieved parties due process are inadequate and vary from organization or organization."
>
> Section 3(12) "Built-in safeguards to protect consumers and to eliminate restraint of trade problems inherent in the standardization process are lacking."
>
> Section 3(13) "The lack of a uniform policy with respect to domestic standardization policies has impeded the effectiveness of the U.S. participation in international standardization activities, which may have far-reaching consequences on balance of trade and balance of payments."

In a recent draft of a proposed study on this subject, ANSI (American National Standards Institute) states that: "we have no national policy with regard to standards and certification, no official government policy or position and only limited means of developing a cooperative government-private program to work effectively on behalf of U.S. international (and national) trade and commercial interests," and further that "while there has been a government presence, organizational mechanisms and procedures are seldom adequate to accommodate a vastly increased and influential role for government."

Included within the general problem and as a manifestation of it is the lack of a clear commitment to develop and use performance-type standards whenever these may appropriately

be substituted for certain standards of design, materials, or methods of manufacture which impede technological innovation.

Possible Actions:

(a) Support the purpose of Title I (National Standardization) of the Voluntary Standardization and Certification Act (S.3555), but with certain modifications.

It is likely that S. 3555 will be reintroduced next year with some modifications. Title I provides for the development of a uniform national standardization system for all standards and certification activities undertaken by the private sector. In hearings on this Bill on June 21, 1976 the Department of Commerce indicated support for the overall purpose of Title I -- to assure that the public interest will be protected and due process observed in the voluntary standards activities carried out by the private sector. However, the Department expressed its concern about the rigorous regulatory framework of the Bill and its awkward procedures. In addition, the Interagency Committee on Standards Policy (chaired by Commerce) has prepared guidelines for the participation by Federal agencies in private sector standards activities. It is anticipated that OMB will publish these guidelines in an OMB Circular, shortly. While these guidelines are not a substitute for Title I of S.3555, they are consistent with its objectives. Available information indicates that the private sector standards community is strongly opposed to S.3555.

(b) Support the American National Standards Institute (ANSI) in applying for a Federal Charter.

The granting of a Federal charter would symbolically establish ANSI as the U.S. standards body for domestic coordination of voluntary private sector standards development, for interaction with the Federal Government on standards policy matters, and for U.S. representation in non-treaty international standards-making organizations. This should result in significant benefits -- a strengthened and more responsive U.S. standards system due to coordination of national private sector efforts, improved potential for ANSI to attract increased financial support from the private and governmental sectors, and increased ANSI influence in international, non-treaty standards organizations.

ANSI attempted earlier to obtain a Federal charter but failed because, it is reported, the House Judiciary Committee had ceased issuing charters pending the development of criteria for qualification. Such criteria have since been published (1969) but only a very few charters have been issued since then. A possible drawback to this course of action is that since charters are issued through the legislative process and because of possible opposition from consumer and antitrust groups, the charter application could become the focal point of legislative efforts to impose rigorous regulatory requirements on the voluntary consensus standards-setting system such as certain objectionable provisions in S.3555.

(c) Prepare new legislation to establish a national policy for maximizing effectiveness of the American standards effort, particularly that of the voluntary standards-setting community.

This approach contains at least three advantages over the charter approach in (b) above, namely the: (1) greater opportunity for appropriate Federal funding of priority standards projects, (2) greater opportunity to strengthen the national standards system by providing a solid basis for closer cooperation between the public and private sector and for the government to supply appropriate guidance as this system develops, and (3) opportunity to cover related standards matters, such as the assurance of due process.

In preparing such legislation the Department would work with key private sector standards interests in order to arrive at a mutually satisfactory resolution of important issues, and thereby maximize the efforts of the private sector in the public interest. The Commerce Bill could be proposed as an alternative to S.3555, or constitute the basis for suggested modifications to such a bill.

(d) Continue through the Interagency Committee on Standards Policy (ICSP) to promote interagency cooperation and coordination with the private sector.

Substantial progress on this front has been made since this Committee was reestablished about a year and a half ago. This Committee provides the only active Federal Government forum to exchange information on U.S. standards policy and make government-wide policy recommendations. No significant disadvantages

have been identified for this Committee's continuance. It could also prove especially useful should S.3555 be reintroduced; in fact, Section 209(a) of this Bill provides for the establishment of an interagency committee on international standardization policy to assist the Secretary of Commerce in his responsibilities under Title II (International Standardization).

(e) Plan jointly with the private sector standards community (possibly through the ICSP) to identify present needs and their possible resolution.

Such an approach has the obvious advantages and disadvantages of any joint private sector/government undertaking. The principal advantage would be the possibility of arriving at mutually agreed solutions and recommendations; the principal disadvantage may be that the recommended solutions lack authority or are too weak. The standards community would probably be favorable to the approach at this time. An earlier effort of this nature produced a useful report -- the so-called LaQue Report of 1965 (technically, the report of the ad hoc Panel on Engineering and Commodity Standards).

FUNDING OF COMMERICALIZATION OF SELECTED GOVERNMENT INVENTIONS

Issue: Most government inventions are not commercialized, and much government R&D is not exploited for patentable inventions.

Background and Analysis: Although the U.S. Government funded roughly $10 billion of R&D in 1975 which might have resulted in Government-owned inventions, only 1600 patents actually issued. This contrasts with the 35,000 patents issued to U.S. industry for an R&D expenditure of $15.3 billion. The conclusion can be drawn that inventions--the tangible expression of an innovative idea--are not a high priority in U.S. Government R&D.

Furthermore, other than in U.S. Government procurement, there are relatively few commercial uses made of Government inventions. A partial reason for the lack of commercialization is simple lack of awareness on the part of potential users of the invention; a year-old NTIS newsletter, seminar, and exhibits program has multiplied several-fold the awareness level, and will continue. Another reason is the presumed complexity and uncertainty of getting a license to exploit the invention; the Government Patent Policy Committee is sponsoring a new patent bill which will alleviate the problem.

Perhaps the major reason so few patents issue from U.S. Government funded R&D is that Government inventions are usually not developed sufficiently to allow a reasonable assessment of commercial potential. Most inventions thus remain in the idea or bench-scale stage. Even those inventions which are fully developed for one purpose (e.g., a new missile guidance system) are usually left undeveloped for other possible applications (e.g., vehicle traffic control). Yet the history of technology has many instances where an invention first applied in one field reaches its maximum potential in another field, frequently after considerable time has elapsed (e.g., although the same technology is used for ice-making and space cooling, ice-making had far less impact on U.S. economic development than has airconditioning).

Possible Actions:

(a) Continue present NTIS program alerting potential users to existence of USA inventions.

This program is now nearly self-sustaining, except for the costs of collecting and organizing the information about U.S. Government inventions. Federal R&D agencies report a marked upsurge in their patent licensing activity as a result.

The program does require 8 people, however, and has a limited potential because of the undeveloped state of most U.S. Government inventions.

(b) Fund the commercialization of U.S. Government inventions.

This action would embrace two somewhat different functions: developing the invention to a prototype stage, where commercial potential could be assessed with reasonable risks; and further promoting its commercialization by sharing start-up costs with the commercial exploiter.

Major disadvantages to this action, other than the money and staff to administer it are:

- the deep-rooted suspicious and "you go your way; I'll go mine" attitudes between Government and industry;

- The dogma that inventions resulting from U.S. Government R&D should be public property, regardless of whether this actually results in non-use; and

- the administrative requirements in managing such a program, which would be similar in size and scope to the largest of private U.S. R&D enterprises.

However, the DoC has been directed by the President to develop plans for more aggressive exploitation of U.S. Government inventions, and actions similar to this proposal are becoming routine governmental functions in other nations.

A Government-sponsored invention development and licensing function is performed in every other industrialized nation, and in many of the semi-industrialized nations (e.g., Mexico). The organization performing this function usually obtains proprietary rights to inventions arising out of Government-funded laboratories and frequently assists in the development of privately

sponsored inventions, with a sharing of rights. These nations have set up independent corporations for this purpose because R&D performers usually give this function little or no attention, and the need for management flexibility in a commercial sense.

A variety of financing arrangements are used to support the development of inventions; including grants, loans, grants convertible to loans in the event of successful projects, and loans convertible to grants in the event of unsuccessful projects.

Such organizations have been successful. Some of them have been very successful, such as ANVAR of France, and its counterpart in Australia. ANVAR consummated nearly as many royalty bearing licenses in 1975 (many in the U.S.) as all U.S. Government agencies did without royalty, and was completely self-sustaining. The Research Development Corp. of Japan, a newer organization, was 2/3 self-sustaining on a budget of $10 million. The first of all these agencies, the NRDC (UK) continues to have a record of success

*STIMULATION OF INNOVATION THROUGH FEDERAL PROCUREMENT POLICY

Issue: Federal procurement policy in its present form does not stimulate technological innovation.

Background and Analysis: Present procurement policy, as outlined in the Federal procurement regulations, favors procurements made with maximum competition, using Federal specifications, and the awarding of contracts to the low acquisition price bidder. While these principles are designed to insure that Federal procurements will be made in an open, fair, and honest manner, they tend to result in the purchasing of products with the lowest common denominator with respect to technology. On the other hand, use of procurement incentives such as life cycle costing and performance specifications, while departing from the normal policies of procurement, can at the same time satisfy the requirements of fair, open and honest procurement and provide incentives to suppliers to bring technological innovation to Government and commercial markets.

Possible Actions:

(a) Rely on ETIP experimentation with Federal procurement policy to foster policies favorable for innovation.

The procurement experiments of ETIP have demonstrated the possibility of cost-effective modifications in the procurement activities of specifications, and life cycle costing, and it is planned that future experiments should be in the area of value incentive provisions. The ETIP experimentation mode of working closely with various agencies is an effective means of introducing new procurement concepts to the agencies.

On the other hand, the experiments are limited in size and scope and may not be the fastest means of implementing innovation-stimulating procurement practices throughout the Government.

(b) Make creation and diffusion of innovations a more prominent objective to all Federal procurement policy.

Over the long run, this policy might have a high social benefit/cost ratio.

It would probably meet with opposition from beneficiaries of the present policy. Before mandating a Government-wide policy, it would be wise to determine through experimentation the best procedures to follow.

FEDERAL PATENT POLICY

Issue: The great variety of existing Federal patent policies with their emphasis on Government ownership of inventions is a hindrance to the development and transfer of technology developed with Government funds.

Background and Analysis: Presently, there are more than a score of statutory policies for handling the proprietary rights on inventions arising from Government-funded R&D. Most of these policies mandate Federal ownership of the inventions. The great variety of policies is confusing to would-be contractors, and the emphasis on Government ownership dissuades some well qualified companies from taking Government contracts.

A bill has been drafted which would establish for the first time a uniform Federal policy on patentable technology and other intellectual property resulting from Federally-sponsored research and development. The draft bill establishes policies for (1) the allocation of rights to all inventions (contractor and Federal employee) which result from Federal R&D programs, (2) protection of these invention rights through domestic and foreign patenting, and (3) licensing and commercialization of the patented and related technology. The bill provides for contractors to retain ownership of inventions resulting from Federally-sponsored research where they have sufficient interest to seek patent protection and declare an intent to commercialize the invention. The public interest is protected by reserving strong march-in rights to the Government. Enactment of the draft bill would repeal, amend, or abolish the numerous existing differing legislative and Presidential Federal patent policies, and permit maximum utilization of the technology resulting from current Federal R&D annual expenditures of approximately $20 billion.

The draft bill, prepared by the Government Patent Policy Committee of the Federal Council on Science and Technology, has been circulated by OMB to the Executive Departments and Agencies for official comment. Upon receipt of the comments, they have and will be accommodated, as appropriate.

Possible Actions:

(a) Introduce the draft bill during the first session of the 95th Congress.

The overwhelming majority of policy level officials, both Presidential-appointees and career, now agree with the proposed bill. It is especially noteworthy that the Department of Justice had indicated no objections to the bill, overturning a longstanding policy position set forth in the 1947 Report of the Attorney General, at the GPPC level but did do so at the OMB clearance.

(b) Take no action.

The chances are increasing that the House Committee on Science and Technology, which held hearings on this subject during the closing days of the last session, will itself sponsor legislation in this area, thereby reducing the Executive Branch's influence on the content of patent policy.

MODIFICATION OF ANTITRUST LAWS TO PERMIT COOPERATIVE R&D

Issue: Would cooperative R&D leading to socially useful technological innovation occur if antitrust laws were modified?

Background and Analysis: High risks and large investments are involved in the development of many new energy, materials, environmental control and other sophisticated civilian technologies. This has lead to the desirability of industry-government and multi-company cooperative research and development programs. However, companies are reluctant to engage in these cooperative efforts because of their perception of the Government's antitrust posture. U.S. companies are placed at a disadvantage in both the domestic and international markets with respect to foreign companies whose governments encourage and participate in joint R&D undertakings.

Present antitrust opinion frowns on cooperative R&D among competing firms because it is construed as a form of collusive behavior tending to restrain competition. Antitrust action tends to modify the structure of industry (i.e., reduce economic concentration through vertical or horizontal mergers). Studies by Kamien and Schwarts have shown a generally weak relationship between market concentration in an industry and the rate of innovation.

Studies by Nelson, Freeman, and Scherer indicate that firms gain from cooperative R&D in trade associations which do basic or exploratory research. Research leading to specific products is avoided both because of fear of antitrust action and because of a desire to compete with differentiated products.

Possible Actions:

(a) Request ETIP in cooperation with the Justice Department to conduct experiments and studies which demonstrate the effect of antitrust law relaxation on cooperative R&D leading to socially desired innovation.

ETIP now has a related project (not involving antitrust law relaxation) to demonstrate the effectiveness of group action in R&D to develop flame retardant treatment for fabrics. The

experiments and studies could address the problem of how best to relax antitrust laws so as to encourage additional R&D while preserving the stimulus of competition.

(b) Introduce legislation to relax antitrust restrictions on R&D cooperation by small firms but not large firms.

It is appropriate to focus on small firms since they cannot individually devote the necessary resources to carry out high risk, high cost projects. Problems here include the monitoring of firms to insure that qualified firms are not engaged in anti-competitive R&D.

*MODIFICATION OF REGULATORY INHIBITIONS ON INNOVATION

Issue: Can one determine how to modify existing regulations in a way that will provide incentives for technological innovation:

Background and Analysis: Very little attention is being devoted, either legislatively or administratively, to modifying the existing regulatory structure in a way which would improve the climate for beneficial technological change. There is a need to develop predictive methodologies which would permit the determination of adverse consequences in advance of the promulgation of regulations. The data base on regulatory impact has not been sufficient to provide clear directions to regulatory reformers. Recent studies indicate that some reform ideas may not be well founded, and also that some conventional wisdom may be more myth than fact. (See, for example, the forthcoming report for ETIP, Analysis of the Dynamics Underlying Regulatory Chages having a Significant Effect on Innovation, Charles River Associates). Fortunately, both the Administration and the leading Congressional reform bills call for a timetable specifying data gathering leading to regulatory changes by 1980. Hence, it is critical that more objective information be gathered and analyzed as soon as possible. To some extent, knowledge about the process of regulatory modification and the resulting impact can only come through experimentation with careful evaluation.

Possible Actions:

(a) Under OSTP leadership, recommend modifications to those regulations and existing Policies of regulatory agencies which inhibit innovation.

Specifically:

1. Encourage further selected, intensive studies on regulatory impact such as the Council on Wage and Price Stability, Productivity Commission sponsored work on the steel industry.

2. Conduct comprehensive study reviews of general regulatory impact, at least to ascertain the extent to which current literature is accurate.

3. Design and implement regulatory policy experiments through ETIP and other sources in as many regulatory areas as are feasible, keeping in mind the need to fashion a general change model.

4. Integrate and coordinate current government and private sector regulatory reform efforts.

These actions could provide large benefits to society at large at little cost. Studies and experiments are called for since it is not known conclusively whether regulations on the whole have had a net positive or negative effect on innovation. It would be instructive to identify the characteristics of regulations and the regulatory process which have been found to be beneficial, to serve as a guide for future action. OSTP could draw on the resources of several agencies, and would be in a position to bring the recommendations to the attention of high-level policy-makers.

On the other hand, there would probably be opposition by affected interest groups. Most regulatory policy changes would require Congressional approval. Some would claim that enough is known about the shortcomings of regulations and the regulatory process now that remedial actions could be taken without the need for additional studies.

**TREASURY INITIATIVES FOR NEW TECHNICAL ENTERPRISES

INDIRECT FINANCIAL AID

Issue: The number of innovative technology-based companies that have started recently is much less than a few years ago.

Background and Analysis: In 1972, there were over 400 small-company public issues of which approximately a quarter were for small technical companies. New small-technical-company issues (for companies with net worth of less than $5 million) amounted to $349 million in 1969, $6 million in 1974, $10 million in 1975, and -- with the improvement in the stock market -- $15 million in the first two months of 1976. Some of the decrease may be due to the two recessions since 1969; the reduced procurement by DoD and NASA for products embodying advanced technology; and the fundamental problems of inflation and capital shortages. Whatever the reasons for the decrease, it must be of uppermost concern because small technical enterprises have traditionally been the source of innovative and competitive vigor of the economy on both the domestic and international fronts. Rise of small and successful technical enterprises is also a very important part of the "American opportunity image" which is of great socio-political value to our system.

Several possible options exist for stimulating the formation of new technology enterprises.

Possible action: The Department through ETIP should conduct studies with the Department of Treasury and the Securities and Exchange Commission, and make recommendations to the President one year after initiation of the studies on the following possible measures:

(a) The Federal Government provides guarantees for up to 50 percent of loans granted by SBIC's or other financial institutions to new technology-based enterprises.

This type of policy is in wide use abroad, especially in Japan. Though a recent study for NBS/ETIP by the Charles River Associates argues that our small, technology-based firms currently depend almost entirely on equity as a source of funds, there is no reason to believe that they would not change their pattern of financing if the availability of loan funds were improved.

(b) Provide more generous capital gains tax treatment to new technical enterprises.

Preferential tax treatment can be justified if it can be

determined that structural changes in investment conditions have caused a relatively greater increase in the levels of risk associated with investments in small technology-based firms. The Morse Report for DoC/CTAB makes this assertion. The question is, however, whether this policy would generate sufficiently large funds to make the difference or some other policy, such as reduction of the enterprises taxes, would do this better. The Charles River study for NBS/ETIP, estimated through a sensitivity analysis that a 10 percent reduction in the capital gains tax would, at most, increase the flow of venture capital by 10 percent. This could mean additional financing for only about 25 additional firms per year.

(c) Allow Small Business Investment Corporations to be incorporated under Subchapter S or to be organized as partnerships so losses can be taken at the individual level.

This measure would undoubtedly promote SBIC investment in new technical enterprises, but also lead to some speculative excesses.

(d) Provide for greater liquidity of small technical enterprises by (1) broadening SEC Rule 144 or 237 to allow a larger fraction of securities held to be sold in each six-month period, (2) SEC allowing the marketing of unregistered stock on a less restrictive basis, and (3) IRS allowing "good will" to be written off in merger accounting before tax rather than after tax.

Reduced liquidity prevents the venture capitalist from turning over his portfolio of small firms at an optimum rate, whether the objective is to maximize a profit or minimize a loss. The constraint on the liquidity of an equity investment (the only type of investment which is relevant for small technology-based firms) results from SEC Rule 144. This rule was instituted to protect investors from unstable "new issues" markets. It is ironic that reduced liquidity can itself be a destabilizing force.

It is not clear that this action would permit increased liquidity and at the same time maintain protection of investors. Indeed, the policy might be conducive to a large incidence of issuance of fraudulent securities and/or artificial inflation of net worth of speculative enterprises -- exactly the kind of phenomena which the SEC and IRS regulations in question are intended to prevent.

(e) Provide for more favorable stock option incentives to founders and key personnel of new technical enterprises by (1) increasing the qualified options time from the current five to ten years, and (2) postponing the tax on income derived from the exercise of nonqualified options until the shares have been sold rather than paying the tax at the time the option is exercised.

A serious shortage of capital has been experienced by individuals and organizations looking for seed money or "start up" capital. Due to inflation and increased regulation, start-ups require more money that was needed five to eight years ago. It is therefore even more important today than in the past to provide strong incentives for starting up new technical enterprises.

Though it is not clear that more liberal founder stock options providing longer term equity investments won't dilute the expected rate of return for other investors, especially venture capitalists, the option probably merits serious consideration.

(f) IRS to make investments in new technology-based enterprises (by individuals, institutions and corporate entities) tax deductible until the investments are sold, analogous to certain real estate transactions.

This would greatly reduce the risk of the investments and, hence, greatly increase the flow of investible funds into such ventures.

However, the policy would entirely remove "dollar control" of the quality of the enterprises to be created, since all failures would be paid for by the taxpayer.

(g) IRS to provide for a graduated corporate income tax rate structure to benefit new technology-based enterprises.

This policy would facilitate internal generation of liquid funds at the time when the attraction of outside capital needed for expansion is most difficult. Moreover, the policy would be consistent with the overall philosophy of U.S. society underlying the "progressive" income tax structure.

The foregoing analysis suggests that the most promising options for the purpose are (a), (e) and (g).

INTERNATIONAL STANDARDS

Issue: U.S. trade interests are likely to suffer unless U.S. is effective in development of international standards.

Background and Analysis: The rapid growth of technology has resulted in the proliferation of foreign national standards which may form technical barriers to international trade of U.S. products. For example, different standards for sweep and timing in TV receivers require costly modification of U.S.-made TV's before they can be sold in Europe; hence, U.S. exports of TV's to Europe are negligible.

The development of international standards to reduce the incidence of standards-related trade barriers is accelerating, yet there is a need for at least 10,000 more such standards. The increasing likelihood of national adoption of these international standards could prove troublesome for U.S. export (and import) interests if such standards are incompatible with U.S. standards and engineering practices. International standards can become referenced in foreign government regulations and government procurement specifications. The proposed GATT (General Agreement on Tariffs and Trade) Standards Code would give added impetus to national adoption of international standards. Their adoption by developing countries is especially probable. A preliminary study by the National Bureau of Standards found that 52 percent of U.S. exports are highly sensitive to product standards.

Our principle trading competitors are devoting considerable resources to ensuring the compatibility of international standards with their own engineering practices. The Japanese government provides 100 percent of the income of the Japanese member of the principal international standards-writing organization (the International Organization for Standardization); the French Government provides about 50 percent. The U.S. Government neither financially supports the U.S. member (the American National Standards Institute) nor officially recognizes it for this important responsibility.

Possible actions:

(a) Support Title II (International Standardization) of the Voluntary Standards and Certification Act of 1976 (S.3555).

Title II provides a framework to strengthen U.S. effectiveness in international standardization activities. This bill will probably be reintroduced next year. In testimony on this bill in June, the Department indicated support for the concept of Title II but indicated that its provisions should be carefully analyzed and redrafted to reflect criticisms directed at an earlier bill (S. 1761, the "International Voluntary Standards Cooperation Act of 1973") on this

subject. Continued support of the thrust of Title II, with the above reservations, is merited. However, the Department should ensure that such support does not imply agreement with other provisions of this Bill. Depending upon the eventual content of Title II, or comparable legislation, some opposition from private sector standards interests may be forthcoming.

Alternatively, if S. 3555 is not reintroduced next session, the Department could prepare and submit legislation on international standardization, taking into account past bills and testimony on the subject, including Title II of S. 3555.

(b) Propose a joint Federal/private sector study to identify U.S. needs in the international standards area, assess existing measures to meet these needs and prepare an action plan to meet unfulfilled needs.

Gaining the positive cooperation of key private sector standards interests would be important. This could prove difficult in view of limited resources in both the Federal and private sectors, and the possible fear by private sector standards interests that such an effort could become a forerunner of unwanted Federal interference in U.S. participation in non-treaty international standards organizations. In any event, the identification of specific problem areas is a necessary step in an attempt to strengthen U.S. effectiveness in international standards activities. The Secretary could call upon the Interagency Committee on Standards Policy to consider such a study and to explore its possible implementation with the private sector.

IMPROVED EXPORT CONTROL OF DESIGN AND MANUFACTURING TECHNOLOGY

Issue: There is no Government Department responsible for the assessment of foreign technology developments in non-communist countries. Consequently, present export controls inadequately protect national security and economic interests involving critical design and manufacturing technology.

Background and Analysis: Current policies related to international technology trade are based upon the dominant U.S. position at the end of World War II. Because of its significant technological lead, the U.S. was able to impose restrictions not only on U.S. exports but also those of our allies to communist countries. The export of military equipment and all commercial products capable of producing military equipment, as well as related technical data, was prohibited to communist countries.

Although the 1969 revisions of the Export Control Act required controls to be removed from products available from other foreign countries, there was no office established to assess technology developments in non-communist countries in order to determine what modifications should be made in the U.S. control lists. Consequently, policies and procedures have continued to concentrate on the restriction of technological products which are not only available from foreign countries, but which have little significant military value to the USSR.

This lack of foreign technology assessment also led to the formulation of international trade policy negotiations which did not adequately provide access to foreign markets for U.S. technological products. Along with misdirected U.S. export promotion guidance, many U.S. manufacturers had no alternative to the sale or licensing of their technology in order to gain access to these growing foreign markets. Additionally, unilateral U.S. export restrictions on shipment of technological products to communist countries have increased the pressure on U.S. manufacturers to produce outside of the U.S. to gain some share of the more rapidly growing communist markets.

The lack of control over critical design and manufacturing technology to any foreign destination has reduced the ability of the U.S. to maintain its technological superiority over the USSR. The unnecessary restrictions on U.S. exports of technological products to communist countries have reduced U.S. employment in industries which are also facing reduced military requirements.

An element in the technology export control problem is the question of whether it is in the long term interest of the United States to freely export technology, per se, as distinct from the export of products emobdying technology. It has been alleged that the export of technology, per se, to be used in foreign activities competitive with U.S. activities results in the loss of U.S. product exports, the worsening of our balance of payments, and an increase in U.S. unemployment.

Possible actions:

(a) Establish within the Office of Science and Technology a capability for the assessment of technology developments in non-communist countries based upon information available from government and industry sources.

There are presently various uncoordinated activities by U.S. military, intelligence and other government agencies related to the collection of technical information outside of the U.S. Simultaneously, all U.S. manufacturers actively engaged in exporting are continuously assessing foreign market potentials and their competitors. While some opposition might arise to this new role for the Commerce Department, such an assessment capability somewhere in the Government is required by the Export Administration Act.

(b) Recommend that the Department of Defense be required to provide a continuing technical assessment of its position vis-a-vis the USSR and to identify for the Commerce Department those areas of commercial technology which should be controlled in some manner to all foreign destinations.

Present U.S. export controls are administered by the Commerce and State Departments, both of whom consult with the Department of Defense as to possible military or other strategic implications. There is no requirement, however, for the Defense Department to provide policy guidance in advance so that Commerce and State policies and procedures for U.S. manufacturers and exporters are maintained on the basis of current and future technological trends. One of the recommendations of the recent study by the Defense Science Board was that such a continuing responsibility should be established within the Defense Department, but there has not yet been endorsement of such action by any other Department or the President.

(c) Initiate the establishment of a joint Government/Industry Task Force to undertake a 1-year review of the entire export control system, as mandated by the Export Administration Act, in order to provide guidance for future legislation and policy actions.

Various studies have been undertaken in recent years related to different phases of the technology control or transfer problem. None of them, however, have been specifically created as part of a planned policy review and implementation process by the Executive Branch of Government.

(d) Make all exports from the U.S. of technology, per se, (data and know-how related to the design and/or production of specific products or processes) subject to Government approval (license) based on the potential contribution to the U.S. balance of payments, employment opportunities, national security and the country's responsibilities for the political, strategic, and economy interests of the international community.

This action would be aimed at minimizing any loss of U.S. product exports and jobs associated with the accelerated buildup of foreign competition with U.S. technology. It would meet with opposition by U.S. multinationals, and could result in economic and political retaliation by affected foreign governments.

NOTE: An issue paper with another perspective on this question has been included under the Domestic and International Business Administration items.

TECHNOLOGICAL SUPPORT OF LESS-DEVELOPED COUNTRIES

Issue: The less-developed countries (LDC's) of the world often called "Third World Countries," make urgent claims upon the United States and other highly industrialized countries for assistance in industrializing their economies. What actions should the Federal Government take in response?

Background and Analysis: Since World War II, the United States has contributed technical and financial assistance to the nations of the Third World. This assistance has many forms: financial grants, technical advice, training in U.S. universities, funding for multilateral agencies (such as the United Nations Development Program, the World Bank, the International Monetary Fund, the InterAmerican Bank, and others), provision of food, the Peace Corps, and research in American institutions to solve technical problems of the Third World. As the economies of the other industrialized countries improved, they too become major contributors to the worldwide assistance program. At the present, many Western European countries contribute a substantially larger share of their GNP to Third World development than does the United States. Substantial though the total assistance effort may be, the less-developed countries say it is not enough and virogously demand the creation of a "New Economic Order," in which their share of the world's goods will be larger.

A major feature of these demands is improved access to commercially important technology on terms more favorable to their industrial firms than has been customary in the past. They demand that the U.S. Government regulate the behavior of U.S. industrial firms engaged in international trade; that the U.S. Government devote a certain fraction of its R&D expenditures to solution of LDC problems; that the U.S. increase its funding for financial and technical assistance that will help develop the technological infrastructure of the LDC's; and that the U.S. Government make American technology readily available. Some of the actions requested are not within the authority of the U.S. Government, under present law, to grant. Others would require Congressional action on appropriations that are probably politically unacceptable. However, some new Federal actions could help the LDC's progress toward their technological goals, improve the international political climate and help develop mutually profitable trading partnerships between the U.S. and the LDC's.

Possible actions:

(a) Participate more actively in the international effort to develop a mutually agreeable "Code of Behavior" for multinational corporations, and to encourage multinational corporations to invest in LDC's.

Success in reaching a mutually agreeable code would reduce the acrimonious tone of many governmental and non-governmental negotiations, promote international trade, and heighten international cooperation in other fields. However, if agreement is really impossible because of irreconcilable differences in philosophy, continued discussion of the issues, particularly with the U.S. Government as an active participant, could exacerbate already difficult relationships.

(b) Work with the Department of State to organize additional U.S./LDC joint commissions for economic and technological collaboration.

Such commissions provide a framework on which an action program can be based; that is, they are a mechanism for identifying projects of joint interest and for carrying them out. Experience with the commissions established so far is not encouraging; they are slow, bound up in red tape, and not action-oriented. Before initiating any new commissions, we must learn how to make the existing ones more effective.

(c) Participate with the Department of State in organizing consortia of developed countries to participate jointly in commission-type programs for economic and social development with specific LDC's.

Such a commission would share the total effort among several countries and might produce innovative ideas for development. On the other hand, reaching agreement in a finite time among the participating developed countries on how to share costs and benefits would be nearly impossible, and such a commission would certainly be more cumbersome and slower to act than a bilateral commission.

(d) Cooperate with the Departments of State and Treasury in working through the World Bank to plan and execute the industrial development of Third World countries.

The World Bank is a highly respected, effective organization and its intervention would be well-received. However, the resources of the World Bank are already fully committed; the management of the Bank would say that they already assist economic development through their loan programs and the most urgent need is additional capital for investment; and U.S. priorities would be only one set among many that would be considered by the Bank.

(e) Work with the Department of State to expand the level of support for technological development in traditional ways.

The many existing channels for technological support, while not efficient, are in place and can be used readily. This option might also prove the least expensive for the U.S. However, support for technological development is given a low priority in the programs of the existing channels, particularly in U.S. AID, where technological development is not one of the areas specified by Congress for AID action. Further, the traditional multilateral mechanisms have not demonstrated high effectiveness in such projects.

(f) Promote mutually advantageous cooperation in industrial R&D not being pursued by U.S. private interests.

Duplication of expensive projects could be minimized, while the U.S. could get some return from possibly unique resources (climate, minerals, skills) in the LDC. On the other hand, choice of projects to satisy all conditions could be difficult; to avoid conflict with U.S. private interests, the projects chosen could be expensive or those with low probability of success.

(g) Assist technological infrastructure development in LDC's.

Relatively small U.S. resources of money and manpower are required, while the ability of LDC's to undertake many kinds of technological enterprise is substantially enhanced. At the same time establishment of broad infrastructure may divert LDC resources from practical projects with more immediate pay-off.

KEY ISSUES

Title: Environmental Energy Conservation in Industry

Background: The oil embargo of late 1973 emphasized the importance and need for energy conservation in the United States. Since the industrial sector accounts for about 40 percent of the total domestic energy consumed, the U.S. Department of Commerce, coordinating with the Federal Energy Administration, launched a voluntary energy conservation program. The two agencies initially met with representatives of the six largest energy-consuming industries, and later with representatives of other energy-intensive industries to encourage the development and adoption of energy conservation programs. During these meetings, top-level private management contended that pollution control requirements limited energy conservation efforts in two respects. First, pollution control facilities consume considerable amounts of energy; secondly, such facilities preempt capital that would otherwise be used for energy-savings investment. To investigate these assertions, the Office of Environmental Affairs initiated a series of studies to determine the amounts of energy required by each major energy-intensive industry to implement existing Federal, State, and local pollution control laws. These studies will establish the relationships among environmental quality, energy conservation, and the associated economic costs.

Issue: Industry, which utilizes more than 40% of the energy consumed in this country, has contended that substantial amounts of energy are required for environmental control purposes, and that the needed additional capital for future environmental control preempts capital that could otherwise be used for energy-savings investment.

At question is the optimum balance of several National objectives, maintenance and enhancement of our environment, the conservation of energy resources, and the promotion of a second economy, as they relate to industry.

Analysis: The first energy/environmental study addressed the iron and steel industry and was completed in 1976. This study revealed that achievement of existing environmental standards for air, water, and solid wastes would increase energy

consumption by approximately 10% of the total 1972 industry use, or 323 trillion BTU's, based on 1972 production levels. This is equivalent to 161,000 barrels per day of oil. Preliminary findings in other energy-intensive industries under study -- primary aluminum, and fossil fuel power plants -- indicate consumption percentage figures of similar magnitude. Studies of the pulp and paper industry and the petroleum refining industry are currently being undertaken.

A second phase of studies, already begun for the iron and steel industry, is designed to provide the necessary information on specific technological options for controlling pollution in the above-named energy-intensive industries. The objective of this further analysis is to assist industry and government in identifying desirable technical remedies to reduce the amount of energy used for pollution control in an environmentally, economically, and legally acceptable manner. The information developed in the entire study series will assist in a possible formulation/reformulation of Federal environmental regulations, and the establishment of industrial energy conservation program targets.

Schedule: The energy/environmental analysis of each industry listed below comprises two phases. A phase 1 study is to develop and quantify the extent of energy use associated with existing pollution control regulations and identify energy-related research needs. A phase 2 study completes the specific industry analysis by quantitatively examining the technologically feasible tradeoffs among environmental protection, energy conservation, and economic welfare while maintaining environmental quality.

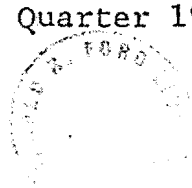
Iron and Steel Industry
- Phase I Study Completed----------1st Quarter 1976
- Phase 2 Analysis Study Estimated Completion (ASEC)----------2nd Quarter 1977

Fossil Fuel, Steam Electric Generating Industry
- Phase 1 Study Estimated Completion--------4th Quarter 1976
- Phase 2 ASEC----------3rd Quarter 1978

Pulp and Paper Industry
- Phase 1 Study Estimated Completion--------1st Quarter 1977
- Phase 2 ASEC----------3rd Quarter 1978

Aluminum Industry
- Phase 1 Study Estimated Completion--------1st Quarter 1977
- Phase 2 ASEC----------3rd Quarter 1977

Petroleum Refining Industry
- Phase 1 & 2 Estimated Completion----------4th Quarter 1977



ENVIRONMENTAL ASSESSMENT PROCEDURES FOR INDUSTRIAL PROJECTS

Background:

Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 requires the preparation of an Environmental Impact Statement (EIS) for "major Federal actions significantly affecting the quality of the human environment."

Five years of experience with the NEPA process have revealed major shortcomings which require careful diagnosis and correction. It has become clear that EIS's are not sufficiently useful to decisionmakers and are frequently considered more of a procedural requirement than a substantive input to the decisionmaking process. Moreover, the information sought for inclusion is that which is thought to be needed in making a specific Federal decision. However, most projects involve a series of decisions made by private individuals, business firms, and local and state agencies, long before the project comes up for Federal decision. During this time, the project usually gains considerable momentum, and possibly more effective and desirable alternative options are foregone without the benefit of the information and public participation involved in the Federal EIS process.

Issue:

Is the present format of the Federal EIS process adequate to utilize the Federal information and expertise in environmental, economic, and other considerations related to the initiation of the major Federal action?

Analysis of Issue:

A study has been undertaken to evaluate the impact of EIS's on private and governmental decisionmaking. This study involves an analysis of representative case studies, the development of prescriptive procedures, and suggested improved institutional arrangements.

This study has been undertaken in the fourth quarter of 1976.

Schedule:

Study completion . . . . . 2nd Quarter 1977

IMPACT OF ENVIRONMENTAL LAW AND REGULATIONS ON COST AND RATE OF DEVELOPMENT AND TRANSFER OF TECHNOLOGY

Background: It has been asserted that the adoption of environmental laws and regulations leads to accelerated development of the technology needed to implement the laws and regulations. At the same time, however, it has been alleged that the premature enforcement of such laws and regulations frequently leads to narrowing, or even eliminating, options for development of the best total technology from the standpoint of cost effectiveness or energy efficiency.

Issue: Does the passage of environmental laws and promulgation of regulations requiring emission levels more stringent than those achievable by existing best practicable technology within an arbitrary time period lead to an optimum technology?

Analysis: This issue is of major importance both in terms of assuring that the Nation's environmental goals are achieved in the most effective manner, and also in assuring that the long-term effects of environmental laws and regulations are not counter-productive to their stated objectives..

Schedule: A study will be initiated in Fiscal 1977 to develop a model for predicting the possible impacts of proposed laws and regulations on the development, transfer and application of such technology.

IMPLEMENTATION OF POLICY PRINCIPLES TO BE FOLLOWED UNIFORMLY BY ALL FEDERAL AGENCIES WORKING WITH NON-FEDERAL STANDARDS-SETTING BODIES

Background:

The Interagency Committee on Standards Policy (ICSP) was established by charter of the Secretary of Commerce on April 1, 1975. It is chaired by the Director of Commerce's Office of Product Standards. Its purpose is to facilitate the effective participation by the Federal Government in domestic and international standards activities, and to promote the development of uniform policies among agencies participating in these activities.

The establishment and application of appropriate standards for the characteristics or performance of goods and processes can contribute significantly to national and international prosperity, economic growth, and public health and safety. A well-considered Federal standards policy reflecting the public interest can expedite the development and adoption of standards which will stimulate competition, promote innovation, and protect the public safety and welfare. Additionally, a well-implemented Federal national standards policy would promote national defense objectives, reduce costs, and expand domestic as well as international trade.

After more than one year of deliberations the ICSP has developed a set of policy principles aimed at achieving the objectives described above, and has forwarded them through the Secretary of Commerce to the Office of Management and Budget (OMB) with the request that they be issued as an OMB Circular directive. Issuance of that Circular is expected to occur in December 1976.

Issue:

In accordance with the proposed OMB directive the Director of the Office of Product Standards (OPS), responsive to the committee's decisions, is charged with the responsibility for coordinating the actions of the 22 member departments and agencies of the ICSP in implementing the policy principles. As part of such implementation the actions of the member departments and agencies are to be monitored and OMB kept advised periodically so that any deviations from the policies may be acted upon as appropriate. The policy principles will establish uniform practices and procedures for all Executive Branch agencies working with commercial (non-Federal) standards-setting bodies to develop, improve and use standards for materials, products, systems and services. Federal reliance upon the principles will lead to reduction of the cost of developing standards and minimize confusion among those who deal with them.

Studies are underway to determine the possible impact of the proposed GATT (General Agreement for Tariff and Trade) Standards Code dealing with standardization in the private sector as well as the Federal Goverment, both in the United States and abroad. Standards can be employed

as non-tariff barriers to trade. The GATT is intended to avoid the imposition of such barriers. The GATT Standards Code will affect the activities of many Federal agencies and State and local government instrumentalities that write standards, prescribe test methods, or certify the conformity of products with standards. OPS is directly involved in the study involving the prospective impact of the Code on Federal Government agencies, and indirectly through its chairmanship of the Interagency Committee on Standards Policy (ICSP) is concerned with the study on the impact of the Code on State and local governments. In each situation OPS will be seeking to promote an efficient and effective international standards system which would broadly meet the objectives of the proposed GATT Code while optimizing economic benefits for the United States.

Schedule:

The issuance of the OMB Circular establishing the uniform, Federal Government-wide policies relative to participation in domestic and international standards activities is expected to occur in December 1976. Plans for implementation of that directive have been indicated by OPS and are already underway. Implementation guidelines are expected to be completed by February 1977 and each agency is expected to be publishing its respective implementation procedures with a month or so thereafter. The monitoring function will begin at about the same time that the guidelines are completed. This function will continue on an indefinite basis, with periodic reports being made to OMB together with recommendations for actions that may need to be taken if any of the concerned departments or agencies appear to be deviating substantially from the policies set forth in the OMB directive.

NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM

Background:

The national need to accredit testing laboratories that evaluate products for conformance to standards was the topic of a 1970 conference convened by the National Bureau of Standards. An ad hoc committee selected by that conference developed a concept of a voluntary laboratory accreditation program. This concept received a broad informal review during 1972. In April 1973 the National Business Council for Consumer Affairs, in its publication, "Safety in the Marketplace", recommended that the Secretary of Commerce study the merits of establishing a quasi-public national laboratory accreditation board. In response to a request for views on the need for legislation to establish a national laboratory accreditation program, the Department, in April 1974, advised Senator Magnuson, Chairman of the Senate Commerce Committee, that the Department was considering the establishment of such a program under its existing authority. The Department promulgated proposed procedures for the National Voluntary Laboratory Accreditation Program (NVLAP) in May 1975. In response to extensive comment received in two public hearings and in correspondence, the proposed procedures were revised and were made effective as Title 15, CFR, Part 7 on February 25, 1976. These procedures were incorporated into Title III, Senate Bill S 3555, which was introduced in June 1976 but not acted upon by the 74th Congress. A major difference of this legislation would require all Federal agencies having need for formal qualification of testing laboratories to utilize NVLAP services and those laboratories accredited under its procedures.

Issue:

Product testing laboratories in the United States number in the thousands. Many private organizations and governmental agencies have initiated laboratory inspection and test sample audit programs. Generally, these programs operate independently, and use widely varying criteria and methodologies. Approval of a laboratory under one jurisdiction does not guarantee approval by another. A national system for testing laboratory accreditation is urgently needed to coordinate existing efforts, to provide for uniform national recognition with reduced duplication of assessment activity, to increase competition among qualified laboratories, and to promote needed assurance for users of testing laboratory services. Internationally, importing nations increasingly require some form of national recognition and accreditation of testing laboratory services. There is widespread interest in a national system among Federal and state agencies, Congress, professional and trade associations, major industries, laboratories, small businesses and individuals. Benefits will accrue to laboratories, standards writing bodies, Federal and state agencies and other users of laboratory services. Leverage derives from potential legislative alternatives, from interest in deregulation, from users increasingly seeking "nationally recognized" laboratories, and from states seeking harmonization of programs that impact upon interstate commerce.

Analysis of Issue:

An effective national system cannot be achieved without Federal Government participation. The Federal Government is a major initiator and user of laboratory assessment activity. The Federal Government is the only authority that can act legally to promote cooperation and coordination of states' interest in removing barriers to interstate trade. With Federal participation, the national system can facilitate due process in accreditation matters and help ensure that the system does not hinder trade. DoC has the confidence of and long-term relationship with industry, trade and standards associations, business and technical societies to promote a national system for laboratory accreditation, and the National Bureau of Standards (NBS) has the broad technical base to assist DoC regarding test method technology and laboratory evaluation activity.

For these reasons, the DoC has promulgated NVLAP. In accordance with its procedures (15, CFR, Part 7) and in cooperation with government and private sectors, NVLAP will establish laboratory accreditation programs (LAPs) in specific product areas. Thereafter, NVLAP will examine upon request the professional and technical competence of public and private testing laboratories that serve such product evaluation and certification needs, and will accredit those laboratories which meet the qualification requirements established. NVLAP will be reimbursed by fees for direct costs of examinations.

Under NVLAP procedures, potential LAP product areas are presented to the Secretary for his consideration by interested parties. The Secretary determines, after consultation with affected interests and public review (including hearings, if requested), that a product area needs a laboratory accreditation program (LAP). If a LAP request is believed to affect an existing or developing program of a Federal regulatory agency, the Secretary must seek the views of the head of that agency. For each LAP initiated an appointed advisory committee of government and private members recommends evaluation criteria and methodology, subject to public review and the Secretary's approval. During development and public review a LAP will receive input and cooperative support from affected Federal and state agencies and private sector interests.

After promulgation of final criteria for a LAP, interested laboratories apply for accreditation and pay established fees for examination and periodic audit. As each LAP is established, it will be supported by appropriated and/or other agency funds and grants and then will obtain self-support through fees charged for laboratory examination services. NBS provides technical, advisory, and occasional supporting services and is responsible for provision of qualified laboratory examination services, primarily by contract to qualified private individuals or firms. Other governmental and private agencies will be sources for required technical expertise. The Office of Product Standards (OPS) provides policy guidance and administrative support. A self-sustaining NVLAP is envisioned by 1985.

Schedule:

The planned schedule of resource committment to NVLAP is:

FY:	77	78	79	80	81	82 thru 84
	$236K	$990K	$1000K	$1000K	$1000K	Self support from fees increases to $900K

The planned schedule of NVLAP events is:

Establish NVLAP priority schedule for initiation of requested LAPs,* and publish in Federal Register preliminary finding of need for first LAP	1st Quarter '77
Conduct public hearing, analyze oral and written comment, publish final finding of need; establish criteria committee for first LAP	2nd Quarter '77
Publish in Federal Register, proposed criteria and schedule of fees for first LAP	3rd Quarter '77
Publish in Federal Register, final criteria and fees for first LAP after conduct of hearing and analysis of comment; first LAP becomes operational	4th Quarter '77

Dependent upon availability of resources as indicated above, two or more LAPs can be sequentially initiated, developed and made operational in each following year.

*Appendix:

Request for LAPs received or in process as of November 17, 1976

Requests for Laboratory Accreditation Program
Received or in Process

Product Area	Source Organization	Status
Testing of Thermal Insulation Material	Thermal Insulation Manufacturers Association, National Mineral Wool Insulation Association, National Cellulose Insulation Manufacturers Association	Preliminary request received, formal request expected December, 1976
Testing of Concrete	National Ready-Mix Concrete Association	Preliminary request received, formal request expected December, 1976
Calibration of Power, Attenuation and Impedence Devices	Weinschel Engineering	Preliminary request received, formal request expected December, 1976
Testing of Processed Fish Products	National Marine Fisheries Service	Preliminary request received, formal request expected December, 1976
Inspection Testing of Electrical Power Distribution Systems	National Electrical Testing Association, Incorporated	Preliminary request received, formal request expected January, 1977
Testing Solar Collectors	Energy Research and Development Administration and the Department of Housing and Urban Development	Request from Energy Research and Development Administration and the Department of Housing and Urban Development is being drafted
Testing of Home Building Products	Federal Housing Administration, Department of Housing and Urban Development	Discussions underway at the request of the FHA Commissioner

Testing of Waste Water	Metropolitan Sanitary District of Greater Chicago	Formal request received, DoC is determining the disposition of the U. S. Environmental Protection Administration in accordance with the Program Procedures
Testing of Household Electronic Devices	Rothenbuhler Engineering	Preliminary request received and under analysis

NFS/11/17/76

INSTITUTION OF THE NATIONAL VOLUNTARY CONSUMER PRODUCT INFORMATION LABELING PROGRAM

Background:

In a Federal Register notice on May 25, 1976 (Vol. 41, No. 102, pp. 21389-21394) the Department of Commerce announced the intention to develop, in cooperation with consumers, manufacturers, producers, distributors, retailers, and other interested groups, a voluntary consumer product information labeling program, provided that substantial need and support for such a program would be demonstrated at three public hearings which later were held in Washington, Chicago, and Los Angeles. The purpose of the program is to facilitate consumer purchasing decisions by making available at the point of sale comparative information on key product performance characteristics and to provide manufacturers an opportunity to convey to the public the particular advantages of their products. The hearings and supplemental statements which were received indicated support for the program from consumers and small manufacturers. Larger manufacturers, particularly home appliance manufacturers, opposed the program; however, recently, the latter group has indicated that it may support the program provided it is given an opportunity to participate as members (along with representatives of consumer and other groups) of an advisory committee which would establish the criteria to be employed (a) in making a finding of need to establish a specification for labeling a consumer product, and (b) in developing performance information labeling specifications. It is planned to establish such a committee and to provide for a broad spectrum of interests, including the heavy appliance manufacturers, in its membership.

Issue:

At least eight European countries -- Denmark, Finland, Norway, Sweden, France, West Germany, Netherlands and Switzerland -- are operating voluntary national information labeling programs that provide consumers with the type of information discussed above. These programs have four features in common:

1. Manufacturer participation is on a voluntary basis.

2. The programs report levels of performance but do not set minimum levels.

3. The programs deal principally with measurable performance characteristics.

4. The programs utilize fixed labeling formats that present information to consumers in simplified form.

A proposed Department of Commerce program has been designed so as to have the same four features. It would be managed by the Office of Product Standards. Technical support would be furnished by the National Bureau of Standards. A schedule of fees would be established and charges made for use of the Department of Commerce Label and Mark (which is to be registered as a trademark in the U.S. Patent and Trademark Office) on each product. The fees will be paid into a revolving fund of the National Bureau of Standards, as authorized by statute, and shall be in amounts calculated to maximize the self-sufficiency of the operation of the program. An active program of communication with appropriate State and local government offices and agencies will be established and maintained so as to promote uniformity in State, local and Federal programs for the labeling of performance characteristics of consumer products.

Analysis of Issue:

Presidents Kennedy, Johnson, Nixon and Ford have affirmed that consumers have a basic right to be kept informed. In a Presidential Consumer Message in 1969, it was stated: "No matter how alert and resourceful a purchaser may be, he is relatively helpless unless he has adequate, trustworthy information about the product he is considering and knows what to make of that information. The fullest possible product description is useless if a consumer lacks the understanding or the will to utilize it." In the same vein, the National Business Council for Consumer Affairs, in a 1973 report, make the following recommendation: "Wherever appropriate, manufacturers should promote the development of mechanisms for providing consumers with performance information on consumer durables." The Council also was of the view that government agencies could help in assuring that appropriate product characteristics are chosen and measured in a manner that would be fair and equitable to manufacturers and consumers.

Schedule:

The final format of the proposed procedures to be followed is being developed at this time. Public hearings have been held and public comment received. A decision is anticipated on implementation within the next 60 days. If favorable, announcement in the Federal Register of the institution of the program is expected to be made by February 1977.

Department of Commerce Responsibilities for the
Government-Wide Automatic Data Processing
Management System Under Public Law 89-306

Background: The Secretary of Commerce is responsible under Public Law 89-306 (October 30, 1965) for providing scientific and technological advisory and consulting services to assist Federal agencies in making effective use of computer technology; making recommendations to the President relating to the establishment of uniform Federal automatic data processing standards; and undertaking necessary research in computer sciences and technology. Technical execution of these responsibilities has been assigned to the Institute for Computer Sciences and Technology, National Bureau of Standards (NBS).

The technical areas currently receiving priority attention by the Institute include:

- Computer Security: The development of Government-wide standards, guidelines, and techniques for Federal agency use in protecting valuable or confidential information in computer systems to safeguard privacy, and controlling access to computer systems.

- Performance Measurement: The development of Government-wide standards, guidelines, and methods for measuring the performance of computer systems and networks.

- Managing Risks Associated With Computer Usage: The development of Government-wide standards, guidelines, and techniques to assist Federal agencies in insuring that computer systems perform their intended functions accurately and do not perform any unintended functions--and insuring adequate public accountability for the Federal use of computers.

- Interface Standards: The development of Federal standards for interfacing or interconnecting computer components of different manufacture and provision of a basis for substantial cost savings in the procurement of computer peripheral equipment and core memory.

- Increasing Productivity: The development of technical standards, guidelines, and methods to effect the application and spread of computer-based automation technology to increase productivity and quality of working life in both manufacturing and service industries.

The Legislation and National Security Subcommittee of the House Committee on Government Operations held hearings on the administration of Public Law 89-306 in late June 1976. The report resulting from these hearings stated that Public Law 89-306 "has been neither administered nor implemented in accordance with the intentions of Congress." The report criticizes the General Services Administration (GSA) for its handling of computer procurements and OMB for its failure to establish concise, clear-cut ADP management policy and for lack of adequate direction in the enforcement of the policies

it has issued. The report cites NBS for failing to provide "necessary hardware and software standards;" it recommends that NBS develop such standards "to insure maximum economies and efficiencies in the procurement and utilization of ADP resources." The report points out that NBS has not developed Input/Output Interface standards because "it apparently has been committed to the adoption of voluntary standards developed under American National Standards Institute (ANSI) procedures." The report does not acknowledge, however, that the OMB 1966 policy guidance to the Secretary of Commerce on implementing Public Law 89-306 emphasizes promotion of the "development and testing of voluntary commercial standards for automatic data processing equipment, technique, and computer languages."

Issue: How can NBS meet GAO and Congressional criticisms and achieve an acceptable rate of hardware and software standards development in light of admittedly inadequate resources and in spite of the necessity to be responsive to special unprogrammed assignments from OMB and GSA?

Analysis of Issue: The Executive Branch's implementation of Public Law 89-306 has been the subject of a continuing series of General Accounting Office (GAO) reports to the Congress and of a series of hearings by subcommittees of the House Committee on Government Operations. The GAO has issued some 12 reports that contain comments and findings about the National Bureau of Standards' performance of its responsibilities under Public Law 89-306. None of these reports found NBS having adequate resources to carry out all of its Public Law 89-306 responsibilities. The Bureau has planned responsive programs and requested necessary funding to carry them out and has responded with reprogramming and redirection to the maximum extent possible. For example, the Bureau has been directed by the Office of Management and Budget (OMB) to undertake special, unprogrammed tasks for which funds have not been budgeted. Such tasking occurred in early 1975 when OMB directed the Bureau to develop computer security guidelines for implementing the Privacy Act of 1974. This required the Bureau to reprogram already allocated funds with a resultant discontinuance or slippage of already budgeted projects.

In its budgeting process, the Bureau intends to take full account of the GAO and Congressional criticisms of its Public Law 89-306 program; the results of the GAO audit of the FIPS program; and other special analyses to identify Federal ADP standards requirements and priorities. Our objectives are to plan programs to overcome the cited deficiencies in the Bureau's implementation of Public Law 89-306 and to state straightforwardly the magnitude of additional resources needed to carry out these progams.

Schedule: Respond to request for comments on the hearing report. First quarter FY 1977. Prepare requests for necessary resources as part of the budget cycle. Third quarter FY 1977.

Recycled Oil - Congressional Pressure and Measurement Realities

Background: Section 383 of the Energy Policy and Conservation Act of 1975 (P.L. 94-163) assigned to the National Bureau of Standards (NBS) the responsibility to develop test procedures for the determination of substantial equivalency of re-refined oil with new oil for a particular end use. These procedures are to be transmitted to the Federal Trade Commission to provide the basis for modified labeling standards and Federal procurement guidelines. The goals of this legislation expressed by the Congress are to stimulate the re-refined oil industry and to promote the use of re-refined oil, to lessen the environmental damage caused by the improper disposal of waste oil, and to reduce virgin crude oil consumption. The test procedures are to be developed as soon as practicable.

Congressional interest in the NBS program has been great. Congressmen Vanik and Dingell, who sponsored the legislation, have corresponded with NBS staff on numerous occasions. A briefing has been given to Congressman Dingell's staff. It had been the assumption within Congress that specifications existed which would only have to be collected and that transmission to the FTC would be extremely rapid.

The scope of the legislation requires a variety of oils to be considered. The NBS Recycled Oil Program will address the use of waste oil as fuel, hydraulic oil, industrial cutting, and engine lubricating oils. In each of these areas, specifications for many of the tests do not exist. Waste oil is a complex mixture containing a number of contaminants for which test procedures are required. These contaminants include wear debris, lead from the gasoline, heavy metal atoms from oil soluble surfactants, polynuclear aromatics (demonstrated carcinogens), ethylene glycol, hydraulic fluids, and even gasoline. When waste oil is used as a fuel, wear debris can cause burner clogging, abrasive wear of the burner head, and excessive deposits heat transfer surfaces. All existing tests for ash are known, however, to be invalid in the presence of lead and metallo-organics, both present in high concentration. Tests for ash content will therefore have to be developed within the program. In other cases where tests exist, an evaluation of the matrix effects on the analysis will have to be made to confirm their validity. And finally, many of the required tests are expensive and time-consuming performance tests with which the staff will have to gain experience. The NBS program will address these measurement difficulties to provide the required sets of test procedures.

Issue: How can NBS meet its responsibilities promptly under the Energy Policy and Conservation Act of 1975?

Analysis of Issue: Resources necessary to carry out the qualification of all important classes of oil would amount to 13 positions and $1,600,000 for three years. At present, four positions and $200,000 from internal reprogramming are being applied to characterize waste oil as fuel, the largest volume, highest impact end use. Since many of the required positions are for new hires of lubrication experts not now on-board at NBS, additional resources are required.

Schedule: NBS shall resubmit an initiative in the FY 1979 DoC budget to obtain the necessary resources for implementation in October 1978. A favorable decision would enable greater progress, beginning 22 months from now, in support of the President's energy and materials conservation policies.

DoC Response to S. 3555
The National Voluntary Standards and Certification Act of 1976

Background: Senators Abourezk and Hart have argued that the existing standardization process is anticompetitive, it impedes new technology, and is structured so as to maintain a quasi-monopoly status for a few testing, inspection, and certification laboratories. They have sponsored legislation which would mandate the Federal Trade Commission to establish rules of procedure and practices for standards-development organizations and certification laboratories. Title I (National Standardization) of this Bill provides for the development of a uniform national standardization system for all standards and certification activities undertaken by the private sector. Title II (International Standardization) of the Bill covers international standards and international certification programs. Title III (Accreditation) of S. 3555 directs the Secretary of Commerce to establish a National Voluntary Laboratory Accreditation Program for the purposes of accrediting certification laboratories.

Issue: What should be the Department's position in this legislation in view of its role in the standardization process (Interagency Committee on Standards Policy) and laboratory accreditation (National Voluntary Laboratory Accreditation Program).

Analysis of Issue: (A) The Department supports the overall principles of Title I to assure that the public interest will be protected and due process observed in voluntary standards activities carried out by the private sector. The guidelines which the Interagency Committee on Standards Policy is preparing for representatives of Federal agencies participating in outside standards activities set forth various principles which are aimed at protecting the public interest and assuring due process.

The Department also agrees with and endorses the principle contained in Title I that the Federal Government should not duplicate the standardmaking activities of the private sector and that wherever feasible, Federal agencies should utilize an existing non-Federal standard.

This principle is also included in the guidelines being prepared by the Interagency Committee on Standards Policy. The Department, however, is concerned about the rigorous regulatory framework provided by S. 3555. The central issue is a need for the proper assessment and evaluation of the cost of regulation vis-a-vis its benefits.

Before enacting S. 3555, the Department of Commerce urges that a proper assessment and evaluation of costs and benefits be undertaken. In these days of critical budget restraints, we must avoid any unnecessary cost to both the private sector and the Federal Government. Thus, the cost-benefit study should focus on the increased cost to the private sector to comply with S. 3555, as well as the cost to the Federal Government.

A basic legislative principle is that new legislation should not be enacted if existing legislation already contains enough authority to accomplish the intended purposes of the new legislation. It is our view that the Federal Trade Commission already has sufficient authority under Section 5 of its act to deal with

aberrations in the voluntary standards system. One example of FTC action in this area is its investigation of the improper use of some ASTM standards to certify the flammability behavior of cellular plastic products.

For the reasons stated above, the Department opposes the enactment of Title I.

(B) Regarding Title II, although it has long been recognized that national engineering and commodity standards are of great importance to the whole of our society, what has not been so evident is that standards are of such vital importance in international trade. In a study of the whole subject of possible non-tariff barriers to trade, it was found that incompatible national or international standards, or the lack of standards, do cause serious obstacles to the export of our products. The Department of Commerce strongly supports the concepts contained in Title II of S. 3555.

(C) The Department of Commerce supports only the parts of Title III that establishes accreditation procedures to assure that laboratories are competent to test specific products. The Department opposes that part of Title III which would involve the Federal Government in the evaluation of a laboratory's capability to monitor manufacturing processes, evaluate a manufacturer's quality control procedures, determine proper sampling procedures, and label products in an appropriate manner. It should be noted that the Bill requires Federal agencies to use only certified laboratories. Thus, in the case of Government procurement, the program would not be "voluntary;" it would be de facto "mandatory."

The Department of Commerce has already taken administrative action in establishing a program to accredit laboratories for testing specifice products. On February 25, 1976, the Secretary of Commerce published final procedures for a National Voluntary Accreditation Program. The form and substance which have evolved from that idea are now spelled out in detail in Title 15, Part 7 of the Code of Federal Regulations. The goal is to serve on a timely basis the needs of industry, consumers, the Government, and others by accrediting this Nation's testing laboratories. The program seeks to foster and promote a uniformly acceptable base of professional and technical competence in testing laboratories and in establishing evaluation criteria for testing laboratories and in providing on-site examinations, proficiency test samples, calibrated standards and materials Several hundred laboratories working in areas such as concrete, cement, asphalt, paper, fiberboard, color and appearance, clinical and forensic testing make use of these services.

We believe that the Department has established an orderly and workable framework for the development of a meaningful system for the accreditation of testing laboratories. At this time, we do not feel that legislation in this area is necessary.

Schedule: Assistant Secretary for Science and Technology, Dr. Ancker-Johnson, presented testimony on S. 3555 on June 21, 1976, before the Subcommittee on Antitrust and Monopoly of the Senate Judiciary Committee. The legislation is expected to be reintroduced in the next session of Congress.

Rewriting the Communications Act of 1934

Background: Lionel Van Deerlin, Chairman of the House Communications Subcommittee, has announced that he intends to begin hearings on a new Communications Act. The old law, the Communications Act of 1934, was written before the advent of satellites and television. Even then, it was hastily cribbed from the Radio Act of 1927 and the Interstate Commerce Act. It has been called more appropriate for grain elevators and steamboats than communications satellites and computer networks. New technologies and new applications have been forced into the old structure, and the growing convergence between different communications technologies and between computing and communications make the old Act increasingly obsolete. At the same time, recent decisions by the Federal Communications Commission have eroded the traditional monopoly of the telephone industry. In response, the industry has supported introduction of a number of versions of a bill that would limit the FCC's power. That bill, the Consumer Communications Reform Act (CCRA) of 1976, is discussed in the next paper.

Issue: A great many issues are at question in telecommunications policy, and this rewrite will serve as a focus for many of them. They include the regulation of competition within and between the traditional telephone industry and the new equipment suppliers, specialized common carriers and domestic satellite firms, the cable television industry, the broadcast industry, and the data processing equipment and service industries. Another set of issues may concern content, including privacy, access, First Amendment rights, sex and violence on TV, and the Government's role in relation to them. A last group of issues may involve the structure with which the Government deals with telecommunications, and may result in restructuring the FCC, the Office of Telecommunications Policy, and OT.

Analysis of Issue: Little work has been done on a new Act, although there are volumes on many aspects that will probably be considered. Therefore, it is premature to advocate any position. Some aspects are analyzed in the light of CCRA in the following paper.

Schedule: Resolution of major issues in telecommunications policy tend to take from six to eight years. Therefore, quick resolution of the yet-undefined issues raised by a new Communications Act is unlikely. We do not expect passage of such an Act in this coming Session, and possibly not in this Congress or this Administration.

A National Telecommunications Agenda

Background: In 1975, the United States had the most advanced telecommunications technology in the world, but was faced with slow domestic and export growth. The Assistant Secretary for Science and Technology created a Task Force on Telecommunications, with representatives from NBS, the Patent Office, and OT. Its job was to identify new technologies with significant growth potential that seemed to be blocked, and to make recommendations on what could be done to remove barriers to growth. It focused on four new technologies: direct communication satellites, optical fiber communications, broadband cable systems, and land mobile radio. The Task Force report, "Lowering Barriers to Telecommunications Growth", proposes creation of a National Agenda, as the first step in resolving the issues raised by their investigation. It also proposes some issues which, from the S&T viewpoint, need to be considered.

Issue: New technology, which could offer immense benefits, is blocked by inappropriate regulation, lack of standards, failure to transfer technology from military to civilian applications, absence of any institution to deliver the technology to users, and market uncertainty. Some of the most pressing needs are:

- Accelerating the development of direct communication satellite systems and networks, using advanced technology to bring satellite service directly to the user's site at low cost.

- Developing strong U.S. positions in preparation for the 1979 General World Administrative Radio Conference, the international body that will decide how we use radio for the next twenty years.

- Improving the foreign trade balance in telecommunications, especially in telephone equipment and consumer electronics.

- Developing a means to systematically review proposed Federal telecommunications systems for duplication, consolidation possibilities, efficiency; and cost-effectiveness.

Analysis of Issue: Some portions of this issue has been extensively analyzed and discussed with industry. Recommended actions on them are given in the Executive Summary of the Task Force report, which is attached as an appendix. OT currently does most of the administrative and analytical work, under the policy direction of OTP, for frequency coordination like that proposed for the system review. The Office of Management and Budget requires that the frequency review be done before they will approve funds for new radio equipment. OT proposes an analogous process for new systems.

Schedule: OT's program to accelerate development of direct satellite communications systems began last year. However, if the present course of development is not changed, such systems may not be in use in the United States in this century. Preparations for the WARC have already begun. Positions must be established and proposals circulated in the first quarter of FY 1979. Improving the balance of trade in telephone equipment is dependent on developing a domestic manufacturing industry. That in turn is dependent on the existence of a domestic market, which will exist only if the appeals court, mentioned in the paper on CCRA upholds the FCC. Preliminary proposals on developing a system review procedure have been made and may be accepted by the third quarter of FY 1977.

Consumer Communications Reform Act

Background: Technological progress and decisions by the Federal Communications Commission since the late Sixties have begun to erode the traditional monopoly of the telephone companies. The Carterphone decision, in 1968, allowed customers to attach their own equipment to the telephone companies' lines. An appeals court recently upheld an FCC ruling that an expensive "protective device" was not required on such customer-owned equipment as private automatic branch exchanges (PABX's) and an appeal on individual telephones is pending. In the Specialized Common Carrier (SCC) decision (1971), the Commission permitted new firms to offer private line long distance service in competition with the telephone companies. One of the largest of the SCC's has now gone bankrupt and is suing AT&T, and the others are struggling. In the Domestic Satellite (domsat) decision (1972), the Commission permitted new firms to offer long distance service by satellites. Such service is much cheaper than telephone company lines for distances over a few hundred miles. The present satellite firms are still in the red, but may become viable. However, AT&T has recently entered the market, after having been shut out for several years by the Domsat decision.

According to the FCC, the Bell System had revenues of about $30 billion in 1975. The other established telephone companies had $5.5 billion. The SCC's had $49 million and the domsat companies had $16 million. Private equipment sales and rental revenue was $143 million.

The telephone industry is a state monopoly in most countries of the world. In the United States, it is probably one of, if not the single, most regulated industries. It is the structure and purpose of that regulation that is at issue.

Issue: On one level, this issue concerns who is going to make money on the growing demand for telecommunications. On another, it concerns how best to provide the best communications at the lowest price to the American public. Specifically, the Consumer Communications Reform Act (CCRA or the "Bell Bill"), would forbid the FCC to declare any proposed price too low. Opponents of the Bill, which includes the new carriers and equipment suppliers and much of the computing industry, say that this would allow the carriers to raise their prices for their monopoly services, especially local telephone service, and use the profits to subsidize their competitive services. Their competitors, having no monopoly services from which to "cross-subsidize", would be driven out of business by this predatory pricing. The telephone companies, on the other hand, say that they are already cross-subsidizing from long distance revenues to keep local telephone prices low. Both sides claim that if they lose, the consumer will suffer.

Analysis of Issue: Most of the debate has been weak in analysis. It has centered on the issue of lowest cost without considering what is meant by best service. One recent FCC decision (in Docket 18128) has found that AT&T has been undercharging for its Telpak service, which is threatened by the competing SCC's. Another (in Docket 20003) has found little harmful effect from competition. It cites studies by state regulatory commissions that find that local service is subsidzing long distance service. OT has been unable to contribute substantially to the analysis of this issue because of resource constraints.

Schedule: As stated earlier, telecommunications issues are seldom settled quickly. It is unlikely that the Congress would act without hearings by the Communications Subcommittee. The attention of its Chairman is on rewriting the Communications Act, not CCRA, as a vehicle for resolution of a number of issues. However, given the number of sponsors, hearings will probably be held in the coming session. OT expects to be asked to testify, and hopes to contribute without necessarily being associated with either side.

NOTE: A separate paper on this subject has been prepared under the DIBA issues

LOWERING BARRIERS TO TELECOMMUNICATIONS GROWTH

EXECUTIVE SUMMARY

This report is based on the work of a Telecommunications Task Force formed in August 1975 under the direction of the Assistant Secretary of Commerce for Science and Technology, Dr. Betsy Ancker-Johnson.

The objective of the report is twofold:

- To identify actions that will pave the way for the application of a few promising technologies to the benefit of users of telecommunications.

- To suggest any such actions as a basis for Government program development, for industry initiatives, and for joint Government and industry activities.

The heart of this report consists of analyses of diverse telecommunication issues, along with recommended actions. These analyses and recommendations should be read as a contribution to the drafting of an Agenda of national telecommunication concerns. Such a national agenda would presumably serve first as a vehicle for discussion and ultimately as a basis for action. The process of writing it, moreover, should help us establish priorities for this vital field. To be an effective instrument, however, the agenda will have to represent far more than just Government thinking; it will, rather, have to reflect a common effort by all the institutions of our national telecommunication community.

Although there is no question that U. S. telecommunication systems as a whole are the most pervasive and reliable in the world, it is possible to discern some barriers that are impeding the long-term growth of the field. An effort to lower these barriers would surely be a desirable national goal. Two major reasons support this view:

- First, the United States is increasingly engaging in information-related activities -- to the point where productivity gains in many parts of our services sector may come to depend on improved access to and management of information. Clearly these information activities rely heavily on telecommunications; furthermore, advance in information handling will require a steady infusion of new telecommunication technology.

- Second, with present national decisionmaking processes, we may not be deriving the fullest possible benefit from a variety of attractive technological choices. Prime examples of such choices are satellites, solid state technology, lightwave communications, and new regions of the electromagnetic spectrum for expanded communications use.

The long-range importance of telecommunications as well as the complexity of the issues may well bring increased Government participation in communications affairs. So far some of the results of this participation have been less than encouraging: confict over new policies, confusion over the question of appropriate Government and industry roles, and delay in national decisionmaking.

Such delays on the part of Government may cause -- or be causing -- similar delays in the developments of new services or products. When such a commercial delay occurs -- especially when it affects a technology or a service that reduces costs -- the public is deprived of the benefits during the period of the delay. The public interest, therefore, calls for corrective action.

It is understood that any such corrective action will require cooperation among three parties: Government, industry, and users. Government activities must be evaluated in terms of six of the roles it may play: policy-maker, regulator, spectrum manager, user and purchaser, coordinator of public sector requirements, and supporter of key technological development. Industry's role, however, is vital: assembling the factors of production and bringing the product or service to the marketplace. Users, or customers, have to make known what they need. In many cases this is done in cooperation with industry; the result is "market pull." In other cases, such as the specifying of public sector requirements, much has to be done to identify user communication needs, to consolidate them, and to translate them into system requirements.

In setting about its assignment, the Task Force tried to identify those technologies and services holding the most promise for future application while, at the same time, seeming to be most inhibited by current barriers.

More specifically, the Task Force asked five questions about each technology and service it considered: How much will it benefit the public? How significant is technology as a barrier to its growth? How detrimental to its

application would be the effects of no action? Has it reached a relatively advanced level of maturation? And, how appropriate would Federal involvement be?

After screening a long list of "candidates" according to these criteria, the Task Force decided to concentrate on four major technologies: Direct Satellite Communications, Land Mobile Radio, Broadband Communications Networks, and Fiber Optic Communications. This report accords each a separate section.

With each technology, the report discusses its current status, the issues affecting its growth, actions designed to address these issues, and the impact of the proposed actions. The discussion is organized under four general categories as follows: needs and the market, system development and performance, policy and regulation, and spectrum management. Those issues and actions we believe to be most urgent and feasible are restated in our conclusions and recommendations, the final chapter of the report. At the end of that chapter -- and at the end of this Executive Summary -- will be found a suggestion relating to the process of formulating a national draft agenda.

NEEDS AND THE MARKET

Here we must consider the choices for providing new services and the relative cost of the choices. An additional consideration is the services' potential for increasing national productivity.

The use of satellites for the transmission of public sector services may hold great promise. This possibility, as well as concern about future U. S. plans for the employment of this band and others, generates the following recommendation:

- *Government and user organizations should accelerate the process by which the basic communication needs to be met by public service satellites will be defined. They should also determine the most economic way of using such satellites and who will pay for them.*

Because of the growing pressure on the radio spectrum to provide different services, all of which can claim appreciable economic value:

- *Spectrum administrators should encourage further research on the economic and social values of services that are provided through the use of the spectrum in order to achieve optimum allocation of this resource in the light of the associated needs and markets.*

With respect to nonentertainment broadband communication services, we recommend that:

- *Industry should establish a group composed of industry, institutional users, and providers of public sector services to plan and finance a demonstration designed to reduce the present uncertainties about market demand for and economic viability of aggregated broadband nonentertainment services.*

Fiber optic communications promises a great deal in the way of lowered costs and expanded capacity. The challenge is to accelerate its nonmilitary applications. To do this, we should identify those applications for which it will be most competitive.

In addition, a demonstration of fiber optic communication capabilities would do much to increase the market for its systems and components; a demonstration of sufficient size would also reduce the cost of these systems and increase their availability.

Our recommendations are two:

- *OTP should establish a Federal interagency group to identify a significant broadband communications need, the satisfaction of which will advance the solution to an important public service problem (e.g., health care delivery). The group should then compose a statement of the necessary communication requirements as a basis for a fiber optic demonstration project.*

- *The Department of Commerce should establish an advisory committee on commercial implications of fiber optics.*

SYSTEM DEVELOPMENT AND PERFORMANCE

This category focuses on systems planning and research, performance criteria and measurement, and standards of practice and of equipment operation. The elements that

compose this category play important roles in determining whether new services or equipment can be provided economically and without foreclosing future opportunities for better resource use.

Are additional standards or performance criteria needed for small earth terminal satellite systems in order to foster their early application and to ensure their orderly development? This question is of particular importance.

The evolution of satellite systems operating at frequencies above 14.5 GHz is making slow progress, partly due to technology limitations. At the same time, however, demands for orbit/spectrum space below 14.5 GHz are growing significantly. These demands could be eased if the higher frequencies could be used as reliably as the lower frequencies.

The recommendations are that:

- *Industry should take the initiative, in cooperation with users and Government, to explore the need for criteria and standards for small earth terminal satellite systems operating in the 2.5, 4, 6, 12, and 14 GHz bands. It should also assess the effect of these standards on future technological development, and, if appropriate, define and recommend performance criteria or standards for FCC adoption.*

- *NASA should undertake, in conjunction with industry, to identify the hardware and other reliability barriers that limit the use of frequencies above 14.5 GHz for satellite communications and to recommend a program for lowering these barriers.*

Land mobile radio systems are totally dependent on the spectrum. Already, the spectrum allocated to these systems is being used intensively. Substantial growth in the demand for their services is expected. To ensure that the spectrum will be used in the most efficient way, it is desirable to have better quantitative information about the performance, spectrum utilization, and capacity of land mobile systems.

In addition, several Federal agencies support the development of better land mobile and other communications systems for use by public safety services. However, the objectives of Government support often differ, a situation that can lead to inefficient employment of the spectrum and insufficient long-range planning.

To meet these land mobile radio issues, we have three recommendations:

- *Telecommunication authorities should foster research to develop better criteria for describing and measuring land mobile service performance.*

- *Telecommunication authorities should foster research to develop better methods for describing and measuring spectrum capacity and utilization for land mobile radio systems.*

- *One Government agency should be responsible for coordinating Federal support of local land mobile radio programs. This Federal effort should support local agency attempts to achieve better spectrum use and lower costs through the development of integrated local communication systems serving several functions or user groups.*

The design techniques of current CATV systems may affect the potential growth of broadband nonentertainment services. The question is: Are these techniques adequate to provide systems that will be capable of handling additional nonentertainment services? Therefore:

- *Industry and users should seek early resolution of certain problems of system performance associated with delivery of broadband communication services. These problem areas include: (1) frequency management in broadband systems, (2) interface standards or specifications, (3) security and privacy, and (4) terminal equipment characteristics.*

To help fiber optic communications fulfill its promise as promptly as possible, the development of appropriate standards should begin soon. It is therefore recommended that:

- *The informal Optical Communications Task Force initiated by the Office of Telecommunications should identify what specifications (or voluntary standards) and codes are desirable to ensure rapid and orderly implementation of fiber optic technology in the commercial and public sectors.*

Although current regulations restrict the permanent use of satellite small earth terminals, some users wish to develop systems with terminals as soon as possible. In spite of the possible benefits to be derived from these systems, our future freedom of choice ought not to be precluded by premature approval of proposals for systems that inordinately "consume" available spectrum and orbit positions.

Moreover, it is imperative that we better understand and describe the resources that will determine how many -- and in what form -- satellite services can be provided.

In view of these concerns, we recommend that:

- *Government -- through the OTP, FCC, and other agencies -- should reexamine its policy and regulations with respect to use of domestic and international small earth terminal satellite systems. In the process, it should intensify its search for advice from interested parties.*

- *The FCC and OTP should give priority to obtaining additional and more comprehensive descriptions of the spectrum/orbit and spectrum/geography resources and the dependence of these on technical parameters of satellite systems.*

Regulatory delay is a matter of widespread concern to the telecommunications community. To reduce the delays incurred by full hearings, the FCC has from time to time brought interested parties together for informal gatherings prior to formal proceedings. Accordingly, we recommend that:

- *Consideration should be given to the desirability, feasibility, and legality of making greater use of open, informal discussions between interested parties prior to the start of FCC formal proceedings, particularly those that are to consider largely technical matters.*

CATV regulation may be a barrier to the implementation of nonentertainment broadband services. Partial deregulation of CATV services is being addressed by the Domestic Council, the FCC, and Congress. The Domestic Council regulatory group, however, concluded that not enough data were available on the effects of deregulation to support a

decision, which might influence the general availability of nonentertainment services. It is recommended that:

- *The Domestic Council Working Group should arrange to obtain necessary research to establish the probable consequences of partial deregulation of CATV.*

SPECTRUM MANAGEMENT

In the next three years, two World Administrative Radio Conferences (WARC's) dealing with matters germane to this report will be held. The first, in 1977, is primarily concerned with satellite broadcasting in the 11/12 GHz band. The second, scheduled for 1979, will review the Radio Regulations, including the Table of Frequency Allocations. These WARC's will establish the pattern of worldwide spectrum use for many years to come. Moreover, their decisions will affect the rules and regulations of the United States, which are based on the international agreements. It is therefore important that the United States meticulously prepare its conference positions in all areas.

The evolution of public service satellite systems in the 2.5 GHz band is likely to be inhibited by the limited variety of services that can be provided in the narrow bandwidth available. Expanding the bandwidth would increase the number of services that might employ it. This would distribute the cost of the satellite over a greater number of users.

It is recommended that:

- *U.S. preparation for the 1979 World Administrative Radio Conference should place emphasis on:*

  (1) *Provision of spectrum space for small earth terminal satellite systems.*

  (2) *Optimization of orbital spacing of satellites sharing the same frequencies.*

  (3) *Imbalance of spectrum/orbit utilization above and below 14.5 GHz.*

  (4) *Need for greater bandwidth allocations at 2.5 GHz for public service satellites.*

- *Public service satellite users should determine the cost advantages that could result from increasing the bandwidth available to them at 2.5 GHz and use the information as the basis for requesting the FCC to negotiate for an increase in the available bandwidth.*

For land mobile services, we recommend that:

- *U. S. preparation for the 1979 World Administrative Radio Conference should emphasize the resolution of differences between the planned use of the 900 MHz band by the United States for land mobile systems and the international frequency allocations.*

COMPOSING A NATIONAL TELECOMMUNICATIONS AGENDA

As was discussed above, the recommendations of this report should be thought of as a contribution to the composition of a national draft agenda. The final agenda, of course, must be the product of an extensive dialogue among Government, industry, and users. A question arises: What is the best way to begin this process of joint discussion? Possible answers abound: congressional hearings, industry and professional association workshops, academic seminars, and Federal Executive Branch initiatives.

However, all the best intentions will most likely be rendered futile if at the outset some agency does not assume the responsibility of receiving and processing the ideas and proposals regarding the agenda. Therefore:

- *The services of the Office of Telecommunications will be available for initial coordination of reactions to this report and, by extension, of all suggestions pertaining to the formulation of a national telecommunication draft agenda. This tenure will last only until a permanent "Keeper of the Agenda" is named.*

In conclusion, implementation of all the recommendations should foster the long-term growth of telecommunication technology in the United States. This growth will benefit not only service users but also industry, which will profit from the creation of new markets.

Telecommunications Organization and Roles

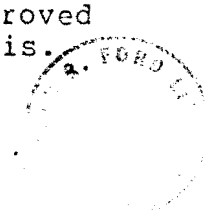
Background: Toward the end of the Johnson Administration, a Task Force on Telecommunications Policy recommended the creation of a centralized focus for telecommunications policy in the Executive Branch. Such an agency would advise the President on telecommunications, speak for the Executive Branch in the development of national and international policy, and coordinate the Executive's use of telecommunications, especially the radio spectrum. Executive Order 11556 created an Office of Telecommunications Policy in the Executive Office in 1970. The same Order tasked the Secretary of Commerce with providing administrative and analytical support to OTP, resulting in the creation of OT.

Recently, proposals have been made to restructure OTP. A McKinsey study offers six options: as a policy counselor group in the Domestic Council, as an EOP Telecommunications Office (the present situation), as an Assistant Secretariat, possibly in the Department of Commerce, as a policy-oriented independent agency, as a policy and operations-oriented agency, and as a Department of Telecommunications.

Information transmission (computing) and information transmission (telecommunications) are becoming increasingly interdependent as America becomes a post-industrial society. They share problems of privacy, standards, and a high rate of technological change. Computers evolved from telephone switch gear, and now are used as switching exchanges. Communications, even voice and video, is being transmitted digitally. The Department has two agencies concerned with information technology: OT, with its Institute for Telecommunication Sciences, and the Institute for Computer Science and Technology in NBS.

Issue: What is the optimal arrangement of the various Executive Branch agencies concerned with telecommunications and information technology?

Analysis of Issue: Interagency coordination and Executive Branch policy determination and articulation really need to be done at the Executive Office level, although possibly in the Domestic Council or Office of Science and Technology Policy. However, there is no reason that other Executive Branch agencies should not formulate policy options, especially where their particular missions are concerned. A mission agency might also provide administrative and analytical services to an agency that decides matters of policy. Much of the awkwardness in the OT/OTP relationship has come from OT's dual roles: to support OTP and to support development of telecommunications science and industry. Mutual appreciation of the validity of both roles and the trade-offs this sometimes implies is required. A review of various Federal agency roles toward recommending an improved structure should be undertaken on a Government-wide basis.



Schedule: Resolution depends on the willingness of the new Director of OTP to recognize the importance of resolving procedural questions as an aid to resolving the many substantive issues he will face when he assumes office. The review of Department organization should be started in the third quarter of FY 1977.

PATENT REFORM LEGISLATION

Background

Concerned that the U.S. patent system, which has remained fundamentally unchanged since 1836, has not kept pace with the changing conditions brought about by modern technology, the 1966 President's Commission on the Patent System proposed 35 recommendations for its modernization. The Administration first prepared a patent bill based on the report of the Commission in 1967. Features of the initial bill were vigorously opposed by segments of industry, bar and inventor groups. By 1969 a modified version of the bill had general support from the Administration and the private sector. In 1970, however, a dispute arose between the Commerce and Justice Departments over the provisions of the bill. Each department presented its independent views to the patent subcommittee of the Senate Judiciary Committee.

An Administration bill, developed through joint negotiation by the Departments of Commerce and Justice, arbitrated by OMB, was transmitted to Congress in the fall of 1973.

There was immediate and strong opposition to this bill from all interested segments of the private sector, including industrial organizations, patent law associations and inventor groups. The bill, with slight modification, was reintroduced as S. 1308 in the beginning of the 94th Congress. In the fall of 1975 the Senate approved S. 2255, which is very similar to the Administration's bill. The House took no action and the bill died in the 94th Congress.

Issue

To have enacted a new patent revision law more closely responsive than our present law to the contemporary and future needs of the Nation.

Analysis of Issue

Commerce is concerned that any new patent bill provide strong incentives for inventing, publicly disclosing the invention, investing in research and development and commercializing new and improved products, all to the Constitutional end of "promoting the progress of . . . the useful arts." Participation in the patent system by inventors and businessmen is voluntary. The patent law is not a regulatory statute; it must encourage inventors and businessmen to seek patents. Only by providing such encouragement can the system achieve its objective of stimulating technology and the economy.

The Department of Justice position stated in simplistic terms, is that the patent laws should restrict rather than expand the opportunity for a patentee to fully develop a patent position.

The former Administration bill, S. 1308, included several new features with which there is little controversy, such as opportunity for the public to present reasons why an invention is not patentable, encouragement of arbitration of patent disputes, and change to a 20-year term from the date of filing rather than a 17-year term from the date of grant. It also contained a great many additional procedural requirements which would not only be burdensome to the applicant but would also provide new grounds for invalidating the patent if the applicant carelessly or through errors in judgment failed to comply. Under this bill, protection would frequently be denied on meritorious inventions for failure to get over the many procedural hurdles.

Schedule

In September 1976, after unsuccessful efforts at OMB to modify the Administration position, the Secretary of Commerce wrote to House Judiciary Committee Chairman Rodino expressing concern over the cost and expense of the pending legislation. The Commerce letter suggested several specific changes. In October the Patent and Trademark Office proposed rule changes that would accomplish some of the same objectives as the legislation but with far less expense. A hearing on the rule changes will be held on December 7. The staff currently is preparing a draft bill for possible introduction in the next Congress.

Appendix

None required.

PATENT EXAMINATION QUALITY

Background

Applications for the grant of a patent are examined before a patent is issued to determine, to the extent possible, whether the invention disclosed meets the statutory requirements for the issuance of a patent. Examination enables both patent owners and their competitors to better gauge their rights and better make related business decisions. Examination before the issuance of a patent also avoids shifting much of the examination burden to the courts and to the public.

Good quality examination enables patent owners and the public to act and make decisions related to the utilization of new technology with greater confidence and assurance of their rights. It enhances the value of patents and the incentives of the patent system for the creation and utilization of new technology.

There have been strong criticisms of the quality of examination conducted in the Patent and Trademark Office by the Courts, including the Supreme Court, in their opinions in some cases and in the statements of some judges, by some in the Congress, by some in industry and by some in academic circles.

Certain of these criticisms are valid and certain are not. The statistics on patent invalidity holdings in the courts have not been accurately quoted and represented by some critics. On the other hand, factors do exist which adversely affect the quality of examination (e.g., there are defects in the completeness and integrity of the search file containing existing technology and utilized in the examination of a patent application.)

Issue

What can be done to improve the quality of examination? What are the priorities among the available alternatives? What resources should be devoted to improving the quality of examination?

Analysis of Issue

Studies of the issue have been conducted and a number of programs for improving quality have been undertaken, and are being planned.

The studies which have been completed have reviewed the available measures of examination quality and the alternatives

which exist for improving quality. A multiyear plan of action for improving quality is under development.

Among the more significant programs already instituted in recent years to improve quality are: (1) the establishment of a quality review program under which a sample of the patents issued are reviewed for quality of examination, (2) provision for additional time for patent examiners to conduct the examination, (3) continuous review of the court decisions invalidating patents for learning purposes and to help pinpoint problem areas, and (4) improvements in certain aspects of the search files utilized by the examiners.

Schedule

The multiyear plan of action mentioned above is expected to be completed in December, 1976. Its principal focus will be upon improvement of the search files. It will probably also include (1) an enhanced educational program for examiners, (2) an enlargement of the quality review sample size and followup on the results of the review, (3) studies of the feasibility of systems for the replacement of the paper search file with microfilm, (4) continuation of the updating of the classification schedule (or subject matter breakdown) of the search file, and (5) continued study of mechanized searching. In addition, changes in the rules of practice to improve the quality of patents are under consideration. A decision on their adoption may be made by the end of 1976.

IMPROVED PAPER HANDLING

Background

The Patent and Trademark Office recognizes that effective handling of the multitude of paper is required to provide timely service, quality products to the public and to reduce complaints. In all cases, the major problem is availability of funds.

Controlling the Whereabouts of Pending Applications

> Data: Over 500 new patent and trademark applications received daily; over 3,000 individual pieces of mail relating to the 200,000+ pending applications are received daily relating to the applications.

In 1973 the PTO began utilizing a computer for locating 200,000+ applications. The initial success of the system leads the PTO to believe that greater savings in manpower and time can be realized through use of more sophisticated computer systems.

Controlling File Histories and Assignment Rights

> Data: Maintaining the examination and assignment histories of the over four million patents and trademarks (or 150 million individual sheets of paper) readily accessible to the public and the courts; 500-1,000 requests daily.

Currently all records are maintained on paper, updated by hand and requests fulfilled by pulling of information. Studies under way indicate the most cost-effective approach to handling these massive paper files require significant initial cash outlay in return for substantial reductions in space required for storage, man years and decrease in public complaints.

Controlling Patent and Trademark Search Files

> Data: Twenty million patents and trademarks contain 150 million individual sheets of paper.

PTO is continuing to examine mechanized methods for maintaining the file integrity and for searching of both patents and other references. This is required to insure good tools

for searching (hence, affecting quality of search product) and to control time required for searching (maintain productivity).

Controlling Requests for Orders

Data: 20,000 orders for patents and trademarks received daily.

In 1976 the PTO undertook to update its copy fulfillment system. New equipment to be delivered in 1977 is the first phase. The second phase contemplates a computer-controlled system for inventories and order fulfillment. Savings resulting from greater control will be measured in reduced complaints, increased public service and manpower savings for PTO.

Upcoming Paper Handling Problems

Operations under the Patent Cooperation Treaty may begin in fall 1977. This international cooperation effort will ultimately reduce duplicative processing of patent applications by member nations. Because the U.S. Patent and Trademark Office will be both an international filing and searching office, significant start-up problems such as control of monetary exchange, time limits, paper sizes, procedures, completeness of search files, etc., create additional paperwork and control. Control mechanisms are now under study.

TRADEMARK REGISTRATION TREATY

Background

The subject treaty, signed by the United States in 1973 and transmitted to the Senate for advice and consent to ratification on September 3, 1975, will establish an international trademark filing arrangement, by which firms in member countries can more easily register trademarks (and service marks) and maintain these property rights in all member countries. Since the Treaty is not self-executing, the instrument of United States ratification will not be deposited until the necessary implementing legislation is enacted.

Proposed implementing legislation, submitted by the Department to OMB on November 2, 1975, would have effected the necessary changes in the federal trademark statutes and provided persons filing domestic United States trademark applications with the same substantive benefits in the United States as are available to persons filing under the Treaty. OMB clearance was not secured prior to the adjournment sine die of the 94th Congress due primarily to objections raised by the Department of Justice and the long delay before these objections were surfaced.

Issue

The Justice Department objections principally concern changes in the use requirements of United States trademark law which are necessary in order to comply with the Treaty. Essentially, the required change is that an application for registration could be based upon a declared intention to use a trademark in United States commerce, as an alternative to actual use. In the case of an application based on intent to use, the owner would be required to commence use of the mark in commerce by the expiration of three years, counted from the filing date of the application, and to file a declaration of such use in the Patent and Trademark Office before the end of the fourth year. Failure to meet these requirements would result in cancellation of the registration. The proposed change is supported by the Departments of Commerce and State. The Federal Trade Commission is neutral. Justice Department is opposed.

Analysis of Issue

Justice's opposition is based primarily on its concern that the intent to use alternative will be abused, causing a

proliferation of filings and enabling firms to secure unfair advantages by reserving marks. The proponents argue that the proposed legislation contains safeguards to prevent abuse; that the present requirement of actual use prior to filing is out of touch with the realities of modern business; that foreign nationals, pursuant to requirements of the Paris Convention, can already secure enforceable trademark registrations in the United States without use; and that this advantage should, and would under the Treaty, be made equally available to U.S. nationals.

Schedule

The Department hopes to resolve the issue in the first quarter of 1977 and to secure early clearance to introduce legislation in the Congress. It is expected that the Senate would then schedule hearings on both the Treaty and legislation. We would urge that these hearings be held before the end of the First Session.

Appendix

None required.