

Originally Processed With FOIA(s):  
2005-0336-F

FOIA Number:  
2005-0336-F

# FOIA MARKER

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**Record Group/Collection:** George H.W. Bush Presidential Records  
**Collection/Office of Origin:** Science and Technology Policy, Office of (OSTP)  
**Series:** Bromley, D. Allan, Files  
**Subseries:** Organization Files - PCAST

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**OA/ID Number:** 62080  
**Folder ID Number:** 62080-005

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**Folder Title:**  
Industrial Technology: PCAST: Panel on International Economic Competitiveness [1991]

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| Stack: | Row: | Section: | Shelf: | Position: |
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THE PRESIDENT'S EXPORT COUNCIL  
WASHINGTON, D.C. 20230

OCT 4 1991

1 OCT 1991

Dr. William D. Phillips  
Associate Director for  
Industrial Technology  
Office of Science and  
Technology Policy  
Executive Office of the President  
Washington, D.C. 20506

Dear Dr. Phillips:

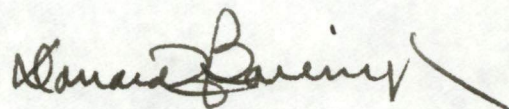
We were very pleased to have your participation at the first meeting of the President's Export Council's (PEC) Subcommittee on Global Competitiveness and Trade Performance. The Subcommittee has since met again, and has agreed to bring to your attention the importance of exporting to maintaining our competitiveness in the world economy. We ask that you consider giving this link between exporting and competitiveness greater recognition and emphasis.

To meet their foreign competition, American companies must make a determined effort to maintain and expand their worldwide market share. If companies look only to the U.S. market, they may quickly find themselves outpaced and outsold by foreign global-thinking competitors. The increased sales volume and profits that export markets offer allow companies to attain economies of scale to price more competitively and to have the flexibility to invest in R&D and product improvements. Exports offer a means of growth for both U.S. firms and the economy as a whole. Exports contributed about forty percent of our GNP growth for the last four years and almost eighty-five percent of the growth for 1990. According to a forthcoming Commerce Department report on export-related employment, it is estimated that about one quarter of total U.S. civilian job growth for the last four years is attributable to U.S. merchandise export growth.

I hope the Office on Science and Technology will give the importance of exporting more prominence in your ongoing studies on competitiveness and in information made available to the public and private sectors. We would also be interested in hearing your ideas on the link between exporting and competitiveness, and would appreciate any suggestions you might have on how this idea could be promoted.

Thank you for your interesting and informative presentation last May. We hope that we may call on you again when we need advice.

Sincerely,



Donald T. Bollinger  
Chairman  
Global Competitiveness and  
Trade Performance Subcommittee



# Withdrawal/Redaction Sheet

## (George Bush Library)

| Document No.<br>and Type | Subject/Title of Document                                          | Date    | Restriction | Class. |
|--------------------------|--------------------------------------------------------------------|---------|-------------|--------|
| 01. Resume               | Resume of S. Ramalingam [personal information redacted]<br>(3 pp.) | 5/61/91 | (b)(6)      |        |

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**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

**Date Closed:** 5/17/2010 **OA/ID Number:** 62080-005

**FOIA/SYS Case #:** 2005-0336-F

**Re-review Case #:**

**P-2/P-5 Review Case #:**

**AR Case #:**

**AR Disposition:**

**AR Disposition Date:**

**Appeal Case #:**

**Appeal Disposition:**

**Disposition Date:**

**MR Case #:**

**MR Disposition:**

**MR Disposition Date:**

### RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

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P-3 Release would violate a Federal statute [(a)(3) of the PRA]  
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P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]  
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C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

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| Document No.<br>and Type | Subject/Title of Document                                                                                     | Date    | Restriction | Class. |
|--------------------------|---------------------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 02. Memorandum           | To: Ralph Gomory From: William Phillips<br>Re: PCAST Panel Members [personal information redacted]<br>(6 pp.) | 6/14/91 | (b)(6)      |        |

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| <b>FOIA/SYS Case #:</b>       | 2005-0336-F | <b>Appeal Case #:</b>       |           |
| <b>Re-review Case #:</b>      |             | <b>Appeal Disposition:</b>  |           |
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PCAST  
Not HMG July 11, 12 - No dinner or August Mtg.

- Why
- Representation of Associations  
Avoids conflict of interest, but has to be advertised & open to public
  - Fact finding meetings OK once or twice, but only one at a time
  - Bring people in as consultants - must file disclosures, especially meetings must be advertised



# Withdrawal/Redaction Sheet

## (George Bush Library)

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|--------------------------|--------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 03. Notes                | PCAST Panel on Competitiveness - Potential Candidates<br>[personal information redacted] (1 pp.) | 4/17/91 | (b)(6)      |        |

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**ALFRED P. SLOAN FOUNDATION****630 FIFTH AVENUE  
NEW YORK, N. Y. 10111-0242****(212) 649 1649****FACSIMILE HEADER****Date:** 4/1/91 **Time:** 12:00 Noon**Please deliver to:** Dr. Bill Phillips (FAX #202-395-3719)**Attn:** \_\_\_\_\_**No. of pages transmitted** 6 **(Including coversheet)****Sent by:** Ralph E. Gomory**Fax No. (212) 757-5117****In case of any transmittal problems,  
please call (212) 649-1649****Special instructions:**



FROM: D. Allan Bromley  
Chairman, PCAST

SUBJECT: Terms of Reference for the PCAST Panel on  
International Economic Competitiveness

You are requested to chair a PCAST Panel on International Economic Competitiveness.

The Purpose of this panel is to enable PCAST to advise the President on issues of science and technology that affect U.S. economic competitiveness.

The private sector today is facing severe competition from abroad where vastly improved industries are emerging even in the most advanced technical areas, and where the more traditional industries have shown great ability to improve their manufacturing process and development technologies. Industry abroad is also making effective use of the high skill level of some of the competitive work forces.

In addition there are foreign government policies closely supportive of emerging and strategic technologies and designated industries.

While product competitiveness is largely the result of the internal actions of individual firms, firms are also influenced by their surroundings. Familiar examples of this from the economic arena are cost of capital and tax structure.

But there are other and more technically oriented aspects of the surroundings as well.

First there is the availability of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments etc., etc. It is a longstanding Federal role to contribute here and many government agencies have focused on this.

The National Critical Technologies Report Act selected 22 technologies deemed critical to national economic prosperity and to our military security. The department of Defense, in its "Critical Technologies Plan" presents dual-purpose technologies which are adaptable to enhancing the economic competitiveness of the private



sector. The Department of Commerce has issued its "Emerging Technologies Report" which identifies 12 emerging technologies.

Of these technologies President Bush stated: "If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but to learn to more effectively translate those technologies into commercial products."

In addition to new technologies there is a second aspect in the need for improvement of existing product. This includes research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects beyond a single firm's economic time horizon. Federal examples include NACA and Brookhaven synchrotron radiation.

A third competitiveness element is the availability of a technical labor force. This means vocational training as well as the training of scientists and engineers. To the extent that other panels do not deal with some aspects of this, I would like this to be included in the work of this committee.

In these three areas I would like the Panel to define, discuss and report on

- additional programs to improve competitiveness
- procedures to ensure government and private sector cooperation in assessing and arriving at new undertakings and in benefitting from existing activities.

The Office of Associate Director Industrial Technology will sponsor the Panel. Dr. \_\_\_\_\_ will serve as Chairman. Dr. \_\_\_\_\_ will serve as Vice Chairman. \_\_\_\_\_ will serve as Executive Secretary and Mr. William Snyder will be the PCAST Secretariat representative.

Approved:

\_\_\_\_\_  
D. Allen Bromley  
Assistant to the President  
for Science and Technology  
Chairman, President's Council of Advisors on Science and Technology

\_\_\_\_\_  
Date

Written by Ralph Gomory in May of 1990

## Competitiveness Subcommittee Charter

### Introduction

To study the aspects of competitiveness in which science, technology and engineering play a major role and, where appropriate, suggest Federal action that could contribute to competitiveness.

This subcommittee should stress product competitiveness. It is important to our country to be "competitive" in basic science or in new technologies such as high temperature superconductivity, but this subcommittee should relate these areas to product competitiveness.

When it can the subcommittee should be free to consider the effect of competitiveness or the lack of it on standard of living and on defense questions.

### Elements of competitiveness

Product competitiveness is largely the result of the internal actions of individual firms. It is a consequence of how well they manufacture, how well they support, use, and manufacture R&D, how well they train and motivate their employees etc. These factors are not easily reached by government action. However firms are also influenced by their surroundings.

Examples of this from the economic arena are cost of capital and tax structure, particularly depreciation rules and such items as the R&D tax credit.

In the legal area there are the traditional questions relating to anti-trust, as well as the newer areas of product liability and intellectual property.

But there are other and more technically oriented aspects of the surroundings as well.

I. Availability in the environment of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments etc., etc. This would include in principle really new processes that would eventually find their way into manufacturing although this has not been emphasized in the U.S. It is a longstanding Federal role to contribute here.



### Federal Precedents.

Support of Basic Research - ONR, NSF, NIH etc.  
Fostering new technologies such as A.I. by support of university or (small) company research.

Spinoffs to Industry - NASA  
Contributions from Federal Labs - DOE  
Support of Consortia for very advanced technology - DARPA

### Abroad

Support of Basic Research - Most advanced countries  
Fostering new technologies - Japan MITI  
Support of Consortia for very advanced technology - Japan MITI, Europe EUREKA etc.  
Contributions from Federal Labs - Japan

### Example options

Federal labs take on advanced commercial technology role  
Federal support of university-industry interactions.  
(centers, fellowships to industry)

### II. Environment supportive to Improvement of Existing Product.

This is less a matter of really new scientific knowledge more a question of taking the next engineering step, a step usually aimed at product. Sometimes it is a question of adapting existing knowledge to the special product situation or of transferring existing knowledge to a firm that could use it. Examples would include research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects that are project oriented but beyond a single firm's economic time horizon.

### Federal precedents

NACA  
Brookhaven synchrotron radiation  
Sematech  
NIST technology transfer centers  
DARPA support of Gallium Arsenide

### Foreign

Japan - some MITI Consortia  
Japan - The role of NTT  
Japan - Financial support of key industries

### Example options

Support of advanced manufacturing centers  
Support of advanced technology consortia  
More consistent R&D tax policy. Better Manufacturing depreciation.  
Support of travel abroad by small businesses to learn competitive techniques.

### III. Availability of Technical Labor Force.

Training and orientation of Scientists and Engineers as well as technically competent people for a production environment.

Clearly the availability of good people makes a difference. So does their attitude and motivation. U.S. attitudes have favored science as high prestige, design engineering as less prestigious and manufacturing is rarely mentioned. However all branches of technical work are currently not much sought after. The Federal government has played a role in this training especially through its connection with research grants and fellowships.

Vocational Training in the U.S. is a low prestige and possibly poor content activity.

#### Federal Precedents

- Fellowships

- Grants

- Presidential Young investigator awards

#### Foreign

All major countries send students, graduate students, or postdocs to the U.S. in addition to funding their own.

Vocational training is sometimes more highly developed.

#### Example options

- Support of changes in the engineering curriculum

- Awards "Presidential Manufacturing Fellowship"

- Presidential speech including importance of manufacturing excellence.

- Study the need for and state of vocational education.

- Green Cards for foreign graduates of U.S. Universities.



## FAX Transmittal Sheet

DATE: 6/14/91

TO: R. GOMERT

ORGANIZATION: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_

FAX: (212) 757-5117

FROM: W.D. PHILLIPS

TELEPHONE: 456-7744

FAX: 202-395-3719

NUMBER OF PAGES, INCLUDING COVER PAGE: 6

SPECIAL INSTRUCTIONS:

### TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE)  
WAS SENT

**\*\* COUNT \*\***  
**# 6**

\*\*\* SEND \*\*\*

| NO | REMOTE STATION I. D. | START TIME     | DURATION | #PAGES | COMMENT            |
|----|----------------------|----------------|----------|--------|--------------------|
| 1  | 212 757 5117         | 6-14-91 9:38AM | 5'36"    | 6      | ERROR CORRECT MODE |

TOTAL 0:05'36" 6

XEROX TELECOPIER 7021



EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

DATE: 6/11/91

TO: John McInerney  
ADDRESS: Ford Motor

Telephone Number: (313) 322-7105  
Fax Number: (313) 845-0511

FROM: W. D. Phillips

Telephone Number: 406-7740  
Fax Number: (202) 395-3719

Number of Pages (including cover sheet): 3

SPECIAL INSTRUCTIONS:

TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE)  
WAS SENT

\*\* COUNT \*\*  
# 3

\*\*\* SEND \*\*\*

| NO | REMOTE STATION I. D. | START TIME     | DURATION | #PAGES | COMMENT |
|----|----------------------|----------------|----------|--------|---------|
| 1  | 313 845 0512         | 6-11-91 4:15PM | 2'05"    | 3      |         |

TOTAL 0:02'05" 3

XEROX TELECOPIER 7021



# Withdrawal/Redaction Sheet

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| Document No.<br>and Type | Subject/Title of Document                                                                                     | Date    | Restriction | Class. |
|--------------------------|---------------------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 04. Memorandum           | To: John McTague From: William Phillips<br>Re: PCAST Panel Candidates [personal information redacted] (2 pp.) | 6/11/91 | (b)(6)      |        |

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|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 05. List                 | Recommendations for consultants or panel members for<br>PCAST Panel on International Economic Competitiveness<br>[personal information redacted] (1 pp.) | 8/26/91 | (b)(6)      |        |

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|--------------------------|------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 06. Memorandum           | To: Bill Phillips From: Jules Blake<br>Re: PCAST Panel [personal information redacted] (1 pp.) | 5/31/91 | (b)(6)      |        |

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(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]

(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]

(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]

(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]

(b)(9) Release would disclose geological or geophysical information

# Withdrawal/Redaction Sheet

## (George Bush Library)

| Document No.<br>and Type | Subject/Title of Document                                                                        | Date    | Restriction | Class. |
|--------------------------|--------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 07. Notes                | PCAST Panel on Competitiveness - Potential Candidates<br>[personal information redacted] (1 pp.) | 5/30/91 | (B)(6)      |        |

**Collection:**

**Record Group:** Bush Presidential Records

**Office:** Science and Technology Policy, Office of (OSTP)

**Series:** Bromley, D. Allan, Files

**Subseries:** Organization Files - PCAST

**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

**Date Closed:** 5/17/2010

**OA/ID Number:** 62080-005

**FOIA/SYS Case #:** 2005-0336-F

**Appeal Case #:**

**Re-review Case #:**

**Appeal Disposition:**

**P-2/P-5 Review Case #:**

**Disposition Date:**

**AR Case #:**

**MR Case #:**

**AR Disposition:**

**MR Disposition:**

**AR Disposition Date:**

**MR Disposition Date:**

### RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P-1 National Security Classified Information [(a)(1) of the PRA]  
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]  
P-3 Release would violate a Federal statute [(a)(3) of the PRA]  
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]  
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]  
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

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5/31/91

Bill Phillips  
OSTP

3719

LEO MACKLIN  
FCC/OSTP

(202) 395-1575

# Withdrawal/Redaction Sheet

## (George Bush Library)

| Document No.<br>and Type | Subject/Title of Document                                                                                         | Date    | Restriction | Class. |
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| 08. Memorandum           | To: Bill Phillips From: Leo Macklin<br>Re: Panel Members for Ralph Gomory [personal information redacted] (1 pp.) | 5/31/91 | (b)(6)      |        |

**Collection:**

**Record Group:** Bush Presidential Records

**Office:** Science and Technology Policy, Office of (OSTP)

**Series:** Bromley, D. Allan, Files

**Subseries:** Organization Files - PCAST

**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

|                                     |                                |
|-------------------------------------|--------------------------------|
| <b>Date Closed:</b> 5/17/2010       | <b>OA/ID Number:</b> 62080-005 |
| <b>FOIA/SYS Case #:</b> 2005-0336-F | <b>Appeal Case #:</b>          |
| <b>Re-review Case #:</b>            | <b>Appeal Disposition:</b>     |
| <b>P-2/P-5 Review Case #:</b>       | <b>Disposition Date:</b>       |
| <b>AR Case #:</b>                   | <b>MR Case #:</b>              |
| <b>AR Disposition:</b>              | <b>MR Disposition:</b>         |
| <b>AR Disposition Date:</b>         | <b>MR Disposition Date:</b>    |

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## NATIONAL ADVISORY COMMITTEE ON SEMICONDUCTORS

**DATE:** April 30, 1991

**FROM:** DAVID KEEVER / KATHLEEN ELIM

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Col. John Kline  
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John Lyons  
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David Nelson  
James Peterman  
Raymond Siewert  
Bill Troutman  
Bert Westwood

\*\*\*\*\*

A revised NACS Committee roster and a new phone list follow. If you find any errors or outdated information, please let me know.

Kathleen

\*\*\*\*\*

This is page 1 of 4  
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\*Kuo K. Wang — *Uoffman?*

Liaison from Manufacturing Studies Board

#Herbert B. Voelcker, Charles Lake Professor of Engineering, Sibley School of Mechanical Engineering, Cornell University

Corresponding Members

These individuals will be invited no later than the second meeting of the committee; will be invited for a three-day visit with the first day being a rest day.

Michael F. Ashby (NAE), Royal Society Research Professor, Engineering Department, Cambridge University

Toshio Sata, Executive Director, RIKEN (The Institute of Physical and Chemical Research), or

Kazuaki Iwata, Department of Production Engineering, Kobe University, Rokkodai, Nada, Kobe 657, Japan, or

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Wilfred Koenig, Lehrstuhl fuer Technologie der Fertigungsverfahren, Technische Hochschule Aachen, 5100 Aachen, United Germany

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Division of Design and Manufacturing Systems  
Branimir von Turkovich, Director

\*Unable to attend the meeting  
#Attend on May 28 only

\*Bruce Kramer, Program Director, Manufacturing Processes and Equipment Program

\*Suren Rao, Senior Program Director, Manufacturing Processes and Equipment Program

Division of Mechanical and Structural Systems

Elbert L. Marsh, Deputy Division Director

Ken P. Chong, Program Director, Structural Systems and Construction Processes Program (will be represented by Jorn Larsen-Basse, Program Director, Service Engineering and Tribology)

Lallit Anand, Program Director, Mechanics and Materials Program in Engineering

Department of Defense

\*Charles H. Kimzey, Industrial Specialist, Office of Manufacturing and Industrial Programs

Department of Energy

\*J. Voytko, Defense Programs

National Materials Advisory Board

§Robert M. Ehrenreich, Staff Officer, National Materials Advisory Board

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Jules Blake, Consultant

\*William D. Phillips, Associate Director for Industrial Policy

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\*Lyle H. Schwartz, Director, Materials Science and Engineering Laboratory

\*John Simpson, Director, Center For Manufacturing Engineering

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Archie L. Wood, Executive Director

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<sup>^</sup> chestra \*Thomas C. Mahoney, MSB Acting Director

Kerstin B. Pollack, MSB Deputy Director

Verna J. Bowen, Staff Assistant

\*Unable to attend the meeting

§Attending on May 29 only



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EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

April 24, 1991

MEMORANDUM FOR RALPH GOMERY  
PRESIDENT, SLOAN FOUNDATION

FROM: WILLIAM D. PHILLIPS   
SUBJECT: DRAFT TERMS OF REFERENCE  
FOR PCAST COMPETITIVENESS  
PANEL

Jules Blake and I have put together this draft for your consideration as a Terms of Reference for your Panel. Please feel free to add, delete, or edit in any way you see fit.

I'll be out next week, but Jules will be in on Monday through Wednesday and can be reached on (202) 395-3637, if you wish to discuss anything with him.

Attachment



## TERMS OF REFERENCE

### PCAST PANEL ON INTERNATIONAL ECONOMIC COMPETITIVENESS

The purpose of the Panel is to develop information and policy options to provide a base for PCAST advice to the President on the issue of international economic competitiveness, particularly in those areas where science, technology, engineering, and manufacturing play a major role and, where appropriate, suggest possible Federal action that could contribute to competitiveness.

A recent Fortune article [September 14, 1990] warned that "Made in the U.S.A." may be fading away. It shows that U.S. factories' share of U.S. market has declined across the board for all U.S. industry, especially high-tech industries. Ralph Landau, Consulting Professor of Economics and Co-Director for the Technology and Economic Growth Program at Stanford University (former chemical industry entrepreneur), in a recent paper wrote that "the fastest way to raise the average performance of the economy is to emphasize continuing application of these new technologies to leading edge industries." The general consensus of many groups studying the issue of competitiveness and technology have agreed that the United States has lost its leading competitiveness edge in many industries. Furthermore, the area where we are lacking is in our ability to commercialize our discoveries and developments in a timely fashion.

The Commission for Strengthening of America, a group of CEOs and Congressmen, notes that "U.S. companies have a more difficult time translating innovation into product, getting product to marketplace, and gaining and keeping market share." The result is an American manufacturing gap and, ultimately, an increasing deterioration of our technology base.

#### The Panel

The Panel on International Economic Competitiveness shall:

- (1) Address the issue of the possibility that U.S. industry has become more risk averse than our foreign competitors and, if so, how can this be remedied?

It may be that the gain for success of a new product or process is not commensurate with the loss that would incur on failure. The stakes are high to commercialize a new product. It costs an order of magnitude or two more to do the commercialization than to do the R&D. There is the capital cost of the plant, the marketing cost of market entry, and the uncertainty of whether the product will successfully make a profit in the appropriate time scale. The CEO who makes these multi-hundred million dollar decisions has a fiduciary responsibility to the stockholders, which he does not take lightly. His incentive to take the risks may not be high enough compared to doing business as usual.

- (2) Determine whether the rate of change in deployment time has been a major factor in losing our competitive edge, that is, the time from invention to market which has been considerably shortened in many cases by the Japanese, has been too long for many American firms who are now playing catch up. Is there a way to leap frog this? Are there policies that would make it easier?
- (3) Assess whether it is appropriate for this panel to further assess the effect of quality on productivity and market share since many other groups are doing this.
- (4) Address the issue of technology transfer and ways to utilize the technology from the federal laboratories.

The amount of money spent at the federal laboratories on R&D and the one-sixth of our technical manpower consumed in this effort is a resource that has not been fully tapped. One of the reasons is that there is no mechanism for funding the gap between the discoveries in the laboratories and commercial reality, e.g., market studies, prototype production, building of pilot plants, etc. Is it worthwhile to pursue this or would we be better off starting with redirecting the missions of the federal laboratories toward the commercial market?

- (5) Assess whether the role of alliances and consortia <sup>as</sup> ~~are~~ a means to increasing competitiveness.
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- (8) Address other issues which the panel will deem appropriate during the course of its deliberations.

#### Possible Membership of the Panel

See attached.

*add to list  
redefine  
e.g. DoS part have a role  
in U.S. strategy*



### **Background Information**

Suggested starting points for the Panel are:

- The Council on Competitiveness report, Gaining New Ground
- The OSTP Report of the National Critical Technologies Panel
- Excerpts from "Memorandum for Strengthening of America", by Debra Miller, Director, Commission for Strengthening of America, which deal with many of the issues noted above (attached).

### **Attachments**

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| 09. List                 | Possible Membership of PCAST Panel on International Economic Competitiveness [personal information redacted]<br>(1 pp.) |      | (b)(6)      |        |

**Collection:**

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**MEMORANDUM FOR STRENGTHENING OF AMERICA MANUFACTURING AND  
TECHNOLOGY EXPERTS GROUP**

**FROM: DEBRA MILLER  
DIRECTOR, COMMISSION FOR STRENGTHENING OF  
AMERICA**

**SUBJECT: UPDATE ON "STRENGTHENING" MANUFACTURING,  
TECHNOLOGY, AND QUALITY ISSUES**

**Strengthening of America Commission**

Consensus was reached on a number of issues. First it was agreed that the heart of the problem U.S. industry faces is an inability to commercialize as fast as Japanese companies can. "Manufacturing gap."

Second, some responsibility for addressing this issue has to be taken by the private sector.

Government's focus of its R&D budget and programs was misguided. Nothing allocated to the commercialization of technology. Focus on precompetitive generic technology . . . not being responsive to the real problem industry is facing.

Government must take some responsibility for sharing commercial risks with private industry, as is done in Japan. Closer partnership needs to be formed between industry and government.

Mandate to recommend solutions for particular clusters of problems identified during meeting:

- the development of a new or amended technology policy;
- regulatory reform (antitrust, procurement, product liability, intellectual property rights);
- productivity in the private sector;
- increasing the productivity of small and medium sized manufacturing firms;
- making more productive the relationship between the federal labs and the private sector;
- encouraging the use of a quality approach.

Manufacturing is America's economic foundation. It is critical to our national security, our competitive position in the world economy, and to our national well-being.

Manufacturing's economic importance is disproportionate to its relative share in the American economy: it contributes roughly 20% of national output, but does more than 95% of private R&D. It is a major source of product demand for other sectors. Most of the swing in the overall U.S. balance of trade during the last decade can be accounted for by movements in manufacturing trade.

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Industries really matter, that we set priorities and national intents, and recommend what is essential for competitors to compete.

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Government has supported precompetitive generic technologies for a very long time. For example, for over 25 years, federally-funded advanced materials labs at several excellent universities have done research, produced materials scientists, and generated papers for the technical literature. But, there has been no appreciable commercial impact of this effort.

The U.S. is exceptionally strong in innovation, but has a more difficult time translating innovation into product, getting product to the marketplace, and gaining and keeping market share. Should government offer support for civilian technologies for a "longer" period of time, as it does for defense technologies?

### The Federal Laboratory in National Technology Development

In fact, one dollar out of every six spend on R&D in the United States is spent at the 700 federal labs. How the labs can support national technology policy and especially how to bring the contributions of the labs to the private sector.

### Manufacturing Issues

#### Making America an attractive manufacturing environment

No CEO of a Fortune 500 company is graduate manufacturing engineer [compare Japan].

**The Manufacturing Gap Revisited.** There are at least two disturbing consequences of the low prestige accorded to manufacturing engineering. First, the relatively small numbers of manufacturing engineers that our universities turn out means that there is a gaping hole in the manufacturing chain. That is, companies do not know how to translate technology into product. This is the "manufacturing gap". Compounding



the problem is the relatively small amount the U.S. invests in process technologies -- less than 5%, perhaps as little as 2% of government investment in R&D goes into process technologies.

### Raising the Productivity of Small and Medium-Sized Manufacturers

A substantial portion of America's total manufacturing capability is found in small and medium-sized enterprises (SMEs) having less than 1000 employees. SMEs have a difficult time modernizing their plant and equipment, and statistically account for the U.S.'s lagging productivity growth rate.

Several states have established robust manufacturing extension programs modeled somewhat after state agriculture extension programs. These programs attempt to help SMEs in areas such as manufacturing technology, plant layout, product control, finance, training and marketing. Some, such as those in Georgia, appear to work very well. In addition, the federal government has programs aimed at SMEs to raise their manufacturing productivity (for example, the Advanced Manufacturing Program at the U.S. Department of Commerce).

The Commission should address whether these types of programs should be expanded or if other mechanisms are needed to enhance the productivity of small and medium-sized enterprises.

Given the "manufacturing gap", should government further support joint work on the application of technology, and even manufacturing and commercialization?

### Changes in the regulatory environment

Product liability laws have an impact on the competitiveness of U.S. companies. Consider whether to consider reforms of these laws and regulations.

### Quality Awards

The Malcolm Baldrige Quality Award, administered by the U.S. Department of Commerce, has gained applications each year.

Consider whether the federal government should take further steps toward improving the capability of U.S. industry to become world-class in the quality area.

### Impediments to Quality in Manufacturing: Results of the MIT Study on Productivity

Too much emphasis is place on invention and very little emphasis on downstream processes. That's a mistake. We spent one-third of our industrial R&D money on the processes that make things and two-thirds on invention. Japan and Germany have these numbers the other way around. Beyond the numbers, we treasure the inventor and think a career in manufacturing is sheer drudgery.

Government and industry are like two ships passing the night. They don't understand each other's needs and aspirations.

### Government's Role in Support of Critical Technology

#### The Need for a new Technology Policy

**How the U.S. Government should respond.** U.S. Government to share the risk with companies so that critical technologies could be developed and applied in America. Collaborative efforts must be encouraged. Our national technology policy has to be much expanded, more detailed with a national road map. Congress should mandate that the private sector have a strong imprimatur on the policy.

The centerpiece of the Administration's technology policy is the support of precompetitive generic technologies. But, that has an Achilles heel; people are not going to even commit to their part of precompetitive support if they imagine the risk in the seamless business problem is beyond their competence when the precompetitive engineering is accomplished. Who is going to develop the product? Who is going to invest in the capital equipment? *This is where the risk has to be attenuated -- in the development and manufacturing phases.*

There is a "monumental disconnect" between the present U.S. technology policy and the government's overall policies toward industry. Government has failed to coordinate the full range of policies to promote economic competitiveness for fear of using the dread term industrial policy. Terrific rhetoric, but poor performance.

The priorities of the federal budget on R&D must be rethought. 60% of the R&D budget goes to defense. Virtually all of the rest goes to space, energy, health, agriculture, and basic science. There is almost nothing for extension activities or generally helping industries. For example, in 1987, Germany spent 15.3% of its government R&D budget on industrial development. The equivalent U.S. figure was two-tenths of one percent.

However, partnerships are risky: the government shared the risk in the savings and loan industry and basically provided blanket deposit insurance. That made it a riskless system and that was a disaster.

### Technology Transfer and the National Laboratories

Change the priorities of the federal labs. A good part of the effort of the federal labs -- should be redirected to the consumer who is in the market place, to the commercial venture that has to deal with short product cycles.

Change the emphasis from basic science to commercialization of technology. The consumer product is by far the best route for a commercial, industrial, or military product, not the other way around.



Weakness is not in the creation of technology or even its transfer. It is in the commercialization of technology. All of the things we have been talking about -- total quality, reducing cycle times, getting waste and inefficiency out of the system -- relate to enhancing the environment in which our technology can be commercialized.

We also have to find ways to reduce entrepreneurial risk and find better ways to share it.

That is the heart of our weakness -- our inability to successfully commercialize the technology that is flowing out of our creative processes.

Our present technology policy does not adequately address the issue that most important -- the commercialization of technology, ~~is~~ closing the "manufacturing gap". A follow-up working group will make recommendations on how technology policy should be changed to meet this challenge.

*the group believes*

Mfg.

Cyril M. Pierce - Gen Mgr of Mfg  
& Quality Technology

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Richard Morrison

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Boeing

James Ladner - Ret from Deere

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Fred Garry - Ret Corporate  
Engineering (GE)

---

Harry Cook - U at all now  
Ford, Chrysler earlier

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D17

F1

Down Hauling  
Punch  
→ Permanent Basis

Combined E. & T. test

CT1

Bill Walsh



## TERMS OF REFERENCE

### PCAST PANEL ON INTERNATIONAL ECONOMIC COMPETITIVENESS

The purpose of the Panel is to develop information and policy options to provide a base for PCAST advice to the President on the issue of international economic competitiveness, particularly in those areas where science, technology, engineering, and manufacturing play a major role and, where appropriate, suggest possible Federal action that could contribute to competitiveness.

**Ralph Landau**, Consulting Professor of Economics and Co-Director for Technology and Economic Growth Program at Stanford University (former chemical industry entrepreneur), has said "the fastest way . . . continuing application . . . the general consensus of many groups studying the issue of competitiveness and technology have agreed that the United States has lost its leading competitiveness edge in many industries. Furthermore, the area where we are lacking is in our ability to commercialize our discoveries and developments in a timely fashion.

The Commission for Strengthening of America, a group of CEOs and Congressmen, . . . They say, " U.S. companies have a more difficult time translating innovation into product, getting product to marketplace, and gaining and keeping market share. The result is in American manufacturing gap and, ultimately, an increasing deterioration of our technology base.

#### The Panel

The Panel on International Economic Competitiveness shall:

- (1) Address the issue of the possibility that U.S. industry has become more risk averse (perhaps for) than our foreign competitors and, if so, how can this be remedied?

It may be that the gain for success of a new product or process is not commensurate with the lost that would incur on failure. The stakes are high to commercialize a new product. It costs an order of magnitude or two more to do the commercialization than to do the R&D. There is the capital cost of the plant, the marketing cost of market entry, and the uncertainty of whether the product will successfully make a profit in the appropriate time scale. The CEO who makes these multi-hundred million dollar decisions has a fiduciary responsibility to the stock holders, which he does not take lightly. His incentive to take the risks may not be high enough compared to doing business as usual.

- (2) Determine whether the rate of change in deployment time has been a major factor in losing our competitive edge, that is, the time from invention to market which has been considerably shortened in many cases by the Japanese, has been too long for many American firms who are now playing catch up. Is there a way to leap frog this? Are there policies that would make it easier.



- (3) Assess whether it is appropriate for this panel to further the effect of quality on productivity on market share since many other groups are doing this.
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The amount of money spent at the federal laboratories on R&D and the one-sixth of our technical manpower consumed in this effort is a resource that has not been fully tapped. One of the reasons is that there is no mechanism for funding the gap between the discoveries in the laboratories and commercial reality, e.g., market studies, prototype production, building of power plants, etc. Is it worthwhile to pursue this or would we be better off starting with redirecting the missions of the federal laboratories toward the commercial market.

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|--------------------------|----------------------------------------------------------------------------------------------------------------------|------|-------------|--------|
| 10. List                 | Possible Membership of PCAST Panel on International Economic Competitiveness [personal information redacted] (1 pp.) |      | (b)(6)      |        |

**Collection:**

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**Series:** Bromley, D. Allan, Files

**Subseries:** Organization Files - PCAST

**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

|                               |             |                             |           |
|-------------------------------|-------------|-----------------------------|-----------|
| <b>Date Closed:</b>           | 5/17/2010   | <b>OA/ID Number:</b>        | 62080-005 |
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EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

April 24, 1991

MEMORANDUM FOR RALPH GOMERY  
PRESIDENT, SLOAN FOUNDATION

FROM: WILLIAM D. PHILLIPS   
SUBJECT: DRAFT TERMS OF REFERENCE  
FOR PCAST COMPETITIVENESS  
PANEL

Jules Blake and I have put together this draft for your consideration as a Terms of Reference for your Panel. Please feel free to add, delete, or edit in any way you see fit.

I'll be out next week, but Jules will be in on Monday through Wednesday and can be reached on (202) 395-3637, if you wish to discuss anything with him.

Attachment

3 part division in Govt and other  
More Manufacturing structure.  
Improvement of Product within the

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A recent Fortune article [September 14, 1990] warned that "Made in the U.S.A." may be fading away. It shows that U.S. factories' share of U.S. market has declined across the board for all U.S. industry, especially high-tech industries. Ralph Landau, Consulting Professor of Economics and Co-Director for the Technology and Economic Growth Program at Stanford University (former chemical industry entrepreneur), in a recent paper wrote that "the fastest way to raise the average performance of the economy is to emphasize continuing application of these new technologies to leading edge industries." The general consensus of many groups studying the issue of competitiveness and technology have agreed that the United States has lost its leading competitiveness edge in many industries. Furthermore, the area where we are lacking is in our ability to commercialize our discoveries and developments in a timely fashion.

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### Making America an attractive manufacturing environment

No CEO of a Fortune 500 company is graduate manufacturing engineer [compare Japan].

**The Manufacturing Gap Revisited.** There are at least two disturbing consequences of the low prestige accorded to manufacturing engineering. First, the relatively small numbers of manufacturing engineers that our universities turn out means that there is a gaping hole in the manufacturing chain. That is, companies do not know how to translate technology into product. This is the "manufacturing gap". Compounding

the problem is the relatively small amount the U.S. invests in process technologies -- less than 5%, perhaps as little as 2% of government investment in R&D goes into process technologies.

### Raising the Productivity of Small and Medium-Sized Manufacturers

A substantial portion of America's total manufacturing capability is found in small and medium-sized enterprises (SMEs) having less than 1000 employees. SMEs have a difficult time modernizing their plant and equipment, and statistically account for the U.S.'s lagging productivity growth rate.

Several states have established robust manufacturing extension programs modeled somewhat after state agriculture extension programs. These programs attempt to help SMEs in areas such as manufacturing technology, plant layout, product control, finance, training and marketing. Some, such as those in Georgia, appear to work very well. In addition, the federal government has programs aimed at SMEs to raise their manufacturing productivity (for example, the Advanced Manufacturing Program at the U.S. Department of Commerce).

The Commission should address whether these types of programs should be expanded or if other mechanisms are needed to enhance the productivity of small and medium-sized enterprises.

Given the "manufacturing gap", should government further support joint work on the application of technology, and even manufacturing and commercialization?

### Changes in the regulatory environment

Product liability laws have an impact on the competitiveness of U.S. companies. Consider whether to consider reforms of these laws and regulations.

### Quality Awards

The Malcolm Baldrige Quality Award, administered by the U.S. Department of Commerce, has gained applications each year.

Consider whether the federal government should take further steps toward improving the capability of U.S. industry to become world-class in the quality area.

### Impediments to Quality in Manufacturing: Results of the MIT Study on Productivity

Too much emphasis is placed on invention and very little emphasis on downstream processes. That's a mistake. We spent one-third of our industrial R&D money on the processes that make things and two-thirds on invention. Japan and Germany have these numbers the other way around. Beyond the numbers, we treasure the inventor and think a career in manufacturing is sheer drudgery.



Government and industry are like two ships passing the night. They don't understand each other's needs and aspirations.

### Government's Role in Support of Critical Technology

#### The Need for a new Technology Policy

**How the U.S. Government should respond.** U.S. Government to share the risk with companies so that critical technologies could be developed and applied in America. Collaborative efforts must be encouraged. Our national technology policy has to be much expanded, more detailed with a national road map. Congress should mandate that the private sector have a strong imprimatur on the policy.

The centerpiece of the Administration's technology policy is the support of precompetitive generic technologies. But, that has an Achilles heel; people are not going to even commit to their part of precompetitive support if they imagine the risk in the seamless business problem is beyond their competence when the precompetitive engineering is accomplished. Who is going to develop the product? Who is going to invest in the capital equipment? *This is where the risk has to be attenuated -- in the development and manufacturing phases.*

There is a "monumental disconnect" between the present U.S. technology policy and the government's overall policies toward industry. Government has failed to coordinate the full range of policies to promote economic competitiveness for fear of using the dread term industrial policy. Terrific rhetoric, but poor performance.

The priorities of the federal budget on R&D must be rethought. 60% of the R&D budget goes to defense. Virtually all of the rest goes to space, energy, health, agriculture, and basic science. There is almost nothing for extension activities or generally helping industries. For example, in 1987, Germany spent 15.3% of its government R&D budget on industrial development. The equivalent U.S. figure was two-tenths of one percent.

However, partnerships are risky: the government shared the risk in the savings and loan industry and basically provided blanket deposit insurance. That made it a riskless system and that was a disaster.

### Technology Transfer and the National Laboratories

Change the priorities of the federal labs. A good part of the effort of the federal labs -- should be redirected to the consumer who is in the market place, to the commercial venture that has to deal with short product cycles.

Change the emphasis from basic science to commercialization of technology. The consumer product is by far the best route for a commercial, industrial, or military product, not the other way around.

Weakness is not in the creation of technology or even its transfer. It is in the commercialization of technology. All of the things we have been talking about -- total quality, reducing cycle times, getting waste and inefficiency out of the system -- relate to enhancing the environment in which our technology can be commercialized.

We also have to find ways to reduce entrepreneurial risk and find better ways to share it.

That is the heart of our weakness -- our inability to successfully commercialize the technology that is flowing out of our creative processes.

Our present technology policy does not adequately address the issue that most important -- the commercialization of technology, is closing the "manufacturing gap". A follow-up working group will make recommendations on how technology policy should be changed to meet this challenge.



"CORRESPONDENCE TRACKING"

TYPE: Information

DOCUMENT NUMBER: 9122359

ORIGINATOR: 06

STATUS

DIRECTORATE STATUS C

\*\*\*\*\*

FROM: PHILLIPS, William: OSTP

TO: Gomery

DATE OF  
CORRESPONDENCE: 07/18/91

SUBJECT: Sent copy of Manufacturing Studies Board new  
publication "The Competitive Edge" for possible use  
on economic growth PCAST panel study.

\*\*\*\*\*  
DIRECTORATE STAFF  
ASSIGNED: ASSIGNED:

ACTION STAFF  
REQUIRED: ACTION:

\*\*\*\*\*  
SENDER'S DUE DATE:  
OSTP DUE DATE: STAFF DUE DATE  
DATE COMPLETED: DATE COMPLETED/DEPT:07/18/91

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COPIES TO:

\*\*\*\*\*  
WHITE HOUSE TRACKING #: CONTACT PERSON:  
REMARKS: PHONE: EXT:

OSTP RECEIVED:  
DEPT RECEIVED:

FILE: PCAST - INTERNATIONAL ECONOMIC

*Parsons*  
*Computations*

EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

July 18, 1991

Dear Ralph,

At the behest of NSF, the Manufacturing Studies Board of the National Research Council recently completed a study of priorities for U.S. manufacturing that resulted in a recent conference here in Washington and publication of the enclosed "The Competitive Edge." I think the analysis is good and they came up with some useful recommendations. Although much needs to be fleshed out, I feel this can serve as additional background material for the economic growth PCAST panel study.

I would, however, appreciate it if you would return the book in a couple of weeks since it is the only copy that I have. A card for ordering a copy is enclosed, if you so desire.

Sincerely,



William D. Phillips  
Associate Director for Industrial Technology

Enclosure

Dr. Ralph E. Gomory  
President  
Alfred P. Sloan Foundation  
630 Fifth Avenue  
New York, NY 10111-0242



# Withdrawal/Redaction Sheet

## (George Bush Library)

| Document No.<br>and Type | Subject/Title of Document                                                                                                                       | Date    | Restriction | Class. |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 12. Memorandum           | To: Jules Blake From: Leo Macklin<br>Re: Candidates for International Economic Competitiveness<br>Panel [personal information redacted] (1 pp.) | 4/25/91 | (b)(6)      |        |

**Collection:**

**Record Group:** Bush Presidential Records

**Office:** Science and Technology Policy, Office of (OSTP)

**Series:** Bromley, D. Allan, Files

**Subseries:** Organization Files - PCAST

**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

|                               |             |                             |           |
|-------------------------------|-------------|-----------------------------|-----------|
| <b>Date Closed:</b>           | 5/17/2010   | <b>OA/ID Number:</b>        | 62080-005 |
| <b>FOIA/SYS Case #:</b>       | 2005-0336-F | <b>Appeal Case #:</b>       |           |
| <b>Re-review Case #:</b>      |             | <b>Appeal Disposition:</b>  |           |
| <b>P-2/P-5 Review Case #:</b> |             | <b>Disposition Date:</b>    |           |
| <b>AR Case #:</b>             |             | <b>MR Case #:</b>           |           |
| <b>AR Disposition:</b>        |             | <b>MR Disposition:</b>      |           |
| <b>AR Disposition Date:</b>   |             | <b>MR Disposition Date:</b> |           |

### RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

- P-1 National Security Classified Information [(a)(1) of the PRA]
- P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
- P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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- P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
- P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

- (b)(1) National security classified information [(b)(1) of the FOIA]
- (b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
- (b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
- (b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
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- (b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
- (b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- (b)(9) Release would disclose geological or geophysical information

EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

## FAX Transmittal Sheet

DATE:

6/5/91

TO:

BILL PHILLIPS

ORGANIZATION:

TELEPHONE:

FAX:

3719

FROM:

Tom Welch

ORGANIZATION: OFFICE OF SCIENCE AND TECHNOLOGY POLICY

TELEPHONE: 202-395-5101

FAX: 202-395-1575

NUMBER OF PAGES, INCLUDING COVER PAGE:

4

SPECIAL INSTRUCTIONS:

THIS LATEST VERSION OF  
THE GOMORY PAPER TOR ATTEMPTS  
TO INCLUDE ALL OF THE COMMENTS  
PROVIDED BY OSTP.  
WITH YOUR APPROVAL WE WILL  
SEND IT TO GOMORY. THANKS.



# DRAFT

June 5, 1991

## MEMORANDUM FOR RALPH GOMORY

President's Council of Advisors on Science and Technology  
(PCAST)

FROM: D. ALLAN BROMLEY

SUBJECT: TERMS OF REFERENCE FOR PCAST PANEL ON  
INTERNATIONAL ECONOMIC COMPETITIVENESS  
~~IN TECHNOLOGY~~

You are requested to establish a PCAST Panel on International Economic Competitiveness in Technology.

The Purpose of this Panel is to enable PCAST to advise the President on issues in science and technology that affect U.S. economic competitiveness and quality of life.

The private sector today is facing severe competition from abroad where vastly improved industries are emerging even in the most advanced technical areas, and where the more traditional industries have shown great ability to improve their manufacturing process and development technologies. Industry abroad is also making effective use of the high skill level of some of the competitive work forces.

In addition there are foreign government policies closely supportive of emerging and strategic technologies and designated industries.

While product competitiveness is largely the result of the internal actions of individual firms, firms are also influenced by their surroundings. Familiar examples of this from the economic arena are cost of capital and tax structure.

But there are other and more technically oriented aspects of the surroundings as well.

First there is the availability of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments, etc. It is a longstanding Federal role to contribute here and many government agencies have focused on this.

# DRAFT

The Report of the Panel on National Critical Technologies selected 22 technologies deemed critical to national economic prosperity and to our military security. The Department of Defense, in its "Critical Technologies Plan" presents dual-purpose technologies which are adaptable to enhancing the economic competitiveness of the private sector. The Department of Commerce has issued its "Emerging Technologies Report" which identifies 12 emerging technologies. Also, the private sector Council on Competitiveness issued "Gaining New Ground - Technologies Priorities for America's Future" identifies priorities for enhancing economic competitiveness.

With regard to technologies, President Bush has stated: "If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but to learn to more effectively translate those technologies in commercial products."

In addition to new technologies there is a second aspect in the need for improvement of existing product. This includes research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects beyond a single firm's economic time horizon. Federal examples include Sematech and Brookhaven synchrotron light source.

A third competitiveness element is the availability of a technical labor force. This means vocational training as well as the training of scientists and engineers. To the extent that other panels do not deal with some aspects of this, I would like this to be included in the work of his committee.

In the areas of new technology, product improvement, and technical workforce I would like the Panel to:

- o Report on how best to enhance the partnership between the government and the private sector aiming at a major improvement in our competitive position, and
- o Discuss actions that the government and the private sector can take, together or separately, aimed at enhancing our competitive posture.

The Panel shall submit a preliminary report to the PCAST within 3 months after the Panel's first meeting.

The Office of the Associate Director for Industrial Technology, Office of Science and Technology Policy, will sponsor the Panel. Dr. Ralph Gomory will serve as Chairman and Dr. Harold Shapiro will serve as Vice Chairman. Mr. William Snyder will serve as the PCAST Secretariat Representative.

## Determination

I hereby determine that the formation of the PCAST Panel on Technology and International Economic Competitiveness in Technology is in the public interest in connection with the performance of duties imposed on the Executive Branch by law, and that such duties can best be performed through the advice and counsel of such a group.



# **DRAFT**

**The Terms of Reference for the PCAST Panel on Technology and International Economic Competitiveness in Technology include no assignment requiring Panel members to participate personally and substantially in the conduct of any specific procurement, or place any member in the position of acting as a "procurement official."**

**Approved:**

---

**D. Allan Bromley  
Assistant to the President  
for  
Science and Technology**

---

**Date**

"CORRESPONDENCE TRACKING"

TYPE: Information DOCUMENT NUMBER: 9123527  
ORIGINATOR: 06 STATUS DIRECTORATE STATUS C  
\*\*\*\*\*

FROM: WDP

TO: Ralph Gomory

DATE OF  
CORRESPONDENCE: 08/20/91

SUBJECT: PCAST Economic Growth Panel

\*\*\*\*\*  
DIRECTORATE STAFF  
ASSIGNED: ASSIGNED:

ACTION STAFF  
REQUIRED: ACTION:

\*\*\*\*\*  
SENDER'S DUE DATE:  
OSTP DUE DATE: STAFF DUE DATE  
DATE COMPLETED: DATE COMPLETED/DEPT:08/20/91

\*\*\*\*\*  
COPIES TO:

\*\*\*\*\*

WHITE HOUSE TRACKING #: CONTACT PERSON:  
PHONE: EXT:  
REMARKS: Faxed this letter and attachment to Gomory on 8/20/91 and mailed  
to him same day. Dr. Phillips discussed this with him over  
phone.

OSTP RECEIVED: FILE: PCAST-PANEL ON INTERNATIONAL  
DEPT RECEIVED:



EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

August 20, 1991

Dear Ralph:

In an attempt to focus my thoughts on some specific topics for consideration by the PCAST Economic Growth Panel, it occurred to me that a private sector evaluation of some of the current assumptions surrounding competitiveness and economic growth, held at least by some people and groups, might be useful. All are difficult topics and I wouldn't expect terribly conclusive results from a Panel study. However, I am convinced a private sector airing would be useful, and a basis might be laid for more comprehensive examination. My topics are only offered as suggestions. However, if we can develop a theme or themes for the panel, panel selection will be simplified.

Sincerely,



William D. Phillips  
Associate Director for Industrial Technology

Attachment

Dr. Ralph E. Gomory  
President  
Alfred P. Sloan Foundation  
630 Fifth Ave.  
New York, NY 10111-0242

## Economic Growth

### Examination of Some Current Assumptions

- To what extent and in what ways can the Federal labs be expected realistically to contribute to economic growth? The Federal lab--Corporate lab analog.
- Are U.S. industries such as gears, machine tools, materials and methods of construction underinvesting in R&D? If so, what can they do and what are they doing to rectify the situation?
- What are the merits and demerits to mobilizing government/industry/university efforts around "critical technologies" for purposes of economic growth and competitive advantage?
- What role, if any, should the government play in developing developmental roadmaps or strategic plans around "critical technologies"?
- For purposes of economic growth are U.S. production engineers being appropriately trained and rewarded?
- From the standpoint of technology and manufacturing skills acquisition and flow, how does the U.S. fare with regard to foreign labs and plants operating in the U.S. and with regard to U.S. labs and plants operating in foreign countries? Technology transfer and manufacturing skills flow.
- How do technology and manufacturing skills needs of small (<500 employees) companies differ from those of large companies?





EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

DATE: 4/24/91

TO:  
ADDRESS:

Ralph Gomery

Telephone Number:  
Fax Number:

212/649-1649  
212/757-5117

FROM:

Bill Phillips

Telephone Number:  
Fax Number:

202/456-7740  
(202) 395-3719

Number of Pages (including cover sheet): 10

SPECIAL INSTRUCTIONS:

Pls confirm Receipt

TRANSMISSION REPORT

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XEROX TELECOPIER 7021

EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

April 24, 1991

MEMORANDUM FOR RALPH GOMERY  
PRESIDENT, SLOAN FOUNDATION

FROM: WILLIAM D. PHILLIPS   
SUBJECT: DRAFT TERMS OF REFERENCE  
FOR PCAST COMPETITIVENESS  
PANEL

Jules Blake and I have put together this draft for your consideration as a Terms of Reference for your Panel. Please feel free to add, delete, or edit in any way you see fit.

I'll be out next week, but Jules will be in on Monday through Wednesday and can be reached on (202) 395-3637, if you wish to discuss anything with him.

Attachment



## TERMS OF REFERENCE

### PCAST PANEL ON INTERNATIONAL ECONOMIC COMPETITIVENESS

The purpose of the Panel is to develop information and policy options to provide a base for PCAST advice to the President on the issue of international economic competitiveness, particularly in those areas where science, technology, engineering, and manufacturing play a major role and, where appropriate, suggest possible Federal action that could contribute to competitiveness.

A recent Fortune article [September 14, 1990] warned that "Made in the U.S.A." may be fading away. It shows that U.S. factories' share of U.S. market has declined across the board for all U.S. industry, especially high-tech industries. Ralph Landau, Consulting Professor of Economics and Co-Director for the Technology and Economic Growth Program at Stanford University (former chemical industry entrepreneur), in a recent paper wrote that "the fastest way to raise the average performance of the economy is to emphasize continuing application of these new technologies to leading edge industries." The general consensus of many groups studying the issue of competitiveness and technology have agreed that the United States has lost its leading competitiveness edge in many industries. Furthermore, the area where we are lacking is in our ability to commercialize our discoveries and developments in a timely fashion.

The Commission for Strengthening of America, a group of CEOs and Congressmen, notes that "U.S. companies have a more difficult time translating innovation into product, getting product to marketplace, and gaining and keeping market share." The result is an American manufacturing gap and, ultimately, an increasing deterioration of our technology base.

#### The Panel

The Panel on International Economic Competitiveness shall:

- (1) Address the issue of the possibility that U.S. industry has become more risk averse than our foreign competitors and, if so, how can this be remedied?

It may be that the gain for success of a new product or process is not commensurate with the loss that would incur on failure. The stakes are high to commercialize a new product. It costs an order of magnitude or two more to do the commercialization than to do the R&D. There is the capital cost of the plant, the marketing cost of market entry, and the uncertainty of whether the product will successfully make a profit in the appropriate time scale. The CEO who makes these multi-hundred million dollar decisions has a fiduciary responsibility to the stockholders, which he does not take lightly. His incentive to take the risks may not be high enough compared to doing business as usual.

- (2) Determine whether the rate of change in deployment time has been a major factor in losing our competitive edge, that is, the time from invention to market which has been considerably shortened in many cases by the Japanese, has been too long for many American firms who are now playing catch up. Is there a way to leap frog this? Are there policies that would make it easier?
- (3) Assess whether it is appropriate for this panel to further assess the effect of quality on productivity and market share since many other groups are doing this.
- (4) Address the issue of technology transfer and ways to utilize the technology from the federal laboratories.

The amount of money spent at the federal laboratories on R&D and the one-sixth of our technical manpower consumed in this effort is a resource that has not been fully tapped. One of the reasons is that there is no mechanism for funding the gap between the discoveries in the laboratories and commercial reality, e.g., market studies, prototype production, building of pilot plants, etc. Is it worthwhile to pursue this or would we be better off starting with redirecting the missions of the federal laboratories toward the commercial market?

- (5) Assess whether the role of alliances and consortia are a means to increasing competitiveness.
- (6) Examine the Japanese global technology strategy and how we should be defending ourselves. Japanese initiatives in intelligent manufacturing systems, optical computing, and acquisition of critical technologies by buying into the companies appears to be part of a global technology acquisition strategy. How do we counter that? How do we initiate our own?
- (7) Determine whether the National Critical Technologies List and Reports from the OST Panel and the Council on Competitiveness form the framework for a possible long range technology strategy for U.S. industry and, if so, how should we implement it?
- (8) Address other issues which the panel will deem appropriate during the course of its deliberations.

#### Possible Membership of the Panel

See attached.



### **Background Information**

**Suggested starting points for the Panel are:**

- **The Council on Competitiveness report, Gaining New Ground**
- **The OSTP Report of the National Critical Technologies Panel**
- **Excerpts from "Memorandum for Strengthening of America", by Debra Miller, Director, Commission for Strengthening of America, which deal with many of the issues noted above (attached).**

### **Attachments**

# Withdrawal/Redaction Sheet

## (George Bush Library)

| Document No.<br>and Type | Subject/Title of Document                                                                                            | Date | Restriction | Class. |
|--------------------------|----------------------------------------------------------------------------------------------------------------------|------|-------------|--------|
| 13. List                 | Possible Membership of PCAST Panel on International Economic Competitiveness [personal information redacted] (1 pp.) |      | (b)(6)      |        |

**Collection:**

**Record Group:** Bush Presidential Records

**Office:** Science and Technology Policy, Office of (OSTP)

**Series:** Bromley, D. Allan, Files

**Subseries:** Organization Files - PCAST

**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

**Date Closed:** 5/17/2010

**OA/ID Number:** 62080-005

**FOIA/SYS Case #:** 2005-0336-F

**Appeal Case #:**

**Re-review Case #:**

**Appeal Disposition:**

**P-2/P-5 Review Case #:**

**Disposition Date:**

**AR Case #:**

**MR Case #:**

**AR Disposition:**

**MR Disposition:**

**AR Disposition Date:**

**MR Disposition Date:**

### RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P-1 National Security Classified Information [(a)(1) of the PRA]  
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]  
P-3 Release would violate a Federal statute [(a)(3) of the PRA]  
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]  
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]  
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C. Closed in accordance with restrictions contained in donor's deed of gift.

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(b)(9) Release would disclose geological or geophysical information



**MEMORANDUM FOR STRENGTHENING OF AMERICA MANUFACTURING AND  
TECHNOLOGY EXPERTS GROUP**

**FROM: DEBRA MILLER  
DIRECTOR, COMMISSION FOR STRENGTHENING OF  
AMERICA**

**SUBJECT: UPDATE ON "STRENGTHENING" MANUFACTURING,  
TECHNOLOGY, AND QUALITY ISSUES**

**Strengthening of America Commission**

Consensus was reached on a number of issues. First it was agreed that the heart of the problem U.S. industry faces is an inability to commercialize as fast as Japanese companies can. "Manufacturing gap."

Second, some responsibility for addressing this issue has to be taken by the private sector.

Government's focus of its R&D budget and programs was misguided. Nothing allocated to the commercialization of technology. Focus on precompetitive generic technology . . . not being responsive to the real problem industry is facing.

Government must take some responsibility for sharing commercial risks with private industry, as is done in Japan. Closer partnership needs to be formed between industry and government.

Mandate to recommend solutions for particular clusters of problems identified during meeting:

- the development of a new or amended technology policy;
- regulatory reform (antitrust, procurement, product liability, intellectual property rights);
- productivity in the private sector;
- increasing the productivity of small and medium sized manufacturing firms;
- making more productive the relationship between the federal labs and the private sector;
- encouraging the use of a quality approach.

Manufacturing is America's economic foundation. It is critical to our national security, our competitive position in the world economy, and to our national well-being.

Manufacturing's economic importance is disproportionate to its relative share in the American economy: it contributes roughly 20% of national output, but does more than 95% of private R&D. It is a major source of product demand for other sectors. Most of the swing in the overall U.S. balance of trade during the last decade can be accounted for by movements in manufacturing trade.

U.S. Companies have a more difficult time translating innovation into product, getting product to marketplace, and gaining and keeping market share.

Industries really matter, that we set priorities and national intents, and recommend what is essential for competitors to compete.

### A National Technology Policy

Government has supported precompetitive generic technologies for a very long time. For example, for over 25 years, federally-funded advanced materials labs at several excellent universities have done research, produced materials scientists, and generated papers for the technical literature. But, there has been no appreciable commercial impact of this effort.

The U.S. is exceptionally strong in innovation, but has a more difficult time translating innovation into product, getting product to the marketplace, and gaining and keeping market share. Should government offer support for civilian technologies for a "longer" period of time, as it does for defense technologies?

### The Federal Laboratory in National Technology Development

In fact, one dollar out of every six spend on R&D in the United States is spent at the 700 federal labs. How the labs can support national technology policy and especially how to bring the contributions of the labs to the private sector.

### Manufacturing Issues

#### Making America an attractive manufacturing environment

No CEO of a Fortune 500 company is graduate manufacturing engineer [compare Japan].

**The Manufacturing Gap Revisited.** There are at least two disturbing consequences of the low prestige accorded to manufacturing engineering. First, the relatively small numbers of manufacturing engineers that our universities turn out means that there is a gaping hole in the manufacturing chain. That is, companies do not know how to translate technology into product. This is the "manufacturing gap". Compounding



the problem is the relatively small amount the U.S. invests in process technologies -- less than 5%, perhaps as little as 2% of government investment in R&D goes into process technologies.

### Raising the Productivity of Small and Medium-Sized Manufacturers

A substantial portion of America's total manufacturing capability is found in small and medium-sized enterprises (SMEs) having less than 1000 employees. SMEs have a difficult time modernizing their plant and equipment, and statistically account for the U.S.'s lagging productivity growth rate.

Several states have established robust manufacturing extension programs modeled somewhat after state agriculture extension programs. These programs attempt to help SMEs in areas such as manufacturing technology, plant layout, product control, finance, training and marketing. Some, such as those in Georgia, appear to work very well. In addition, the federal government has programs aimed at SMEs to raise their manufacturing productivity (for example, the Advanced Manufacturing Program at the U.S. Department of Commerce).

The Commission should address whether these types of programs should be expanded or if other mechanisms are needed to enhance the productivity of small and medium-sized enterprises.

Given the "manufacturing gap", should government further support joint work on the application of technology, and even manufacturing and commercialization?

### Changes in the regulatory environment

Product liability laws have an impact on the competitiveness of U.S. companies. Consider whether to consider reforms of these laws and regulations.

### Quality Awards

The Malcolm Baldrige Quality Award, administered by the U.S. Department of Commerce, has gained applications each year.

Consider whether the federal government should take further steps toward improving the capability of U.S. industry to become world-class in the quality area.

### Impediments to Quality in Manufacturing: Results of the MIT Study on Productivity

Too much emphasis is placed on invention and very little emphasis on downstream processes. That's a mistake. We spent one-third of our industrial R&D money on the processes that make things and two-thirds on invention. Japan and Germany have these numbers the other way around. Beyond the numbers, we treasure the inventor and think a career in manufacturing is sheer drudgery.

Government and industry are like two ships passing the night. They don't understand each other's needs and aspirations.

### Government's Role in Support of Critical Technology

#### The Need for a new Technology Policy

**How the U.S. Government should respond.** U.S. Government to share the risk with companies so that critical technologies could be developed and applied in America. Collaborative efforts must be encouraged. Our national technology policy has to be much expanded, more detailed with a national road map. Congress should mandate that the private sector have a strong imprimatur on the policy.

The centerpiece of the Administration's technology policy is the support of precompetitive generic technologies. But, that has an Achilles heel; people are not going to even commit to their part of precompetitive support if they imagine the risk in the seamless business problem is beyond their competence when the precompetitive engineering is accomplished. Who is going to develop the product? Who is going to invest in the capital equipment? *This is where the risk has to be attenuated -- in the development and manufacturing phases.*

There is a "monumental disconnect" between the present U.S. technology policy and the government's overall policies toward industry. Government has failed to coordinate the full range of policies to promote economic competitiveness for fear of using the dread term industrial policy. Terrific rhetoric, but poor performance.

The priorities of the federal budget on R&D must be rethought. 60% of the R&D budget goes to defense. Virtually all of the rest goes to space, energy, health, agriculture, and basic science. There is almost nothing for extension activities or generally helping industries. For example, in 1987, Germany spent 15.3% of its government R&D budget on industrial development. The equivalent U.S. figure was two-tenths of one percent.

However, partnerships are risky: the government shared the risk in the savings and loan industry and basically provided blanket deposit insurance. That made it a riskless system and that was a disaster.

### Technology Transfer and the National Laboratories

Change the priorities of the federal labs. A good part of the effort of the federal labs -- should be redirected to the consumer who is in the market place, to the commercial venture that has to deal with short product cycles.

Change the emphasis from basic science to commercialization of technology. The consumer product is by far the best route for a commercial, industrial, or military product, not the other way around.



Weakness is not in the creation of technology or even its transfer. It is in the commercialization of technology. All of the things we have been talking about -- total quality, reducing cycle times, getting waste and inefficiency out of the system -- relate to enhancing the environment in which our technology can be commercialized.

We also have to find ways to reduce entrepreneurial risk and find better ways to share it.

That is the heart of our weakness -- our inability to successfully commercialize the technology that is flowing out of our creative processes.

Our present technology policy does not adequately address the issue that most important -- the commercialization of technology, is closing the "manufacturing gap". A follow-up working group will make recommendations on how technology policy should be changed to meet this challenge.

EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF SCIENCE AND TECHNOLOGY POLICY  
WASHINGTON, D.C. 20506

August 20, 1991

Dear Ralph:

In an attempt to focus my thoughts on some specific topics for consideration by the PCAST Economic Growth Panel, it occurred to me that a private sector evaluation of some of the current assumptions surrounding competitiveness and economic growth, held at least by some people and groups, might be useful. All are difficult topics and I wouldn't expect terribly conclusive results from a Panel study. However, I am convinced a private sector airing would be useful, and a basis might be laid for more comprehensive examination. My topics are only offered as suggestions. However, if we can develop a theme or themes for the panel, panel selection will be simplified.

Sincerely,



William D. Phillips  
Associate Director for Industrial Technology

Attachment

Dr. Ralph E. Gomory  
President  
Alfred P. Sloan Foundation  
630 Fifth Ave.  
New York, NY 10111-0242



## Economic Growth

### Examination of Some Current Assumptions

- To what extent and in what ways can the Federal labs be expected realistically to contribute to economic growth? The Federal lab--Corporate lab analog.
- Are U.S. industries such as gears, machine tools, materials and methods of construction underinvesting in R&D? If so, what can they do and what are they doing to rectify the situation?
- What are the merits and demerits to mobilizing government/industry/university efforts around "critical technologies" for purposes of economic growth and competitive advantage?
- What role, if any, should the government play in developing developmental roadmaps or strategic plans around "critical technologies"?
- For purposes of economic growth are U.S. production engineers being appropriately trained and rewarded?
- From the standpoint of technology and manufacturing skills acquisition and flow, how does the U.S. fare with regard to foreign labs and plants operating in the U.S. and with regard to U.S. labs and plants operating in foreign countries? Technology transfer and manufacturing skills flow.
- How do technology and manufacturing skills needs of small (<500 employees) companies differ from those of large companies?

REVISION 2 9/30/91

AGENDA

## DEFENSE PROGRAMS' OMB HEARINGS

Tuesday, October 1, 1991 (Room 4A-026, Forrestal)

|               |                                                 |            |
|---------------|-------------------------------------------------|------------|
| 9:00 - 10:00  | Naval Reactors (NR)                             | G. Olson   |
| 10:00 - 10:15 | Break                                           |            |
| 10:15 - 10:45 | Research, Development and Testing Funding Level | RADM Ellis |
| 10:45 - 11:00 | Pit Reuse                                       | RADM Ellis |
| 11:00 - 11:45 | Tritium Requirements                            | RADM Ellis |
| 11:45 - 12:00 | Plutonium Supply and Demand                     | RADM Ellis |
| 12:00 - 12:45 | Rocky Flats Restart                             | V. Stello  |

*Adv MGR's has been dropped.*



THE WHITE HOUSE  
WASHINGTON

June 12, 1991

MEMORANDUM FOR RALPH GOMORY

President's Council of Advisors on Science and Technology  
(PCAST)

FROM: D. ALLAN BROMLEY *Duan*  
SUBJECT: TERMS OF REFERENCE FOR PCAST PANEL ON  
INTERNATIONAL ECONOMIC COMPETITIVENESS

You are requested to establish a PCAST Panel on International Economic Competitiveness.

The purpose of this Panel is to enable PCAST to advise the President on issues in science and technology that affect U.S. economic competitiveness and quality of life.

The private sector today is facing severe competition from abroad where vastly improved industries are emerging even in the most advanced technical areas, and where the more traditional industries have shown great ability to improve their manufacturing process and development technologies. Industry abroad is also making effective use of the high skill level of some of the competitive work forces.

In addition there are foreign government policies closely supportive of emerging and strategic technologies and designated industries.

While product competitiveness is largely the result of the internal actions of individual firms, firms are also influenced by their surroundings. Familiar examples of this from the economic arena are cost of capital and tax structure.

But there are other and more technically oriented aspects of the surroundings as well.

First there is the availability of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments, etc. It is a longstanding Federal role to contribute here and many government agencies have focused on this.

The Report of the Panel on National Critical Technologies selected 22 technologies deemed critical to national economic prosperity and to our military security. The Department of Defense, in its "Critical Technologies Plan" presents dual-purpose technologies which are adaptable to enhancing the economic competitiveness of the private sector. The Department of Commerce has issued its "Emerging Technologies Report" which identifies 12 emerging technologies. Also, the private sector Council on Competitiveness issued "Gaining New Ground - Technologies Priorities for America's Future" identifies priorities for enhancing economic competitiveness.

With regard to technologies, President Bush has stated: "If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but to learn to more effectively translate those technologies in commercial products."

In addition to new technologies there is a second aspect in the need for improvement of existing product. This includes research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects beyond a single firm's economic time horizon. Federal examples include Sematech and Brookhaven synchrotron light source.

A third competitiveness element is the availability of a technical labor force. This means vocational training as well as the training of scientists and engineers. To the extent that other panels do not deal with some aspects of this, I would like this to be included in the work of his committee.

In the areas of new technology, product improvement, and technical workforce I would like the Panel to:

- o Report on how best to enhance the partnership between the government and the private sector aiming at a major improvement in our competitive position, and
- o Discuss actions that the government and the private sector can take, together or separately, aimed at enhancing our competitive posture.

The Panel shall submit a preliminary report to the PCAST within 3 months after the Panel's first meeting.

The Office of the Associate Director for Industrial Technology, Office of Science and Technology Policy, will sponsor the Panel. Dr. Ralph Gomory will serve as Chairman and Dr. Harold Shapiro will serve as Vice Chairman. Mr. William Snyder will serve as the PCAST Secretariat Representative.

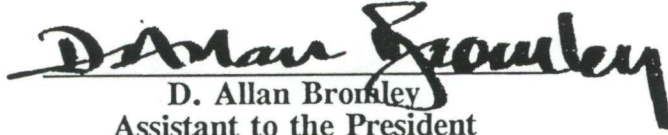
#### Determination

I hereby determine that the formation of the PCAST Panel on International Economic Competitiveness is in the public interest in connection with the performance of duties imposed on the Executive Branch by law, and that such duties can best be performed through the advice and counsel of such a group.



The Terms of Reference for the PCAST Panel on International Economic Competitiveness include no assignment requiring Panel members to participate personally and substantially in the conduct of any specific procurement, or place any member in the position of acting as a "procurement official."

Approved:



D. Allan Bromley  
Assistant to the President  
for  
Science and Technology

  
Date

# Withdrawal/Redaction Sheet

## (George Bush Library)

| Document No.<br>and Type | Subject/Title of Document                                                                                              | Date | Restriction | Class. |
|--------------------------|------------------------------------------------------------------------------------------------------------------------|------|-------------|--------|
| 14. List                 | Suggested Members for PCAST Panel on International Economic Competitiveness [personal information redacted]<br>(1 pp.) |      | (b)(6)      |        |

**Collection:**

**Record Group:** Bush Presidential Records

**Office:** Science and Technology Policy, Office of (OSTP)

**Series:** Bromley, D. Allan, Files

**Subseries:** Organization Files - PCAST

**WHORM Cat.:**

**File Location:** Industrial Technology: President's Council of Advisors on Science and Technology: Panel on International Economic Competitiveness [1991]

**Date Closed:** 5/17/2010

**OA/ID Number:** 62080-005

**FOIA/SYS Case #:** 2005-0336-F

**Appeal Case #:**

**Re-review Case #:**

**Appeal Disposition:**

**P-2/P-5 Review Case #:**

**Disposition Date:**

**AR Case #:**

**MR Case #:**

**AR Disposition:**

**MR Disposition:**

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### RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P-1 National Security Classified Information [(a)(1) of the PRA]  
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]  
P-3 Release would violate a Federal statute [(a)(3) of the PRA]  
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]  
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]  
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

(b)(1) National security classified information [(b)(1) of the FOIA]  
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]  
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(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]  
(b)(9) Release would disclose geological or geophysical information



Document Originally  
Attached to  
Following Page

SALLY,

THIS IS SOME INFORMATION  
REGARDING THE PCAST PANEL ON  
INTERNATIONAL ECONOMIC COMPETITIVENESS  
THAT DR. WONG ASKED FOR  
THIS MORNING.

Bill





**PRESIDENT'S COUNCIL OF ADVISORS  
ON SCIENCE AND TECHNOLOGY**

**PANEL ON  
INTERNATIONAL ECONOMIC COMPETITIVENESS  
as of October 1, 1991**

**Chairman**

---

**Ralph Gomory**

**President  
The Alfred P. Sloan Foundation  
Member of PCAST**

**Vice Chairmen**

---

**Harold Shapiro**

**President  
Princeton University  
Member of PCAST**

**Panel Expert Witnesses**

---

**Professor Kent H. Bowen  
Massachusetts Institute of Technology  
Department of Mathematics  
Room 9-325  
Cambridge, MA 02139  
(617) 253-6892**

**Dr. Jerry R. Junkins  
Chairman, President, and CEO  
Texas Instruments  
13510 N. Central Expressway  
North Building  
Dallas, TX 75243  
(214) 995-6130**

**Professor S. Ramalingam  
University of Minnesota  
Mechanical Engineering Department  
Director of Productivity Department**

**Dr. James C. Williams  
General Electric Company  
Schenectady, NY**

08/26/91

16:04 FAX 212 757 5117

ALFRED P. SLOAN

001/008

ALFRED P. SLOAN FOUNDATION

630 FIFTH AVENUE

NEW YORK, N. Y. 10111-0242

(212) 649 1649

FACSIMILE HEADER

Date: 8/26/91

Time: 4:00 p.m.

Please deliver to: Tom Welch (for Dr. Bromley)

Attn: Re PCAST

No. of pages transmitted 8 (Including coversheet)

Sent by: Ralph E. Gomory

Fax No. (212) 757-5117

In case of any transmittal problems,  
please call (212) 649-1649

Special instructions:



### Competitiveness Committee - Status

We would like to recommend to PCAST the names on Attachment A as starting consultants or panel members for the competitiveness subcommittee.

We will use the general outline given as attachment B as the basis for the Subcommittee's work. This is consistent with the subcommittee charter, Attachment C. PCAST has seen both B and C before. However these attachments provide too extensive an agenda so we need to select some starting points.

Therefore we suggest to PCAST the following as initial areas of discussion.

1. What can be done to improve the status of and focus on manufacturing in the U.S.

Discussion: Manufacturing is critical to international trade, and to the American standard of living. Manufacturing industries also account for almost all (more than 95% of the R&D done in the private sector. These areas tend to be the areas of new product and of productivity improvement. Nevertheless Manufacturing itself had, as of a few years ago, almost dropped out of the academic curriculum, and was not a highly paid or highly regarded area. There are efforts today to develop manufacturing curricula - but unless the graduates are esteemed and paid by industry this will also be a dead end.

What can raise the status and rewards of manufacturing?

What skills, other than the engineering ones are needed in manufacturing? Does the educational system provide people who can work intelligently in a manufacturing line or is the vocational end of education inadequate?

2. Critical Technologies. What role if any should the government play in developing roadmaps or strategic plans around "critical technologies".
3. To what extent and in what ways can Federal Labs be expected to contribute to growth?

I also think that it is a fact that the Federal Government itself is ill structured to deal with problems of economic growth, and probably needs some evolutionary changes to deal with what will be increasingly important issues. This is perhaps a better subject (if it is a good subject at all) for PCAST itself than for a committee.

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|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|--------|
| 15. List                 | Recommendations for consultants or panel members for<br>PCAST Panel on International Economic Competitiveness<br>[personal information redacted] (1 pp.) | 8/26/91 | (b)(6)      |        |

**Collection:**

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ATTACHMENT B

FROM: D. Allan Bromley  
Chairman, PCAST

SUBJECT: Terms of Reference for the PCAST Panel on International  
Economic Competitiveness

You are requested to chair a PCAST Panel on International Economic Competitiveness.

The Purpose of this panel is to enable PCAST to advise the President on issues of science and technology that affect U.S. economic competitiveness.

The private sector today is facing severe competition from abroad where vastly improved industries are emerging even in the most advanced technical areas, and where the more traditional industries have shown great ability to improve their manufacturing process and development technologies. Industry abroad is also making effective use of the high skill level of some of the competitive work forces.

In addition there are foreign government policies closely supportive of emerging and strategic technologies and designated industries.

While product competitiveness is largely the result of the internal actions of individual firms, firms are also influenced by their surroundings. Familiar examples of this from the economic arena are cost of capital and tax structure.

But there are other and more technically oriented aspects of the surroundings as well.

First there is the availability of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments etc., etc. It is a longstanding Federal role to contribute here and many government agencies have focused on this.

The National Critical Technologies Report Act selected 22 technologies deemed critical to national economic prosperity and to our military security. The department of Defense, in its "Critical Technologies Plan" presents dual-

purpose technologies which are adaptable to enhancing the economic competitiveness of the private sector. The Department of Commerce has issued its "Emerging Technologies Report" which identifies 12 emerging technologies.

Of these technologies President Bush stated: "If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but to learn to more effectively translate those technologies into commercial products."

In addition to new technologies there is a second aspect in the need for improvement of existing product. This includes research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects beyond a single firm's economic time horizon. Federal examples include NACA and Brookhaven synchrotron radiation.

A third competitiveness element is the availability of a technical labor force. This means vocational training as well as the training of scientists and engineers.

To the extent that other panels do not deal with some aspects of this, I would like this to be included in the work of this committee.

In these three areas I would like the Panel to define, discuss and report on

- additional programs to improve competitiveness
- procedures to ensure government and private sector cooperation in assessing and arriving at new undertakings and in benefitting from existing activities.

The Office of Associate Director Industrial Technology will sponsor the Panel. Dr. \_\_\_\_\_ will serve as Chairman. Dr. \_\_\_\_\_ will serve as Vice Chairman. \_\_\_\_\_ will serve as Executive Secretary and Mr. William Snyder will be the PCAST Secretariat representative.

Approved:

\_\_\_\_\_  
D. Allen Bromley  
Assistant to the President  
for Science and Technology  
Chairman, President's Council of Advisors on Science and Technology

\_\_\_\_\_  
Date



ATTACHMENT C

May, 1990

Competitiveness Subcommittee - Outline of the Area

Introduction

To study the aspects of competitiveness in which science, technology and engineering play a major role and, where appropriate, suggest Federal action that could contribute to competitiveness.

This subcommittee should stress product competitiveness. It is important to our country to be "competitive" in basic science or in new technologies such as high temperature superconductivity, but this subcommittee should relate these areas to product competitiveness.

When it can the subcommittee should be free to consider the effect of competitiveness or the lack of it on standard of living and on defense questions.

Elements of competitiveness

Product competitiveness is largely the result of the internal actions of individual firms. It is a consequence of how well they manufacture, how well they support, use, and manufacture R&D, how well they train and motivate their employees etc. These factors are not easily reached by government action. However firms are also influenced by their surroundings.

Examples of this from the economic arena are cost of capital and tax structure, particularly depreciation rules and such items as the R&D tax credit.

In the legal area there are the traditional questions relating to anti-trust, as well as the newer areas of product liability and intellectual property.

But there are other and more technically oriented aspects of the surroundings as well.

I. Availability in the environment of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments etc., etc. This would include in principle really new processes that would eventually find their way into manufacturing although this has not been emphasized in the U.S. It is a longstanding Federal role to contribute here.

#### Federal Precedents.

Support of Basic Research - ONR, NSF, NIH etc.  
Fostering new technologies such as A.I. by support of university or (small) company research.

Spinoffs to Industry - NASA  
Contributions from Federal Labs - DOE  
Support of Consortia for very advanced technology - DARPA

#### Abroad

Support of Basic Research - Most advanced countries  
Fostering new technologies - Japan MITI  
Support of Consortia for very advanced technology - Japan MITI, Europe  
EUREKA etc.

Contributions from Federal Labs - Japan

#### Example options

Federal labs take on advanced commercial technology role  
Federal support of university-industry interactions.  
(centers, fellowships to industry)

## II. Environment supportive to Improvement of Existing Product.

This is less a matter of really new scientific knowledge more a question of taking the next engineering step, a step usually aimed at product. Sometimes it is a question of adapting existing knowledge to the special product situation or of transferring existing knowledge to a firm that could use it. Examples would include research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects that are project oriented but beyond a single firm's economic time horizon.

#### Federal precedents

NACA  
Brookhaven synchrotron radiation  
Sematech  
NIST technology transfer centers



DARPA support of Gallium Arsenide

Foreign

Japan - some MITI Consortia

Japan - The role of NTT

Japan - Financial support of key industries

Example options

Support of advanced manufacturing centers

Support of advanced technology consortia

More consistent R&D tax policy. Better Manufacturing depreciation.

Support of travel abroad by small businesses to learn competitive techniques.

### III. Availability of Technical Labor Force.

Training and orientation of Scientists and Engineers as well as technically competent people for a production environment.

Clearly the availability of good people makes a difference. So does their attitude and motivation. U.S. attitudes have favored science as high prestige, design engineering as less prestigious

and manufacturing is rarely mentioned. However all branches of technical work are currently not much sought after. The Federal government has played a role in this training especially through its connection with research grants and fellowships.

Vocational Training in the U.S. is a low prestige and possibly poor content activity.

Federal Precedents

Fellowships

Grants

Presidential Young investigator awards

Foreign

All major countries send students, graduate students, or postdocs to the U.S. in addition to funding their own.

Vocational training is sometimes more highly developed.

Example options

Support of changes in the engineering curriculum

Awards "Presidential Manufacturing Fellowship"

Presidential speech including importance of manufacturing excellence.

Study the need for and state of vocational education.

Green Cards for foreign graduates of U.S. Universities.

08/26/91

16:04 FAX 212 757 5117

ALFRED P. SLOAN

001/008

ALFRED P. SLOAN FOUNDATION

630 FIFTH AVENUE

NEW YORK, N. Y. 10111-0242

(212) 649 1649

FACSIMILE HEADER

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Sent by: Ralph E. Gomory

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**P-2/P-5 Review Case #:**

**Disposition Date:**

**AR Case #:**

**MR Case #:**

**AR Disposition:**

**MR Disposition:**

**AR Disposition Date:**

**MR Disposition Date:**

### RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P-1 National Security Classified Information [(a)(1) of the PRA]  
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]  
P-3 Release would violate a Federal statute [(a)(3) of the PRA]  
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]  
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]  
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

(b)(1) National security classified information [(b)(1) of the FOIA]  
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]  
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]  
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]  
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]  
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]  
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]  
(b)(9) Release would disclose geological or geophysical information



ATTACHMENT B

FROM: D. Allan Bromley  
Chairman, PCAST

SUBJECT: Terms of Reference for the PCAST Panel on International  
Economic Competitiveness

You are requested to chair a PCAST Panel on International Economic Competitiveness.

The Purpose of this panel is to enable PCAST to advise the President on issues of science and technology that affect U.S. economic competitiveness.

The private sector today is facing severe competition from abroad where vastly improved industries are emerging even in the most advanced technical areas, and where the more traditional industries have shown great ability to improve their manufacturing process and development technologies. Industry abroad is also making effective use of the high skill level of some of the competitive work forces.

In addition there are foreign government policies closely supportive of emerging and strategic technologies and designated industries.

While product competitiveness is largely the result of the internal actions of individual firms, firms are also influenced by their surroundings. Familiar examples of this from the economic arena are cost of capital and tax structure.

But there are other and more technically oriented aspects of the surroundings as well.

First there is the availability of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments etc., etc. It is a longstanding Federal role to contribute here and many government agencies have focused on this.

The National Critical Technologies Report Act selected 22 technologies deemed critical to national economic prosperity and to our military security. The department of Defense, in its "Critical Technologies Plan" presents dual-

purpose technologies which are adaptable to enhancing the economic competitiveness of the private sector. The Department of Commerce has issued its "Emerging Technologies Report" which identifies 12 emerging technologies.

Of these technologies President Bush stated: "If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but to learn to more effectively translate those technologies into commercial products."

In addition to new technologies there is a second aspect in the need for improvement of existing product. This includes research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects beyond a single firm's economic time horizon. Federal examples include NACA and Brookhaven synchrotron radiation.

A third competitiveness element is the availability of a technical labor force. This means vocational training as well as the training of scientists and engineers.

To the extent that other panels do not deal with some aspects of this, I would like this to be included in the work of this committee.

In these three areas I would like the Panel to define, discuss and report on

- additional programs to improve competitiveness
- procedures to ensure government and private sector cooperation in assessing and arriving at new undertakings and in benefitting from existing activities.

The Office of Associate Director Industrial Technology will sponsor the Panel. Dr. \_\_\_\_\_ will serve as Chairman. Dr. \_\_\_\_\_ will serve as Vice Chairman. \_\_\_\_\_ will serve as Executive Secretary and Mr. William Snyder will be the PCAST Secretariat representative.

Approved:

\_\_\_\_\_  
D. Allen Bromley  
Assistant to the President  
for Science and Technology  
Chairman, President's Council of Advisors on Science and Technology

\_\_\_\_\_  
Date



ATTACHMENT C

May, 1990

Competitiveness Subcommittee - Outline of the Area

Introduction

To study the aspects of competitiveness in which science, technology and engineering play a major role and, where appropriate, suggest Federal action that could contribute to competitiveness.

This subcommittee should stress product competitiveness. It is important to our country to be "competitive" in basic science or in new technologies such as high temperature superconductivity, but this subcommittee should relate these areas to product competitiveness.

When it can the subcommittee should be free to consider the effect of competitiveness or the lack of it on standard of living and on defense questions.

Elements of competitiveness

Product competitiveness is largely the result of the internal actions of individual firms. It is a consequence of how well they manufacture, how well they support, use, and manufacture R&D, how well they train and motivate their employees etc. These factors are not easily reached by government action. However firms are also influenced by their surroundings.

Examples of this from the economic arena are cost of capital and tax structure, particularly depreciation rules and such items as the R&D tax credit.

In the legal area there are the traditional questions relating to anti-trust, as well as the newer areas of product liability and intellectual property.

But there are other and more technically oriented aspects of the surroundings as well.

I. Availability in the environment of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments etc., etc. This would include in principle really new processes that would eventually find their way into manufacturing although this has not been emphasized in the U.S. It is a longstanding Federal role to contribute here.

#### Federal Precedents.

Support of Basic Research - ONR, NSF, NIH etc.  
Fostering new technologies such as A.I. by support of university or (small) company research.

Spinoffs to Industry - NASA  
Contributions from Federal Labs - DOE  
Support of Consortia for very advanced technology - DARPA

#### Abroad

Support of Basic Research - Most advanced countries  
Fostering new technologies - Japan MITI  
Support of Consortia for very advanced technology - Japan MITI, Europe

#### EUREKA etc.

Contributions from Federal Labs - Japan

#### Example options

Federal labs take on advanced commercial technology role  
Federal support of university-industry interactions.  
(centers, fellowships to industry)

#### II. Environment supportive to Improvement of Existing Product.

This is less a matter of really new scientific knowledge more a question of taking the next engineering step, a step usually aimed at product. Sometimes it is a question of adapting existing knowledge to the special product situation or of transferring existing knowledge to a firm that could use it. Examples would include research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects that are project oriented but beyond a single firm's economic time horizon.

#### Federal precedents

NACA  
Brookhaven synchrotron radiation  
Sematech  
NIST technology transfer centers



DARPA support of Gallium Arsenide

Foreign

Japan - some MITI Consortia

Japan - The role of NTT

Japan - Financial support of key industries

Example options

Support of advanced manufacturing centers

Support of advanced technology consortia

More consistent R&D tax policy. Better Manufacturing depreciation.

Support of travel abroad by small businesses to learn competitive techniques.

### III. Availability of Technical Labor Force.

Training and orientation of Scientists and Engineers as well as technically competent people for a production environment.

Clearly the availability of good people makes a difference. So does their attitude and motivation. U.S. attitudes have favored science as high prestige, design engineering as less prestigious and manufacturing is rarely mentioned. However all branches of technical work are currently not much sought after. The Federal government has played a role in this training especially through its connection with research grants and fellowships.

Vocational Training in the U.S. is a low prestige and possibly poor content activity.

Federal Precedents

Fellowships

Grants

Presidential Young investigator awards

Foreign

All major countries send students, graduate students, or postdocs to the U.S. in addition to funding their own.

Vocational training is sometimes more highly developed.

Example options

Support of changes in the engineering curriculum

Awards "Presidential Manufacturing Fellowship"

Presidential speech including importance of manufacturing excellence.

Study the need for and state of vocational education.

Green Cards for foreign graduates of U.S. Universities.

THE WHITE HOUSE  
WASHINGTON

June 12, 1991

MEMORANDUM FOR RALPH GOMORY

President's Council of Advisors on Science and Technology  
(PCAST)

FROM:

D. ALLAN BROMLEY *Alan*

SUBJECT:

TERMS OF REFERENCE FOR PCAST PANEL ON  
INTERNATIONAL ECONOMIC COMPETITIVENESS

You are requested to establish a PCAST Panel on International Economic Competitiveness.

The purpose of this Panel is to enable PCAST to advise the President on issues in science and technology that affect U.S. economic competitiveness and quality of life.

The private sector today is facing severe competition from abroad where vastly improved industries are emerging even in the most advanced technical areas, and where the more traditional industries have shown great ability to improve their manufacturing process and development technologies. Industry abroad is also making effective use of the high skill level of some of the competitive work forces.

In addition there are foreign government policies closely supportive of emerging and strategic technologies and designated industries.

While product competitiveness is largely the result of the internal actions of individual firms, firms are also influenced by their surroundings. Familiar examples of this from the economic arena are cost of capital and tax structure.

But there are other and more technically oriented aspects of the surroundings as well.

First there is the availability of new scientific and engineering knowledge. This is the kind of knowledge that historically has launched whole new industries, radically different materials, or provided new sensors to make possible new instruments, etc. It is a longstanding Federal role to contribute here and many government agencies have focused on this.



The Report of the Panel on National Critical Technologies selected 22 technologies deemed critical to national economic prosperity and to our military security. The Department of Defense, in its "Critical Technologies Plan" presents dual-purpose technologies which are adaptable to enhancing the economic competitiveness of the private sector. The Department of Commerce has issued its "Emerging Technologies Report" which identifies 12 emerging technologies. Also, the private sector Council on Competitiveness issued "Gaining New Ground - Technologies Priorities for America's Future" identifies priorities for enhancing economic competitiveness.

With regard to technologies, President Bush has stated: "If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but to learn to more effectively translate those technologies in commercial products."

In addition to new technologies there is a second aspect in the need for improvement of existing product. This includes research on existing process and manufacturing, or improved materials. Sometimes the availability of special and extreme instrumentation is useful. Sometimes it is the support of long range projects beyond a single firm's economic time horizon. Federal examples include Sematech and Brookhaven synchrotron light source.

A third competitiveness element is the availability of a technical labor force. This means vocational training as well as the training of scientists and engineers. To the extent that other panels do not deal with some aspects of this, I would like this to be included in the work of his committee.

In the areas of new technology, product improvement, and technical workforce I would like the Panel to:

- o Report on how best to enhance the partnership between the government and the private sector aiming at a major improvement in our competitive position, and
- o Discuss actions that the government and the private sector can take, together or separately, aimed at enhancing our competitive posture.

The Panel shall submit a preliminary report to the PCAST within 3 months after the Panel's first meeting.

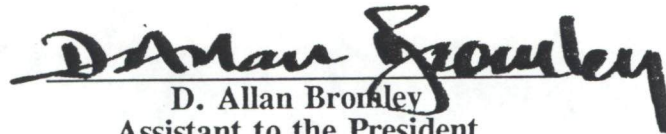
The Office of the Associate Director for Industrial Technology, Office of Science and Technology Policy, will sponsor the Panel. Dr. Ralph Gomory will serve as Chairman and Dr. Harold Shapiro will serve as Vice Chairman. Mr. William Snyder will serve as the PCAST Secretariat Representative.

#### Determination

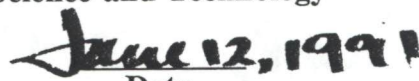
I hereby determine that the formation of the PCAST Panel on International Economic Competitiveness is in the public interest in connection with the performance of duties imposed on the Executive Branch by law, and that such duties can best be performed through the advice and counsel of such a group.

The Terms of Reference for the PCAST Panel on International Economic Competitiveness include no assignment requiring Panel members to participate personally and substantially in the conduct of any specific procurement, or place any member in the position of acting as a "procurement official."

Approved:



D. Allan Bromley  
Assistant to the President  
for  
Science and Technology

  
Date