Tech. Policy

THE WHITE HOUSE

WASHINGTON

To: Bo Cutter

From: Tom Kalil TAK

Re: Technology policy priorities for 1994 and beyond

Date: July 23, 1994

In my view, the Administration's technology policy has two goals:

1. Maximize the contribution that research, development and technology can make to national goals such as increased productivity, job creation, national security, sustainable development, more efficient delivery of government services, expansion of fundamental knowledge, and a more productive education and training system; and

2. Ensure that the United States is the best place in the world to perform high value-added economic activity by seeking changes in tax, trade, regulatory, procurement, and other microeconomic policies.

The progress that we make on technology policy also has a significant impact on our relationship with the business community. In 1992, it was harder for then-President Bush to attack our economic program when leading high tech CEOs were praising Clinton's commitment to a government-industry partnership. Because many elements of our technology policy will take many years to bear fruit, reporters and other analysts will use the attitudes of industry leaders as proxies for the success or failure of the Administration's policy.

Below are a list of significant technology policy issues that I would like to spend time on. (I will write a separate memo on the NII/GII agenda).

1. **R&D tax credit/other tax incentives**:

Because we were unable to get support for a permanent R&D tax credit, it is due to expire in mid-1995. This will be on the most important high-tech issues in 1995. If there is a broader review of tax expenditures, we should determine which expenditures are actually creating incentives for investment in R&D, plant

and equipment, and business formation. You indicated at one point that you were interested in considering a broader range of business incentives.

2. **Administration's relationship with other industries**:

Our periodic meetings with the CEOs of the top 13 computer companies have been very helpful in identifying areas where we can cooperate. Bob has asked me to think about extending this model to other industries.

I think that other possibilities are (1) the life sciences cluster -- pharmaceuticals, medical devices, and biotech; (2) aerospace; and (3) other parts of the electronics industry.

One-on-one meetings with key industry leaders (e.g. Andy Grove of Intel), either in person or using video conference technology, would also be very helpful.

3. **Sectoral initiatives**:

The Administration has launched a number of high-profile sector-specific technology initiatives, such as the Clean Car and the flat-panel display initiative.

I will be involved in the National Electronics Manufacturing Initiative (NEMI), which is an industry-led effort to define the generic technologies necessary to produce the next generation of "information appliances." In addition to establishing an R&D agenda in areas such as photonics, packaging, RF technology, manufacturing information and management systems, etc., NEMI will also be examining a wide range of policy options.

I will also continue to be involved in flat panels, and will organize a meeting following awards under the TRP program.

4. **R&D budget**:

I continue to be involved in the budget preparation and authorization/appropriations process for key technology initiatives, particularly for programs at NIST, ARPA, and the National Science Foundation.

I believe that the FY96 Department of Energy budget will be highly contentious. The national security community (e.g. DOD, NSC) will be pushing for a substantial increase in nuclear weapons R&D, which would cut funding for a number of the technology initiatives.

5. **Participation in NSTC process:**

The NSTC has 9 committees. I have been active in the Committee on Industrial Technology and the Committee on Information and Communications.

6. **Export controls:**

With the exception of encryption policy, I have no responsibilities in this area, but believe that making progress on export control liberalization is essential. A number of the commitments the President made in September 1993 have not been implemented.

7. **International S&T issues:**

My involvement in international S&T issues has been limited to supporting the technology access and technology cooperation discussions occurring under the Framework.

8. **SBIR:**

Funds for the SBIR program are increasing from 1.25 to 2.5 percent of the budgets of the major R&D agencies. Currently, there is little strategic allocation of these funds. I plan to work with OSTP to see if we can reorient some SBIR resources to Presidential priorities.

Other potential projects

There are a number of other potential projects that I think are important, but that I have currently have little time for. The Commerce Department's Technology Administration will probably get a substantial increase in its budget for FY95, which might allow us to task some of TA's analysts with these projects.

The Competitiveness Policy Council (currently chaired by Fred Bergsten) is another, largely untapped resource. Currently, no one in the Administration is paying attention to the output of their studies or asking them for input on specific policy questions.

1. **Analytic capability:**

How can we improve the ability of the U.S. Government to monitor industry and sector trends, and benchmark U.S. performance against rest-of-world? In many cases, I do not think government should be conducting the analysis, but it does need a mechanism for acquiring the best analysis.

I also believe that there is a lot of room for improvement in the way that we collect, exploit and disseminate "open source" economic intelligence.

2. **Procurement**:

Our discussion on procurement has primarily focused on making the government behave more like a commercial customer (e.g. eliminating cost accounting and milspecs).

We have not really discussed the power of government procurement to help create new markets for leading-edge products and services. At one of the meetings we held with the National Academy, several executives noted that procurement often had a bigger impact on their investment decisions than R&D grants.

3. **Securities litigation reform**:

For many high tech companies, curbing "frivolous" 10 (b)(5) suits is a top public policy priority. Some law firms have "stables" of shareholders that allow them to sue virtually any company that experiences a sizable drop in their stock price. Since the discovery process can tie up senior management, many companies are forced to settle out of court even if the case is meritless.

4. **Who is Us?**

Jaw Stowsky from CEA has the lead on this issue. We need to come to closure on this at some point.

5. **Nature of the U.S. R&D enterprise**:

You have often asked whether the end of the Cold War, the increase in international competition, and the end of long-term R&D funded by oligopolistic profits at companies like IBM and AT&T is having a fundamental impact on the U.S. R&D enterprise.

The Council on Competitiveness is trying to collect some real data on this, which may provide some food for thought.

6. **Technology financing**

Some members of Congress continue argue that there are "gaps" in capital markets (e.g. for seed capital) that should be filled with government guarantees to leverage private sector investment.

Although there has not been a great deal of support for this option, we have never looked at the issue of "patient capital", or the interplay between technology companies, our financial system, and corporate governance.

7. **Personnel**:

We won't execute technology programs successfully without the ability to attract first-rate people at the policy level, office director level, and program manager level.

8. **Communications**:

There is still very little coverage of the Administration's initiatives in this area. Even industry is often unaware of how much is going on. Agency public affairs people trumpet their own programs, but not the technology initiative as a whole.

9. **Evaluation**:

Currently, NIST is doing the best job of attempting to evaluate their programs. Other agency efforts are spottier.

THE WHITE HOUSE

WASHINGTON

MEMORANDUM

To: Bo Cutter

From: Tom Kalil TAK

Re: Administration's NII agenda for 1994 and beyond

Date: August 22, 1994

Introduction:

Arguably, the promotion of the National Information Infrastructure is the Administration's single most important technology initiative. Exponential improvements in our ability to store, transmit, and process information will impact virtually every aspect of America's economic and social life.

Because of the pervasiveness of information and communications technology, the NII is a complicated policy domain. Almost all agencies are involved, albeit at varying levels of intensity. A large number of public and private groups have mobilized to ensure that their interests are not ignored. "Stakeholders" include long-distance carriers, RBOCs, cable companies, broadcasters, the utilities, major telecommunications users, state and local regulators, universities, the computer and software industry, consumer advocates, copyright industries, librarians, Americans with disabilities, educators, public interest groups, and communities that are interested in a particular NII application. The NII is a perfect example of the "3 blind men and the elephant problem." People from different industries, backgrounds and disciplines are each in a position to describe a portion of the challenges and opportunities associated with the NII.

Perhaps the most important thing the Administration has done to date to promote the NII is to talk about it. In the same way that President Kennedy did serious damage to the hat industry by not wearing a hat, the President and Vice President have spurred the development of the NII by having e-mail addresses and talking about its importance.

The other major elements of the NII initiative are:

1. Developing a telecommunications policy that will promote competition and private sector investment while maintaining universal service;

2. Promoting applications of the NII;

3. Investing in R&D;

4. Addressing information policy issues such as privacy, security, and intellectual property rights issues; and

5. Promoting the Global Information Infrastructure.

1. **Telecommunications policy:**

a. Telecommunications legislation

Our most important goal is to pass telecommunications reform legislation. It has passed the House 423–4 and the Senate Commerce Committee 18–2. Senate floor action is expected in mid–September.

Overall, the legislation will represent a large improvement over the status quo. It will prevent the states from maintaining barriers to local competition, require the RBOCs to unbundle, eliminate the cable–telco cross–ownership restriction, preserve the notion of "universal service", give the FCC the authority to "forbear" regulation with respect to companies without market power, and gradually allow the RBOCs into long–distance and manufacturing.

The bills are by no means perfect. For example, the Senate bill contains a number of provisions to protect rural telephone companies and deny rural customers the benefits of competition. It requires that telecommunications companies provide a "public right–of–way" for non–profits by setting aside 5 percent of their capacity –– a concept that is meaningless in a digital, switched environment. We intend to work with the House and Senate to try to improve the bill during conference.

The bill faces two barriers. First of all, negotiations between the House and Senate will have to be conducted in a very short period of time. This will be difficult, given the complexity of the issues, and the intense industry lobbying. Second, Senator Dole has realized that in addition to crime and health, the three potential "second tier" legislative accomplishments are Super Fund, GATT, and telecommunications reform. The Republicans may have an interest in preventing any Rose Garden ceremonies this year. Dole's ability to play partisan politics may be limited by the reasonably strong Republican support for the bill.

NEC Role: Push for improvements in the bill. Ensure that White House pushes hard for House and Senate floor time. This could (conceivably) require personal involvement by you and Bob.

b. Spectrum policy:

Freeing up additional spectrum will accelerate the deployment of new technologies, such as Personal Communications Services, LEOS (low earth orbiting satellites), wireless data networks, next-generation personal digital assistants, wireless cable, etc.

The Emerging Telecommunications Technology Act requires NTIA to identify 200 MHz of government spectrum over the next ten years and turn it over to the FCC. (This is in addition to the spectrum in the 2 GHz band that the FCC is auctioning off for PCS.) 200 MHz is four times the amount of spectrum that created the cellular industry!

NEC role: Ensure that NTIA is not "slow-rolled" by the agencies who will have to turn over spectrum. Help identify next generation of wireless issues, e.g. incentives for spectral efficiency, market-oriented mechanisms for moving incumbent users. Consider whether auction revenue over $10 billion should be used for NII projects [e.g. connecting schools and libraries.]

c. Satellite policy:

There is strong support in industry and government that the satellite market needs to be restructured, and that the status quo (INTELSAT and IMMARSAT as treaty-based organizations) no longer makes any sense. However, the U.S. Government has yet to develop a clear policy in this area. An inter-agency working group, chaired by State, has been charged with developing options for privatization and restructuring of INTELSAT and IMMARSAT.

NEC role: Ensure that the State-led review includes options for an aggressive approach to privatization. Convene the inter-agency process (with OSTP) that will ultimately make the decision.

2. **Applications**:

The NII is not an end in itself. The Administration is interested in the NII because it is a powerful tool with a wide variety of applications in electronic commerce, manufacturing, life-long learning, health care, science, delivery of government services, sustainable development in the Third World, demand-side management, digital libraries, environmental monitoring, telecommuting, intelligent transportation systems, promoting informed participation, etc.

a. Applications strategies:

For each of the major applications, the Administration has attempted to initiate a national discussion on what will be required to make each of these applications happen. The first round of "white papers" was released in May 1994; the second round will be released later this fall.

NEC Role: Identify action items that flow from the applications strategies that are unlikely to get done in the absence of White House interest and support.

b. FY 1996 budget cross-cut

Panetta and Secretary Brown sent a memo to each of the agencies directing them to identify what they are doing to promote the NII. Some agencies have taken this responsibility seriously -- others have not.

In each of the major application areas, the IITF has tasked someone ~~with~~ analyzing what the government is doing across the board to see if it makes sense.

NEC Role: Work with OMB to ensure that the agencies make the NII a priority for their FY96 budget.

c. Life-long learning:

The ETR (Education, Training and Re-employment) group is interested in using the NII to promote the productivity of life-long learning. This group is interested in exploring how (a) the government can help stimulate the market for engaging, informative content; (b) we can make good on the President's goal of connecting all classrooms to the NII by the year 2000; and (c) how existing programs, such as federal grants for teacher professional development, could be used to promote use of technology in the classroom.

NEC Role: NEC co-chairs the ETR.

3. **Research and development**:

a. High Performance Computing and Communications

This $1 billion R&D initiative is generating much of the technology for the NII. Although it originally focused on solving "Grand Challenges" (predicting the weather, computational fluid dynamics, rational drug design) it has broadened its scope to cover applications with a much broader impact (e.g. manufacturing, education, health care, digital libraries).

b. Technology Reinvestment Project, Advanced Technology Program

Many of the ATP and TRP projects are funding industry-led consortia in technologies related to the NII, such as CommerceNet, technologies for computer-based patient records, interoperability testbeds, CIM for the electronics industry, and component-based software.

NEC Role: Support funding, both in the Administration's internal deliberations and during Congressional process. Participate in NSTC Committee on Information and Communications R&D. Push for funding in strategic areas, such as "middleware" [authentication, security, electronic payments, resource reservation, date interchange formats, information discovery and retrieval, routing and addressing, etc.]

4. **Information policy**

The Information Policy Committee is addressing issues related to intellectual property rights, privacy, security, and dissemination of government information:

- PTO Commissioner Bruce Lehman has proposed some modest amendments to the Copyright Act.

- OMB has released a set of "fair information practices" for public comment.

- Government agencies are making some progress in making more information available to the public.

- Although encryption policy is being handled by the NSC, the issue will continue to resurface in the context of the NII.

NEC Role: NEC's Working Group on Intellectual Property reviewed the Lehman report, and will be involved in other major changes of U.S. intellectual property law.

5. **Global Information Infrastructure**:

a. Upcoming events:

There are four major international for in which GII issues will be raised: Summit of the Americas, APEC, the ITU, and the G-7 summit.

NEC Role: Ensure that GII issues are raised in a way that is consistent with the broader themes of the conference or summit. Help shape the agenda.

Example: For the G-7 summit, I am actively exploring the notion of an international test-bed. If connectivity between the U.S. EU, and Japan could be increased from its

current T-1 links to T-3 or even OC-3, this could provide a platform for collaboration in areas such as interoperability, telemedicine, global electronic markets [dealing with currency and IPR issues], digital libraries, a World's Fair for the Information Age, etc. I have gotten very enthusiastic responses for this general concept from a number of U.S. companies, including Sprint, MCI, AT&T, PacTel, IBM, DEC, HP, Dun and Bradstreet, and SynOptics.

b. Agenda for Cooperation

Commerce has been tasked with developing a document that would outline the Administration's global agenda.

c. Third World economic and social development

The NEC has encouraged development agencies to think about how information and communications technology could change the process of economic and social development.

NEC Role: I have met with the Executive Directors from both the IDB and the World Bank, and helped prepare a proposal to provide African countries with a 64K duplex connection to the global Internet.

Cross-cutting issues:

1. Increasing the technical expertise of non-technical agencies, and improving coordination between technology and policy community.

   Most NII issues have both policy and technology issues. For example:

   - Dealing with intellectual property rights in a networked environment requires changes in copyright laws and electronic copyright management systems, new standards for header/descriptors, software envelopes, metering, digital watermarks;

   - Promoting telemedicine may require changing the way HCFA reimburses providers for the use of information, or changing state licensure practices;

   - Enabling new forms of electronic payments may require changes in financial regulations;

   - Promoting NII applications in education and training will require more technical expertise on the part of Education and Labor.

2. Rapid national learning from state and local experiments.

3. Overall NII architecture. How do we get an NII that is characterized by:

   - Low barriers to publishing (individuals as producers as well as consumers);
   - Layered architecture, with open interfaces at each layer;
   - Interoperability; and
   - Openness to rapid technological innovation.

Appendix:

Some specific initiatives I am promoting because I think they are worthwhile:

1. Effort by industry, academia, and library and information science community to define human resource requirement for designing, building, and using the NII.

2. Examination of the policy and technical issues associated with cable TV's role in the NII. Specifically, how can the coax networks deployed by cable companies become a platform for a wide range of interactive services, as opposed to just one-way video delivery. Sample issues:

   - Fiber-to-the-neighborhood architecture only allows reverse channel of 5-30 MHz to be split between (roughly) 200-500 households. Some of this reverse path could be pre-empted by "must carry" obligations.

   - Reverse channel is very noisy. Spectrum technology developed for military may help improve capacity.

3. International testbed to be announced at G-7 summit.

4. Virtual library on NII-related subjects to promote diffusion of good ideas at state and local level.

5. African connectivity to the Internet.

6. Experimentation with wide-area hypermedia as a way of getting input from the public on Administration policies.