MIT COMMUNICATIONS FORUM

"Unlocking the National Information Infrastructure"

Dr. Charles M. Vest
President
Massachusetts Institute of Technology

28 April 1994
Bartos Theatre
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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
COMMUNICATIONS FORUM

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28 April 1994
Massachusetts Institute of Technology
Bartos Theatre
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DAVID MARSH, moderator [DM]: Good afternoon and welcome to M.I.T.'s Communications Forum. I am David Marsh of M.I.T's Corporate Relations organization. Our speaker today is Dr. Charles Vest, President of M.I.T. He will share with us some of the findings of the recently released report on communications by the Council on Competitiveness, which was chaired by Dr. Vest. This report, entitled *Competition Policy: Unlocking the National Information Infrastructure* [NII], focuses on policy issues related to the NII.

As I am sure most of you are familiar with Dr. Vest's background, I shall make my introduction brief. He has been President of M.I.T. since October 1990. Prior to coming to M.I.T., he was provost and vice-president for academic affairs for the University of Michigan. His degrees are in the area of Mechanical Engineering, a B.S. from West Virginia University in 1963, and an M.S.C. and Ph.D. from the University of Michigan. With that, let me introduce Dr. Vest. . .

President CHARLES VEST [CV]: Thank you very much, Dave. As you listened to Dave's introductory comments, I am sure you heard nothing in my background that would qualify me as an expert in competition policy, or in communications policy, so I want to explain what my role is here today. Since I am appearing in a seminar format, I can assure you that I would be much more comfortable were the topic something like "holographic interferometry" or maybe even "M.I.T.'s budget." But I have tried, as President of the Institute, to be somewhat involved in the external world, to try to build linkages, and to urge things to move in directions that seem to be, institutionally, very important.

A few years ago I was asked to join the executive committee of the Council on Competitiveness. As a committee member, I am obligated to assume a number of duties, and one that I have taken up is playing some minor role in our information infrastructure project. With the caveat that I do not consider myself to be an expert on the topic I want to introduce, I hope we can still follow a seminar format. I would like to walk through a bit about what the Council has done, which I hope will stimulate some discussion.

First, let me say a bit about the Council on Competitiveness. You may be aware that there have existed three organizations headquartered in Washington, all with roughly the same name. One was the Council on Competitiveness, organized by Dan Quayle; this is not our organization. The second was the Council on Competitiveness Policy, which is an arm of the Commerce Department that was established during the Bush Administration [and is still operating]. And the third is what is usually referred to as the private sector Council on Competitiveness. It is a consensus organization [i.e., a group that meets periodically to try to come to some policy consensus on issues that are associated in some way with our national competitiveness], which consists of 145 individual members, largely dominated by CEOs of corporations and by a number of people representing academia and labor.

Its focus is on policy and regulatory issues that have an impact on our members' and the country's competitiveness. Some issues that have been dealt with heretofore [since the Council's creation six years ago] are capital formation, science and technology, international economics and trade, education and human resources. The way in which we try to tackle an issue is by, first, convening a meeting with a sizable group, a few of whom may be members of the Council, but most of whom are not. In general, the group is composed of experts in whatever field is being discussed--from the private sector, from the government, from academia, etc. The idea is to convene groups, get them to think about certain themes, and see if they can come to some consensus about what might make national policy sense. Each such study boasts one or two members of the executive committee, generally, one from industry and one from academia, who serve as co-chairs. Co-chairmanship really means acting as a kind of interface between the membership itself and the group that is undertaking the study. That is a role that I have been trying to play in this case, together with John Young [former CEO of Hewlett Packard], who has taken a more active role in this study.

This study is the *21st Century Information Infrastructure Project*, which set out were to try to establish a vision for America's information infrastructure. I will say right at the beginning that, while the Council's objective is national in scope, it has been encouraging to see that an increasingly international perspective is being taken, and I think that is quite important, myself. The next project we shall undertake is to identify some demonstration projects. We are going to try to bring these together in some sense, in Washington, and let a whole variety of organizations from around the country involve themselves in demonstrations for key leaders. Ultimately, we hope to outline a program for implementation.

As I indicated, each of the Council's studies is initiated by bringing together members representing a variety of fields; in this case, local and long distance telephone companies, cable industry, publishers, banks, power companies, manufacturers, software developers, academia, and labor. When this study was initiated, we had to create a vision statement, which was as follows: "The Information Infrastructure of the 21st century will enable all Americans to access information, to communicate with each other easily, reliably, securely, and cost-effectively in any medium--voice, image, video--anywhere, anytime. This capability will enhance the productivity of work and lead to dramatic improvements in social services, education, and entertainment. So that is the common purpose that the group hopes the country, both through public policy and private enterprise, can work toward.

One major question that arises when discussing the NII is, "why is it important?" We think it is particularly important to point out that the NII is more than computers, databases, and communications networks, which is what we spend all of our time talking about. It is also people, organizations, and useful applications. We hope to convince the federal government, which does not seem to need a whole lot of convincing at the moment, that it will ultimately help competitiveness and job creation. Someday we hope to deal with pressing social problems as well. What we are aiming for now are the foundations for other kinds of infrastructures and an expanded variety of products and services.

The challenge, as the group saw it, was to somehow find the right balance among competition and cooperation. There was also a question of how much was the right level of regulation--heavy regulation, zero regulation. We also tried to outline the roles of the government in the private sector; most of the people in this group believe that this is largely an issue for the private sector to work out, and that competition, in general, is a good thing. But it is strongly believed that the government needs to help us articulate the national need for an advanced information infrastructure. It was also acknowledged that the government had a proper role as a catalyst and coordinator to bring U.S. telecommunications regulations in line with new opportunities, and to ensure that diverse R&D programs are well-managed and designed to advance practical applications. The private sector, in this group's view, on the other hand, has the responsibility for actually building and operating the infrastructure, serving new kinds of markets, and providing value to its customers. So you can see that the view that the group has of the NII is one of utility; it is not an idea that the NII is an identifiable strand of fiber, weaving around the country. In fact, it would be "a network of networks", and should be something to which people bring access, put up information, sell it, manipulate it, and so forth.

The question then becomes, "how do you get there from here?" First, the idea was to establish some short-term goals and programs that would accelerate our progress toward having variable bandwidth and a widely accessible digital interoperable set of networks. In order to facilitate these goals, the Council has begun to help create a private sector consensus on what issues will speed the ability to deploy these technologies. It has also facilitated thinking about this identified complex of issues--anti-trust laws, carrier liability, competition policy for the country, intellectual property, international connectivity, inter-operability, security, standards, spectrum allocations, tax incentives, and of course, the technology itself. There are other sets of issues that we also have to begin addressing, such as those that deal with access and affordability, First Amendment rights, and privacy.

Second, the Council hopes to profile some key pilot projects and demonstration programs to bring some of the impact and reality of these ideas to the federal scene. That is, by way of a little bit of background, how the group moved towards this first report entitled, *Competition Policy: Unlocking the National Information Infrastructure*. The term "unlocking" was, of course, very important because the premise is that much of the infrastructure exists, or can readily exist, if we can simply learn how to put the right building blocks together and give the right level of access.

The fundamental findings of the study are pretty straightforward, but there are some recommendations that are perhaps less straightforward. The first finding is that technology and markets are fusing. We can no longer think of cable companies, power lines, and telephone companies as being independent of each other. They are all coming together, merging in a variety of ways, sometimes merging in the business sense, certainly in the technological sense. The second finding, that regulations and policies are fragmented, is an enormous understatement. The third finding, which may be difficult to think about from a policy perspective, is that it is impossible to predict accurately the future path of the market or technology.

Certainly, many organizations are involved in trying to sort out what those possible futures may be; government policy, in particular, tends to be way behind. We are dealing now with a whole set of regulations that have been put in place around a very classical telephone system model, and somehow we are trying to fit it to all the new modes of communication and interaction that are now upon us. One of the things that has continually bothered me is that I really do not have the foggiest idea if the people who will be the most important players in building the ultimate infrastructure are the same people we have brought together. As we all know, when technology is involved, entrepreneurs, in both the intellectual and financial sense of the word, are likely to enter the fray with new, radical ideas that may eventually be the dominant ones. Finally, the fourth finding is that given the radical restructuring underway, the key issue is not whether, but when and under what conditions, to permit full competition in all markets.

It is interesting to think about who sets communications policy. Things come from a wide variety of directions, from the local to the international level. On the local level, some extremely important things occur. For example, there are public utility commissions--just imagine the number of utility commissions that exist nationally, much less internationally. Likewise, states have roles. The federal government has roles in a variety of forms--certainly, legislatively, both at the federal and state level, and also through the courts. One simply needs to think of the divestiture of AT&T to see how fundamental a role the courts can ultimately play in setting policy. We also have consumer groups and state consumer advocates involved in policymaking, at the federal, state, and local levels. Also, Congress, governors and local governments play roles. And we have not even mentioned the FCC yet. Of course, a number of currently regulated industries are also involved--forming opinions, giving input, presenting regulations, developed and imposed-- it really is quite a mishmash, so it is clear that there are not any simple or easy answers to the questions that arise.

The Council sees two potential futures: one that operates in a heavily regulated framework and one that operates in a market-based framework. Undoubtedly, given the American experience, what ultimately emerges will be some combination of these two. In theory, it is believed that if a heavily regulated framework persists, then there will be strong restrictions on market entries. Hence, there would presumably be fewer providers, limited competition, segmented businesses, and activities would be provider-driven. This theory also assumes limited customer choice, more homogeneous technologies, the development of network interconnection bottlenecks, and regulated rates of return. Universal service would be supported through multiple subsidy programs, and there would be a bias towards extensive regulation.

A more market-based framework, on the other hand, would probably be characterized by unrestricted market entry, a proliferation of providers, extensive

competition, overlapping business of all sorts, customer-driven services, and extensive choices, both of providers and services. There would be more heterogeneity, and hopefully there would be "a network of networks" in the country, and, ultimately, around the world. There would be more flexibility in pricing, and universal service would be supported through lower cost services and targeted subsidies, provided by shared contributions and a bias against minimum regulation.

Those are views of the two extreme ends to which we might ultimately migrate. As the group began to frame its ideas and work towards its report, one came to believe that there were four keys necessary to unlock the system to provide a much greater reality of competition than is currently possible. First, if one is going to have "a network of networks," they must all be interconnected. Second, we must unlock the regulatory environment to alter the ability to enter and exit markets. Third, pricing policies must be looked at. Finally, the whole idea of universal service is accepted; this "network of networks", [but not really value-added activities], have to be available to everyone.

The recommendations, put here in summary form, are few. First, we must ensure interconnection and interoperability among networks. The essential facilities of this interconnectability include operational features that are key to transporting information, that offer functionality, and where alternatives are not reasonably available. Facilities must be provided on a non-discriminatory basis with reciprocal financial arrangements. They do not include value-added services and applications.

Second, we must remove barriers to market entry and exit. This applies both to new entrants into an incumbent provider's market and to incumbent providers moving into currently restricted lines of business. This is, of course, the issue the group spent months arguing about. They were unable to come to a single consensus model, and instead came up with two options. The contention really surrounds how quickly a dominant provider can move off into other services [and under what conditions]. The first option would permit a dominant provider [one that has, in essence, a local monopoly], whether cable, telephone, power or some other company, to enter other lines of business when essential facilities are open to all providers, and when appropriate regulatory safeguards are in place. The second option is a slower process that would extend entrance to new businesses only when barriers to entry in the dominant provider's business are removed **and** effective competition, as measured by a predetermined set of metrics, has emerged.

Third, we must let prices reflect competitive market conditions. Regulated providers should be granted pricing flexibility with price ceilings to protect customers from excessive rate increases and price floors to protect nascent competition. Also, regulators should explore the value of price caps. Fourth, and finally, we should protect universal service and share its costs. Policies should encourage providers to reduce costs. Assistance should be directed to end users so they can purchase services from competitive providers. Providers should equitably share the responsibility of contributing required support. The government can hold Dutch auctions in areas where there is no apparent provider. The definition of essential services should be periodically reviewed.

Those are the primary recommendations laid out in this report of the Information Infrastructure Group of the Council on Competitiveness. The next thing we hope to do is to hold an applications conference to showcase a variety of activities from groups around the country. The objectives of this conference will be as follows: to showcase information infrastructure demonstration projects; to educate the Washington policy community, industry representatives, the media and the general public, about technical, regulatory, and/or public policy issues that must be addressed to advance the implementation of the NII; and, to facilitate an open discussion among industry and policy leaders concerning specific applications and their benefits to Americans. The target audience of this applications conference would be Congressional members and their staffs involved with NII issues, Administration officials and staff, and industry representatives involved with/interested in NII related issues. We also hope to invite representatives of the media interested in NII-related issues, as well as interested members of the general public.

That is a short overview of the activities that the Council has been trying to conduct. I hope this has been helpful as background to inform or stimulate the discussion within the group. Again, I want to emphasize that in no way do I consider myself an expert in this field, so I am not looking at this as a classical question and answer period. But I would be really pleased if we could hear some good arguments within the group.

DM: Thank you, Dr. Vest. Many of those in the audience have spent a great deal of time thinking about these issues. I think we'll have no problem getting an active dialog going, particularly on what turned out to be the contentious issue of effective competition, what it constitutes, how it is measured, and how quickly the transition is made from present regulatory frameworks into a fuller, free market for information services. With that, let me invite people to start the discussion.

QUESTION 1: One thing you mentioned was "Smart Valley" as something to look out for. I was curious as to why there is no such similar organization in this area of the country? How about a "Smart 128?"

CV: Or just to draw an arbitrary name out of a hat, how about "Smart I-95?" Do we have an I-95 expert who would like to address this?

AUDIENCE COMMENT: You mean why we do not have one? Well, we probably did not write as good a proposal as those in the Valley.

CV: Well, as I understand it, the I-95 proposal is, in fact, more advanced and more visionary than the "Smart Valley," which was, in essence, just getting a bunch of Silicon Valley companies networked together a bit more aggressively. We did, as you know, here at the Institute, spearhead a very major TRP proposal, and at least in the first round, were not successful. However, I think we did build a strong consensus among a number of companies in the area that this is important. We are continuing to work to pull this together. I hope we pull it off. We asked for practically all of the money in the TRP program, which was part of the problem.

QUESTION 2: Something I did not see discussed here, and I am wondering if it was addressed by the Council is, what the character of this infrastructure should be. As far as I can see, there are two models that could develop. One is a peer-to-peer network, where anyone could be a producer and/or a consumer, which is what we have with the telephone system. The other is one where a large organization would control the system, in which they would be the providers and everyone else would be the consumers [e.g., the cable industry and on-line service providers]. Anyway, I did not see any indication in your talk about which direction the NII would go, and I think it is a crucially important issue.

CV: Again, I would say that, by far, the dominant view, in free-flowing discussion, was the former and not the latter.

QUESTION 2, part II: Could you say a little about what, in your view, what "value-added" versus "essential" means?

CV: I think that means providers and manipulators of information as opposed to people providing pathways for that information to flow.

QUESTION 3: I am not pro-regulatory, but let me try to start a debate by paraphrasing something that somebody from one of the regional companies said to me a couple of days ago, which was essentially, " the access circuits into the house are really the key to universal access. It will cost us about $1000 per house to put in a drop, and there is really

no way for us to recover our money from that unless we believe we have carriage of most of the services. The competition the consumer will have is the ability to pick to which person he pays $1000, in some contractual way." Does the Council really believe that, and if so, do they think that it is really enough competition, such that regulation can be removed from that environment?

CV: You've gotten to the crux of what the shouting around the table was all about, and why, given that this is a consensus document, it is not yet sufficiently hard-hitting. We ended up saying, "these are the issues that have got to be resolved." So that is why you saw arguments about potential price wars, price ceilings, etc. It is really these investment issues that are causing great concern. But I think, in reality, the question was not answered.

QUESTION 4: Another question that may not have been answered . . .the policy statement says that all Americans should have this capability. But when, or in what order, will Americans receive these facilities? Do we furnish this to everyone simultaneously? To businesses first? To people in New York first?

CV: The pragmatic answer is that, since the group did believe in establishing, in so far as possible, a free market for this, the inevitable result of that is that the people who can pay for it will get it first. I think certain areas of the country will be more advanced than others, and for a period of time, there will probably be a wide discrepancy of services available in different areas. As will not be surprising, there was a great deal of concern with regard to this issue. You will recognize, for example, that National Public Broadcasting was represented in this group, and their representative pushed very hard on this issue.
    Interestingly, we had people from many of the banks interested in finding a way to make things more universally available on the same time scale. But I do not think a convincing model, which would permit that, really emerged.

QUESTION 5: I have two questions, one global and one local. First, you mentioned that you thought more attention needed to be given to the global information infrastructure. I wonder if there was any real focused discussion about it in the group. If so, I am interested in what the terms of the debate were and what issues were under consideration. Second, on a very local level, as president of MIT you have probably thought, as least in passing, about how this might affect MIT as an educational institution. Do you have any thoughts you would like to share with us about how you see MIT fitting into the GII?

CV: Since this is an academic seminar, I will be very honest in answering these questions. I think there was much more international perspective and belief among the group than emerges in the document. Why is that the case? First of all, the Council itself was originally formed at a time when a number of our major industries were under enormous external attack. The report has therefore focused on increasing the competitiveness of U.S. industries and entities.
    Second, the ultimate objective is to try to stimulate debate and policy development within the federal government. As we talked quite openly during this process, a view emerged that given those two factors, the report should probably focus on this from a national perspective. But there is a much more deep-seated feeling in the group about the importance of internationalism in these activities. I would even go so far as to say that if this report were being rewritten, even today, it would have been written from more of an international perspective.
    What is the role of MIT? First of all, I would hope that MIT will remain at the forefront, in terms of the intellectual, scientific, technological, and educational issues. I hope that we will be the center of some very significant experiments and interactions. A number of initiatives, [which I am not necessarily at liberty to discuss], are in the works,

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some of which should put us very much at the center of some truly global activities in information infrastructure.

Beyond that, and this is a hope, I would really like to see us emerge much more vigorously than we are at the moment. As the leading institution in thinking about how to use modern information technologies for the general pursuit of scholarly activities. I would like to see us being much more aggressive in building, among other things, a digital library. [I call it a "library" for lack of a better term.] We do have the M.I.T. Press, which is publishing the first electronic on-line scientific journal. I hope we can build on that momentum, and really be a leader, not just for the technology, but for the utilization of knowledge, particularly in our scholarly pursuits. We began working in that direction, of course, with the development of Project Athena, but I think there are entirely new stages to which we should be moving. I hope we will, but I think we need to build a little more coherence to the effort than we have thus far.

QUESTION 6: I found your slide on the two scenarios, regulated versus market-based, particularly interesting. I think that part of our role, and what excites me, is the rapid innovation and creativity that we can produce with our technology, the services that can come from that, and the potential impact. When I look at this slide, I am particularly drawn to the line that talks about heterogeneous technologies and the extent of customer choices. I'd actually rather not think about this debate in terms of regulated or not, but I do think it is important to stress the heterogeneity and customer choice components as the driving factors behind the truly crucial factor, innovation; I see everything spreading out from that.

So, if employing a market-based system encourages heterogeneity, than let's use it. Here at the Institute, we are in the position to encourage innovation and diversity. I just mention this as a suggestion of what M.I.T.'s role might be, and perhaps as a good jumping off point for a discussion.

CV: Do you want to pick up on that?

QUESTION 7: Sure. There is an interesting tension in that slide. On the one hand, it talks about heterogeneous technology and extensive customer choice. Yet it also talks about seamless network of networks. However, seamless and heterogeneous do not fit together without some work. When you talked about how this was going to facilitate interconnection and interoperation, the word you used was "unbundling." You could have said, in fact, that a market-based framework is one in which the role of the government is to mandate "unbundling." In some cases, it seems like this would work [e.g., Ameritech]. In other cases, however, people have said, "unbundle" us and we will die. So I think that the seamless part does not come easily from the market-based framework. Such a framework might better focus on account control and seam-full interconnection to keep competition out and vertical integration.

CV: I understand what you are saying, but it seems to me that this is tied up in the discussion that I said went on about identifying essential features. Because when you say seamless, that cannot be a statement of infinite bandwidth; there must be some basic level of coherence that goes across everything to which you may have access. But then you can go above and below that as well. So, I understand the tension you spoke about, but it seems to me that it arose in the discussion of trying to define the central features.

QUESTION 9: I think one of the really interesting things raised was the question of "barriers to entry." That may also reflect on the point about the carrier that has to put "$1000 into every home." That looks like a big barrier if the carriers have to cover every home. It may be that what will see roll out here is a hierarchy, in which we have, for example, nurseries, where there are low barriers to entry and it is very easy to get new services and technologies out. They are perhaps quite expensive if you think about widely

deploying them, but as they become successful and proven, then carriers will be willing to make a greater investment and put them into higher barrier to entry markets. I think there is room for this vision without bending these carriers inside out.

CV: I agree.

QUESTION 10: In the vision statement, there was a little word, "standards." Let me point out that we are talking about a huge system. Thus the matters of compatibility and interconnection, etc. all come up there. The only example of a similar system is the current telephone system, which was developed over years by one total company, AT&T. The other comparable situation is the television industry, but that was a very different situation. The television standard was set many years ago, and until recently, could not be changed. Basically, it was the FCC's standard.

There is another big system, developed in an entirely different, decentralized way, and that is the INTERNET. These are the only three examples I can think of. Has the Council thought at all about the government's role in promoting the development of standards without doing it from the top?

CV: That was not the line that the discussion took, but that is an extremely important point, and without question, there will be some government mechanism created over the next couple of years to deal with that problem. I do not know what the answer is going to be, but the contrast of the INTERNET with the telephone system is very informative. It couples back to something that has been mentioned by the group in a couple of different ways.

I am fascinated by how the time-scales of development of technologies has changed. For the telephone system, we had the luxury of something that developed very slowly and did not change fundamentally for many years. As you begin to think about more modern contemporary examples, such as the INTERNET, you get things that are changing on an annual, or even monthly, time-scale. So how you think about standards in that kind of rapid technological development seems to me to be very complicated.

QUESTION 11: A question with regard to the age-old issue of money. . .I imagine that the telephone and cable companies used the standard that we want to pass on as much of the cost to the consumer as possible. But I was wondering what the representatives of the power companies said, since of all the groups, they are the only ones who can actually recover the cost--by monitoring power consumption, by educating consumers, and particularly by decreasing power consumption during peak usage hours. Did anyone say, hey, we'll do it because we can get the money back?

CV: There was some discussion about a recognition that, within the system, there may have to be some form of subsidy until universal access arises. But you are absolutely right, the power companies have been in the position of trying to cut back consumption of their own product.

I do not completely follow where you are headed, however, because while the cable companies, etc., certainly want to make money, they also want encourage use of information. As you know there are a lot of ideas that float around in this building, for example, charging by bit used, and putting out signals at differing bandwidths and grabbing what you want and paying for it; I think these are very exciting ideas. I do not think there was much discussion in the group along those lines, though.

QUESTION 12: Over the last ten years, we have put technology into companies, and of late, we have put them into the educational system. By that I mean, e-mail, LotusNotes, a whole variety of things. We found that the technology was the least of our problems. The first problem was that these people had no concept of organizing the available information

in whole new ways. The second problem was that they did not have the thinking skills needed to take a large number of pieces of information, manipulate them in new ways, as well as manage higher levels of complexity. However, even if you surmount these problems, one is left with the major political problems that emerge when all of the sudden, groups of people get empowered by having the technology, new ways of structuring information, and a whole new set of thinking skills.

So, what I want to know is, have you detected, in Washington, people who are aware of what might happen once we extend this empowerment among the currently "opiated masses?"

CV: Your point about the lack of understanding, or even appreciation of potentials, is what I think creates quite a tension with the comment made earlier about how we can determine what the public actually wants. We hope through the proposed demonstration projects that we can begin to get a little awareness to those in Washington; we do not just want this to be a fancy technology show. That point you brought up is precisely what we hope we can do with these demonstration projects--to get people to see potentials and how radically things could change, rather than just lots of flashing lights and fancy-looking technology. The answer to the core of your question about whether I detected a clear understanding of this in Washington is, I guess, no. But as you go around and begin to talk to some of the Congressional staffers, you find that they are very interested in this.

Finally, my own guess is that the other reason it was not discussed is that the primary focus of this group was on the creation of a kind of utility-like framework. Most of us tend to believe that people advance faster than we can plan for them, so I think the important thing is demonstration, education, and example. From these, we should get some ideas about how to open it up.

But, you have to admit, some things have already changed. During the last presidential election, television was used as never before. And the White House even has e-mail. Also, I was told last night that President Clinton has now exchanged his first personal hands-on electronic message with another head of state. If you were to ask, in what field we would have to see the most change to get people's attention, I think it would be in the field of education. I think that is where the ground is the most fertile for thinking about potentiality.

DM: Thank you very much.

COUNCIL ON COMPETITIVENESS

Private Sector Membership:

✓ consensus organization

✓ 145 CEO level members representing industry, academia and labor.

COUNCIL ON COMPETITVENESS

FOCUS

Policy and regulatory issues which are having a bottom-line impact on our members', and the country's, competitiveness.

- ✓ capital formation/investment policies

- ✓ science and technology

- ✓ international economics and trade

- ✓ human resources.

21st CENTURY INFORMATION INFRASTRUCTURE PROJECT

OBJECTIVE

✓ Establish a vision for America's information infrastructure

✓ Articulate a strategy to achieve that vision

✓ Identify demonstration projects, R&D programs and regulations that can drive it.

✓ Outline a program for implementation

ADIVSORY COMMITTEE

Co-Chairs

    John Young: Chairman, Smart Valley Corporation
      and former CEO of Hewlett Packard
    Charles Vest: President, MIT

⇨ Members representing local and long distance telephone companies, cable industry, publishers, banks, power companies, manufacturers, software developers, academia, and labor.

COMPETITION POLICY: UNLOCKING THE NATIONAL INFORMATION INFRASTRUCTURE

FINDINGS

1) **TECHNOLOGY AND MARKETS ARE FUSING.**

2) **REGULATIONS AND POLICIES ARE FRAGMENTED.**

3) **IT IS IMPOSSIBLE TO PREDICT ACCURATELY THE FUTURE PATH OF THE MARKET OR TECHNOLOGY.**

4) **GIVEN THE DRAMATIC RESTRUCTURING UNDERWAY, THE KEY ISSUE IS NOT WHETHER, BUT WHEN AND UNDER WHAT CONDITIONS, TO PERMIT FULL COMPETITION IN ALL MARKETS.**

Who Decides What in Communications Policy?
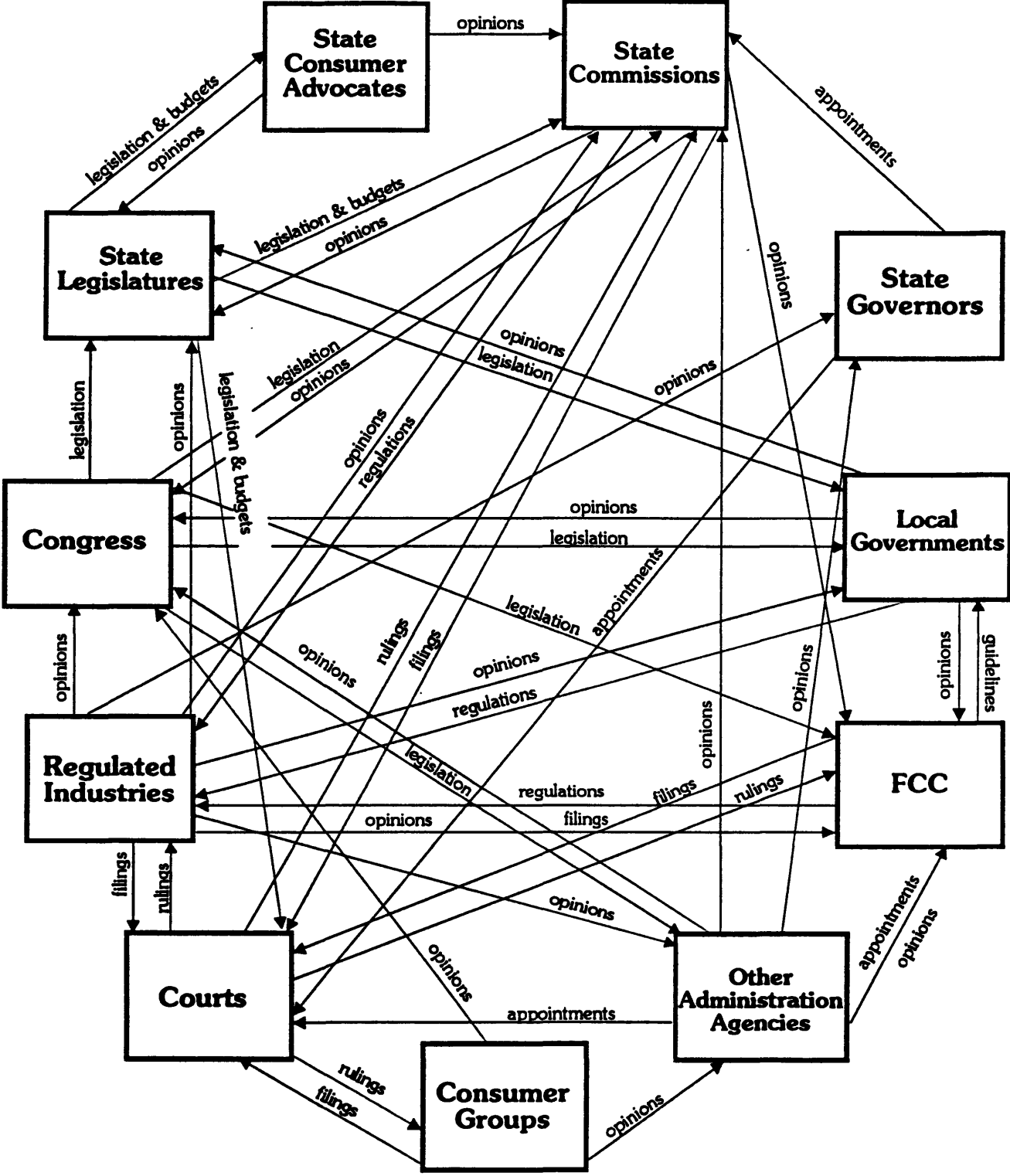
**THE KEYS TO
UNLOCKING
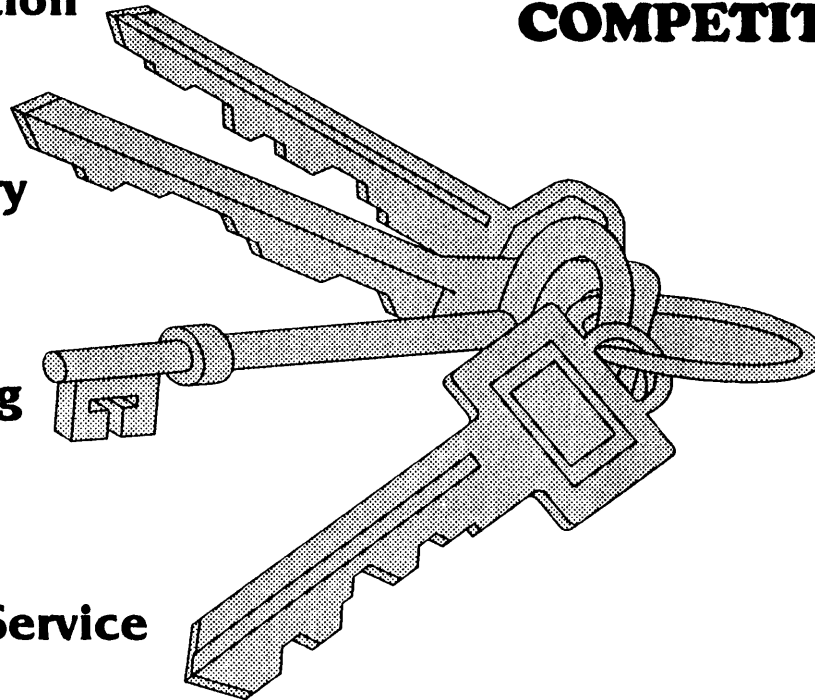COMPETITION**

Interconnection

Market Exit & Entry

Pricing

Universal Service

RECOMMENDATIONS

1) ENSURE INTERCONNECTION AND INTEROPERABILITY AMONG NETWORKS.

Unbundle essential facilities in a building-block approach.

Essential facilities:
- include operational features that are key to transporting information, that offer functionality, and where alternatives are not reasonably available,
- must be provided on a non discriminatory basis with reciprocal financial arrangements,
- do not include value added services and applications.

RECOMMENDATIONS (cont.)

2) REMOVE BARRIERS TO MARKET EXIT & ENTRY.

- This applies both to new entrants into an incumbent provider's market and to incumbent providers into currently restricted lines of business.

- Two options emerge for dominant provider entry into restricted lines of business.

RECOMMENDATIONS (cont.)

The Council offers two options for consideration:

Option One

Permit a dominant provider, whether cable, telephone, power or some other company, to enter other lines of business (including long distance, manufacturing and/or video programming) when:

- essential facilities are open to all providers, and

- appropriate regulatory safeguards are in place.

RECOMMENDATIONS (cont.)

Option Two

Entrance to other businesses when:
-barriers to entry in the dominant provider's business are removed (conditions of option one), and

- effective competition, as measured by a predetermined set of metrics, has emerged.

RECOMMENDATIONS (cont.)

3) LET PRICES REFLECT COMPETITIVE MARKET CONDITIONS.

- Regulated providers should be granted pricing flexibility with:
    - price ceilings to protect customers from excessive rate increases, and
    - price floors to protect nascent competition.

- Regulators should explore the value of price caps.

RECOMMENDATIONS (cont.)

4) PROTECT UNIVERSAL SERVICE AND SHARE ITS COSTS.

- Policies should encourage providers to reduce costs.

- Assistance should be directed to end users so that they can purchase services from competitive providers.

- Providers should equitably share the responsibility of contributing required support.

- The government could hold a Dutch auction in areas where there is no apparant provider.

- The definition of essential services should be periodically reviewed.

NATIONAL INFORMATION INFRASTRUCTURE ASSUMPTIONS

REGULATED FRAMEWORK	MARKET BASED FRAMEWORK
Restricted market entry	Unrestricted market entry
Few providers	Numerous providers
Limited competition	Extensive competition
Segmented businesses	Overlapping businesses
Provider driven	Customer driven
Limited customer choice of providers and services	Extensive customer choice of providers and services
Homogenous technologies	Heterogenous technologies
Network interconnection bottlenecks	Seamless network of networks
Regulated rate of return	Pricing flexibility
Universal Service supported through multiple subsidy programs	Universal Service supported through lower cost services and targeted subsidies provided by shared contributions
Bias towards extensive regulation	Bias towards minimum regulation

COMPETITION POLICY REPORT

⇨ Release was timely

⇨ Press coverage continues

⇨ Advisory Committee continues to support recommendations

⇨ Continued support from Administration

⇨ Framework is reflected in pending legislation

⇨ Additional outreach through conferences

DEMONSTRATION PROJECTS WORKING GROUP

⇨ Committee met February 23rd

⇨ Based on review of the 45 project nominations to date, the committee decided to proceed with the applications conference

⇨ The committee agreed to partner with IITF to sponsor the applications conference (with a few caveats)

⇨ Target date: early September

⇨ Conference working groups will begin meeting next week

APPLICATIONS CONFERENCE OVERVIEW

OBJECTIVE

⇨ To showcase information infrastructure demonstration projects.

⇨ To educate the Washington Policy Community, industry representatives, the media and the general public, about technical, regulatory and/or public policy issues that must be addressed to advance the implementation of the national information infrastructure (NII).

⇨ To facilitate an open discussion among industry and policy leaders concerning specific applications and their benefits to Americans.

APPLICATIONS CONFERENCE OVERVIEW (cont.)

TARGET AUDIENCE

➪ Congressional members and staff involved with NII related issues

➪ Administration officials and staff involved with NII related issues

➪ Industry representatives involved with/interested in NII related issues

➪ Media interested in NII related issues

➪ Interested Public

OTHER RELATED ACTIVITIES

➪ Title VII input

➪ NII Technical Forum

➪ McArthur / Benton Foundations

TITLE VII

⇨ Regulation relief for carriers that offer two-way, broadband, interactive, switched digital service to 20% of subscribers in a state

⇨ Regulates only rates for services offered by firms with market power in the provision of such services

⇨ Imposes regulatory requirements only on open access, universal service, interconnection

PENDING LEGISLATION

⇨ *HR 3626* (Brooks-Dingle)
     Antitrust/Communications Reform Act of 1993

⇨ *HR 3636* (Markey-Fields)
     National Communications, Competition and
          Information Infrastructure Act of 1993

⇨ *S 1822* (Hollings-Danforth)
     Communications Act of 1994

All Address: "Keys to Competition"

⇨ Market access

⇨ Interconnection/interoperability
  (unbundling essential facilities)

⇨ Pricing flexibility

⇨ Universal service

Antitrust/Communications Reform Act of 1993
HR 3626 (Brooks-Dingle)

FOCUS:

⇨ *Interlata*

⇨ *Manufacturing*

National Communications, Competition and Information Infrastructure Act of 1993
HR 3636 (Markey-Fields)

FOCUS:

⇨ *Cable-Telco*

⇨ *Interconnection*

⇨ *Universal Service*

Communications Act of 1994
S 1822 (Hollings-Danforth)

FOCUS:

⇨ *Universal Service*

⇨ *Manufacturing*

⇨ *Cable-Telco Provisions*

⇨ *Interlata*

S 1822 (Hollings-Danforth)

⇨ *Universal Service*
   - FCC and states share responsibility to ensure all citizens have
       access to high quality telephone service
   - all telecom carriers contribute support
   - gives FCC 1 year to set minimum guidelines to define universal service

⇨ *Manufacturing*
   - removes MFJ manufacturing restriction

⇨ *Cable-Telco Provisions*
   - cable TV services offered by telco will be regulated under 1992 Cable Act
   - telecom services offered by cable/other companies will be subject to
       common carrier regulation under Title II

⇨ *Interlata*
   - in region interlata only when LEC "faces actual and
       demonstrable competition in the geographic market" and has opened
       its network to access by competitors (Council's option 2)
   - in region and out of region interlata relief only when no substantial
       possibility LEC can use its market power to impede competition in
       the market they seek to enter

HR 3636 (Markey-Fields)

⇨ *Cable-Telco*
- preempts states
- lifts telco video programming ban conditioned on safeguards:
  - provide through separate affiliates
  - FCC to issue regulations to prohibit cross-subsidies
- LEC must provide video programming as a common carrier
- must make up to 75% of capacity available to competing programmers
- LEC cannot purchase/control cable operator in own serving area
    (exceptions for rural)

⇨ *Interconnection*
- makes equal access to/interconnection with unbundled features a
    common carrier obligation for LEC

⇨ *Universal Service*
- FCC and states to establish joint board to calculate subsidy and adopt
    plan within 10 months

HR 3626 (Brooks-Dingle)

⇨ *Interlata*
- joint FCC/Justice review for interlata relief applications
- may immediately apply to provide interlata services in markets with no actual or potential competition
- may provide intrastate interlata if approved by state and 60 day public notice
- may immediately apply to provide interstate interlata that originate and terminate in LECs exchange areas
- may apply to provide any interstate telecom service 60 months after enactment

⇨ *Manufacturing*
- relief one year after Justice Department notification/approval, with safeguards