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Prof. Eli Noam, Introductory Remarks

Today we have a different format than usual. We are hosting the Witte Commission, which is studying the structure of German telecommunications. Professor Eberhard Witte, who chairs this commission, had a similar task about 10 years ago with the KtK Commission, which engaged in framing proposals for German telecommunications that led over time to the establishment of cable television. It was a politically difficult undertaking at the time (and still is). The function of the commission is to analyze and to recommend to the German government, after the elections, whether and how to restructure the German telecommunications system. The German Bundespost is a mainstay in the international PTT system. Historically, it derives from the Reichspost and the Prussian Post; its predecessor was founded and established by a remarkable man, Heinrich Stephan, who can be described as having played the equivalent role for the PTT system both within Germany and internationally that Theodore Vail had for AT&T. But the Vail system does not exist any more. Similarly, the PTT system is today under severe pressures for change in several countries. Germany and other European countries are looking at their telecommunications organizations with more interest than in the past, and the commission is here to learn of the American experience.

In consequence, I have asked our American speakers to comment on the American experiences rather than commenting on what Germany should or should not do. I am sure that the commissioners understand that these matters are in dispute in the United States, and people see either half-empty or half-full glasses, depending on their point of view. Today's panel covers many interested parties. We do not have representatives of trade unions and consumers, because it is my understanding that they will speak to you later this week in Washington, and we did not wish to duplicate that program.

I would like you to understand that there is no equivalent Blue Ribbon commission for United States telecommunications policy. The reason is that, in the United States, the process has been one of gradual changes, with small and ad hoc decisions being undertaken in a whole host of permanent bodies such as the FCC, Judge Green and the Justice Department, 51 public utility commissions, and various courts; there is no equivalent permanent structure in Germany. Germany has no mechanism in which changes can be analyzed and policy modified easily. That is, change always has to go through a complex political process. In the United States rules are modified continuously. This does not necessarily mean that they have failed but that the circumstances -- economic, technical, and political realities-- may have changed.

Our first panelist is Henry Geller, who is director of the Washington Center for Public Policy Research, part of Duke University. He has been Assistant Secretary for Communications and Information and Administrator of the National Telecommunications and Information Administration in Washington during the Carter Administration. He has spent much of his career at the FCC where he served as the General Counsel from 1964 to 1970. He was Special Assistant to the FCC and he received the National Civil Service Award. He has also taught at various universities: Georgetown, Pennsylvania, George Washington. And he is a well-known and respected advocate of the public interest, broadly defined.

Geller: It is a great pleasure to meet with you and to try to explain -- if it is possible -- the U.S. system. I will necessarily oversimplify and I will focus just on the U.S. experience, since I am not an expert on the Federal Republic. The first thing I would like to do is to distinguish between our policymaking and the thrust of U.S. telecommunications. Our policies, I believe, have not always been farsighted. As Eli Noam said, we have had to back up, start again, and there have been flaws. But the overall direction of the U.S. telecommunications system is quite sound, because it is in line with the driving technology. Before and shortly after World War II there was a de facto monopoly of AT&T and its partners, because it was based on technology of the twisted copper wire. After World War II, as you know, came the microwave, the coaxial cable, satellite, fiber, and above all, the computer, and that new technology made possible competition. The U.S. favors competition because it drives costs to marginal levels, because it spurs innovation, because it leads, we think, to greater benefits for the user. And therefore the FCC, beginning in 1959, in what is called the Above 890 Decision, authorized private microwave systems and then authorized common-carrier specialized or private line system, in the early 1970s, authorized open sky domestic satellite resale. Resale is a check on what the monopolies can do, a market check to ensure that it prices correctly, and it allows hundreds of people to come in, use the underlying service, add value, and it increases the efficiencies of the network. And thereafter the Commission moved on to authorizing resale even in message toll and in the WATS area. The one thing that I want to emphasize here is that there was no effort by the FCC to take apart this system, during the years of the 1970s. The system did have subsidies in it, as I understand your system does, the subsidies were intended to promote a universal service at reasonable rates. It was done by shifting the non-traffic sensitive costs very largely to the toll segment and to an arbitrary amount. And, as a result, that lowered the costs on local rates and allowed for universal service. When the Commission was authorizing all this competition in the 1970s, it was authorizing it only in the area of private line specialized services, which represented less than 2% of the U.S. tolls in telecommunications, and, as a result, it felt that the subsidies could continue. That turned out to be wrong. And the first lesson I think that you could draw from the U.S. experience is that market segmentation does not work. The conditions arose because they are against technology, they are against economics, and by 1980 the toll system was wide open to competition. And you can follow the same pattern in customer premises equipment, where it began small and is now wide open with great benefits to the user in many respects. When the system fell apart, it was necessary to deal with the non-traffic sensitive costs, to rationalize the costs because now the large toll-user had a way around this tax. He could turn to private microwave, he could turn to satellite outlinks to cable, to any number of alternatives. And while bypass is fine--it's just another name for competition, it is not fine if it is in response to the economic signal. The FCC moved belatedly to get rid of these subsidies and ran into the fact that when it tried to move these non traffic sensitive costs to the end user, local rates would go up, full rates would go down, but since half the people don't make long-distance calls, and politicians do not like local rates to rise, the result was that the FCC was slowed in this process. That remains a festering problem. And so I would think that the second lesson you could draw from the U.S. experience is that when the competition is allowed to come in, as it necessarily came in here in answer to the driving technology, you must rationalize the system. You must get rid of the large subsidies. And you should do so before competition arises fullblown if you possibly can. You can't do it slash cut, but in an orderly fashion you should move to do that. It doesn't mean you can't subsidize; it means the subsidies have to come out of the general treasury or excise tax on telephone sets, and should be chartered to those who need it--you have to run a leaner subsidy system.

The final lesson is that when you have this transition from monopoly to competition, it is a difficult one. The idea is to have fast response in the market place. Since this area is merging with the data processing, and you now want to allow the companies to respond very quicky with new products and new services, and not have to go to an administrative agency and say, "Mother, may I do it?" The worst of all possible worlds is regulated competition, because you don't get the benefits of a monopoly or competition fully. You can't, however, move as quicky as you could in airlines. In airlines there is no dominant carrier; you can just pick the planes up and move them into another airport. Here there are very large sunk costs, and there is a huge monopolist, AT&T. The result is that there are difficulties here; it must move more slowly. You have to get equal inter-connection in. We have moved to deregulate. Besides customer premises equipment and the value-added, enhanced services, we have deregulated all of the carriers like MCI and Sprint, except AT&T and the divested blocks. AT&T remains subject to regulation because it has 64% of the total traffic and the divested companies have another 25%. This does not really inhibit AT&T that greatly. It is under a very light regulatory hand now. In Computer II, as I said, we deregulated the customer premises equipment, enhanced services, and we are now dealing with the inefficiencies that come with requiring a fully separated subsidiary. It is necessary when you deal with monopolies, to distinguish between the regulated and the unregulated to insure against cross-subsidization. The FCC used this fully separated subsidiary concept. It had very large inefficiencies. People now want one-stop marketing tailored to them and so they are moving on to accounting. They are also moving on to new definitions, and I understand some Europeans think that that is an admission of the failure of the system. I don't think so at all. I think the Commission is wrong in moving on to the new definitions. There is no gain by going off basic and enhanced. What you have to do is deal with each service, whether it's protocol conversion, whether it's voice stored, insure proper accounting, insure that there is comparably effective interconnection; that is a mess and requires regulation. But it is necessary and it is far superior to suppressing the competition. The trend here is a good trend, though. It appears, although it's off in the future, that we will be moving to open architecture in the network. This will allow much better interconnection. That will come in, I believe, in the '90s, not now.

The final thing that I would comment on is divestiture, which is such an enormous occurrence here. The seeds of it lay in the '56 Consent Decree which restricted AT&T just to communications services. It needed to go into information services or it felt it would be a dying organization. It could not get relief from Congress. It therefore sought and obtained relief in the courts. And to do that it had to make a deal. It had to give up and divest itself of the local carriers, because that is what justice demanded in order to insure fair competition in the new toll area where the competitors were coming in. AT&T realized it was just too large, as its chairman said, and that it had to come down in size because you couldn't move a giant monopoly like this into competitive areas without being harrassed every step of the way. That may have some lessons for the Federal Republic in its area. As a result AT&T, with a minor exception, was free to enter any business it wants. The flaw now in U.S. policy, in my opinion, is that the divested Bell Operating Companies cannot engage in inter-exchange, in information services, or in customer premises manufacturing. The inter-exchange is fine; there's no reason to let them in now at this time, because we have not yet even worked out equal inter-connection. But they are driven, just as much as AT&T is, to enter these information services. They can make a unique contribution because they can do voice storage, they can do audio-text, they can do meter reading, energy reading. The network may be peculiarly able to do certain things that no one else can do such as, in protocol conversion, being the universal gateway for data. And it is crazy to park out one-half of the U.S. telecommunications industry in that fashion. I think we will make progress in 1987 and relieve that, but what I find odd is that there are flaws in the policy making, but overall, the thought I would leave you with is that I think, as I said at the beginning, that where we are moving is sound. It is sound because one company cannot serve the telecommunications needs of a huge country like the U.S. We are now in line with the driving technology. We are getting benefits in customer premises equipment, in value-added services; in the toll area we are getting falling prices, we are getting innovation, and I believe therefore that, because this is an area, a high-tech area that is so critical to this nation, that we have lined up correctly with the way we are going. It is true that the transition is very messy. I think Goethe said, "The devil is in the detail." And there is a lot of deviltry here, but in the end we will get great benefits, and I think there are more benefits to come from what we have ordained.

<u>Eli Noam</u>: Our next panelist is Mr. David Markey, who is the Vice President for Federal Regulatory Affairs for one of the seven regional companies, BellSouth, which he joined in Nov. 1985. Before that he held, under the Republican administration, the job that Henry Geller had under the Democratic administration--head of NTIA in the Department of Commerce, and Assistant Secretary of Commerce. He also served

for several years as a high staff member in Congress, both in the Senate as well as the House of Representatives. He also worked for the National Association of Broadcasters as Vice President for Congressional Affairs.

David Markey: Thank you very much, Eli. It's very nice to meet all of you, and some of you I met before, I think, when I was the Assistant Secretary of Commerce, and you came in to see us and we gave you a hard time about trade deficits. And I must tell you that I think Boris Becker and Bernhard Langer are not helping that situation at all. They seem to be taking home a good bit of our money from the United States. Henry Geller, by the way, is one of the great treasures of telecommunications policy in this country. If he were only a Republican he would be perfect, but he isn't. But he is certainly a man who all of us have respected through the years in working around Washington. I mention that because one of the interesting things about Henry and I is that we shared the same job, and one of the few points of agreement between the Reagan Administration and the Carter Administration are pretty much the direction that we've headed with respect to deregulation and more competition in telecommunications. And believe me, there aren't a whole lot of areas where the Carter Administration and the Reagan Administration have agreed. So this is one where I think we've been headed in the same direction in a bi-partisan way for the past twenty, twenty-five years in this country. It should probably come as no surprise to anyone that we've headed in this direction, because the basis of our economy, as all of you are aware, is the free enterprise system. It is allowing people to compete in our marketplace. I think we learned long ago that government in our country is not good at micro-management; we are not good at managing through government edict. Our history has been one of private enterprise. The trend toward less regulation in this country did not come easily. It came only through hard fought battles in the courts, in the legislature, and in the regulatory bodies of this country. We have a dual system of regulation here which is very interesting. We have a Federal Communications Commission which regulates on the national level on the interstate services, and as I'm sure you are aware, we also have state commissions in all of the fifty states. So it is not easy to get a full consensus on many of the issues that we've been dealing with, and it has come only through time and a lot of work and effort. We've had our problems, as Henry has acknowledged. And we should acknowledge that. I think change usually does bring problems and comes at a cost, and we've had some of that cost. For example, right after divestiture we had a tremendous backlog of private line applications which we had trouble filling. And one of the reasons we had that was that AT&T would point the finger at the Bell Operating Companies and say, "it's your problem," and the Bell Operating Companies would point back to AT&T and say, "no, you guys should fix this." Eventually we've worked that out and now I think most of that backlog is gone and I never hear it mentioned anymore. But that's an example of the kinds of problems we've had in going through the deregulation that we've had in the past. The companies involved in the divestiture, of which I represent one, and maybe it would be worthwhile to just talk very briefly about the company as an example of what has happened since AT&T was divested. They've certainly found themselves in a much more competitive atmosphere. They've needed to reduce their costs, some jobs have changed, some jobs have been lost, as I'm sure you will find interesting. They've had to become more efficiently managed because of a competitive atmosphere. They've had to learn how to compete. Monopoly attitudes of the companies have had to change, and that has not been easy. Let me give you some figures about Bell South as an example of the regional companies to suggest to you the size and the kinds of things that they do now. Bell South employs 92,000 people. It operates in the nine states in the Southeast. The seven other regionals, of course, have regions throughout the country. Bell South revenues in 1985 were $10.5 billion. We have two operating companies in Bell South: South Central Bell and Southern Bell. There were twenty-two operating companies distributed among the seven regional holding companies. We also are competing in several deregulated and more competitive enterprises. We have publishing and advertising enterprises, for example, the Yellow Pages. And we also are publishing other papers and documents. Advanced systems, where we sell and lease equipment (we cannot manufacture equipment, as Mr. Geller pointed out, but we do sell and lease it). We have very large and extensive cellular operations throughout our region and we hope that the judge allows this throughout the rest of the United

States. We're in real estate markets and real estate ventures and we are in international ventures. Some changes have been necessitated by the breakup of ATT -- for one thing, it's very much opened up our equipment markets in this country. Where before the regional holding companies customers were locked into Western Electric, today, they are out finding many other sources for equipment. AT&T still provides most of the switches for the Bell Operating Companies but more and more we're buying switches and large equipment from, for instance, Northern Telecom. And it may be interesting for you to know that we are now looking at a Siemens switch in our system, and we will be testing it over the next six months or a year or so. As I mentioned earlier, we have to be readier to compete as an operating company. Our markets are being targeted to a certain extent. Alternatives to our centrex service are being presented through PBXs. There are alternatives to private line provisions -- data transmission through cable television or private microwave, fiber optics, satellites. AT&T is going to put in a number of very small aperture earth terminals around the country and will compete for the data provision market. We've had to go outside of our company to find new technology. We have an operation called Bellcore, which all of the seven regions participate in and help to support, but really we do not have the capabilities right now to provide new technology, and that is one of the problems with the restrictions in the consent decree. Let me give you some examples of what this has meant to the consumer, by the way, in our region. One of the things that we feel good about is complaints per 10,000 accounts -- in 1982, we had 14, almost 15, complaints per 10,000 accounts in our region. Last year we were down to about 8.4. So we see that we're headed in the right direction. In our region, according to the best figures that we can come up with, the consumer is doing probably a little better with respect to the prices that he pays right now. His total bill in 1983 was about $47; that includes equipment rental, local service, and toll service. As of June of 1985, the figure that our people have calculated would be about $41 for all of that service. Local service has gone up, there's no question about that; it's gone up 10-15%. The price for toll service has come down overall, so there's been a fairly good balance there.

In the United States today you can go out and purchase the equipment to put in your home, so if you have taken that opportunity then you will save money on leasing of the CPE. As far as telephone penetration in the country goes, we have not had much change since the breakup. In 1982, about 91% of the homes in this country had a telephone, and today it is about the same, it has not changed very much, so that's pretty much a wash in our own district, in our own region we've found it's gone from about 83% to about 85% of the homes in the last two years. So change does bring some confusion, but it does bring a lot of opportunity. It is messy, as someone once said. Freedom is messy. In the long run I certainly agree very much with Henry Geller that we're going to see many more opportunities to do things for the consumer. Dr. Shinto of AT&T has described the evolution of the phone system in somewhat the same terms as the provision of electricity in that we will someday plug into the phone system with many different appliances, just as we do with the electrical systems today -- telephones of course; personal computers are already on the way; maybe someday television, medical diagnostic equipment, alarm systems, banking systems, and many more. So we are very pleased to have a chance to meet with you here today. I hope that if you have questions you will ask them, and we will certainly try to answer them for you.

Prof. Eli Noam: Thank you very much, David. Our third speaker is Louise McCarren from the State of Vermont. She has a B.A. from Berkeley and a J.D. law degree from UCLA, and is the chair of the Vermont Public Utilities Commission, the state commission which regulates telephone companies as well as electric and other utilities. She has been serving in this position since 1981. To say something about the State of Vermont, to put this into perspective, it's known as the "green mountain state." And it's probably also in the German sense the "greenest" of the American states. It is mandatory in Vermont to own at least one pair of cross country skiis... It is a very rural state -- there are hardly any cities. I think there are two large cities, and one of them has the only socialist mayor in the entire United States. The governor is a Swiss woman, which is more than the Swiss can say.

Louise McCarren: Thank you. All those things about Vermont are true. We're a very rural but also a very poor state, dependent on our dairying to some extent and tourism to a greater extent. You'll be glad to know that I put up my cross-country skiis this weekend and I have eight pairs of cross-country skiis. It may be that I've lived in Vermont too long.

I really thought a lot about what I might say to you, because as you know, I have the responsibility for attempting to regulate a tiny piece of this industry in a discrete geographic area. And you don't have that kind of dispersion of control or dispersion of regulation. And putting myself in your place and trying to ask myself if you looked at what we are doing in this country, what would you see that would be the most baffling? One of the things that you would see is that not all of the policymakers in this country have the same goals. We in fact have different and many times conflicting goals. For instance, the Department of Justice, whose job it was to bring about the divestiture and whose job it is now to see that it works, has a goal of preventing anti-competitive behavior and a goal of being pro-competitive. They have a view of the world that says, "we must ensure that competition works in this country." If you look at the Federal Communications Commission ..... things about them in the past, it's my observation that their goal -- competition and deregulation -- really are goals, but for both of those agencies, they seem to be driven by the need to achieve either competition or to achieve deregulation. And these goals can be conflicting. They also can be conflicting with what states want and what state regulators want. I believe, from my perspective, that the appropriate goal for me is to figure out how to have a ubiquitous, technologically-rich, publically acceptable network. And as we know, that's critical to the delivery of social services in my state, to my society, and also critical to the economic success of my state. So those are my goals. And my goals might not be consistent with either competition or with deregulation per se. They're a little more complex. So when you look at policymakers in this country, you will see conflicting goals. And each of us is trying to devise a strategy to get what we want in this highly diverse, almost chaotic, environment. The only thing you might see when you look at this country is a true success story in the deregulation of terminal equipment, the CPE. That will often be held up as everything a free market told you would be delivered has been delivered by deregulation of CPE. And by and large I think that's correct. However, that very deregulation itself, in its success, has driven the networks to becoming dispersed in terms of where the intelligence is. That is, no longer are we able to control that intelligence at a central switch, it is being spread out, it's being customer controlled, if you will. And right now I think the biggest struggle in this country is who will control the deployment of that technology. The BOCs clearly want that technology in the central office switch because they believe that's the way to control access to the customer and to their long-term revenues. They don't want to be turned into commodity provider. Similarly, the CPE vendors, as well as AT&T, want that technology decentralized and dispersed into homes and offices. You might view much of what is going on in the context of that struggle.

Now, as a regulator, I've asked myself: "is what we have done really income redistribution or are we, over the long-run, going to increase overall social welfare in this country?" That is, are we going to deliver more products to consumers, at a lower real price, or have we simply redistributed income by raising the costs to the small customers and lowering the prices to the large customer? Well, the former is clearly happening, there's a substantial amount of income redistribution going on in this country. Prices to the large customers are dropping, prices to the small customers are increasing. Now, looking at that, you might ask yourself, "does that mean that we should not be on the road that we are on?" I'm not sure that's the right conclusion from that observation. Rather, we should ask why, why is it, that the system we have seems to be producing so much income redistribution? I believe our system is so different from yours that you, should you choose to follow down the road that we have seemingly followed, might be able to avoid that income redistribution. The reason is that we have investor-owned utilities deploying and providing services <u>and</u> we have rate-of-return rate base regulation. And we have a situation now where the economic costs of providing our services is substantially below the accounting costs. Now that's a lot to sort of put together but the significance of it is that as the technology drives the real prices down, the monopoly companies can no longer collect their historic accounting costs from those customers who can access that technology. So they must attempt to collect historic accounting costs, which are much higher that economic costs, from some other customers -- and those other customers are the ones with the least number of choices, the most inelastic customers. So what you're seeing, in terms of income redistribution, may be clearly the result of these two things: high accounting costs and the continuation of rate-base rate-of-return regulation in this country, which is there in order to make sure that those accounting costs of the time get recovered. Now the reason I'm pointing this out is as a government agency you don't have investors. You have political pressures from the one side saying that one should be profitable. But you're not pressured in the way we are to make sure that those accounting and historic costs are recovered. We could not get from accounting costs and prices based on accounting costs to prices based on economic cost all at once. It's a real struggle for us to get there. And that creates a tremendous tension for us. What I want to do briefly is tell you one regulator's view of what might happen, based on what I saw as the forces out there. In Vermont, we've issued an order on competition within our state, based on some of these problems. We concluded that as a state we could not keep out competition because of decisions by the Federal Communications Commission. We also concluded that there was no such thing as a franchise-protected monopoly any more because of these federal decisions that surrounded us. So we said we wanted open competition within our state, in all segments of the market. That is, from sharing the services, to "smart-building", to basic exchange; anyone who wished to come in and provide an alternative source of services was free to do that. And we believe that that was the best response to what we saw. One of the implications of doing that, as you would suspect, is geographic deaveraging; doing what we did, we did not, and do not, expect rates to remain the same within our state. We also expect that there will be disparate deployment of technology in our state. But we really felt that since we were, as a state, going to pay all the price of competition that had been introduced at the federal level, that this was our best response. We felt it would assure that the new technology would be deployed, at least to those segments that could take advantage of it. And it was a very pragmatic decision based on the environment that we saw ourselves in. So we said, "open competition;" we ackowledged that there was no longer a local monopoly or franchise. And in Vermont that had never been part of the statute. We said, "it's open." There are two major problems to doing that, of course. One is to make sure (and you hear a lot about this) that anyone who wants to come in and provide alternative service can use the facilities of the monopoly provider or the existing BOC. That is, access to the network. You hear a lot about competition, interconnection, and other what I call political slogans about how people are going to be able to use the network that's in place.

We have before our state legislature a proposal which does away with rate-base rate-of-return regulation. We wanted to figure out a way to move prices away from costs because we could never properly define cost. And even if we could define them on a service basis we felt they would be very bloated because of these historic, embedded costs that were just sitting there. Again, we've also got the claim from the companies that they have to be collected. So what we've proposed is that we essentially reach an agreement with a company that says "you give us an offer on pricing basic exchange service and single line business; make us an offer, don't tell us it's related to cost, just give us a number. If we feel as a state that we can live with that number we will agree to that plus some negotiated escalator each year, such as CPI. And in exchange for that agreement you will be free to price at whatever level you want for your remaining services; you will be rate-of-return and price-deregulated for the rest. You will also have no franchise. It will be open competition. And we have said this because we want to get away from rate-based rate-of-return regulation and we want to move away from using "costs" (and there are many definitions of costs) as a basis for prices because it drags with it so many embedded historic costs which we don't think are related to existing technology."

Should we do that, and it's in the legislature and I think we'll have some success next year, we'll have to deal with the problem of maintaining quality service and we also have the problem of again, the deployment of technology throughout the state: where will it be deployed? It will follow where the dollars are, of course, and that may be very different from the planned deployment of technology throughout the state. But we're ready to accept that because we feel it is the only way that, over time, the benefits of technological change will really reach all of the geographic and economic segments of our state. Now those were decisions that we made as a state. They are not decisions that will be made by other state regulators at all. In fact, I think they're viewed as moderately radical by many of my peers in the industry. The other view, the California view, is that you still can control and manage state regulation by pulling in all of these now competitive services and putting them above the line and managing everything in a regulated format. Time will tell which is which. I think that decision can't be sustained over time because of the forces of technology, but it is certainly another view of the world, and so my view is considered a little radical.

Now the problem we've got is, if I were a monopoly company faced with the offer from Vermont or if I were faced with competition, would I really want it? And one of the things going on that you must try to understand is that almost all of the "competitive deregulated ventures" that the existing monopoly companies have taken on in this country have been a failure, in terms of at least the first couple of years. They have lost revenue, almost all of them. They have had a very difficult time getting into the "competitive markets." So from a monopolist's point of view, and from a telephone company's point of view in terms of financial success, it is not at all clear to me that you would want to be deregulated or set free. I think these companies are going to have a tough time. AT&T has had a tough time in a competitive environment. And you've heard a lot about the lines of business restrictions that the Department of Justice still has on some of these operating companies. I'm very skeptical and I think that these restrictions should be removed. But I think that there should be a clear view that this may simply be the freedom to fail, the freedom to lose money. And that may be a very difficult transition period for these companies.

So I can't really do much more than give you an idea of how one state regulator faced the issues. I try to think in terms of customer perspective -- you've got to figure out how to make a deal with a company, how to move away from rate base rate-of-return regulation and move away from embedded historic costs as a basis for prices. That's really our challenge because it's only by making that metamorphosis that we can really make sure that technology gets deployed. Otherwise we'll be doing exactly what Henry said: we'll be "regulating competition." And that is almost an impossible thing to do. Thank you.

<u>Eli Noam</u>: Thank you, Louise. That was a good example of the diversity that exists among state regulatory approaches. Our next speaker is Mr. Clark Grimes, who is the Director of Telecommunications Practices at IBM. According to last week's "Fortune Magazine 500," IBM is the most profitable enterprise in the United States, probably in the world, with the possible exception of the Marcos Family in their best days. He joined IBM in 1967 and worked there in Marketing, Product Development, and Corporate Staff. He is responsible within for IBM's worldwide policy in telecommunication matters.

Clark Grimes: Good afternoon. Thank you, Eli, ladies and gentlemen, Dr. Witte. Thank you for inviting me to the seminar. I appreciate the opportunity to present to you IBM's perspectives on the development of telecommunications policy in the U.S. and I'd like to spend a couple of minutes on its relevance to Europe. In fact, the policy arena I believe we're really addressing encompasses the entire information industry, which includes information processing and telecommunications.

This afternoon I'd briefly like to present our views using this broader scope -- not only because of the growing interrelationship of the industry sectors, but also because the information industry has ramifications well beyond its national boundaries. Its development and proper utilization will determine the success of many of our business ventures.

In the past, land, energy, and capital have served as the resources for our society. Today, information is society's resource, and the information industry is its engine. Information, of course, is a unique resource; as it is being used, it is not being consumed. The Information Age is happening because of the growing interrelationship between information processing and telecommunications. The development of microprocessors, combined with the digitizing of transmission networks, has brought these industries closer together and made them interdependent. The advent of the personal computer and the wide availability of transmission capacity have brought users the ability to generate, store, process, and instantaneously access as well as transmit information around the globe.

These industries, however, have grown up in very different environments. The information industry essentially always has been competitive, while the telecommunications industry has been characterized by regulated monopolies until recently. In many countries, including the Federal Republic of Germany, national telecommunications policies are now being reconsidered, because of a belief that the competitive provision of telecommunications products and services will provide the same price-performance benefits that have been characteristic of the information processing industry. And the price-performance track record in the computer industry has been truly outstanding. As little as 30 years ago, a typical data processing operation cost about $14 to complete and took more than 6 seconds; today that same operation costs just 4 cents and takes less than half of a second. That's 364 times as inexpensive and 930 times as fast.

Those are significant numbers, but rather abstract to most of us, I'm sure. So let me try to bring them closer to everyone's experience. If airplane technology had improved as much in the past 30 years as computer technology, you could fly from Hong Kong to San Francisco in less than two minutes for under two dollars. Or if automobile technology had improved as much as computer technology, you could drive a mid-sized car around the world on 8 liters of gasoline. In short, the information processing industry is characterized by creative competition, whereby innovation produces rewards for the consumer as well as the innovator. We're going to continue this kind of progress; competition must continue to govern the information processing industry, and to realize the full potential of the Information Age it also must be unleashed in major areas of telecommunications.

Telecommunications networks are highways over which the Information Age will travel. And we need enlightened telecommunications policies which allows the maximum use of these highways for the benefit of the end users and the economic well-being of all industrialized nations. You've heard about the reexamination and the reevaluation in the U.S. and the fact that it took several decades, so I won't spend a great deal of time on that. It is important to note, however, that the underlying belief was that all stakeholders -- users, manufactuters, and service providers -- would benefit from the introduction of competition.

The move towards liberalizing telecommunications in the United States, though, must be differentiated from the divestiture of the Bell Operating Companies from AT&T, a move which is quite unique to the United States. Divestiture was the result of an agreement in 1982 between AT&T and the U.S. government in settlement of an antitrust case, in which the Department of Justice accused AT&T of anticompetitive behavior. AT&T at the time was a vertically integrated company combining the Bell Operating Companies ("BOCs"), the dominant interexchange carrier, and a major equipment manufacturing capability. In the absence of divestiture of the BOCs from AT&T, the government felt that the marketplace for network equipment essentially would be closed to competition. In addition, by introducing competition to this marketplace, divestiture also facilitated the process of providing equal local exchange access to competitive carriers such as Sprint or MCI. And AT&T benefitted from the agreement by being able to enter the information processing marketplace. The transition problems are understandable, considering the magnitude of the change in the telcommunications landscape. But the problems associated with divestiture should not be associated with the introduction of competition in CPE and services; there's often confusion here in this regard.

All the changes in the U.S. environment were based upon the belief that the stakeholders would benefit from competition. Let's look and see if this faith has been rewarded.

First, let's examine the business users. Business users have long considered telecommunications an expense item, but they now view it as an asset or tool in their business. They have the freedom now to put together their own network solutions and to solve their application needs. This allows them to run their companies more productively and to differentiate their product offerings from competitors using telecommunication based systems. They can choose from a wide menu of transmission services -- switched and leased, analog and digital, narrowband and wideband -- and to interconnect these as their needs require. They also can turn to a variety of value-added and information service providers to manage networks and give them access to databases. Approximately 1,800 databases currently are available in the U.S. from almost 400 different vendors.

Business users also can choose from a wide variety of cost effective customer premises equipment. Today there are more than 20,000 types of customer premise equipment registered by the FCC by more than 900 manufacturers, giving the U.S. user a choice of equipment unequalled by that of any other country in the world. In addition, they get price performance. For example, the average price per line for PBXs has dropped 30% since 1982. Similarly, the average cost to end users per key telephone system has fallen more than 50% since 1981.

Now let's take a look at the impact of changes on a second group, residential consumers. I've already cited the wide variety of cost-effective CPE available. Bringing this into real terms, customers today can buy a quality telephone for less than the amount they paid previously for six months' rental. In fact, on the way up here I was on 5th Avenue, and almost bought a telephone on sale at one of those 5th Avenue discount places, where it was "on sale, close-out," for $6.99. And consumers also can choose among a number of competitive long-distance carriers. Long distance rates have come down as much as 12% in the last 3 years, and further reductions are expected this summer. And local service prices have gone up less than the general price level. In fact, in 1985 the local increases were just one-third of those in 1984; the pending increases at this time in 1986 are again just one-third of those that were pending at the same time in 1985.

With all the competition, universal service -- a concern in the U.S. and abroad -- has not been impacted by competition. In fact, the number of households with a telephone in the U.S. is at an all-time high of close to 92%.

Some observers say the consumer is not the first to benefit from competition. I agree. But the consumer is inordinately benefitting today from being subsidized. It therefore will take longer for competitive benefits to flow to him or her. Past blanket subsidies for local service just do not make sense. Like many others, I can and should pay for the cost of providing local telephone service. Lifeline service aimed at providing the truly needy with local telephone service -- target subsidies -- are appropriate and have been implemented in a number of states. And universal service will remain a major priority item in the U.S.

Third, what are the benefits of an open competitive environment to the value-added and information providers? The freedom of action for these providers has made this the fastest growing segment of the telecommunications marketplace in the U.S., increasing at a compound growth rate of some 30%. These competitors use the enormous capacity which is being put in place in the U.S. (In 1984 $18 billion was spent on the networks within the U.S.) These competitors will use this capacity to provide the services needed to fuel our economy in the next decade. The value-added and information providers had a total revenue in the U.S. in 1984 of $1.7 billion, which is expected to grow to over $6 billion by the year 1989.

Fourth, what are the benefits of a fully competitive environment to the manufacturers? There's freedom of access to all segments of the marketplace. Almost 1,000 firms have registered equipment, more than 2,000 firms are marketing telephone equipment nationwide, and manufacturers are not discriminated against because of country of origin. For example, Siemens' annual report shows that it has 39 production locations across North America. My assessment is that competition from abroad has not had a negative effect; in fact, it's had a positive effect, since foreign firms have kept U.S. industry on its toes and have shown that the market is indeed international in scope. All this competition has been beneficial for the users, the value-added and information providers, and the manufacturers.

Last but not least, the carriers have benefitted from increased usage of their transmission facilities and the opportunity to enter new businesses. But with the new technologies, some observers say there'll be a glut of capacity. Competition is therefore necessary to increase the network utilization through more service offerings.

Since the information industry is a developing industry and is truly international in scope, let me conclude with some thoughts on the challenges that lie ahead. The information industry, including telecommunications, is not only an integral part of the total service industry, but its underlying highway system and engine. In the U.S., services now account for nearly 70% of the Gross National Product. Of the 25 million jobs created since 1970, 20 million, or 80%, are in the service sector. It is expected that 9 out of 10 jobs to be created between now and 1995 will be in services. And the service sector is not only where the jobs will be created in the future; unlike the manufacturing jobs of the past, these new jobs are mobile. They have and will continue to gravitate to where there is high-quality and low-cost telecommunications and freedom of action for information creation.

Especially for Europe, an important question is: "what is the best economic environment to create these very vital service sector jobs?" I believe there is really one answer. We should shrink regulation in the legal monopoly to only those areas where genuine natural monopoly exists. Those natural monopolies typically involve investments with a long economic life, low risk, and the provision of basic services to a wide public. By comparison, competitive products and services are normally subject to constant redefinition in the marketplace in response to demand. They require extensive marketing and development. These investments thus are frequently of shorter term and involve higher risks.

Today local exchange telephone service may exemplify a natural monopoly. But other areas do not, such as long distance service, CPE, and value-added and information services. These area must rely on competition in the marketplace. And this involves not only competition not only among suppliers within their national borders, but also competition with access to markets throughout the industrialized world.

Technological advances have converted our various national information systems into a world system. Today the liberalization of telecommunications is no longer a question of "if" or "when," but "how." Each country of course will have to decide for itself the path it will take. In fact, each country that has liberalized to date has established its own structure and its own process of transition. This is true in the United States, the United Kingdom, Canada, and Japan. They all differ in how they've embraced telecommunications competition. I applaud the High Commission for taking on the difficult task of setting a direction for the future of telecommunications in Germany. Your work will help ensure the future economic success of your country and I wish you well in that important effort.

Prof. Noam: Thank you very much, Clark. We now have as our next panelist Larry Darby. He started as a professor of economics, later served in Washington in the Federal Communications Commission as the chief of the Common Carrier Bureau, which is the top staff level on telephone regulatory matters. He subsequently joined a large end-user of telecommunications services, Shearson/Lehman American Express, the investment bank-stockbrokerage house that is owned by American Express.

Larry Darby: My experience in the government makes it very difficult for me to understand how one could be more ad hoc than the FCC. It's very difficult for me to follow such a distinguished group -- I feel like Sir Echo standing up here saying "I agree with that, I agree with that". So I thought I would start with some of the things that maybe I disagree with.

Henry Geller said that regulated competition is the worst of all worlds, and in that sense we do have the worst of all worlds. Notwithstanding all of the rhetoric about deregulation and open market competition, substantially less than a quarter of the resources devoted to this industry is deregulated. Most business decisions are still subject to review either by the FCC or by the states -- and, in many lamentable cases, both.

In preparing these remarks I reviewed our own Rostow Commission's efforts of almost 30 years ago. If you have not looked at it, I recommend it to you. It's a very sobering enterprise to see in the cold light of hindsight just how effective our ability to forecast technology and markets really is. Even the most optimistic technological forecasters just simply didn't see the scope and the brute force of the revolution we've experienced in the past 25 years in microelectronics. We can't fault them for that, because it simply was not foreseeable. So it's with a sense of humility that you approach your job in trying to figure out what is the appropriate role here.

As I understand it, your purpose for being here today is to identify the facts of the U.S. experience and to interpret their meaning in the context of German institutions and political reality. That's a tall order. Frankly, however, I envy your opportunity, because I'm convinced that telecommunications policy choices are in the not long run instrumental in determining the very economic status of nations. Communications policies will and do rank with those involving energy, steel, and other basic industries and, indeed, national defense in determining the outcome of increasingly competitive world economic processes.

I've been asked to discuss what we have learned about U.S. communications-related markets from 25 years of regulatory liberalization -- not deregulation or regulatory liberalization-- with particular emphasis on the effects large users specifically.

As an economist, I am not a supply sider, nor am I inclined to be demand responsive; I hope I can provoke some of your questions.

I want to emphasize a few things first. In this country, we basically have done two things under the broad rubric of deregulation. The effects of these are indeed separable and, moreover, are frequently confused.

First, we liberalized our customer premises equipment interconnection rules. The practical effect of this was to let certified equipment be connected at the customer premise. In terms of the available facts, I documented that there is an increase in both the diversity and general in the quality of CPE devices. Prices are down substantially and from a banker it's somewhat punishing to say, but it's tough to make money in that business. So from a business's point of view it's hard to make money. But from a consumer's point of view prices are approaching their true cost -- not accounting cost, but the true cost to society of producing those goods.

The second thing we did at the FCC was to open up entry into the transmission segment between switches -- if you will, between local switches -- as to both pure transmission entrance offering two transmission services as well as value-added services markets. And the story there is quite the same. To an economist there are no surprises there. The margins were enormous, because of the effect of past regulatory decisions in keeping rates substantially above the incremental costs; if you open up entry, profit-minded enterpreneurs will come in. These are the cream skimmers, or enterpreneurs.

The third thing the FCC did was to break up the Bell System. The results of this are still being played out, and I'm hesitant to try to explain to you in fact what it was we did. A lot of the arguments about diversifying chaos or uncertainty are not related to the first two policy efforts -- i.e. CPE interconnection and long-distance transmission but really to the uncertainty over the break-up of the Bell System. I want to emphasize the word "uncertainty."

In association with the FCC's practice of not completely deregulating, well over half of the controversy involves questions about what to do with the BOCs. Should they be permitted to manufacture? Should they be permitted to provide information services? Should they be permitted to provide long-distance services? Indeed, what kinds of things should they do?

The Justice Department has reviewed something like 75 waivers, which involves an enormous amount of energy, and it's doing the same thing at the FCC. Henry Geller told you that you can't segment markets, and I strongly agree with that. The technology in our experience simply blurs every line that we can distinguish, and we've taken two bites at that particular apple, as in Computer I and II. We've undertaken a third bite at the apple, and no doubt there will be a Computer IV in the parade.

If you take a look at those proceedings, you can see that we've made some mistakes there. We could have made much simpler distinctions, which would have resulted in a lot more competition and a lot less regulation. It's hard to do both. It's hard to regulate a little bit and to permit a little entry into the market. But we were able to do it in CPE market. We were not able to segment the inner city services which some people call chaos, I see that as not chaos, as the very predictable operation of market processes. What is chaos to one can be a very orderly process to another. I'm not surprised by the sorts of things we've seen. We've seen, such as new entrants into the high-volume or the high-margin business, and we've seen incompetent carriers trying to escape the businesses they lose money on.

That then creates a set of problems not only for us, but also for you. How do you continue to support for some socially necessary services? Hopefully, the discussion will open up a range of options that we might explore.

Competition is very messy. It is particularly messy if you expect everything to be predictable, if you expect stable prices, if you expect to have the same cast of suppliers this year as ten years from now. But if you take a look at how free, unregulated markets operate, they're not quite so messy.

Let me talk very quickly about the impact on users. Local rates have in fact gone up, toll rates have gone down, and small businesses have experienced about the same set of results as the residence users -- i.e., local rates up, toll rates down. On the top side of the small business community, the competitive pricing initiatives of AT&T and some of the OCCs coming in. But the fact of the matter is that the immediate effects are biased towards the top side, the large users. And that of course raises a question: do small users, in fact, garner any benefits? My own personal view is that they do. Why don't we see them? That's the problem. Because, the benefits to the small user eventully will be embodied in lower product prices, lower service prices, higher quality service and more diversity in the product menu. Large businesses have greater choice, a smorgasbord of opportunities, an enormous amount of unbundling in rates. Much like from a Chinese menu, you can pick one from "Column A", one from "Column B", and one from "Column C." We all get a full dinner: it's all different; and we're all more satisfied than we would have been, had we done a fixed price menu. There are better products; there are also a lot of worse products, and there is a problem of consumer information. People suffer a form of price illusion, that is, they don't evaluate quality as it might be related to price. In fact there are a lot of those $6.95 telephones going home with someone today. So that is a problem.

For the big user there has been an enormous amount of traffic stimulation. Prices have gone down to large users, diversity has gone up; quality has increased; and there is a lot elasticity in those demand schedules. Shearson Lehman Brothers is a not a true arm's length subsidiary of American Express; but at American Express we spent something on the order of $400 million a year just on communications alone. That's growing dramatically, and it will continue to grow. The reason for its continueing growing is that in a quasi-deregulated environment these impacts on price, service, and diversity make it possible for American Express to make a lot more money than it did five years ago. And I would suggest that you look into the financial community for benefits of more diversity and lower prices to business.

We're seeing a substantial merger of data processing functions and communications functions within the user community. That eventually will drive the vendor or supplier industry more into a more integrated role. The most interesting thing from an economic point of view is the substantial substitution of declining cost communications for high and rising cost of labor, materials, and other resources inputs. I could draw examples for you of the substantial substitution of microelectronics-based service for almost any of the standard economic factors of production whether they be be land, distance, labor, capital, or what-have-you. Large firms are reacting because communications is relatively cheaper, large firms are reacting by embodying substantially more information in their products. So this means that they're diversifying the products; draw an example from the drill rigs and bits where there are actually sensors that go from mining to oil, automobiles, weather stations, weather satellites, farming, fishing, and so forth. We're finding in our companies, the large ones in particular, that mastering communications technology is an important means for mastering the market, be it a domestic market or an international market. By "mastering" I'm talking about getting market share, I'm talking about getting the growth in the market and making money. In short, although it's hard to draw a cause and effect relationship, and it's very difficult to say "this is what's happening," and go back and say "this is the result of," say, "the Carterphone Decision, or the Open Skies Policy." It seems to me that what we are finding is that the U.S. economy is becoming more cost effective and is becoming more efficient. It's creating the uses of the technology or creating competitive advantage for large users. They're diversifying and improving their existing products and they're expanding their product base by adding new lines.

I think that's going to make U.S. companies very formidable competitors in the international market. And this notwithstanding the fact that, and my view is that what we have done so far has in fact contributed to the worsening of our balance of payments in international communications products. I think that's a failure, not so much in terms of what we've done, rather a failure in terms of what we have not done. The very simple fact is that by not permitting the divesting of the Bell Operating Companies into a number of lines of business we have effectively precluded any incentive they might have to do research and development and to expand internationally.

Whether or not consumers benefit, other than in reductions in their toll bill, is hard to say. It's very clear that people who use a lot of toll, long-distance, do in fact benefit and it's clear that people who don't use toll, who only use the local exchange service, their rates have gone up. However, we have devised a number of ways to offset that through what you might call some sort of "targeted welfare programs," lifeline services, and the like.

In the minute I have remaining I'd to talk about labor, balance of trade ... [laughter] On labor: Our experience here in deregulating industries, which previously had been pervasively regulated in terms of rate-of-return or rate levels or rate structures, has been that a substantial portion of monopoly rents have shown up in factor prices, for labor. We regulated the trucking industry and we had a wage level for teamsters that was almost off the charts. We had the same thing in the railroad industry and right now, quite frankly, we're going through the deregulatory trauma with labor in the airline industry. There was apparently a substantial amount of economic rent in the wages and salaries of flight attendants. The evidence for that is that very successful new entrants are essentially non-unionized and that, very frankly, creates a political problem if not an economic problem.

What have we learned? I'm not sure. On balance, it seems to me, that we did make some good choices twenty years ago. I can't tell you where it is we're going to wind up because we are not at equilibrium; we spent about 50 years at equilibrium in the telephone industry, with stable prices, stable service offerings, and so forth. We have introduced some very traumatic exogenous changes into these markets and there is a substantial amount of turbulence.

So I don't know exactly where it's going but I think the direction, if you look at the fundamentals, for us at least, has been correct. And I look forward to stimulating conversation and questions. Thank you.

Eli Noam: Thank you very much, Larry. We will have them for the record. As our next speaker, William Rush, Senior Vice President from Prudential Bache Securities, a large brokerage house allied with, owned by Prudential Insurance Company, so a large user. Bill Rush is responsible for worldwide communications on the operations side. His prior employers have been Coopers & Lybrand, as well as Booz, Allen & Hamilton, Sperry, and AT&T.

William Rush: I am a user of telecommunications and have been bearing the benefits as well as the brunt of what has been occurring in the industry over the past few years. By the way, it was a foolish move on my part: I have never actually been responsible for communications in my prior life. I was a consultant at Coopers & Lybrand. It was much easier being on that side. It's very difficult today to be in the communications area responsible for communications, especially in the financial services industry. Banks, brokerage houses are really feeling the heat these days. Here's a quick, brief perspective: I'm responsible for 360 locations throughout the world and it is of significant importance to the firm, communications, because as other people have said, this is an information-based society, the financial services industry is by far the largest consumer of information, and communications in a financial services firm also happens to be the second largest cost item.

So we've got a lot of our bottom line being eaten up by communications costs. The only thing that's higher cost in our firm is compensation. Also, we guarantee our account executives, whether they be in Hong Kong, Munich, or downtown New York City, five seconds' response time when they access their terminal for information from our computers, which are located right here in New York. And they, their total business tool, just about, is on that terminal. We have taken away the books and we've put everything on the computer terminal so when that computer terminal is not working, or malfunctioning, the network is down, we have ripped the tools right out of that individual's hands. So it's absolutely crucial to us. Just as an idea of how extensive communications is, we spend $18,000 a year on each account executive. Every account executive we have costs us $18,000 a year in communications.

So it's not a nickel and dime cost for us. We've been living with deregulation now for several years and have both the positive effects, and as Henry Geller mentioned earlier, though, no one communications organization can possibly expect to meet the various and extensive and changing needs of a user. Not an AT&T, nor an IBM, nor a PTT. Right now, as a result of telecommunications deregulation in the U.S., we have a rich mix of PBXs, for example. We have Siemens, Northern Telecom, AT&T,

Nec, and British Telecom. And the manufacturers of that equipment are not necessarily the providers to us because, for example, Northern Telecom might be a superior performer in the Midwest; in New York they can't support their product. So we might use another vendor locally, like New York Telephone, to support a piece of equipment manufactured by Northern Telecom. It allows us, as others have said, a wide variety of choice. We can pick the best equipment and we can then pick a totally different supplier who happens to be a better provider.

Now costs have come down for us also. Historically we were growing at about 22% a year in communications costs. Over the last few years we've been able to manage down those costs to the 5% to 8% increment which is a significant switch. But we must do our homework. The days of users sitting and allowing the telephone company to make the decisions for them in the U.S. have gone by the boards. We cannot possibly allow our vendors to make those decisions. We must have informed, very, very capable individuals making those decisions in communications. So the disadvantage is we have to do our homework, we've got to upgrade our staffs significantly; it's a whole new level of professional people that have moved into telecommunications over the past few years.

Another example of costs: somebody mentioned PBXs, equipment, CPE cost going down. A few years ago it was costing us $4,400 to purchase a PBX for every account executive that installed it. So, for example, at a particular branch we had ten account executives; each one of those account executives cost

$4,400 to install a PBX for. We've halved that cost now. So our costs are clearly coming down.

Now there was a comment earlier about divestiture and deregulation, in fact several comments, and I just want to concur that deregulation is in mind as a communications executive, it's the best thing that ever happened. Divestiture is great. But for some other company... [laughter] In my eyes it is chaos. But again, not deregulation, not the big areas of the market that comes with deregulation. But the major change that occurred with divestiture was, in my opinion, not an efficient approach at all. And it's too late to put Humpty Dumpty back together again and we have to muddle on. But I think that that's an area where others could learn from our mistake.

With deregulation, the users, as they say, have gained a significant amount; and the providers, as others have said, have gained an awful lot also. They've got much greater insight into what the user requires and how to change a product. So the swift of foot, the people who deserve to be in business will be in business under these circumstances, and those that don't pay attention to the customer should in fact go into some other business.

Perhaps the best example of how deregulation has helped a user such as us is our new advanced data network. About two years ago we felt that because the information we had to get out to those account executives was so important and growing so fast we had to do something different than the typical, traditional networks that we'd been dealing with. So we went to the people we preferred doing business with, two very large providers in the information services industry. We also went to someone that no one has ever heard of before, a very small, new start-up company. And we explained our problem. We felt that the technology might be a 2-way KU band satellite service. But we needed further proof of that and we charged these three vendors to review the situation, come back to us with their best recommendation for a network. They did, and by the way the requirements we thought we wanted to gain out of that were a few key ones -- we did not have a lack of flexibility. We're loading more volumes of data down to each of these branches throughout the world and we were constricted by the size of our pipe. When we wanted to expand the transmission pipe there was a major effort. It takes, to alter a pipe in one branch, it takes anywhere from two to three months. And by the way, when deregulation occurred, it was 6 months to a year. It was chaos. It darn near brought us to our knees. We were in the midst of a major branch expansion at that time and we were totally dependent, just unable to do anything. In any case, we had the lack of flexibility with our current system. Speed of deployment we talked about; 2 to 3 months today to get a new branch up or to change, expand the pipe in a branch. The need for better reliability. Right now 2%, right today 2% of our branches are down because of our network. Right today. Now any minute of any business day 2% of my network is down. Also we found that with the significant shift and change in financial products that's occurring, it was very, very difficult for us to keep our producers throughout the world informed. And also, at the same time, we were giving them more and more technology to access our computer system and it was very difficult to train them how to use the technology. So we felt we had to have video out there, had to have real time video. So that was another requirement. And finally, what we wanted to do was break even. We didn't want to have to spend much more than we were spending today. So those were the basic criteria.

Now the three vendors that I mentioned earlier came back to us after 18 months and it turned out that the two vendors, the two key vendors, that we feel are our strategic vendors, fell short. Fell significantly short. They weren't nimble enough, they weren't quick enough, they weren't smart enough. And they had good teams on it. They had tremendously good teams, they worked hard, but they failed us, so we had to go to the very, very small vendor. But at least, in the circumstances we have here in the states, we have choice. It allows me to be able to do my business one heck of a lot better than I am currently. And that's the key to this. We're not here to do things that are technologically leading edge. I'm a businessman, all I want is to have my company make as much money as possible and if I can support that sales effort, then I've done my job. And deregulation has allowed us to do our job. Thank you.

Eli Noam: Thank you very much. We have as our last speaker, who, I think it's most fitting since everyone has been burying AT&T all night, to have a speaker from that company here, Mr. Lee

Cutcliff, who is the Vice President and General Counsel of AT&T International. He has a law degree and political science degree from Vanderbilt University, a variety of positions with AT&T, including General Attorney for Pennsylvania Bell Company, Assistant and then Corporate Vice President for Strategic Planning at AT&T Corporate Headquarters, and now the Vice President and General Counsel of AT&T International.

Lee Cutcliff: I was sitting back there in my chair, I tried to decide what value I could add to all the learned speakers that had come before me. All the ideas are shopworn at this point, well tested, but one thing I want to bear in mind is I stand between you and the cocktail hour [laughter]... So I'm going to follow at least two of the three admonitions to the speaker: be brief, be witty, be seated. I'm going to skip the witty part [laughter]...

From AT&T's point of view I thought I might break this into a couple of parts, looking at the reasons for the change first, as we saw them. Customer choice clearly was a driving factor, choice about source of supply. The second factor was the perception, I think, that public at large had about regulators: a) they were ineffective in terms of dealing with a company of the size and power of the Bell System, and b) that they were ineffective in stimulating the introduction of new technology to the consuming public. The third idea was, I think, well ingrained in American society, and that is a preference for competition. Let the marketplace decide, in other words. I think, rooted in this was a real fear that to have too much power concentrated in a private industry over such a major infrastructure industry like information movement and management, was a risky game, and one that society was not willing to play.

What about the changes themselves? I think I should make it clear at the outset that, as you might suppose, it wasn't the Bell System that dreamed up the need to change. The Bell System was just doing fine, thank you, and in fact the theme that the Bell System played to the Congress, to the FCC, and in the courts was the old saw that "if it ain't broke, don't fix it." Society didn't see it that way. And there were many different permutations that were examined as to structural alternatives for the Bell System, both vertical changes and horizontal changes. But when it came down to deciding what to do, the irony in all of this was that it was not Congress that really decided what to do, by setting policy for the United States, it was not really the FCC that finally decided what to do, but rather one judge, one Federal District Court judge, who'd had an antitrust case brought by the United States government, largely on behavior grounds, "anticompetitive acts," if you will. And it was on that footing that the decision to restructure the Bell System and therefore the industry was made.

The decision was made to split the business along competitive and non-competitive lines. There were a lot of business restrictions that were imposed on the divested Bell Operating Companies by this judge, and a waiver process was set up to manage the case as it went forward and to try to conform the structure to the dictates of the marketplace and to the technology as it changed.

Now needless to say, the Bell Operating Companies are not happy with these kind of business restrictions. And I think we will see over time there will be tensions. At first a little bit here, a little bit there, and then finally who knows? So one has to ask oneself the question, will we come full cycle in this country at some point, with a reconstituted Bell System under a different name? Or maybe it will be a group of companies, if you will.

What about the results of the change? Well, I guess in one way I depart from several of my colleagues on the panels' view. I think it's been a year-and-a-half since divestiture and it's a little bit unclear as to what that picture looks like, whether there have been more plusses than more minuses. Only time will tell that story. But the real remarkable thing is that we went through taking apart, piece-by-piece, a company of a million employees and $50 or $60 billion of assets and we didn't really have total chaos. It was chaotic, for sure, and in some customer segments it was very, very painful, and it continues to be so. But it still hung together reasonably so, and you could actually pick up the telephone in New York City and call California and have a fair chance of getting through. [chuckles] And no one would have bet even money on that before divestiture.

Well, to me, out of this certain fundamental questions remain. For the vast majority of consumers, residential telephone users, people that use the long-distance network 2 or 3 times a month, are they better off, are their prices cheaper, do they have better performance of the product, are the providers of service more responsive to their needs? I don't know. It's very hard to find John Q. Public and have him speak for the American public. And that's a great unanswered question. The large users, I'd have to say, clearly, at the moment, are better off, they have better prices, they have a much more responsive source of supply, more innovations, yet my question is this: Is this merely a transitional phenenomenon? Is it one that will survive, for example, the elimination of the current disparity in access rights between the telecom carriers and AT&T? I don't know. Only time will tell that story.

Equipment manufacturers. I think again they clearly have benefitted from the divestiture and from the pace of deregulation by the FCC. There's more competition, it's the best expression I think of the fact that we are in a global market today, however there are some clouds on the horizon. I think the profit margins in the equipment business are getting more and more constrained. Again, it's a simple fact of economics. My question is this: where does the R&D money come from, to keep refreshing the technology that will introduce those new switching machines into the network over time?

Service providers. I think the service providers and the users of the basic services themselves have been most affected by divestiture of all of the other constituency groups, employees, shareholders, financial market institutions, and the management styles of the businesses themselves. After all, when you take a million people and you try to sort them out among different organizations, seven regional companies, an AT&T company, a Bellcore that sits at the top of the seven agents and does the technology planning, that is a very, very traumatic effect to the people involved. And again I would have to say I don't mean to suggest it's been all negative. There have been some positive aspects. Clearly, if you ask Tom Bolger, who is the Chairman and Chief Executive Officer of Bell Atlantic, if he likes divestiture, I would think he'd have to say, "I sure do." Because he ended up being the Chief Executive Executive for a very large and very successful business. He might have been only one of four or five vying for the chairmanship of AT&T. So in that sense, he is definitely a survivor. Others, I don't know about. There are a lot of people out there who have been affected. Certain truths appear to me as a result of what we've gone through in this country. Technological changes, with a convergence of computers and communications, were weighing very heavily on the regulators. They were not able to cope with them in a very effective way. They couldn't decide what the scope of their jurisdiction should really be. The second truth, limiting competition to some market segment like private line, or customer premise equipment is not sustainable. There is too much "substitability" of product, too much cross-elasticity, and so whatever policy change you decide on, I think that's going to be across the board for everything, either all regulation, or all competition, but not trying to draw some bright line in between. The technology will blur that too fast to keep up with.

Cross-subsidies. They won't work when you have competition. Certainly they won't work the way the American system tried to make them work. We've had some suggestions for very focused subsidies, like excise taxes and so forth. That may be an alternative. But to have one service try to subsidize another on some social theory -- that will quickly come unravelled.

Another truth, and a very disturbing one. I think American society as a whole has very little appreciation of what kind of change is being proposed. They were really bypassed in the whole process. I've tried to think that through as to why. I know the issues were very complex, and there were a lot of very high powered people on both sides who talked in very sophisticated terms about what this or that policy meant. I don't know whether the public was apathetic to the change, or whether it merely assumed the old Bell system had been around so long that it would figure out a way to make it work, or what. But that's an important element to try and understand in our society as we live through this transition period. Why was the consumer not more active in the process of setting policy?

Another truth, which of course requires no debate, and goes along with the cross subsidy point, is that the prices must reflect the economic cost for what's being provided. No more and no less. But where do we go from here? As I said, I don't think it's timely for us, and certainly not for me, to offer you an observation that the change we made was a wise one. We just have to see how it plays over time, who the winners and losers are.

What empirical evidence there is, though, permits a couple of observations. Information Movement and Management Providers (IMMs) continue to account for consumption of a large part of the capital in the capital markets of this country. Whether that consumption is more efficient under the scheme we now have than it was formerly again is an undecided question in my mind.

Another piece of conclusion from the empirical evidence. We have seen, and we are going to see a lot more, shake outs in the industry, a lot more mergers and acquisitions, a lot more failed companies. Some will be wildly successful. But it is clear that only a company with real financial staying power is going to be able to survive the transition. And I would think that rather than see in the future a multiplicity of competitors, say in the inner city market, ironically enough it may come down to only a handful.

Providers of services and consumers, that is, the large consumers who are at the vanguard of all this change, will increasingly perceive a global inter-dependency of the marketplace. In short, the policies that you formulate must reflect that the market you're dealing with is a global market. It will not respect geo-political boundaries. Technology doesn't do that today. And technology has driven the changes that we have seen in business.

I think the final point would be this. The products and services that are technologically possible, and that are dreamed up in the Bell Laboratories or somewhere else, will not find a great acceptance in the marketplace in the way most people suppose they will. There is always an enormous lag there between people being willing to interface the new technologies and new products and the realm of the possible in terms of pure science. And it is in managing that balance that I think the purveyors of service are going to have the hardest time with of all.

But the most important thing, and the thing that we did not achieve in this country that we should have, is that you, as policymakers, must decide what to do, be clear about it, signal your intent, and set the ground rules, and then let people undertand how they plug into that system. We haven't accomplished that yet in this country. Thank you very much.

Question-and-answer period followed.