

# Law, Policy, and the Convergence of Telecommunications and Computing Technologies

March 7-9, 2001

## GLOBAL CONSOLIDATION AND THE FUTURE OF COMPETITION

March 9, 2001

**DEAN JEFFREY S. LEHMAN:** This panel is on Global Consolidation and the Future of Competition. The panel leader is James Young who earned both undergraduate and law degrees from the University of Michigan. He started his career at a firm in Washington, D.C. and joined Bell Atlantic in 1983 where he moved up the ranks to become Executive Vice President and General Counsel, a post which he held for eight years. During his tenure with Bell Atlantic the company became the largest wireless carrier in the country. He is now a telecommunications and legal consultant in Washington, D.C.

Next to him is Robert Howse who's a professor at the University of Michigan Law School. Previously a member of the law faculty at the University of Toronto. His work has ranged over a wide variety of subjects with an emphasis on international trade and related regulatory issues.

Next to him is Michael Mathews who, among other things, is the Chairman of the Board of Telecomputing, an applications service provider founded in Norway that provides Windows-based applications delivery and computing services that extend from the server to the desktop for customers worldwide.

And our final discussant is Marshall Van Alstyne who's an assistant professor at the University of Michigan's School of Information. His research focuses on the measurement and management of information capital, an endeavor that becomes increasingly critical as global economics shift from physical toward non-physical goods.

So let's begin with Jim Young.

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**JAMES R. YOUNG:** Good morning. As I was listening to the last panel's discussion, particularly to David Pine's discussion, it dawned on me that we would know when convergence was here when we all started to use a common set of acronyms. It reminds me of when I started to work in telecommunications almost 20 years ago. A colleague told me that one of the most annoying things was that we had a TLA for everything. And I looked at him and I said, TLA, what's that? He said, "Three-letter acronym." It grows on you, doesn't it?

This morning we've been given a very, very broad topic to talk about. Convergence, global consolidation and the future of competition. Now the way we're going to go at this is, the premise of this discussion is that it's extremely difficult to make point estimates about where particular industries are going to go. What's a lot more productive, we think, is to talk about some general considerations that will apply over a range of outcomes. Now just to give you a little bit of background, this panel, at least my part of it, will probably be a little more historic

than some of the other panels. In part because I'm older than most of the other discussants. But I think it's important to sort of give a little bit of background to explain why it is that we are so humble and modest in approaching the issue of predicting the future of competition, particularly when it comes to convergence. I have been at meetings, conferences, discussing the general topics of convergence and consolidation for almost 20 years. I feel a little like Bill Murray in Groundhog Day. That is I'm doomed to keep doing this until I get it right. We have thought at so many occasions that we really understood this.

If you roll back the clock to the time when I started in telecommunications people thought they understood what convergence was. Convergence was this great emerging confrontation between AT&T and IBM. People really believed this. As a matter of fact, government policy was made with this assumption in mind. If you looked to see what the Department of Justice had to say at the time that the decree was entered that broke up the Bell System, the Department of Justice said, on a number of occasions, that by freeing AT&T from the older 1956 consent decree what you were allowing was AT&T with all this expertise in digital computers, because that's what the switches in telecommunications networks had become, digital computers. AT&T with all this experience in digital computers was going to be able to take on IBM in these digital computers. And IBM was going to be able to take on AT&T in telecommunications. Why? Because the assumption then was that competition to the wire line monopoly, the Bell System, would come through the air. The M in MCI stands for Microwave. And, as you remember, IBM had invested in satellite business systems, SBS, another TLA. Whoever laughed, thank you. And that was how all of this was going to happen. And, of course, it never did.

One of the most interesting codas to all this got very little fanfare. A few years ago IBM finally got completely out of the communications business by selling its worldwide computing network. And, show of hands, anyone know who they sold it to? To AT&T.

Okay, roll forward a few years. About six-and-a-half years ago I spoke at a conference here at the law school. It was a joint conference between the law school and the business school, also talking about convergence. Again, we thought we understood what it was. Convergence was telephone networks being capable to do video and voice on a fiber-optic platform, a digital fiber-optic platform that would be all things to all people. And cable was going to do the same thing.

And, of course, it was that idea that was behind, among other things, the litigation you saw in the early 1990s, in which companies like mine pushed First Amendment theories to get into video. And the same idea was behind the proposed and unlamented deal Bell Atlantic had to merge with TCI. Again, convergence didn't happen. The most that did happen with cable and telephone was that some companies started deploying the cable wire and the telephone wire in the same trench.

Even here at the conference today, one of the things that struck me, is the fact that although we take convergence as a common place, we still have very, very different definitions of what convergence means. A number of people, Donn Davis for example, and some of the people who focused on the end-user devices, have talked about convergence as the integration, in one device, of several functions now performed by separate devices.

I have to tell you; I have a lot of skepticism about that. I think the history, particularly of consumer appliances in this country, shows there's a long tradition of claiming that this kind of integration will occur. Think about how microwaves were initially pitched, as things that would

do all kinds of cooking and baking and all this sort of thing. And in the end the microwave has become a device, really just to warm up frozen foods and to do popcorn. Or VCRs, remember all the hype that surrounded the introduction of VCRs? All the things that they were going to be able to do, time switching and so on and so on and so on, educational devices. They've really become a device to play movies.

But whatever the merits of this kind of convergence, for people like me who've spent their time on the network side, convergence really means something very, very different. This is an area that the last panel really teed up nicely. Convergence to us really means that all communications are moving toward computer-type communications networks, packet data networks. So that voice and video and everything else travels over very high-speed, very efficient communications networks. And as the last panel showed, that's what happening in wireless, and it's also what's happening on the wire line side. In part because of the tremendous growth in data and in part because these networks are an order of magnitude more efficient than the old circuit switch traditional telephone networks. Everything on the telephone network is going that way. If you want a real oversimplification, what's going on today is you have the old time telephone network and it's having the life sucked out of it from two ends. Mobile is taking all the voice out because it's terrifically efficient and effective and convenient and as the price points drop, everyday it becomes a better and better substitute for traditional local telephone service. On the other side, the data and some of the voice is being sucked out by these very high-speed packet data networks. So even now we don't have complete agreement on what convergence is.

Globalization is another topic where it seems to me you have to approach this with a tremendous amount of humility. Why do I say that? Again, when I was here in Ann Arbor six-and-a-half years ago we thought we had that one figured out, too. Then what did globalization mean? Globalization, at least in these circles, meant the rise of these tremendous international alliances. The French Telecom and the Deutsche Telecom joining together with Sprint in the Global One Consortium. AT&T, through a series of partners ultimately ended up with British Telecom (BT) in concert. I can tell you at the time the rest of us were absolutely petrified. Remember when you were in fifth grade and recess and they were picking out sides for the softball team and you were afraid you weren't going to get picked? Well this was how a lot of us felt when we saw these great alliances coming together. We thought we were going to be shut out and that this was really the future of global communications. Well you know what's happened there, too. AT&T and BT are today, openly talking about completely dissolving the consort alliance. And the French and the Germans have already parted ways on Global One. I guess the French have already announced that they're going to do it and if the rumors are rife the Germans will do it, too, are going to unload their interests in Sprint. So that kind of globalization has sort of fallen apart. But it's still going on. It's going on in very different ways now.

I think when you look at the MCI Worldcom combination, one of the best ways to understand that, yes it was to some extent it was the combination of traditional long distance networks but not really. Really, the way to understand that is one of the most important things about that is that it was the combination of international high-speed data networks. That was real globalization going on there. It was also one of the things that lay at the heart of the now failed Sprint/MCI Worldcom transaction.

Globalization is also going on apace in wireless. My old company, used to be known as Bell Atlantic, now Verizon, of course has struck up a series of alliances with Vodaphone to try to put together a much more global arrangement. A global arrangement that will be greatly facilitated if and when we ever get to 3G. You've seen AT&T and its investment, its joint arrangement with DoKoMo, which is one of the companies that does this really terrific i-mode service you've heard so much about this morning. There's a lot of that going on on the wireless side as well.

But I thought probably to help us understand this better Michael, who is sort of at the heart of globalization but in a somewhat different form, in a non-U.S. centric form has been greatly involved in this so I want to turn the floor over to Michael for a few minutes to talk about exactly what's going on.

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**MICHAEL MATHEWS:** Thanks, Jim. I bring a different perspective to today's conference. It's a pleasure to be back in Hutchins Hall. I haven't been here for a very long time. For the benefit of the students in the room, to tell you what it was like 36 years ago, Kennedy was assassinated when I was in law school. It was a long time ago. My law school of about 350 students had seven or eight women and one black. It's a little different today, fortunately. The one black happens to be Harry Edwards and he is making his way currently in this area and we're as proud of him as we are of anyone in our class.

When I was in law school we had Saturday classes, which seems an anachronism in today's world. When I started on Wall Street I had a starting salary of \$7,800. That was per year not per month. So I do bring a historic perspective.

One thing I have learned is that anyone who attempts to predict the future is rarely going to get it right. I recall forecasts of oil and gas sector that we would be clearly out of oil by the year 2000. Thirty years ago the environmentalists were absolutely convinced that there wouldn't be any. I'm vice chairman of a New York Stock Exchange-listed company called Petroleum Geo-Services, which is a marine seismic company that helps oil and gas companies find new reserves. Talk about convergence of technologies. When the satellite navigation system was released by the federal government at the end of the Cold War in 1991, a group of Norwegians figured out that that would help give us the ability to track a streamer. Marine seismic is basically towing a streamer behind a boat and recording a sound wave in order to map the sea floor. So with satellite navigation we could put 12 streamers behind a boat with a microphone every 16 inches and record data every five seconds and have a massive amount of data. Well that was beyond, in 1992, anything that anybody could deal with. The data incoming, we had more computers than NASA (National Aeronautics and Space Administration) and there's nothing you can do with the data until Intel and massive parallel processing; we could actually have on board processing of this data into a library, which we joint ventured with IBM in order to manipulate the data. And now it soon will be web and seismic engineers can access our data over the Internet. The company went from a \$15 million investment in 1991 to a market cap in excess of \$3 billion by 1998.

So there are a lot of ways to play technology and convergence. About the same time, I was in Finland and there was a company that was a conglomerate that I really didn't like the

management of very much so I never paid too much attention to them. There's a little company, well it's not a little company then it was just not a very focused company. It was Nokia and they had a little thing called a cell phone and I was so smart in those days that I said absolutely why does anybody need a cell phone in the United States. We're wired already so we don't need this. They need it because it's a rural country, etc. The rest is history.

But I do want to encourage everyone here to recognize what Professor Mann said about what was going on in Tokyo and my own observations in Norway and Finland; there's an awful lot happening out there. My question yesterday related to the digital divide and how were we going to get the Third World up to, let's say, First-World standards. That of course is a problem. But let's not lose sight of the fact that there are a lot of other first-world countries out there that are racing very rapidly with some very interesting technologies and we should not be Valley-centric.

The decisions that one makes in investing are often--20/20 hindsight is obviously a great help. I remember that IBM was a one-decision stock in the 1970s. It was simply, you bought it and you put it away and you never thought about trading it or selling it. Well, if you bought it in 1975 and held it still in 1995, it was a brain dead decision because it never went anywhere, up or down. It had its run. I would venture to say that I'm not smart enough to know whether Microsoft, it'll be here 20 years from now, but the share price may be at or close to where it is today. There is no reason to take a chart, as was put on this board yesterday, and say it went up for 20 years, it's likely to resume its path up. I love Microsoft, but I don't know where the stock's going to go.

Recently I became chairman of the board of a company called TeleComputing, a Norwegian ASP (Application Service Provider). The hype 18 months ago, was that the ASP industry was the future. Steve Ballmer at Microsoft said they expected 40 percent of their customers to be doing IT with outsourced application service provider. There was a rush to build capacity. We raised and invested a lot of money. The stock in Norway was a market cap of about \$130 million when I became chairman. And I of course thought I was brilliant when six months later it was \$1.3 billion, tenfold increase. Except I was the one constantly being quoted in the press in Norway that trees don't grow to the sky, this is, I didn't use the word bubble but it was so clear, so clear to anyone that this was a very dangerous rise. But it's done the round trip. It's back down to \$130 million. The good news is we are a lot stronger. We are actually turning the profit corner. Probably the only ASP in the world and I believe this is a correct statement, that is actually with pure ASP revenues going to be profitable in the second quarter of this year in the Norwegian/Scandinavian business. So there is a business; it just has not yet been recognized in the United States. The customers in the U.S. do not want to let go of their data. They don't want to have it off premise. It's wild that they can have data winging around via credit cards and everything else that we've been talking about, but the individual business manager, the partner of the law firm who has 70 lawyers will pay an enormous price for an IT (Information Technology) department in his law firm when he could outsource that for a fraction of the cost. Basically lease his software. And yet they somehow want to have their own IT guy and have the server on premise down the hall. It will happen. It will change. I'm absolutely confident of it and we expect to be one of the survivors.

One other brief anecdote is what you really want to avoid in investing, and I know this is not an investor conference, but since I'm a private equity investor it's kind of where my mind runs. You want to avoid the "gee-whiz" technologies. I invested together with a very good friend of mine

who is the past president of Time Warner. We thought that game content would be where it was. Clearly computer games was where most of the techies were spending their spare time and a lot of their time generally. So we created a company called Zombie and Zombie was virtual reality, three-dimensional entertainment company in Seattle. And as a founding seed investor we got our money back. It went nowhere and the reason it went nowhere was not because it wasn't absolutely a brilliant company and a brilliant idea with brilliant people. We were just too brilliant. It was a company that the games were too sophisticated and aimed at such a small market, the top end of the gamer market, which we did a lot of demographic studies on and was about a 20,000 person market. And that's a pretty small, esoteric market.

I really agree very strongly with what Joel Klein said in his opening remarks about the market. The market is the driver and one of the things the conference is discussing, and I think I'll just weigh in and close with, is that the government and regulation needs to understand where the markets are going and help but not get in the way. Change is happening very quickly. What the government really needs to do and what I think the people charged with supervising the playground if you will is to understand as best they can where this is all going. And then give guidance and direction but not get in the way. To my way of thinking government regulation should be somewhat like coaching. Provide the structure, you teach the rules of the play but then get out of the way and let the players play the game.

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**JAMES R. YOUNG:** Okay so we've set the stage here. We all agree the future is terribly uncertain and talking about the future of competition it's very difficult to make these sort of point estimates. We come to the point now where we start talking about at least some of the generalizations we can make. Let me just start with a few and then I'm going to turn this over to Marshall who has spent a great deal of his time thinking about these things.

It seems pretty clear to me, yes, the wireless future is going to be tremendously important because of computer, basically packet networks, that are order of magnitude more efficient than what we've seen. Wire line communications today are going to migrate to the same technologies. What that tells you is something very similar to what you've seen on the computer side-- At least the operating system side. And that is, these are segments that are characterized by enormous economies of scale and scope and so you will continue to see very large players, and probably in several of these segments, dominant players going forward.

Another thing that seems fairly clear is that these networks have some unique aspects that competitive analysis is going to have to bend itself toward. One of the best examples of that, if you've looked at the way the EU analyzed both the MCI Worldcom transaction and the Sprint/MCI Worldcom transaction, one of the big issues there was the consolidation of Internet backbones. But, of course, one of the critical issues there wasn't just the mere size of each backbone. As you know it's very, very difficult. These aren't like long distance networks. It's hard to get market share information. But even with best estimates about size the analysis was different than it would have been just looking at combining traditional long distance networks because the unique aspect of these Internet backbones is that the very large backbones at the highest level have peering arrangements. That is, the interchange of traffic is roughly equivalent. And that means that there is no charge for interchanging traffic between networks. It's free back

and forth. That is a very important characteristic of the Internet and it became a very important characteristic of the antitrust analysis about combining these backbones. Because when you get one set of backbone networks up to a size that might not worry you for traditional antitrust purposes if you're talking about traditional networks, it still worries you a lot when you're thinking about the particular aspects of the Internet. Why? Because if you get too much traffic concentrated in one Internet backbone then it can start to shove the other large networks off those peering arrangements. And then it can start on the path to becoming the really dominant Internet backbone, which is what everybody was concerned about in the MCI Worldcom transaction and the MCI Worldcom/Sprint transaction.

But that, of course, is only scratching the surface. As I said Marshall has spent a great deal of his time thinking about these problems, thinking about what industry structures will be like when you're talking about new information projects. So right now I'd like to turn the floor over to Marshall. Since he has a presentation, we're going to clear out of the way so he can use the screen.

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**MARSHALL VAN ALSTYNE:** Thank you. We'll see if we can use the technology a little bit and use some graphics perhaps to make up for the lack of content. I'd really like to introduce a couple of different ideas. Most of my effort is spent on information economics and the use of information goods, in market places and how you extend the influence of those information goods both among your own complimentary products and to influence the market place vis à vis your competitors. We can ask some interesting questions then about what globalization might mean for information goods. I'm going to see if I can submit to you four different observations about information goods in general. A couple of these will be things we've seen before; a couple will be things that will be quite unique to information. I'm also going to argue that I believe these will actually have interesting influences for the kinds of things that Joel Klein talked about, in particular, it makes it a little more complex to define what a barrier to entry means. And it's also going to mean that penetration pricing, or rather predatory pricing, gets a little bit harder to define for information goods. And since those are two of the key elements of the government's case it's actually going to be a bit more interesting.

Now I'm going to do this again as an economist so I'm going to try to do this entirely through graphics. I'll convince you of a few things. Nothing up my sleeve, but I suppose I should really put my left hand behind my back so the economist can't say, "But on the other hand." So we shall do this. The first of these is actually a very straightforward observation. Information goods have this high first copy cost but a negligible second copy cost. So what does this do for the average cost of the good? Well, the average cost curve must, therefore, be declining. And this then leads to a natural monopoly. Now this kind of thing is not something that we haven't seen before. In fact we have seen it. AT&T was a recognized natural monopoly. It made no sense whatsoever to run multiple copper cable to the household. It didn't make sense at all. That was even enshrined in law for a while and AT&T was regulated. But we get this even in greater spades perhaps with information goods where a marginal cost of reproduction is almost zero. So what does this mean for the information good? If you can actually set a price that is at or below the average cost for your competitor, but it happens to be above your own average cost you can make a profit but

keep your competitor from making any profit whatsoever. So it tends to lead toward natural monopolies in information goods. So that's the first point.

Second one. This is more of the conventional wisdom on information goods. The idea here was that if you build it, referring to a website, they will come, referring to the consumers. And what I've got here is simply a plot of the goods ordered from left to right. Imagine 20 information goods sorted one to 20 left to right. Access is going to increase from the local neighborhood to the region to the nation to the global community. So the original impression was that, the probability of a sale would then increase over time as you manage to reach larger and larger and larger markets. That, in fact, the rising e-commerce tide would float all boats and we would all be awash in cash.

Well what's the reality? Let me give you a different chart. What happens, in fact, if you don't want a third-rate version of Pachelbel's Canon in D? What happens, in fact, if there's only one or two really high-quality items in the market place that you want to reach? Well, in that case, you're only going to buy a couple of them. And the lowest quality folks drop out of the market. What we've effectively done is to place long-distance competitors into local competition by going global. In fact, there's a marvelous Kurt Vonnegut story about a local musician who was a community treasure but effectively went out of business when put into global competition with the world's best performers. Actually I had an interesting example of this. A couple of years ago I had the pleasure of listening to a lecture from Richard Feynmann. I know this wasn't by séance and I'm not 75 years old. These were videotapes. What's interesting is at MIT a large number of the physics students preferred to attend Richard Feynmann's lectures instead of physics classes. Talk about reach, this is posthumous reach. So that's really very impressive. If you've got an information good that can compete then in fact because of the zero marginal cost reproduction possibility your cost of extending it once you have the access to the market is almost zero. So that was the second point.

Now I want to convince you of something else. And this is a good audience for this. How many of you actually use Lexis Law Service? Pretty substantial number. Now how many of you actually pay for that service. I see no hands rise up at the moment. Okay, well what I want to submit to you there is there are good reasons for doing that. As a matter of fact most of you will probably have on your computers things like WinZip, Internet Explorer, Acrobat Reader and maybe even such things as Lexus-Nexus access and all of these are free information goods. Now this is going to raise an interesting question from the perspective of the government in terms of predatory pricing. How are we going to define predatory pricing when goods are being given away to you for free? And what I'd now like to do is present to you the economic argument as to why this might actually make sense even in the absence of competition. And if you then reintroduce competition it actually has devastating effects on potential competitors. If you look at simple Economics 101 we can define a very standard demand curve. Well how do you price a traditional good? You price it at effectively half its value and for a very simple reason. If you price it higher you make more per unit but you sell too few units. If you price it below that you will sell more units but you won't make enough per unit. But what happens if the markets are coupled or complimentary, as are Acrobat Reader and Acrobat Distiller for example? What do you suppose optimal price of a coupled good might be? Well in this particular case due to an increase or an externality effect you may actually increase the size of the market in one by dropping the price on the other. Imagine trying to sell Acrobat Distiller, this is the tool that



creates the portable document format files that you and I consume when we use Acrobat Reader. How much would they be able to charge for that if consumers also had to pay for the reader? They would have almost no market whatsoever. So what's interesting is that they may actually be able to increase profits by giving away, perhaps even subsidizing that information good. And we can see numerous instances of this in things such as advertising and coupled goods, in WinZip, in Acrobat, and other products of that sort. So my argument here is this gets to be particularly problematic because even in the absence of competition the profit maximizing price on the good whose distribution cost may be zero may also be zero due to the complementarity effect in another market.

Now, okay, I'd like to introduce another idea with apologies to the Microsoft folks in the audience. I want to now see if I can explain to you why Microsoft Office is such a successful product. How many of you, this is a particularly good audience in the law community, how many of you use Microsoft Word? My goodness that's actually even more than I anticipated. You know, of course, Word Perfect was the dominant word processing package in the law community for quite some time. Well, perhaps, can we explain some of these phenomena particularly given that there has been a transition from Word Perfect to Word? We might argue that from the time Microsoft Office was introduced, a suite of four different products, which included word processing and spreadsheet and PowerPoint, which is actually a very fine product, and email, that it might not necessarily have been considered best of breed, certainly not in all products but possibly not in most of them. It might have been best of breed in one maybe. You might have been able to assemble a best of breed office suite of, for example, Lotus 1-2-3 for the spreadsheet, Word Perfect for the word processor, possibly Aldus Persuasion for the presentation software and perhaps some other email package as an example of that. What I now want to argue to you is what happens when you simply change the product strategy. And notice before that the optimal price on a normal good is to sell it for half its value. Well if we simply then pair two simple goods, in this particular illustration we have a word processing good and a spreadsheet good. The word processing good runs on the X axis, we can hypothetically say the value for that might be zero to 100 bucks so you price it at approximately \$50. Numbers in this case are irrelevant. What's really important is going to be the relative sizes and shapes of these particular figures here. What happens if you price this independently? If you price the goods independently for word processing, you set it at half its value for exactly the same reasons as before, and you would sell to approximately half the market. In this case you might make 25 on a particular good. You do the same thing in spreadsheet and what happens? Independent pricing exactly analogous. You price it at half the value, you sell to half the market and you make approximately 25 on the good. Now what happens if Lotus Notes wants to come into the market place? Well they sell it at 49, they undercut your price by a little bit and potentially take that market, particularly since they actually had a very fine product in that market space. If you multiply it out, 49 times out, you might increase the market share slightly by selling to a few more people, multiply it out you get something again that's very, very close to 25 in that particular example. We can modify the information good to actually do something to make Lotus' job much more difficult. Independent profits, by the way, have fallen, because they've now had profits--the original firm had profits of 25 in each market and they've now lost one market so they are now only making of 25. Now look at what happens if instead they bundle into the office product. Now what they do is, they price at a hundred for both products as opposed to 50 for each. In this case, you again sell to half the market, you sell to those people who value the combination of the two goods at or above 100 as opposed to the independent people who value each one at or above

50 in this particular case. So we're now selling to the upper right-hand portion here. But now look what happens when Lotus comes in and tries to price at 49. In the previous slide, notice what their market and profit was, now I'm going to use a bundling strategy, notice what the market and profit is going to be. They're only going to sell to one-half of the previous market. Why? Well, I would ask you that question. If, in fact, what you're doing is you need word processing or you need spreadsheet, and the only place you're going to be able to get it is a bundle then you buy the bundle but by that time you've already got the word processing so you shut the other firm out of the market. Anyone who values the good that's outside the bundle or that's only available inside the bundle will buy the bundle and therefore they don't need to go back and buy the other product because they've already got it as part of the bundle. What then happens is, that you cut that market share in half. The effective losses to the bundler drop dramatically. It's actually an argument that's been presented rather nicely by Yale economist Barry Nalebuff. Here's a graphical analysis as to how the bundling of the information good makes sense because it actually helps to create a barrier to entry. What's interesting then is it's easy to argue that we can open up systems if what we're granting access to is a packet or circuit switch backbone. What does it mean if you then want to grant access to somebody else's property rights in a specific information good so that they might be able to bundle it with their product? That gets to be much more difficult in this particular case.

Okay, so with that I basically wanted to leave with a couple of points. In particular, I wanted to suggest there are some things that we have seen before such as the infrastructural questions that we had seen even with AT&T. We do get, in fact, some natural monopolies and information goods lend themselves to that quite easily.

The second point was, in effect, that information goods, lend themselves quite naturally to winner-take-all markets. So that's another attribute of the information market place or the information economy, which might actually be interesting and relevant to the discussion. For information goods it gets to be more problematic.

The third thing is that simply by doing clever product design we can observe phenomena, which appear to be predatory pricing but may not be because folks are actually maximizing profits even in the absence of competition. If you then introduce competition in the good where they're introducing the good for free it's very hard to make profits.

Then fourth if you're also trying to compete with a company that has bundled products where they have some other product that's unique and they put it into the bundle then it gets very difficult to compete with that particular company. So with that, I'd be delighted to turn it back over to the panel.

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**JAMES R. YOUNG:** All right, we've had an opportunity to explore at least some of the characteristics of markets going forward taking into account globalization, taking into account that there will be enormous economies of scale and scope. I've been in at least some segments of these convergence markets going forward. I'd like to turn now to sort of a second common characteristic, a second cut-across characteristic that we're going to have to deal with going forward and that's this.

One of the remarkable things that has happened in the course of the last 10 years is the rise of antitrust authorities and merger supervision regimes around the globe. It used to be that antitrust was sort of a unique American institution. Not so anymore. There are perhaps 60 of these regimes around the world, maybe more than that now. And what that's done is to globalize the scrutiny of international mergers, tele-communications and computer technology mergers, in a way that has been quite startling. Again if you look at the MCI Worldcom transaction really some of the most important decisions about that transaction were made in the EU. Similarly, in the Sprint Worldcom MCI transaction, again, some of the most important pieces of that decision were made not in the United States but in Europe. It's not just the telecommunications issue obviously. Those of you who have been following the GE/Honeywell deal for example and the great consternation that GE is having these days, this is another reflection of the fact that antitrust issues and particularly merger reviews are no longer a completely domestic, American institution.

Joel talked about this a little bit on Wednesday and he referred to a group that he had put together in, I think, 1997. The ICPAC (International Corporation for Assigned Names and Numbers) and don't ask me what that stands for because I can't remember. But it was a blue ribbon group headed by Jim Rill former head of the antitrust division to look at these issues and talk about some of the implications. And how are we going to deal with trying to allow efficient business consolidations to go forward and not be hamstrung by these multiple levels of merger review. I guess I'd say one other word in terms of preface, anybody who's looked at these cases can sort of generalize about how EU merger reviews are different than the United States. And I think it's easy to overemphasize the differences. When you read one of these EU decisions I think one of the things that strikes you is that pretty much they're talking in the same micro economic language that we use for merger analysis in this country. The basic issues about definitions of markets and all that. It's pretty much the same.

There are, however, some differences. I guess I'd suggest that the U.S. has gotten a little more lenient on vertical arrangements than the EU currently is. I'd suggest, particularly when you look at matters like General Electric and Honeywell, you'd also probably conclude that some of the traditional big is bad and predation kind of arguments that are somewhat less in favor in the United States are perhaps a little more in favor in the EU. I think they probably listen to the arguments of competitors, perhaps, a little more. This is one of the things that Joel talked about on Wednesday. I've been on both sides. I've been somebody trying to get a merger approved and I've been a competitor complaining about other people trying to get their transactions approved. I think the U.S. agencies have developed a pretty healthy skepticism to the arguments of competitors. But, in any event, my point in going through all this is to simply set up a second important fact about the competitive future. This is no longer an American institution. This is an international institution and an international set of reviews we're going to have to be looking at and an international set of antitrust principles. So at this point I'd like to turn it over to Rob, who's thought to a great deal about the international aspects of this, to ask him to comment.

**ROBERT L. HOWSE:** Thanks very much. In many respects I'm participating in this conference as a learner. I work and my work focuses on a rather different world than most of you operate in. This is the world of intergovernmental organizations that deal with international trade and related economic matters. Now these organizations, however, are increasingly getting into issues that affect the world or worlds that are central to the themes of this conference and the

preoccupations of many of you. I'd like to talk a bit about it and perhaps try and raise some issues and problems that are likely to arise as a consequence of that interface, or if one wanted to put it more negatively, intrusion.

The main organization that I deal with in my work is the World Trade Organization and there are many good things about it as there were with its predecessor the GATT (General Agreement on Tariffs and Trade)--negotiated the removal of many barriers or restrictions on trade, tariffs, quotas and so on. More recently an agreement on basic telecommunications where many, many countries in the world made liberalization commitments of some significance and agreement on information technology products that really limits many kinds of protectionist barriers to trade in those products. So these are all good things. But increasingly the focus has shifted to creating global regulation as opposed to simply working on negotiated removal of barriers and I want to sound something of a warning about the increasing tendency of the World Trade Organization, and certainly other international organizations but primarily the WTO, to get into this in a big way. One area where there's support for it in Europe and certain other countries is competition policy. Now listening to Jim speak it's clear that there are lots of trans-boundary dimensions to competition policy, mergers and so on today. However, the fact that there are trans-boundary dimensions doesn't necessarily mean the way to deal with it is through global regulation, trying to harmonize domestic policies or create a new level of regulation that is produced and supervised by an international organization. I actually support the approach that the U.S. has generally taken which is that more decentralized regulatory cooperation is the better way to go. I'd like to talk to you a little bit about why I think that's the case.

I think first of all you have to understand how the World Trade Organization operates. It operates primarily through the periodic creation of rules in what are called rounds of trade negotiations. Between those rounds not much happens except for dispute settlement, which now is something that could be characterized as a quasi-judicial process. Negotiating the rules is not easy. It involves today getting a consensus among 140 countries and it involves many, many linkages between issues that there's no consensus as to whether those linkages make sense or not. But there's a certain opportunistic dimension to saying, "Okay you want to negotiate on e-commerce. We'll only do it if you negotiate on agricultural subsidies" or something like that. Now because the WTO doesn't have any regulatory commission in that sense, it's very different from the European Community, there's little that can be done to evolve or tailor these rules to changing circumstances between rounds of negotiations.

To give you an example, there is a contradiction between two very technical rules in the accord that was negotiated on dispute settlement in the Uruguay round five or six years ago. Almost everyone agrees that this is just a mistake. There are two provisions that almost contradict each other, but it's been impossible to make any change to the rules, despite the fact that almost everyone agrees, because whenever that possibility is proposed someone wants to link it to opening up some other issue. So even on very minor matters where you realize you've made a mistake, or the world is changing, it's really, really very difficult to do any change or alteration to the rules on a short-term basis. And here we're talking about within a five and 10-year period and we're dealing with a rapidly evolving area. You could be stuck with basically anachronistic rules very, very fast and no easy way to change or modify them.

Now you might think that dispute settlement would be that way. Those familiar with the common law tradition would obviously recognize that the courts or tribunals can often flexibly interpret and evolve rules. But to the extent that the Appellate Body, the new appeals court of the WTO has tried to do that, there's been a tremendous reaction against it by a lot of countries that have said this isn't the role for the judicial branch. So you really are left with a fairly rigid kind of system. So this brings us to the competition or antitrust issue. I think as Jim suggested, regulatory cooperation, for example, between the U.S. and EU authorities has worked fairly well. Even in something where there was a real divergence of views like the Boeing/McDonnell Douglas merger, eventually there was a negotiated solution among regulators. I don't think that creating rules in the WTO is really much of a substitute for that kind of regulatory negotiation and cooperation between domestic authorities. In fact, I think it's a much more cumbersome practice. And whether you look at the MCI/Sprint/ Worldcom transaction that Jim has already referred to or McDonnell Douglas, it's very hard to think of ex-ante rules that would provide good solutions. You really need intelligent and competent regulators who can sit down and look at that particular problem given the current juncture with respect to technology, with respect to the way that markets are segmented and make a determination as to whether the broad concerns that animate antitrust policy are really engaged by that transaction or not given where we are today. The other feature that I think is quite problematic of this initiative in the WTO to create global competition policy is the idea that this is also the way for every country to get a competition policy or an antitrust regime. And people simply assume it's a good thing. But, in fact, in many contexts there isn't the expertise and understanding to implement such a policy, what it really just becomes is a new way of government managing the market place. I worked in one country that was being transitioned from a central planning type system to a market economy and one of the things they were being told to do was to create an antitrust policy. And the way of doing it was to take the people who, under the previous central planning system had been fixing prices administratively and turn them into the competition tribunal. The basic notion being that this must be the way that the capitalist economies figure out how to decide which businesses they like and which they don't like and therefore which deserve to survive in the market place and which not. Now that's an extreme example, but the fact is that this initiative to globalize domestic competition law in many cases is just creating another layer of government regulation and isn't often very useful, even if it's not harmful, to actually creating greater competition. It would be much better to focus on simply removing many constraints to competition rather than trying to regulate according to antitrust principles.

Now the WTO has also tried to get into electronic commerce. Here, again, there are a lot of problems with a system that's based upon the idea of fairly inflexible interpretation of static or relatively static ex-ante rules. What I wrote, the first version of my co-authored treatise on intellectual trade law just when the new rules on services in the WTO were being negotiated around 1995, my co-author and I warned that it's not always so easy to make a distinction between what is a good and what is a service. So you need to have some guidelines for that and we were concerned that there were no real guidelines. Now it turns out that progress on e-commerce with the WTO was to some extent paralyzed because there's a group of people who think, for example, when you deliver a book as an e-book it's still a product, it's still a good, and then a bunch of people who say no, now it's been converted into a service. To give an example of another area I know something about, electricity deregulation. Electricity has always been assumed to be a "good." But when you get rid of electricity monopolies and you have a power pool and then you have various kinds of distributors and the people who are doing the metering

and so on, well, it's not such an easy matter to say that X should be regulated by a good and Y as a service. Well that's fine, you can deal with those issues if you have a system that's relatively flexible. But if you have these kinds of categories that are sort of congealed in rules that it's very, very difficult to change except in a five or 10-year timeframe, you could be in a lot of trouble in effectively addressing some of these issues.

So what is the answer? Well one answer might be to make these institutions operate somewhat differently. That's a very, very difficult task. They're not very accountable to stakeholders. They're not very transparent and they're not very accessible and responsive. And we could discuss the reasons for that and, in fact, these are some of the reasons why people were marching in Seattle. But they're also some of the reasons why businesses ought to be concerned about certain matters being regulated in the WTO as well. Another kind of possibility is where you're dealing with issues that genuinely involve international harmonization or at least reconciliation or cooperation is to do it through more informal transnational regulatory networks, which there's some legal academics who are doing interesting scholarship on.

And here there really is some promise of new methods of accountability. One example is ICANN (Internet Corporation for Assigned Names and Numbers), which some of you will know about. It's a very controversial organization that deals with the management of domain names and instead of being an intergovernmental organization it's private-sector based. It has a very different kind of accountability mechanism that some people have criticized; accountability doesn't go through national governments. There's a membership and the membership at large, which is anyone who's concerned with ICANN can actually vote for at least five members of the board of directors. But they're attempting to develop new forms of accountability in global governance. There's a group that's devoted to attacking ICANN, ICANN Watch, that says that it's not transparent enough. But it's vastly more transparent than places like the WTO. So I think we should watch carefully these kinds of experiments and particularly also in the standards area, which is related to this and was discussed in the last panel. I totally agree with what was said about the International Tele-communications Union. Again we might need to develop alternative methods of transnational governance to deal with those kinds of issues.

**JAMES R. YOUNG:** You know I think this is another area, too, where to echo something that Michael said a few minutes ago, this dialogue, this international dialogue that the globalization of antitrust has led to, this is not just about other people learning to do it the way the Americans do. I think one of the very beneficial aspects of this dialogue is to throw a bit of a light on shortcomings on the American side of the process. For example, one of the very good things about EU review of mergers is that it's centralized and decisive. Merger review in the United States, by contrast, is very decentralized. I know this from hard experience. After you have gone through a year of losing sleep and gaining weight trying to get the Department of Justice to approve your merger, now you get to go to the FCC and go over exactly the same issues. This is a little wacky, I think. So one of, I think, one of the interesting byproducts that's come out of these reviews of international merger reviews is a push toward more consolidation, more streamlining of the American merger review process.

So we hope that we've had the opportunity to at least present a few general considerations about what globalization and the convergence and the future of competition may hold for us. Issues about at least the general character of the markets. Issues about how the globalization is going to

affect the analysis and review of those markets. And I think we'll hold it there and Jeff, we'll see what we have by way of questions. Thank you very much.

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**DEAN JEFFREY S. LEHMAN:** I have a few questions here and there are people with blue cards for people who would like to pose more. I'd also like to remind people, please in your folders there are the yellow sheets. And it is now time for members of the audience also to be doing their part in answering the questions that are posed there as we try to build on the work that's being done in the conference. These are the questions about your perspectives on the most important issues about law and policy that are arising in this area.

First question I have here is: do the possibilities of winner-take-all markets increase the risk that instead of getting out of the way, in Mike's words, governments will subsidize inferior technologies?

**MARSHALL VAN ALSTYNE:** I'll guess that was directed at me. I'm actually not necessarily sure that that would be a problem. The phenomena of winner-take-all markets are pretty much there regardless of whether or not it's the government that designed that particular technology. My own background originally was in computer science and I actually worked for a defense contractor for a long time. At that time the government required us to write code in ADA. I don't know how many of you have actually done that or how popular that is in the market place any longer. So I wouldn't necessarily assume that government endorsement of a particular standard would lead to its effectiveness. Rather the very virtue of an information good being higher quality tends to make it more successful. So I would tend to think that wouldn't be as much of a problem.

**DEAN JEFFREY S. LEHMAN:** Anybody else have comments about the subsidies issue, government subsidies? Okay. What measures exist to battle piracy outside the United States? Which are most effective and how do we expect the fight against piracy to evolve in the future? Again, talking about free information goods and the problems that are associated with that.

**MARSHALL VAN ALSTYNE:** Let me challenge the assumptions of the questions just a little bit. First of all you have to ask the question, why is piracy really a problem? There's actually some very good reason to believe that piracy leads people to experiment with software, to adopt it, to create the very network externalities that lead to a successful information good. Many of you may recall that in the '80s most of the discs that you got were copy protected. All of that's been dropped. Why is that? Typically the producers actually benefit in some ways from getting that. You really cannot simply add up the sales and then multiply that by the piracy rate and then assume that those are lost revenues of the organization. As a matter of fact, I returned from Microsoft research only a couple of weeks ago and heard a marvelous quote from Bill Gates with respect to the piracy of software in China. It was a marvelous quote. It was really just, "As long as they're stealing our software." And I think actually there's a lot of wisdom and insight in that. Now this was heard secondhand; I didn't hear it from Bill so it may merely be hearsay. But, I think that insight is actually quite powerful. So that would be the first question.

The second observation I might make, is that the United States was a terrible pirate nation with respect to intellectual capital for a very long time. It wasn't until we became a more industrialized society that we really acknowledged property rights in information. We should look to our own knitting in terms of what some of the history has been. Some of the developed world actually can get quite significant benefits from adopting software and it's not altogether clear to me that countries particularly where folks are living on a couple bucks a day would have bought the software even if property protections were in place. Now it may in fact be laying a foundation for something more successful. So this is a long-winded answer for having begged the question.

**MICHAEL MATHEWS:** I'd like to throw a plug in for the ASP model. In this area it guarantees virtually that the software vendor receives all the licensing fees that are due because every seat is recorded by the ASP and licensing fees are paid. For example, PeopleSoft loves to see their products sold through an ASP model because they know it's not being copied and they know how many seats we report to them or how many seats are using the product.

**ROBERT L. HOWSE:** I would just add that the concern about "piracy" was a major reason why intellectual property got onto the WTO agenda. I share Marshall's skepticism about a simplistic approach to this. There can be welfare losses from enforcing intellectual property protection in certain circumstances just as, of course, there can be welfare gains in others. I don't think that the approach of putting this in the WTO has been very successful simply because it turns out that many countries in the world aren't, whether you think it's a good idea or bad idea, intentionally setting out to encourage piracy. They just aren't deciding to put a lot of law enforcement and administrative resources into dealing with the problem. So now there is a massive task of actually figuring out how to, since they've signed onto this intellectual property agreement, how to help developing countries actually do the enforcement and it turns out the WTO has a handful of people who know anything at all about intellectual property and WIPO, the World Intellectual Property Organization, has a lot more. So it's being done mostly through WIPO and it's very difficult to do on the ground and when this agreement was signed it was held out as kind of a magic solution to this problem and nobody gave any thought to the kind of court system you might have in a lot of developing countries and how you might have to basically reform a country's judiciary in order to get any real value out of this kind of agreement.

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**DEAN LEHMAN:** Next question is: does the Third World really have a chance to compete in this global information economy?

**JAMES R. YOUNG:** Well let me start. I think that the answer is abundantly yes, of course, it depends on how you define third world. If you look at the advances that have been made in information technology, let me take a simple example, a few years ago a very bright Indian engineering firm came up with an idea for roaming software, that is the software that controls how a mobile system knows where a particular subscriber is so a call can be routed to them, came up with an algorithm for a different kind of roaming software which is orders of magnitude more efficient than anything in use in the United States, it's been adopted here, it's become a standard here and those people have become extraordinarily wealthy. I think it's one of the neat



things about globalization. That there are those kind of opportunities. I don't know what other observations others might have.

**MARSHALL VAN ALSTYNE:** Actually, if I could show one slide, . . . one of the most interesting things about third world countries, what they really have that is interesting to offer, would be unique cultures. How do you find out about unique cultures except through things like tele-communications or multimedia phenomena, or using something with global technology reach? It really makes it possible to offer something that is truly unique and original and sample it and use that as a draw for tourism, use it as a draw for selling local crafts or products or things of that sort. One of the things I'd want to point out, this is just some of the data from the world bank that suggests the degree of openness actually correlates quite strongly with growth and domestic product. Growth of rich countries has been about the same as growth in poor countries that are open. Growth in poor countries that are closed, however, is dramatically behind. So I would hope to suggest that the answer is yes, that there should be ways of taking advantage of it. Sure they are not going to be producing microchips, but you may be able to use the technology to actually promote some of the unique indigenous aspects that are in fact there.

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**DEAN JEFFREY S. LEHMAN:** Okay, this is a different kind of question. Why is the United States a member of most international intellectual property organizations, Paris, the Berne Convention, etc., which also protect fair competition, but why does the U.S. at the same time dislike an international competition regime? That's for you Rob.

**ROBERT L. HOWSE:** Well, I fear that I may not have been persuasive because if you wrote that question after my talk obviously my explanation was not sufficient. In terms of the Paris and Berne conventions, these are very, very old legal instruments. I have to admit that I'm not exactly sure about the debates that revolved around the decision of the United States to be part of those conventions. In the case of the TRIPS regime, the WTO trade-related intellectual property rights regime, the U.S. was the main mover behind getting that into the WTO and particularly those industries that felt that they could greatly benefit in global competitiveness if their intellectual property was better protected outside of the United States. Up to that time, there had been a tendency to use unilateral U.S. trade law remedies, section 301-type remedies, to press a number of developing countries in particular on their lack of protection for certain kinds of intellectual property rights. And so you had this global negotiation where the U.S. was in the lead and we have as a result an agreement that has a complex set of balances. For example, those of you who have been following the debate about access to AIDS drugs in South Africa will know that, in fact, although the pharmaceutical industry was a big mover behind this agreement on intellectual property rights with the WTO, there is a provision in the agreement that allows compulsory licensing under certain circumstances, which allows you to supply to your own domestic market, for example low-cost medications. What the agreement won't allow you to do, is to try and out-compete the patent holder in third markets. So that's the kind of balance that you have in that agreement. But, it's going to cause a lot of problems for the WTO, again, because you've got some kind of delicate balance that has to be enforced in a dispute settlement. The rules themselves can't be easily changed so when the adjudicator decides how broad or narrow those justifications for compulsory licensing are going to be someone is going to be very, very upset. Either primarily but not exclusively U.S. interests that pushed for global patent protection under

TRIPS or developing country interests and other social interests who thought of the compulsory licensing exception as part of the fundamental balance in the agreement. So that will be a real challenge to the legitimacy of the system. I was a skeptic about putting intellectual property rights into the WTO and my prediction is that this skepticism is likely to turn out to be well founded. I had many debates with economists about this. Jagdish Bhagwati, he used to be the advisor, was the advisor to at least one director general of the GATT when these negotiations were in place, didn't seem to be dissenting from the idea that we should have intellectual property in the WTO. A week ago, I read in the Financial Times a letter by Jagdish saying it never should have happened and it should be taken out of the WTO entirely. I think that there were good reasons why it might not have been put there in the first place and I think I mentioned some of them.

On competition, I'm not going to repeat what I've already said. That kind of global regime is not going to be very effective if it's created in an institution that is not very transparent, that is not responsive, that operates by creating ex-ante rules that can't be changed very easily and where there isn't a lot of accepted legitimacy on the part of the judiciary to evolve rules in response to changed circumstances and adjust the learning curve.

**JAMES R. YOUNG:** Just one other very quick observation, is the D.C. circuit decision, last week, in cable on horizontal limits and vertical limits shows. There are some great differences in the American tradition of regulated markets. There's a very important First Amendment principle, which is different than a lot of European institutions. I'm not saying that ought to be the central reason but I think it's one other reason why American review might want to tend to be different going forward.

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**DEAN JEFFREY S. LEHMAN:** We're running out of time so what I'm going to do is I'm going to bow in Professor Van Alstyne's direction, I'm going to bundle three questions together. They're all about bundling and I guess in keeping with what you suggested you can pick whichever one you find most useful and not pay any attention to the others.

So here they are. The first is, Marshall doesn't your product bundle example assume that the competing products are perfect substitutes when they rarely are? Secondly, the Word Perfect suite sells for \$99 and includes the ability to write PDF files, the Acrobat readable files. The Microsoft suite sells to anyone who wants to buy it for much, much more, at least twice as much, yet the Microsoft suite now dominates the office suite market. This does not seem to fit into a competitive model. Please discuss. And finally, bundling is at the root of the general Microsoft issue. DOS, the PC operating system, was migrated into Windows; Microsoft Word was bundled in. Word Perfect was unable to bundle due to proprietary information in the operating system. Excel was bundled into Office, Explorer bundled into Windows '95. Now, Microsoft is trying to lock up Java. Is this predatory? Is it brilliant? Is it legal, is it not?

**MARSHALL VAN ALSTYNE:** The world according to Garp. All of economics in three minutes. All right. Tackling as much as I can remember in order. The imperfect substitutability of the arguments does, in fact, weaken it somewhat. But, if there's any complementarity among the products that are bundled, then, in fact, you actually get an overwhelming effect. You might

get some imperfect substitutability between say Lotus and Excel, but the fact that Excel is interoperable with Word in ways it may not be with a competitor's product actually reinforces it in the opposite direction. So in that particular case, bundling would actually then be much, much stronger.

Now with respect to a couple of the other competitive issues, you have to desegregate some of the bundling and some of the network externality issues. Sometimes, again, it really makes sense to. Okay let's pick up on the why it is that you may get additional functionality in others now that they're trying to compete. Once a standard is in place, how many of you are actually willing to switch from Word to Word Perfect after you've actually learned that? You've got a switching cost in terms of your interface design, it's effectively lock-in, that may cause you to incur quite substantial costs to learn a new package. So the fact that you may get some additional functionality, in this case the PDF file capability, may still not be sufficiently overwhelming to you to cause you to switch. To carry the metaphor further, if on the other hand you were to receive \$1000 a lot of you probably would switch. It's just a matter of switching costs. At some point it's worth it. And if there are enough of your colleagues that are also compatible in that form then the network externality would move in the other direction. There's a good question of momentum versus inertia. When does a community adopt a technology too fast and when does it adopt that technology too late? Network externalities often tend to cause a technology to be adopted too late, particularly because of some of these switching costs.

Now with respect to Java, it's clear to me that there are strong efforts to try to undermine Java. My understanding is, from reading Judge Jackson's findings of fact, that Java was perhaps one of the biggest threats. And why Internet Explorer was really put out there was a way to try to prevent Netscape from disseminating Java. Because what it did was it weakened the applications barrier to entry on the Windows operating system platform. If you could write an application once that would run anywhere, then Java actually made it. Java lowered that barrier to entry. In some sense, it lowers the switching cost. So from a consumer's perspective you really would prefer to see a standardized Java, one which did not have its standards undermined because you would then perhaps get some additional functionality. So I'll hope that's at least the majority of the answers. If there are others, I'm happy to pick them up later.

**DEAN JEFFREY S. LEHMAN:** It's the end of this panel. Please join me in thanking our panelists. We now have a lunch break. Lunch is served in the Lawyer's Club cafeteria, which is the building directly behind me.