The Overseas Market in Telecommunications Equipment

Remarks of Speakers

Columbia Institute for Tele-Information
Graduate School of Business
Columbia University
809 Uris Hall
New York, NY 10027
(212)854-4222

EDITED REMARKS OF SPEAKERS:
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Elton: I'm the only person at the front of the room who's got an easy job this evening. Two jobs actually. First, to welcome you to the seminar of the Center for Telecommunications and Information Studies and, second, to introduce our moderator this evening.

There was no doubt in our minds when we decided to have this seminar whom we hoped would moderate it. We were very happy that the person we looked forward to, Prof. Richard Baldwin, agreed to do so despite the fact that, as he pointed out to me at the time, he would be less than two days back from a six-week trip to Japan, Mexico, Scandinavia, Germany and a few other places. I hope he gets over jet lag rather quickly, because, I fear that he was spending most of the six weeks preparing for this evening.

He is an international gentlemen in any case: among his degrees -- from MIT and the University of Wisconsin -- he has a degree in economics as well from the London School of Economics. He's spent time working in Ceylon for the U.S. A.I.D., in Geneva for UNCTAD and in England as well. He is clearly very well suited to be as balanced as any American can be in moderating this evening's session. I'd like to hand it over to him now.

Prof. Richard Baldwin: Thank you very much.

I'd like to welcome the panel and the audience and members of the press. The topic of today's seminar is the overseas trade in communications equipment. In this seminar we're going to focus on U.S. and Europe. Japan and Asia are, of course, important markets and potentially very important suppliers. However, we felt the issues were already involved enough with cross-Atlantic trade so we've limited our attention to that. I should have mentioned that we have plans for another seminar on the telecommunications issues involved in Japan.

The market for communications equipment is a very important market, with annual sales somewhere around $150 billion. This is considered to be a strategic industry in many countries, the subject of many government policies. It's also a market that's rapidly evolving on the technology side, of course, but more relevant to this seminar, on the policy side. For instance, Europe with its 1992 Program is undertaking a major change in its standards and perhaps will lead to changes in the market.

For today's talk I will pose five questions. Each of the three panelists will have three to five minutes to respond to those questions. At the end of the three responses to each question, we'll give an extra minute to any panelist who feels that they want to respond immediately to one of the points raised by the other panelists. If things go well, we'll have 20 minutes at the

end for audience questions and interaction, after a short closing statement by each panelist. It's with great pleasure that I introduce the panelists, and being neutral I'm introducing them in alphabetical order.

Herbert Asmussen is President and Chief Executive Officer of Siemens Communication Systems, a post he assumed in 1986. He was educated in his native Denmark and has had wide experience in Asia and, of course, is a very prominent member of this industry.

John Hinds is President of AT&T International, a post he assumed last year--in 1987. He has 20 years of experience in international business in a variety of management and marketing positions. He was educated in the United States and joined AT&T in 1983.

Ernest Jones is President of Stromberg-Carlson, a GPT company. He's also Chief Operating Officer of Plessey Telecommunications and Office Systems. He has over 20 years experience in management with Plessey and was educated in Britain and assumed his current position in 1984.

With no more ado -- I'm sure most of you know the gentlemen already -- I will pose the first question and I will allow each panelist to respond alphabetically. We'll start with Mr. Asmussen, then Mr. Hinds and then Mr. Jones.

The first question has to do with the openness of the European and North American markets to overseas suppliers. In particular, I would ask you to address the actual situations regarding openness and also if you would mention please your concept of the government policies that affect this openness or not.

Herbert Asmussen: Thank you Mr. Baldwin. It's quite a tall order to do that in three or four minutes. One cannot do it without realizing that we all live in a society and environment which has not been created overnight. It has not been formed by revolution and has grown, in many cases, over hundreds of years; it has developed by evolution rather than revolution. If we try to compare the European with the North American market -- I include Canada as well as the United States -- one similarity is that the U.S. telecommunications market has also been more or less a monopoly, 80% controlled by AT&T. (Prior to 1925, by the way, AT&T had quite a substantial network in Europe but was forced to sell it off. As those of you who know a little bit about the history of telecommunications are surely aware, that network then became ITT, and most recently was sold to the French.)

In the North American telecommunications market, companies doing research and development, manufacturing and operating telecommunications services have always been privately held.

They have never been government-owned. This is the fundamental difference between the North American and European markets. There is, to my knowledge, only one country in Europe -- and that is Finland -- where there are a number of privately operated telephone companies which one can compare with some of the U.S. independents. In European countries, which have a somewhat longer history than those of North America, the postal services, which sometimes provided for the transportation of people as well as the mail, were monopolies decided by the emperor or king and handed down through royal families. When the telegraph was invented and used for the transportation of messages, telegraph service was also brought into this monopoly. With the advent of telephony, the monopolies evolved into the PTTs. So we have quite a different world, in which European telecommunications have become a very vital part of an organizational infrastructure developed over many centuries. They have become castles, and it takes considerable time to break down castle walls.

Now, many things have come out of the United States which have changed the world, including Coca Cola, Levi's jeans and the liberalization of telecommunications. We see the trend toward liberalization spreading worldwide and we have seen quite a lot of progress in Europe similar to what we've seen in the United States. Putting these two scenarios together, while the U.S. has gone from Carterfone and local exchange carriers, to 1/1/84 and deregulation, Europe may move away from its traditional PTT

markets, which have been private since the 1920's.

The UK for example, has gone quite far with liberalization and deregulation and other countries are following suit. However, one must also recognize that potential changes to these monopolies have been restrained by the considerable strength exerted by trade unions. It is not easy to change them because one is talking about a political entity, not just a company. It is not just a matter of going to the government, or of stating that it must be changed tomorrow, and then carrying it through the electoral process in the Upper House, and then the Lower House. Rather, I think there is an evolution under way, with what has been said and done in Britain, said in Germany, and talked about in France and Italy.

The perception which persists in the United States is that the European markets, in particular the British and the German markets, are closed. I believe this is a misconception. To make such a statement, one needs to understand the market, the culture, and the language; and to have personnel examining the issues, offering a long-term commitment and meeting the technical requirements of the customer. One cannot just go and force the customer to buy one's product, the customer must like the product.

Baldwin: I won't try to repeat the questions since they're

written out. Plus I'd like to mention that at the end there will be statements.

John Hinds: Mr. Asmussen and I were talking at the reception. I told him that the situation could be summarized pretty simply; the United States market is open and the German market is closed. He said perhaps that's too simplified. And, as he said in his opening remarks, the monopoly existed de facto in the past in the United States. That began to crumble long ago and clearly January, 1984 was the end --although I think some of the RBOCs would like to see it further change (as would we, by the way) in terms of deregulation. Clearly, the United States government policy is to allow free and open competition in telecommunications equipment.

Canada, which I agree is certainly part of the North American market, is beginning to open. I think the Canada Free Trade Agreement pending in both the United States Congress and in Canada is a very important step toward furthering the openness of that market. As you may know, at present we are competing against a 17% tariff barrier in shipping telecommunications equipment to Canada. And the barrier coming down to the United States is 7%.

The United States market is quite different in many other respects. I agree with Mr. Asmussen on several points, but one

major consideration to bear in mind is that it's not the Deutsche Bundespost and its equivalents which affect the United States; it's the foreign suppliers themselves. The obvious point is that it's AT&T, it's MCI, it's SPRINT, it's GTE, and there are 7 RBOC's and some 1,400 independent telco Companies. It's a much more complex and, one might say, richer market. I'm sure from a European or Japanese supplier's perspective, it's a difficult market to deal in. From our perspective, it's the most open, the richest market in the world. It's one we've enjoyed being a major part of and look forward to continuing to be a major part of. But clearly we need to move outside the United States to serve our customers and meet our competition.

It is an easy decision to make, really, for a European supplier to decide to enter the U.S. market. It's a more difficult decision for us or the other United States suppliers to make a decision about a European market. For one thing, the markets tend to be somewhat smaller.

The European market is unique. Depending on how you count them, there are 12 to 15 or 16 countries, each with its own language; each with its PTT; each with its national champion supplier; each with its own regulatory process. From our perspective it's a much more complex and difficult market to be in.

Many would say that the decision that was implemented in January

1984 was unilateral disarmament in world trade terms. That term was used in several of the studies at that time. In many ways it was: we opened up this market far in advance of many other markets opening up. In terms of how things are today in the markets of interest in Europe, clearly I agree the UK is the most open, and, from perspective, probably Germany is the most closed. There are gradients but, for various reasons, we view that to be the case.

I think the distinction between government policy and practicality is very important. Government policy regarding openness is only the first step. The question of what is actually bought by whom, when and in what way, in the final analysis determines the real openness of the market. The "market" is a term that one has to define. You can make broad statements about the "market" but are we talking about the PTT market? are we talking the CPE market? are you talking about the computer business? the semi-conductor market? It's a rich market with many facets. We're in all those businesses, and the situation varies in each.

In general, the PBX, value added network data communications equipment and the consumer product markets are more open in Europe than the more traditional PTT market. But even those markets are challenging ones, as many of those countries are concerned with protecting their existing industries. We see

protection cropping up in everything from type acceptance, where we have been some two years in the process of getting type approval for a PBX in our country, to country-by-country standards that have to be dealt with. It is more than a question of North American and CCITT standards. The local content requirements and purchasing practices are much more complex questions, as I indicated earlier.

Clearly in the PTT market segment, preference is given to indigenous companies. That has to be clear. Even in markets where it is, let's say, officially open, if one goes to that country and one talks to the purchaser and the purchaser says I have no intention of buying from you, it's very difficult to reply to that by saying "I'm willing to invest the hundreds of millions of dollars required to develop the equipment you might want." The markets are opening, but they're opening a little too slowly and uncertainly.

Baldwin: Thank you. Mr. Jones?

Ernest Jones: Well, Stromberg Carlson is primarily involved in central office programs, so this evening most of my observations will be from that perspective.

It's clear to me that the United States market for central office and transmission equipment, is the most open market in the world.

It's open for a variety of reasons. It has open standards, it has an open network, everything is on view to the public, nothing is hidden away. You go in, you find out exactly what those customers want.

I think that's a very important point of view. It's not a government-controlled network, it is a private network. When I say that, I mean it's not controlled by a network officer. The way I see it, standards are developing as the approvals to the BellCore process are more apparent, more public. Everybody has a chance. There's no exclusivity. Today there are eight companies trying to get central office equipment into the Bell market. Only two of those are U.S. companies. Foreign manufacturers own and control others. That exemplifies the openness of the U.S. market. What I was trying to say is that it's the availability of the standard, the availability of the process, the availability of the network information which creates openness here. If you try and get that information when it's concealed, doing business in the country becomes impossible.
What I would like to see is a move toward openness in the market. Why should one country buy from another and not be able to sell there? That doesn't make a lot of sense to me.

I think we need to move toward more openness in terms of trading, particularly in telecoms. I'm convinced that the United States telecommunications market will be a growth market. I believe

that the trend toward United States openness is still two or three years ahead of the rest of the world and I know in England as well, we've made a great deal of movement toward openness. We need to work with the government, through agencies like this organization, like USTA, like MCA, to try to open up markets not close them. I can't see that closing markets, even in the context of the Trade Bill, is really going to effectively improve the openness at this point.

Baldwin: Thank you very much. So what I'd like to do here and now is give up to one minute for each panelist to respond to the statements by each of the others. Please limit your comments to the questions.

Asmussen: If I have to make a choice between agreeing and disagreeing with the statements made by my fellow panelists, I would have to disagree. I reiterate that the German market is not closed. Foreign companies can participate in tenders for central office switching, which is what everything boils down to. I can't understand why switches seem to be the rallying point, because they represent only about half of the market. Philips participated in the 1981 tender because it had been asked to do so. But Philips failed, so ITT and Siemens got the business. There will be a next round, but one doesn't tender for a new system every year. Anyone who knows the slightest bit about telecommunications networks understands that this is just

not feasible.

I agree with the need to interface, and I also agree that there must be standards. As we have discovered, there is not just one standard in the United States, but many, and the work necessary to develop the ability to interface with each of the various standards -- particularly for operating systems, which vary from BOC to BOC -- is considerable. Furthermore, you cannot change standards. Don't expect that the BOCs will send you all the standards if you give them a phone call. You have to do the legwork yourself.

I have just one comment on the opening of the UK market. After a lengthy tender procedure for System Y, L.M. Ericsson was chosen as the winner. Yet the orders they have received so far have been disparate, and in the last tender they didn't get a single dime. So I ask you, what is an open market?

On the issue of trading, I don't agree with Ernest. Trading in this kind of core network equipment is simply not working, because we're trying to trade with the African countries, and those countries offer little potential, particularly if they have set a national priority on having sensitive communications equipment manufactured in their own country. You will find very little trading opportunities in situations such as this.

Baldwin: Thank you.

Hinds: I've just got a comment on the comment. I did not say Germany was closed, I said Germany was the most closed. I stand behind that. We do recognize that there will be another round of switching procurement, I think, in the 1991-1992 timeframe, and I'll be surprised if we're not challenging Siemens at that time. I would also agree, however, that switching is not the sine qua non of the network. The telecommunications network consists of more than switching; it includes transmission equipment and operating support systems, for example.

I think two or three years ago, AT&T felt very strongly that since our 5ESS digital switch was the best in the world, everybody would beat a path to our door to use it. We still think it's the finest switch in the world. We've had to adapt it for some markets to make it saleable. However, I think we've become much more pragmatic about what is required to enter a market. I'm sure our competitors are behaving in the same way. In fact we see them behaving that way. If the customer wants D5 channel bank, that's what we'll sell him. If he wants DACS, that's what we'll sell him. If he wants fiber, we'll sell him that. But, clearly, switching is the heart of the business and we intend to enter those markets any way we can and participate in switching wherever we can.

Baldwin: Thank you. Mr. Jones.

Jones: As far as the Bundespost is concerned, I would agree entirely. I see signs of breaking out of the parent procurement policies. In fact, I'm very pleased to announce that GPT sold some pay phones to the Bundespost in the last two or three months. The importance to that, of course, is that it's like selling telephone poles to Japan. The key to this business is switching and transmission capability. That's where the Bundespost has locked us out of their network. You can't say the market is open until this situation is corrected.

Baldwin: The next question is specifically on the opening of the market, the trends, the driving forces and in particular, the rates of change. In the same order.

Asmussen: May I just add one comment. You mentioned one important word ... SONET. Finally, the North Americans and the Europeans and the Japanese have agreed on a SONET structure, but one must not forget that this SONET structure only becomes internationally interworkable at 145 megabits per second, so your D1's and D3's and D5's won't work. You have to interface with the lower level of the hierarchy if you want to bring in the whole family of products.

In Europe, we have seen a number of movements towards

liberalization and openness, but one of the primary drives for liberalization has come from the Common Market office in Brussels, which is striving toward a uniform European market. Those of you who have dealt with the subject in more detail know of the Green Paper issued by the EC outlining the dilemmas and indicating the repairs which have to be made in order to create a truly open European market by the year 1992. My own philosophy -- not necessarily that of my company -- is that achieving the goals established in the Green Paper is not like going into a dark room on January 1, 1992, and switching on a light. Rather, as I said earlier, the process must be evolutionary, taken one step at a time.

I see the tenders currently out for the new Pan European Cellular Mobile Network as a significant first step. Bids for this project have been tendered internationally; in Germany, I believe, and in other countries as well. I know that Siemens submitted eight bids to European administrations on the closing date, May 16. So this is a case where there would be a truly common European telecommunications network, albeit a cellular mobile network, but nevertheless a crucial first step. And there are others to come.

In Germany, I foresee reforms in the German Bundespost. While it will remain basically government-owned, there's no way that it can be cut out except through privatization; the new law will be

enacted in terms similar to those which the German Minister recently proclaimed in Washington. It is, however, a long and tedious process. You must understand the nature of sovereign politics, the role of the trade unions, and the many other political factors involved. But again, I see change coming and I think it is positive.

Hinds: The factor forcing these changes, as we see it, is the customers' awareness. It's really what drove things in the United States, and I think it's driving Europe more than Europeans realize. The customer simply demands the kind of choices, the kind of functionality they know exists in the world marketplace and are not available to them now. I agree that the European Commission activity and the Green Paper leading up to the 1992 activity are absolutely crucial. I also observe that the magnitude of change involved in that whole process is enormous. Not only will it not occur on January 1, 1992, but we expect that it will probably take many months, if not years, to implement all of the details which are advocated in the Green Paper. As you know if you've studied it, the Green Paper itself is not complete, in that it does not get at the heart of the infrastructure question and the switching issue we've referred to already.

The 1992 activities will result in more competition between the United States, Western Europe, and Japan. But, I think the Green

Paper is extremely accurate in observing that the improvement in telecommunications which will result from that activity is the critical element to the continuing resurgence of Europe. Several years ago you would have found most (I'm speaking broadly here) American companies were not very impressed about the prospects of competing with European entities, or about the attractiveness of the European market. In our view that's changed dramatically in the past year or two and we're seeing not only viable market opportunities in Europe but we're increasingly concerned about the viability of some very, very strong European competitors. We believe these European competitors will gain strength from this consolidated market in 1992. They'll have bigger markets to deal in and that will make them stronger. They will also be testing themselves against each other, and against us. We believe that barriers erected around Europe in coincidence with 1992 will be a serious disservice to both the customers and the companies in Europe.

Many people--many Europeans--protest vigorously that no such barriers are planned, but you can also read every day in the European press about some European industrial or other group objecting to the entry of the "ugly Americans" into the European market. The European Community countries will continue to be complex markets; we're not going to eliminate French in France, and you're not going to eliminate the Deutsche Bundespost hierarchy. Those things will have to be dealt with continually.

The Witte Report in Germany is an important pressure on the German market for continuing change, and we applaud the intent of that report and we hope some of it gets implemented quickly.

I cited earlier the Canada Free Trade Agreement. As I said it's critically important, not only for Canada, but because we believe it sets a very important model for possible emulation in bilateral negotiations in European countries. On the other side of the coin, we've got to be very careful in the United States not to react, not to succumb to the temptation to erect barriers around our own market in our moments of fear about accessing foreign markets. Our position is that we believe the job of government must continue to be the opening of foreign markets, not the protection of United States markets.

Finally, it's very clear that just opening the markets by fiat is not going to be the answer either. Companies have to make the difference in the marketplace. We have to decide to invest, we've got to decide to employ the people, make commitments for jobs, make commitments for technology transfer and be a part of that market. For AT&T or any other company to be successful in the United States market we've got to be a good corporate citizen. We realize that's the case in Germany just as it is the case in the United States.

Jones: I think we've talked about the 1992 agreement enough. I

think it's fairly clear it's going to be very beneficial to Europe. The way I judge it, the standards have got to be integrated across the European countries; it has to be there. If you talk about cellular radio systems or satellite systems, how on earth are you going to rule a single continent without common standards?

What does it mean to the United States? Does it mean that the EC is going to lock in and close down? Does it mean that they won't allow Japan to get inside? Those are the questions that we should be asking ourselves. I think we should consider the effect on the United States and of the effect of a single market on free trade. I would judge, initially, it will be a barrier. Maybe over time it will open up, but I think it will continue to close.

How do we get reciprocal consideration? That's the first step to free trade, reciprocity. The second step is open markets.

Baldwin: We'll have a short period of response.

Asmussen: I couldn't agree more. Omitting telecommunications from the US/Canada trade agreement would have left the nitty gritty details inexplicit. It explicitly excludes network problems.

I think the European market will become tougher to penetrate with the growing number of alliances among European countries as 1992 approaches. That closeness will also make doing business easier in some ways. However, I think it will be absolutely necessary for companies to have a local presence in Europe to be able to compete there.

These can be good stepping stones. I simply cannot imagine variants on this idea because the European administrations will adhere to GATT rules on procurement. But I can see retaliation by European governments forcing American telephone operating companies to procure according to GATT rules, and that is going to be difficult for them.

Just as an aside, I think AT&T let go of a golden chance by not trying to bring ITT back into the fold.

Hinds: I think that Alcatel has their hands full managing what they bought. I'd like to just comment on the Canada Free Trade Agreement. I do not consider the Canada Free Trade Agreement to be totally satisfactory, but it certainly is a very important, positive step forward. In our view, half a loaf is better than none, and there are more slices of bread to come. The opportunity for us, AT&T specifically and other suppliers, to bid competitively against Northern Telecom in Canada, with PTTs in Canada, I think will send very important messages to important

influential decision makers in Canada. We can bid in the prairie provinces; we can bid in the Maritime provinces, including switches, and we'll have the opportunity to demonstrate not only our price and performance but our ability to deliver in the market. Again, I would like to see a completely open procurement policy with Bell of Canada, but I think as a practical matter in this time frame that was not achievable.

A brief reference was made to what I think may be a very important topic, not perhaps for tonight, but I think it's worthy of consideration, and that is Europe. I believe we've been talking of Western Europe exclusively. A very important aspect in addressing the question of "what is the European market?" is what happens in Russia and the Eastern Bloc. With the changes in the CoCom rules that are pending for digital switching, with perestroika and other things occurring in Russia, there could be significant changes causing major shifts in the balance of power and level of activity in Europe and in the world that affect supply to the Eastern Bloc. I don't expect that to happen in 1989 or perhaps even 1990, but it will come and it will make a difference.

Jones: I'll just comment on that last observation. I think that eventually we have to start thinking of selling -- I'm talking about Americans selling, or the British selling, or Europeans selling -- to countries which are outside the current framework, and I'm quite convinced that given time we'll do it. I know that our parent company has been looking at it for some time and I know that other companies are doing it. Eventually that will take place and we have to prepare for it.

Baldwin: Particularly, I would ask the speakers to address the complications of various standards and how, perhaps, they will

change the need for compatibility between the large and small bases and how that is evolving and lastly, the volatility of exchange rates and how that has changed the nature of competition.

Asmussen: Let me employ some history to address the standards part of your question. I won't go back to Adam and Eve, but to the use of stored program control by Bell Labs to make the first machines work. First, the whole world stood back in awe, and then it rushed to catch up. The first ESS machine that emerged, and then the 5ESS that followed, created their own standards. Standards, in turn, grew increasingly diverse. Still, there have always been differences: for example, between the North American 24-channel Exchangeable Calibration Module (ECM) equipment and the CCITT's 30-channel ECM. AT&T and Bell Labs participate in meetings of the CCITT and always agree with the need for standards -- after they've introduced their own standard, which they then argue should be adopted worldwide.

Still, this pattern, developed over years and encompassing installed base all over the world, represents an enormous investment which cannot be replaced overnight. So either there have to be interfaces, or equipment must be adapted; there will only be a common worldwide standard when a totally new generation evolves. There is no other way. Change will be made either by adaptation, or through a new generation. People are working hard

to develop common international standards, but it is difficult at times to reach down to the lowest end of the hierarchy.

Your next question was in regard to compatibility with a large installed base, and I will answer this question with another: if you were the customer, would you buy anything that wouldn't work with all of your installed equipment? The answer is very simple: absolutely not. So what would you do? You would adapt what you have and improve it as technology and software improve.

On the volatility of exchange rates, I probably don't view it from the same perspective as my colleagues here do. It is not only our corporate philosophy or strategy: it is also required by various countries where we do business in core network equipment, that we provide not only an important part of the infrastructural equipment, but also a vehicle to transfer technology and to secure jobs. These countries themselves may have had exchange problems -- Pakistan and, at one point, Korea have had them -- but their desire to make such high investments in equipment in their country is justified and important not only for safety and security reasons, but also for the country's own sake. And at the same time, with a relatively high local contact in the country, 80% of the banks will become less volatile to any exchange rate fluctuation. It's just an added safety value.

Hinds: Regarding standards, the world has historically been

driven by the existence of North American standards led by AT&T and the CCITT standards which were the product of a committee. AT&T was party to that committee, although not party to the implementation of CCITT standards until recently. Obviously the existence of North American standards made things difficult for others. It made the market entry into the United States difficult for European companies. Conversely, the existence of CCITT standards in Europe and elsewhere has made market entry difficult and expensive for AT&T. We believe that there will be a merge in the next generation and we believe that merge will occur under the banner of ISDN. I think one evidence of the interest of that was that if you went to Telecom '87 or saw any reports of it, there wasn't one exhibit that didn't have an interesting display of ISDN activity.

ISDN will become a common standard and it will force the use of identical standards. In addition to rationalization that has been occurring with things like Alcatel and ITT, and Ericsson and Thorne, and Ericsson and Matra, there's also the fact that the development cost of these exceedingly complex systems have become so enormous that we're going to have to go to standard systems rather than develop and adapt various systems to the individual standards of different countries. We believe the standards community is making progress in this regard and we believe it is important for them to continue to do so.

The compatibility issue is obviously a critically important one and obviously another barrier to entry, a mutual barrier to entry which affects both sides. Depending on your point of view, it's either a positive or a negative policy. The customer has enormous investments in software, enormous investments in spare parts and support and maintainability. Proprietary architecture, whether it be in the computer or it be in the switch, is a very difficult thing for competitors to deal with. But with the advent of ISDN and the advent of other standardization activities taking place we believe this situation will improve.

With regards to exchange rates, a very obvious point is that in making United States equipment, to the degree that we have it available to sell, we are now more successful in competing. We have been successful in selling in the North American and CCITT environments against Japanese and European competition. I must say the dollar has helped. But other factors, in my view, are much more important than the weakness of the dollar.

On the converse, we're finding, as a late entry into the international product marketplace, that if we have to make investments, making investments with a weak dollar is a very, very expensive thing to do. Five years ago I bought pearls for my wife in Japan. Those pearls now cost more than double what I paid and I don't buy pearls in Japan any more--she already has them.

But this kind of thing is going to lead to requirements in the areas of investment, to be more creative in creating investment tools, whether it be equity swaps, borrowing in local currency, joint ventures, technology transfer in lieu of equity and other approaches that are going to have to be even more creative than we can currently imagine.

It's not an exchange rate issue, but I think it's important to point out that there are other financial factors that are critically important to all of us. Success for a United States firm or success for a European firm is not limited to succeeding in Europe or succeeding in the United States. We have to succeed in all parts of the world. For example, Latin America. Latin America is on its back with heavy debts, with low commodity prices and obviously with basic oil price decline. Unless we all, as countries--I don't think we can do much as companies--do something about Third World debt and the availability of foreign exchange, we're going to find ourselves in some pretty tough straits in some very important markets in the world. Including not only Latin America, but as we said earlier, in the USSR and the Eastern Bloc. They have no foreign exchange. What are we going to do about it? We've got to deal with it.

Jones: Standards from the different European countries evolved over a long period of time and aren't necessarily deliberate

attempts to obstruct trade. These standards are something we have to change over time, but I don't see this happening today. If you look at some of the networks that exist in Europe, for example, you'll find they're very different from country to country. That's the way it is. It doesn't appear to me to be a deliberate trade barrier.

As we develop more cellular and satellites, a lot of those barriers will disappear. For example, the technology will change, the people will want that particular service because it's new.

Compatibility, from the suppliers' point of view, is our main concern. We have to be compatible with them, there's no point in coming into a country and saying we have the best box and we want you to stick it in that shelf there and it's going to be a super service. It's got to be compatible with the needs, compatible with the requirements. It's often very difficult, especially if you're trying to move from one territory to another, one set of standards to another. If you're going through Asia or the Far East, trying to be compatible and meet all their requirements is very strenuous. Exchange rates are also a concern. Stromberg Carlson, is essentially a United States company. But I think for a multi-national company, exchange rate volatility must be a major problem. We have been trading in Canada. In fact, we have traded something like 30-40 switches there in the last year or so

and exchange rates do create problems in relation to the amount of money you expect to get back. It certainly creates problems when bringing products from the UK into America.

There was an interesting statistic I saw today. In 1987, the United States had a surplus service with the ECC In telecommunications. Now, let me qualify that: when I say telecommunications, I view it as IBM including IBM and other vendors of non-core equipment.

Baldwin: I think this has done a good deal for agreement on this topic but if any of you would like to take the time to respond to those comments...

Asmussen: I'd like to make a few comments. I agree that ISDN can be a step towards bringing the standards closer, but there has been an awfully long period of fighting over the protocol for the subscriber line for the ISDN terminal. Although a format was chosen by the CEPT which was very similar to the one finally adopted in the United States, had there been agreement on the original one, it would have saved a lot of time and brought ISDN to the marketplace much earlier. One big stumbling block in bringing these new products and standards to market is the US regulatory environment, where the network terminator is not a part of the network itself, but is classified instead as a CPE provider or owner. I don't think regulators understand what they

are doing to people with such a complicated data handling protocol on that line. Luckily, there seems to be worldwide agreement that common channel signals are an even more complicated data protocol. They will be uniformly released up to about layer 5, if I remember correctly, but there still must be an individual effort to make them work.

Again, on exchange rates, I obviously have a different perspective because of differences in international operations, but on the trade deficit, I fully agree with what has been said already. There must be aggressive action when the trade deficit is in the order of $160 billion. The US trade deficit in telecommunications equipment is somewhere between $1.7 and $2 billion, stemming largely from trade with the Pacific Basin, and primarily Japan. The U.S. trade surplus with the European Community is, I think, on the order of $300 million.

Hinds: Three hundred.

Asmussen: Three-hundred million.

Hinds: I agree with you. I just wanted to clarify the language I used. In talking about standards (characterized as North America versus CCITT) as historically being barriers to entry, I meant to distinguish that from being a trade barrier. Certainly I agree that it's not a conscious effort by anybody. It's a historical

fact that they exist, and that their existence constitutes a barrier to entry in the sense that it costs anybody who tries to enter that market a lot of money to do it. I want to make a distinction between barrier to entry and trade barrier.

Jones: In terms of that trade surplus, I believe that a lot of it is computer equipment and CPE equipment; it is not primarily central office equipment; it is not transmission equipment.

Baldwin: We've gotten through three questions and there's two more. In the interest of having some audience discussion, I'd like to merge the last two questions. The last two questions can be characterized as follows: What do the customers want in addition to price and quality? Clearly customers care about quality and price, but what other factors are important in entering a market?

And the last question which I would like the speakers to address together is, how well do the different suppliers meet the consumers' needs? I don't want this to break down into a name calling so maybe you could focus mostly on the issues of what customers want.

Asmussen: Okay, I think that's fairly easy. With respect to the last part of your question, however, I think only our customers are able to answer that, and therefore I will not make any

statement on that topic. What do our customers want? They expect that the product will be technically compliant, of course, and possibly superior to others in the market. For the network caller, though, I think that what is much more important is switching and transmission, all the way to fiber optic implementation. The network caller wants to deal with somebody over time, because he's in for more than a one-shot deal. With the total coverage he's buying, he's not going to just discard it if it doesn't work. He's in for a substantial investment. What does he want? In order of priority: staying power, long-term commitment, and local presence.

Hinds: Well said. My first comment refers to the last comments, that is, I think confidence in a supplier's commitment to a particular market is paramount. As the industry's experience develops, whether it be in the computer business or central office switching, clearly the customers are going to go with those that they feel have the staying power to support them for the long term. I think both Siemens and AT&T feel they're in that category. Just by the way of characterization of our significance in the international marketplace in general -- and I will say our participation in the product marketplace is pretty new -- in 1983 we had about 100 people off-shore, outside the United States, as of this morning we had over 11,000 people on the AT&T payroll outside the United States. That's still a fairly small number against 306,000 employees, but it's a

significant change in a short time.

In addition to the points made already, I would say that service is critically important. The customer is going to demand service on the spot, when he wants it and how he wants it. Support systems, whether it be software or hardware, are critically important. I think without getting into too much of an advertisement, one distinction that AT&T has in the world marketplace is that, unlike any other vendor of equipment, AT&T has designed and operates the world's largest single network, both in the United States and through connections with some 250 countries.

The supplier's commitment to the local economy is a critical issue. We cannot just sit here in the United States and design our switches in northern New Jersey or in Chicago, Illinois, manufacture them in Oklahoma City and ship them to a waiting world. That's not the nature of the global marketplace. You have to be a presence in the local markets in order to be a player. I think in many ways, companies like Siemens with a couple of billion dollars of investment in the United States, Northern Telecom with a couple of billion dollars investment in the United States, have earned the right to have a piece of this market. We have to earn the right to have a piece of any other market we aspire to. We understand that.

I'll just make one other point, getting to that second question about who can serve the customer's needs best, I would just add that I think there will always be an important role for nitch players and small, entrepreneurial firms. This world is not going to boil down to three or four or five major vendors who supply everything to everybody. There will be those three or four or five major suppliers, and I believe there will be a concentrated of business in other areas, but there's a tremendous market out in the world for different players of all kinds in all aspects of this business.

Baldwin: Thank you.

Jones: Well, I think it's fairly obvious you have to give them quality in the product and service, responsiveness and reasonable price. I don't think they necessarily need or are looking for a big supplier. They do want to know what's going on and how you are doing. They look for local visibility of manufacturing presence. In fact, Bellcore nowadays will want to come in and look at everything you're doing including your process. The other thing is differentiation. What is it you offer me that's different from these other seven suppliers?

Baldwin: I think that even more than economics are these two questions and my attempts to economize our time we were more successful than I anticipated. This is .... I want to leave

about half an hour for audience participation but one question that arises in my mind is a little bit beyond this topic. That's, I wish each of the three panelists would address the openness of the Japanese marketplace, lack of openness in the Japanese marketplace.

Asmussen: Oh. Very difficult.

Baldwin: But ... is this a systematic problem or is this likely to change?

Asmussen: I think if we had the resources, the people who could speak the language and understand the culture, it would still take enormous efforts to get a sizable business in that country. But it can be done, as we have seen from other products in niche areas, I'm absolutely sure of that. Some European and American companies -- American pharmaceutical manufacturers in particular -- have been extremely successful, but you have to go through a maze of barriers and NTT is not the easiest customer to deal with.

Hinds: One important distinction should be made between the European situation and Japan. Germany is sustaining one national champion--Siemens Corp.--and in France the DGT is sustaining one national champion, and I'm not going down the list; but the Japanese have the burden of sustaining four national champions

and have a huge infrastructure with some 170 companies below that. You see you've got NTT, Hitachi, NEC, and Fujitsu and they all fancy themselves as the champion of Japan. They're trying to carry all four of them at the same time. It makes the practical element of entering the Japanese market exceedingly difficult despite any protestations about openness of the market. I would think, when you talk about buying practices in Europe, there are many more problems to be faced there.

Baldwin: So at this point, I'd like to open up the discussion with questions from the floor. If you would, please direct your questions to a particular panelist or panelists.

Question: Speaking, if I may, to AT&T [Hinds], as you pointed out to really be successful, let's say in Europe would require an investment. You mentioned $2 billion spent by our people in the U.S. What would tend to be your position?

Let me try and make my question clearer -- as good corporate citizens you have to make a necessity for a sizable local investment. On the other hand, presumably before you make a local sizable investment you may have difficulties convincing people of the fact that we should even attempt. I'm just wondering if an AT&T ... from a business point of view, decides on the question of capsule allocation, how much money should we put into the setting, what kinds of strings, what kinds of

thought process do you have to bring to your top management a fairly probable outcome as far as what it is to first justify an investment. How much is your top management willing to make investments without having a probability of order?

Hinds: If you're talking about a business partner; we've made some investments, but not nearly the $2 billion. The figure represents the total investment and you have to distinguish R&D investment versus capital planning. But we are talking hundreds of millions of dollars, when we're talking R&D capital, in order to participate in any significant market. There's an old rule of thumb that says that if you want to make a dollar of revenue, you have to make a dollar's investment. I might be wrong by a dime or two either way, but our estimate is that that rule applies almost in a vacuum. If we want a billion dollars of revenue in Europe, we're going to have to invest a billion dollars. It is a tough decision to make, that's why we haven't invested a lot more already. I think we're running out of time. I think the consolidation is going on all around us and good deals are being made. We cannot have a guaranteed return. We'd love to have it ... we'd like to be able to go to our treasurer and say I can guarantee you $500 million in market X so give me $500 million to make an investment. We can't do that, so we're going to have to make risk investments and get on with it. Unfortunately there's no certitude in this business. I wish there was.

Question: What has been the priority of AT&T in international business? How much is the corporation willing to risk, how important is it?

Hinds: I think we'll let events develop and then see.

Question: This could be for anybody. Has anybody tried to quantify the costs of developing a new generation to ensure a single standard.

Hinds: I think you're talking about the challenge of entering the market. In this case, it's a difficult entry. How do we manage to overcome the CCITT standard adaptation? It varies by market, but you're talking hundreds of millions of dollars in terms of the European market alone.

Asmussen: Let's forget about past history; instead let's talk about digital switching, how it was tendered for, and how we missed the gate. In 1981, when the German Bundespost was tendering for digital switches, there were three bidders -- Siemens, ITT and Philips: You had to agree to install two trunk exchanges and two local exchanges for field trials, and sign a contract which said that if they did not pass their tests and requirements, you would take them away. So that would be upfront risk plus, of course, the R&D investment in making the switches. Philips obviously drew the short straw in this case by not being

able to cope with the software business requirement, so they withdrew from the tender.

It is an entrepreneurial decision. I know from my past experience of operating out of Munich that if you adapt a CCITT switch which is up and running in one country to another country where there are no exotics, such as in the UK, you will probably get away with about a $50 to $100 million investment. But to adapt the CCITT switch first to a different and comprehensive package of features, and then also make it conform to a system that has developed over a long period of time, represents a much more sizable investment indeed, you can put a tag on it of anywhere between $300 to $500 million.

Question: Can small companies be successful in Europe?

Hinds: I think the elements of success are precisely the same. The market must look promising, and small companies must address the quality issue we talked about, and be responsive to customer requirements.

Jones: It is difficult for small companies to enter foreign markets because of the amount of investment required to get the people in, get the infrastructure in, get the salespeople there and understand the way things work here. It's a long process.

Question: I want to direct this question to the panel. In light of the failure of adaptation of the videotex services in the United States, paid by regulation, by the lack of marketing expertise by successful European firms that have made videotex successful in European countries. By extrapolating that and using that model loosely in terms of ISDN, why should we feel that ISDN will be ever adapted in light of past issues?

Hinds: As far as the videotex situation is concerned, I wouldn't disagree with your characterization of why it hasn't been successful in America, but I would say more. I think the market was probably not ready for it. That's arguable. I think the reason for the success of the videotex in the form of Minitel in France was the unique circumstance of a state controlled utility, the telephone company, deploying for free the Minitel terminals, and at the sime time deployed the X.25 network in France; they've established a market with it that I think was worthy of consideration and emulation elsewhere. I think, however, to draw the analogy of that and ISDN is stretching it. ISDN will succeed because customers will demand the kind of services and capabilities that it can afford. I don't think the customers perceived -- granted it's a different customer base -- that kind of value added with video technology.

Question: With all due respect sir, that was the same argument that was being touted about videotex and I see that they have new

data in educating the United States population as has been carried on in Europe. So I saw an article, I think in the New York Times, a couple of weeks ago mentioning ISDN in terms of a brand new thing when, in fact, it copies those who have been here for a number of years in the technical community.

Asmussen: Certainly ISDN has been out in the field for a while, but in Germany, for example, it will soon be offered as a service. I think Germany at the moment has the most complicated ISDN file network going, with even those exchanges for receivers interacting via common channel signalling. This certainly would be ideal for exchanges. The question of the speed and volume of ISDN deployment lies basically in three factors: 1) the availability of attractive and reasonably priced terminal equipment; 2) regulatory issues which must be resolved before you can use data over the channels; and 3) the tariffs which need to be set for them, with assurances that they should be reasonably set. In fact, there's no reason in my mind why an ISDN service should cost any more than 1.5 times a normal hook-up, or as it is in Germany, twice the normal hook-up. As a customer, you'll get a lot out of that, especially if you use it for data.

Question: There's one company specifically, IBM, who says that with standards, you have to create your own standards . . .

Hinds: Well, I think first you have to suggest what the long-range perspective is. IBM did not go out there five years ago or ten years ago. They were in place before World War II and they built on that position after World War II. The same is true in Europe. IBM's been out there a long, long time. AT&T's been in business for over a hundred years and we expect to be around for a long time to come. We've been at this sort of thing--selling in the international marketplace--about five years. I would like us to have more business than we now have but I think it will be a challenge. What we could have done is arguable, but we are where we are.

Question: IBM at least in my experience, and I've seen other companies and they put out technology first and hone the technology adopted.

Hinds: To make my answer short, I think IBM's market entry in a new marketplace came at a much different time, with a much different technology. A 1950 entry in mainframe computers is quite different than a 1988 entry into central office switching equipment.

Asmussen: I would agree with that. IBM had a global presence when they first got into the business, and they had the culture, the universal culture, which they picked up right after World War II. It seems that the market share IBM has in Germany is a

measure of the clout they have there.

Question: It seems to me there are differences between Europe and North America, but by-and-large things seem to be moving in the right direction. It looks like equipment suppliers by-and-large seem to be acting in good faith, by-and-large they appear to be good guys with response to their customers, have established a noble presence in their markets -- that's what I'd believe from much of what is being said. But all of this stands somewhat in contrast to some of the questions that I get from the press, and the somewhat shrill remarks that I sometimes see about trade there. Am I right about this and if so, is there certain amount of perhaps misinformation or media hype or perhaps politicians don't have such a good handle on things?

Hinds: I think you're addressing the European market as opposed to the United States market. I do not want to be misunderstood, but I don't think there's any question that the indigenous entrenched suppliers in Europe are actively exploiting every possible channel, whether it be political or purchasing history or relations with the PTT or whatever, to prevent entry by anyone else into their market--including AT&T. We're not finding the going easy; I don't think that the European suppliers are having an easier time. Nobody's moving aside to make room for us at the table; we're going to have to earn our way into the market, it's damn tough, because they don't want us there.

Asmussen: Well, I think it is the perogative of every man who is in business to protect his market share. He doesn't necessarily want to keep you out. Instead he says, "If you can get the market share from somebody else, okay fine, but just don't touch my market share."

Question: My question is somewhat similar to the previous and that is, in this short meeting the panel's been very sanguine about the problem of dealing with international standards. My impression is that in the long run you could work toward the European Community on two different sets of standards, for no reason other than to demonstrate that we're not going to do things the same way they do them over there. One of the most insidious examples is that we have two standards in the world for office sized paper, letter size and A4, and that A4 was adopted for no other reason than sheer bloody-mindedness. It's much more than telecommunications, it exists in the standards for all sorts of things and I guess my question is are you really as sanguine as you sound about this issue?

Asmussen: I think if the tone in the press is not quite the same as it is here, it's probably because we know a little bit more about the real situation. That is, we have to accept that we live in a world where as I said, there will be no revolutionary changes, only evolutionary changes. As people who have been in

this industry with tens of years of experience, we are fully aware that this process is going to take many years. And the press is not going to change that fact.

Hinds: I look at it as a short term and a long term question. Short term, we are not counting on the standards to come together to solve our market entry challenges. We have to design to CCITT standards as they may uniquely apply to any country with two standards, we're just cutting over two gateway switches in Singapore--ISDN gateway switches, but we had them designed to meet the network requirements of Singapore Telecom. We will do that in any market we choose to enter and we're going to have to do it. It will take several years; it will be a gradual; I can't tell you when that will be, but it will be out in the future sometime. If we want to enter a market we have to deal with the standards as they are.

Question: To what extent is the second sourcing factor in European markets versus United States markets, and if it is a factor, to what extent do you intend to resolve this with cooperation?

Asmussen: I have not yet met an operating company which has two different standards so, if there are second sources they would have to be compatible to the standard. This is a natural requirement.

Question: I'm wondering, if you went 10 years down the road, what's your thought on what you will find that from all the investments and capital placed in other countries.

Hinds: We wouldn't be doing it if we didn't think there was a good economic return. We have an investment in international markets. We would not be doing it if we did not believe there was financial reward.

By the way, while I have the floor, I want to thank everybody here for your patience and attention because I couldn't imagine sitting for an hour and a half and listening to this.

Baldwin: I'd like to conclude. Thank you all for participating in the interesting discussion on the opening of markets, standards and customers needs and I would like to close with turning the floor over to ...

Elton: On our behalf, I'd like to thank our three speakers and our moderator for a very pleasant evening indeed. Thank you very much.