

KEYNOTE ADDRESS
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UNEQUAL ACCESS TO INFORMATION RESOURCES AMONG CORPORATIONS
CAUSES AND IMPLICATIONS

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Good morning. It is a pleasure and a great honor to address this distinguished audience today. I would like to thank Dr. Nagai, Dr. Komatsuzaki, Mr. Fujisawa, and all of the other people from the Japan Society of Information and Communication Research who have worked so hard to put this forum together. I look forward to a rewarding exchange of ideas.

Before saying anything further, let me point out a few of the assumptions behind my remarks. I have spent much of my life in strategic planning and technology forecasting. My experiences have made me very modest about anyone's ability to forecast events in the face of the great uncertainties we face.

On the geopolitical level, most of my remarks are based on the assumption that most nations will continue to act in a rational manner, at least most of the time. I would like to think that we will continue to make progress toward completing the Uruguay Round under the General Agreement on Trade and Tariffs (GATT), that the North American Free Trade Agreement (NAFTA) will be finalized and ratified, and that the European Community will resume progress toward integration. Unfortunately, many of the events of the last year remind us that the world is not moving forward in a consistent and uniform way. If any of the major world powers decides to reinvent the disastrous trade wars of the 1930s, or takes similarly silly actions, many of my comments become moot.

On the technology level I have not assumed the widespread public adoption of new technologies. Perhaps all of our citizens will rush to telecommuting, videophones, and multimedia devices before the Year 2000, but I tend to doubt it.¹

My remarks today will focus on the central theme of this forum, the distribution of information resources and their development. In particular, I intend to focus on the causes and implications of unequal distribution of information resources among corporations.

Let me first clarify two terms. When I speak of "information resources," I am using the term to embrace information itself, plus the technologies required to acquire, store, process, and transport information.

¹ For those who do foresee imminent public adoption of advanced information technologies, let me recommend Steven P. Schnaars, *Megamistakes: Forecasting and the Myth of Rapid Technological Change*. New York: The Free Press, 1989.

When I speak of "distribution," I am talking about who possesses information resources or access to them.

Most of this audience is only too familiar with some of the old arguments about the actual or potential unequal distribution of information resources, whether among nations or among social classes within a nation.² I believe a greater and more immediate concern for students of telecommunications and information policies -- and for policymakers -- is the actual and potential inequality of access to information resources among the world's corporations.

The New World Order for Business

Let me explain my concern by describing what is happening in the business world today, beginning with two observations on information technologies:

1- The price/performance ratio of electro-optical technologies continues to improve by leaps and bounds. As a result, over the past two decades computers have moved from being scarce and expensive goods to being cheap and abundant goods, at least in those nations that have allowed competition. During the 1980s, the telecommunications industry has followed the same shift from scarcity to abundance. From what I know of what exists in the world's laboratories today, I expect this trend to continue and accelerate for the foreseeable future.

2- With the advent of satellites in the 1960s, telecommunications became distance insensitive in terms of time. Today we can have instantaneous communications half-way around the world as easily as down the street. Now we are witnessing telecommunications becoming distance insensitive in terms of costs. Momentarily ignoring regulatory effects on prices, we can say that the cost of communicating between a corporate headquarters and a factory is almost the same whether they are next door to each other or separated by hundreds or even thousands of miles. This is a trend with enormous implications for public policies concerning trade, employment, and economic development.

These technological developments have coincided with (and have caused or at least facilitated) a momentous internationalization of world trade and world-wide attempts to dismantle or to constrain domestic monopolies. As a result, corporations in almost every industry and every country are undergoing dramatic restructuring to cope with the increased competition caused by deregulation (or re-regulation), technological innovation, and the continuing arrival of new foreign competitors. These restructurings proceed under a host of terms including, process reengineering, business-process redesign, workflow management, lean manufacturing, just-in-time (or kanban), time-based competition, and, of course, total-quality management.

² For further discussion, see Benjamin M. Compaine, "Information Gaps: Myth or Reality?" *Telecommunications Policy*, March 1986. For a recent comment, see also Thomas Sowell, "Verbal Fraud," *Forbes*, September 14, 1992.

Common to all these efforts is the attempt to make corporations more competitive in a global marketplace through the use of superior information resources. Success in the new environment may entail purchasing components in Taiwan, the PRC, and Thailand, assembling products in Mexico and Ireland and, marketing them in the U.S. and Italy. Along the way, you might have employed designers in France, engineers in Silicon Valley and Singapore, software developers in New Delhi, banks in London and Tokyo, and lawyers in Paris and Ottawa. While crafting such complex global enterprises is a challenge, the real test of management capabilities comes in radically rebuilding this same edifice year after year to cope with changing laws, tariffs, technologies, and markets.

If the modern corporation is to succeed in the global marketplace, it must be focused, must be attentive to its environment, and must be fast and flexible in coping with change. It cannot succeed in this game without access to world-class information resources.³

The Causes of Unequal Access to Information Resources

Corporations suffer from unequal access to information resources primarily for two reasons. The first is the failure of individual corporations to recognize the critical nature of information resources and to assign appropriate priority and resources to their development. Companies must understand the changing nature of their environment and bring the necessary skills and systems to bear. Companies always have and always will make bad decisions as well as good ones. Some corporations will invest in information resources more wisely than others and gain competitive advantage accordingly.

The second major reason for unequal access derives from the information resources policies of the corporations' host nations. Simply put, governments can establish information resources policies that make corporate operations easy, difficult or impossible.⁴

At the impossible end of the spectrum we can recognize the ultimate

³ These observations about corporations and competition are not unique to me, of course. Some recent books on this topic include Stanley M. Davis and William H. Davidson, *2020 Vision* (New York, Simon & Schuster, 1991) and Michael E. Porter, *The Competitive Advantage of Nations* (New York, Free Press, 1990). Thomas W. Malone, JoAnne Yates, and Robert I. Benjamin describe the increasing corporate reliance on information systems in "The Logic of Electronic Markets" (*Harvard Business Review*, May-June 1989). Peter Drucker and Kenichi Ohmae have described the overall trend in numerous books and articles over the past twenty years.

⁴ For the purpose of this discussion I am ignoring the "nationality" of any particular corporation. Robert R. Reich explores this issue in "Who Is Us?" *Harvard Business Review* (January-February 1990) and "Who Is Them?" *Harvard Business Review* (March-April 1991).

economic perversity of government policies that attempt to bar access to foreign publications or telephones or copying machines. The former Soviet Union continues to bear witness to the economic foolishness of such policies.

Traditional protectionism is only slightly less perverse. For example, Brazil's attempts to protect and nurture a domestic computer industry during the 1980s probably caused many Brazil-based corporations to lose a generation in the race to develop sophisticated corporate information systems.

As we move further along the spectrum the picture becomes more confusing. Although many nations agree on the objective of providing access to world-class information resources for corporations, the attendant ways and means differ. France, Germany, and Singapore, for example, proclaim the importance of "Information Age Infrastructure" for economic development.⁵ In pursuit of this end they have relied heavily on central planning for network development. Each of these countries has invested heavily in modernization of its public switched network.

The United States and the United Kingdom presumably share the same policy objective, but have pursued a different course of action. They have actively promoted the growth of competition in almost every sector of the telecommunications and information industries. The result to date has been a dramatic growth in private network investment and less ambitious plans for modernization of the public network (as represented by the local exchange telephone companies).

Five or ten years ago, incidentally, Japan appeared very similar to the French and German model. Viewed today, it looks increasingly like the U.S./U.K. model.⁶

I am willing to grant moral equivalency for good intentions to the proponents of these competing models. Allowing for that, let me contrast the two models through the eyes of a large multinational corporation.

If you are a large corporation operating in the U.S., your choice of information resources is limited only by your budget, your expertise, and your imagination. You can buy or lease unlimited assemblages of hubs, routers, bridges, modems, multiplexers, PBXs, or central office switches. AT&T, MCI, Sprint, or a host of other companies are happy to build you virtual private networks of practically unlimited bandwidths. IBM, EDS, or scores of others will provide network design or turnkey networks to meet your specifications. You may have problems working around the local loop, but competition is popping up in this sector, too.

⁵ For a discussion of the different definitions of "infrastructure," see Carl Danner, *Infrastructure and the Telephone Network: Defining the Problem* (Cambridge MA, Program on Information Resources Policy, Harvard University, 1992).

⁶ For an overview of the various national strategies, see "The New Boys: A Survey of Telecommunications," *The Economist* (October 5, 1991).

Your major problem as a large corporate user may well be the array of choices in this vast and frequently changing bazaar of products and services. Standards are elusive and transitory, and compatibility problems rife. Relatively speaking, this is not a big problem for large and sophisticated customers, but smaller companies can find it costly and confusing.

Smaller corporate users are not the only people unhappy in this chaotic competitive environment. In the U.S., the local exchange companies are unhappy with the continuing attack on their corporate markets. Many hardware vendors, especially the large computer manufacturers that comprise the Computer Systems Policy Project, have voiced the need for improved standards and more government leadership in developing ubiquitous broadband networks. Industrial policy advocates fear that many industries and consumers will be disadvantaged without access to the types of advanced uniform networks they perceive as developing in other nations. Not everyone in the U.S. or the U.K. thinks open competition in information resources is an unmitigated good.⁷

If you are a large corporate customer operating in France, Germany, or Singapore, you meet a different environment. For the most part, your networking choices are limited to what the national telecom authority has on offer, probably at a price in excess of what you would pay in the U.S. or the U.K. In some cases the offering may be perfectly adequate to your needs. In an increasingly complex world, however, the chances are that a single, centrally designed network will not meet your special needs. Admittedly, there are moves afoot to liberalize access to value-added networks and consumer premises equipment in these markets, but to many corporate customers the pace of change appears glacial compared with their changing needs.

It would be easy but simple-minded to blame traditional telecom vendors for being slow moving and unresponsive to the needs of their corporate customers. Although many of them have bureaucratic and monopolistic cultures, most of them have evolved in a web of conflicting political objectives. While I have been focusing upon the need to provide a hospitable environment for corporations, the traditional telecommunications authority or local exchange company also must struggle with entrenched unions, politically sensitive rate cross-subsidies, and nationalistic procurement policies.

How Much Does it Matter?

Information resources are not the sole determinant of a company's success or failure in the world, but they are critical. Corporations that find their competitive performance seriously impeded by the policies of their host nations have relatively few choices. Some will choose to operate in other countries. Some will die from competition. Some may continue to survive in a protected domestic environment while becoming ever less competitive in the global economy.

⁷ For a useful and concise sampling of the major policy issues in dispute in the U.S. see *The Telecommunications Infrastructure: A Compendium of Views* (National Association of Manufacturers, Washington D.C., 1991).

Eventually, individual nations will be driven to rectify policies that deny equal access to information resources for corporations or suffer the consequences. When the corporate world ignored India for long enough, it decided that national ownership was less important than economic vitality. The Myanmars, Vietnams, and Irans of the world may choose to pursue their own special courses, but I suspect that in the long run that they will find they need the world more than the world needs them. The question is whether rival nations and firms will gain a sustainable advantage over those that start off wrong. Here I have good news and bad news:

The good news is that information resources still exhibit some special economic characteristics. If a nation or a corporation decides to build an advanced communications network starting today, it can acquire greater capabilities at lesser cost than if it had started five years ago.

The bad news may be that starting today may be too late. The development of sophisticated corporate information systems and their skilled use entails a lot of training and practice and the global marketplace is not a very forgiving environment.

In the conflicting approaches to providing corporations with access to modern information resources I would be foolish to proclaim the ultimate superiority of either the French/German model or the U.S./U.K. model.⁸ I admit to a prejudice that Darwinian struggle has much to recommend it; life might never have emerged from the primordial ooze, if it had depended on the actions of parliaments, congresses and bureaucrats.

In closing, let me make one more point. While I have spoken of the need for equal access to information resources, most of my comments have involved information and communications systems. I believe my observations hold equally true for government policies concerning access to information itself. Today, all nations, to one degree or another, have information access policies which discriminate between domestic and foreign corporations. Any nation wishing to encourage economic development and growth will have to address the

⁸ A recent report by the McKinsey Global Institute concluded that labor productivity among phone companies is about equal for the U.S., Japan, and France, with Germany's productivity 20% less than the U.S. and Britain's 40% below that of the U.S. Factoring in capital investment as well as labor, the report finds that the U.S. telephone industry is far more efficient than those in Japan or Europe. (As reported by David Wessel, "U.S. Excels in Service Productivity Poll," *The Wall Street Journal*, October 13, 1992.) Students of productivity and information resources treat such conclusions with considerable caution, recognizing that current investments for future improvements may penalize current performance. On the other hand, there are occasional reports that investments to modernize public switched networks are failing to produce expected revenues. See, for example, *Japan Telescene* (1992-17, October 1, 1992, InfoCom Research, Tokyo): "About 40% of the over 100,000 ISDN customers (of NTT) hardly use their lines."

consequences of these policies. Differences in legal disclosure rules, government intelligence activities, or privacy legislation that favor domestic corporations over foreign ones may prove to be as counterproductive as Brazil's former computer import restrictions.⁹ I hope to hear some of these issues discussed over the next two days.

Thank you for your attention.

⁹ Jay Peterzell, "When 'Friends' Become Moles," *Time* (May 28, 1990) and Frank Greve, "French are Winning the Post-Cold War Spy Game," *The Boston Globe* (October 21, 1992).