Technology and Global Development

An innovative approach to improving the flow of technology between North and South; International Development Organization proposed

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Your conference theme — "The Evolution of World Technology Transfer by the Year 2000" — is appropriate to the place, the time and to you, the licensing executives of Canada and the United States, because it addresses a fundamental issue concerning the world's people.

There is no question that worldwide economic development must be achieved swiftly, and on a massive scale, if there is to be a healthy, reasonably wealthy, and peaceful world in the next century. There is no question that increased technology transfer between countries must play an enlarged role in bringing about global economic progress. And there is no question that you, as licensing executives, occupy a unique position in terms of helping to determine what technology will be transferred to whom, and under what conditions.

As New Year's Day in the year 2000 approaches, you find yourself, in a sense, playing dual roles — those of soldiers and diplomats. As soldiers, you are the professionals guarding the system of incentives which encourages people to innovate. As diplomats, you are involved in helping negotiate the terms of technology transfer on a basis that is acceptable to both suppliers and recipients.

CONTRADICTORY ROLES

Obviously, as you play those roles, you will find them to be, at times, contradictory, just as defense and diplomacy often are contradictory functions.

How can you help the industrialized countries, for example, transfer large amounts of technology to developing countries, that are too poor to pay for much of it? How can this be done without destroying the incentives to transfer technology? Will the technology be appropriate to the needs of these poorer countries? Will they be able to assimilate it in meaningful terms and over what period? Those are only a few of the questions which should be raised at a meeting such as this.

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A PERSPECTIVE ON INTERNATIONAL GROWTH

My purpose is to share with you some thoughts from the perspective of a former chief executive officer of a company known for technology transfer throughout the world. In my years as a businessman, I was fortunate to serve at a time when 3M grew from a small company with almost all of its business in the United States to one which has sales of over $6 billion and operations in more than 50 countries.

This was a time when world trade grew from a trickle in the depression years to the point where one-fifth of all the good and services produced in the world flow in international trade. It was also a time of substantial growth of multinational corporations which today account for almost all of the transfer of technology and goods and services into diverse cultures and social settings.

It is not surprising, then, that multinational corporations — such as 3M — are relevant to the challenges of worldwide economic development. But can they continue to be the channels through which technology and capital are distributed around the world, given the agenda which must be accomplished by the year 2000?

In attempting to answer those questions, I will divide this presentation in three parts. First, I will identify some of the major worldwide economic challenges which face all of us in the next 19 years. Second, I want to take a close look at the capabilities of multinational corporations, what they have been able to accomplish in the past, what they can be expected to accomplish, or *not* accomplish, in the future. Finally, I will look at what actions must be taken if technology is to be transferred successfully, and global economic development achieved.

ECONOMIC CHALLENGES

Now, let us go back to the first part, identifying the challenges.

You are familiar with many of the numbers. Put simply, world population and expectations for improved living standards continue to grow faster than economic development. Consider for a moment that, if we were to measure all major areas in which we would hope the human race is making progress, we would be disappointed to find mankind is losing, not gaining, ground. There are more hungry people on earth now, than at any time in this century. There are half a billion people who officially are classified as undernourished by the World Health Organization.

Despite all the wonders of modern medicine, the numbers of people who are sick also are growing. There are one and one-half billion human beings who have absolutely no access to medical care. Despite mankind's technical advances, there are one billion people who do not have adequate housing. Despite all the machines that have been devised to increase productivity and increase wealth, about one-third of the earth's people have incomes of less than $90 per year.

Today, world population is 4.4 billion people. By the year 2000 there will be 6.1 billion people. This represents an increase of more than 40 % in just 19 years and the increase comes at a time when the human species is losing ground in providing food, medicine, and housing.

This tremendous increase in population also comes at a time when improved and expanded communications are going to make the poor, the sick, the hungry even more aware of their plight relative to others.

Taking a look at the total situation, I think that we all must agree that the fuse on the bomb is already lit. The question is: How do we defuse the bomb?

An expected suggestion comes from the left side of the political spectrum: Redistribute income — take the wealth of the rich and redistribute it to the poor. Elementary arithmetic, however, tells us that this cannot be the answer.

Another suggestion which has been made, particularly by leaders in the developing countries, is for the industrialized countries to give them technology at little or no cost.

Another Question

Leaving aside for a moment the economic considerations, particularly as they relate to incentives, there is another question that must be answered: Do the industrialized countries have the kinds of technology which will help the developing countries? Certainly they have some of it, especially technology that relates to an industrialized society. But no practical technology presently exists — to my knowledge — that would overcome the protein shortage which is a good part of the hunger problem.

For example, 75% of the world population requires wheat as a main food staple. How do you upgrade wheat production on a large enough scale, given soil and climatic conditions and political considerations?

Then, of course, there is the infrastructure problem. Modern technology often cannot be introduced into a developing country unless there is infrastructure — managers, technicians, consumers, for example — to handle it and make it work.

There are some economic and social problems which also are beyond the grasp of technological help — at least, in the near future.

ROLE OF MULTINATIONAL CORPORATIONS

All of which brings us to the second part of this presentation: How multinational corporations relate to the problem of world economic development.

Let us begin with a definition of what a multinational corporation is. It is nothing more nor less than a group of people who have been brought together with capital to strive for economic objectives — namely, to earn a return on an investment. They also achieve other socially desirable goals — such as paying people for the work they do, paying taxes to government, providing goods and services to customers who in turn also perform a socially and economically useful function.

In addition to being based in one country, multinational corporations do business in a few or many countries, and they do not look upon world markets as extensions of their home-country markets. They take a global view, and it is a long-term view.

The multinationals are not the pariahs of the world economy as critics of capitalism have tried to picture them, and they are not all alike, since it is difficult to compare banks, manufacturers, and extractive companies.

But, on the whole, they share a record of accomplishment. Since the 1950s, the multinationals have been the stars on the world's economic stage: they have grown more than twice as fast as gross world product. They have carried technology across national borders and into diverse cultural and social settings. They have achieved efficiency in manufacturing by rationalizing production or concentrating upon what they do best, so that there is greater specialization of production within countries.

In the immediate postwar years, the multinationals were mostly of North American origin. In more recent years, European and Japanese multinationals have grown in size and numbers and now outnumber those in the United States. In the last 30 years, there has developed an internationalization of the world economy to a remarkable degree.

To compete today, companies must produce goods and services of world market quality. They must be alert to the opportunities that are present in world markets. And their managements must have the ability to think globally.

LIMITATIONS ON MULTINATIONAL INVESTMENT

There is no question the multinationals have generated much economic progress in the industrialized countries where living standards have been elevated substantially.

The multinationals, however, have not been able to substantially improve living standards in the developing countries— there are figures to illustrate this point. For example, more than 80 % of U. S. direct foreign investment is in the developed countries; only 20% is in the developing countries. Of that 20%, a substantial amount of investment is in extractive rather than manufacturing industries.

How do the multinational corporations relate to the economic progress of the developing countries between now and the year 2000? Perhaps the answer to the questions lies in the reasons why the multinationals have not spearheaded greater progress in the developing countries in the years that are immediately behind us.

Capital investment is generally made where the return is highest. And rate of return on investment is determined by such factors as size of market, risk, competitive conditions, availability of skilled labor —

in fact, a host of factors.

Perhaps the most important aspect of foreign investment is that it is made almost always in the long-term — companies do not enter and pull out of markets within countries very easily. The investment is in people and plants and equipment, and those items are not very portable.

Unfortunately, there have not been many developing countries where there have been stable social and political conditions that are comparable to those in many industrialized countries. The risk has been higher in the developing countries. The markets in terms of those who are financially able to buy products generally have been small. There has been a lack of managerial and technical infrastructure. And often there has not been a technological fit between what a multinational can provide and what a country needs. There are many developing countries, for example, which have higher purchasing priorities than buying Scotch brand cellophane tape.

There are other reasons why more capital investment has not been made in the developing countries to the extent that it should have been made. Government policy which restricts the repatriation of dividends is one of them. Patent and licensing policies, of course, often can be a deterrent to investment — and you are familiar with those kinds of problems.

SHARING THE BENEFITS

There is another aspect of foreign investment that needs widespread understanding: all the participants in a foreign investment venture should receive some benefits. There should be benefits for host and home countries, for the company, for investors, for suppliers and customers.

If the benefits should stop flowing in sufficient quantity to *any* of these participants, then the venture will cease to exist.

To be successful, foreign investment cannot be part of a welfare program. In the case of developing countries, many foreign investment ventures were not started because there was no prospect for wide enough sharing of benefits. So, in order for increased investment in the developing countries and more widespread economic activity by multinational companies inside of them, there must be a better sharing of the mix of benefits — which can be dividends, jobs, taxes, goods, services and, of course, technology.

This means there must be a better understanding of what foreign investment is, and what its benefits are, by all of the participants, but particularly by government.

Ownership of assets by a foreigner does not mean control of those assets by foreigners. Control is exercised by the host country, which formulates the rules under which a venture operates.

Most importantly, there should be greater understanding of what technology transfer is and what its effects are. Technology transfer should not be feared by the potential recipient — it should be welcomed by the developing countries. But it will not be welcomed unless it is understood.

In many countries, the introduction of technology is feared because it is thought that it will put people out of work. Why does India, for example, need an automated steel mill employing hundreds of workers when it can have an obsolete steel mill employing thousands of workers?

It is quite true that technology does make some jobs obsolete. But it is also true that technology creates new jobs, and these jobs usually are better than the ones made obsolete, and they usually have a strong, positive impact on the economy of a country. The industrial revolution in America, in fact, was a process in which technology was constantly making some jobs obsolete, while creating others, and making the whole economy much more efficient.

So there are costs involved in technology transfer and they should be recognized up front by all the participants in a foreign investment venture, including the political leaders of the host country.

INCREASING THE TRANSFER OF TECHNOLOGY

Which brings us to the third and final point: What can and should be done to increase technology transfer between countries, given the situation between now and the year 2000, particularly in the developing countries?

In my view, we in business have not done a very good job in selling leaders — political and other leaders in developing countries — on the benefits of foreign investment and technology transfer, in all its forms, be it licensing or be it multinational corporations.

There are a number of reasons for this. One is that there have been too few opportunities to demonstrate its value to those kinds of countries. Another is that, following the independence of many of these countries, they became economic nationlists, resenting outside involvement in their country in any form. Still another is the fact that business conditions have been more rewarding in other parts of the world than in the developing countries.

So all of us must make an aggressive effort to change attitudes — and not just those of the leaders of developing countries, but of American and Canadian politicians and business people as well.

For example, within 3M, there is an ongoing effort to set up and maintain direct communications between opinion leaders in the developing countries and 3M personnel. Overseas, our people go calling on them; in St. Paul we invite them to our headquarters. We have some programs for specific groups. For example, each year we bring editors and writers from developing countries out to 3M to talk with many of our people. It is a program we jointly sponsor with the World Press Institute and Macalester College.

The licensing executive can also become a part of this effort by establishing better understanding of the benefits of patenting and licensing systems which exist around the world.

SEARCH FOR UNDERSTANDING

But that understanding must go beyond understanding the laws and practices of the licensor and the licensee. It must include a better sensitivity for the social, economic and political atmosphere in which technology transfer takes place. If the licensing executive who has an assignment involving licensing outside the United States or Canada, can understand the geographical, political and emotional turf of the host country, he can be innovative in searching for ways to negotiate technology transfer successfully and fairly.

The same thing applies to the business people of the 1980s and 1990s. They, too, should search for new ways to enter and serve the markets of the developing countries, discarding many of the present notions which are based upon experiences largely in the industrialized nations of the northern hemisphere.

It is fundamental that the immediate needs of the developing countries are seldom identical to those that exist in the industrialized countries. I have to believe that all of us could be more innovative in transferring, adapting, and providing different technology for the developing countries, just as we could be more innovative in being more sympathetic to their needs — and they to our concerns.

Mutual Trade

The answer is mutual trade between developing and developed countries, between North and South. This is the way it was done between Europe and the New World. This is the way it is now done between the industrialized countries of the world.

Mutual trade means the goods and services in world trade flow in a way and under terms in which all the parties can be winners. It cannot be a one-way street favoring any particular party to the exclusion of others. Private enterprise of the developed countries, the owners of the wanted technology, must receive a fair price to encourage the flow of technology to the developing countries. Developing countries must export to find the capital to purchase technology.

In view of the enormous need for global economic development by the year 2,000, it is important that action be taken as soon as possible. For that reason, it is important that the government of the United States take new international initiatives.

I do not pretend to have all the answers on what these initiatives should be. But they certainly should include all of the parties who can make technology transfer take place on the scale required. Perhaps there should be established some mechanism for encouraging technology transfer, just as there should be some means for identifying technological need, some way of matching the need with the appropriate technology and some means for financing and assimilating that technology into an economic and cultural setting.

What kind of mechanism or institution could this be? It must be an institution that is not overly politicized or polarized, one that permits private as well as government participation, one that is organized internationally, one that is geared to encourage development on both a national and regional basis.

TWO PROPOSALS

I would like to put two proposals on the table. The first proposal would involve existing international organizations. The second would involve the formation of an entirely new organization.

First, as we all know, there are a number of existing organizations which could be considered for the job provided that they oriented themselves to the task.

Most must be dismissed almost out of hand. The United Nations, for example, has turned into a propaganda platform and does not have the respect particularly of the developed countries. The Organization for Economic Cooperation and Development — the OECD — contains a membership of developed countries and is perceived to be a means of exploiting the developing countries — a perception which I personally quarrel with, but it is there all the same.

I could go through a long list of other existing international organizations and most of them have a common flaw in terms of technology transfer. They do not include in their membership the *owners* of technology — private business. In fact, one of the major reasons why progress is not being made in transferring technology from North to South is that the negotiating is being done almost exclusively by governments, including the United States Government which itself does not own much relevant technology. This is in private hands.

So, my first suggestion, if there is progress to be made with existing institutions, is that the GATT — the signatories to the General Agreement on Tariffs and Trade — team up with a private organization or organizations to provide the proper ingredients.

The GATT generally is well-respected by both developed and developing countries. If it teamed up with some organization like the International Chamber of Commerce and your organization, and held an International Congress on Technology Transfer, there is the possibility of success being achieved in terms of getting the right people around the table.

INTERNATIONAL DEVELOPMENT ORGANIZATION

The second alternative proposal involves a different concept — that of forming a new organization. The *International Development Organization* (IDO), as it could be called, would be structured along the lines of the present OECD. However, it would include the developing countries.

From each country, there would be one government representative and one private representative. Its purpose would be to work with each developing country in identifying trading stock and then trying to find a way to match this trading stock with technology to be supplied by private enterprise of the developed countries. Emphasis would be placed on developing technology assessment and technology transfer plans.

Bring Understanding

The IDO would attempt to bring understanding to the technology transfer process by both suppliers and recipients. It would draw upon private as well as public resources to identify the *quid pro quo*. It also could act as an informal mediator when negotiations for technology transfer, for example, get stymied. Such an organization could draw upon the expertise of professionals, such as yourselves.

An important function of the IDO would be to work with existing organizations, such as the GATT, World Bank, International Monetary Fund, OECD, and the United Nations Industrial Development Organization.

Another important function would be to publicize the successful instances of mutual trade in which technology was part of the trading stock as a way of encouraging even more of technology transfer. It also could help by analyzing failures.

The formation of an IDO could take the subject of technology transfer out of the international forums, where emotion rules most discussions of North-South relations, and put it in an organization that is dealing with technology transfer on a practical level, where there is at least a chance for objectivity and mutual understanding. Properly organized, it would not be a propaganda platform but a place where people could reason with one another, looking toward agreement rather than confrontation.

CHALLENGE TO LICENSING EXECUTIVES

Those are two suggestions. The Licensing Executives Society could be an integral part of either of these proposals because it could help identify the type of technology most suited for transfer to a particular developing country or region.

Not all technology is suitable in all instances. In many cases, the most modern technology is not appropriate — less advanced technology is better.

I hope that you, as licensing executives, become the leaders, urging both public and private sectors to get on with the important business of technology transfer and global economic development.