Commercial/Management Viewpoint

Transferring technology to developing countries from point of view of private sector manager seeking fair return

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I shall discuss commercial and management factors involved in technology transfer between developed and developing countries, and approach the subject from the point of view of the private sector which is pursuing its healthy profit motive in participating in the transfer of technology.

It is well recognized that the best type of technology transfer is that which has sound commercial justification and which attracts private sector investors in the expectation that there are good profits to be made through the introduction of a new technology into a developing country. I will touch on some of these latter aspects.

The first point to make is that most developing countries claim to be keen to achieve greater technological development.

The primary consideration for a company in this areas is to probe just how genuine and how deep is the commitment to the transfer of technology or alternatively, to the industrialization of the country concerned.

Desire

In some countries it will be found that the desire for industrialization and the transfer of technology is part of a well thought out long-term development plan in the country concerned. Unfortunately, in other countries it will be found that the word "technology" is used as a political catch-cry or something of a status symbol and is frequently not part of any such plan.

In some cases, even if there is a commitment to technology transfer which may be quite genuine at the government level, it is still necessary to research the markets for the new technology. Will the market come from the internal industrial development of the country itself? Will it basically be through import substitution or through an export drive? A company needs to satisfy itself that a market really is available and that there is a commitment by the host country to allow that market to be exploited.

Many developing countries have efficient government departments which supervise the industrialization of their countries and which provide the necessary incentives, infrastructure and government regulations to allow new industries to be developed. Unless this government infrastructure is available, it may be very difficult to develop market opportunities even where they do exist.

Government support in the early stages of a new market operation in some developing countries is essential and the ability of the government to perform in this area is one of the judgments which the new investor must make.

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Organization

Assuming that the hurdles of government commitment and market availability have been overcome, another factor to be considered is the type of organization to be set up to operate the new company involved in the technology transfer in the developing country, e.g. is it to be a company 100% owned by the foreigner introducing the technology? Is it to be a joint venture with local partners, or will it be a licensing agreement with a company 100% owned by local people?

These are important factors and in view of the cost and complexity of technology transfer, I believe that in many cases 100% ownership initially by the foreigner is the most practical route underpinned by an undertaking to introduce local equity once the technology has been developed. I realize that this cuts across government policies and regulations in some countries, but I do believe it is the most sensible commercial arrangement in many cases.

If it is necessary because of government regulation or other reasons to take in local partners, great care must be exercised. Frequently many local investors will not understand the complexities involved in the transfer of technology. They will tend to underestimate the development period and maybe fail to comprehend the long-haul nature of an investment involving technology transfer.

Some investors in developing countries are only looking for a quick return and these people can make most unsatisfactory partners and may, in the long run, endanger the whole process of the technology transfer.

Another factor to be considered is the assessment of the skills and abilities which may be available in the country concerned to assist in the transfer of technology. In this area I would list professional, management and trade skills. This assessment needs to be made in some depth so that the real abilities of those involved can be determined.

It is wrong, for example, to take at face value some of the professional and trade skills which are claimed

in some of the developing countries and equate them with comparable qualifications in some developed countries. It is a fact of life, unfortunately, that in some, but not in all cases, the qualifications are of a lower standard.

The other factor to be considered is the degree of experience in trade, professional and management skills which goes along with the qualifications. Quite often practical experience is not comparable to the academic skills and a great deal of practical training is needed to bring these people up to the standard which we would normally expect if we were recruiting similar people in developed countries.

A company wishing to participate in technology transfer to an underdeveloped country will generally find itself in competition with other companies from other developed countries of the world. It is appropriate, I believe, that underdeveloped countries should endeavor to induce competition between companies and countries which wish to set up new technology in a developing country. For this reason, a company will need to be alert to a number of factors.

The first, of course, is the basic relationship between the government of its country and the government of the developing country. Political, trading and general diplomatic relationships should be taken into account and where there are strains between the countries concerned, it might well be advisable for the company to make a careful assessment as to whether it should proceed.

Another factor to be taken into account is the track record of the developing country in honoring its commitments. Once again, it is a fact of life that some developing countries unfortunately have a reputation for changing the rules far too often to allow for sensible commercial development. On the other hand, there are those countries in which the governments recognize that stability and permanence of government policies are important. Needless to say the latter are far more attractive to investors.

Government Approval

It will be necessary in almost every case to obtain government approval to establish the new company involved in the technology transfer. This will often involve negotiations with many government departments, banks and other authorities.

The company undertaking this task should realize at the beginning that it will be time consuming and that the time frames in developing countries for fairly normal commercial and government decisions are frequently much longer than those which we anticipate in our own countries.

You must be prepared for a good deal of delay and frustration in the early stages of having the project approved.

Despite this, it is important not to take any shortcuts and not to leave major matters on the basis that they can be adjusted or corrected later. Frequently it is not possible to make the adjustments later. It is necessary for the initial study and government approval to be very comprehensive. It is much better to cover all of the factors right at the beginning than hope that some of them can be negotiated later.

I indicated the need to study the commitment behind technology transfer and the availability of markets in developing countries. It is important to study other aspects as well as technology. I refer here to some of the more human factors, such as the study of peoples and customs in a new country. It is a shortsighted company which does not make some assessment of the differences in people, culture and customs in the country in which it is going to invest.

Those of us in the developed world sometimes believe that all people are the same as we and that our thought processes are also identical. There is a rude awakening in store for those who think this. We must be prepared to understand and in some cases adapt to the new customs which we will find in developing countries in which we are going to invest.

I would like to make a few comments on the initial feasibility study. We frequently hear the claim that it must be good to invest in a developing country because labor is so cheap and one could be excused for believing that this is the sole reason behind industrialization and transfer of technology.

Unfortunately, some developing countries tend to promote their own investment attractions on this basis alone.

While cheaper labor costs are no doubt attractive to the foreign investor, they are only part of the story. There are all types of factors which offset the lower labor costs. To name a few: Raw material availability often a problem and the price of raw materials which often have to be imported can be higher, and because of the dependence on foreign sources a greater level of stocking may be required. Frequently, capital costs for factories and equipment will be just as high, if not higher, than in a developed country. The investor in a developing country will often find himself involved in infrastructure costs for power and services including transport and communications with which he would not normally be involved in a developed society. Simple items such as consumable materials for factory operation will frequently not be available at all in a developing country and will need to be imported sometimes at a greater cost.

Another factor which is sometimes not unearthed early enough is the level of government taxes and charges on imported components including capital items as well as consumables. This frequently makes the cost of operation more expensive.

All of this underlines the need for the initial feasibility study to be extremely comprehensive and to be done on the most commercial basis. It will often be found that what appears to be a good investment because of cheap labor may not be so attractive when all of the financial factors including exchange risks are taken into account. It is, of course, much better to find this out at the beginning rather than after the initial commitment has been made.

Turning to the technology transfer itself, the first factor which must be built into the transfer of technology is time. the investor must realize that he is in a pioneering area and is introducing something which is new, unknown, and yet exciting to the country in which he is investing.

It is a great temptation to underestimate the time involved in technology transfer and to overestimate the ability of people in the developing country to absorb

the new technology. Building time into the equation also means building money into it and taking a cautious view of the cost of the early development stages. Many projects have foundered because companies failed to make a realistic assessment of the time and cost involved in the initial stages of new investment involving technology transfer.

The second important ingredient is people, and here I refer to those involved both from the developed country and the developing host country.

First, let me make some comments about the people who will be involved from the point of view of the developed country. Many of these people may have to, for a time, transfer their residence to the developing country. Others will be involved on a part time and advisory capacity from the developed country. It is important that a company should choose people with a high level of tolerance and ability to endure a high level of frustration. They are undertaking a task which is going to require great patience.

They need to be people who are sensitive to the new community in which they will live, but they also need to be firm in their resolve to achieve the very difficult objective which is ahead of them.

Another important aspect is the fact that wives and families will also need to be able to settle into a new environment. Many companies have had more difficulty in settling in the women folk than the executives who have been sent to the new country. It is probably a very good idea for companies to interview both the husband and wife before appointments are made. Education facilities for children are also an important consideration.

In regard to personnel, it is necessary to emphasize that the choice of the local staff is of great importance. This presents particular problems.

An important factor at the tradesman and process worker level is that younger employees tend to adapt much more readily than older employees. We have found that in some developing countries it is difficult to get older employees to change when they were badly trained or wrongly instructed in previous employment.

There is a temptation to send too many of the developing country's staff to the development country for training. While some training in the developed country may be necessary in the first instance, our experience is that the majority of training is best carried out in the developing country and that short-term visits by very experienced expatriates is the best way of undertaking this training program.

We also have found that in many developing countries it is essential to detail duties and responsibilities more fully than in a developed country where people frequently get the experience by custom and usage and because they are surrounded by similarly-qualified people in their own environment. Detailed duties and responsibilities are essential.

There sometimes will be a temptation to use a majority of management people from the developed county. This often can be a mistake. A company will be better off in the long run if it introduces local management from the developing country at a very early stage. This may cause problems, particularly on the technological, production and quality aspects in the initial stages, but the ultimate benefits will be very significant and the degree of job satisfaction and the lower costs will ultimately justify the early perseverance in this regard.

A word about management executives from the developed countries. We sometimes overlook the specialized nature of the training of many of the executives in companies in our developed countries. When we establish a new business in a developing country, we will frequently be looking for management people who are "technical all-rounders." We will sometimes be disappointed in this area and great care needs to be taken in the choosing of people to fill this particular role.

I think we sometimes underestimate how specialized some of our technical executives have become and how dependent they are on the other members of the team around them. If that team is suddenly removed many of our technical executives are not able to fulfill the role of the "all-rounder." This can be overcome by recognizing the problem and making sure that the executives to be sent to developed countries are given adequate training in all facets of the business. When they arrive in the underdeveloped country they are then, in fact, "all-rounders."

Again, it is necessary to emphasize that problems will occur. Even the most exacting feasibility study will not allow for every conceivable difficulty.

From experience, difficulties will be encountered with customers, with suppliers and with your own personnel. The important thing is to face these difficulties realistically. Be frank with customers, suppliers, and your people and you will be surprised how cooperative and understanding they will be. You should point out that the transfer of a new technology is a difficult task and that there will be initial teething problems. Good communications are essential, both for overcoming the initial short-term problems and also for building good long-term business relationships which will be so important in the future.

A major feature in the transfer of technology is safety. Because many of the personnel in the developing country may not have industrial experience we will frequently find that safety precautions which we tend to take for granted in our developed societies are completely alien to these people. The possibility of very serious accidents is ever present and a safety program must be even more diligently implemented than it would be in the developed country.

One final important aspect. Regardless of how long it may take to achieve a satisfactory technology transfer, there should be a target for achieving it. There should be a budget in physical terms covering such matters as product development, employee training, levels of output. There should be a measurement in regard to customer satisfaction and the level of business, and there must finally be a measurement on the financial side covering business progress and the level of profits. It is not good enough to simply say we will do our best. We must set targets. We must realistically assess our performance against them, and we must never be so discouraged as to fail to set objectives even where we may fail to achieve them in the first instance.

The commercial and management aspects of technology transfer present a tremendous challenge to those executives and those companies which wish to participate and succeed in the technological transfer to developing countries. In the final analysis, successful technology transfer will be speeded by the level of profits and the commercial viability of the businesses concerned.