



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche



07226



Distr.  
LIMITED  
ID/WG.237/2  
12 November 1976  
ENGLISH

United Nations Industrial Development Organization

Meeting of Top-Level Industrialists  
on Factory Establishment Projects  
in Developing Countries

Vienna, Austria, 18 - 20 November 1976

TRANSFERRING TECHNOLOGY: EXPERIENCES OF  
A SMALL INDUSTRY<sup>1/</sup>

by

Dr. Ettore Musco\*

---

\* Managing Director, ILO-FIM, Italy.

<sup>1/</sup> The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Secretariat of UNIDO. This paper has been reproduced without formal editing.

Before any account on our experiences on transferring technology to the so called Emerging Countries, a general description of our Company can be advisable, and I would like to outline our development, our experiences and our policy.

Our Company began operating back in 1838, and has developed on productions concerning the drawing, the writing and the coloring mainly utilized in school range.

Up to 1970 we dedicated our efforts to manufacture finished products for school and office, which were distributed from our domestic plants on the Italian and Foreign markets.

It was in 1971 that we decided to develop an additional branch going into licensing, know how and technical assistance for oversea manufacturers.

We feel that our natural market area is the one of Europe and Mediterranean areas. We sell also on oversea markets, but we are convinced that, thinking on average and long term planning, to fulfill a well balanced development, it is a must to install local independent manufacturing facilities.

These independent local manufacturing facilities have to produce and distribute in their marketing areas, that is on African, Asiatic, Center and South American areas.

We were and are sincerely convinced that this is the right trend, and are not so ambitious to think of a multinational cooperation to fulfill our ideas. On the contrary sincerely trusting in international cooperation, in industrial partnership and in multipolar balance, we decided to open our door to the cooperation with businessmen operating on oversea areas.

It is our firm conviction that every business or industrial minded man, born and operating in his country is the best expert of his country's needs.

We normally offer our cooperation only for the technical and production problems.

It is our partner who takes care of financing, of workers marketing, of product merchandizing.

This being our standard approach, the terms can be obviously extended and we can offer a wide field of cooperation, from the simplest to the more complex, in adherence to our Client's requests. As a matter of fact we are open to supply technical advice, machines and equipment, manufacturing licenses, short and long term technical assistance, partnership and so on.

If requested by our Client, we can not only give our complete assistance to start up manufacturing facilities, but help him also giving our advice on packaging, our suggestions on packaging printing, our points of view on distribution and publicity organisation.

#### TECHNOLOGIES WE CAN TRANSFER

We have at disposal of our oversea customers a quite wide range of manufacturing facilities, only and exclusively on the field we have dealt with since 1838, concerning products to write, to draw, to color, to glue.

The technologies we can transfer concern the chalks, the pencils, the wax crayons, the fiber pens, the glues, the water colors, the tempera colors, the artificial modeling clays and similar.

#### THE CONCEPT OF MODULAR INSTALLATION VERSUS SCHEDULED FINANCIAL INVESTMENT

Getting in touch with oversea partners to discuss and negotiate the transfer of our technologies, we have ascertained how different, variable and diversified the requests were.

Tabulating the different situations in terms of productivity, cost of labor, production rates, marketing areas and interconnected conditions, we reached the conclusion that we had to set up our business in a very flexible way, to satisfy the wide range of requests.

To perform the aimed and necessary flexibility, the only reasonable and logical solution was to engineer modular installations, starting from small plants for small marketing areas and/or small countries.

The engineering basic principle was to have the possibility to expand step by step, in a foreseen and planned in advance way, the elementary manufacturing facilities so that they would easily be expanded when necessary to satisfy the increased demand of products.

This is one of the trends we assumed as a principle, but we realized that we had to be able to satisfy other situations too.

We had, for example, to face situations where the Client wanted to purchase unfinished products to be locally finished, packed and merchandized.

This particular aspect of technology transfer is very important because many times the Client has not the financial capacity to do everything at the beginning.

Sometimes it is not only the lack of substancial financial possibilities suggesting the overmentioned approach, but the opportunity to fractionate the start up difficulties of a complete installation, the training of personnel, the learning of new ways to work and organize the flow of materials, to set up efficient maintenance and purchasing departments.

It is our feeling that many local difficulties can be overwhelmed starting not from the head but from the tail: we have some very brilliant practical examples supporting our point of view and our way of working.

Once started, the developement is logical, natural and smooth.

Additionally we have always constantly kept in mind other important points as high productivity, heavy duty equipment requiring very simple maintenance, simple equipment without sophisticated electronic components, components and parts able to afford the worst climatic conditions.

#### ENGINEERING SUPPLIED TO CLIENTS

Normally we get in touch with potential Clients receiving a request of quotation for manufacturing facilities.

A Back and forth correspondence is established to concretize and ascertain what really has to be done, and we always invite the potential Client to visit us, to visualize the problems, and discuss with him the main points.

The next steps are:

- A visit of our General Manager and/or our Chief Engineer for a general survey, and a better understanding of the Client's requirements and real needs.
- If the Client accepts what we advice and offer, we request general and detail drawings of existing industrial buildings, if any, to engineer the installation of the manufacturing components.
- If industrial buildings do not exist we give our best and most economical suggestions about dimensions, height, floor consistency and details, so that the Client can locally provide for.
- We request technical catalogues of locally merchandized building materials, construction steel, pipes, tubes, electrical cables.
- We supply all the drawings, technical information and prescriptions for civil works to be carried out to locate the equipment.
- We supply a detailed list of materials the client has to provide for, to be purchased locally, for interconnections of components (piping, cabling etc.).

#### SERVICES SUPPLIED TO CLIENTS

- Once the Client has given assurance that all the civil works have been completed, and the supplied parts and components are inside the plant, our Chief Engineer, jointly with a Chief Erector and a variable force of erectors, reaches the Client's plant.  

The purpose is to assemble, connect, start up the manufacturing facilities and train the Client's personnel.

The Client has to supply the assembling force (electrician, pipefitter, mason, machanic with helpers and tools).
- The training of the Client's personnel can be performed by a preliminary training stage, in our domestic manufacturing plants (mainly for technicians properly selected who will be in charge of the new plant) integrated by local training of operating personal performed by our technicians.

We like to point out that the training is a very critical point requiring not only the Client's highest cooperation, but the highest flexibility on our side, considering the quite different conditions on which we have to operate.

- We supply not only the equipment but the necessary know-how to produce the goods jointly with the complete assistance concerning the suppliers of raw materials and spare parts.
- Generally we like to establish with our Clients a long term agreement for technical assistance. Generally we do not ask for royalties or down payments or lump payments. Our technical assistance is invoiced following previously agreed standard tariffs only when requested and performed.
- Our feeling is that the Client has to pay only and exclusively for services he has requested and received.
- Establishing the long term technical assistance agreement, we always include the statement that our Research and Development Service, jointly with our Engineering Department are at the Client's disposal.

Many times, on the Client's request, we accept to operate as "PURCHASING AGENTS" to coordinate the purchasing and delivery schedule of raw materials which have to be imported in the Client's Country.

Our fees for such a service are maintained at reasonable rates.

Client is relieved of a lot of worries, and many misunderstandings and mistakes can be avoided.



HANDICAPS AND DIFFICULTIES ON TRANSFERRING NEW TECHNOLOGIES  
TO DEVELOPING COUNTRIES

In our opinion, handicaps and difficulties can be gathered in three main groups due to:

- 1) - Economical and political difficulties
- 2) - Human factors
- 3) - Difficulties to find the people interested in our technologies and to locate the right partners.

1) Economical and political difficulties

- In many Countries the political trend is not in favor of private activities and private industrial investments.
- In many Countries there are strict limitations to activities of foreign investors.
- Some times the marketing areas involved have a very low purchasing power and there are very scanty marketing possibilities.
- High inflation rate.
- Inadequate fiscalitv.
- Inadequate monetary system.
- Lack of infrastructures (roads, electricity, primitive or inefficient communications).
- Out standing difficulties on establishing any constructive dialogue with State bureocracy.

2) Human factors

- A quite low level on technical education given in local Technical Schools.
- Sometimes puzzling understanding between our people and local people, due to language difficulties, and different social, cultural, and education background.

- Difficulty to find technically trained technicians endowed of the necessary teaching and human capacities.
- The unavoidable difficulty for local people, used to work individually and without prescribed rules, to get used to team work and following strict programs.
- Difficulties deriving sometimes from the Client's attitude to rush too much, without considering the unavoidable slow down times arising at the start up of any manufacturing process.
- Sometimes it happens that we have to deal with very good and smart Clients who are urging the realisations because they understand the difficulties and the needs of their Countries very well.  
But, being very active, they want to develop too many activities at the same time, generating confusion and getting involved in too many problems to be faced by a single man.

3) Difficulties to find the people interested in our technologies and to locate the right partners.

- Political and economical difficulties, jointly with human factors as listed can be overwhelmed if there is a real willingness to cooperate and reach a goal.
- If both interested parties are really willing to perform something and are able to establish a mutual understanding based mainly on personal trust, the project can be carried on up to the end.  
We do not mention the unavoidable difficulties: they are the salt of life.  
What we want to emphasize is the real difficulty for a small or medium size European industry to find the request of technologies, and locate the right partners in the developing Countries.  
It is our conviction that this difficulty exists also on the other side.  
How can our friends of developing Countries find what they are looking for?  
How can they get in touch with European small and medium size industries having what they need?

WHAT U.N.I.D.O. CAN DO TO ACCELERATE THE TRANSFER OF TECHNOLOGIES

We think and are convinced that International Agencies can play a very important role owing to the fact that there is a tremendous gap between the request and the offer of technology.

There is not a sufficient information reaching the base, that is the manufacturing companies, there is difficulty to be periodically and systematically informed, at least in Italy by the many official channels as the Foreign Commerce Institute, the Foreign Ministry, the Banks, the Chambers of Commerce and so on.

This is a real shame because there is a fantastic potential capital of technological knowledge owned by small and average size European industries which have not particular ambitions or capacity to develop internationally and operate only and exclusively on domestic or European markets.

These potential living resources, if properly hastened a detailed and capillary action can represent an endless source of transferable technologies.

How can this existing and poorly or not at all utilized capital be put to work?

We are convinced that every single responsible man of every single Company has to be contacted.

All the necessary information on the activity and possibilities of the Companies have to be collected, gathered and classified.

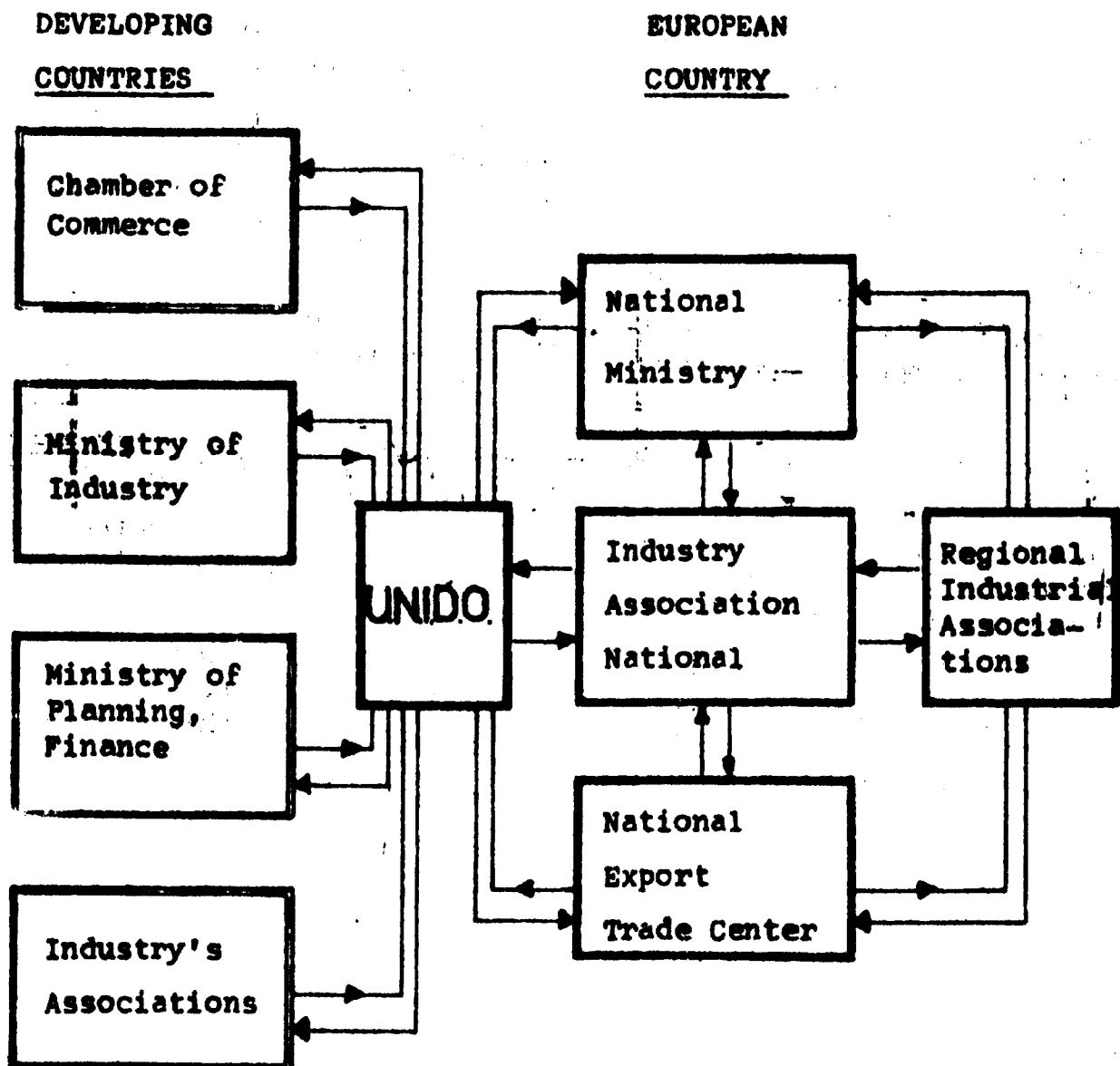
At the meantime we have to give to every responsible man all the information and suggestions necessary to guide him to develop a new activity, in the right way.

He has to know that there are possibilities to transfer to others his technological knowledge, has to know the new markets, has to know to whom he has to ask for advice, guide and suggestions. We have to open his mind, we have to emphasize the possibility, the opportunity and the convenience to consider the world, and not only his country the field open to use his skill.

Considering what UNIDO is doing now, and taking into account the basic principles of this Organisation, we foresee really outstanding and efficient possibilities if this Organisation feels that our feelings can be considered, developed and put to work.

Being an International Organisation UNIDO can operate as a both ways coordinator, that is collection and supply of informations, having the possibility to operate not only with National Organisations but with local Territorial Industrial Organisations.

We think that the attached self explanatory schematic operative diagram will concretize our feelings better.



I would only add that for the widest diffusion of information that is in order to inform about the industrial project under consideration or under request, and in order to inform about the possibility of financing, UNIDO should not only supply the National Industrial Organisations with all the pertaining information to be distributed to the members, but should take direct promotion actions.

UNIDO officials should systematically patronize informative meetings in cooperation with Regional Industrial Organisations to inform the responsible people and should be ready to give all the information which will be requested.

We think that UNIDO can quickly, easily and efficiently build up a bank of potential possibilities, operating and acting efficiently with the cooperation of Regional Industrial Organisations, but keeping the control of the operation.

This is one side of the coin. The other one is to collect the requests, and this can be done through the Embassies, the Economical Departments, the Consulates, the local banks, through the Press, and the local organisations also if, sometimes, they are just on the formative stage,

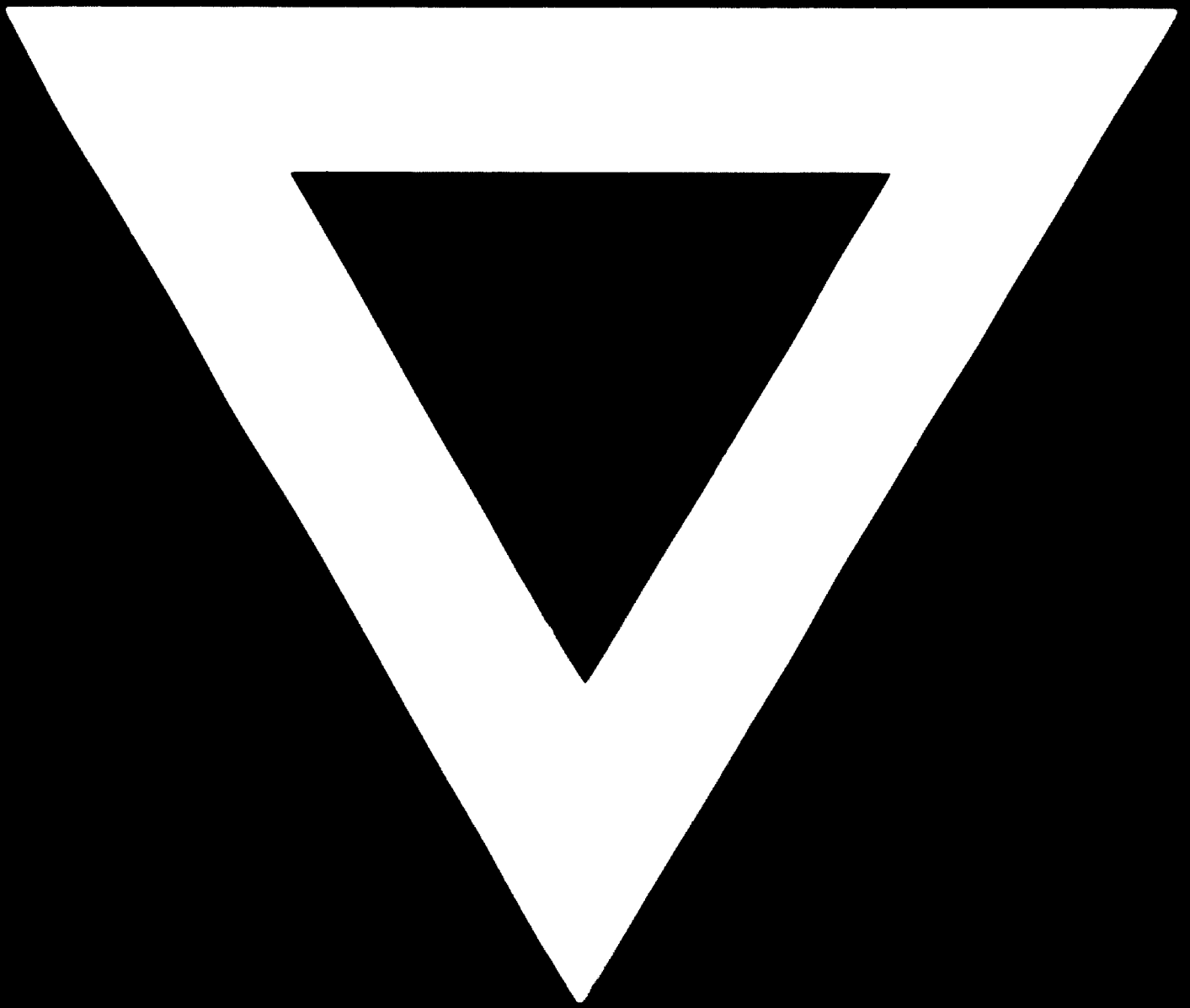
Another efficient way to find the oversea partners, is to patronize and organize meetings of the two categories of partners.

We are not suggesting to by pass the many National Organisations already dealing with Export or International Trade.

Being a small Industry, knowing the problems of our category, having worked very hard to build up some experience, and being progressive minded, we look for some new way to operate.

Being moreover sincerely convinced that the only way to survive and to progress is the cooperation, we look with confidence to any spirit of enterprise trying to carry on this fundamental principle of our free world.





**77.06.27**