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POSSIBLE USES OF TECHNO  
ECONOMIC INTELLIGENCE IN  
THE BOLIVAR PROGRAMME.

THE VENEZUELAN APPAREL  
INDUSTRY

AND IN THE LATIN AMERICAN  
COMMISSION ON SCIENCE AND  
TECHNOLOGY

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BUENOS AIRES, DECEMBER, 1991

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POSSIBLE USES OF TECHNO ECONOMIC INTELLIGENCE IN  
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AND IN THE LATIN AMERICAN COMMISSION ON SCIENCE AND TECHNOLOGY

1. INTRODUCTION

UNIDO is exploring the development of techno-economic intelligence systems (INTELL) to improve strategic decision making and to facilitate the acquisition of competitive advantages by medium and small industries.

The INTELL system brings the exact information needed by the decision makers.

UNIDO has already explored the application of the INTELL methodology in several branches of the Latin American industry, through the installation of Demonstrative Units in private non-profit institutions related to a narrow branch of activity, such as:

Dairy Products - Argentina, to start the demonstration activity in 1992.  
Fruits and Vegetables - Costa Rica  
Shrimps - Ecuador  
Biotechnology - Uruguay  
Appliances - Brazil  
Machine Tools - Brazil

In June of 1991 Mr. Alberto Aráoz, Deputy Director General IPTC of UNIDO went to Caracas, Venezuela to attend a Regional Consultation Meeting on the advances of the Bolivar Programme (BP). He suggested that UNIDO could contribute in the establishment of INTELL mechanisms as support for the BP.

He also met representatives of the Latin American Commission on Science and Technology (COLCYT) and agreed on the need to explore the possible use of INTELL methodologies in this framework.

As a result, UNIDO sent a mission to Caracas to explore the possibilities already mentioned and to propose lines of cooperation with the BP and COLCYT

In Caracas the mission was invited by top officers of the Science and Technology Ministry to explain the INTELL approach to the representatives of the Apparel Industry, who became interested in the installation of a Demonstrative Unit in Caracas.

This report summarizes the findings of the mission. It contains: the possible ways of cooperation with the Bolivar Programme, the cooperation with COLCYT and, a draft project proposal to install a demonstration unit in the Venezuelan Apparel Industry.

## 2 THE BOLIVAR PROGRAMME

### 2.1 DEFINITION AND OBJECTIVES

The BP involves at least 10 Latin American (LA) countries and is supported by the Interamerican Development Bank. The purpose is to create technological co-operation activities involving several operators: economic (companies), agencies (public and private), and research centers of the different Latin American countries in a similar way to EUREKA Project in Europe.

The BP intends to stimulate the establishment of links among those operators interested in the development of technological innovation, moreover, the Programme will promote projects among two or more of those operators, on industrial or service activities and on the condition that the LA capabilities in science and technology are used.

The initiative is stimulated by the Interamerican Development Bank, that wants to go beyond its lending activity in support of LA science and technology, in order to help innovations. The BP is a way to help technological production and to bring the creativity of R&D institutes and private entrepreneurs closer, through links of a regional character.

The Bank will support the structure of the BP through cooperation funds and will finance the emerging projects with credit lines and, eventually, with a Regional Fund. The President of the Bank is following the Programme closely in order to link it with the Initiative of the Americas of the President Bush.

An investment fund is to be created and the projects identified by the BP, together with private enterprises, could become important clients of this fund.

To implement the initiatives the BP will install a linking mechanism -ENLACE- to promote innovative joint ventures, originated by firms and R&D centers of two or more LA countries.

The ENLACE mechanism will include an Executive Secretary at Caracas and national offices, called Antennas, at each of the participant countries. The guidelines for this communication network have been proposed by the Interamerican Development Bank.

The mission of the Antennas is to identify suitable projects, prequalify and assess each one of them. When the project is approved it receives a "merit brand", that is expected to ease the access to credits.

### 2.2 BP INFORMATION SYSTEM

The Venezuelan Ministry of Science and Technology is providing technical assistance related to the information system to be used by the BP, according to its organizational needs.

The system will have a co-ordinator unit (at the Executive Secretary), information nodes (the Antennas), other units, coordination mechanisms and communication services.

The system will feed on the information provided by the Executive Secretary, Antennas and other Units and will try to concentrate the "disperse" information: to organise it and classify it, as well as to provide information products and services to disseminate it and communicate it.

The Executive Secretary will establish methodologies to assure the information and data homogeneization and up-dating. The system is intended to process the information automatically as much as it is possible.

### 2.3 BP START UP

The BP will be starting next March, 1992, and the Executive Secretary is adjusting the procedures in view of the implementation.

### 3. INTELL IN THE BOLIVAR PROGRAM

The mission sent by UNIDO to Caracas had the chance to maintain a dialog about methodological subjects with the members of the Executive Secretary and to make suggestions about using some of the INTELL practices at three levels: Projects, Antennas, and Executive Secretary.

#### 3.1 INTELL FOR BP PROJECTS

The projects to be developed through the mechanisms of the BP must be successful experiences. Otherwise doubts about the Programme effectiveness will arise.

The participant operators and the joint ventures that may result from the BP efforts, may be induced to use INTELL to gain competitive advantages.

The BP, as part of the requisites to provide merit brands, may supply training to the project managers on how to identify, analyze and use information related to threats and opportunities that arise from changes and novelties in technology, markets and regulations.

To improve its competitive situation the international enterprises produce specific INTELL, that is secret. From the information processing they also obtain other forms of intelligence, such as reserved information, and also non classified data and knowledge that may be disseminated among general public.

The BP Secretariat and Antennas will need reserved and general use information to provide an overview of the projects environment, for its own follow up and also to report their advances to Governments, financial institutions and general public.

The enterprises that will participate in the BP may install a small unit inside the Project structure to analyze markets, technology and regulations and provide strategical information to the managerial levels.

The team may be trained by the BP, either building up a special facility in its Secretariat or subcontracting a specialized service in intelligence training.

The enterprises that participate in the BP may agree to provide periodic information about their business environment as well as on the results obtained.

### 3.2 INTELL FOR BP ANTENNAS

The BP Antennas may use an INTELL approach to identify project candidates, to obtain information for the qualification procedures and to assist the evaluation process.

The INTELL approach rests on:

- a) quick information gathering,
- b) scenario building,
- c) understanding competitors and other actors strategies,
- d) obtaining restricted information through the informal network that exists in every branch of activity.

An example of the capability of the INTELL approach may be found in the following section of this report, in which it is summarized how the competitive effort planned by the Venezuelan Apparel Industry includes the close cooperation with Colombian firms in order to gain access to international markets.

As it may be seen, the efforts of the Bolivar Programme to identify and promote techno-economic integration projects may be facilitated by the INTELL services provided to specific branches of industry.

This is because INTELL is specially useful for strategic management. Joint-ventures, innovation and investments are part of the strategic operations.

The joint venture promotion needs having access to a wide range of different types of information.

The companies marriage is not only a result of two firms assessing together the opportunities or threats they have and taking decisions according to a rational system previously agreed.

Association decisions are taken on the basis of a complex mosaic of knowledge that builds up mutual confidence. Part of that knowledge refers to external conditions, but the most important part of the information is requested to be acquainted with the partner: his behavior, performance and restrictions. Some of the data obtained and processed for the last purpose has objective basis, but frequently the larger part of it may be subjective.

The INTELL approach intends to achieve four goals:

- a) to provide the exact information the user needs, not more, not less;
- b) to be comprehensive, that means exhaustive in the subjects that concerns the user;
- c) to deliver the information opportunely;
- d) to make the user aware of the quality of the information.

Since the BP is a network it will be useful to provide an



homogeneous training to the Antennas staff in INTELL practices. This initially can be done by a course for all the team members.

Some of the Antennas may not be ready to start at the same time and, as staffs may suffer some changes, there would be a periodical requirement for training to assure the homogeneity in the tasks performed by national teams.

The Executive Secretary will establish an initial methodology for the Antennas activities. This procedure will be improved and updated, providing opportunities for training the new staff and to "refresh" the old members.

### 3.3 INTELL FOR THE BP EXECUTIVE SECRETARY

The Executive Secretary has several INTELL needs:

- a) to train the Antennas and also the staff each one of the projects on INTELL methodology;
- b) to provide information on subjects of common concern, such as: intellectual property, patents, commercial and technological policies, innovation financing opportunities, etc.;
- c) to report the results obtained in the different projects and activities of the BP. This includes the use of several channels: from mass media for the general public, to reserved reports for Governments, Antennas, financial institutions and others. INTELL provides the classification and dissemination capacity.
- d) to promote the use of the communication network created by ENLACE, to stimulate its use in subjects related to innovation and industrial development. In this regard INTELL may be seen as a marketing tool to improve the network operation.

At the Secretary level an INTELL unit may provide the training and the information on subjects of common concern. It may edit periodical information bulletins: open to general public and also reserved for internal use and for specific institutions and prepare special reports on request, related to innovation, demand of science and technology capabilities in LA, and others that may interest governments and supporting institutions.

The INTELL activities at the Executive Secretariat will use the information system referred to in section 2.2 of this report.

UNIDO may agree with the Bolivar Programme Authorities on the terms of cooperation based on the possible application of INTELL to projects, antennas and secretariat and after that a project proposal may be prepared.

#### 4. INTELL DEMONSTRATION UNIT FOR VENEZUELAN APPAREL INDUSTRY

The Venezuelan Apparel industry contributes with 3% of the production value and more than 6% of the employment of the manufacturing sector.

This activity grew till 1988 and in 1989 suffered the consequences of changes in the macroeconomic competitive conditions. The production recovered in 1990 and 1991 and, what is most important is that its exports, almost inexistent in 1985, grew to u\$s 70 million in 89/90.

A new macroeconomic framework began to be implemented in 1989 directed to the opening of the economy. In this regard the duties were lowered, the interest rate was liberated, the rate of exchange was unified and a fiscal adjustment was made.

The exports made in 1989 were consequence of the internal market reduction, but the level of sales abroad were maintained during the recovery.

The small internal market and a large product diversification are important limitants to greater involvement in international competition. The current wage level provides a source of competitive advantages, but in case of economic surge a rise in salaries may be expected which that may diminish this advantage.

The opening allowed the import of textile materials which increased the competitiveness.

Technological change has been important in the preassembly processes: the introduction of CAD and numerical controlled cutting machines connected to the former, and other innovations based on microelectronics had an important impact.

Simultaneously, techniques has been developed to provide an integrated organization, capable to adapt the firm to demand changes, to different materials, to scales and to designs.

This flexibility has two dimensions: internal and external. The former is characterized by increasing integration and participation of employees in introducing continuous improvements in processes; this leads to stock reducing, and to lowering the waste of materials and time. The later is directed at coordinating efforts with suppliers and customers.

The Venezuelan Chamber of the Apparel Industry (CADEVIV) and the Andean Development Corporation (CAF) sponsored a study on the competitiveness of the Apparel Industry (ILDIS, 1991) in which the main threats and opportunities of the industry are analyzed, as well as the strengths and weaknesses.

This study provides a diagnosis and also a framework for a

sectoral strategy with recommendations to industries, to CAVEDIV, to Government and to workers associations.

CAVEDIV took advantage of the study and is trying to promote the reconversion of the industry to gain additional competitive advantages. To implement the study recommendations the Chamber established four priorities: training, information, finance of the reconversion and international marketing.

The INTELL system provides training and high value information and becomes a new aid for international marketing and financing. Therefore CAVEDIV was very interested in incorporate a Demonstrative Unit to provide information services to its associates.

The CAVEDIV Manager also informed that the local industry, that up to now exported 95% to USA. is interested to begin exporting to Colombia under the framework of the Andean Group Integration Agreement.

The target is to learn to work together with the Colombian industry, use their distribution channels and allow them to use those of the Venezuelan firms. The long-range objective is to join to sell most competitive products in international markets.

The completion of the long range objective requires better knowledge of the Colombian industry and the trading activities will provide the opportunity to be acquainted with it and to test if a joint-venture is possible.

An INTELL facility in Venezuelan Apparel industry may accelerate not only the restructuring of the local production, but also the integration with Colombian firms, the building up of joint ventures and the preparation of joint-marketing plans related to external markets.

CAVEDIV indicates that it will send a request for UNIDO assistance to install an INTELL demonstration unit.

## 5. INTELL AT COLCYT

### 5.1 ACTIVITIES

The Latin American Commission on Science and Technology (COLCYT) is a permanent forum for consultation, coordination and cooperation in the use of Science and Technology for Development. It was constituted under the framework of the SELA (Latin American Economic System).

COLCYT developed the following activities in 1990/91:

- a) Training in Technology Management. Four courses.
- b) Training in Technological Forecasting. Three courses.
- c) Expert Meeting in Technology Monitoring
- d) First training program for Technology Brokers
- e) International Seminar on Technological Prospective (ONU-SELA-COLCYT)
- f) Edition of ESPACIOS, review on Technology Management

It also developed several initiatives, among them the following are of special interest:

- ONU-SELA-COLCYT Regional Program on Technology Management
- Cooperation program on the Dairy Industry.

### 5.2 ONU-SELA-COLCYT REGIONAL PROGRAM ON TECHNOLOGY MANAGEMENT

The purpose is to promote, integrate and report the efforts made by the LA countries and also to channelize to them the experience of other countries in the field of Technology Management.

Among other activities this Program suggests establishing centers for technological monitoring in four countries:

- |           |                     |
|-----------|---------------------|
| Colombia  | - New materials     |
| Chile     | - Marine technology |
| México    | - Biotechnology     |
| Venezuela | - Fine Chemicals    |

It also proposes specific studies at national and regional level on several subjects related to Technology Management, Technology Monitoring and Prospective.

Among the activities indicated there is a LA Network for Technological Management and monitoring that includes "the formulation of a working methodology on techno-economic intelligence, that is supply oriented and not demand oriented as UNIDO is currently proposing.

### 5.3 COOPERATION PROGRAM ON THE DAIRY INDUSTRY

In March 1991 a meeting on Follow up in Technological Prospective was celebrated and Uruguay, Costa Rica, Argentina and Venezuela proposed a cooperation project on the dairy industry that was approved. The general characteristics of the Program were also defined.

### 5.4 COMMENTS

The UNIDO INTELL approach was explained in detail to the COLCYT Executive Secretary and several parts of the Commission activities may be developed in association with the former.

The COLCYT promotion of Technological Management and Prospective is important for future regional industrial development and it is a good idea to support it.

UNIDO can also contribute with the developments already done on INTELL to ease the way in Technology Monitoring and Intelligence.

COLCYT may provide institutional support for disseminating the INTELL methodology among LA countries.

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ANNEX: INTERVIEWS

Bolivar Programme:

Hugo Varsky - Executive Secretary  
Angel Hernández  
Oscar Floriani  
Victor Dos Barros

CONICYT

Mercedes Santana de Arenas - Information Director  
M. Asdrúbal Arcia M. - IDB Programme

COLCYT - SELA

Antonio Leone - Executive Secretary

CAVEDIV - Camara Venezolana de la Industria del Vestido

Luis Vicente León - Presidente

INSOTEV - Social, Economic and Technological Research Institute  
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Victor Maldonado - Executive Director

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