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Seminar on Industrial Information  
(for Latin American countries)

Lima, Peru, 13 - 24 September 1971

**INFORMATION PROBLEMS IN LATIN AMERICA**  
**IN CONNECTION WITH DEVELOPMENT NEEDS AND THE**  
**MEETING OF THESE NEEDS IN THE INDUSTRIAL SECTOR** 1/

by

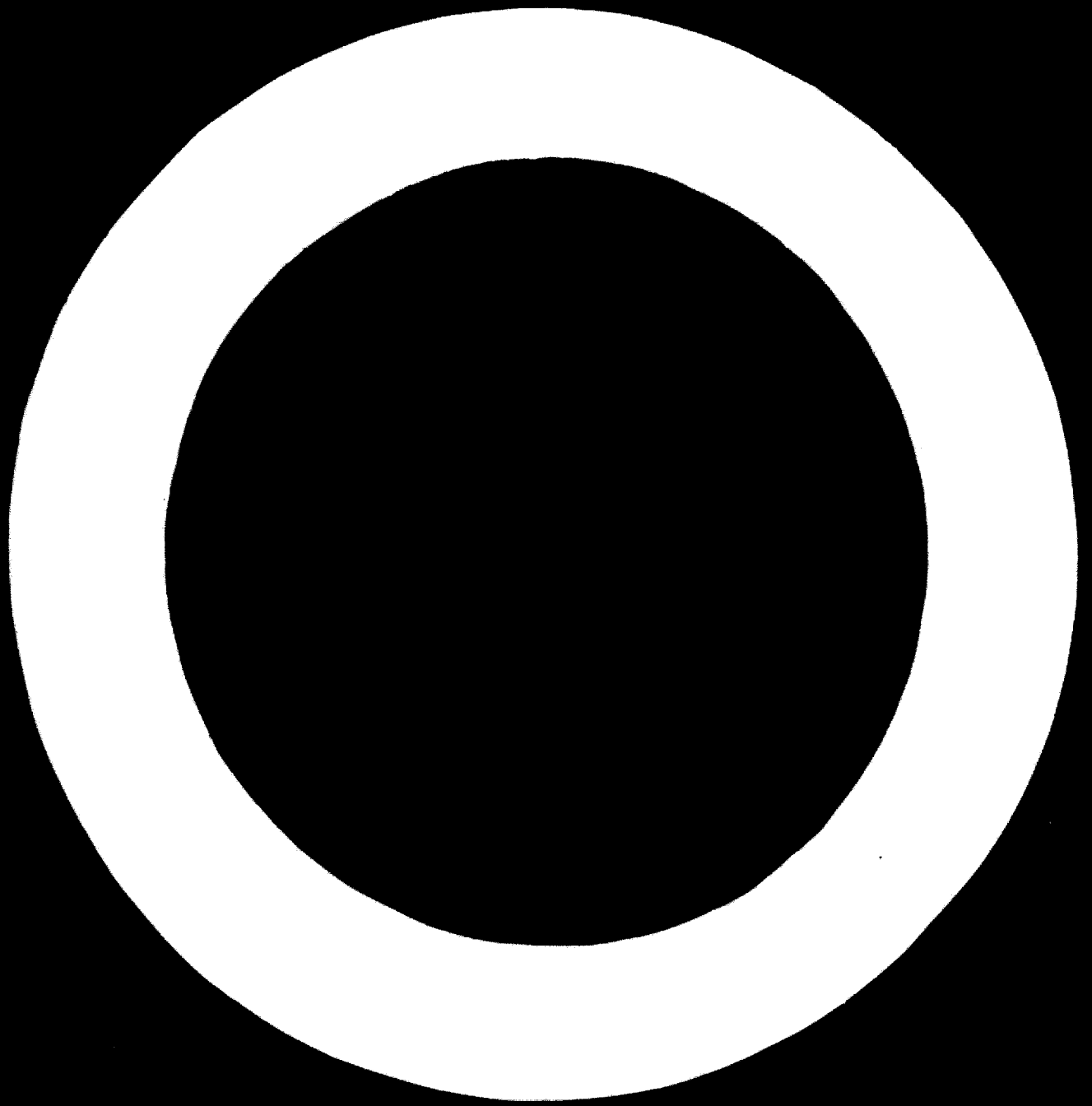
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## Introduction

Within the compass of a working paper only selected aspects of the subject that interrelate with worldwide concerns, measures and consequences can be dealt with. As is so often the case, a one-sided approach would only give a false picture and weaken and fragment the forces serving development instead of stimulating them. This implies that parallel to the guidelines laid down for overall, regional and local development--whereby there is interdependence between Latin America and the rest of the world, the possibilities and utilization of suitable information flows need to be examined and regulated. It must be made clear from the outset that there is no ready-made recipe for setting up an effective communications network. Many problems still exist which must be identified and subjected to study for the purpose of solution. In keeping with the aims of this meeting, I shall concentrate on the significance, tasks and organization of industrial information. Naturally, industrial information must be viewed within the context of economic and socio-cultural development and the relevant technical knowledge available. Our important task is to make technical knowledge, both that existent and that in development, readily available in coherent form to small, medium and large enterprises, for it is upon these enterprises that national economic development and therefore the poverty or affluence of the general population is directly dependent. I use the term "technical knowledge" in the widest sense to include not only production, packaging, sales, management, etc., but also knowledge concerned with the industrial product itself, e.g., production methods and procedures, standardization, marketing, patterns of consumption, advertizing, etc.

What has been accomplished? What goals have been set?

The somewhat disappointing results of the First Development Decade can be turned to advantage only if closer coordination is achieved on the three prime levels of development, namely, the increased efforts of the developing countries themselves, the strengthened commitment of the industrial countries, and the continued efforts of international organizations. It must be the task of all those responsible for progress in this world to strengthen far-sighted political support for such coordination as a precondition of further development. Many studies now available on the development effort to date make it clear that uncoordination must be replaced by coordination. The most important development studies are as follows:

- a) The Pearson Report: Partners in Development.
- b) The Jackson Report: A study of the Capacity of the United Nations Development System.
- c) Provisional Indicative World Plan for Agricultural Development, a synthesis and analysis by FAO of factors relevant to world regional and agricultural development.
- d) Toward Accelerated Development, UN Proposals for the Second United Nations Development Decade.
- e) The ILO World Employment Programme.
- f) The Tinbergen Report: This Report was commissioned directly by the United Nations. It covers all the problems involved and sets forth a carefully reasoned strategy for their solution. It consists of a body of complementary and coordinated economic and social guidelines adopted by the UN General Assembly on 24 October 1970 and intended to serve as basis for the Second Development Decade Charter.

The Tinbergen Report provides a precise account of such factors as overall economic growth, creation of workplaces, planning responsibilities of developing country governments, mobilization of indigenous sources of finance, promotion of industrialization, applicability of technologies, and technological and regional collaboration. The Report proposes that global inventories of achievements be maintained. These inventories would be updated each year by the relevant UN committees. The results would then be discussed by ECOSOC or the UN General Assembly.

The Report emphasizes, however, that impeccable documentation and information, in particular reliable statistics, are vital for decision-making required to implement measures that would deal adequately and successfully with the aforementioned factors. Although this need is perfectly obvious to anyone involved in planning or decision-making, the present state of development in the field of compilation, evaluation, storage and dissemination of information for the purpose of imparting new knowledge is such that documentation and information still remains a problem in itself. Given that facts and data are needed for national development by president and foreman alike and that this information is subject to a greater or lesser degree of modification, it is important to create and to synchronize instruments with which to measure our current state of knowledge and experience. Development policy considerations such as these will help determine the future structure of Latin America.

Parallel to these considerations is the examination and analysis of the many channels of communication which are necessary for the various decision-making processes involved in project preparation, implementation and evaluation. This subsector falls within the overall sector of communications and transport and constitutes to a certain degree part and parcel of the economic infrastructure.

Is a common market for information necessary and possible?

What would Latin America gain from such a market?

In the Weinberg Panel Report published in 1963 attention was drawn for the first time to the urgent necessity of coming to grips with the threatening avalanche of information. Suggestions were brought forward regarding measures to be taken in order to render useful the knowledge at hand, emphasis being placed on the establishment of information networks. On the occasion of the International Conference on International Cooperation in the Field of Documentation on Development Assistance, held by the German Foundation for Developing Countries in 1964, Dr. J. Ben Liebermann, American expert in the field of communications, stated that it was imperative, in view of the fact that

due to insufficient and lacking information roughly US \$1 billion were wasted each year in the field of development aid, to direct attention towards the establishment of well-organized documentation centres. This held true for both the highly industrialized societies and the developing countries. At another Conference organized by the German Foundation for Developing Countries in cooperation with the Developing Countries Committee of the International Federation for Documentation on "Documentation Planning in Developing Countries" recommendations were elaborated, the most important one of which related to the establishment of national documentation centres. This recommendation was taken up by UNESCO. It is reflected in the FID/DC Study on National Structures for Documentation and Library Services in Countries with Different Levels of Development with Particular Reference to the Needs of Developing Countries commissioned by UNESCO, which not only provides an account of the world situation but also draws conclusions and offers suggestions for improving the enormous flow of information.

Of particular bearing on the solution of this information flow problem is the SATCOM Report, published in 1965. SATCOM came to the conclusion that at the present time about 2 million research results were being published in roughly 30,000 journals throughout the world each year. The following main reasons were given for this phenomenon:

- a) The enormous increase in scientific and technical research;
- b) The growing complexity of factor interaction and of the interdependency of older and more recent fields of knowledge;
- c) The need of modern society for a more rapid and more effective application of scientific findings in the interest of an improved level of living.

The same problems arise in the field of documentation in connection with development policy problems. The conclusion drawn by SATCOM is that there is urgent need to develop pluralistic information networks. These networks must be user-oriented and must be operated under the responsibility of all bodies concerned—government agencies, agencies in the field of science and technology, and private organizations. The recommendations



of the Jackson Report constitute a further worthwhile attempt to extricate us from information chaos, channel the product "information," from the producer across countries and continents to the user, and introduce certain marketing regulations. (Study of the Capacity of the United Nations' Development System, Volume II, Chapter 6, "Information Systems Concept".)

Even if opinion on these matters is divided—and the developing countries are very well aware that this is so, it is certainly worthwhile to discuss this Study in connection with the organization of regional and international information networks. The Henderson Report is a further step towards setting up a compatible information network within the UN family of organizations. Regarding the control of the information explosion by means of electronic data processing within the UN family of organizations, this Report recognizes that the following preconditions must be fulfilled by all participants in an information system:

- a) unification of title entries;
- b) unification of category contents;
- c) standardization of terms;
- d) unification of evaluation methods.

The Henderson Report clearly illustrates the need for a coordination centre to ensure that information flows along the network as smoothly as possible. The coordination centre, which should be empowered to issue directives and orders, would handle information flows in accordance with special guidelines. The organizations cooperating with one another in the network should participate in the preparation, implementation and evaluation of system analysis and later carry responsibility for the establishment and implementation of the required measures. Considerable importance also attaches to uniform compilation of country profiles, and attention must therefore be given to their formats and the data they contain. There is no doubt that the establishment of such an information system calls not only for complete conviction of its importance but also for highly qualified personnel and extensive financial resources.

We should also take note of the study on "Feasibility of a World Science Information System" which has been undertaken by UNESCO and the International Council of Scientific Unions and which will come up for discussion later this year.

In the chapter on cooperation with developing countries, the Henderson Report expressly states with regard to the specificity of information that "the benefits" expected from a worldwide information network may be substantially different from one country to another. As already noted by the Advisory Committee on the Application of Science and Technology to Development, the emphasis in developing countries is likely to be on the transfer of technical knowledge for relatively short-term and concrete uses and for the more speculative fields of scientific investigation rather than on the immediate acquisition of all kinds of documents and data as a matter of principle.

It would lead too far afield to undertake a detailed description of the set targets of a world information system and the proposed means of reaching them. It is important to mention, however, that the measures in question--particularly in the industrial sphere--are related to worldwide development and information policy considerations. It is therefore important for all those who handle industrial information, whether as producers or as users, to view this information in the context of development needs and to adjust existing and new documentation and information centres and channels of communication to these needs.

I should like to draw attention to three current sources of information which deal with the Latin American situation and problems in the field of information:

- a) A study recently undertaken by the FID Committee on Developing Countries (FID/DC) on "National Structures for Documentation and Library Services in Countries with Different Levels of Development, with Particular Reference to the Needs of Developing Countries, commissioned by UNESCO;
- b) Examples of regional Latin American information centres and studies on the setting up of the Latin American Centre for Economic and Social Documentation (Centro Latinoamericano de Documentación Económica y Social - CLADES) in Santiago de Chile;

- c) The International FID Congress on "Documentation Users," held from 21 to 24 September 1970 in Buenos Aires.

The countries studied within the framework of the FID/DC UNESCO Study are Argentina, Bolivia, Brazil, Cuba, Colombia, Nicaragua, and Peru. These countries differ in size, population, and geographical location and also with respect to development problems, particularly in the fields of documentation and information.

In Bolivia the National Scientific and Technical Documentation Centre of the Faculty of Engineering of the University of San Andrés (Centro Nacional Boliviano de Documentación Científica y Técnica) is in the process of becoming a national documentation centre for science and technology (including agriculture and public health). It has been commissioned by FID to prepare a survey on the journals for industry. In light of the numerous enquiries from industrial enterprises, the Centre acts as an agency for UNIDO in Bolivia. For the field of education and training the government has established the Centro Nacional de Documentación Educativa, which is subordinate to the Oficina de Planeamiento Educativo. Its main task is to carry out educational research with a view to improving the national educational system and to act as a clearinghouse in the field of education.

In Argentina the National Council for Science and Technology (Consejo Nacional de Ciencia y Técnica—CONACYT) is in charge of national policies in science and technology. There is, however, a real problem in organizing a national information system for science and technology, in which the National Council for Scientific and Technological Research and its specific department, the Scientific Documentation Centre, will probably take an important part. At present the main objective is to define and coordinate tasks and responsibilities in the various regions, disciplines, and spheres of activities. One cannot speak of a national documentation and information system, as long as the coordination work is still carried out by a national committee or other body.

The National Centre for Educational Documentation and Information (Centro Nacional de Documentación e Información Educativa) can be considered the only national documentation centre in the field of education and training.

In addition, there are a number of important institutions which have documentation services. The Scientific Documentation Centre of the National Scientific and Technical Research Council (Centro de Documentación Científica del CONICET) has important tasks including

- the operation of a service for bibliographic orientation;
- the procurement of copies of scientific documents from the libraries of Buenos Aires and other cities of Argentina as well as from abroad;
- the preparation of the Union Catalogue of Periodicals and Publications;
- the provision of a language service for the translation from uncommon languages into Spanish and from Spanish into all other languages;
- service as a national telex network clearinghouse for the exchange of scientific documents in collaboration with the universities of the countries;
- centralization of enquiries directed to other countries;
- provision of information to research centres and other centres for the promotion of science, science policy or science management and to researchers.

Operating in the specialized sector of technical and industrial information there are the Research Centre for Documentation of the National Institute of Industrial Technology (with an incomplete collection of Argentine patents), the Documentation Centre for Economy and Technology, the Library and Documentation Centre of the Engineering Faculty, the Documentation Centre of the Centre for Textile Research, and the Argentine Institute for Rationalization of Materials.

In Cuba there are, apart from the documentation centres organized by the state, scientific institutes such as the Institute for Scientific and Technical Documentation and Information as well as institutes run by industrial enterprises. In addition, there is a file of industrial ownerships in the ministries dealing with the basic branches of industry. The Institute for

Scientific Technical Documentation and Information serves as national documentation centre for technology and is to be developed into a national and central information system. One of the main tasks of the centre is to ensure the import of foreign scientific literature. A regional documentation centre for the field of agriculture has also been initiated.

In Brazil the leading institution for documentation in the field of technology and industry is the Brazilian Institute of Bibliography and Documentation (IBBD). It is a national documentation centre within the framework of the National Scientific Research Centre and is directly responsible to the President of the Republic. Its tasks include

- the organization and propagation of specialized bibliography and documentation services;
- information exchange between libraries and documentation centres at national and international level;
- promotion of the use of bibliographical and documentarian facilities and their coordination for the purpose of providing scientific and technical information.

In Brazil there are 61 documentation centres for the field of technology as against only 9 such centres for the agricultural sector. A total of 200 documentation centres are operated by scientific, industrial and other organizations. There is a patent documentation in the Ministry of Industry.

Nicaragua has no national documentation centres. There are only three local documentation centres for the fields of technology and industry. The sources are mainly the university libraries.

In Peru the government has asked the Sociedad Nacional de Industrias to establish a documentation and information centre as a first step towards an economic and technological research programme. This centre is intended to enable the user to contact the producer, i.e., the national and foreign sources of information. Profiles are to be prepared for the various types of users in order to be able to provide them with special information. At present the only national documentation centre is the Centro de Investigaciones Pedagógicas, run by the Ministry

of Education. In the field of technology the Biblioteca Central of the Universidad Nacional de Ingeniería has made a beginning towards organizing a documentation centre. The same holds true for the Escuela de Administración de Negocios para Graduados and the Centro de Información de la Sociedad de Industrias.

Colombia has several national documentation centres, inter alia the centre at the Industrial University of Santander, the National Centre of Agricultural Investigations, the Centre of Documentation of COLCIENCIAS, the Centre of Documentation of the Chamber of Commerce, and the Interamerican Centre of Tropical Agriculture.

Apart from documentation and information centres in the Latin American countries which I have not mentioned, there are regional documentation centres which concentrate their activities on certain fields.

a) Consejo Latinoamericano de Ciencias Sociales (CLACSO) is an independent Latin American research and documentation centre which collaborates with 50 centres in Latin America. CLACSO publishes.

- i) "Boletín informativo" (bi-monthly)
- ii) "Directorio de Centros Latinoamericanos de Investigación en Ciencias Sociales"
- iii) "Perspectivas de la Historia Económica Cuantitativa en América Latina"
- iv) "Enfoques sobre América Latina: análisis crítico de informes recientes" (study of the Rockefeller and Peterson Reports)

In the field of social science CLACSO serves as an information centre and as a platform for the exchange of experiences and for reports on the activities of member organizations and their publications. It also suggests publications such as "Inventarios de Investigaciones sobre Desarrollo Rural", recommends the publication of journals such as the "Jornadas de Desarrollo Rural", which latter contains critical analyses of the agricultural structures of Latin American countries, discusses socio-economic population problems at interdisciplinary level, and provides a platform for the theoretical/practical

exchange of experiences. The Latin American data archives organized by CLACSO are an attempt to compile an inventory of all public data from Latin American countries. Collection of data for Argentina and Chile have been completed, that for Venezuela is being prepared.

b) Instituto para la Integración de América Latina (INTAL) is affiliated to the Inter-American Development Bank. INTAL is primarily engaged in the field of integration and social science. It publishes surveys on problems and legal questions of integration, monographies, the weekly "Boletín bibliográfico de artículos de publicaciones periódicas y documentos", and bibliographies. A research project on the integration process is planned, and the spadework of evaluating existing sources has already begun. The work of the secretariats of various organizations is being coordinated, and closer cooperation between them is encouraged. A feasibility study on "Receiving and Giving Information for Developing Countries" is in the planning stage.

c) The Latin American Centre for Economic and Social Documentation (CLADES) took up its work on 1 January 1971. Its activities are laid down in a 10-point programme. They include the provision of information material for the preparation of papers; preparation of a directory of institutions, documentation and information centres, bibliographical services, etc.; preparation of central archives and files which are not available elsewhere; preparation of analyses and special compilations in the field of economic and social development in Latin America; and the preparation of data for electronic data processing and the completion, in close collaboration with the OECD Development Centre, of a joint descriptor list in Spanish.

The final four-language descriptor list will be binding on all OECD member countries, the European Communities and the specialized agencies of United Nations. A "common language" will then be available for evaluation, storage and retrieval on computer basis; for the preparation of user profiles; for the copying of ECLA publications on microfilm; for the organiza-

tion of expert meetings on documentation and information technology; for the elaboration of effective methods for the collection and processing of information of economic and social content; and for the organization of documentation and information networks between international agencies and national documentation centres. In this way a coordinated and rapid exchange of data will be rendered possible and publications on modern documentation and information techniques can be made available.

On the occasion of its 150th Session on 6 May 1971, ECLA stated with respect to economic and social documentation in Latin America: "ECLA stresses the need for Latin American countries to have up-to-date national systems of economic, social, scientific, statistical and technological information and recommends that CLADES should develop a programme for providing the countries that request it with technical assistance in the establishment of national centres for economic and social documentation."

On the occasion of the 35th FID Conference and the International Congress on Documentation in September 1970 in Buenos Aires, which dealt primarily with problems of documentation users and their needs, Mrs. Celia Zaher, the President of the Latin American Committee, analyzed the documentation problems in Latin America. The Directress of the Instituto Brasileiro Bibliografica e Documentacao (IBBD), which is famous beyond the borders of Brazil, considers the following factors to be the causes of the present information crisis:

- a) Increase in the number of producers of literature
- b) Increase in the number of publications
- c) Growth of non-conventional forms of literature
- d) Linguistic problems.

This situation faithfully reflects the information crisis in all parts of the world. One factor which has not been taken into consideration sufficiently is the lack in almost all countries of documentation-mindedness on the part of decision-makers responsible for planning, projects, or investigations in



the socio-economic field and related fields. This applies above all to those user groups who are working to narrow the technological gap between industrial and developing countries. When providing information it is therefore of prime importance to accord priority to technologists expected to contribute to the desired industrial progress. Without doubt this will lead to a change in the information system; taking user needs into consideration, the system will be adapted to the various groups of users. Only when the engineer—for any other user—has become aware of the fact that through a well-organized information service he can make use of the knowledge and experience of others in tackling his own problems will he call for information facilities which have so far been withheld from him either by the government or by the enterprises.

From the statement of the FID/CLA President and the ensuing remarks, it is evident that the following considerations are of vital importance to Latin America.

1. The current situation in Latin American countries in the field of documentation and information presents a variegated picture. Some systems are not beyond the planning stage, others are just in the process of being organized, still others are well-equipped and well-functioning centres whose standard is quite up to that prevailing in industrialized countries.
2. Similar to industrialized countries, Latin America has difficulties in organizing national or regional integrated systems intended to improve the flow of information between centres now operating and centres being organized. The problems are attributable to a lack of coordination and clarity as regards activities and aspirations in this field.
3. The UN specialized agencies which have their seat or representation in Latin America have so far not succeeded in organizing coordinated systems providing information and documentation material processing for various users (individuals or institutions) and working at national, regional or international level. As this lack is considered by both developing and industrialized countries to be an impediment to development, the creation of a

coordination centre for the entire information system of the United Nations is urgently recommended.

4. There is a dearth of efficient information facilities. More effort should be made to render those responsible for progress, i.e., politicians, scientists, entrepreneurs, trade unions, technicians, and masters, documentation-minded and to transform their apathy in procuring information into a willingness to deepen their knowledge in a pragmatic process of learning.
5. Only when it becomes generally known that the standard of living depends on the level of development and the rational use of know-how and experience available in the country concerned or in other countries can an improvement in the situation be expected.
6. More attention must be directed in Latin American countries towards the user groups. It is necessary to identify them, define their needs and determine the general behavioural patterns governing their thoughts and actions. The results of user analyses from industrialized countries will not be of much use; however, the methods by which they are prepared could be studied.
7. Whereas on the one hand governments do not accord priority to the creation of information facilities although Latin American countries have also recognized the necessity of developing research and technology, on the other hand there is a lack of qualified personnel who can take care of user needs and perform a variety of other tasks.
8. All potential users should be well informed on the documentation facilities of the institutions where they are working and on all national and regional information centres.
9. Within one country and among the Latin American countries an exchange of information on projects (research, industry, agriculture, etc.) should be initiated in order to avoid duplication of work and to improve international cooperation.

10. With a view to increasing literature production within the country and abroad (books, technical journals, news services, unpublished literature), the documentation services, including the technical libraries, should be allocated more funds in order to enable them to supplement their collections.

11. The reduction of the rates of surface mail and air mail for all types of documents which directly or indirectly serve the progress of a country would considerably facilitate the flow of information between "producers" and "consumers" in industrialized and developing countries.

12. The exchange and free distribution of scientific, project-related and technical publications should be accelerated. The industrialized countries should be more generous when publications are concerned which are of particular use to the developing countries. The same applies to the personnel of an information service. They should not limit themselves to operating a reference service or a service for forwarding documents but also should call upon the industrialized countries to provide free advisory services for developing countries.

"I have not dealt with all problems involved in the field of information in Latin America. My main purpose was to make the user aware of the national and international implications of his activities and the interdependence of these activities with technical information. The realization not that theoretical considerations but rather facts and their practical application are involved can facilitate understanding for the new raw material "information."

The following factors should be taken into consideration when organizing an industrial information centre at industrial, local or regional level:

1. The present state of industrial development should be determined and analyzed.
2. Recommendations for the setting up of an information centre should then be elaborated on the basis of these analyses.
3. The demand for information should be established. This de-

mand is governed mainly by technology (i.e., processes used in mining raw materials or production methods applicable to the manufacture of certain goods).

4. As regards technology (including research, questions of economic viability, and the distribution of knowledge), the questions that must be asked are: "What was the old way of doing the job?" "What is the modern way of doing it?" These questions can be answered by publications giving information on production methods, performances of various types of machinery, and details as to where this machinery is in operation.

5. A file should be kept of manufacturers' production equipment catalogues. This material must be related to practical requirements, e.g., it must provide answers to such questions as: "Where can I buy machines which will reduce my repair costs?" This file should contain the names of firms that have established themselves in world markets and firms which can be of specific use to Latin American countries.

6. Relevant newspapers and journals should be subscribed to which provide current information of high standard.

7. A survey should be made of the various national and regional centres that store information; time-consuming "detective work" and wasteful duplication of work will thus be avoided. In addition to this type of national information guide, there should also be appropriate directories on hand to cover the international field.

8. Seminars should be held for the purpose of bringing together information users and representatives of interested firms. Participants will then have an opportunity to catch up with the latest technical developments, compare notes, make useful contacts, and make optimal decisions.

9. A training centre for industrial information officers should be set up. It will subsequently be the task of these officers to establish industrial or state-organized information offices and run them in a manner similar to a relay

station or travel bureau. Just as a travel bureau uses timetables in serving its clientele, so an industrial information service could compile and use timetables in connection with the purchase and sale of "technological installations" and with related consultancy services. The office would prepare, evaluate and store all informations relative to these activities and reprocess the data for its users.

10. When setting up an information centre, the extent of industrial development in the country concerned should determine the degree of attention given to each of the various types of information covered. In close coordination and collaboration these centres should be joined together in an information network which would have access to existing networks and centres.

I should now like to quote from the findings of a Study on Information in the Field of Technology and Medium Enterprise, recently published in Germany. I believe that these findings are also applicable to users of industrial information in other countries.

"In general, what is expected from all information services, regardless of the field they cover, is that the information they supply be clear, concise and related as closely as possible to practical applications. Sterile scientific jargon is not acceptable and may even be incomprehensible. Whereas top management needs to be kept informed of new trends and is content to leave other personnel to fill in the details, middle management requires specific practical information which can be supplemented upon request. The most important qualities as far as lower level management is concerned are brevity and clarity."

The following passage appears in the section devoted to interpreting these findings. "The desire for brevity and clarity shows that the information available on this area of the economy bears little comparison with what is required. People wish to be informed in such a way that only a minimum of effort is required on their part. The logical consequence is that in his own interest the informee must be encouraged to increase his

demand for information. This in turn will require more extensive knowledge on the part of information suppliers. It is of primary importance to find out what type of information users at various management levels require. The situation at present seems to be that communication media are oriented towards the level of the entrepreneur and the board of directors. This raises the very important question as to whether or not it would be more useful for information services to address themselves directly to the 'second team.' Lower level management is being completely neglected at present by information producers. Serious consideration should also be given to the question of whether and to what extent information services can assist in the 'upgrading' of master craftsmen. The gradually improving standard of education among lower level management may greatly facilitate technical development."

Man is at the centre of the industrialization process in all countries. He has already solved many of the problems that attend this process; he must now face the task of overcoming the problems that remain.

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**22 . 3 . 74**