



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th 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 for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

21408

Distr.
RESTRICTED

IRD/R.7
1 December 1995

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

ORIGINAL: ENGLISH

REGIONAL INDUSTRIAL AND BUSINESS INFORMATION SERVICES

XP/RER/95/061

Final report*

*Based on the work of Mieczyslaw Muraszkiewicz,
consultant on design of information systems*

Project Manager: J. Pavlik
Industrial Information Section

* Mention of firm names and commercial products does not imply the endorsement of the United Nations Industrial Development Organization (UNIDO).

This document has not been edited.

V.95 59973

ABSTRACT

Author: *M. Muraszkwicz*
Corporate author: *UNIDO*
Title of project: *Regional Industrial and Business Information Services*
Number of project: *XP/RER/95/061*
Title of report: *Final Report*

This document summarizes the country reports prepared by national consultants in the Czech Republic, Hungary, Poland and the Slovak Republic, as a part of the work on the establishment of a pilot operation of the *Instant Business Information System (IBIS)*. All the reports were written according to the same pattern (see Annex 3, Section IV). The main interest of the reports was focused on: the countries' economic situation in terms of business ventures; categorization of actual and prospective business information users and their information needs; main providers of business information services in the countries; and telecommunication facilities, in particular related to the Internet.

The main conclusions and findings of the reports are:

- There exists a growing need for business information and information services in the examined countries;
- The existing information technology facilities and databases are not fully adequate to the actual needs of people and organizations seeking business information;
- There is a growing understanding that the main feature of the information provided is its quality;
- There is a common acceptance (within the community of business information technology specialists) of the rule that information services have to go hand in hand with networking and that connectivity is a key issue when setting up heterogeneous information systems addressing the needs of various categories of business oriented users;
- The telecommunication infrastructure is good and the Internet is well rooted in the countries; however, smaller businesses hardly benefit from the opportunities offered by the Internet and other networks. Much larger is the involvement of business information providers in the Internet based activities;
- Due to low awareness of individual entrepreneurs and SMEs about the business opportunities offered by and through the Internet there is a need for (and a window of opportunity from a purely business standpoint) intermediary organizations helping the end-users to tap the requested information via the Internet.

Therefore, the idea of building an international referral business information system based on the Internet and local information facilities is supported by the interested parties.

The present document describes a topology, architecture and functionality of IBIS (Chapter 4). It stresses the role of national efforts in building the system. IBIS is aimed at designing and developing

an information system/network that would enable the users, at any location of the region, to access and obtain information required to run their businesses in the region or worldwide. To achieve this goal it is, however, not intended to create new centers, networks and databases; the existing information centers and national/global networks could be utilized. In fact, IBIS will be a regional federation of participating countries which will contribute to the systems through making available some of their resources to the others. UNIDO will coordinate this work.

TABLE OF CONTENTS

<i>ABSTRACT</i>	2
<i>MAIN ABBREVIATIONS</i>	6
1. PURPOSE OF THE DOCUMENT	7
<i>Purpose</i>	7
<i>Methodology</i>	7
<i>Structure of the Report</i>	7
<i>Acknowledgments</i>	8
2. PROJECT HIGHLIGHTS	9
<i>Background and Rationale [PRD95]</i>	9
<i>IBIS - A Network Based on the INTERNET</i>	10
<i>IBIS Development Scenario</i>	11
3. SUMMARY OF COUNTRY REPORTS	12
<i>Business Information - Definition:</i>	12
<i>General features of the countries' economies</i>	13
<i>Business Information Users</i>	14
<i>Business Information Needs</i>	15
<i>Providers of Business Information Services</i>	16
<i>Telecommunication and Internet Service Providers</i>	16
<i>Conclusions</i>	17
4. PROPOSALS	19
<i>Paradigms</i>	19
<i>IBIS Features</i>	19
<i>Architecture</i>	20
<i>Tasks and Roles of FP/UNIDO and NFPs</i>	21
<i>Access</i>	24
<i>Operating Requirements</i>	25
<i>Technical Requirements</i>	26
<i>Pricing policy</i>	26
<i>Critical Issues</i>	27
5. FOLLOW-UP	28
REFERENCES	29
ANNEX 1. SHORT NOTE ON THE INTERNET	30

Origins and features 30

Internet services 31

People-to-People; Information Exchange 31

Remote Access and File Transfer 31

Finding Users 32

Identification of Resources 32

Commercial Internet Applications 33

ANNEX 2. KEY BUSINESS BENEFITS OF THE INTERNET 34

Six benefits 34

ANNEX 3. COUNTRY REPORT LAYOUT 36

MAIN ABBREVIATIONS

BPS	Bits Per Second
CD-ROM	Compact Disk/Read Only Memory
E-MAIL	Electronic Mail
FAQ	Frequently Asked Questions
FP/UNIDO	IBIS Focal Point at UNIDO
FTP	File Transfer Protocol
FSU	Former Soviet Union
GB	Giga Bytes
GUI	Graphic User Interface
HTML	HyperText Markup Language
IBIS	Instant Business Information Network
INTIB	Industrial Technology Information Bank (operated by UNIDO)
ISO	International Standards Organization
IBIS	Industrial, Technology and Market Information Network
MB	Mega Bytes
NFP	National Focal Point
OSI	Open Systems Interconnection
PC	Personal Computer
PPP	Point-to-Point Protocol
QBE	Query-by-Example
SLIP	Serial Line Internet Protocol
SME(I)	Small and medium Enterprises (Industries)
SQL	Structured Query Language
TCP/IP	Transmission Control Protocol/Internet Protocol
UNIDO	United Nations Industrial Development Organization
WWW	World Wide Web

1. PURPOSE OF THE DOCUMENT

Purpose

1. This document is a report which:
 - summarizes the information provided by the country reports that were prepared by national consultants in the Czech Republic, Hungary, Poland and the Slovak Republic ([STE95], [SZA95], [KLU95], [SCH95], respectively), as a part of the work on the establishment of a pilot operation of the *Instant Business Information System* (IBIS);
 - provides proposals regarding the establishment of the pilot version of IBIS.
2. The report is addressed to: (i) the designers of IBIS; and (ii) the participants of the Bratislava Workshop, 14-15 November, 1995, as a supporting material.

Methodology

3. The methodology adopted for preparing this report has been based on the following:
 - analysis of the recommendations of the Budapest meeting (14-15 October, 1994) where the concept of IBIS was presented and discussed for the first time publicly;
 - analysis of the Project Document [PRD95];
 - discussions with the Internet specialists in UNIDO;
 - analysis of the country reports;
 - discussions with SMEs.
4. All the country reports were written according to the same pattern (see Annex 3, Section IV). The main interest of the reports was focused on: the economic situation of the countries in terms of business ventures; categorization of actual and prospective business information users and their information needs; main business information services providers in the countries; telecommunication facilities, in particular related to the Internet.

Structure of the Report

5. Chapter 2 recalls the objective, assumptions, principles and strategies of the IBIS project. In the next Chapter the main findings of the reports prepared by the national consultants in the Czech Republic, Hungary, Poland and the Slovak Republic are summarized. Chapter 4 is an attempt to define IBIS in terms of its features, functionality, architecture, hardware, software and services offered. Chapter 5 specifies the follow-up to be undertaken in the nearest future in order to achieve the project objectives. Annex 1 is a brief note on the Internet where the stress is put on categorization of the Internet services. Annex 2 discusses the key business benefits of the Internet usage. Annex 3 contains the country report layout as it was given to the national consultants.

Acknowledgments

6. A great deal of very helpful opinions and suggestions, and valuable contributions were received from the national consultants and UNIDO specialists. The author of this report is indebted to all of them and expresses his gratitude for their contribution to his work.

2. PROJECT HIGHLIGHTS

Background and Rationale [PRD95]

1. Central and East European countries as well as countries of the FSU are presently undergoing radical political, economical, cultural and social changes. These changes affect industrial enterprises, agriculture, scientific and educational institutions, all parts of the society.
2. The transformation to market economy goes hand in hand with privatization and this is closely related to the formation of small and medium enterprises, whose successful start and further performance depends largely on supply of information. Having this in view, the technical assistance to information centers that would help to bridge the present transition period of transformation from a centrally planned economy to a market one, would represent a very significant support to the process of privatization, to small- and medium-sized enterprises and to the success of the entire economic reform in central and east European countries.
3. No doubt that in the past many fine and worldwide recognized libraries and information centers have been established and developed in these countries. The services of these centers have been, however, primarily focused on the needs of scientists, researchers and university students. There were no information services for entrepreneurs, simply because there were hardly any in these countries and consequently there was no need for such services.
4. For this reason the present information services for SMEs are far from being sufficient, while the undergoing transition to market economy calls for efficient supply of the latest information on products, raw materials, technologies, market, prices, potential partners, suppliers, laws, regulations, domestic and foreign companies' directories, standards, i.e., a broad range of essential information that we might simply call *business information* (for a more elaborated definition of the term *business information* see Chapter 3, "Business Information - Definition).
5. Moreover, the disintegration of the COMECON and its institutions has, inter alia, seriously affected the coordination and cooperation in the field of development of data banks, information services, information networks and each country has started to design and develop its own information system without knowing what is going on in the neighboring country, without realizing that some efforts, activities might be duplicated.
6. This situation has started to present a serious impediment for the transition process of the economy, for the foreign investment and for the development of SMEs for which the availability of the latest business and industrial information data and information services is vital.
7. UNIDO has realized the danger of absence of coordination activities within the region and convened in October 1994 a workshop of information specialists from sixteen countries in Budapest. The participants of the workshop welcomed UNIDO's proposal to develop a regional information system that would provide efficient, updated information services to SMEs and strongly recommended to start the development of the system

without any delay.

IBIS - A Network Based on the INTERNET

8. UNIDO's proposal of the *Instant Business Information System* (IBIS) is aimed at designing and developing an information system/network that would enable the users, at any location of the region, to access and obtain information required to run their businesses in the region or worldwide. To achieve this goal it is, however, not intended to create new centers, networks and databases, the existing information centers and national/global networks could be utilized. In fact, IBIS will be a regional federation of participating countries which will contribute to the systems through making available some of their resources to others. UNIDO will coordinate this work.
9. A strategic objective of the project is to initiate and facilitate cooperation and coordination of the presently functioning national centers the Czech Republic, Hungary, Poland and the Slovak Republic in designing and developing compatible and harmonized business information databases and information services in order to make them directly available to end-users, in particular to SMEs.

An operation objective is to design and to start up a pilot operation of the Instant Business Information System (IBIS) that will: (i) link the industrial and business information services, in particular focused on small and medium enterprises; and (ii) will serve as a source of information first of all addressed and available to SMEs.

10. The information will be available through different forms (hard copies, diskettes, CD-ROM, on-line) and the system should provide primary, secondary and referral information. If the requested data were not available, the system should indicate where, how and for how much the data can be obtained.

It has to be emphasized that the INTERNET is foreseen to serve as a main access and data channel to/from IBIS, comprising at least one operational Focal Point in each participating country, i.e in the Czech Republic, Hungary, Poland and the Slovak Republic.

11. After an introductory and promotional period IBIS will offer information and services at a price. As the time goes on, IBIS should become self-sustaining and even should be able to generate some profit.
12. It is important to provide a critical mass of IBIS functionality as a result of the present project in order to ensure smooth start up of a regular operation of IBIS in the future. To this end, it is proposed to set up a small UNIX-based computer, attach it to the Internet, assign the Internet ID to the computer and equip it with basic tools necessary for initiating the work (e-mail, FTP, Gopher, WWW, database management software, etc.). In addition, some of the UNIDO INTIB databases and countries' databases offered by the system participants will be located on the computer. To complete the initial set up, it is proposed to establish a Bulletin Board for all the interested users and a simple WWW application providing information on IBIS and already available resources. The IBIS administrator main activities, in the context of the computer operation, will be, *inter alia*, to be the Bulletin Board moderator and to take care of the WWW application. More on the IBIS architecture, functionality and other technical issues is said in Chapter 4.

IBIS Development Scenario

13. The general development scenario for IBIS assumes two phases:
 - design and implementation of the pilot system, which is the objective of the present project;
 - enhancement of the pilot system and including new countries; when IBIS becomes operational within the four pilot countries, gradually other countries of Eastern Europe and the former Soviet Union will be linked to the system.

14. It has to be stressed that the ultimate IBIS system has to be built up by the interested countries, rather than by UNIDO. The only role for UNIDO to play is to provide the countries with its expertise, information resources and experience in establishing similar systems. At the initial stage of the system design and development, namely within this project, UNIDO is supposed to provide the seed capital to purchase the above mentioned computer and to start running and administering the basic IBIS functions and to co-ordinate the pilot project activities.

3. SUMMARY OF COUNTRY REPORTS

1. When analyzing the country reports [STE95], [SZA95], [KLU95] and [SCH95], special stress was put on identifying the common features taking place in the examined countries. Therefore, the writing of this Chapter can be, to a large extent, considered as a logical intersection of the phenomena occurring in the Czech Republic, Hungary, Poland and the Slovak Republic. This Chapter is structured according to the pattern defined in Annex 3, Section IV.

Business Information - Definition

2. An interesting broad definition of *business information* is given in the report [KLU95]. It says that "*business information* is the sum of data comprised by the following set of national categories:
 - Information on each individual company and a full collection of such information about all the companies in the country scale. Apart from basic company data, such as company name, address and contact persons, this includes branch/sectorial company activity profile in terms of product manufactured and/or services rendered, also export/import data, employment, annual turnover and balance sheet. This category includes also the data on the company membership to a chamber of commerce.
 - The same type of data as above on foreign companies who are willing and are able to enter cooperation agreements/contracts with domestic companies, especially in the field of overall modernization, automation and general improvement of technological and managerial processes. This regards particularly such foreign companies which are intended to invest in various sectors of the national economy, e.g. industry, agriculture, trade, construction, transportation, tourism and other services, etc.;
 - Detailed (complementary to the above items) information on company (domestic and foreign) products and services, in terms of their specific types, categories, prices, including qualitative and quantitative data, product marks and standards, supply and paying modes etc.;
 - The data supplementary to the first two items; information on company cooperation needs, expressed in terms of company offers and demands, in the scope of as well general and technical cooperation as export/sales, import/purchase, investment, subcontracting, business representation, training and documentation needs, participation to business missions and visits, fairs and exhibitions, etc., and also intention to enter joint-ventures;
 - Information on domestic and foreign fairs and exhibitions, and conditions to participate thereto by domestic companies, including name of the event, its characteristics, location and timing, types of product and/or services presented, exhibition area prices and participation costs;
 - Information on inward and onward business missions and related events, and conditions to participate thereto by domestic companies, including name of the event, its scope, target country/region and timing, types of product and/or services presented, possible exhibition area, prices and costs, and other participation terms and conditions;

- Information on upgrading and training of company staff in the scope of business management and finance, legal acts and regulations, standardization, customs tariffs, insurance and business information. Detailed information includes course, seminar and symposia type and scope, target groups, timing, location and conditions to participate;
- Information pertaining to services in the scope of management of special foreign trade customs documentation such as ATA Carnet and certificates of origin for given commodity types;
- Statistic and analytic information, including development trends in particular sectors of national economy, versus both branches and regions, and on foreign markets for particular groups of products and services. This regards also export capacity of domestic economy sectors and import opportunities on foreign markets on various product and service groups. Information on product manufacture and sales in various country regions is also included here;
- Information on legal acts and regulations pertaining to general commerce, finance, accounting, domestic and foreign trade, customs, including domestic terms and conditions and those of foreign countries and international organizations. Special emphasis is put on contracts commencing and implementation, commercial arbitration, shipment of goods, services rendering etc., including full texts of legal acts and regulations. This category includes also rendering legal conductance and patent services;
- Information on various organizations, associations and other business supporting institutions, including Chambers of Industry and Trade, domestic, foreign and international, with special attention put on SMEs. Data on their activity scope, procedures and contact persons are also included here;
- Specific information on countries, their economies, policies and governmental and non-governmental organizations, geographic and demographic, social and cultural information, currency rates, customs tariffs and specific national legal regulations;
- Bibliographic-documentary information pertaining to commercial and economic issues, such as the results of market research in various sectors/branches, branch catalogues, statistic year-books, press releases and similar information which can be of use for business communities in the country and abroad".

Although very detailed and specific this definition still does not cover all the aspects which might be important for entrepreneurs. For instance, it does not include *business people*.

General features of the countries' economies

3. A general description of the economic situations in the Czech Republic, Hungary, Poland and the Slovak Republic are given in the reports [STE95], [SZA95], [KLU95] and [SCH95], respectively. The common general features of the national economies in these countries are, *inter alia*,
 - a steady process of stabilizing the economies and a visible economic growth;
 - a fast movement towards a free-market economy;

- the liberalization of the economies which has made it possible for various types of businesses to operate on an equal footing, regardless of the nature of ownership. This has led to a rapid growth in the number of business;
- a growing role of banks;
- strengthening of the national currencies and an ambition to achieve fully convertible currencies;
- small and medium scale industries and trade (whatever the definition of those entities) are enjoying revival;
- a privatization process carried out, including the participation of foreigners;
- a growing foreign investment;
- works on legal framework regarding macro and micro economic issues carried out.

Business Information Users

4. The following main categories of actual business information users have been identified:

- companies;
- administration;
- banks;
- financial brokers;
- information officers working in the field of business information or related fields;
- individual consultants and consulting firms operating in the field of commerce, trade, and industry;
- SMEs and individual entrepreneurs;
- R+D institutions;
- staff and students of all kinds of schools related to business;
- journalists working in the domains related to business.

It is not by chance that entrepreneurs (SMEs) occupy the lower region of the above list. As stated in the report [STE95], the fact is that "until now, many information providers failed to attract a large segment of the SMEs. The reason usually given is that SMEs and individual traders are not yet <<ripe>> for requesting and receiving business information". Dr. Stefec in his report comments that "the only bit of truth in it is that they are not ripe for paying for it. The real reason must be that the range of business information offered to them is not what they want and need". This comment seems to be really valid.

Business Information Needs

5. Information needs of the business concerned users can be structured in the following way:

- Company Intelligence
- Market Intelligence
- Business Opportunities
- Business Related Matters

More specifically, without distinguishing actual and potential needs, the business information needs could be summarized as a list of desired databases. Such a list looks as follows (priorities are not reflected):

- Company
- Market
- Technology (including technology transfer data)
- Products
- Machinery/Equipment
- Projects
- Roster of Experts
- People, "Who's Who in Business"
- Foreign Assistance
- Business Institutions, e.g. Chambers of Commerce, Business Associations
- Banks
- Insurance Companies
- Roster of Representatives, Authorized Dealers of Foreign Companies
- Authority Regulations
- Customs Tariffs and other foreign trade charges, Custom Procedures
- Stock Exchange Data (including trends)
- Current Exchange Rates
- Transport Services
- Consumer Reports
- Business Opportunities (requested, offered);
- Partner Matching
- Job Opportunities Board (requested, offered)
- Training Opportunities
- Roster of Stolen Goods, e.g. cars
- Professional Events (trade fairs, exhibitions, seminars, etc.)
- Flight connections
- Hotels, Motels, Travel Agencies, Restaurants
- Social events
- Entertainment
- Extracts from newspapers and journals, various newsletters, bulletins, etc.
- Weather Forecasts

This is a wishful thinking list, indeed. The report by Mr. J. Klucinski [KLU95] is more realistic and proposes 7 modules to satisfy users' needs, namely "companies (basic and dedicated company data, company offers and demands), business missions and visits, fairs and exhibitions, training, legislation, documentary information and information on countries".

Providers of Business Information Services

6. The country reports bring up a thorough presentation and analysis of the business information providers in the countries. Noteworthy, a special questionnaire survey of 206 organizations providing business information was conducted in Hungary in 1993 [SZA95]. It seems that this venture might be a model for similar initiatives in other countries. To a significant extent the facts observed in Hungary apply to other countries in question. The most important fact is that after the year of 1989 more and more private information companies have showed up on the business information scene (e.g. Albertina icome Ltd. in the Czech Republic, Company Data in Hungary, VIP in Poland) proving the thesis that business information can also be business. Now, in Hungary only 11 % of the business information providers are government owned bodies, 45 % are chambers, associations and foundations and 44 % are private companies [SZA95].
7. The online access, as stated in Dr. Stefec's report [STE95] "will gradually find its way to even more facets of our life; in the areas of science, technology, and business this is a certitude". At present the online access is quite common in the countries, as opposite to the situation before the year of 1989. Now, even small private information companies provide access to the international online services, e.g. the VIP company in Poland. However, the online searches in foreign databases (for instance offered by Dialog) has had a tendency to decrease over last years. This is how Dr. P. Szántó explains this fact: "the decreasing number of searches is due to
- the decreasing interest for scientific and technical information;
 - the relative high costs of the online searches and the decreasing financial sources of the users;
 - the growing use of the CD-ROM databases" [SZA95]

As a comment we can add that CD-ROM databases have become a very attractive alternative to the online searches also because they are more friendly and simpler when looking for information. An interesting emerging aspect of offering CD-ROM databases is to provide access to them from remote workstations.

8. Another important factor regarding the provision of business information is the growth of locally produced databases and database producers. For instance, in Hungary there were some 10 databases in the year of 1989 whereas 58 database were registered in the year of 1994. In the Czech Republic there were 75 private producers of database last year and now this figure is accounted for 120 database producers.
9. Foreign business information providers are in general interested in the East European countries. The example of Poland is quite indicative: 7 business information providers out of 24 operating in Poland, as reported by Mr. Klucinski [KLU95], are from abroad companies. A short visit to such an event as an annual conference EuroInfo where many speakers and companies presenting their products and services come from Western Europe confirms this observation.

Telecommunication and Internet Service Providers

10. The examined countries have developed on a national-wide scale a relatively good tele

communication infrastructure in terms of both analog and digital transmission facilities, i.e. public telephone switching network and X.25 network, respectively. The reliability of public telephone networks is acceptable from the prospective IBIS data transmission point of view. In practice, running SLIP (or PPP) with the speed of 14.4 Kbps or even 28.8 Kbps is feasible in the countries.

11. The Internet is well rooted in the countries and has already reached various communities outside universities and academia. Bigger and leading businesses are more and more interested in the Internet because it is a fast and inexpensive platform suitable for carrying out an enhanced customer service; marketing and advertising; tracking competitors; and organizing remote collaboration. On the other hand, SMEs rarely use the Internet facilities in their day-to-day work. In fact, the lion's share of them are not aware of the opportunities offered by the Internet, sometimes they even do not know about the existence of the Internet at all.
12. E-mail is the most popular Internet service. WWW is becoming more and more popular, for instance as reported from Hungary [SZA95] there are 180 WWW servers with the weekly increment of 1-2 new servers.
13. The Internet service providers are mushrooming. In Poland 18 providers have been identified [KLU95] (one can also find a regularly updated list of them under <http://www.biznet.pl/netprov/plipprow.htm>); in Hungary 7 providers are offering the Internet services. The interesting fact is that a significant fraction of the Internet service providers are private companies.
14. The fees for the Internet services are rather moderate, for instance an e-mail box plus 3 hours of the connection time costs some USD 25 per month on the EUNET in the Slovak Republic [SCH95].

Conclusions

15. An examination of the present information scene from the IBIS standpoint allows one to note the following facts related to the information users and the strategic role of industrial, technology and business information:
 - growing interest of the business concerned users in information issues and services;
 - growing awareness, especially among cutting-edge entrepreneurs and decision makers, about the role of information in speeding up and facilitating decision making processes and in developing competitive advantages of companies and also in boosting productivity and quality of products;
 - growing acceptance that information is a commodity;
 - paradoxically, the above facts are not in practice correlated with the acceptance of the fact that information and information services may be hardly available free of charge;
 - new categories of users have been emerging, in particular analysts, financial

brokers, business consultants, primarily interested in business related information and only secondarily or rarely concerned with scientific information, technology and general industrial matters;

- emergence of new providers of information services and information brokers, in particular in the business information sector;
- better understanding of the nature and complexity of information processes such as acquisition, information (re)packaging, aggregation, distribution, etc.;
- growing understanding that the main feature of the information provided is its quality;
- acceptance of the rule that information services have to go hand in hand with networking and that connectivity is a key issue when setting up heterogeneous information systems addressing the needs of various categories of users.
- the telecommunication infrastructure, in particular the availability of the Internet is fairly good in the prospective IBIS member countries. The fees for acquiring the Internet services from the local providers do not seem to be an obstacle to SMEs. The main service outsourced by SMEs is e-mail. The transmission protocols SLIP or PPP required by WWW are hardly used;
- although for the time being the absolute figure of individual entrepreneurs or small enterprises who enjoy the advantages of wide area data transmission networks, in particular the Internet, is small, one can note a tendency that potential IBIS users who are (or are to be soon) equipped with PCs are interested in direct access to information resources by means of their computers;
- due to low awareness of individual entrepreneurs and SMEs about the business opportunities offered by and through the Internet there is a need for (and a window of opportunity from a purely business standpoint) intermediary organizations helping the end-users to tap the requested information via the Internet
- the number and structure of information services in the countries, provided by various public and private organizations are inadequate; they do not fully meet the growing demand, in particular its qualitative aspect; however, there are positive trends in terms of growing number of business databases produced (also in form of CD-ROMs) in the countries;
- foreign information agents tend to seize the main fragments of the information niches in the countries;
- a lack of money is a permanent obstacle for faster development of public information services;
- there are more and more private providers of business information service who are highly motivated information people working hard for the success. They are driven by a principle saying that "industrial and business information is business";
- legal regulations regarding the production, provision and distribution of information and information services are insufficient and/or obsolete

4. PROPOSALS

Paradigms

1. There are five underlying principles that govern the design of IBIS:
 - the IBIS facilities have to be consistent with the general business information trends as presented in the country reports; and with specific business information technology projects now being implemented in the countries;
 - one has to make optimum use of the existing facilities in the countries;
 - the IBIS member countries have to be involved in the system design, implementation and operation;
 - IBIS, as a common platform for business concerned agents, will realize the motto of Three-B

"Business-to-Business Bridge":

- the IBIS facilities have to be as simple as possible but not simpler.

IBIS Features

2. The major features of IBIS are as follows:
 - interaction and transactional capabilities

Users and some information suppliers will be able continuously to browse, search, transfer and update data remotely. Many users can interact with IBIS at the same time;

- user friendliness (ergonomics)

A Graphical User Interface (GUI) is a must. Querying has to be simple (therefore SQL as a main search language is excluded). Help facilities at any level of interaction have to be provided. A hypertext navigation should be possible and multimedia supported.

Psychologically, it is important that the response time of the system be acceptable to the users;

- openness to new users;
- being user-driven;

The growth and functionality of IBIS will depend on the users' needs and their demands;

- interoperability

An ability to co-operate with other systems, in particular to exchange data with them;

- modularity ("LegoLand"), scalability and upgradability

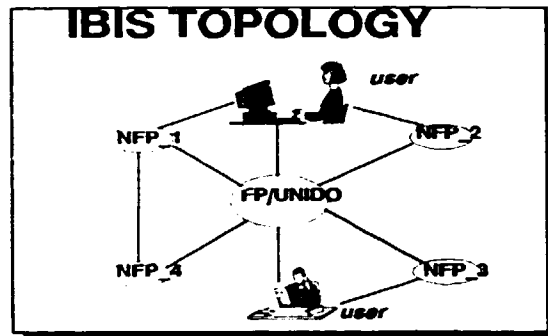
Resizing and/or seamless integration of new modules and functions;

- standardization of structures, procedures and tools;
- access rights and data protection mechanism

Architecture

3. The topology of IBIS is displayed in the attached figure. The main structural components are:

- the Focal Point at UNIDO (labeled FP/UNIDO);
- National Focal Points (NFP) placed in the countries;
- users; both individuals and corporate (i.e. organizations, companies, associations, business schools, etc.);
- other information resources (not shown in figure).
- logical links inter-connecting the above mentioned items.



Although the figure does not show it, each item can be connected to any number of other items. It is important to say that physical connections are not set up on a permanent basis; they exist when executing tasks only. The main type of connectivity is based on the Internet channels.

4. The underlying principle of the IBIS architecture is networking, which means that IBIS is a collection of hardware, software, logistics and, last but not least, human-beings inter-connected in various ways; nevertheless the technical component of the network, i.e. hardware, software and telecommunication, are perceived by the user as a single computer. In other words: the network is the computer. As already said, the proposed system will be based on the Internet which ensures the data communication facilities and provides access to the IBIS resources and other resources pointed out by IBIS.

5. The architecture of IBIS borrows from the concept of open systems which means that computer applications run within the system are vendor independent (in terms of computer platform), scalable, upgradable and can easily co-operate with other open systems.

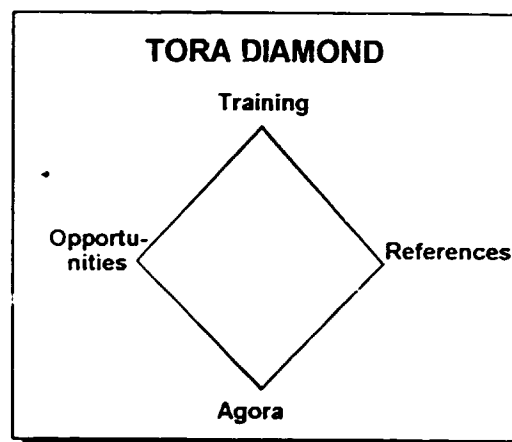
Note: The term "open systems" is vague and at this point it is not intended to discuss the issue; however, the term is not used in the sense defined by the International Standards Organization (ISO) [OSI91]

6. The whole working environment within IBIS is based on the concept of Client-Server, which (roughly speaking) means that the user who is working either at the IBIS Focal Point or is connected to the Internet is assigned a small piece of computing capabilities specific to the required task and through its "client window" can get access to the server where the actual job - for instance, retrieval - is being done by the server.
7. From the hardware/software viewpoint IBIS is a multi-user, on-line and, to some extent, real-time heterogeneous system.

Tasks and Roles of FP/UNIDO and NFPs

8. The shortest characteristic of IBIS is based on, what we call, the TORA principle which in form of a diamond is displayed in the attached figure. TORA means:

Training
business Opportunities
References
Agora



IBIS will offer training and information about training on the various types of business information issues, will present business opportunities to the entrepreneurs, will provide referral information on the various aspects of business, and last but not least will be a forum (agora) for business concerned agents and business information communities.

9. Let us present a preliminary list of the main IBIS tasks to be performed at the international level when the system will reach its full-scale dimension. In fact, by doing this, we are defining the FP/UNIDO role.
 - to assist users in accessing business information resources of the member countries. IBIS will be a gateway to national business information resources by providing the user with referral data indicating these resources and, if requested by the user and physically and legally possible, to switch the user directly to them (usually by URL pointers on the HTML documents being a part of the IBIS Home Page set up on the IBIS server placed at the FP/UNIDO). In this context Dr. P. Szántó proposes to set up what he calls *regional metadatabase* [SZA95] (a database on databases), which would maintain the data on the business information services and databases available in the countries;

- to make the INTIB information resources (e.g. IDA, REED) available to the users;
 - to acquire and handle selected national specific databases and make them available at the international level (it is expected that when IBIS reaches a certain level of maturity a compilation of these databases will be recorded on CD-ROM disks and sold);
 - to carry out an INFO service about IBIS, in particular about the member countries and the information resources available in these countries. This service will basically take form of a Home Page placed on the WWW IBIS server;
 - to carry out an international electronic business/trade board where users (subscribers ?) post advertisements offering to buy and sell products and services;
 - to assist users in carrying out their own businesses, information services and self-education, mainly by:
 - * running the IBIS mailing list and IBIS users group accessible via the Internet;
 - * organizing training, seminars and workshops;
 - * providing consultancy services;
 - to develop and disseminate among the NFPs the various types of IBIS tools such as linguistic tools, software, training and educational material and promotional material;
 - to provide Users' Support service which will include, *inter alia*, a Box of user's orders; Roster of IBIS users/subscribers (?); Info material, e.g. "What's IBIS ?", "All about IBIS", "How to Join IBIS ?"; FAQ; Tutorials, e.g. "How to Navigate"; IBIS Tariffs; Help procedures; Demos;
 - to maintain a Query Database that will contain the queries already addressed to the FP/UNIDO. The queries will be stored with the corresponding answers, if applicable and accepted by users. The reasons for running the Query Database are twofold: (i) to make future retrieval faster and cheaper; (ii) to be able to generate various statistics regarding the users, in particular their areas of interest, and thereby to improve the system management and provide adequate tuning;
- to operate a Statistics Database. Periodically, pre-defined statistics characterizing the system and the users will be generated and stored in this database. Running and storing *ad hoc* defined statistics should also be possible. The statistics will be used by the IBIS managers for tuning the system according to the identified demands and to improve the internal management.;
- to provide a forum for NFPs and other interested parties for exchanging experience and products; organizing collaborative work (joint projects); setting up working standards; and harmonizing development and promo-

tional efforts of the countries;

- to raise funds for developing IBIS;
- to promote IBIS;
- to coordinate the work of IBIS. This should be done at the present stage of the system development by a Working Group (membered by the national and international consultants of the present project, selected specialist from the Eastern Europe countries and representatives of UNIDO/INTIB). Having established the NFPs the Group should be transformed into a Steering Committee whose members will be the representatives of the NFPs, representatives of UNIDO/INTIB and the above mentioned persons from the Eastern Europe countries.

10. The NFPs, which to a certain extent are replicas of the FP/UNIDO at the country level, are also supposed to implement the TORA principle. More specifically in their full-fledged form the NFPs will perform the following tasks:

- to process users' queries and orders (usually at a price) coming from the country as well as from other countries and FP/UNIDO, and to make available NFPs information resources (also at a price);
- to run a national IBIS server equipped with a WWW platform;
- to run a periodically updated Home Page which will be: (i) the main entry point to the information resources available locally at the NFP; (ii) will contain pointers to outside national resources; and (iii) will give basic information about the country and the NFP itself.
- to keep identifying and locating domestic information resources which could be linked to the Home Page;
- to carry out a local mailing list and users group;
- to carry out a local electronic business/trade board where users (subscribers ?) post advertisements offering to buy and sell products and services;
- to provide Users' Support (see the same item for FP/UNIDO);
- to maintain a Query Database (see the same item for FP/UNIDO);
- to operate a Statistics Database (see the same item for FP/UNIDO);
- to maintain close contacts with the FP/UNIDO and other NFPs, in particular to exchange data and experience with them (cooperation rules to be set up) and to assist the FP/UNIDO in acquiring local databases to be set up on the IBIS server at UNIDO;
- to organize training;
- to offer consultancy services of various types (e.g. how to organize marketing of products on the Internet);
- to promote IBIS among SMEs and other prospective users at the country level.

In addition, the NFP should be a provider of the Internet services to SMEs (at a price). Various packages should be offered: starting from the simplest one composed of e-mail only, through more advanced Internet facilities such as Gopher, Telnet, FTP up to added-value services such as designing, implementing and running user's Home Pages on the NFP IBIS server;

Access

11. At this point It is important to distinguish two types of the Internet users:

- those who are interacting with the computers belonging to the global Internet, i.e. having their own Internet addresses (IDs); such computers (called sometimes "hosts"), in principle, are continuously attached to the Internet.

FP/UNIDO and NFPs will definitely belong to this category;

- those who are dial-up customers of the Internet services providers; by using those services, the user is tapping another computer's power, but is not actually "on the network". The dial-up connectivity requires a computer + modem + telephone line and some connectivity software.

The users of the first category may have at their disposal all the Internet services, whereas the dial-up customers may run them in a limited way. Nevertheless, dial-up service is the soundest route to the Internet highway for individual users and for many small businesses.

Those who want to combine dial-up with full access capabilities may use (after having installed appropriate software/hardware) the Serial Line Internet Protocol (SLIP) or Point-to-Point-Protocol (PPP). SLIP and PPP let the user continue to use a regular telephone line while making his/her own computer true network participant. This means, for instance, that a SLIP or PPP connection will let the user handle file transfer directly into his/her own system, rather than bringing in the file to the dial-up computer and then downloading it to user's computer. The user does not have to maintain the line only for SLIP purposes, because SLIP connections can be used on a dial-in basis. That leaves the telephone free for other purposes.

12. The main access facility to the IBIS on-line services will be provided by the Internet. For the users without computerized access to the system, there exists the possibility to submit queries or other orders by phone to the IBIS operator or to fax or mail him/her or to visit the NFP in person.

13. The end users, a majority of whom will be entrepreneurs, will be able to purchase from NFPs a start up kit. It is suggested that a qualified person from the NFP will install the kit and provide basic training on users' computers. The software kit will contain several interrelated modules:

- the IBIS working environment, including basic INFO about IBIS, the ways to use it. tariffs, electronic version of tutorials and manuals, trouble shooting, etc.;
- a WWW browser (optional) - graphical and/or textual;

- the IBIS Demo;
- a self-training environment which emulates the work with IBIS in the off-line mode;
- a modem (optional).

In addition, hard copies of manuals and other IBIS material may be provided. The price of the IBIS start-up kit should not exceed USD 200-300. It seems that NFPs should also offer the possibility of acquiring PCs, WINDOWS or other items to the interested end-users. Incidentally, NFPs may set up special agreements with the PC and software vendors to reduce the prices of the items to be put in the start-up kit.

Operating Requirements

14. Below are listed the main requirements addressed to the services to be offered by IBIS:

- available 24 hours a day, 365 days a year for all the IBIS users and staff;
- highly reliable;
- data protection;
- simple way of getting connected;
- easy and user-friendly interaction;
- reasonable prices of the commercial services;
- training and a start-up kits provided by IBIS NFPs to the users (see Section Access);
- seamlessly integrated with other services offered by NFPs and UNIDO/INTIB, in particular the INTIB databases have to be available through IBIS to the external users.

Technical Requirements

15. The major technical requirements on the IBIS servers and telecommunication channel to be installed at FP/UNIDO and NFPs are:

Hardware

- a robust UNIX platform (RAM at least 32 MB; HDD at least 2 GB);
- the Internet specific telecommunication software, e.g. TCP/IP (Note: it should be a part of the operating system);
- the Internet application and navigation software, e.g. e-mail, FTP, Telnet, Gopher, WWW;

- a leased line of 64 Kbps linking the FP/UNIDO and NFPs with local Internet services provider
- modems;
- a number of dial-up lines assigned to one collective phone number (hunting system).

Software

- Client-server structure;
- Graphical User Interface (GUI);
- Boolean Algebra, QBE, SQL (for savvy users) and full- text search tools;
- Hypertext navigation mechanism;
- Multimedia;
- Data export/import converters;
- Report generator;
- Multi-level access rights and data protection;

Pricing policy

16. By its definition IBIS is not going to be a commercial system. However, in order to make IBIS financially self-sustaining a pricing policy has to be defined. This issue requires thorough elaboration on the part of NFPs and UNIDO/INTIB. At the present stage three comments seem to be relevant:

- It has to be stressed that not only the users looking for information from IBIS and certainly not all of them will be charged; also, some of those who are interested in placing data within the system and making the data available to the others over a given period through IBIS will have to pay for this service;
- The costs relating to different services will obviously differ. Querying some databases will require a purchase of subscription; other databases will be available free of charge. The charges will vary from database to database, but in general will be related to the category of the user, connection time, access rights, procedure running time, quantity of data requested (e.g. the number of hits) and the IBIS information officers and/or consultants' workload connected to the requested service. Billing and administration will be done basically at the NFP;
- A pricing policy that might be implemented at the FP/UNIDO in accordance with general financial regulations of UNIDO is an entirely open issue for the time being.

Critical Issues

17. As it is usually the case with information systems, it is not the technical component of the system which is considered the most difficult and/or important one, it is rather the quality of data and services which matter. In practice that means that the crucial issues are the data acquisition procedures, data validation and packaging. This fact has to be taken into account when implementing the IBIS project and preparing its large scale take-off.
18. Immediate mobilization of funds for the follow-up project is an extremely important aspect of the after-the-present-project efforts. To this end, the attempts at the UNIDO level as well as at the countries' level should be immediately undertaken.
19. One should not start the IBIS promotion campaign too early, especially before the process of collecting and putting into the system a core of actual data has been completed; otherwise the promotional effort may turn out counter-productive.
20. The IBIS Focal Point Administrator has to be identified among the staff of INTIB and assigned to the day-to-day work related to the IBIS operation once the pilot version of the system starts functioning. The estimated workload of the Administrator is 30-35 % of the full time job according to the UNIDO standards.

5. FOLLOW-UP

1. Below are given the steps to be undertaken in order to achieve the objectives of the present project:
 - (i) to refine and get approved the proposals formulated in this report;
 - (ii) to specify and purchase the IBIS FP/UNIDO server;
 - (ii) to set up the IBIS server software (at least e-mail, FTP, Telnet, Gopher, WWW) and to connect the server to the whole Internet;
 - (iv) to prepare a pilot version of the IBIS Home Page and set up it up on the IBIS server;
 - (v) to connect selected INTIB databases to the IBIS server;
 - (vi) to identify and appoint the IBIS FP/UNIDO Administrator; and to set up the Terms of Reference of the Administrator;
 - (vii) to identify candidacies to play the role of NFPs;
 - (viii) to prepare the Project Document for the IBIS follow-up project;
 - (ix) to identify sponsors of the follow-up project and to start raising funds.

2. The tasks, time schedule, financial and human resources required regarding the IBIS building will be given in the Project Document.

REFERENCES

- [ENG95] Engst A.C., Low, C.S., Simon M. A., *Internet Starter Kit*, Hayden Books, 1995.
- [KLU95] Klucinski J., *The Instant Business Information System, Country report - Poland*, Warsaw, Poland, Oct. 1995.
- [LIU94] Liu C, Peek J., Jones R., Buus B., Nye A., *Managing INTERNET Information Services*, O'Reilly & Associates, Inc., 1994.
- [MAT95] Mathiesen M., *Marketing on the Internet*, Maximum Press, 1995.
- [OSI91] Cameron, D., *OSI: An International Standard for Open Systems*, Computer Technology Research Group, South Carolina, USA, 1991 (ISBN 0-927695-65-0).
- [PRD95] *Regional Industrial and Business Information Services, Project Document*, XP/RER/95/061, UNIDO, Vienna, 1995.
- [RES94] Resnick R., Taylor D., *The INTERNET Business Guide*, SAMS Publishing, 1994.
- [SCH95] Schill S., *The Instant Business Information System*, Slovak Republic, *Country report*, Bratislava, Oct. 1995.
- [STE95] Stefec R., *Business Information in the Czech Republic, Country report*, Prague, Oct. 1995.
- [SZA95] Szántó P., *Business Information Provision in Hungary, Country report - Hungary*, Budapest, Oct. 1995.

ANNEX 1. SHORT NOTE ON THE INTERNET

Per Internet ad Astra
(explorer.arc.nasa.gov¹)

Origins and features

- 1 Internet is a massive world wide network of computer networks comprising about 40,000 interconnecting networks, including about 3 million host computers directly connected to the net with more than 27 million users throughout the world. The rate of growth of the number of hosts is some 12 per cent per year. At present, the Internet spans more than 150 countries. As a virtual space of software, networking and computers, the Internet is infinitely renewable and infinitely adaptable, and it grows and changes every day.
- 2 The increasingly eclectic character of the Internet and its penetration into almost every corner of the globe have created a rich and sometimes unpredictable environment in which common interests and experience are sometimes more important than the geopolitical and social boundaries that separate its users. The growth of the Internet has caused a "velvet" network revolution in both social and technological spheres. The mix of diversity and cohesion has created a collection of global villages with the unusual property that many people on the Internet live more than one virtual village at a time.
- 3 Thanks to its technical possibilities, liberal operation principles, relatively easy and cheap access, the Internet offers an extraordinary freedom of expression and accessibility of information. Sometimes these telecommunication and computer-based tools are called "technologies of freedom".
- 4 The information resources available through the Internet are immense. The total volume of the files accessible via the Internet is counted in thousands of Gigabytes. Therefore, the main problem connected to the Internet is the flood of information. The most obvious is the difficulty of simply finding items in the vast seas of available material. Another issue is that not all of the information on the Internet is of equal quality or value. This is why, in spite of tremendous capacities of the Internet, the skills and knowledge on the part of its users will still remain a decisive factor.
- 5 The Internet origins go back to the early 70's when the US Department of Defence started the ARPANET project aimed at the establishment a highly reliable network connecting the Department of Defence with its cooperators (including universities carrying out defence oriented research and application works). The network turned out to be tremendously successful. As a spin effect of the ARPANET a public network (mainly composed of universities), called Internet, was derived. The Internet took shape when the U S National Science Foundation set up its supercomputer network NSFNET and integrated it with the Internet (end of the 80's). Since that time more and more networks from the US and other countries have joined the Internet, and thereby transformed it into a global network.
- 6 Interestingly enough, the Internet has neither its owner nor a general manager. Its ownership structure and management are entirely distributed among the networks constituting the Internet. Each of these networks is responsible for the traffic that flows within it and can route that traffic as necessary. Who pays for all this? Again, each network system is responsible for its own funding, just as each system must develop its own administrative procedures. Noteworthy, there exist the Internet Society (chaired by Dr. Vinton Cerf, e-mail address: isoc@isoc.org) and various committees and task groups focusing basically on technical aspects of the Internet development (e.g. Internet Assigned Numbers Authority, Internet Engineering Task Force, Asia Pacific Networking Group).
- 7 The main facility allowing the computers for communicating with each other is so-called Internet Protocol (IP). This protocol along with the Transport Control Protocol (often referred to as TCP/IP) constitute the basis for connecting the computers and ensuring the interoperability. Noteworthy, TCP/IP is not a standard of the International Standards for Open Systems as defined by ISO [OSI91].

¹ explorer.arc.nasa.gov is the address of a NASA computer where the images of asteroids are stored

- 8 As so far, the Internet impact on national economies, in particular on businesses has been definitely positive, however, still far away from expectations and actual potential.
- 9 A frequently asked question is "How can one make use of the Internet ?" Although not exhaustive and precise, a simple and short answer might be that the Internet is
- a fast and cheap communication channel linking people who can send, receive and store information (e.g. electronic mail, news groups, tele-conferencing), in particular they can issue and receive orders (e.g. shopping, reservation),
 - a facility providing on-line or semi-online access to an immense repository of
 - information stored in thousands of databases covering practically all the aspects of human knowledge and activities,
 - various computer software tools and computer applications (public domain software, shareware)
- The relevant items from the repository can be brought to the interested users.
- a distributed computer which means that one can run computer programs and applications on remote computers and bring the output to his/her computer.

In order to make the above mentioned possibilities happen the Internet offers a series of services. They are briefly presented below

Internet services

1. One should distinguish between the basic Internet tools which were devised for helping explore, navigating and making use of the network and, in a sense, have become a part of the network (e.g. to access a remote computer, to transfer a file), and the network applications which use the network as a platform and a tool.

People-to-People; Information Exchange

Electronic mail (e-mail)

Usenet

a group of focused discussion groups, commonly referred to as the Internet's Bulletin Board. At present, there are about 10,000 Usenet newsgroups

Remote Access and File Transfer

Telnet

This service provides access from one Internet computer to another (remote) computer attached to the Internet. For the user of the accessing computer the network is entirely transparent. The user can run any program/ application on the remote computer, if authorized.

FTP (file transfer)

FTP is a facility used for transferring files between the Internet computers. The so-called "anonymous FTP" is used for transferring public domain files from file libraries to the users without any access rights checking.

Finding Users

Finger and **Whois** are services used for finding addresses and short descriptions of the Internet users on the basis of their names.

Identification of Resources

A humorous answer to the question about the possibilities of the Internet is the following: "It is everything you need and even more." Yet the next question arises: "Where and how can I find that?". The tools presented below address this problem.

Archie

Roughly speaking it is a database of file names and directories along with the addresses of the hosts where they are available. One can use Archie to search for files. The database contains more than 2.5 million file/directory names. Archie covers more than 1,100 sites. The powerful Archie servers in Asia are in Japan (*archie.ad.jp*, *archie.kuis.kyoto-u.ac.jp*), Korea (*archie.sogang.ac.kr*) and New Zealand (*archie.nz*).

Gopher

Gopher permits to create menus that allow one to access network resources by moving an on-screen pointer. A Gopher server is connected with other Gopher servers sitting on the Internet and may activate them when serving the user's request. From the user's standpoint, s/he is navigating from one menu to another. The information is gathered for the user from many remote Gopher servers. It is thus a distributed file delivery service which allows the users to search, locate, browse and transfer the files. In a sense, it is a combination of FTP, Telnet, Finger and Archie. The latest versions of Gopher support multimedia. Any Gopher server contains a list of other Gophers. In addition, Gopher provides a gateway to other services such as Archie, Whois, WAIS, WWW.

WAIS

This name is an acronym of the Wide Area Information Server. It is a very powerful full-text document retrieval service. The user simply provides a set of key words characterizing the requested items. As a result of the WAIS work the relevant documents are made available to the user (for browsing, downloading). Noteworthy, while looking for relevant documents WAIS goes through the contents of documents rather than their titles. WAIS supports multimedia. WAIS runs on very advanced and extremely powerful supercomputers CM-5 manufactured by the Thinking Machines Company. One of the best WAIS services is offered by *quake.think.com*.

WWW

This name is an acronym of the World Wide Web server. Roughly speaking it is a user-friendly combination of the previously mentioned servers with the hypertext facilities which allows the user to navigate through the WWW documents (distributed throughout the network). The WWW files (e.g. full text documents) are linked by pointers. When browsing (reading) a text the user can select a term and, as result, s/he is brought to the linked text.

The process of building the Internet tools is far from being completed. New facilities are emerging, e.g. Netscape. However, as a rule they either cover the functions of the above presented utilities or simply refer to them and make use of them.

Commercial Internet Applications

- 11 Although the Internet was originally set up to serve universities, academia and research communities, it has become a universal tool for the others, in particular businesses. Already, mechanisms such as Commercial Internet eXchanges (CIX) and backbone networks to carry commercial traffic are in place. More and more commercial applications are running on the Internet. IBM uses the Internet channels to download documentation, technical specs to its cooperators and users around the world. Pizza Hut allows the customers to order pizzas via the Internet. NASA solicits bids by posting requests for proposals on the Internet. Services for the financial and the trade agents such as DIGICASH and Electronic Data Interchange are already available on the Internet. Product advertising, marketing, market research, polling, on-line shopping, on-line reservation are examples of activities which are carried out on the Internet by a number of companies in developed and developing countries. More on the benefits related to the commercial use of the Internet is said in the next Annex.

- 12 At present, the Internet is intensively used as a channel to international databases offered by such services as DIALOG or DATA-STAR. The access and delivery of the requested documents via the Internet turned out easier, cheaper and more user-friendly for many categories of users than classic access via X.25.

ANNEX 2. KEY BUSINESS BENEFITS OF THE INTERNET

Six benefits

The Internet is a place to be for a company !

The Internet offers business an impressive number of competitive advantages, including these six key benefits

- enhanced customer service
- low-cost marketing and advertising.
- tracking competitors.
- access to research.
- inexpensive remote collaboration.
- e-mail

Let us briefly comment on these key benefits.

Customer service

More and more companies are using the Internet to establish customer support bulletin boards offering technical advice, monitoring customer satisfaction, providing new product information, and making software upgrades available electronically

The advantages of the Internet based customer service are, *inter alia*, instant access to the information, significant savings on 800 numbers on the part of companies, savings on long-distance phone calls as far as the customer are concerned and fast distribution of newsletters announcing new products, services, changes in operation routines. Providing users with information on a systematic but not aggressive basis can positively contribute to building up the company's image.

Marketing and advertising

The Internet is a fertile field for companies advertising everything from goods such as books, computers, pizza to information technology products like computer games and programs. Business that are able to target the Internet's technocratic culture in a well conceived and non-conflicting way can gain a competitive edge and boost income. Wide marketing and advertising addressing thousands and thousands of prospective on the Internet do not require a massive up-front investment in terms of financial resources what is a case in a classic situation. However, marketing and advertising have to be very carefully prepared in terms of information aspects and the Internet customs

It has to be strongly stressed that advertising, marketing and any kind of activity directly related to doing business can be perilous on the Internet since one can get flamed by the Internet folk, especially if one does not know or respect the peculiarities of the Internet culture, which broadly speaking is not business oriented, sometimes even adverse to business. This statement does not apply to the on-line commercial services such as Prodigy, America Online or CompuServe.

Competitive tracking

Knowing what your competitors do or intend to do is one of the pre-requisites of business success. In this context, an entrepreneur would like to know what kind of new products are prepared by his/her competitors, what is the opinion of the customers about the competitive products, what are the areas of the research interest of the competitors, to mention only a few typical questions. A careful analysis by savvy Internet navigators can considerably facilitate the answers to these questions.

Being and doing business on the Internet means, however, that your company is also exposed to your competitors' intelligence. One should remember about that.

Access to research

The Internet gives access to immense information storages containing practically information on all conceivable issues. This information is structured according to many, sometimes very poor, patterns. Nevertheless, there are a number of institutions offering information material in form of reports, books, analysis, bulletines, tables, charts, images on various matters. A lot of these documents might be used for business purposes. As an example of the organization providing really well structured and useful business information we can mention the U.S. Chamber of Commerce. In addition to the storages of information, there are various thematic forums packed with experts discussing new developments in their fields. Asking questions and getting answers is a part of the Internet culture. Many experienced Intrenauts claim that two years of active participation in the Internet discussion groups, subscription to mailing lists, energetic navigation through WWW based services provided them with much more information and allowed to develop a large network of personal connections that five years of work in a company.

It is interesting to see how people who continuously take advantage from the Internet resources develop after a certain period their own readiness to share their knowledge and specific information with other Internet users. Certainly, something like the Internet solidarity is not a myth, even when it comes to the business.

Collaboration

Group work within a company which is geographically distributed, co-operation with partners and contacts with suppliers can be facilitated and improved if information exchange mechanisms which are an inherent part of the Internet are used by a company. The Internet offers a low-cost and fast information transfer mechanism which makes the organization of work much cheaper than classic communication means such as phones and business trips. This is not to say that the Internet communication facilities should replace the existing ones. On the contrary, what works best indeed, is a synergy generated by both.

E-mail

Probably e-mail is the most popular Internet service and many companies and individuals find it the most appealing ("sexy") part of the Internet. Incidentally, it is also cheaper and more cost-efficient than comparable commercial online networks such as CompuServe.

E-mail allows one to send messages in seconds to many users anywhere in the world without copying the letters, putting them in envelopes, stamping and going to the post office. One can also receive messages in his/her mail box.

ANNEX 3. COUNTRY REPORT LAYOUT

IBIS Document 1.0

Instant Business Information System (IBIS)

Country Report Layout

prepared by M. Muraszkievicz

I Project Details

The name of the project, as stated in the Project Document, is "Regional Industrial and Business Information Services", XP-RER.95 061. The implementation of the project started in July 1995 and will last until the end of the year of 1995. The project is backstopped by Dr. J. Pavlik, Industrial Information Section of UNIDO.

The informal name of the project is IBIS which stands for Instant Business Information System.

II Project Objective

The objective of the project is to design and to start up a pilot operation of the Instant Business Information System (IBIS) covering the Czech Republic, Hungary, Poland and Slovak Republic that will (i) link the industrial and business information services, in particular focused on small and medium enterprises; and (ii) will serve as a source of information first of all addressed and available to SMEs, mainly via the INTERNET.

The information will be available through different forms (hard copies, diskettes, CD-ROM, on-line) and the system should provide primary, secondary and referral information. If the requested data were not available, the system should indicate where, how and for how much the data can be obtained.

III Project Strategy Outline

The project starts with the preparation of country reports by national experts in the Czech Republic, Hungary, Poland and Slovak Republic. To this end, a common layout is proposed in this document (section IV).

The country reports will be merged and used to work out the IBIS architecture and design its functionality. Having done that, the computer hardware and software configuration will be proposed and the equipment purchased and installed at UNIDO HQ.

The next step is to set up a pilot version of IBIS, connect it to the INTERNET and thoroughly test it

In the meantime (13-17 November), a workshop devoted to the IBIS design and development participated, inter alia, the FID representatives, Industrial Information Section representatives, country experts and international consultant will take place in Bratislava.

More details on the IBIS strategy are given in the Project Document.

IV. Country Report Layout

The expected document should be a concise state-of-the-art report summarizing the facts on the current situation in the country in terms of business information. Special stress should be put on SMEs.

Structure

- _____ 1 Short description of the country economic situation in terms of business ventures. Main trends over last 5-6 years should be identified and briefly described (e.g. the number of SMEs set up and disappearing annually).

- 2 Rough categorization of actual and prospective business information users
- 3 Identification of actual and future information needs in terms of industry, technology and business. Examples of typical queries would be an asset
- 4 Description of main business information services providers in the country. Emphasis has to be put on the type of services, databases offered and international links
- 5 Characterization of telecommunication means in the country. Special attention has to be devoted to the INTERNET (a list of the INTERNET services providers, including private companies would be an asset)
- 6 Proposals regarding IBIS architecture and functionalities

The report should not be longer than approx. 35-40 pages

V. Contact & Deadline

The country reports should be delivered to Dr. J. Pavlik and Dr. M. Muraszekwicz in form of a hard copy and a WordPerfect 5.1 for DOS file, by the 15th of October, 1995

Questions regarding the elaboration of the country reports should be addressed to

- Dr. J. Pavlik, UNIDO
UNIDO, VIC, P.O.Box 300, A-1400 Vienna, Austria
phone +431 211313794
fax +431 2307584
e-mail: jpavlik@unido.org
- Dr. M. Muraszekwicz
02-622 Warsaw, ul. Malczewskiego 38 M4, Poland
e-mail: mietek@mimuw.edu.pl
voice fax +4822 447931