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**InterTec****Internationales Technologie Informationszentrum Ges.m.b.H.**

# REPORT

**Subject: "BUILDING-UP A SPECIALIZED DATABASE  
ON INNOVATIVE AND ADVANCED TECHNOLOGIES"**

**Contract № 96/249**

between the UNITED NATION INDUSTRIAL DEVELOPMENT  
ORGANIZATION (UNIDO) and the INTERNATIONALES TECHNOLOGIE-  
INFORMATIONSZENTRUM GES.M.B.H.

Vienna, Austria

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## ABSTRACT

The aim of the project is to analyze the technologies available in Russia and CIS and to provide UNIDO Member States with a wide and efficient access to sources of industrial, technological and investment information to foster business partnerships.

The International Technology Information Centre (InterTec), in cooperation with the Ministry of Science and Technology Policy of the Russian Federation have analyzed the technologies available in Russian industry and scientific centres and selected those of interest to UNIDO.

In close co-operation with the UNIDO substantive divisions, more than 400 technologies have been identified in the sectors of interest to UNIDO.

InterTec developed a special software for the database of the new Russian technologies and presented the data base on a server WWW-Internet ([www.intertec.co.at](http://www.intertec.co.at))

The database of the new technologies is classified as follows:

Field of Science	Sci-cod	Field of Science	Sci-cod
Agriculture and food	Au	Measuring instruments	Mr
Chemistry	Cs	Medicine	Mi
Construction	Cr	Metallurgy	Ml
El. Engineering	Eg	Microelectronics	Me
Electronic	Er	New materials	Na
Environment	Eo	Nucl.Energy	Ne
Hydrodynamic	Hd	Oil and gas	On
Laser Engineering	Le	Optic	O
Machine building	Mn	Plasma physics	Pa

The database comprises information about technologies, spheres of their application as well as the advantages in comparison with existing technologies.

At present all INTERNET users as well as the UNIDO member states can use the data base.

In future the database will be enlarged with new technologies from CIS and form a constant communication link with interested organizations in UNIDO member states, as well as with the owners and elaborators of the mentioned technologies.

In carrying out the project, it would be necessary to ensure close interaction between UNIDO Headquarters, InterTec Ges.m.b.H. and the UNIDO Moscow Centre in carrying out the project activities. It requires close working linkages with Technology Services of UNIDO.

On the basis of the stated contacts, the technical, industrial investment projects can be launched within the frames of the international and national programmes through:

- access to technological information via INTERNET, monitoring of new emerging technologies;
- technology advisory service in the form of technology assessment (technology equivalent of investment profile);
- identification of potential technological partners and provision of contacts.

International Technology Information Centre, in cooperation with UNIDO Headquarters and the UNIDO Moscow Centre, could organize the conduction of negotiation and preparation of the concrete proposals, including investment projects on the new applied technology base.

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## Introduction

The adjustment of R&D management to the new economic situation has become one of the key problems for the former centrally planned countries in their attempt at a successful transition to a market economy. Scientific and technical development is an instrumental key source of modern economic growth.

The globalization of markets threatens the competitiveness of the majority of industrial companies in the countries. At the same time, the countries are failing to fully utilize opportunities for renewing their industrial profiles through technological innovations and through the creation of new companies based on new and generic technologies due to the lack of information on technological resources or of access to new technologies.

The ability to take the advantage of R&D achievements, changing technology and new market opportunities puts a premium on information and know-how. In today's competitive environment, the information necessary for continuous upgrading and adopting of production, and for promoting goods and services, is crucial to survival. Companies and enterprises of all size require access to up-to-date information on technological advances and innovations.

UNIDO helps the countries secure technology inflows and channel them for sustainable competitiveness. Through an array of complementary programmes, services and tools, including the creation of technological data basis, it assists institutions and enterprises in strengthening their capability to conduct effective technology transfer operations and establish technological and industrial partnership. One of the ideal settings for business transactions among R&D establishments and enterprises is TECHMART. This is a technology market, or matchmaker, for seekers and suppliers of technology.

Russia and other CIS countries do their best to support the scientific and engineering potential of the leading industrial branches. Special attention is paid to the development of research and applied technology usage in the framework of huge enterprises, as well as of small and medium-sized firms.

The conversion programmes performed by the enterprises of the defence industry as well as full openness of the scientific centres dealing with the defence industry exert a positive influence on the wider use of the applied research results.

This joint project, being carried out by UNIDO, the Ministry of Science and Technology Policy of the Russian Federation and InterTec Ges.m.b.H., is based on the joint interests of all participating parties, on interest of other countries in having access to the technologies developed in this country and aims at building up strategic business alliances between the R&D establishment and enterprises in the Russian Federation and those in other countries.

## **AIM AND PARTICIPANTS OF THE PROJECT.**

The project proposal results from discussions held between UNIDO and the Ministry of Science and Technology Policy of the Russian Federation from September 1995 to March 1996. On the 6 February 1996, Mr. Z. Yakobashvili - Deputy Minister of Science and Technology Policy of the Russian Federation wrote to Mr. M. De Maria Y Campos, Director-General of the United Nations Industrial Development Organization, with a suggestion to carry out the project, (the letter of Mr. Yakobashvili is attached as Annex I).

It was taken into account, that UNIDO was requested by its Member States to provide a wide and efficient access to source of industrial, technological and investment information to foster business partnerships.

The Industrial Information Section is developing an International Referral System on such source of information and is building-up a specialized database on innovative and advanced technologies to support UNIDO technical co-operation and Technology and Investment Promotion Programmes. The inclusion in the database of innovative and advanced technologies from Russia and the CIS fully corresponds to the interests of the UNIDO member states.

The project was supported by UNIDO, and the aim and participants of the project have been approved.

The aim of the project is to analyze the technologies available in Russia and the CIS to provide UNIDO Member States with a wide and efficient access to sources of industrial, technological and investment information to foster business partnerships.

The fulfillment of the project was set to the International Technology Information Centre Ltd. (InterTec Ges.m.b.H.). Short information on InterTec Ges.m.b.H. is attached as Annex II.

The participants of the project were also the Ministry of Science and Technology Policy of the Russian Federation and the substantive divisions of UNIDO.

On the 21 February 1996 a contract between the International Technology Information Centre Ltd. and the United Nations Industrial Development Organization on the fulfillment of the project was signed. The contract foresaw:

- presentation of the data base of new technologies (up to 400) for analysis and selection of those of interest for UNIDO member-states by InterTec Ges.m.b.H. to UNIDO (15 March 1996);
- transfer of the new technology database to electronic format (15 April 1996);
- the submitting of a Report, in English, in five copies, on a pilot operation of the database with recommendations on its further expansion (30 September 1996).

## PREPARATION AND FULFILLMENT OF THE PROJECT

The International Technology Information Centre Ltd. in cooperation with Ministry of Science and Technology Policy of the Russian Federation have analyzed the technologies available in Russian industry and scientific centres and selected those of interest to UNIDO.

In close co-operation with the UNIDO substantive divisions, more than 400 technologies have been identified in sectors of interest to UNIDO.

The rational database structure, following world standards and the requirements of UNIDO has been determined. In collaboration with the UNIDO divisions the scheme of the project fulfillment and its financing has been developed.

In agreement with UNIDO it was decided to present the technology database in the global communication network - WWW-INTERNET.

To obtain these purposes a special software to present the database on server WWW- INTERNET has been developed.

The analysis of the technical possibilities of the database deployment on the WWW servers in Russia and other CIS countries has shown that the practical absence of cable telecommunications networks and low quality of the analogue telephone networks are obstacles to accessing the WWW-server in the CIS, and significantly deteriorate the quality and speed of the transfer of information and correspondingly increase the price of the information obtained in this way.

It was decided to deploy the information database on a server WWW-INTERNET in the centre of the Western Europe (Vienna, Austria). This decision provided the engineering possibilities of an information system exploitation corresponding to world-wide standards.

The prepared database was transferred into WWW-format and in May 1996 deployed on the WWW-server of InterTec Ges.m.b.H. (<http://www.intertec.co.at/>).

As a result of the project all interested parties in countries were given an opportunity to obtain information on 600 new technologies from Russia. The performance of the Russian technology database on the server in Vienna provides an easy access to information that up to present time was not available to users. These technologies may be the basis in the preparation and realization of commercial and industrial cooperation.

The new technology database is classified as follows:

Field of Science	Sci-cod	Field of Science	Sci-cod
Agriculture and food	Au	Measuring instruments	Mr
Chemistry	Cs	Medicine	Mi
Construction	Cr	Metallurgy	Ml
El. Engineering	Eg	Microelectronics	Me



Electronic	Er	New materials	Na
Environment	Eo	Nucl.Energy	Ne
Hydrodynamic	Hd	Oil and gas	On
Laser Engineering	Le	Optic	O
Machine building	Mn	Plasma physics	Pa

The new technology database comprises a short description of the technologies, the sphere of their application, as well as advantages in comparison with existing technologies.

The developed software provides a free and rational access to the database on the whole, to define its branches and technologies.

The performed information system in the framework of WWW-INTERNET allows access to the database for 24 hours, as well operating in the mode of a dialogue with all Internet users.

The expressed interest to the concrete technologies as well as additional problems will be discussed by InterTec Ges.m.b.H., the corresponding UNIDO divisions, together with the elaborators and the owners of the technologies in Russia and other CIS countries and users will be given the correspondent answers and explanations, as well as other services.

In the course of implementing the joint project it was found that the database should have links to the UNIDO/INTIB server, rather than to be on it, and thus to provide easy access to it.

### **THE EXHIBITION OF NEW TECHNOLOGIES IN VIENNA (AUSTRIA).**

In the 1990s, the world economy is increasingly driven and shared by the development and application of three major generic technology families, namely: new materials, biotechnology and microelectronics. The technological impact of new materials on industry will be very significant. Because of their central importance for the future development of future new products in many industrial sub-sectors, materials and related processing technologies are viewed internationally as placed at the core of the product and process innovation efforts geared to provide the international competitive edge to enterprise in these sub-sectors. Spill-over effects on virtually all industrial sectors will result from the application of new materials technologies.

In future, new materials will continue to play an essential role in the development of advanced technologies in such vital for any economy sectors as energy, electronics, transportation, aerospace, telecommunication, etc. This is a more important point that the market size of new materials itself. Worldwide demand for new materials production has been increasing rapidly within the last decade and it is expected to reach USD 100 billion by 2000.

For the year 2000 and beyond among the key technologies, new materials engineering is the one with the greatest degree of interlinkage with other engineering fields and with the highest degree of positive external effects e.g., energy, transportation, housing, health, etc. The paradigm for materials competitiveness is that the synthesis of new materials must be integrally linked with the design and processing of the corresponding final products, since the materials are the only basic components of complex systems and, as such, critical to their performance. Thus, improvements in materials quality and price have dramatic effect on the international competitiveness of a developing country's enterprises across sub-sector.

As an important stage of the project fulfillment, UNIDO, the Ministry of Science and Technology Policy of the Russian Federation and InterTec Ges.m.b.H. held an exhibition "New Materials and Technologies from Russia" from 20 to 24 May 1996, where 57 technologies from the developed data base were presented.

32 scientists and specialists from Russia, being the authors and owners of the presented technologies took part in the exhibition.

The catalogue of the exhibition is attached as Annex III.

At the exhibition technologies on the following 10 sectors were presented:

- Composite and ceramic materials
- Varnishes and adhesives
- Crystals
- Glass and glass fibres
- Polymeric materials
- Carbon containing materials
- Silicon materials
- Catalytic materials
- Metals and alloys
- Special construction materials

The exhibition confirmed the correctness of the chosen approach to create the new technology database, and helped to check the mechanism of practical activity performance on cooperation realization due to the technology base. The analysis of the technologies presented at the exhibition showed a high level, as well as the possibility of their practical application within the aims of UNIDO member states potential development.

Fruitful contacts were stated between the interested partners, and as a result of negotiations agreements were reached to fulfill the joint work and commercial cooperation. The work on the results of the exhibition will be continued by InterTec Ges.m.b.H. in collaboration with UNIDO experts.

The Forum was conducted on joint agreement as a preparatory phase for the UNIDO INTECHMART on New Materials for Asia and Pacific to be held in 1997.

## RECOMMENDATIONS

Due to the International Technology Information Centre's experts, the performed project should be only the first stage of systematic work on the creation of a new technology database. The work should be continued in the future.

It is necessary to take into account the reaction of UNIDO member - states on the presented technologies and enlarge the database with new technologies, taking into account potential partners' interest.

The most important consideration in the future development of the project should be constant cooperation with enterprises and firms in UNIDO member states, as well as with the elaborators and owners of the technologies in Russia and CIS, assistance in contact starting between the interested parties in various countries.

On the basis of the contacts, the preparation of technical, engineering and investment projects in the framework of UNIDO programmes and national programmes may be performed through:

- access to technological information via INTERNET, monitoring of new emerging technologies;
- technology advisory service in the form of technology assessment, (technology equivalent of investment profile);
- identification of potential technological partners and provision of contacts.

The International Technology Information Centre in cooperation with UNIDO Headquarters and the UNIDO Moscow Centre could organize the conduction of negotiations and preparation of the concrete proposals including investment projects on the new applied technology base.

To determine the future stages of the present project it would be useful to take the following measures:

1. To discuss the future development of the new technologies data base, from Russia and the CIS, to state the concrete parameters of future database development.

Date: June 1996

Participants: UNIDO Headquarters, InterTec, UNIDO Moscow Centre, Ministry of Science and Technology Policy of the Russian Federation.

2. To work out suggestions on the concrete project realization mechanism on the new technology database.

Date: June - September 1996

Participants: InterTec Ges.m.b.H., UNIDO Moscow Centre

3. To work out and submit the suggestions on the further project stages.

Date: June 1996

Participants: Technology Services of UNIDO, InterTec Ges.m.b.H.

4. To work out the recommendations on the sources and amount of financing for the further project stages.

Date: July 1996

Participants: UNIDO Technology Services, InterTec Ges.m.b.H.



**МИНИСТЕРСТВО НАУКИ  
И ТЕХНИЧЕСКОЙ ПОЛИТИКИ  
РОССИЙСКОЙ ФЕДЕРАЦИИ**

**ЗАМЕСТИТЕЛЬ МИНИСТРА**

103905, Москва, ул. Тверская, 11  
Тел: 229-11-92 Телетайп 570224 «Триод»

от 06.02.96 г. № УС 10-5/109  
на № \_\_\_\_\_

Mr.M. De Maria Y Campos  
Director-General  
United Nations Industrial  
Development Organization

Date: "6" February 1996

Dear Director-General,

I wish to refer to our meeting of 11 January 1996 to sum up some thoughts and proposals for the practical implementation of our mutual agreement on the necessity to strengthen Russian Federation-UNIDO co-operation in the technology area. I appreciate your support our initiatives.

Following our discussion on the matter as well as discussions I have had with Ms. Tcheknavorian, Mr. Maruno and others, three major interrelated areas of co-operation are emerging, namely:

- strengthening the internal capacity of Russian research institutions, the national science centres, industrial corporations and enterprises in the field of R & D management, management of innovations under new market conditions, technology transfer contributing to negotiations, etc. Activities would include seminars, consultancies, study groups, training courses;\*
- using the UNIDO information networks to increase awareness in the developing countries of the technology investment partnership opportunities available in Russia which could be practically utilised to the benefit of developing countries;
- introducing selected Russian technologies to developing countries under UNIDO's technical co-operation and technology/investment promotion programs.

To successfully carry out the work along these lines would require close collaboration and regular contacts between UNIDO substantive departments, the Ministry of Science and Technical Policy and its affiliated organisations.

As already indicated during our last discussion, the International Technology Information Centre (InterTec) was established by the Ministry of Science and Technology to take on the active and practical role of providing assets to the Russian technologies to be put through UNIDO's information networks, including Internet. Its location in Vienna and good connections with all major Russian research and technology establishments as well as already existing technology information database make InterTec the most suitable partner from our side to co-operate with UNIDO.

I was informed that some ground work has already been start by InterTec and the Industrial Information Section in making the necessary arrangements to implement our agreements.

This is just the start of the large amount of work which has to be done by both sides, and I count on your full support and approval of the necessary project documents

At the same time, I wish to recall our discussion on the apparent uncertainty of the continuation of Mr.A.V.Orlov's services which you undertook to look into and settle in his favour, taking into account the need for his outstanding professional qualifications and performance in administrative support or substantive areas.

Yours truly,



Z.Yakobashvili  
Deputy Minister of Science and Technical Policy  
Of Russian Federation

# **InterTec**

## **International Technology Information Center Vienna**

**InterTec** was founded in June 1992. Nowadays InterTec is an institution distinguished by its ability to seek out and create NEW business opportunities and provide top level contacts, scientists and experts in Europe, Russia, and the CIS.

\* **InterTec** possesses a well established infrastructure of international scientific, academic, industrial and commercial relationships that incorporates the top expertise of Russia and the CIS as well as Europe and the United States.

\* **InterTec** has active links with industry, universities, research institutions and scientific establishments of Russia and other countries, as well as international organisations. This extensive international network of technology and knowledge is unprecedented in the commercial sphere. Knowledge and information is the key of success in today's business environment. **InterTec** is there to provide the contacts and the expertise.

\* **InterTec** is forming of the new Russian technologies database, and presents scientific, technical and other information through its own WWW-Internet server to all customers.

\* **InterTec** - will supply you with scientific, technical and commercial data on newest technologies and products. Present all necessary information on the directions of leading research and scientific and technical organizations in Russia and CIS countries. Furthermore, **InterTec** provides a complete set of services to parties interested in setting up and developing business relations between Russia and the West.

\* **InterTec** - will help you to find:

- partners for co-operation,
- goods and services you are interested in

as well as

- the buyers of your technologies, goods and services.

\* **InterTec** - organizes exhibitions, conferences, seminars, and can arrange business trips across Russia, CIS countries and Western Europe, including visits to enterprises and advanced scientific centers, assistance in preparing and holding negotiations, provide consultation on the problems of business promotion and setting up joint ventures in Russia and CIS.

