



**TOGETHER**  
*for a sustainable future*

## OCCASION

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



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

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

## FAIR USE POLICY

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

## CONTACT

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

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



61A.  
tablas

21562

**UNIDO PROJECT NO.**

**SI/POL/93/801**

---

**Evaluation of Business Incubators at  
Cracow, Mielec and Nowa Huta in Poland;  
and development of Strategic Plans**

---

**Report on Mission No. 1**

**(15 - 26 January 1996)**

**Based on the Work of**

- **Mr Thomas Carroll** - **UNIDO Consultant**
- **Mr Fabrizio Condorelli** - **UNIDO Small and Medium  
Enterprises Branch**

**United Nations Industrial Development Organisation , Vienna**

**February 1996**

R

## **CONTENTS**

**ABBREVIATIONS and DEFINITIONS** (i)

**ABSTRACT** (ii)

<b>CHAPTER</b>		<b>PAGE</b>
1	INTRODUCTION	1
2	CRACOW BUSINESS INCUBATOR	2
3	NOWA HUTA BUSINESS INCUBATOR	8
4	WORKSHOPS	13
5	CONCLUSIONS and RECOMMENDATIONS	15

### **ANNEXES**

A	Terms of Reference	20
B	Bibliography	26
C	Profile of Progress & Business Foundation	28
D	Clients of Cracow Business Incubator interviewed by Mr Carroll	34
E	List of 32 Technologies disseminated by Cracow Business Incubator	39
F	List of Tenants in Nowa Huta Business Incubator	42
G	Clients of Nowa Huta Business Incubator interviewed by Mr Carroll	45
H	Cracow Workshop : Summary of Content and List of Participants	50

## ABBREVIATIONS

<b>BI</b>	Business Incubator
<b>BIC</b>	Business and Innovation Centre
<b>BSC</b>	Business Support Centre
<b>FGFs</b>	Fast-Growth Firms i.e. Polish-owned, high-potential businesses, driven by multi-disciplinary Venture Teams
<b>PBF</b>	Progress and Business Foundation
<b>PBI</b>	Progress and Business Incubator
<b>SMEs</b>	Small and Medium Enterprises
<b>Venture Team</b>	three to four people who combine entrepreneurial drive with complementary skills in engineering/technology, marketing, production and finance.

## **ABSTRACT**

This is an Interim Report related to Project No. SI/POL/93/801. The Project concerns the evaluation of Business Incubators at Cracow, Mielec and Nowa Huta in Poland; and the development of Strategic Plans. It is being implemented in 2 stages. Stage 1, which is the subject of this Report, focused on the Business Incubators at Cracow and Nowa Huta. This work was done in the period 15-26 January 1996.

The Cracow Business Incubator, known as Progress & Business Incubator (PBI), was founded in 1992 by Progress & Business Foundation. The main thrust of PBI's work has been to support high-tech entrepreneurs in Cracow by creating a Polish model of technology transfer based on a model in Denmark. The strategy has not impacted in Cracow. Due to financial constraints PBI is now winding down and will close mid 1996.

Nowa Huta Business Incubator, located in a town adjacent to Cracow, was established in 1993 by the Foundation for the Economic Promotion of the Cracow Region. The BI's Mission is to assist the restructuring of Sendzimira Steelworks by helping its employees to start their own businesses. The BI accommodates 27 businesses which employ about 200 people.

The dominant conclusion which emerged from the evaluation of the Cracow and Nowa Huta Business Incubators is that

- the overall SME Support System in the Cracow Region needs to be strengthened
- the role of the Business Incubators at Cracow and Nowa Huta, as part of an SME Support System, needs to be clearly defined.

## **INTRODUCTION**

This Report relates to a project for

- the evaluation of Business Incubators at Cracow, Mielec and Nowa Huta in Poland
- the development of strategies which would help the financial viability of the Incubators and enhance the impact of their services.

The project, which is described in detail at Annex 1, is being implemented in 2 stages, each of 3 weeks duration. This is the Stage 1 Report. It was prepared by Mr Thomas Carroll, a specialist in local economic development strategies and business incubation systems.

At a briefing in UNIDO (Mr Fabrizio Condorelli) on 15 January 96 it was agreed that Stage 1 would focus on the Cracow and Nowa Huta Business Incubators. Accordingly, the Stage 1 Report addresses the outcome of the fieldwork by Mr Carroll in Cracow and Nowa Huta in the period 16-26 January 96.

The fieldwork entailed extensive discussions and the delivery of 2 Workshops : all detailed at Chapters 2, 3 and 4. The information collected from these sources was complemented by a study of literature kindly provided by Progress & Business Incubator, by Progress & Business Foundation and by Nowa Huta Business Incubator. The bibliography is at Annex B.

## **2 CRACOW BUSINESS INCUBATOR**

2.1 This Chapter describes the history and evaluates the role and impact of Cracow Business Incubator which is known as Progress & Business Incubator (PBI).

### **2.2 History of PBI**

2.2.1 PBI was founded in 1992 by Progress & Business Foundation (PBF). The latter was established in 1991 by the following 8 organisations

- Ministry of Industry and Trade, Warsaw
- Jagiellonian University, Cracow
- Academy of Mining and Metallurgy, Cracow
- Polish Academy of Sciences Trade House : it deals with the promotion of innovations and the start-up of new technologies and products
- Chemical Industry Chamber; it groups all chemical, refining and petrochemical enterprises in Poland
- Industrial Chemistry Research Institute, Warsaw
- Marold -Alpha : a private Polish company
- Danish Technological Institute.

A profile of PBF is provided at Annex C.

2.2.2 PBF, the Ministry of Industry and Trade, and the Danish Technological Institute provided seed capital for the start-up of PBI. It was established as a limited liability company wholly owned by PBI. The Mission of PBI was "to encourage the development of small private businesses in Cracow by establishing a high-technology incubator".

Dr Jerzy Sekiewicz, with a background in geology, was appointed Director of PBI. Prior to this he was Director (since 1990) of the Department for the Promotion of Enterprises in the Ministry of Industry and Trade. PBI commenced with office/incubator space totalling 250m<sup>2</sup> which was supplied by PBF. Shared services - administration and accounting expertise, secretarial services and phone/fax - were also provided.

In the period 1992/93 PBI provided services to the following businesses

- 1 CLICO Hi-Tech Software Promotion Centre Ltd.
- 2 Compact Disc Novelty Ltd.
- 3 DOTS Computer Systems
- 4 Televox : manufacture of electronic equipment.

Mr Carroll interviewed Nos. 1, 2 and 3 (details at Annex D). They are now located in different parts of Cracow and employ a total of 55 people. All 3 acknowledged that, as fledgling businesses, their association with PBI enhanced their image and accelerated their development.

2.2.3 In 1993 PBI embarked on a major project with one of its sponsors i.e. the Danish Technological Institute. DTI's Mission is "to enhance the competitiveness of Danish industry and the progress of society through business development, technological development and technology transfer". Its direct priority is applied research and primarily technology transfer. DTI has about 200 staff.

The project was aimed at "supporting high-tech entrepreneurs in Cracow" by

- creating a Polish model of technology transfer based on the Danish model



- starting new companies in Poland based on a new Polish model of technology transfer
- establishing a national Business Innovation Centre and Science Park in Cracow.

The content of the project can be summarised thus

- (a) DTI has a panel of technology scouts in Denmark; their task is to build a relationship with scientists in universities and research institutions and help them commercialise their basic research. The scouts are paid a finder's fee when they present a project to DTI. 8 Polish technology scouts (consultants) were networked and trained to replicate the Danish model in Poland
- (b) a further 35 people were trained to assist with the preparation of business plans and the technology transfer process generally
- (c) seminars and a publicity campaign were organised in order to create awareness off, and generate interest in, the PBI/ DTI project.
- (d) the technology scouts, referred to at (a) above, assembled 73 technologies during 1994; they were judged by PBI to have commercial potential and therefore merited further economic analysis. Eventually, 32 of these technologies were published in summary format through the medium of a newsletter ("Know-how") which was circulated extensively (20,000 copies) in Poland and Denmark. The technologies are listed at Annex E.

(e) PBI prepared Business Plans relating to 2 of these technologies which were deemed to have most commercial potential

- a mini windpower plant
- an electric motor for a wheelchair.

However, the outcome of this work was negative. At this juncture (January 1996) none of the 32 technologies listed at Annex D has been commercialised. Work is in progress on the feasibility of commercialising 1 project which emerged from the PBI/DTI project; DANMAL which is a private/public sector joint venture is promoting the use of cleaner technologies in sectors such as the foundry industry and the metal surface creating industry. It plans to offer a central powder coating service to industry from April 1996.

2.2.4 The President of the Board of PBF, Dr Maciej Zebrowski, died during 1994. He was a champion of PBI. He was also referred to by 2 of the clients of PBI - DOTS and Compact Disc Novelty - as the person who had encouraged them and introduced them to PBI. It appears that with Dr Zebrowski's death, and the absence of a successor through 1994/95, PBF's support for PBI waned.

2.2.5 By 1995 PBI was in financial difficulty. It abandoned its office/incubator space and relocated to a less central part of Cracow, which has lower rents, in early 1995. PBI now has 2 offices but no incubator space.

PBI's Director, Dr Sekiewicz, is assisted by a secretary and 2 part-time consultants. He works 50% of his time for PBI and has had to develop other

interests (directorships, etc.) in order to augment his income from PBI which is US\$ 400/month.

Dr Sekiewicz has been preoccupied with PBI's finances since its start-up. His efforts to find new sources of funding in Poland have not yielded results. PBI is now operating on residual money from the PBI/DTI project referred to at 2.2.3 above. This will run out in May.

In summary, PBI is now winding down and will close mid 1996.

### 2.3 Evaluation of Role and Impact of PBI

A Business Incubator is in the business of creating businesses; in particular, the type of quality businesses which would not normally emerge without the impact of the added-value services provided by a Business Incubator. An example of a "quality business" is a Fast-Growth Firm i.e. a Polish-owned, high-potential business, driven by a multi-disciplinary Venture Team.. A Venture Team comprises 3 to 4 people who combine entrepreneurial drive with complementary skills in engineering/technology, marketing, production and finance.

PBI's vision was to generate quality businesses and it focused on a technology transfer process to implement its vision. However, the global experience is that the business incubation process must be people-led rather than technology-led i.e. it must be led by people who have the drive, tenacity and ability to develop an idea into a business i.e. champions/entrepreneurs.

The priority task of a Business Incubator is to source people with that potential, provide training and advice in the dynamics of entrepreneurship in a market economy, and help them to form Venture Teams. Venture Teams are the key to the generation of Fast-Growth Firms.

Technology is one, but only one, of a number of strategic variables in a business. The dynamics of Technology Transfer in a market economy were addressed by Mr Carroll in the Workshop which is described at Annex H. The evidence from Ireland and several other countries is that the resources required for effective Technology Transfer are beyond the capacity of individual Business Innovation Centres. The Technology Transfer process has to be driven by central Government resources.

In summary, if PBI is to generate Fast-Growth Firms it must implement a business incubation methodology which is people-led rather than technology-led.

### **3 NOWA HUTA BUSINESS INCUBATOR**

3.1 This Chapter describes the history of Nowa Huta Business Incubator and evaluates its role and impact. Nowa Huta is a town adjacent to Cracow.

#### **3.2 History of Business Incubator**

3.2.1 The BI was established in 1993 by the Foundation for the Economic Promotion of the Cracow Region. The latter was established in 1992 by the Governor of Cracow District and a number of Cracow-based companies and individuals. The Foundation's partners include

- President of the City of Cracow
- District Labour Office in Cracow
- Cracow Chamber of Industry and Commerce
- Chamber of Craftsmen
- Bank Przemyslowo-Handlowy
- Cracow Regional Development Agency
- Socio-Economic Initiatives Foundation

The Mission of the Foundation is to promote business in the Cracow Region. Its projects include the BI and a Business Support Centre.

#### **3.2.2 Mission of BI**

The BI is closely associated with Sendzimira Steelworks. The steelworks generates about 22,000 jobs; 17,500 are direct and 4500 are indirect (in companies servicing the steelworks). However, the output of Sendzimira Steelworks has declined from about 6.7 million tons per annum in 1977 to about

2.0 million tons per annum now. Direct employment in Sendzimira Steelworks may have to shrink from 17,500 now to 8000 within 5 years.

The BI's Mission is to assist the restructuring of Sendzimira Steelworks by helping its employees to start their own businesses.

### 3.2.3 Facilities and Services

The BI is located in a building owned by Sendzimira Steelworks which is adjacent to the steelworks itself. The building was refurbished with financial assistance from the World Bank.

The overall area of the BI is 4000 m<sup>2</sup> of which 3600 m<sup>2</sup> is lettable. The incubator workshops range in area from 150m<sup>2</sup> to 330m<sup>2</sup>. 90% of the space is occupied by 27 tenants and they are listed at Annex F. In order to generate income the BI has rented its space to a wide spectrum of businesses, some of which would not normally be accommodated in a BI e.g. car maintenance and repair. The 27 businesses referred to above employ about 200 people.

In addition to incubator space, the BI provides 2 services

- (a) access to a Business Support Centre which is located in downtown Cracow (about 10 km from the BI)
- (b) shared services in the BI itself: secretarial, canteen.

The Business Support Centre (BSC) is a further initiative of the Foundation for Economic Promotion of the Cracow Region. It is a component of a small business development programme - known as TOR 10 - operated by the Ministry of

Labour & Social Policy and the World Bank. TOR 10, which commenced October 94, is aimed at delivering a comprehensive system of assistance to a specific target group i.e. unemployed people starting their own businesses.

The BSC is staffed by 2 executives; the Director is Ms Agata Kuperskasz and she is assisted by Mr Peter Coughlan from the American Peace Corps. The BSC's services include business development advisory and training services and an Enterprise Development Fund. The BI clients can network these services. However, since the Enterprise Development Fund is confined to unemployed people, fledgling businesses in the BI are not able to access the Fund.

#### 3.2.4 Management of BI

Both the Foundation for Economic Promotion of the Cracow Region and the BI have new Chief Executives

- the new President of the Foundation is Mr Michal Mikolajewski
- the new Director of the BI is Mr Krzysztof Kwatera. he is assisted in the BI by a Secretary

### 3.3 Evaluation of Role and Impact of BI

#### 3.3.1 Workshop and BI Client Interviews

After consultation with the new Director of BI, Mr Kwatera, on 16 and 19 January it was agreed that Mr Carroll would

- deliver a Workshop at Nowa Huta targeted at clients of the BI
- follow through the Workshop with in-depth interviews with a sample of BI clients.

The Workshop was delivered on 22 January at the BI and it is described at Chapter 4.

The follow-through interviews were organised for 23 January. However, only 2 clients were available for interview. The details are at Annex G.

### 3.3.2 Conclusions

On the basis of discussions with Mr Kwatera on 16, 19, 22 and 23 January, and the interaction with a sample of BI clients on 22 and 23 January at the BI, Mr Carroll reached the following conclusions concerning the role and impact of the Nowa Huta BI

- (a) the BI has provided affordable incubator space and access to shared services; this has helped the launch of 27 businesses which employ about 200 people
  
- (b) the BI clients are operating in the new environment of a market economy and this requires changed mindsets. It appears that BI clients do not have access to professional business development advisory and training services. They have no "road map" of how to develop a business in a market economy
  
- (c) in order to respond to the gap identified at (b) it is vital that the BI organise the implementation of a proactive business development advisory and training service. By addressing this gap, the BI will then be delivering a service which not only launches businesses but also helps them in a dynamic way to reach their full commercial potential



(d) two further gaps were identified

- (i) the BI should be proactive in stimulating new businesses by offering appropriate part-time Business Creation Courses primarily to employees of Sendzimira Steelworks. This would accelerate the flow of new clients to the BI
- (ii) all clients met by Mr Carroll referred to the prohibitive cost of capital which has an interest rate in the range 25%-30% per year. The BI on its own cannot solve this problem. However, it should make strenuous efforts in co-operation with all relevant agencies in the Cracow Region to find a solution. Without affordable capital. BI clients - now and in the future - will not be able to grow and to create jobs.

3.3.3 It is proposed that the BI address the issues referred to at (b), (c) and (d) (i) above through the medium of a comprehensive Business Incubation System. It will be presented to the Foundation for the Economic Promotion of the Cracow Region (and other relevant agencies) in the context of Stage 2 of UNIDO Project No. SI/POL/93/801.

## 4 WORKSHOPS

4.1 The UNIDO Job Description required the delivery of a Workshop on

"technology incubation for PBF and PBI staff, Mielec and Nowa Huta Incubators staff, professors and students, business associations and Local Government, and other interested counterparts in order to attract clients and sensitize the local academic environment towards ongoing problems of SMEs competitiveness and experienced solutions."

The guidelines for the Workshop are detailed at Annex A.

After consultation with Dr Sekiewicz, Director of PBI, and Mr Kwatera, Director of Nowa Huta BI, it was agreed that Mr Carroll would deliver 2 Workshops

- one at PBF which would be broadly in accordance with the Guidelines at Annex A
- one at Nowa Huta BI which would target BI clients and focus on business development issues relevant to them.

Dr Sekiewicz and Mr Kwatera undertook responsibility for promotion and organisation of the Cracow and Nowa Huta Workshops respectively.

### 4.2 Cracow Workshop

It was convened at PBF on 24 January. The content of the Workshop is summarised at Annex H. The 11 people who participated in the Workshop are also listed at Annex H.

The Workshop generated excellent discussion.

### 4.3 Nowa Huta Workshop

4.3.1 Representatives of 4 tenants of the BI participated in the Workshop on 22 January

1. Elektroautomat - electro-automatic services
2. El-Kar - anti-fire and anti-theft device for cars
3. Modul-Therm - refractory materials services
4. PP - acoustic hoods.

Mr Kwatera, Director of Nowa Huta BI, together with Dr Sekiewicz and Mr Daniszewski (one of the two part-time consultants in PBI), also participated in the Workshop.

In order to maximise the relevance of the Workshop to the target audience, i.e. BI clients, each of the 4 companies listed above described their history, their uniqueness and the opportunities/threats which they are addressing at this juncture. These Case Stories were then used to discuss

- the issues which are likely to emerge as a business proceeds through the different stages of a Product Life Cycle
- business development strategies, e.g. market penetration, market development, product development and diversification, and the implications of these strategies
- the need for management development so that a business can innovate and grow.

4.3.2 As stated at 3.3.1, 2 of the companies listed above, Elektroautomat and El-Kar, participated in follow-through interviews on 23 January

## **5 CONCLUSIONS and RECOMMENDATIONS**

### **5.1 Conclusions**

5.1.1 The dominant conclusion which emerged from the evaluation of the Cracow and Nowa Huta Business Incubators is that the overall SME Support System in the Cracow Region needs to be strengthened. For example, Business Incubator clients do not appear to have access to

- business development advisory and training services
- capital at realistic borrowing rates
- relevant information networks.

A comprehensive and coherent SME Support System comprises an appropriate SME Operational Environment and an appropriate SME Support Infrastructure; they are illustrated at pages 16 and 17 respectively.

An effective SME Support System is a prerequisite to the effective functioning of a Business Incubator, because an Incubator is just one element of an SME Support Infrastructure, as shown at page 17. In order to enhance its effectiveness, it is vital that the unique role of a Business Incubator within the framework of an SME Support System be clearly defined

5.1.2 The second conclusion is that Cracow, as the third largest city in Poland, and with impressive intellectual capital, requires a Business Incubator which will focus on generating Fast-Growth Firms i.e. Polish-owned, high-potential businesses, driven by multi-disciplinary Venture Teams. The key is to implement a Business Incubation System which is people-led rather than technology-led.

<b>SME OPERATIONAL ENVIRONMENT</b>			
<b>MARKET SITUATION</b>	<b>FINANCIAL STRUCTURES</b>	<b>LEGAL FRAMEWORKS</b>	<b>CULTURAL ENVIRONMENT</b>
<p>Local, Regional National, Global</p> <p>Limits to Trade e.g. Taxes, Cartels</p> <p>Market Entry Difficulties</p>	<p>Economic Situation e.g. Inflation, Interest Rates</p> <p>Availability of capital Borrowing Criteria</p> <p>Government &amp; Regional Policy e.g. Taxation, Zoning</p>	<p>Company Law e.g. Ownership</p> <p>Labour Law e.g. Union and Employment Rules</p> <p>University Rules e.g. IPR, Private Earnings</p>	<p>General Society Attitudes</p> <p>National and Regional Culture</p> <p>Business and Job Culture</p>

**SME SUPPORT INFRASTRUCTURE**

<b>Primary</b>		<b>Secondary</b>		
<b>Operational Facilities</b>	<b>Direct Support</b>	<b>Local Amenities</b>	<b>Business Resources</b>	<b>Business Networks</b>
Universities	Seed & Venture Capital Funds	Advanced Telecoms	Supplier & Subcontractor Firms	Chambers of Industry & Commerce
Corporate & Government Laboratories	Government Agency Programmes	Transport Systems	Training & Recruitment Companies	Professional Associations
Business Incubators	Banking Support Schemes	Housing & Shops	Marketing & Management Consultants	Informal Clubs & Networks
Technology & Science Parks		Schools		

5.1.3 The third conclusion is that Nowa Huta Business Incubator needs to be strengthened in order to implement a proactive Business Incubation System. This will empower the BI to maximise business creation opportunities for employees of Sendzimira Steelworks.

## 5.2 Recommendations

### 5.2.1 Cracow Business Incubator

It is recommended that

- 1 the Mission of Cracow Business Incubator be to generate Fast-Growth Firms (FGFs), as defined at 5.1.2. Currently, there is no strategy in operation in the Cracow Region which focuses in an intensive and sustained way on the creation of FGFs. This recommendation defines a Mission for the Cracow Business Incubator which affords it uniqueness as an economic development tool and differentiates its role as part of an SME Support System in the Cracow Region
- 2 the Mission be implemented through the medium of a Business Incubation System as outlined at Annex H
- 3 a Workshop be convened in Cracow by UNIDO which will
  - brief PBF and all other relevant agencies in the Cracow Region on the proposed strategy for the Cracow Business Incubator; and on the costs and benefits of the strategy
  - identify those agencies which are prepared to champion and financially support the "new" Business Incubator
  - nominate a Task Force to prepare a Strategic Plan for the Incubator.

### 5.2.2 Nowa Huta Business Incubator

The Mission of Nowa Huta Business Incubator is to assist the restructuring of Sendzimira Steelworks by helping its employees to start their own businesses.

It is recommended that

- 1 this Mission be continued
- 2 the BI implement a structured Business Incubation System (as outlined at Annex H) which will enable the BI to be more proactive and to increase its impact on the generation of businesses.
- 3 a Workshop be convened in Nowa Huta by UNIDO in order to
  - brief the Foundation for Economic Promotion of the Cracow Region, Sendzimira Steelworks, and all other relevant agencies in the Cracow Region, on the proposed strategy for Nowa Huta Business Incubator; and on the costs and benefits of the strategy
  - identify those agencies which are prepared to champion and financially support the "new" Business Incubator
  - nominate a Task Force to prepare a Strategic Plan for the Business Incubator.



**ANNEX A**

---

**Terms of Reference**

---

**UNIDO**  
**- JOB DESCRIPTION-**  
**(BL-11-51)**

(1) Post Title                      **CONSULTANT ON BUSINESS INCUBATION SYSTEMS**

Duration                              **0.7 w/m (three weeks)**

Date required                        **January**

Duty station                         **Cracow (2 weeks) and home base (one week)**

Purpose of the Project : **The project aims to provide advisory services to assist the effective operations of the Business Incubators established in Cracow, Mielec and Nowa Huta, as well as to provide direct assistance to existing businesses in the regions.**

Duties                                 **The consultant is expected to assess the current technical assistance needs of the Technology Incubator established in Cracow.**

**Specifically, the consultant is expected to :**

- 1. Receive a briefing at UNIDO headquarters on the methodology and support documents to manage a technology business incubation system**
  
- 2. Receive a briefing in Cracow and discuss the past and current activities on incubation technology transfer developed by Progress and Business Foundation Incubator**

with international or bilateral technical assistance, including the present organizational structure of P&B Incubator

3. Identify strategic technologies already developed at P&B incubator and evaluate strategic technical options. (technology portfolio)
4. Assess the offer of services for technology based enterprises in Cracow. The analysis of the offer will focus mainly on a critical review of the SME's support services available in the region on technology (i.e. academic institutions), finance (i.e. development financial institutions), management and information linkages (i.e. business associations, chambers of commerce, etc.)
5. Hold a workshop (three days) on : technology incubation for P&B staff, Mielec and Nowa Huta Incubators staff, professors and students, business associations and local Government, and other interested counterparts in order to attract clients and sensitize the local academic environment towards emerging problems of SME's competitiveness and experienced solutions.

The workshop will follow, as a basis, the below mentioned guidelines

**(i) INTRODUCTION**

- (a) The importance of enterprise creation for economic development**
- (b) Various support systems to promote enterprise creation**

**(ii) THE BUSINESS INCUBATION SYSTEMS**

The different models:

- (a) Non-profit oriented**
- (b) Technology oriented**
- (c) Profit oriented**

**(iii) THE ENVIRONMENT SURROUNDING A TECHNOLOGY INCUBATION SYSTEM**

- (a) Infrastructure**
- (b) Economy**
- (c) Technology**
- (d) The political framework**
- (e) The socio-cultural framework**
- (f) The entrepreneurial framework**

**(iv) THE INCUBATOR PROMOTION**

- (a) Incubators promotion**
- (b) Incubators financing**
- (c) The relation objectives-promoters**

- (v) THE INCUBATOR LOCATION
  - (a) How to choose the most appropriate location depending on incubator specialization (source of potential entrepreneurs, laboratories and common facilities, etc.)
  
- (vi) THE LEGAL STRUCTURE
  
- (vii) THE ORGANIZATIONAL STRUCTURE
  
- (viii) FINANCIAL PLANNING
  
- (ix) OPERATIONAL FRAMEWORK
  - (a) Promotion of the technology incubation network, at regional national and international level
  - (b) Creation of seed and start-up funds
  - (c) Selection process : technology portfolio
  - (d) Admission and exit criteria
  
- (x) EVALUATION OF TECHNOLOGY  
INCUBATION ACTIVITIES
  
- (xi) CRITICAL FACTORS OF SUCCESS AND CASE  
STORIES

6. Provide ad-hoc technical advice to the counterparts as required during the period of his field assignment
7. Prepare a final report on the recommendations provided, including :
  - the content, the documents utilized during the workshop, the result of the attendance and eventual issues raised at the conclusion of the workshop
  - the guidelines for the demo-software to be developed on transfer of technology.

Working and report language : English.

Qualifications

Industrial Economist or Engineer with extensive practical experience in the establishment and management of Business Incubation Systems, as well as some experience in assisting the promotion and development of SME's in Eastern European Countries

Language

Fluency in English language, knowledge of Polish could be an advantage.

**ANNEX B**

---

**Bibliography**

---

- 1           Cracow Labour Market : Strategic Plan
  - WS Atkins                    1993
  
- 2           The Guide for Foreign Investors in the Cracow Region
  - The Governor's Office in Cracow        1992
  
- 3           Polish Business and Innovation Centres Association
  - Profile Material
  - Proceedings of Annual Conference (September 95) : Paper by Mr Henning Thomsen, Danish Invention Centre, Danish Technological Institute
  
- 4           Danish Technological Institute
  - Brochure
  
- 5           Mini Windpower Plant
  - Business Plan
  
- 6           Foundation for the Economic Promotion of the Cracow Region :  
Description of Foundation's activities to 31 December 94



**ANNEX C**

---

**Profile of Progress & Business Foundation**

---

## **PROFILE OF PROGRESS AND BUSINESS FOUNDATION**

The Progress and Business Foundation grew out of a recognition on the part of the industry and academic sectors of the need to prepare more effectively for new needs and circumstances of the market economy.

The motivation was to try to link the research potential of universities with the practical needs of problem solving in government and industry in times of economic transition.

The activities of the foundation have sought to integrate research and practical action by providing an institutional mechanism for interaction among the Council organisations and other partners representing government, university, industry and business organisations.

The mission of Progress and Business Foundation is to support economic development in the transition towards a market economy in Poland.

The Foundation supports development of a market based economy by co-ordinating and supporting the efforts of the business community, the universities and the public sector.

The Foundation accomplishes its mission by :

- initiating or supporting projects which assist particular businesses or industries
- providing fora for sharing business development ideas and experiences
- providing funds or other support for any of the above mentioned activities

### **Statutory goals of the Foundation**

1. to engage in and to support the activities which serve the development of economic life under market conditions
2. to be actively involved in the process of modernisation and development of Polish industry, taking into account such aspects as restructuring and privatisation process
3. to support and stimulate all forms of modern organisation of national and international economic exchange and co-operation
4. to contribute to the introduction and popularisation of new developments and ideas in the fields of technology, economy and organisation
5. to create, support and inspire the exchange of scientific information and know how
6. to implement the programs devised to improve managerial skills and to promote Polish managers.

The projects undertaken by the Foundation have clearly accumulated experience in the field of economic transition at both theoretical and practical levels.

Project activities have mobilised a core professional staff, developed a support system of knowledgeable individuals and organisations, identified key areas of expertise and developed a network of working relationships.

### **The Foundation co-operates with**

- **government** (Ministry of Industry and Trade, Ministry of Environment Protection)
- **local government** (Cracow Voivodeship Office and City Council)
- **industry** (refining, petrochemical, chemical, packaging, cement)

- **universities** (Jagiellonian University, Academy of Mining and Metallurgy, Academy of Economics)
- **international development agencies** (European Commission, DG-XVII, UNIDO, DTI, Kvaerner, TNO)
- **funding agencies** (Batory Foundation, British Council, Know How Fund, PHARE, Co-operation Fund)

#### **Areas of expertise**

- research support for industrial restructuring and privatisation based on application of system analysis and operational research methods
- studies and analyses in the area of sustainable development of industrial sectors and enterprises including elaboration of business plans and master plans, feasibility and business opportunity studies, market analyses and forecasts, economic, technical and legal advising including environmental issues
- experience in initiating, designing and managing multidisciplinary projects combining international involvement with local expertise
- initiating business links between companies, scientific institutions, information exchange
- convening seminars, workshops and other partnership building activities designed to bring together key persons and institutions to identify problems and practical solutions in economic restructuring and sustainable development issues.

#### **Founding Bodies**

Jagiellonian University, Cracow

Academy of Mining and Metallurgy, Cracow

Danish Technological Institute, Taastrup

Minister of Industry and Trade, Warsaw  
Polish Science Trade House Ltd., Warsaw  
Industrial Chemistry Research Institute, Warsaw  
Chemical Industry Chamber  
Marold GmbH, Liechtenstein

#### **Executive Board**

Skulimawski, Andrej Dr.	President
Wieslaw Ziembla	Deputy President
Rafal Serafin	Board Member
Michal Karpiel	Board Member

#### **Supervisory Council**

**Prof. Zygmunt, Kowalski**, Academy of Mining and Metallurgy - Chairman of the Council  
**Prof. Janusz Szwaja**, Jagiellonian University - Deputy Chairman of the Council  
**Prof. Morten Knudsen**, Danish Technological Institute - Deputy Chairman of the Council  
**Prof. Aleksander Koj**, Rector Jagiellonian University  
**Prof. Miroslaw Handke**, Rector Academy of Mining and Metallurgy  
**Prof. Jerzy Mikulowski-Pomorski**, Rector Academy of Economics  
**Prof. Andrzej Pefczar**, Jagiellonian University  
**Prof. Stanislaw Wlodyka**, Jagiellonian University  
**Prof. Eiliv Sodahl**, SINTEF, Norway  
**Prof. Niels Christian Nielsen**, Director Danish Technological Institute  
**Andrzej Kuzniarski**, Director Polish Science Trade House, Cracow Branch  
**Teresa Imielinska**, representative of the Minister of Industry and Trade  
**Konstanty Chmielewski**, President Chemical Industry Chamber

**Wojciech Lubiewa Wielezynski**, Industrial Chemistry Research Institute

**Wladyslaw Brzeski**, Director Cracow Institute for Real Estate

**Sobieslaw Zasada**, Marold

### **Bank Account**

Bank Przemyslowo Handlowy, IV/O Krakow ul. Pijarska 1, No. 323415-705455-142-3

### **Programmes of the Foundation**

- I **Restructuring and industrial development** - to develop short to medium term consulting activities in industrial areas focused on consolidation of existing markets market analyses, technical and economical consulting , market forecasting, analyses for privatisation of industrial units
- II **Restructuring and environment protection** - promotion of environment friendly technologies in Polish enterprises as tools for restructuring and market development
- III **University industry co-operation** - creation of sustainable links between academies and industry through practical projects on education, technology commercialisation, technology transfer
- IV **Institutions for development** - to develop partnership building capacity among all those with a stake in specific economic restructuring projects, collection and exchange of information.

The Foundation performs also business activities mainly in the area of consulting and economical, technical and legal analyses.

**ANNEX D**

---

**Clients of Cracow Business Incubator interviewed by Mr Carroll**

---

1 CLICO High-Tech Software Promotion Centre Ltd.

Interview Date		25 January 96
Present	CLICO	Dr Janusz Jarosz Mr Tomasz Rys
	PBI	Mr Zbigniew Daniszewski
	UNIDO	Mr Thomas Carroll

---

CLICO was founded in 1991 by 2 software engineers - Dr Janusz Jarosz and Mr Tomasz Rys - in order to design and distribute software packages. When PBI incubator space became available in 1992 CLICO located there and availed of shared services offered by PBI. The PBI facilities were very beneficial to CLICO at that juncture. When PBI relocated in 1995 (cf. paragraph 2.2.5, page 5) CLICO remained and now rents about 200m<sup>2</sup> from the owner of the building complex in which PBI was originally located.

CLICO now has annual sales of US\$ 2.0 million. 80% of this is generated from the distribution of international software systems, e.g. UNIX, Microsoft, related to accountancy; production planning, etc. The remaining 20% is customised software designed by CLICO itself.

CLICO has established its reputation in Poland where it has 200 distributors. It sells also to Estonia, Slovakia and Ukraine.

CLICO now has a core staff of 11 people.



2 Compact Disc Novelty Sp. z.o.o.

Interview Date		17 January 96
Present	CDN	Mr Maciej Skocj
	PBI	Dr Jerzy Sekiewicz
	UNIDO	Mr Thomas Carroll

---

CDN was formed in 1990 and it focuses on designing software packages for small and medium enterprises in manufacturing and services such as supermarkets, warehouses and petrol service stations. The software packages range through functions such as accounting, cash flow management, materials control, payroll and management of stock market transactions.

CDN is owned by 3 Polish partners, one of which is Mr Skocj. The company now rents space of 600m<sup>2</sup> and has a core staff of 37 people; it also has a network of free-lance personnel. Sales have now reached US\$ 1,124,000/year. The company operates in Poland only and is ranked No. 2/No. 3 in its market segment.

CDN's association with PBI was via the late President of the Board of PBF, Dr Zebrowski, who championed the PBI. Dr Zebrowski provided encouragement to CDN at a vital juncture in the company's development.

Mr Skocj made 3 additional points which have relevance to PBI's future strategy

- (a) CDN has 3 owners who constitute a Venture Team with complementary skills. The owners have divided their functions in CDN thus

- one focuses on keeping the company at the cutting edge of technological developments
- one concentrates on marketing issues
- one specialises in financial issues.

Mr Skocj stated that CDN's growth was greatly influenced by having a Venture Team.

- (b) CDN focuses on small and medium enterprises (SMEs). Their common need, according to Mr Skocj, is for business development services. This is a niche opportunity for a Business Innovation Centre
- (c) Mr Skocj stated that a coherent SME Support System is absent in Cracow. This impedes the establishment of new businesses and constrains the development of existing SMEs.

### 3 DOTS Computer Systems

Interview Date		15 January 96 in Vienna		
		19 January 96 in Cracow		
Present	Vienna Meeting	DOTS	-	Mr Mirek Kaltenboeck
		UNIDO	-	Mr Thomas Carroll
			-	Mr Fabrizio Condorelli
	Cracow Meeting	DOTS	-	Mr Mirek Kaltonboeck
			-	Mr Tomek Wozniacki
		PBI	-	Dr Jerzy Sekiewicz
		UNIDO	-	Mr Thomas Carroll

DOTS started in 1990 and is owned by Mr Kaltenboeck and Mr Wozniacki. their association with PBI was influenced by the late President of PBF, Dr Zebrowski, who championed the PBI. PBI provided space (30m<sup>2</sup>) and a helpful image for DOTS at that juncture in the development of the business.

DOTS is now located in downtown Cracow in rented space (70m<sup>2</sup>). Sales are US\$ 120,000/year and a core staff of 7 is employed.

DOTS software products include

- (a) a graphics package for optimising the use of non-homogenous materials e.g. cutting leather patterns for footwear manufacture
- (b) software for hospitals which tracks the treatment for individual patients and the cost of such treatment
- (c) software for estate agents. For example, 12 property agents in Moscow have pooled information on their property offerings. This enables a prospective buyer to assess all properties on offer by simply going to one property agent. When a property is sold the sales commission is split between the agent who sold the property and the agent who placed the property in the "pool".

**ANNEX E**

---

**List of 32 Technologies disseminated by PBI**

---

1. Porous glasses
2. Investigation of microtexture of solids
3. Whirling disc used for mixing
4. Hydrophobized bentonite thickener for plastic lubricants
5. Carbon-fibre composites for technical purpose -spring
6. The software and control of texture goniometer
7. Hydroxyapatite ceramic
8. Invalid carriage for disabled persons with inefficiency of lower limbs
9. Distension treatment of benign prostatic hyperplasia BPH
10. Measurement of stomach and intestines work
11. An electric drive for standard wheel-chair for disabled person with hand operation
12. Carbon-fibre prothesis
13. Stair-lift for disabled persons
14. Heat-insulating cellular glass
15. Vibration and sound insulation system for subgrade (rail and road)
16. Seal agent for bore holes and antifiltrate shield
17. Orifized rapid filters working in Variable Declining System
18. Active system of vibration insulation for hand-held percussive tools
19. System for automatic definition of pollution level internal as well as external surfaces of boiler radiant tubes
20. Partition of heat exchanger
21. Tapping of steel from metallurgic furnace without furnace slag
22. Synthesis of multicomponent carbide powders and nitrides by combustion in solid phase
23. The single cycle highly efficient plastic working technology for metals
24. The method of forming the edge of tooth saw

25. The design of high fracture toughness steel for working and the backing steel - rolls for hot and the cold rolling mills
26. The mono and bimetal finned pipes cold-rolled
27. Electromagnetic metalworking
28. Vertical, digital, acoustic radar (sodar)
29. Method of utility of waste products such as plastics, oiling materials, sawdust
30. Mini wind power plant
31. Modules microcomputer controller
32. Methods of calculation and prediction object's vibroacoustic parameters in environment

**ANNEX F**

---

**List of Tenants in Nova Huta Business Incubator**

---

- 1     **APO**  
trading and transport
- 2     **BASCO**  
production of household equipment from plastics
- 3     **BIURO USL. ADM. i ZARZADZ**  
consulting and marketing
- 4     **BLACHARSTWO**  
car-body repairs
- 5     **CLEANART F.H.U.**  
marketing of car cosmetics
- 6     **ELEKTROAUTOMAT**  
electro-automatic services
- 7     **EL. KAR**  
production of car protection systems
- 8     **ELMA**  
production of electric mattresses
- 9     **FRESH FRUITS**  
trading of exotic fruits
- 10    **J.G.**  
building services
- 11    **KOMA**  
designing and making prototypes
- 12    **KRAKSPORT F.H.**  
trading of sport products
- 13    **LAKIERNICTWO**  
car lacquering



- 14 **L.M. CONSULTING**  
consulting
- 15 **MEDIA - BOD**  
maintenance of hardware
- 16 **MODUL-THERM**  
refractory materials services
- 17 **OKTIW**  
mill repairs
- 18 **OMNIBUS**  
market research
- 19 **PP**  
construction and assembling acoustic hoods
- 20 **PROMYK**  
production of shutters
- 21 **PRYWATNY TEATR FORM RADIOWYCH**  
radio story production
- 22 **STALBAU sp. z.o.o.**  
building services
- 23 **STALBET s.c.**  
building and installation
- 24 **TOPBUD sp. z.o.o.**  
trading of steel products
- 25 **UNICOM ELECTRONICS**  
export trading
- 26 **WELNER**  
building services
- 27 **WPW**  
designing and wood-making

**ANNEX G**

---

**Clients of Nowa Huta Business Incubator interviewed by Mr Carroll**

---

1 **El-Kar**

Interview Date

23 January 96

Present

El-Kar

Dr Boleslaw Karwat

Mr Alfred Ziekan

Nowa Huta BI

Mr Krzysztof Kwatera

PBI

Mr Zbigniew Daniszewski

UNIDO

Mr Thomas Carroll

---

Promoters :

Dr Karwat , an engineer, is on the faculty of the Academy of Mining and Metallurgy. Mr Ziekan, a former employee of Sendzimira Steelworks, is an electrician

Product :

an electro-magnetic device which provides anti-fire and anti-theft security for petrol-powered cars. It dates back to 1984 when it was patented in Poland

Business Dynamics :

El-Kar is a tenant in Nowa Huta BI since 1993. It occupies 70m<sup>2</sup> and has 5 employees. Components are bought in and assembled in the BI. Sales in 1995 totalled 5000 units equivalent to a total of US\$ 35,000 (excluding VAT). About 50% of the sales were exports - to Russia; however the Russian market is changing rapidly.

El-Kar is experiencing more competition from Belgian and German companies in the Polish market. This is forcing EL-Kar to sell its products on the basis of price competitiveness rather than on uniqueness; which is a weak strategy.

El-Kar tried to persuade a Polish car assembler to use its product; however this did not succeed.

Mr Carroll's assessment of El-Kar is as follows

- (a) the promoters need help in the development of a Business Plan which would provide a SWOT (strengths, weaknesses, opportunities, threats) analysis of the business and determine an appropriate business development strategy. This service should be offered by Nowa Huta BI to its clients
- (b) the promoters need market and technical information e.g.
  - how does the El-Kar product compare with imported products in terms of technology, price etc.
  - is there scope to export the El-Kar product

The Nowa Huta BI needs to equip itself to assist its clients to source such market/technical information

- (c) if no action is taken on (a) and (b) El-Kar will not be able to exploit the market opportunity presented by the growing level of car ownership in Poland.

## 2 Elektroautomat

Interview Date		23 January 96
Present	Electroautomat	Me Robert Olech
	Nowa Huta BI	Mr Krzysztof Kwatera
	PBI	Mr Zbigniew Daniszewski
	UNIDO	Mr Thomas Carroll

---

Promoter : Mr Olech is the owner-manager and he established the business in 1994. It employs 3 people in a 16m<sup>2</sup> unit in Nowa Huta BI

Business : Elektroautomat is a sub-contracting business

- (a) it assembles power supply stabilisers for use with computers. The components are supplied to Elektroautomat by a large company which then sells the stabilisers in Poland and France
- (b) it assembles clock-in, clock-out mechanisms which are used in factories to record hours worked by individual personnel.

Elektroautomat sales are currently US\$ 20,000/year.

Mr Olech's vision is to progress from being a subcontractor to having his own portfolio of products.

Mr Carroll briefed Mr Olech on the benefits of developing a Venture Team : 2 to 3 people with entrepreneurial drive and complementary skills. Mr Olech needs data on products which may be available for manufacture for the Polish market under licence or by way of joint venture. The Nowa Huta BI should be equipped to help its clients to source such information.

**ANNEX H**

---

**Cracow Workshop : Summary of Content and  
List of Participants**

---

## WORKSHOP TOPIC

---

### Technology Transfer and Audit - Ireland Model

- How to help existing SMEs to innovate and grow
  - How to create new SMEs, especially Fast-Growth Firms
- 

## 1 KNOWLEDGE SOCIETY

Mr Carroll described the global transition from an Industrial Society to a (post-Industrial) Knowledge Society. This means that Poland has to take 2 steps

- from a command (socialist) economy to a market economy
- from an Industrial Society to a Knowledge Society.

This required fundamental mindset change and an appreciation that human talent, technology and capital are key resources in Knowledge Society. In particular, the mobilisation of human capital via education, training and an enterprise culture/support system is the key to development in a market economy in Knowledge Society.

## 2 INDUSTRIAL POLICY

Mr Carroll summarised Industrial Policy in Ireland. He then focused on a component of Industrial Policy i.e. SME Policy and an SME Support System. An important aspect of an SME Support System is how to

- help existing SMEs to innovate and grow
- create new SMEs, especially quality SMEs such as Fast-Growth Firms (FGFs).



The development of an effective SME Policy and SME Support System is crucial because SMEs

- are the backbone of economic development (98% of non-farm enterprises in Ireland employ less than 50 people)
- are the key to effective creation of sustainable jobs
- have an effective role to play in regional/rural development
- are effective carriers of innovation i.e. commercialisers of technology

### **3 GROWTH-ORIENTED BUSINESSES**

Mr Carroll drew on European data which demonstrates that Venture Teams are a vital component of Growth-Oriented Businesses. Venture Teams comprise 3 to 4 people who combine entrepreneurial drive with complementary skills in engineering, technology, marketing and finance.

Management Development Programmes for existing businesses and Business Creation Programmes for start-up businesses - both aimed at developing Venture Teams - are a key ingredient of an SME Support System.

### **4 BUSINESS and INNOVATION CENTRES /IRISH MODEL**

#### **4.1 Mission, Key Objectives, Success Criteria**

A BIC is in the business of creating businesses. It does so by assembling 3 elements which are central to every business - whether it produces a product or a service

- a champion/entrepreneur - the person with the drive, tenacity and ability to develop an idea into a business
- a business idea

- capital

Clients of a BIC have the benefit of 2 services usually for a 3-year period

- entrepreneurship training and business advisory services tailored to the needs of an emerging entrepreneur
- a base in the Incubator consisting of offices and/or workshops together with access to shared services such as secretarial support, meeting room, phone/fax etc.

The services are shown in schematic format at page 54.

It is vital that a BIC define its unique role within an SME Support System. An example would be to focus on the generation of Fast-Growth Firms. This role definition will help the BIC to network other players in the SME Support System.

The second vital issue is to have agreement from the outset on the sustainability of the BIC as an economic development tool. A BIC should be launched and developed within the framework of a Strategic Plan which addresses the issue of sustainability over a 10-year period.

The Strategic Plan should be complemented by short-term (say 3 years) Operating Plans addressing issues such as

- (a) targets for annual output of FGFs
- (b) how the inputs - entrepreneurs, business ideas, capital - will be sourced and fused in order to deliver the outputs i.e. the details of the Business Incubation System

**BUSINESS INCUBATION SYSTEM :  
3-YEAR BUSINESS INCUBATION CYCLE**

MONTH	1 2 3 4 5 6 7 8 9 10 11 12	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
<b>BUSINESS PLANNING PROGRAMME</b>	<div style="border: 1px solid black; background-color: #cccccc; padding: 5px; margin-bottom: 10px;"> <ul style="list-style-type: none"> <li>• BUSINESS CREATION COURSE</li> <li>• PRODUCT / SERVICE IDEAS</li> <li>• SEED CAPITAL</li> <li>• INCUBATOR SPACE + SHARED SERVICES</li> </ul> </div> <p align="center">↓</p> <p align="center"><b>BUSINESS PLAN</b></p>	
<b>BUSINESS IMPLEMENTATION PROGRAMME</b>		<div style="border: 1px solid black; background-color: #cccccc; padding: 5px;"> <ul style="list-style-type: none"> <li>• MANAGEMENT ASSISTANCE PACKAGE</li> <li>• INCUBATOR SPACE + SHARED SERVICES</li> </ul> </div>

- (c) the resources required by the BIC in order to implement the Business Incubation System i.e. a professional BIC Management Team and Finance.

#### 4.2 Business Incubation System

The Business Incubation System - the software of a BIC - was then described. It addresses the issue of how the 3 components of a business i.e. a champion/entrepreneur, a business idea and capital, are assembled by a BIC.

### 5 **TECHNOLOGY TRANSFER**

5.1 Mr Carroll summarised the dynamics of Technology Transfer and the Innovation Process in a market economy. It has 6 aspects

- Research (both science pushed and demand pulled)
- Invention (a new product or process)
- Entrepreneurship (exploiting them)
- Investment (mobilising resources)
- Development (technological preparation)
- Diffusion (into industrial practice and the marketplace)

5.2 The resources required for effective Technology Transfer are beyond the capacity of individual BICs. The Technology Transfer process has to be driven by central Government resources.

The contrast between the supply-side and the demand-side of the Technology Transfer process was summarised thus

TECHNOLOGY TRANSFER	
<u>Supply-side</u>	<u>Demand-side</u>
<ul style="list-style-type: none"> <li>• Technology Push</li> <li>• Relatively stable environment of Universities, Research Institutes, etc.</li> <li>• Distance from market; cost to get to market</li> <li>• Only 4% of inventions are commercialised</li> </ul>	<ul style="list-style-type: none"> <li>• Market Pull</li> <li>• Rapidly changing environment               <ul style="list-style-type: none"> <li>- short product life cycles</li> </ul> </li> <li>• Time to market; weeks/months rather than years</li> </ul>

5.3 Technology is one, but only one, of a number of strategic variables in a business.

5.4 The concept of BICs "picking winners" i.e. choosing particular technologies for commercialisation, has not worked in any country. The evaluation of the commercial potential of particular technologies is done best by those who are putting their future careers, and their money, behind the decision. It follows that a BIC's role in the context of Technology Transfer is to focus on creating Venture Teams; their role is crucial in the innovation process. They are the carriers of innovation who create a demand for technologies.

## 6 CONCLUSION

Mr Carroll concluded the Workshop by emphasising the importance of mobilising the human capital, and especially the intellectual capital, of Cracow, via a comprehensive SME Support System, including a BIC which would

- help existing SMEs to innovate and grow
- create Fast-Growth Firms.

## 7 LIST OF PARTICIPANTS

1.	Ms Matgorzata Adamczyk	Institute of Glass and Ceramics
2.	Mr Bogoslaw Bieda	Consultant- Progress & Business Incubator
3.	Ms Dorota Czepik	Institute of Oil Technology
4.	Ms Monika Domanska	Progress & Business Foundation
5.	Ms Anna Francik	Academy of Economics
6.	Ms Elzbieta Grochal	Institute of Glass and Ceramics
7.	Ms Zofia Pollak	Institute of Glass and Ceramics
8.	Dr Jerzy Sekiewicz	Director - Progress & Business Incubator
9.	Ms Jadwiga Skirgajlo	Association of Glass-Producers
10.	Ms Stanislaw Vasina	Technical University
11.	Ms Anna Wrobel	Institute of Glass and Ceramics

TECHNOLOGY TRANSFER	
<u>Supply-side</u>	<u>Demand-side</u>
<ul style="list-style-type: none"> <li>• Technology Push</li> <li>• Relatively stable environment of Universities, Research Institutes, etc.</li> <li>• Distance from market; cost to get to market</li> <li>• Only 4% of inventions are commercialised</li> </ul>	<ul style="list-style-type: none"> <li>• Market Pull</li> <li>• Rapidly changing environment               <ul style="list-style-type: none"> <li>- short product life cycles</li> </ul> </li> <li>• Time to market; weeks/months rather than years</li> </ul>

5.3 Technology is one, but only one, of a number of strategic variables in a business.

5.4 The concept of BICs "picking winners" i.e. choosing particular technologies for commercialisation, has not worked in any country. The evaluation of the commercial potential of particular technologies is done best by those who are putting their future careers, and their money, behind the decision. It follows that a BIC's role in the context of Technology Transfer is to focus on creating Venture Teams; their role is crucial in the innovation process. They are the carriers of innovation who create a demand for technologies.

## 6 CONCLUSION

Mr Carroll concluded the Workshop by emphasising the importance of mobilising the human capital, and especially the intellectual capital, of Cracow, via a comprehensive SME Support System, including a BIC which would

- help existing SMEs to innovate and grow
- create Fast-Growth Firms.

## 7 LIST OF PARTICIPANTS

1.	Ms Matgorzata Adameczyk	Institute of Glass and Ceramics
2.	Mr Bogoslaw Bieda	Consultant- Progress & Business Incubator
3.	Ms Dorota Czepik	Institute of Oil Technology
4.	Ms Monika Domanska	Progress & Business Foundation
5.	Ms Anna Francik	Academy of Economics
6.	Ms Elzbieta Grochal	Institute of Glass and Ceramics
7.	Ms Zofia Pollak	Institute of Glass and Ceramics
8.	Dr Jerzy Sekiewicz	Director - Progress & Business Incubator
9.	Ms Jadwiga Skirgajlo	Association of Glass-Producers
10.	Ms Stanislaw Vasina	Technical University
11.	Ms Anna Wrobel	Institute of Glass and Ceramics

---