MANAGEMENT OF BUSINESS INCUBATORS

Training materials

Kaunas * Technologija * 2001
The book is published under financial support of Leonardo da Vinci programme (project No. LT/99/1/088105/1.1.1.b/FPC), Ministry of Economy of the Republic of Lithuania and Business Development Council

Project coordinator: Kaunas University of Technology Innovation Centre

Project partners:
Aachen Technology Centre (Germany), Alytus Business College (Lithuania), ATLANTIS Consulting S.A. (Greece), Business and Innovation Center in Northern Seeland (Denmark), Latvia Technology Park (Latvia), Ministry of Economy of the Republic of Lithuania (Lithuania), Telsiai County Governor Administration (Lithuania)

Training materials were prepared under support of European Commission Leonardo da Vinci programme. All materials reflect authors’ views. European Commission is not liable for any use that may be made of the information contained in the publication.

Reviewed by: Head of Management Department of Vilnius Gediminas Technical University
Prof. Dr. Habil. Borisas Melnikas

© KTU Innovation Centre, 2001

Materials were prepared by group of authors:

Aachen Technology Centre:
  *Dr. Gisela Kiratli*
  *Claudia Fellhölter*

Alytus Business College:
  *Vytautas Lubauskas*
  *Danute Remeikiene*

ATLANTIS Consulting S.A.:
  *Effie Amanatidou*
  *Tonia Damvakeraki*
  *Natasa Labrinidou*

Business and Innovation Center in Northern Seeland:
  *John Heebol*

Kaunas University of Technology Innovation Centre:
  *Dr. Pranas Bernardas Milius (project manager)*
  *Vita Kripiene*
  *Aiste Miliute*
  *Birute Velykiene*
  *Dainius Marciukonis*

Latvia Technology Park:
  *Prof. Dr. Leonids Ribickis*
  *Viktors Mihailovs*

Ministry of Economy of the Republic of Lithuania:
  *Sarunas Birutis*
  *Arturas Einikis*
  *Janina Velickaite*

Telsiai County Governor Administration:
  *Virginija Jaseviciene*
## CONTENTS

INTRODUCTION ..................................................................................................................... 6

1. EXPERIENCE OF FOREIGN COUNTRIES AND LITHUANIA IN
DEVELOPMENT OF SMALL AND MEDIUM SIZED BUSINESSES... 7

1.1. Importance of promotion of small and medium enterprises .......... 7

1.2. Description of business promotion frameworks .............................. 8

1.2.1. Innovation centres ................................................................. 11

1.2.2. Business incubators (BI) ......................................................... 14

1.2.3. Science parks (SP) .............................................................. 18

1.2.4. Science - research parks (SRP) ............................................. 20

1.2.5. Technology parks (TP) .......................................................... 20

1.2.6. Commercial parks ............................................................... 20

1.2.7. Technopolis .............................................................. 22

1.3. USA - initiator of business promotion frameworks ......................... 23

1.4. Review of experience of Western Europe ..................................... 25

1.4.1. Great Britain ................................................................. 25

1.4.2. Germany ............................................................. 26

1.4.3. Finland ............................................................ 31

1.4.4. Italy .............................................................. 32

1.4.5. Israel .............................................................. 32

1.4.6. Greece ............................................................. 33

1.4.7. Denmark ............................................................ 38

1.5. Experience of Central and Eastern Europe .............................. 39

1.5.1. Poland ............................................................. 39

1.5.2. Russian Federation .......................................................... 41

1.5.3. "Military" business in Russia ............................................ 42

1.5.4. Uzbekistan .............................................................. 44

1.5.5. Latvia ............................................................. 45

1.6. General aims of creating business incubators and scientific
       technological complexes .................................................. 47

1.7. Conclusions ....................................................................................... 49

2. ESTABLISHING A BUSINESS INCUBATOR .................................. 50

2.1. Market research ................................................................. 50

2.2. Allies and partners of Business Incubator ................................... 54

2.3. Establishing Advisory Board of Business Incubator ................. 59

2.4. Forming team of Business Incubator ......................................... 61

2.5. Students’ participation in activities of the Business Incubator ...... 65

2.6. Work division among the Business Incubator Management .......... 66

2.7. Main Steps in Forming the Incubator’s Team ............................ 67
3. INCUBATOR BUSINESS PLAN ........................................................... 68
  3.1. Executive summary ................................................................. 68
  3.2. Effect of BI establishment ..................................................... 69
  3.3. Mission, objectives, founders ............................................... 72
  3.4. Marketing strategy ................................................................. 74
    3.4.1. BI competitors ............................................................... 74
    3.4.2. BI image ....................................................................... 75
    3.4.3. Search and selection of new tenants ................................ 75
    3.4.4. Groups of BI tenants ..................................................... 77
  3.5. Plan of Business Incubator Activities .................................... 78
    3.5.1. Plan of BI services ........................................................ 78
      3.5.1.1. Training services .................................................... 78
      3.5.1.2. Technical and other services of BI .......................... 79
    3.5.2. Characteristics of technical basis .................................... 82
    3.5.3. Organisational management structure ............................. 82
  3.6. Financial calculations ........................................................... 85
  3.7. Risks estimation ................................................................. 87

4. THE ROLE OF BUSINESS INCUBATORS IN TECHNOLOGY TRANSFER ............................................................................................. 88
  4.1. Technology incubators .......................................................... 88
  4.2. Emergence of technology incubators ...................................... 89
  4.3. Incubators in science and technology parks ......................... 90
    4.3.1. Physical infrastructure .................................................. 91
    4.3.2. Management support .................................................... 92
    4.3.3. Technical support ........................................................ 92
    4.3.4. Access to finance ......................................................... 92
    4.3.5. Legal assistance ........................................................... 93
    4.3.6. Networking .................................................................. 93
  4.4. Regional innovation policy development .............................. 94
  4.5. Organisation of technology transfer ....................................... 96
  4.6. The European framework for technology transfer, Innovation & Regional development ........................................ 100
  4.7. Promotion of innovations in SMEs ....................................... 105
  4.8. Ten-stage model of technology transfer ............................... 107
  4.9. Certain rules to be followed in technology transfer process .... 110
  4.10. Problems in technology transfer ......................................... 113
  4.11. Conclusions ...................................................................... 115

LITERATURE ........................................................................................... 116

Reference materials ............................................................................... 119
INTRODUCTION

Different SMEs support structures are known in the world. One of them – business incubators also called technology/innovation centres – have spread out in different countries in the recent years. As the idea of business incubation gets more and more popular in Lithuania, a need and lack of specific literature describing business incubation and introducing activities of business incubators has been observed. We hope that these training materials will contribute to fill this gap.

General business management issues have been analysed rather widely and deeply in different sources; business management specialists are prepared in universities. However, management publications lack special focus on market research, establishment, and terms of activities of business incubators. Therefore general management topics are not discussed in these materials; but specifics of business incubators are analysed.

Different business support structures models are described in the book, their implementation peculiarities are presented and experience of their development in many countries is analysed. Methodics of business incubator establishment, organisation and activities planning are described in detail; terms of practical use of BI are presented. Perspectives to improve technology transfer system are highlighted; possibilities to develop technology incubators and other business support structures are analysed.

Training materials were prepared under support of European Commission Leonardo da Vinci Programme and with participation of organisations from Lithuania and 4 foreign countries (Denmark, Germany, Greece and Latvia).

We hope that the training materials will be necessary and useful for Managing Directors and Managers of existing business incubators, employees of Ministries, Municipalities and Regions Administrations working in the field of business support and seeking to establish a business incubator, and for all interested in activities and specifics of business incubators as one of the forms for SMEs support.

Dr. Pranas Milius
Project manager
1. EXPERIENCE OF FOREIGN COUNTRIES AND LITHUANIA IN DEVELOPMENT OF SMALL AND MEDIUM BUSINESS

1.1. Importance of promotion of small and medium enterprises

International experience has shown small and medium enterprises (SMEs) to have had quite an important place in economics in the second half of the 20th century. Currently in the well-developed countries, millions of SMEs, along with large firms, form a peculiar self-regulating mechanism in market economics.

The requirements and characteristics of large business are: a consumer market with long-term demand; mass production meeting the necessary standards; low-cost manpower. The manager of a small company experiences a number of advantages: simple communication, lack of strict hierarchy, possibility of immediate correction of one's aims. Therefore the production costs of an SME are usually less than those of a large company. Large companies have a possibility to choose new articles with better prospects. Serial manufacturing and production realisation requires larger capital investments, manufacturing capacities and human and other resources, than preparation. Large business accomplishes this more easily.

SMEs tend to be more efficient than large companies; since the latter have a possibility both to attract loaned capital and to employ internal financial resources, they also have created larger infrastructures.

SMEs in the post-war period in the USA created up to 50 per cent of all innovations and the greater part of the newest technologies driving technical progress. USA National Fund calculations show that each dollar of research investment in small companies has created four times more innovations than in medium and 24 times more than in large companies. Statistics show 2.5 times more innovations per employee of small companies than of large ones.

The share of SMEs production in the gross national product (GNP) has already exceeded 50 per cent in the highly developed countries. The number of small companies has increased more than four times since 1960 in the USA. European Union governmental authorities link development of SMEs with the possibility to improve the economy in the lagging regions and ameliorate social tension in individual countries. In recent decades, about 80 per cent of all new jobs in the USA and Western Europe were created by SMEs.
Obstacles to SMEs development in Lithuania

1. Unstable and changing legal environment. Legislation is constantly changing, it is complicated and inconsistent, allowing different interpretations of its parts; legal and normative acts contradict each other; by-laws are lacking.

2. Unfavourable economic environment. The existing tax system prevents SMEs from developing: it creates incentives to avoid taxes, ruins interest in activity and investing; punitive and constantly changing tax conditions ruin business plans; entrepreneurs default on loans more and more frequently. In addition to a number of obligatory levies and payments, 19 taxes are applied in Lithuania. Taxes are based not only upon the laws. A Tax Code is still lacking.

Lots of problems occur because of the laws regulating labour relations and acknowledgement of costs of companies. The accounting system and circumstances allowing tax administrators to act wilfully have forced lots of SMEs to become insolvent.

3. Financial problems. SMEs lack capital for turnover and investments. The need for credit is widespread; however, a small entrepreneur is not attractive to banks, and investors express no interest in small businesses. The main obstacle preventing SMEs from receiving credits is lack of guarantees (security). In addition, banks tend to invest into rapidly repaying business – long-term investments bear a higher level of risk. There are no financial institutions able to serve the SME sector, and a leasing mechanism, allowing access to credit with 20-25 per cent guarantee, has been developed poorly. Financing of SMEs needs the support of state institutions.

4. Lack of knowledge. Lack of experience and knowledge in business has drawn lots of SMEs closer to bankruptcy. Business advisers are often too expensive for SMEs and fail to give detailed information, especially in the field of taxes. There is no unified business information system available.

1.2. Description of business promotion frameworks

Efficient business development needs support. First, it should be provided for in the state strategy. Governments of all developed countries have formed a long-term policy towards SMEs. State aid is realised through development of small businesses' infrastructure, granting financial – credit support from the state’s resources, making available receipt of credits from commercial banks (addressing problems of security). There exist manifold structures, arranging preparation for entrepreneurs, granting information and consultations, assisting
getting goods to market and helping companies to obtain credits and investments. See Fig. 1.1 – a model of possible infrastructure.

![Fig. 1.1. Model of possible infrastructure](image)

In the beginning of economic reform, Lithuania paid too little attention to SMEs development. In the spring of 1995 the first SME development program was approved, a non-profit organisation – Lithuanian SME Development Agency (SMEDA) was established in 1996. In 1997 it was reorganised into a public institution.

The main aims of SMEDA are to analyse and participate in forming SME development policy in Lithuania, to improve the business environment where SMEs are operating, to induce establishment and development of SMEs, to implement assistance for SMEs and regional development being received from EU PHARE programs.

In putting its aims into practice SMEDA is engaged in the following activity:

* it analyses the economic and legislative environment for SME development;
* it gathers and updates information about SME conditions in Lithuania;
* it compiles and issues informational publications for entrepreneurs;
* it co-ordinates implementation of the SME development program, initiates implementation of the means provided in the regions;
* it gathers and gives information about the possibilities to receive financial support for SMEs;
* it co-ordinates entrepreneurs' consulting and training in Lithuanian regions rendered by the state;
* it implements the EU PHARE SME Development Project in Lithuania;
* it participates in international programs and projects.

Lithuania receives more and more assistance from abroad: 2.1 per cent of all the loans received are assigned to support SME. Preferential credit lines from EU, World Bank (WB), European Reconstruction and Development bank (ERDB), Lithuanian Development Bank and various countries through Lithuanian commercial banks have been received.

Nordic ministers of finance and economics have created a Baltic investment program, aimed at stimulating investments into SMEs in the Baltic states and fostering co-operation between the Nordic and Baltic states. Pursuant to this program the Nordic Investment Bank (NIB) has assigned a one million Euro credit line for Lithuania, Latvia and Estonia to finance companies of businesswomen.

In December 1997 an Insurance Company "Lithuanian Export-Import Insurance Ltd" (LEID) was established. Its main aim is to stimulate export of the products of Lithuanian companies, insuring risk of the goods exported and credits, issued for their manufacturing, to support SMEs by insuring loans, taken for realisation of long-term investment projects.

Currently LEID offers companies the following insurance services:

* insurance of export credit (financial credit);
* insurance of goods credit;
* insurance of political risk;
* insurance of political risk for investments abroad;
* insurance of SMEs’ loans.

The main goal of LEID when implementing the state programs is: to stimulate export possibilities of Lithuanian economic entities by insuring export risk of
the goods and services as well as loans, taken to manufacture and deliver the goods; to support SME entities by insuring the loans directed for implementation of long-term investment projects.

The LEID’s liabilities are guaranteed by the state.

SME loan insurance is also performed in Lithuania. Its idea: economic entities, lacking security, are given the opportunity to receive a loan or to launch a new business.

1.2.1. Innovation centres

The main goal of such innovation centres is to share innovation policy in a region, to support young innovation firms so that they can grow successfully, positively influencing the local economy.

Organisational structures of various countries are usually reflected in the differences between the innovation centres, business incubators and scientific-investigation parks. It is quite difficult to draw a clear line between these types of organisations, since their activities are similar and overlapping. See Fig. 1.2 – development concept of such structures.

![Fig. 1.2. Interrelation between the business support centres](image-url)
Innovation centres usually make up the main body in the aforesaid organisations. Their further development grows into business incubators, technological parks or centres. Science parks arise if supported by universities or scientific research institutions. Along with further development of the infrastructure, industrial parks, service, trade and crafts centres and, as needed, large scientific sub-units are created.

Lithuania. United Nations with their development program in 1993 initiated a project for Lithuania, aimed at creating preconditions for international commercialisation of Lithuanian science. It was decided to establish Lithuanian Innovation Centre (LIC), supporting investigation and development institutions when commercialising science, paying special attention to protection and management of intellectual property. Experts from the United Nations and Danish Innovation Centre participated in the design of Lithuanian Innovation Centre.

The mission of Lithuanian Innovation Centre is to promote and stimulate Lithuanian scientific potential through employment of strong scientific methods, seeking to improve economic performance in the country, to create new jobs and to assure full integration of Lithuania into the international market.

In structuring the activity of Lithuanian Innovation Centre, four strategic directions were chosen: transfer of technologies – their "export" and "import", familiarisation with the commercialisation of innovation, information services and stimulation of innovative entrepreneurship.

There are three innovation centres currently functioning in Lithuania: the already mentioned Lithuanian Innovation Centre, Kaunas University of Technology Innovation Centre of Kaunas Technology University (IDC) and the Innovation Centre of the Lithuanian Agricultural University (IC LAU).

Kaunas University of Technology Innovation Centre was established in 1994 at the initiative of Kaunas University of Technology. It is aimed at promoting innovative processes in Lithuania, transferring inventions from science to industry, implementing them, developing SMEs. In seeking to implement these goals, IDC searches for inventions in scientific institutions, works on marketing, solution of innovation implementation problems, support for SMEs development, participates in international innovation and SMEs programs, projects and events and provides business consultations. IDC searches for new technologies and products in KUT subdivisions, organises advertisement of
know-how and promising inventions, compiles publications to present the inventions, participates in exhibitions and publishes articles in periodicals.

LAU in 1992 established an independent structural sub-unit - Innovation centre with a strong base training material and possibility to invite lecturers from Lithuanian Agricultural University and other higher education institutions of Kaunas, able to disseminate new knowledge in the agrarian sector of the country.

Business and innovation centres

This is a local organisation, engaged in selection of new firms, their establishment, and assistance in selection of business strategy. Such a centre is aimed at helping new innovative and independent businesses, providing them with various services, mobilising both community and individual resources.

The centre may provide the following services:

* Compilation of business plans and assistance to young firms;
* Selection of candidates and projects;
* Business planning;
* Financing;
* Consulting in the fields of innovations and technologies;
* Marketing and market research, sales support;
* Technical advice, premises for office and services.

Business support centres

Customers of business support centres include both hi-tech firms and narrow profiled technology firms, as well as service and trade firms. Their main goal is to consult companies. Business support centres focus on the consolidation of regional business potential.

Thanks to EC PHARE program 6 business consultation centres (BCC) were established in the largest towns of the country: in Vilnius, Kaunas, Panevezys, Siauliai, Aytus and Klaipeda in 1993-1995. The centres co-operate with local municipal institutions, business and educational organisations. The most important tasks of such centres are: to consult entrepreneurs, to evaluate business ideas, to render legal advice, to organise courses and seminars, to help in making contacts and establishing business relations with foreign partners.
1.2.2. Business incubators (BI)

It is an organisation that creates a favourable environment in which to start a small business. BI usually renders the following services: lease of premises on favourable terms with all necessary communications and equipment installed, help in finding production premises, organising training and consulting. Businessmen, scientists, inventors, willing to start a business with their ideas, get necessary information on management and economic questions, the opportunity to get advice of specialists and favourable terms to take premises on lease. The number of small companies residing in the business incubator usually reaches several dozen. The secret of BI success is that the structures have created a special environment to induce young companies to develop – including possibilities for financing, marketing and sales support.

Several dozen firms of individual entrepreneurs and creative collectives work side by side, communicate and perform in related areas. The experience of each individual becomes the experience of the entire collective (e.g. credit receipt on favourable terms). Small companies help each other, share current information. Most importantly - gifted and educated people work side by side - a benevolent microclimate is created in the group. Initially BI activity is subsidised by state funding. BIs are established near industrial companies, scientific and educational establishments, and various funds. Later on they cover their costs on the rent paid by their customers, sometimes on partial dividends from the profits of small companies who have left the BI. Practice has shown no immediate profit/effect should be expected from BI.

The period of residency in the BI needs to be considered. During the period of incubation, BI shall assist the entrepreneurs to "rise" and to enter boldly the free competitive market. This period in Europe usually lasts 3-5 years. For example, in the Czech Republic the period of incubation lasts 3-5 years, however the businesses incubated get no financial support, i.e. subsidies, decreasing their expenditures, during the last two years. Terms for entering and leaving are exactly specified by the BI and customers in the agreements. The firms, after leaving the incubator, often may go on using its consulting services. Long term experience in Germany has shown that young companies need 5-7 years for going out of BI.

Swedish experience is quite interesting. The main aim of most incubators is to commercialise scientific knowledge and the newest technologies, actively drawing in the academic society. For this purpose the incubation process is divided into 3 stages.
The pre-incubation period program is prepared in the first stage, lasting usually for up to one year. The future entrepreneur introduces his business idea and prepares his business plan during this stage.

In the second stage, which lasts two years, the entrepreneur employs the newest information technologies to collect necessary data and information.

During the third stage, which may last three years, the entrepreneur launches his new product into the market.

We think incubation duration and requirements for each period may vary significantly, depending both on the business specificity and other factors.

Neither of the countries assigns enough resources for BI subsidising, therefore its success often depends on the professionalism of the administration staff. Analysis of typical BI problems shows they are correlated with unfavourable external conditions and insufficient analysis of the organisation’s internal issues. BI is created for realisation of certain specific tasks. This includes the creation of new jobs and conditions for the development of some production or services. The idea to establish a BI often arises in universities, state structures or town government, large companies or individual persons.

The most important factor in success of BI is its location, allowing easy maintenance of contacts with various firms - suppliers, new production and technology users, also a possibility to enter local and global markets. Large distance from the main economic and scientific centres as well as international trade routes take the stimulating market influence away from the scientific industrial complexes, threatening with seclusion.

Too high state subsidies, that play a positive role in the first stage, can adversely affect the entrepreneur later, creating "relaxed" conditions.

An important role is played by the cultural - psychological climate, technical promotion, when a failing employee is encouraged to try once more instead of being punished. American analysts cite fear of risk-taking as one of the possible causes for the lag of Europe in creation of BIs.

BI activity is usually measured by the following indices: number of firms launched during the BI’s existence, number of new jobs created by the tenants.

The first BI appeared in USA in 1959. Unemployed workers created small businesses in empty factories that had been closed. This kind of business
development turned out to be largely successful. According to the data of International Business Association, the number of BIs in the USA had reached 550 by 1997.

Some of the categories of BIs, according to Pol Chenon from Great Britain (Business-school, Darchem University):

* public organisation (it plays a social role, supporting SMEs, geared towards solution of region-specific problems - their legal status in this case being non-commercial companies);

* BIs assigned to shape and develop SME. Main criterion in this case is creation of new jobs, promotion of those newly created and being operative;

* BIs assigned to help various groups of people (youth, women, national minorities) as well as technical groups, with difficulty joining the market;

* BIs leasing premises for office and other services (such organisation is usually called business centre);

* Innovative BIs (technology centre, interested in supporting small businesses, developing innovative technologies or production).

Stewardship of fundamental scientific investigations of industrial companies, not commercial at the time, is more and more often practised abroad. Promoters pay for the newest information so that they might familiarise themselves with potentially beneficial projects.

Along with business incubators, there are other scientific industrial complexes, assisting SMEs in implementing new technologies and innovative articles in practice.

Companies of the following 4 kinds usually reside in scientific parks operating in BIs:

1. Firms – tenants employing the results achieved by inventors and investigators.

2. Firms – tenants having completed employing the commercial product within the limits of the science park and staying here for some more time.

3. Subdivisions of large firm laboratories, corporations, including foreign ones.
4. Firms created upon the park's initiative and belonging to the park; they specialise in transferring technologies and services to the tenants.

Interests of the university, industry and the region itself are combined in such an incubator. Often it is the first chance for the scientists to complete their investigations and to base creation of new machines, technologies or materials upon them. Work in a technological BI allows gaining experience in entrepreneurship.

**Business incubators in Lithuania.** In 1997 the Government of the Republic of Lithuania granted funding for business incubator establishment (using the means of SME support fund): the first incubator was established in June, 1998 upon initiative of the Ministry of Economics and Kaunas University of Technology - the business incubator of KTU (also called Kaunas Technology Centre). On January 1, 2001 there were 7 BIs in Lithuania:

Alytus Business Incubator, KTU Business Incubator, Telsiai County Business Incubator, Vilnius Business Incubator (all established in 1998), Siauliai Business Incubator, Vilnius M95 Fund Business Incubator (all established in 1999), Kazlu Ruda Business Incubator (established in 2000).

![Figure 1.3. Location of business promotion structures in Lithuania](image-url)
After January 1, 1999, when the law of SMEs' development of the Lithuanian Republic came into force and the state’s position towards SMEs was reflected, SMEs subjects and forms of their support were named. Only several SME promotion forms of those provided in the law are actually applied: consulting and teaching services, profit (income) tax privilege, loan insurance and partial repayment of loan interest, as well as business incubators. Since the latter have been established not long ago, some of them are still finishing repairs of their premises and starting to allocate their first subjects - small and medium enterprises. However, taking into consideration permanently growing public interest and first year results of the first business incubator in Kaunas, one can state that incubators' importance in promoting SMEs will continue to grow provided these structures are acknowledged and supported at the state level.

Experience of the developed countries has shown that state support for SMEs is very important in the market economy. State SME support systems are being prepared and implemented. National business development, creation of new jobs and growth in the standard of living is directly correlated with the efficiency of such systems. Another important subject is the implementation of a regional development strategy of which BIs must be one – but very important – part.

1.2.3. Science parks (SP)

Science parks may usually be found in the territory of a university, where there are good possibilities to communicate with universities in the scientific field. For high-tech development they unite groups of researchers, laboratories, institutes, small innovation firms and individual entrepreneurs.

Particular forms of SP may vary. In the USA, for example, only 27 out of 80 SPs in 1980 were closely related with universities. In 1970 SPs were specialised in one particular field; this is changing nowadays. This reflects the general trend of commerce in scientific investigation.

SPs should not be confused with industrial parks in the sense of an industrial site, that bring together firms aiming to use land, buildings, equipment and business services jointly. The concept of an industrial park is similar to that of a BI. The only difference is that the industrial parks seek to assist the companies to solve their local problems of production organisation.

SPs appeared in 1950 in the USA and the UK. In 1992 there were 334 SPs in the world. More than 250 SPs were operating in Western Europe in 1990: 200
in Western Germany (about 60 in Eastern Germany); 40 in the UK; 8 in Austria and Sweden; 7 in France, Italy and Belgium; 6 in Spain; 4 in Ireland and Holland; three in Portugal; two in Switzerland; one in Norway and Denmark.

The development of the SP concept coincides with mass occurrence of small innovation firms in the USA (i.e. who have detached from other organisations, mainly from universities). The boom in the creation of such firms is related to the leaping growth of expenditures for national scientific-technical programs and projects.

The large program and project chain has been realised in USA for already 30 years, leading to the establishment of thousands of spin-off companies with an increased level of risk. They owe their existence to the scientific investigation and construction works being performed in universities under the auspices of state programs and SPs, therefore their successful growth and development is connected with venture capital.

Before 1980 some kind of crisis in the park development was observed, firstly related with state policy towards support of small innovation firms, regional and structural policy and co-ordination of private initiative. Besides that, lots of universities felt lack of funding because of decreased state subsidies. This resulted in a need to create innovation centres and technological business incubators inside the scientific parks.

There are two science and technology parks in Lithuania: Science and Technology Park in Vilnius and Science - Technology Park of Lithuanian Agricultural University. The Vilnius park aims to promote a culture of innovation. 35 SMEs with more than 250 employees work on the basis and in the territory of the park. The park offers a unique package of services: a technical environment for innovative business, modern and diverse scientific equipment, information channels, expert technicians, technologies and materials, consulting and short-term training on the questions of business establishment and management, material investigation and technology, technology of electronic equipment, search for projects and partners.

The mission of the Science and Technology Park of Lithuanian Agricultural University is to raise the general level of rural culture, disseminating scientific inventions and implementing new technologies, to raise qualification of land, water and forestry specialists, to promote rural business development.
1.2.4. Science - research parks (SRP)

Science - research parks usually unite high-tech companies or investigation institutes in a greenfield site. The companies work in the fields of production investigation or creation of analogues, except of those rendering services. Close relation with university is mutually beneficial in exchange of ideas or staff.

1.2.5. Technology parks (TP)

The technology park model is widespread in Germany and Austria and is assigned for entrepreneurs possessing a technological idea. They are granted necessary premises, infrastructure and consulting services. The name "technology park" sometimes misleads a customer, because the TP’s aim is not the creation of new technologies but the creation of businesses. So, TP s are established not to assist the universities in their investigations, but to create innovation firms basing upon the results obtained.

The task of a TP is to create minimum working conditions at the same time decreasing risk faced by the young SMEs. Western experience has shown that the gap between science and manufacturing may be filled in only by small technology-oriented companies with some specialisation degree of structures, joining them. Foreign countries have made sure that the mostly favourable conditions to develop the link between science and business lie in the innovation centres, science and technology parks (see Fig. 1.4).

1.2.6. Commercial parks

Innovation centres and business incubators can succeed only if a successfully operating commercial park is available not far away. Business incubator tenants wishing to expand operations can relocate to the park. If there is no possibility of building up a special park there must be a sufficient industrial site available.

Such park may help to reach the following results:

* Business incubator tenants, who have expanded or whose time limit in the incubator has elapsed, may move to another premises without cancellation of co-operation with another firms, often even without changing address.
* Business representatives, who have left the incubator, may maintain their relations with the region. The park may represent image of the firm, meeting the requirements, made by the customers and society.

* Experience in working with such project has shown that more job places are created when firms move to or intend to move to the park.

**Fig. 1.4.** "House of Innovations": science and technology parks, their relation with environment

Basing upon such results of development, an English - American park model has been formed, aiming to help the new hi-tech firms. In this model particularly an independent legal entity is the most reliable and interested for new production, knowledge, technologies and services to get into the market.
1.2.7. Technopolis

Technopolis is a Japan model of SP. It is directed towards building new towns – "technopolis" - and not towards joining to some university.

Scientific industrial companies are intended to accumulate in the new towns. Technopolis are provided to install in all Japan islands. They will be established only meeting the following requirements: no more than 30 minutes by road to the parent-town and 1 day to the capital. Number of residents in a technopolis may not exceed 200000 persons, the towns themselves should have well-balanced scientific industrial complexes, universities and research institutions with modern living districts including good cultural and recreational infrastructure, located alternately with greenery, at a minimum intruding into the live nature (a town of future).

Many organisers of technopolis during projecting provide for innovation centres. Aim of such innovation centre is to assist the beginning innovation firms, able to grow and manage local economy. Building of technopolis is financially supported by the regions - town subsidies and contributions of industrial companies into the funds, favourable credits in banks. Central authority furthers with tax privileges and 1/3 of investments into the innovation projects.

Technopolis are developed similarly in the well-developed Asian countries. There are already 10 of them. Organisation principles in their creation were the same as of free economic zones - authority renders assistance to those processing and manufacturing for export, actively attracting foreign capital. The Asian science parks independently realise preparation of essentially new technologies, materials and goods, organise experimental production. The largest science park is in Taiwan (70 km away from its capital). Academy of sciences and more than 100 industrial corporations (more than a half are branches of American corporations) are near. Science park is directed to promotion of electronic industry.

Large industrial park has been established in Singapore with 5 state scientific investigation institutes and 45 industrial companies. It differs from that in Taiwan by linking its perspectives with agrarian economy sector.

2 SPs have been performing in Hong Kong in 1990, they specialise in manufacturing of electronic machines of new generation. "Venture business" and "venture firms", joining both town business and international financial organisations are actively developed there.
1.3. USA – initiator of business promotion frameworks

The first business incubator in USA and in the world was established in 1952 in the Northern part of New York state - Botavy. Its initiator was well-known businessman of that time - Joe Mancuso. The idea was nurtured by economic conditions existing in USA then - the country experienced crises of the cold and hot wars, lots of plants were under closing, millions of people lost their jobs, small and medium enterprises agonised, lots of small companies were closing down, unemployment was growing, living level was noticeably dropping down. Local businessman Joe Mancuso understood that raising of the residents' well being was directly related with success both of his own business and another SMEs. Social economic growth is only available if creating new job places, developing existing and creating new businesses. This was the time when pessimistic regulations had to be introduced, ways for active development of entrepreneurship to be found. Individual entrepreneurs without support could not launch their businesses with lacking means (for premises, equipment), knowledge, often a simple psychological assistance aimed to overcome fear of the unknown and risk. These were the conditions, nurturing the idea to join and help the business beginners in making their first steps towards growth of SME.

New ideas, new businesses, especially employing the new technologies, were possible only upon joint efforts - this was also noted. The first incubator justified the expectations. The first incubated firms were granted premises on favourable terms, rendered office services and various consultations on how to perform and develop the business.

Successful idea of Joe Mancuso quickly was spread in Botavy as well as in the whole USA. SME incubation grew into the main strategy, stimulating creation new firms and becoming a very important tool in assuring successful performance of the firms. Lots of communities included business incubators into their strategies of economic development. Economics revived, unemployment decreased in the country.

SMEs are often created by individuals, possessing interesting ideas and qualities of a businessman. Obvious example is Bill Gates, creator of the company Microsoft. His contribution into US economics is invaluable. However there are hundreds of such "gates" in each country, the ideas and businesses of which cannot reach anything without proper support. Ideas of the first SME incubator creators to assist the beginners to overcome their
difficulties and to develop their ideas up to the commercial level gave good results in USA.

Since 1984 SMEs administration has started inducing growth of business incubators in USA. If till 1984 there were only 20 operative business incubators, their number started speedy growing in the next years. One can say one new incubator was opened weekly. Now 497 business incubators operate in USA with 7795 tenant companies. USA business incubators have let out 4651 companies, 80 per cent of which are successfully developing their businesses. There are 1100 business incubators in the world, established following USA's example.

In 1985 a National Business Incubation Association (NBIA) was established in USA, uniting founders and managers of business incubators. At the time of establishment there were only 40 members, this number grew up to 800 in the next decade.

Business incubation pioneers like Joe Mancuso, June Lavelle, Robert Meeder, Jim Grewood, Mark Rice, Jonathan Gorhane (all in USA) with the others untiringly promoted business incubation ideas. They have developed teaching and consulting ideas of new SMEs, supported newly established companies till the moment they themselves could hire employees, acquire means for work and promote business independently.

During all the period of business incubator existence this practice disclosed lots of business promotion novelties. If in the beginning the main support was concentrated to low lease price of premises and office services (secretary, telephone, copying machines), later on the business incubators expanded range of the services, allowed the companies incubated to use various laboratory equipment, later business incubation programs were drawn up, including business development infrastructure of all the region, starting with selection of the entrepreneurs, evaluation of activity, specific needs of each firm, assuring successful process of activity. Consulting and teaching services have grown a lot. The firms incubated were assisted to make marketing plan, prepare strategic solutions, form competent team of managers, provided with possibility to use various sources of information, to be advised on financial and legal questions and favourable financing.

The Americans note that staff of business incubator, usually limited to 2-3 persons, shall be made of professional experts. They shall be able to manage assets, to make favourable conditions for rent of the premises, to develop relations with sponsors, to inform public about the terms of business
incubation, to help society of the region to dispose financial resources, allowing the incubated companies to render necessary financial support. All this shall be provided in the strategic plan of business incubator performance in the stage of its creation.

One of the most interesting examples of business incubators is located in Silicon Valley, USA, and called International Business Incubator or Business Embassy. It is assigned for international companies, intending to start business in America. Conditions, facilitating "entrance" into the American market are created there. The firms, residing in the incubator, may employ services of the best universities in the world: Santa Clara, San Jose State, California Berkeley, San Francisco, etc. Besides that, the companies reside near such well-known business companies, like Hewlett-Packard, Acuson, Sun Microsystems, Raychem, Apple, Intel, etc. A two-year incubation period is granted there, during which the firms may use high-level services of the incubator's experts in the fields of law, audit, accounting and others.

Summarising experience of the Americans one can say business incubation practice has played a positive role in development of small and medium enterprises. Experience of the Americans has quickly overstepped boundaries of the country and consolidated in the world like one of the main mechanisms, promoting SMEs.

1.4. Review of experience of the Western Europe

1.4.1. Great Britain

Many of the universities in Great Britain manage large territories, rarely built on, near large cities. Large part of those territories is used for leisure or is rented. Science parks are established in such territories. In most cases they offer their inventions and innovations like commercial business subject, able to bring profit in future or high level of the technologies used and industrial goods manufactured. Initial investments into building and hardware are covered by the interested firms, banks and local authorities, sometimes by the universities. List of the ideas suggested and subjects investigated is quite long. It includes all the scientific and technical fields universities work in. In such cases a number of independent firms, forming the science park, appears in the territory of university. These firms usually are not large (by capital, turnover assets, staff number).
650 firms with 7600 employees working have been established in science parks in Great Britain by now. On the average one park has 200, one firm - 10 staff members.

General capital investments for creation of science park in Great Britain usually exceed 100 Mio. pounds, besides that, two thirds of the capital are granted by government. Financial capital is assigned for development of science parks, creation of new firms and leaving them for risk without commercial success being guaranteed. Therefore science parks solve the problem of financing by use of special companies - venture capital funds. These funds invest their capital into lots of small companies, seeking to get an "average" profit.

1.4.2. Germany

According to the legal system, valid in Germany, formation of regional economic policy is given to the spheres of influence of separate administrative units - lands. In the first years of Federal state existence the lands were the first to take various means, but specific policy of SMEs development was started to form only in the 7th decade upon initiative of federal government and the lands. Occurrence of such policy was influenced by gradual evaluation of investigation and innovative policy in GFR. In 1972 the Federal Ministry of Trade and Finance established a special program for "stimulation of SIW and original innovations, especially taking into consideration these processes in SMEs". Current governmental investigation and technological policy takes place in Germany and its lands like a conglomerate of various means, programs, funds with different aims for promotion of SMEs. SMEs are also supported by various institutions: technology centres, business incubators, technology sales and innovation agencies, engineering bureaus, research and development centres.

History of German business incubators started in 1983, when the first BI was established near the Berlin University. Its main aims were:

* to assist scientists of the university to implement results of their research into practice through creation of own business companies;

* to develop SME infrastructure, paying special attention to implementation of innovations;

* to create an intellectual potential, able to promote economic development of the region in a qualified way;
* to create future-oriented new working places in the existing companies, to establish new companies, directed towards the newest technologies and scientific achievements;

* to co-operate science and business.

Especially important role business incubators had in the Aachen region restructuring. When possibilities of the traditional regional branches of industry - mining - were exhausted, local government had to take initiative to change priorities of regional development. They decided to turn the region into a hi-tech centre. Establishment of business incubators, technology centres furthered implementation of this aim. On June 1, 1984 the first Technology Centre was opened in Aachen. It was domiciled in the top floor of an old car factory (premises were not used rationally for a long time). Gradually, successfully developing its activity, the Technology Centre covered the lower floors. Besides that, when this structure justified expectations more than well, the idea spread throughout the region. As a result 12 more various sized technology centres were established in another locations of Aachen. Most importantly each of them had their unique conceptions, i.e. they were established for one particular aim. One centre was assigned for the graduates of Aachen University, another for medicine specialists, Julich TC – for firms co-operating with research centres in the region, two more technology centres were established for handicrafts.

The first business incubators in Berlin and Aachen were established seeking to create new conditions for spin-offs, to integrate science and practice through creation of SMEs, to implement the newest scientific achievements in already existing companies. One of the most important tasks of all the German technology centres and business incubators is to induce creation of new companies with participation of universities and non-university establishments. This is reflected in the structure of staff of the technology centre companies: 50-60 per cent are scientists, 48 per cent have come from the universities and non-university establishments, 19 per cent are indirect academic spin-offs.

Many companies in German technology centres and business incubators are engaged in the fields of informational technologies, microelectronics and automation engineering, new materials, biotechnology, medical engineering as well as other hi-tech fields.

A part of German centres pay largest attention to the technology companies, another work as business incubators of general character. Newly established companies in the business incubators make 71 per cent, technology companies – 74 per cent.
One of the most successful TC in Germany is Aachen technology centre with currently operating 80 firms and 1700 jobs created during the first phase. More than 70000 absolutely new job places have been created in all the German centres during the period. TC are currently becoming the most important regional development centres, especially basing upon technology transfer, with small and medium business also being promoted.

Table 1.1

Regional distribution of the technology centres in Germany in 1996

<table>
<thead>
<tr>
<th>Land</th>
<th>Number of BI</th>
<th>Area, 10000 sq. km</th>
<th>Number of residents, Mio</th>
<th>Number of employees, Mio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A/B</td>
<td>C</td>
</tr>
<tr>
<td>Baden-Wuerttemberg</td>
<td>22</td>
<td>3,50</td>
<td>6,29</td>
<td>9,8</td>
</tr>
<tr>
<td>Bavaria</td>
<td>15</td>
<td>7,00</td>
<td>2,14</td>
<td>11,4</td>
</tr>
<tr>
<td>Berlin</td>
<td>13</td>
<td>0,09</td>
<td>144,44</td>
<td>3,4</td>
</tr>
<tr>
<td>Brandenburg</td>
<td>18</td>
<td>2,9</td>
<td>6,21</td>
<td>2,5</td>
</tr>
<tr>
<td>Hamburg</td>
<td>1</td>
<td>0,08</td>
<td>13,25</td>
<td>1,7</td>
</tr>
<tr>
<td>Hessia</td>
<td>3</td>
<td>2,1</td>
<td>1,43</td>
<td>5,7</td>
</tr>
<tr>
<td>Mecklenburg – Western Pomerania.</td>
<td>9</td>
<td>2,3</td>
<td>3,91</td>
<td>1,9</td>
</tr>
<tr>
<td>Lower Saxony &amp; Bremen</td>
<td>19</td>
<td>4,7</td>
<td>4,04</td>
<td>8</td>
</tr>
<tr>
<td>North-Rhine–Westphalia</td>
<td>63</td>
<td>1,7</td>
<td>37,06</td>
<td>17,3</td>
</tr>
<tr>
<td>Rhineland - Palatinate</td>
<td>6</td>
<td>1,9</td>
<td>3,16</td>
<td>3,7</td>
</tr>
<tr>
<td>Saarland</td>
<td>3</td>
<td>0,25</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Saxony</td>
<td>24</td>
<td>1,8</td>
<td>13,33</td>
<td>4,7</td>
</tr>
<tr>
<td>Saxony - Anhalt</td>
<td>11</td>
<td>2</td>
<td>5,5</td>
<td>2,8</td>
</tr>
<tr>
<td>Schleswig - Holstein</td>
<td>9</td>
<td>1,57</td>
<td>5,73</td>
<td>2,6</td>
</tr>
<tr>
<td>Thuringia</td>
<td>8</td>
<td>1,6</td>
<td>5</td>
<td>2,6</td>
</tr>
<tr>
<td>Old lands</td>
<td>147</td>
<td>24,9</td>
<td>5,9</td>
<td>63,7</td>
</tr>
<tr>
<td>New lands</td>
<td>77</td>
<td>10,8</td>
<td>7,13</td>
<td>15,9</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>35,7</td>
<td>6,27</td>
<td>79,7</td>
</tr>
</tbody>
</table>
More that 5000 technology oriented firms, innovation inducing companies and consulting firms with more than 40000 persons working belong to the German technology centres and parks network. At an average each technology centre and incubator has 26 firms and investigation centres with 210 employees at an average. One company of a centre has 8 employees. Rented area in the centres has grown a lot in the last years, it now exceeds 1.3 Mio. sq. m, at an average 700 sq. m in one centre. The centres vary in their size, they depend on the regional conditions and possibilities.

The old federal lands in 1996 had 125 centres, the new – 65. Average number of firms in one centre was 29 in the old and 21 in the new lands.

In 1997 one million of residents in Germany had on average 2.8 technology centres and business incubators: 2.3 in the old and 4.8 in the new lands. Such significant difference has occurred because of economic development peculiarities in the new federal lands. This shows a special significance of the technology centres when restoring the economy after many large industrial companies were closed.

Number of technology centres in the lands differs because of different economic situations. Berlin and Northern Rhine - Westfalia early met the structural economic changes and 15 years ago started promoting creation of regional networks. Northern Rhine - Westfalia network consists of more than 60 technology centres. Network of Berlin is planned to expand up to 30-40 centres.

Network of the technology centres and business incubators is expanded thanks to joint efforts of the communities, high schools, industrial and trade chambers, economic promotion institutions and banks. On the average 16 new centres are opened annually. 300 similar structures were created in Germany till 1999.

Many countries, e.g. USA, France, Great Britain have detached their business incubators and technology/ science parks, created separate networks and unions. Germany has formed attitude that there are no distinct limits between such structures in neither contents nor organisational aspect. Innovation centres in Germany are essentially centres of inducing establishment and development of technologically oriented companies. Many of German technology centres are large enough to be compared internationally with technology parks. Along with the universities and high schools they make so-called science parks.
Fig. 1.5. Localisation of technology parks and business incubators in Germany

Many German technology centres and business incubators have expanded themselves to the size of technology parks, the others are planning to do so. Technology centres in Aachen, Berlin, Karlsruhe, Dortmund or Bochum may be considered technology parks for their sizes. Expansion towards technology parks is characteristic also for growing centres in the new lands – Warnemünde (both technology centre and technology park operate there at the moment), Berlin, Dresden, Magdeburg, etc. A trend to create new business and industrial parks near the high schools is being developed, but there are also another examples, when large companies in their restructuring processes initiate establishment of new centres, creating a partnership of co-operating small innovation companies.
In 1988 a union of German innovation centres ADT was established. ADT helps the centres to exchange information and experience, to find partners for joint projects, organises seminars and conferences, promotes establishment of new centres, co-operation between German and foreign scientists, businessmen, politicians. ADT is a strong network, first protecting its members and integrating them into strategic alliances, investigation institutions, technology sales agencies, company consultants, banks, insurance companies, seeking to induce establishment and growth of the innovation companies.

Technology centres and business incubators in the new federal lands have been established with the help of the centres in the old lands. Various co-operation relations connect the centres all over Germany. Transferring of know-how goes on in various directions.

Experience gained through technology centres, like valuable tool in the process of entering the market economy, is passed on to the countries of the Eastern Europe. Since 1991 ADT together with Berlin Senate and German Ministry of Economy supports establishment of technology centres in the Central and Eastern Europe.

1.4.3. Finland

Quicker business development in Finland is induced by creation of new companies. Finnish state business promotion program pays especially large attention at business incubator development, directed towards assistance to the beginning entrepreneurs.

Companies residing in business incubators must solve regional economic development problems in essence.

Finnish incubator performance analysis states that the main aims of business incubators in Finland are as follows:

* creation of new businesses;
* diversifying of regional economic structure;
* development of international trade;
* inducement of economic activity in the region;
* development of free entrepreneurship;
* co-operation of small and medium enterprises, transferring them a part of functions of the large companies.
SMEs, residing in the incubators, are assisted. Besides that, they are additionally financially supported by large companies. Such form of SMEs development is considered especially important, because it promotes economic development in the region in the best way. Very important field of activity of the incubated companies is practical application of new technologies. With the purpose to develop technologies, 50 per cent of Finnish business incubators are established near universities and other high schools.

Incubators, established near the high schools, offer their students and lecturers to create independent companies. Such companies are given good premises, all services necessary, consultations, good information system, granting broad possibilities for local and international co-operation.

Besides that, incubators, established near the high schools, are a good practical basis for students and other active society members, willing to start independent business.

1.4.4. Italy

Two types of business incubators are created in this country. Firstly these are business incubators, working towards short-term aims, and the others - for long-term aims. The first ones have to help small companies to strengthen their business, granting them premises and creating another conditions, necessary in the first year of performance.

Incubators with long-term aims incubate companies, engaged in innovation activity, seeking to implement new technologies, i.e. to develop future regional businesses. Besides that, small innovation companies, detached from the large ones, are also incubated there. Such practice of detachment is especially popular in the developed European countries. Its merit is escape from the faulty bureaucratic supervision, creation of scientifically receptive technologies and production. Such companies both are free to create and are supported in the incubators.

1.4.5. Israel

Business development concept has been prepared and confirmed by the state government in Israel. Policy in this field if formed and patronised by the Head Scientist's Division in the Ministry of Industry and Trade. Main aim of creation BIs is employment of qualified experts - foreigners, coming from abroad - from the former USSR and Eastern Europe.
First of all, BI verifies, if there is a possibility to implement the project chosen, organises selection of specialists, compiles thorough business and marketing plan. The project is executed in BI, then it becomes independent. Period of staying in BI shall not exceed 2 years.

Taking into consideration rules of the Head Scientist's Division of the Ministry, BI is an independent legal entity - association or non-commercial company. Each incubator makes conditions for 5-20 projects to be implemented, 5 persons working in each and performing investigation work. Half of them shall be the new immigrants. 30 per cent of the shares of initial capital shall be distributed among the project employees.

25 BIs were operating in Israel in September 1992.

1.4.6. Greece

The SMEs support forms in Greece can be separated in three categories:

- Technology / Science Parks
- Public Organizations For Entrepreneurship Promotion and Support Rendering Services.

Technology / Science Parks

There are four Technology/ Science Parks in Greece, all members of the International Association of Science Parks (IASP). Each Technology / Science Park includes a Business Incubator, which provides all the necessary facilities, infrastructure and support services to the SMEs hosted in it. These are: Exhibition halls, snack rooms, parking space, reception, Internet stations, photocopy machine, printers, computers, telecommunication facilities, multimedia presentations, secretary services, logistics, access to data bases and electronic libraries. They also provide methodology on technological adjustment, financing information, participation in networks, innovation subsidies, industrial property and copyrights, international and national Standards and quality services, cooperation with research and technology networks, cooperation with Sector Technological Businesses (EKEPY, ETAT, EBETAM etc), marketing, etc.

The four S &T Parks are shortly presented below:

- Thessaloniki Technology Park (TTP) was established in 1990, by the Chemical Process Engineering Research Institute (CPERI), one of the
Institutes of the Foundation of Research and Technology Hellas (FORTH) to meet the need for a greater exchange of ideas, people and facilities between universities and industry. The first funds were approved under the Operational Program of Research and Technology of GSRT, with the agreement of the Community Support Framework Program of DGXVI, of the European Union. The foundation was placed in June 1992. It was planned from the beginning that CPERI would be the owner and operator of the facilities. However, realising that CPERI's main mission is research related to a specific sector (materials/chemical technology), CPERI created a separate company named Thessaloniki Technology Park Management & Development Corporation S.A. (TTP/MDC S.A.) in June 1994 with the goal of managing all Technology Transfer activities.

- The Science & Technology Park of Crete was established in 1993 with the assistance of FORTH again, one of the most respectable research centres of the country. The managing company of STEP-C is PMDC S.A. The major shareholder is FORTH, which owns 35% of the total shares. However, no shareholder can own more than 50%. The construction of the park is funded mostly by EC programmes, mainly through the General Secretariat for Research & Technology, totalling more than 1 million Euro. The main aim is to provide the significant research activities of the Institutes with a reliable interface to the outside world and to assume a significant and specific role in the development of the region. In addition emphasis is given to enable companies-members of the STEP-C to exploit the technology opportunities offered by the Research Institutes and become key vehicles in the technology transfer process.

- Patras Science Park (PSP) was founded in 1989. The managing company of PSP is PSP/MDC S.A. The only shareholder of the PSP is the Institute of Computer Technology/ Chemical Engineering and Processes of High Temperature Research Institute. The construction of the PSP was financed through the General Secretariat for Science & Technology, as well as the General Secretariat of the Western Greece Region. The whole budget has so far overwhelmed 4 million Euros. PSP seeks to utilise a great advantage of the region: the function of one of the best Technical Universities in Greece, as well as of important research Institutes: the Chemical Engineering and Processes of High Temperature Research Institute, the Institute of Computer Technology and the Industrial Systems Institution.

- The project “Attiki Technology Park” was proposed as a conjunction of functions, building infrastructure and activities within the sites of the
National Research Centre for Scientific Research “Demokritos”, one of the oldest research centers in Greece. It aims to utilise, in the best way, the human capital and the know-how of the Centre and to direct it towards the linkage of research, production and economic growth. “Demokritos” has an experience of 30 years in subjects of research, basic and applied, as well as in the development of technology transfer. Today the ATP Lefkippos is hosted in a building of 320 m$^2$ (twenty offices of 14 m$^2$). It is located in the facilities of the National Research Centre for Scientific Research “Democritos”.

The Technology / Science Parks in Greece have been financially supported by the EC through the General Secretariat of Research and Technology (GSRT) and the Regional General Secretariats (RGS).

At the same time, the STP are financing their infrastructure and a number of their activities through their participation in a number of EC programmes.

The budget of each park is distributed into land purchase, building construction, office and laboratory equipment, operational costs, salaries, activities promotion (such as BI) etc.

At the moment the STPs are owned mostly by Research Institutes, which have been developed around National Universities. It is important to stress the fact that the four Greek STPs are situated in four cities where the University Structures have great Scientific Experience.

Each STP is managed by a private company. The company structure is the same everywhere. The name of each company is: PMDC / (Name of the Park) S.A., which comes from the initiatives of the words: Park Management & Development Corporation. The board of each PMDC consists of University Professors, Scientists, Industry Managers and Representatives of Local & Regional Authorities.

**Public Organizations for entrepreneurship promotion**

There are three major Greek public (or semi-public) organisations, the Greek Manpower Employment Organisation (OAED), the Hellenic Organisation of Small and Medium Sized Enterprises and Handicrafts S.A. (EOMMEX), the Chamber of Commerce and Industry (CCI) that provide to Greek civilians several services that promote employment and entrepreneurship. These structures are derived mostly from ministries, such as Ministry of Labor and Social Affaires, Ministry of Education and Religious Affairs (General
Aiming to link research results with industry and commercial exploitation, other structures have also been recently established in Greece. They are called Liaison Offices and are established within the universities in order to provide students with information that might help them find a job that suits their qualifications and talents. Besides that, Liaison Offices also help new entrepreneurs to improve their business by providing information concerning technological transfer of university research results elaborated by the various University departments. In this way new enterprises have easy and free access to information that might help them find suitable partners, or even funds for the expansion of their business inside or outside the country. The major aim is to help and support students and graduates approach their future career by providing information regarding the available choices.

The main activities of the three major Greek public organisations for entrepreneurial promotion are: Vocational guidance and training of civilians about the professional alternatives offered, promotion of employment, financing of new businesses creation and access to other financial sources, dissemination of the EU SME’s policies and programmes, stimulation and dissemination of information (especially on Innovation, Technology Transfer and RTD results) for new entrepreneurs by organisation of info days, conferences, exhibitions, web site and other means and media, support services and infrastructures other than financial creation of Incubators in co-operation with Local Authorities, development Agencies and Association of SMEs, awards of prizes for New Entrepreneurs, development of Observatory offices for New Entrepreneurs in Greece and E.U., advising – Consulting the government in matters concerning commerce, industry, economic development policy, etc.

Each public organisation has its own specific mission, although some fields of activities are covered by more than one organisation. The following diagram shows the relation between the services, which are provided.

**Support rendering structures**

Support rendering services for entrepreneurs are provided by both profit and non-profit organisations.
The main support services, which are rendered concern:
- Vocational training
- Consulting in Business Plan elaboration
- Information and Support on access to funding
- Consulting through the first years of young entrepreneurs activities
- Seminars organisation
- Specialised publications

**Vocational Guidance and Training**

Promotion of Employment through: matching Labor Supply and Demand.

**OAED**

Providing subsidy to employers who create new posts of work and

- Subsidy to free-lance professionals

Dissemination of the EU’s SME policies and programmes
Support services and infrastructures other than financial (Guides & Best Practices, Business activity, Professional Profiles, Tools, etc)
Development of Observatory offices for New Entrepreneurs in Greece and E.U.

**EOMMEX**

Creation of Incubators. Awards of prizes for New Entrepreneurs.

Organization of info days, conferences, exhibitions, seminars and workshops.

**CCI**

Advising – Consulting the government in matters concerning commerce, industry, economic development policy.

Supervising support-rendering structures.

**Fig. 1.6.** Correlation between the public organizations for entrepreneurship promotion in Greece
Among the non profit support rendering structures, the most important ones are those created as European Union networks and established in each Member-state as well as the pre-accession countries. Through the years several such networks have been established: Innovation Relay Centers, Business Innovation Centers, Euro-Info Centers and other institutions that operate mostly under EC funding.

Also, a very important role in rendering services to SMEs is played by the profit making entities (the Private Consultants), who although share almost the same fields of activities with the similar non-profit organisations, they are much more effective to the SME's needs. Mostly they render services concerning: business planning, technology transfer services, information and support in participating in European and/or National research or investment programmes and funding schemes.

1.4.7. Denmark

SMEs make the absolute majority in Denmark - 99.7 per cent of all the existing companies. Number of the companies exceeds 305000 in the country, almost 300000 of them engage less than 50 employees. Industrial structure in Denmark is based upon existence of small companies - this is related with traditional manufacturing situation that has evolved out of the handicrafts. 26 business incubators currently function in Denmark (including 20 technological ones) as well as 6 science and technology parks. The most important business incubators in Denmark are: Innovation & Development "Syd" Aabenraa, NOVI Park, International Science Park Odense, South Jutland Innovation Centre (SIC), Centre For Advanced Technology. Science parks in Denmark: NOVI Science Park, Science Park Aarhus, Symbion Science Park, Danish Science Park Horsholm, Forskerparken Fyn, CAT Science Park. Danish National Association of Business Incubators and Danish Association of Science Parks have been established to co-ordinate and improve performance of the mentioned institutions, maintaining international relations and sharing experience.

In the last years Denmark has created quite interesting and new strategy of technology transfer and creation of new firms. Basing upon the experience of USA and Israel and accommodating such experience to the conditions in Denmark, an efficient promotional system of technological company creation has been developed. Taking into consideration that it is quite difficult to establish a company with no initial capital and venture capitalists usually
express no wish to invest into a company that has just been established before its potential becomes known, Denmark has created a peculiar model, drawing state funding into this process. Institutions (usually technology transfer centres, innovation centres, etc., located near universities) are created, engaged in selection of potentially successful projects by assessment of business plans and probability of success, then participating in the share capital of the companies being established. Danish Government has provided a possibility to assign up to 100000 Euro to each of such projects. After the company is established, its performance is supervised, advises on various questions of activity are given, business strategy is formed by including particular field experts into the Consulting Board. When the company successfully starts and develops its business, investors are found approximately in one year (the company then is already attractive to venture capitalists), the shares belonging to the state (or its authorised institution) are sold profitably. Such model of activity is useful for all sides:

* entrepreneurs (they are able to launch successful business, get advises and possibility to expand);

* the state (inducing technology transference, company development, at the same time improving general economic situation; money is earned through selling the shares);

* venture capitalists (they acquire possibility to invest into a company developing successful activity).

1.5. Experience of the Central and Eastern Europe

1.5.1. Poland

Polish Republic, through creation of business incubators and promotion of their activity seeks to:

* create new job places. Persons, who loose their jobs, are granted a possibility to create individual companies with the help of the incubators, their staff. Already existing firms may also be admitted into incubators, seeking to create new job places in developing their businesses;

* diversify economics. New companies, competing with already existing businesses, are able to create new production and services both for the local and foreign market;
* promote competitive market. New and existing companies are able to find new market niches and segments, to raise supply and demand balance in the local and foreign market.

* search for alternative fields of activity. People, willing to launch individual businesses, shall study and gain new qualifications, learn new crafts, often not yet found in the country. This is the way to develop professional, creative skills;

* develop local economy through creation of new projects. Privatisation and market restructuring forces looking for new market development possibilities through various projects, attracting local and foreign assessments. Such activity is performed by both the incubator experts and the firms incubated that may be established for such purposes.

Fig. 1.7. Localisation of technology parks and business incubators in Poland
1.5.2. Russian Federation

Russian SMEs tend to concentrate in the largest cities – Moscow and St-Petersburg. 22 SMEs fall to 1000 residents of St-Petersburg (9 SMEs in Leningrad region), 21 - in Moscow, 6 SMEs in another locations (data of 1999). In Russia, as in the most of the countries, business incubators are one of the main components in promotion of small and medium enterprises. The first business incubators on the means of state were established in 1994-1995, in 1996 local government institutions started taking an active part in creation of business incubators. Business information creation process in Russian Federation is being accelerated. Technology centre of Moscow State University, Centre of University Innovation Firm Co-operation, information technologies centres in Vladimir, Tatarstan, etc. are already functioning. Russian Association of Incubators was established in 1996.

A special place in the Russian sector of SMEs is taken by small innovative business. Though innovative business makes only 5 per cent of all SMEs in Russia, ca. 40 thou. firms with 300 thou. persons are functioning now. These are qualified, skilled experts aged 35-40. Ca. 30 per cent of all scientific technical employees are engaged in innovation business in Russia. Innovative business generates ca. 1 per cent of GDP in Russia. Sales volumes of such business production permanently grow for 10-15 per cent in kind; this is the largest increment in the industrial sector.

Innovative SMEs in Russia are promoted by 25 innovation and technology centres with total general space of 70 thou. sq. meters and hundreds of firms functioning. There are ca. 50 science - technology parks (Altay TP, Zelenograd STP, Moscow State University STP, etc.) functioning, often directed towards incubation of firms.

Various special federal and regional programs are used to promote innovation business. Total budget for promotion makes ca. 30 Mio. dollars. The first laws, regulating legal environment for innovation development, have come into force this year: the law of innovation business, Government decision about the venture fund for innovations.

Innovative firms take a special niche in the Russian market, needing high qualification of the workers, while the production realisation market is narrow and specific. Innovative firms work usually in the following fields of economy:

* information technologies;
* medicine (drugs, instruments, electronic apparatus);
* protection systems for premises, people;
* building materials, tools;
* food stuffs and additives;
* ecology, especially monitoring devices and energy saving.

In comparison with growing sale volumes and number of firms, the companies are developing rapidly. However, if compared with the volumes, necessary for growth of economy of the country, and various indices, they are lagging behind for 5-8 times. The worst is the fact that their development has stopped in that level.

Innovation Venture Fund has been established in Russia for promotion of innovative business, ca. 1000 innovative firms have been supported financially during 6 years. Financial aid makes up to 30-50 per cent of the investments necessary and is granted for 2-3 years, asking neither deposits nor guarantees. This increases risk of non-returning assets, however induces rapid and reliable growth of the companies. State budget means are especially efficiently used through financial leasing. This is urgent both for the state and the companies. The most profitable fields of performance of the innovation firms are IT, electronic devices, microelectronics, and also materials for electronics.

The state holds one more economic lever for innovation business - rendering premises and equipment, not used in science. Though it has not justified in Russia, experience of the Fund shows that the invested budget means pay off within 2-3 years through taxes.

1.5.3. "Military" business in Russia

Creation of business incubators is a new direction in SME development in Russia. One can state that BI development in Russia is not limited by civil sphere only. Hence BIs are becoming a constituent part of the main programs, related with social adaptation of hundreds thousands of former servicemen and their family members, including the program "Social Adaptation of the Retired Servicemen", financed by the institute "Open Society" (Soros fund in Russia), establishing a BI and using experience in SME development among the former military.

According to the data of the Defence Ministry of Russian Federation, through applying military reform between 1992 and 1998, ca. 500 thou. of servicemen
were transferred to reserve. They all are reckoned among older people (aged 35-50), they have acquired good professional preparation, have high or special education, experience in management, education, solution of economic problems, etc.

GDP of SMEs in the developed countries makes 60-80 per cent, in Russia it was only 12 per cent before the crisis. Till August 7, 1998 ca. 900 thou. of SMEs were functioning in Russia with 12 Mio. persons working. Now these numbers are much lower. Promotion of SMEs is the only way out of the crisis also guaranteeing stable economic situation. However a serviceman, ready to launch his business, encounters lots of hindrance, classified as follows:

Macroeconomic factors:
* level of economic growth;
* inflation growth and rate;
* financial climate (expensive credits);
* state policy (tax collection, imperfect legislation).

Microeconomic factors:
* lack of experience and specific knowledge;
* lack of resources (capital, manpower);
* large expenses for infrastructure.

Success of small and medium "military" business depends on the state and public support. BIs and credit unions are those forms, supporting the small and medium business.

Business incubator is an organisation, providing production and office premises for small "military" businesses, also giving them office furniture, consulting on business development questions: financing, marketing, management. Companies not residing in the business incubator may also use all the services rendered except of the premises.

KSA program has provided a little bit different BI concept than that in the world practice. BI premises, upon consideration with local administration, are assigned for the period of 10 years without payment, their area shall be no less than 1500 sq. m. 30-40 companies develop their businesses, 2/3 of them are steady on their feet and able to pay for BI's services.
It is important for BI to render wide range of services for "military" businesses, information about business, finance and laws, access to Internet. Companies, residing in BI, are granted a possibility to decrease their expenses for infrastructure down to minimum and to concentrate all efforts towards business. If BIs work along with credit unions, the companies incubated may be granted favourable credits for realisation of their promising business ideas.

One may conclude that creation of a BI for "military businesses" is not only a possibility to solve problem of social adaptation of the retired servicemen with minimum expenditures, minimum losses and minimum time, but also to develop economic sector, creating broader infrastructure for SMEs.

**Comment.** In Lithuania, Visaginas, similar situation is on the way like in Russian military towns. Lithuania, seeking to become an EU member, shall shut down the Ignalina Nuclear Power Plant (IAE), following one of the main requirements of EU. After closing of the IAE, ca. 5000 persons will lose jobs. Many qualified and skilled specialists would enter the labour market, however, since there are no other companies in Visaginas, it would be very difficult for these persons to find jobs and to survive. Besides that, during the period of existence of IAE, some quite modern technologies have been created, that could be used in another industries. One of the possible ways to solve the aforesaid problem could be business incubator establishment in Visaginas, aiming to assist people to integrate into labour market and to improve social-economic situation in the town. Russian experience could be taken into consideration.

1.5.4. Uzbekistan

Uzbekistan, as well as Russia, after getting free from the long-term socialist economic system, started creating a free market, with its main subject - SME, able to perform in a competitive market upon its own risk and initiative. However creation of free market in Uzbekistan needs special efforts, because the active society has got no experience in free business – they are under pressure of planned economy habits, lacking knowledge in marketing, finance and management. Besides that free market cannot be locked in the boundaries of local market, it needs ability to enter international market, however entrance is closed because of lacking newest technologies, especially PCs and languages. Individual entrepreneur can do little, therefore creation of business incubators has become the paramount task of the Uzbekistan state. With state support a network of business incubators has been established in the country. Three pilot incubators were opened in 1994: two in Tashkent and one in Samarkand.
1.5.5. Latvia

Several organisations have been established in Latvia, supporting small and medium businesses.

In 1993 Latvian Government established Latvian Development Agency (LVA) for promotion of direct foreign investments. LVA is a non-profit state stock company. It represents the country in the projects, related with foreign direct investments and export, it is a kind of a developed information system, granting potential investors quick access to all the information they need.

Latvian Chamber of Commerce and Industry is a NGO, uniting Latvian firms of various sectors. The Chamber follows general international principles of such chambers, renders information, promotes creation of favourable business environment, represents economic interests of Latvian firms and offers business promotion services.

In 1992 under support of PHARE program business support centres (BSC) were established in Riga (this centre has currently turned into private consulting firms), Ventspils, Valmiera, Daugavpils, Rezekne and Liepaja. In 1998 additional centres were established in Kuldiga, Saldus, Jekabpils and Aluksne. The later project was financed under PHARE and by means of state privatisation fund.

In 1992 Ministry of Science and Studies initiated a science commercialisation process, planning to develop the technology centres (parks) into business promotion structures. These centres fill in a gap between the high education institutions and industry and induce SME development through international economic and scientific co-operation, implementing high quality production. The centres offer companies business planning, marketing, quality management, market investigation and international relationship maintaining services. First structures of such kind were established in 1993.

The next step was a national program for SME promotion, created by the Ministry of Economics and adopted in 1997.

On March 28, 1998 Latvian Government passed a National Innovation System concept. The main aim of the concept is to promote development of economics in the country and process of Latvia integration into the European Union.

There are four innovation business support institutions in Latvia:
* Latvian Technology Park (LTP);
* Latvian Technology Centre (LTC);
* Business Innovation Center of Latvian Electronic Industry (LEBIC);
* Latgale Equipment Technology Centre.

Latvia Technology Park (LTP) has been established in Riga Technical University using 8 ha of land (formerly belonging to the USSR Army), turning it into a technologically developed plot. It included joint activity of local and state governments, private companies, universities, financial institutions and individual persons in creation of hi-tech companies.

There are 28 firms residing in LTP business incubator with 320 persons working. Specialised centres of chemistry, electronics and automation are provided to establish there.

LTP functions in a form of business promoter. Individual divisions of Business and Innovation centres (BIC) have been residing in Riga Technical University. BICs work in the field of technology transfer arrangement.

Latvian Technology Centre (LTC) is an example of a classical business and innovation centre. Its area is 2200 sq. m in the building of Physical Energy Institute, including well-equipped laboratories and offices.

Firms, residing in the LTC can use fully installed premises, well-developed infrastructure. The firms are rendered services on production, management, marketing, company establishment questions and search for partners.

36 firms were residing in the LTC in 1999 with more than 250 employees. Latvian Innovation Relay Centre has also been established in the Centre.

Radioelectronics Technology Centre (RTC) was established in 1993 for promotion of the SMEs, working in the industry of electronics. In 1997 it was reorganised into Business Innovation Center of Latvian Electronic Industry (LEBIC);

Latgale Equipment Technology Centre was established in October, 2000 with the aim to promote development of new tools.

In 1996 LTP, LTC, LEPBIC and six private persons established an association of Latvian technology parks, centres and business incubators. It is a public organisation. Its main aims are:
* creation of permanent relations between all business promotion institutions in Latvia;
* raising qualification of its members;
* representation and protection of its members' interests in state and NG organisations;
* creation of an information network, assisting technology-oriented companies;
* promotion of creation of new business supporting structures;
* inducement of technology transfer and innovations;
* making contacts and participation in performance of various international and regional organisations;
* co-operation with municipalities, local authorities, science and investigation centres;
* promotion and presentation of the association and its members.

### 1.6. General aims of creating business incubators and scientific technological complexes

Main aim of the business incubators both in USA and Europe is promotion of small and medium sized businesses being established. Such support is especially necessary for the countries, 10 years ago having stepped onto the path of market development. These countries lack traditions of independent business development, average aged persons tend to wait to be hired instead of creating job places for themselves and family members.

Very important mission of business incubator is concentration of material and financial resources for those, launching their businesses.

Incubator in this context becomes one of the most efficient means of SME promotion, because the beginner acquires possibility to be assisted in material (premises), business (consultations, training courses) as well as financial way.

Persons, possessing business idea and having prepared a business plan to implement it, are admitted to the incubator. However the active society members (especially graduates) in the countries of market being developed shall be led to the possible idea, assisted to consider the ways of its realisation. In this sense the task of business incubator is to participate actively in preparation of the society for business along with educational institutions.
Business incubators being created seek for various aims, however, European experience has shown the most important to be:

* creation of new job places;
* assistance for the beginning SMEs to find their place in a competitive market;
* modernisation of production and/or services rendered by use of the newest technologies and scientific achievements;
* supply of local industry with high quality technologies and production;
* integration of scientific knowledge and practical experience, drawing the science workers into the business world;
* helping the new SMEs to reach high results of performance as soon as possible;
* increasing of value being capitalised;
* rendering assistance, consolidating links between the universities and local industries.

Specific aims of business incubators may include:

* assistance for individual groups of persons (women, disabled, pensioners, emigrants, national minorities, graduates) in creation of their own businesses;
* promotion of production and/or services, especially important for the region concerned (tourism, agricultural businesses, computer technologies, intellectual services, etc.);
* diversifying of regional economic structure;
* inducement of economic activity in the region at the same time speeding up the economic growth.

As we see, aims of BI creation may differ, but the essence remains the same. Besides all the mentioned aims, many countries, creating incubators, try to use the most advanced communication technologies, to internationalise business as deeply as possible, i.e. to exchange ideas, services and production, to adopt international experience.

Business incubators being created usually are aimed to promote and support regional small and medium businesses. Experience of Croatia is interesting in this sense. Companies, incubated in this country, form a network of related firms, in another words, making a complex network of services, what is unattainable for individual firms.
1.7. Conclusions

1. Millions of SMEs in the developed countries, along with large businesses, form a special self-regulating mechanism for market economy.

2. Thanks to SMEs, ca. 80 per cent of job places in the Western Europe and USA have been created in the last decades.

3. Various SME promotion structures exist: incubators, scientific, technology parks, technopolis, innovation centres.

4. One of the most efficient forms of SMEs promotion is business incubators.

5. Business incubators play an important role inducing implementation of innovations and selling technologies.

6. Various BIs have taken their place in rendering SMEs assistance in various countries both in the West and East.

7. Ideology of business promotion through BIs is permanently developed. More and more projects, identifying BIs with profitable business, appear.

8. The most efficient model of BI performance is achieved by close cooperation of the universities, companies, various businessmen associations and authorities.

9. State, local authorities, universities, large companies grant BIs financial and organisational assistance in the beginning and sometimes permanently.

10. The main problems encountered by SMEs in Lithuania are unstable and changing legal, economic environment, lack of turnover assets and knowledge.
2. ESTABLISHING A BUSINESS INCUBATOR

2.1. Market research

Where should you begin?

The Initiative group of Business Incubator establishment should start promoting the idea of the future Business Incubator, looking for supporters of the project and, that is most important, making a draft of a detailed Business plan of investment.

The draft Business plan finishes a long and difficult initial period of establishment of the Business Incubator.

The first step in making a Business plan is to perform market research in the region where the Business Incubator is to be established. Market research should reveal what businesses are typical to the region, which of them should be given priorities and assisted in development. Besides this it should be considered what are future business development possibilities, where are special research facilities in the region etc.

While determining the aims and methods of market research, it should be noted that we have a rather new direction of market research, that is why in this presentation we are going to point at special tasks that may arise in this sphere, and possible ways of their solving. Contrary to the commercial market that has only one definite category of partners, i.e. customers who form a market segment for an existing product or service, non commercial organisations usually have two categories of partners: sponsors and customers. Consequently, market research for non-commercial organisations should involve investigation of possibilities of financing, developing regional business and establishing the Business Incubator (renting premises, supplying services, etc.)

GENERAL SCHEME OF MARKET RESEARCH PROCEDURES COULD CONSIST OF FIVE STAGES:
- raising problems and forming objectives;
- looking for sources of information and making their selection;
- collecting information;
- analysing the collected information;
- summarizing the obtained results and forming tasks.
The potential sponsors for the future Business Incubator could be the Governmental and regional authorities, commercial organisations and companies, different unions and associations. The aim of the research that is directed to the sponsors is connected with investigating the situation of Small Business in the region, and identifying the level of Small Business development, rate of unemployment and level of development of different business spheres.

While clarifying the situation of business development in the region – in combination with a regional strategy -, it is possible to use the secondary information, i.e. the publicised information, and the primary information that was collected for certain purposes. The secondary information is cheaper and better accessible, that is why it is more convenient for usage.

First of all, it is necessary to collect the information on Small Business: the number of small companies, growth of their dependency, forms of their property, organisation and management, the available staff on the labour market.

These data are available at the departments of the regional municipalities, local tax offices, business activities register offices, corresponding functional divisions of local authorities, the chambers, different unions, associations, funds of businessmen and enterprises, services of sociology and marketing.

The information obtained from different sources can be controversial. For instance, the Register offices tend to overestimate data as the procedure of company’s bankruptcy is not properly regulated in Lithuania, and actually it does not work. The Department of Statistics possesses data only about such small companies that present their financial statements. The information supplied by different organisations and sociological services effects the selected data that are presented as the sum total. The most valuable data could be considered these obtained from the Tax Office, however their acquisition is more difficult.

Nevertheless, whatever the source of information may be, it is possible to assert that the obtained result will doubtlessly confirm a not sufficient level of Small Business development not only considering it from the position of developed market relations, but also paying attention to the requirements of the dynamic transformation in Lithuania economy.

Other block of the necessary information consists of data on employment supplied by local Labour Exchange and Small Business companies. It might be
obtained in the Departments of Statistics and Tax Offices. A dynamic analysis of these data can confirm (or deny) contribution of Small Businesses into the solution of the problem of employment in the region. Besides, the information on those who are employed in the sphere of Small Business includes the data on their occupation, and that allows making the conclusions about the real income of the citizens.

On the one hand, the data on the urgency of making priorities to certain branches of business and usage of new technologies in a certain region can be considered as an outcome of analysis of the data on the economic development, and on the other hand, every region today has a plan for future social and economic development where the defined priorities can be checked.

While striving to increase the effectiveness of marketing research, it is useful to collect and analyse some additional secondary information.

First of all, this kind of data embraces the environment of Small Business both in the Governmental and Regional level. It is important to know what laws regulate activities of small companies, forms and methods of their support and promotion, policy of local authorities and their attitude towards the new forms of making business.

Besides, in order to decide about the necessity of establishing the Business Incubator, it is necessary to investigate local intellectual resources and possibilities of having access to the existing data bases that could supply actual information about the business structures.

The information of such a type could be obtained in the Information and Patent offices. One should know that this kind of information is not free of charge, as collecting data of such a kind is quite expensive. The situation becomes less complicated if certain public presentations of SME, and tenders on new projects are organised, and new ideas are generated in the region.

The intellectual sources can be considered as potential organisers and prospective employees of the Business Incubator. It is necessary to assess the level of their professional experience as specialists of a new profile (Project Managers, accountants, auditors, etc).

There is one more important detail related to the human resources. It is important to make sure that there are enough suitable people who are seeking to start their own business or find a Small Business enterprise that could employ them according to certain conditions (on temporary or permanent
bases). It would be desirable to have information on the growth of the number of potential entrepreneurs and their professional abilities. At present similar information could be obtained from certain sociologic surveys. Consequently, the initiators of establishing a Business Incubator should use the results of previous surveys.

In order to determine possible competitors of the Business Incubator, it is important to analyse the organisations of the region that provide assistance for SMEs. As the spheres of their activities and sources of financing differ, it is advisable to classify them to Government, public, private and foreign.

The analysis of basic functions and tasks will help to determine the kinds of their activities and problems, and find their common points with the activity of the future Business Incubator. According to the performed SMEs support functions, they could be divided into the following groups:

- supplying services of consulting;
- specialising in SMEs staff training;
- performing services of registering and assistance to start a company;
- supplying loans to SMEs
- making Business plans and designing schemes of industrial and agricultural activities.

The analysis of organisations working in the sphere of SMEs support and development permits to determine those that are suitable for Business Incubator to cooperate according to the terms of agreement. Determining problems that have risen during the investigation provides an opportunity to see the potential opportunities and problems, and consider the ways to solve them.

Most marketing researches supply lists of preliminary data that need more investigation. Therefore, a method of surveys (questionnaires, making enquiries by telephone and personal interviews) is the most popular in practice. The methods and techniques of performing surveys and consecutive analysis of the results require some special knowledge that is possessed by employees of special institutions. From the point of view of the aims of marketing research, a very important factor after collecting information and its analysis is an opportunity to provide the sponsors with the information about the establishment of the Business Incubator in a certain region that is based on facts and arguments.
From the point of view of maximum consumer satisfaction (small enterprises, future tenants of the Incubator), it is important to make a qualified selection of its basic functions (a set of supplied services).

One more task for marketing research is to make an optimal functional set for the given territory. This task is directed “downwards” – to the users of the Business Incubator. The investigation should establish the basic problems of the Small Business in the region and give priority to small enterprises, bearing in mind the supplied assistance and forms of its maintenance, desired directions and objectives of the development of entrepreneurship. All these and many other data that reveal the “sore points” of Small Business could be obtained only with the help of special social and economic research. For effective functioning of a Business Incubator it is important to perform the marketing research before making a business plan.

2.2. Allies and partners of Business Incubator

The Business Incubator becomes an actual tool of regional economic development, that is why it is very important for the Initiative group that has decided to establish the Business Incubator to enter into partnership relations with all most significant local institutions: administrations of the municipalities, universities and other research institutions, public organisations, associations of entrepreneurs, financial and educational institutions, information services, etc. Even though creating such connections requires a great deal of efforts and work, the Initiative group has to prove the importance of the Incubator in the region in order to receive the necessary information from all the organisations existing in the region.

Establishment of Lithuanian Business Incubators as a structure meant to support Small Business coincides with the priorities of country’s social and economic development. It should be considered as a priority sphere of Government’s activities both within the country and in a specific region. As a matter of fact, such an attitude does not require special proves as the development of SME stimulates the economic growth of the region that consists of the following elements:

- increasing work effectiveness by introducing new technologies;
- creating new jobs;
- re-structuring economics and spreading new technologies;
- diversification of activities of large enterprises;
- development of local industry;
- increasing potential of local regional entrepreneurship;
- creating new markets and keeping competition;
- commercialisation of scientific knowledge and effective usage of scientific and technological potential;
- occurrence of an intermediary who could assist in exchanging the resources, ideas, equipment and staff between state and commercial structures, industrial alliances and banks.

Local regional administration often provides specific assistance for the Business Incubators under establishment. For example, in Lithuania the administration of Alytus town municipality has provided some funds from SME support foundation to develop the activities of Alytus Business Incubator; administration of Telšiai County provided premises, assisted in their repairs and adaptation for activities. Due to the financial assistance of Lithuanian Government (about 4 million Litas), Business Incubators during two years of their existence were able to create 182 new jobs. By the end of the year 2000, 88 SMEs with 428 employees were supported, 7 enterprises left the Incubators. Fig. 2.1 describes the dynamics of premises rent in the first Lithuanian Business Incubator in Kaunas.

![Fig. 2.1. Dynamics of Premises Rent in Incubator of KTU](image)

State and local administration’s support for business through Business Incubators gives a significant assistance for the starting entrepreneurs. Making incubation conditions is especially important during their first business year when a newly founded company lacks not only specific knowledge and experience but also funds to develop its activities. This is the point where
Business Incubators may step in and reduce risks of the first year of company’s activities.

That is why all the Incubators choose such a package of services that could be the most useful for a small entrepreneur. Investments of the Government and local municipalities will pay back when enterprises start their activities, create new jobs and pay taxes for the State. Establishing Business Incubators is an especially important factor during crises and periods of economic restructuring. They ensure not only assistance for SMEs but also creating new jobs, search for innovations and their effective improvement and implementation.

The activities of a Business Incubator can be related to the activities of local Labour Exchanges. These activities can be developed in two directions. First, the unemployed can make business plans with the help of specialists of the Business Incubator and get settled in the premises of the Incubator. Second, the specialists of the Business Incubator using their experience of consulting activity can organise courses of re-training and thus provide the unemployed a chance to obtain new qualifications.

Allies of the Business Incubator to-be-established could be regional business support funds. Business Incubator finds it beneficial to cooperate with the potential investors. On the other hand, business support funds find it useful to cooperate with small competitive companies and projects that have received financing before joining the Business Incubator. Usually the companies that have sources of financing are much more successful in developing their activities and can use additional benefits offered by the Incubator.

Business Incubator should be connected by businesslike connections with large enterprises, government organisations and NGO. Foreign experience confirms that every region should have at least one large enterprise or organisation (sometimes more) that provides a certain assistance for the companies incubated in the Incubator. Business Incubator should become an active partner of regional enterprises and organisations in different spheres of business development.

A significant support for the Incubator and incubated companies could be obtained from regional SMEs support companies, i.e. business consulting centers, SMEs agencies, and consulting companies. They could supply a certain kind of services by considerably lower charges and thus contribute to development of SMEs. In many countries public committees and regional development agencies are established at municipalities. Their role is to keep
connections with the Governmental SMEs support institutions, and to receive corresponding financing for development of SME in the region, and consequently, financing for Business Incubators. Establishment of regional Business Incubators requires good knowledge of regional industrial structure, specifics of companies activities, their development prospects so that they could estimate possibilities of introducing new technologies and commercialisation in the market. At the beginning, new technologies can be tested at the Incubator. Large regional enterprises could become founders of new companies.

The Initiative group of the future Business Incubator, and later on its Managing Director, should keep close connections with the representatives of local banks, investors, funds, and leasing companies. It could be done in different forms: organising joint seminars, presentations, etc. Keeping close connections between management of the Business Incubator and potential investors of the Business Incubator helps to accumulate the information about the requirements of the investors for specific projects, and their possibilities in supporting SMEs. During the period of stabilisation of economical life in Lithuania and other post-communist states, banks and other financial institutions understand their role in supplying loans for SMEs. It is confirmed by the experience of the SMEs development in many countries of the world.

Local media – press, radio, and television – could become important partners of the Business Incubator. The media can be used as a source of free advertising. At the stage of establishment of the Incubator, the media could assist in promoting the services of the Incubator and help create public trust. It is recommended to use the media for spreading information about all the important events of the Business Incubator and its services. The media representatives should be invited to all the events organised by the Incubator.

It should be noted that Business Incubator is becoming an important institution for development of SMEs. To begin with, it is a promoter of new ideas, especially those where the newest technologies can be used, as the Business Incubator accumulates information on application of new technologies and opportunities of their commercialisation. Furthermore, it gives an opportunity to use experience of qualified specialists in solving specific problems. Cooperation with qualified specialists promotes new ideas that might develop into new technologies and bring good income for those who create them: entrepreneurs and the financial institutions who have ventured to cooperate with the Business Incubator. This is the way for the Business Incubator to create a good image in the region, and for the entrepreneurs – to gain their position in the market. Rapid growth of innovative technologies in the world is
connected with cooperation between start-ups, business incubators and technology parks.

Faster development of scientific and technological progress in the second half of the 20th century made industrial enterprises pay attention to fundamental scientific research. Firstly, they were interested in possibilities of practical application of scientific ideas and their commercialisation. Penetration of the scientific ideas into the word of business took a great variety of forms but the main were trade fairs, exhibitions, conferences where representatives of different business could meet and start business contacts that would develop into specific forms of cooperation and corresponding projects. The Business Incubators under establishment should follow this way of cooperation, i.e. their task is to join business and science by mutually useful connections.

A further step into integration between science and business was creation of groups of experts (“research teams”) consisting of representatives of universities and entrepreneurs. Their aim is to organise the assessment of scientific ideas and their practical implementation. It helps to reveal the commercialised business ideas, find their ideological and financial supporters and occasionally even investors.

It is important to note that commercialisation of scientific research requires highly qualified business experts. Companies that want to use novelties of science and modern technologies should have experts who could put these novelties into life. Solving this problem increases the importance of cooperation between universities, colleges, and other scientific institutions.

Science and industry enter into a new qualitative stage when the growth of scientific and technological progress and creation of new scientific technologies enable private businesses to receive profit while commercialising scientific results that are published in works of scientific research of universities.

Companies striving for business progress put more funds into scientific consultations, re-training of their specialists, subsidies and agreements for making various kinds of research. A non-traditional result of science and business integration is separation of small companies from universities. The main objective of such companies is commercialisation of the results of scientific research. According to experience of the developed countries, such companies connect their initial activities with Business Incubators or technological parks that help penetration of scientific ideas into practice.
It is very important for Business Incubators to attract students of final courses. Business Incubator gives important practical business experience for such students. Business Incubator takes such students for their practical training and receives cheap (or free) labour power. Students write their diploma papers and get acquainted with business specifics and practice, and can even establish their independent companies in the Incubator.

Foreign experience reveals that higher schools often become founders of Business Incubators.

The first Business Incubator in Lithuania was established by Kaunas University of Technology and Ministry of Economy, and Alytus Business Incubator was founded by Alytus Business College.

Although the higher schools of Lithuania have no financial possibilities to support Business Incubators, Incubators may use the libraries, telecommunications, laboratories and computers of the mentioned schools as well as the specific available knowledge.

The founder (higher school) presents just one principal requirement for the Business Incubator: the aims and tasks of their activities should correspond. It can be checked by receiving reliable information from the Business Incubator on its activities in the form of reports (depending on agreement, quarterly, once 6 months, or once a year).

The experience of the business incubation includes another, more effective, form of coordination and controlling that is used by the founder organisation, i.e. participation of its authorised representatives in the activity of the Advisory Board of the Business Incubator.

### 2.3. Establishing Advisory Board of Business Incubator

**Advisory Board** of Business Incubator is a very important supporter of the activities of the Incubator. Members of the Advisory Board by their knowledge and position can help to choose the profile of Incubator’s strategic activities and form a positive image of the Incubator in the region.

Selection of the members of the Advisory Board should be discussed in the initial stage of Business Incubator establishment, i.e. before selecting directions of the activities of the Business Incubator, its location, and making plan of prospective activities. The basic functions of the Business Incubator (a set of services) are finally adopted by the Initiative group together with the
Advisory Board. Cooperation between the Initiative group and the Advisory Board helps to establish the Business Incubator that entirely corresponds to not only local possibilities, but also local resources. Consequently, the members of the Advisory Board take upon themselves a certain responsibility for the implementation of the project of establishing the Business Incubator in the region.

During the period of the establishment of the Business Incubator the Advisory Board:

- helps the Initiative group to find all possible sources of direct and indirect financing of the Business Incubator;
- promotes positive image of the Business Incubator in the region;
- helps the Business Incubator to select qualified management staff;
- makes favourable conditions to attract potential tenants of the Business Incubator: promising small enterprises and entrepreneurs; support their active participation in making project of establishing the Business Incubator;
- together with the Initiative group makes a basis for implementation of the aims and tasks of the Business Incubator.

During the period of establishment the Advisory Board should provide the Business Incubator with all possible assistance. For example, a representative of the Advisory Board who has connections with the local radio station may organise a program on the Business Incubator, or an interview with the leader of this idea. A member of the Advisory Board who works in local financial institutions can find the necessary sources of financing both for the Business Incubator and the companies to be incubated.

The Advisory Board is usually made of 10-20 members. It may have representatives from the following offices, enterprises or organisations:

- founder organisation;
- local municipalities, County Administration;
- Council of Economic Development;
- large enterprises from the sphere of activities similar to those to be incubated in the Business Incubator;
- Regional Business Support Funds;
- entrepreneurs’ associations and individual successful entrepreneurs;
- financial institutions (banks, leasing companies, investment companies, etc.);
- higher schools;
- media;
- most influential public movements and political parties;
- regional Labour Exchange.

It is desirable that each member had:
- high qualification in a certain sphere of activities;
- good reputation in the local community;
- possibility of influencing development of the SMEs in the region;
- competence in the sphere of business incubation.

The Advisory Board discusses:
- strategies of the Business Incubator;
- management staff structure of the Business Incubator;
- annual budget and the results of the activities;
- terms of companies incubation in the Business Incubator;
- other important issues.

It is important to remember that the Advisory Board determines the strategy of the Business Incubator but does not control its everyday activities.

Work in the Advisory Board is public and nor paid, that is why it is recommended to hold meetings not more frequently than once or twice a year.

The members of the Advisory Board can supply a specific assistance for different incubated companies: making contacts with potential investors and customers for their products or services. Such kind of assistance helps faster business development and finishing the period of incubation of the incubated companies.

2.4. Forming team of Business Incubator

The main mission of the Business Incubator is to assist young entrepreneurs to start a business of their own. The Business Incubator not only helps the development of the beginners, but also is a company supplying services for businesses and receiving income for that. Thus the team of the Business Incubator and its Managing Director not only provide assistance to the
incubated companies, but also bear responsibility for independent development of the Business Incubator as a business company. Such a double mission of the Business Incubator is quite complicated, that is why forming the management team of the Business Incubator is a very responsible and difficult task.

Managing Director of Incubator

As it can be seen from foreign experience, the Managing Director of the Business Incubator is appointed before the actual establishment of the Business Incubator. It gives the Managing Director an opportunity to participate in choosing premises, forming the team, searching for financing sources, structuring the management procedures and executing marketing of the Incubator for the community.

The personal presence of the Managing Director of the Business Incubator in the initial stage of the establishment of the Business Incubator creates the conditions to prepare a clearly defined strategy and the ways of its implantation into life. Besides, participation of a qualified Managing Director in the process of founding the Business Incubator may fasten the process of acquiring the equipment and choosing the staff, making an impulse for the Incubator’s entering the business society, and make direct influence on a number of companies that wish to move into the Incubator.

The tasks of best practice Business Incubator Managing Directors are as follows:

- consulting the incubated companies;
- training beginners of their own business to use different sources of information;
- coordinating connections between the incubated companies and outer surroundings;
- improving management skills of the companies’ Project Managers by teaching and consulting;

The Council of Founders should find a suitable candidate for the position of the Managing Director of the Business Incubator. It should be a person who understands assistance to the start-ups as the main task of his/her activities. The Managing Director should ensure such performance of the main functions of business that it could make a solid base for assisting the incubated companies and achieving it by as low costs as possible. He/she should enjoy risk that is common with start-ups, and understand the double trial of strengths that reveals itself by the successful development of the activities of the
Business Incubator and successful activities of the incubated companies. He/she should be sensitive to individual needs of each company in different stages of their development; and help in finding the necessary sources for the development of companies.

Finally, the Managing Director of the Business Incubator should understand the reality of the process of business establishment. Some companies are successful in development of the chosen business, and others die despite great efforts of the Managing Director of the Business Incubator, and finally terminate their business. It is important to recognise that success and failure are tightly interrelated. Therefore it is very important to get an evaluation scale to estimate the success of a company by fixing the degree of reaching special success factors. The incubated companies that earn a little more than it is necessary for their existence are considered to be successful. Sometimes a small failure can be considered a success if it allows the entrepreneur to avoid big losses but provides useful experience and practical lesson how to avoid such failures in the future.

**Project Manager**

At the stage of founding of the Business Incubator a Project Manager can be a specialist who works part-time. It could be a volunteer or a hired employee, if the budget of the Incubators allows that.

Project Manager should be able to adopt independent decisions and perform the duties ascribed to him. He/she should also have initiative and, if necessary, competence to substitute the Managing Director. A Project Manager will have to communicate with the staff of the incubated companies more than any other employee of the Incubator, that is why he/she should be communicative. The Project Manager’s qualification should correspond his/her responsibilities as otherwise the Managing Director will have to waste his/her time solving additional problems, and that will distract him/her from supplying assistance for the incubated companies.

Project Managers with experience in selection of companies that they recommend to be accepted into the Business Incubator, have to look over a great number of Business plans in order to find the most reliable companies. However, even in the best practice Incubators not all companies are able to achieve the estimated growth. That is why both the team of Project Managers and the Managing Director should determine the business skills of the incubated companies and help the promising companies. The companies that do not possess the necessary business skills should be advised to terminate their activities.
Project Manager of the Business Incubator should have corresponding education of business management, well-developed communicative skills and clear understanding of the mission of the Business Incubator.

Main functions of Project Manager of the Business Incubator:
- general supervision of the office;
- making agreements between the Business Incubator and the companies to be incubated, and other institutions;
- maintenance of equipment and premises;
- organising works with students in their training practice;
- organising consulting and training of customers;
- marketing of the Business Incubator

**Secretary**

The Secretary contributes a lot to the successful functioning of the Business Incubator. Usually he/she is the first person to meet the customers and companies that come to the Business Incubator. In most Incubators the Secretary receives the telephone calls directed to the incubated companies. When the number of companies increases, answering phone calls makes the Secretary’s work more difficult and distracts his/her attention from the main functions of his/her activities. If this is the case, the Managing Director and the Project Manager of the Incubator should adopt decisions that would release the Secretary from his/her additional duties. The secretary may also supply the incubated companies with services of office routine; typing texts, faxes, arranging correspondence, etc. This employee keeps significant contacts with entrepreneurs and their employees.

The following qualities are very important for the Secretary of the Incubator:
- energy and understanding job ethics;
- carefulness and honesty;
- professional manners and appearance;
- good communicative skills;
- great tolerance in communicating with the customers of companies and the Business Incubator;
- computer skills.

The management of the Business Incubator may also include other employees.
2.5. Students’ participation in the activities of the Business Incubator

Incubators often cooperate with local science institutions and have their set relations between students and the incubated companies that are satisfied with students’ assistance. Joint projects could be very successful and significant for the activities of the incubated companies. Students can make marketing research, create accountancy systems and contribute in preparing the necessary documents for acquiring loans. The experience shows that programs conducted by students in training practice and the supervising teachers working with the incubated companies are successful when students have a well-formulated concrete task, which is useful both for a student and the incubated company. The programs should be made in such a way that mutual aims could be achieved: students acquire practical experience of working in a real company, and the incubated companies receive a concrete task performed. Besides, teachers always work together with students and they can directly communicate with the incubated companies and help solve the problems that might arise. They can also help the Managing Director of the Incubator with his/her consulting work.

Benefits of students’ participation in the activities of the Business Incubator
- students’ talent and skills can temporary contribute to the company’s team;
- opportunity of trying potential employees;
- supervision of teachers of the educational institution;
- valuable help at a minimal cost (if the students practical work is being evaluated, the company will receive it free of charge);
- development of business talent can become a new source of founding business enterprises, or give the students opportunities to be employed in companies.

Shortcomings of students’ participation in the activities of the Business Incubator
- time that is consumed by the Project Manager and main employees working with students in training practice;
- time that is consumed by the Managing Director of the Incubator working with students, teachers, program coordinators;
- responsibility for the results of students work.
2.6. Work division among the Business Incubator Management

The tasks of Business Incubator activities are divided into two categories: activities connected with management of the Business Incubator, and activities directed towards assisting to the incubated companies. In most cases the activities of the Managing Director are focused on work with the incubated companies, and the Project Managers, members of Board, volunteers and students in training practice perform the functions connected with the management of the Incubator’s activities.

Work distribution among the staff of the Business Incubator may be as follows:

MANAGING DIRECTOR

**Keeping connections with:**
- the Council and Founders
- Institutions of technological knowledge and scientific information.

**Assistance for the incubated companies:**
- Consultations/training
- Exterior connections with business environment
- Creating business environment

PROJECT MANAGER
- Maintenance of premises and equipment
- Rent of premises
- Supervision on general services
- Working with students in training practice
- Marketing of prospective companies/customers
- Finance management
- Purchasing

SECRETARY
- Office work
- Answering phone calls
- Receiving visitors
If Incubator is supported by founders and other intermediaries, the Project Manager may be obliged to keep and supervise connections with them. In this case the Managing Director could spend more time working with companies. However, even though the Incubator has a competent and active Project Manager, the Managing Director will use 20-30% of his/her time on supervising the main connections. Usually Managing Directors use 50% of their time working with the incubated companies.

It is difficult to retain a significant support of the founders for a long time. That is why the Business Incubator has to seek ways of self-financing. As the financial sources limit the possibilities of the Business Incubator to hire the staff that could supply services for the incubated companies, it is very important to find external sources to strengthen the assistance for the incubated companies. The best practice Business Incubators usually employ not more than three or four full-time employees, unless they receive a reliable financing from the founders or are able to run their activities on the self-financing bases.

2.7. Main Steps in Forming the Incubator’s Team

- Start your activities from analysing the business development in the region and assistance for further development.
- Establish the Advisory Board that is authorised to form the Incubators team. Include personalities who have experience of working with business assistance programs and in business environment. If necessary, invite consultants that could contribute their competence to that of the Board.
- Determine salaries of the Managing Director and staff in order to select the employees who correspond to your requirements.
- Decide what part of work should be transferred to volunteering members of the Advisory Board, intermediaries and students in training practice and how it should be divided among them. Then make a plan and set their responsibilities for the implantation of the plan.
- According to your financial possibilities, appoint the Managing Director just after adopting the decision to establish the Business Incubator.
- Ensure that selection of staff is made at the presence of the Managing Director and members of the Advisory Board.

In this section we have dealt with making a basis for establishing the Business Incubator (marketing research), discussed possible partners and allies of the Business Incubator, and presented the team that would execute the functions of the Business Incubator. Another very important step in the establishment of the Business Incubator is making a Business Plan. This issue will be dealt with in the following section.
3. INCUBATOR BUSINESS PLAN

Newly established business incubator goes through the same stages of activities as any other business enterprise. We can describe business incubator as an infrastructure where a new company gets complex support necessary for raising possibility to survive in the first critical years of company existence. Therefore establishment of BI must be thoroughly reasonable and professional.

A standard business plan consists of:
1. Executive summary.
2. Effect of BI establishment and development
3. Mission, objectives, founders
4. Marketing strategy:
   4.1. Competitors of BI
   4.2. BI image
   4.3. Search and selection of new tenants.
   4.4. Groups of BI tenants
5. Activities
   5.1. Services provided by BI
      5.1.1. Training services
      5.1.2. Technical and other services
   5.2. Characteristics of technical basis
   5.3. Organisational management structure
6. Financial indicators
7. Risks estimation

3.1. Executive summary

Executive summary is one of the most important sections of a business plan. It should briefly describe the business incubator and services and possibilities BI is offering. It should also provide a short description of key management team members and an outline of the necessary investment.

A good executive summary is essentially a condensed but powerful summary of the entire business plan. It should be logical, clear and interesting.

Executive summary should be not longer than 2-3 pages and should be based on facts. A reader should be able to read through it in four or five minutes and understand what is the most important in this business.

The following are several common mistakes that lessen the effectiveness of the executive summary:
– Too long and wordy, and failing to get to the point;
– Trying to be all inclusive;
– Failing to demonstrate a special or unique opportunity;
– Failing to outline the terms of the investment sought;
– Failing to generate enthusiasm in the reader.

Only concrete facts and figures that explain business concept, market niche and financial projections should be attempted to use.

Executive summary should involve details of investment. It should be also considered who the reader is most likely to be, why they are reading the business plan, and the response you hope to generate.

3.2. Effect of BI establishment

Preparing a BI business plan it is necessary to evaluate BI establishment effect not only for development of tenant companies, but also for development of regional and country economy.

Incubator can significantly influence structural economical changes in the region at present and in the future. Usually BI are evaluated according to these criteria:

• new working places established – direct and after some years;
• number/ coefficient of companies that successfully left BI and will remain after some years;
• raised sales turnover and profit of tenant companies;
• number of clients served;
• raised income of BI (self-maintenance/ profit);
• number of new technologies introduced to the market;
• taxes paid by BI and tenant companies.

There could be additional evaluation criteria used. Different directions of choosing the criteria are showed in Figure 3.1.

It is very important preparing the business plan to choose in advance the evaluation criteria that would allow evaluating BI activities in proper time seeking to achieve determined objectives. It is an inner management instrument that allows to fix deviations from plan and to estimate arising changes. Clearly formulated criteria rise in importance as all programmes allocating financial means to support SMEs development pay biggest attention to effective use of finance.
Fig. 3.1. Criteria to evaluate effectiveness of BI activities
The more BI evaluation criteria we choose, the more accurate information we get for taking strategic decisions for further BI management. Every criterion should be selected with responsibility, after analysis of all possible effect on BI activities. An example could be new working places created in business incubator directly and indirectly.

**Employment is influenced directly by:**
- companies founders and high-skilled specialists in BI,
- management of BI and service personnel.

**Employment is influenced indirectly by:**
- relations among incubator companies and other businessmen,
- orders made by incubator tenants to other producers,
- activities of BI and its tenants can influence positively economy of the country and raise competitiveness of manufacture enterprises,
- good image perspective as well as synergy effect and other benefits provided by business incubator could encourage companies from other regions to move to the region of BI.

**Multiplication effect of business incubator:**
- Investment will create new working places. Income received from this work will raise demand for consumer goods. This demand will cause demand for new investment that will finish the cycle creating new working places.
- BI companies need services and goods from suppliers in order they could produce or render services. This demand for manufacture purpose goods can create new possibilities to raise employment.

All this information must be adapted to concrete incubator and generalised by an indicator that will be possible to use evaluating effectiveness of BI activities.

Experience shows that success of BI is also highly dependent of additional factors:
- micro-factors (selection of companies, management, services to companies);
- macro-factors (geographic location, industrial specialisation, infrastructure).
3.3. Mission, objectives, founders

The main aim of business incubator – to support development of regional economics by stimulating entrepreneurship and raising the number of successful business enterprises, at the same time creating possibilities for potential growth of employment. In addition to that BI seek to initiate processes of new companies establishment in SMEs sector. To achieve these objectives BI renders starting entrepreneurs complex support that is necessary for beginning of business and its further development.

Conception of BI is complex. BI can seek different objectives; there can be different kinds of BI and different characteristics. Possible objectives depend on interests of BI founders. Different founders groups can be interested to participate in BI project:

- **politicians:** to support renewal of economics of the country or town (after decline of traditional industry), to support specific industry sectors (e.g. high-tech or environment protection), to improve technology transfer (e.g., from universities to SMEs), to improve image of the town or region or simply support establishment of new companies and new working places;
- **universities/ research institutes:** to support cooperation with industry seeking to employ graduates, to sell research results, to get profit from execution of research contracts, to get practical feedback forming teaching programmes, to improve image of scientific institutions;
- **banks, industry:** to find future clients or suppliers, to sell goods or services, to get know-how, new goods or raw materials;
- **starting entrepreneurs:** to get advice for business planing, to reduce costs, to rent an office or department at affordable price, to get experience and know-how, to find partners for common projects, to have “good address”, i.e. image and to reduce business risks.

Usually these interests and hopes do not match. Politicians want enterprises to employ as many people as possible (to create working places); businessmen want to employ only necessary number of persons (to reduce costs). Research institutes want to attract contracts for research (financed by industry); businessmen are looking for information and know-how in science institutions preferably free of charge. Already in planning stage of BI balance between interests and influence should be found.

Legal status of Lithuanian business incubators is public enterprise. Private or legal entities that have brought assets to BI under conditions stated in establishment agreement are shareholders (founders) of business incubator. Shareholders (founders) of BI can be:
– ministries or other authorities,
– town or district municipalities,
– territorial labour exchange,
– science or studies institution,
– business enterprises,
– business advisory centres and other non-profit organisations providing businessmen of the region with information, consulting and teaching services,
– commercial banks,
– private persons.

Possible founders interested in establishment of BI should first of all answer following questions:
– do businessmen of the region need support of BI;
– do local authorities approve establishment of BI;
– are there sufficient financial resources for establishment of BI?

**Before the establishment of BI the founders should also answer the question if they are ready to take responsibility not only for success of BI, but also for business of BI tenants and for people destinies.**

The next step – definition of BI **mission**. The mission should state fundamental reasons that show necessity for BI, the character of BI activities, development directions and the main area of BI activities.

Then **objectives** of BI must be formulated. The main objective of BI – to reduce risks of newly established and already functioning companies, to help tenant companies to achieve such level that they could work independently and compete in the market. Objectives can also include establishment of new working places, employment of some special group of persons, instalment of new technologies, testing scientific ideas in production, development of handicrafts or services sector, etc. Several objectives may be chosen.

Accomplishing foreseen objectives BI can fulfil different **tasks**:
1. To support socio-economical development of the region, to contribute to restructurisation of region business;
2. To stimulate establishment of new working places and to help existing enterprises in development of their business;
3. To seek the highest possible number of tenants that achieve fast growth in the first years of activities, that acquire enough resources and experience to develop their business after they leave BI;
4. To induce implementation of new technologies and scientific innovations in business, to initiate commercialisation of innovative projects;
5. To help to attract funds and technical assistance from Lithuanian and international organisations, enterprises, funds and programs for activities of BI;
6. To search for SMEs financing sources and analyse their possibilities to use credit resources;
7. To enter into and to keep relations with BI in Lithuania, other countries and entrepreneurs organisations
8. To rent premises on favourable conditions for start-ups and other companies.

Referring to BI mission, objectives and tasks discussed by founders, BI business plan can be prepared. It should analyse thoroughly activities of BI for 3-5 years. Every year it should be revised. In addition to standard requirements to business plan, a general concept of BI activities and specific quality (priority activities fields, criteria for selection of tenants, quality of services offered) and quantity (number of future tenants, number of training participants, number of services provided, size of premises rented, location and purpose of premises, payback of project) indicators should be described.

### 3.4. Marketing strategy

#### 3.4.1. BI competitors

It is important in every business to know the competitors, The main questions should be:

- Who are the 5 nearest direct competitors?
- Who are indirect competitors?
- How are their businesses: steady, increasing decreasing?
- What are their strengths and weaknesses?
- How does their products/services differ from BI?

Direct competitors of BI are other incubators, indirect – all other companies providing similar services: renting premises, organising different trainings, seminars, offering various business advisory services. Although usually BI has advantage because of the complexity of services offered, competitors are necessary to take into account.

If there are more BIs in the region it is a good practice and experience e.g. in Germany to organise them in a well operating network with identified tasks and cooperations.
3.4.2. BI image

Creation of good BI image is one of preconditions for BI success. Business plan should foresee a plan of measures that will be a basis to present necessity and possibilities of BI establishment to society and potential tenants. It can be an active campaign to propagate possibilities of BI. It can involve articles in press, organisation of press conferences, dissemination of letters about BI, participation of BI staff in events for SMEs organised by other organisations, preparation and dissemination of advertising publications about BI, etc.

Image is very important aiming to create favourable conditions for tenant companies to go into business world. Possible measures can be:

- contacts with suppliers, manufacture subcontractors, sales companies, seeking to create constant cooperation;
- professional services (training, consultations);
- relations with society building favourable attitude to business development;
- entering into and keeping international relations.

3.4.3. Search and selection of new tenants

Potential BI tenants can be found in 2 ways:

- organising advertising campaigns;
- organising special courses (seminars).

Advertising campaign to present benefits and possibilities of BI can be carried out by publishing series of articles in national and local press, organising meetings in science institutions, groups of students and graduates, different companies. Afterwards during an individual conversation candidate’s preparation and qualifications are evaluated and one of possible decision taken:

- to accept as a tenant of BI;
- candidate hasn’t possibilities to become a tenant;
- to add the candidate to the list of business basics seminar.

The second way – organisation of special courses where potential BI tenants could be found. There could be invited interested companies recommended by BI manager or labour exchange, representatives of scientific groups, innovative companies, students, graduates that have business ideas, authors of innovative projects. Seminars should be supervised by specialists having high qualifications in business management.

Scheme for selection of new tenants is presented in Figure 3.2.
To select a tenant a questionnaire corresponding to specific requirements of every BI can be developed. The questionnaire should involve such criteria as:

- input of possible tenant to socio-economic development of the region;
- compatibility with other tenants;
- creation of new working places;
- business plan possible to fulfil;
- experience of the company in its field of activities;
- correspondence of company needs to BI possibilities and objectives.

Depending on character of BI activities, additional selection criteria can be applied:

- company established not earlier than 3 years ago;
- premises rented for a period not shorter than 3 months;
- company is a producer or services provider;

**Fig. 3.2.** Scheme for selection of new tenants
- company applies or aims to apply new competitive technologies, products, services;
- company has possibilities for independent development;
- company is expecting to rent premises not bigger than X m²;
- company creates new working places, first of all – for residents of the region;
- activities of the company do not harm environment and other BI tenants;
- company is going to sell or is selling goods or services for foreign customers.

The period that company is allowed to stay in BI is defined in the contract and can last up to 5 years.

Contract should also determine other relations of tenants and BI and control measures: terms of rent of premises, services offered to tenant and their price, terms of payment, method for solution of conflicts, etc.

Company may abandon BI according to conditions set in rent contract. Possible principles of moving from BI:
- company breaks inner rules of BI;
- company breaks rent contract;
- company does not start practical activities during foreseen period;
- company needs bigger premises than BI can rent;
- company is engaged in activities that harm other tenants or environment;
- company is engaged in illegal activities.

3.4.4. Groups of BI tenants

According to “General Scheme for Establishment and Development of Business Incubators” ratified by Protocol No.10 on 26/06/1998 in session of Business Development Council at Ministry of Economy of the Republic of Lithuania, tenants of BI can become companies/ persons that have a patent and SMEs.

BI business plan must state which groups of companies may get support of the incubator. BI tenants can be divided into groups as follows:
- newly established business enterprises;
- companies that have already worked for some time and want to develop their activities, apply new technologies or develop spectrum of their activities fields – they can increase synergy effect and guarantee main income from premises rent for BI;
• institutions – services providers (sub-divisions of banks, post, printing-houses, insurance, audit, advertising, consulting companies, etc.).

Start-ups should form the major part of tenants. Ratio of tenants groups is decided regarding existing financial resources, foreseen subsidies and income that should come from tenants.

It is recommended to consider possibility for successful tenants to stay in BI for a longer period aiming to inspire young SMEs.

3.5. Plan of Business Incubator Activities

3.5.1. Plan of BI services

3.5.1.1. Training services

Consultations and training services provided by BI team and external experts or Advisory board are very important to BI tenants. The main fields of training and consultations:

• business management issues (peculiarities of SMEs management, business risks and etiquette, the newest office-work requirements, project management, personnel management, financial responsibility),
• marketing and market research (forming effective promotion policy, collection and use of information, marketing policy in manufacture enterprises, international marketing),
• finance (privileges to SMEs, shares of the company, conditions to get credits and credits management, presentation of accounting to foreign auditors),
• legal advice (labour agreements, labour law, author agreements),
• insurance services (insurance of property, leasing),
• taxes issues,
• international cooperation (contracts with foreign partners, export of software, ways to find foreign partners, establishment of joint ventures),
• consultations innovation and technologies (patents, licences),
• technical consulting services.

Premises are essential for starting company; other – consulting – services are offered regarding demand and specifics of potential in business incubator. Of course, finance is equally important to starting entrepreneurs as business planning. But there are only few business incubators in the world that could offer financing from their own resources. In Lithuania state financial support
can be assigned to establishment and development of business incubators (and also for training there.

Training seminars can ease the decision making process, help to answer the question if and how a company should be established, analyse and evaluate business plan under request of businessmen, help in further development of the company.

SMEs often cannot afford to hire high skilled but narrow specialised consultants. Therefore risky decisions are often made. Even if one such decision does not cause threat for the business, repeating unprofessional decisions lead the company to the limit of losing competitiveness.

Experience of many businessmen state: it is a problem to establish a company, but real problems begin when a businessman has started to work. Therefore consultations provided in business incubator should also accompany the process of tenant companies development. Decision about extent and depth of consultations and about their source (internal/external) can only be made by the management of incubator regarding available resources and needs of tenants.

3.5.1.2. Technical and other services of BI

In addition to training services business incubator can provide premises, rent property, manage accounting, look for business information and present it, provide opportunities for professional perfection, provide advertising, translation, secretary services. Business plan should involve detailed description of foreseen services, foreseen demand for those services and the way they will be paid for. We will comment the main services.

3.5.1.2.1. Rent of premises

Because of the lack of financial resources, purchase or hire of services is usually main limiting factor in the beginning of business. Business incubator gives premises for a temporary lease at affordable price. BI can have different offers for rent of premises:

- complex of various manufacture premises located in different places of the town;
- general building for offices and small manufacture;
- combined method, when manufacture premises are located in industrial districts and office – in the town centre.
The second rent possibility is most popular. Advantages of this model:

- smaller exploitation expense,
- rendering of services from one to another among incubator tenants,
- joint development products and projects.

However this model has imperfections: lower individuality of enterprise; business obstacles because of too close neighbourhood of companies.

Combined method of rent is especially attractive when manufacture and office premises are nearby.

Incubator usually provides offices and small premises for laboratories and manufacture departments of small companies. The main advantage of settling in incubator is possibility to render premises at lower than market price, i.e. with subsidies of local or international programs that foresee support for start-ups.

Usually there are several kinds of activities unwelcome in BI:

- intensive use of premises for mass production,
- manufacture using machines that are heavy and loud and/ or harming environment in other ways,
- manufacture requiring constant installation of transportation and supplies technique like railway, cranes, conveyers,
- wholesale and retail storehouses for raw materials,
- activities requiring heavy commercial transport, e.g. lorry transport,
- laboratories requiring expensive waste recycling or cleaning devices for their waste (e.g. toxic gas).

3.5.1.2.2. Technical services/ infrastructure

In addition to services necessary for direct activities of the tenants, general premises for infrastructure or rendering of other services are necessary. BI can have various premises:

- offices for BI management team,
- premises for conferences and meetings,
- reception,
- office for secretariat,
- sanitary/ hygiene premises,
- room for food preparation,
- technical premises for copying, storage, etc.
In addition, BI often has a telephone station, fax and copying machine, and computers, served by BI specialists and used by tenants regarding individual needs. Very important for the future is providing of Internet infrastructure.

One of the main advantages of settling in business incubator is decrease of costs in the beginning of activities. If rendering of services is well organised, BI can offer them without risking its own money. Two examples:

◊ businessman (tenant) does not have to invest into newest office techniques (powerful copying and fax machines, digital telephone station, etc.). Tenants pay only for using the techniques – thanks to tenants investments of BI become economically purposive, on the other hand, businessman has lower costs of starting business;

◊ starting entrepreneur does not have to hire a permanent secretary or financial manager. General secretariat can solve this problem (i.e. answering phone calls, preparation of business letters, translation to foreign language).

**General services do not necessarily have to be offered by BI.** It is usual in foreign business incubators to use services of independent companies often working under a contract with BI.

Business incubator can also offer other services (free of charge or payment is included into payment for rent of premises):

- heating;
- maintenance of premises;
- regular take away of rubbish;
- protection of general incubator area and environment supervision;
- parking;
- mailbox;
- information resources (specialised library, data bases, INTERNET);
- professional services (lawyers, notaries, audit, advertising, translators);
- international relations (partnership with international organisations, associations, funds, partnership relations with business enterprises);
- regular consultations with BI manager;
- courses and seminars.

Dues for services should be counted at the end of every month; according to order set in Lithuania payments should be made till 15th of the next month.
3.5.2. Characteristics of technical basis

To establish a business incubator a new building can be built or already existing premises reconstructed and/or adapted. Decision is made taking into account the needs determined through market research. Premises are designed according to foreseen activities of BI. Costs of building or reconstruction are estimated counting financial resources necessary for establishment of incubator. Depending on nature of these investments (credit, subvention) they are counted or not when investment payback is estimated.

Structure of buildings and premises are broader described in special chapter of the business plan where depending on foreseen terms of rent and services necessary BI basis establishment works are described in detail. Description involves purpose of premises, their equipment with office techniques, furniture, telecommunication techniques, installation of signalling and protection, sanitary/hygiene and household materials.

3.5.3. Organisational management structure

Organisational structure of business incubator can vary. The model usually applied in Lithuania is presented in Figure 3.3.

Management bodies of business incubator are General BI general meeting, Board and Administration. GENERAL BI founders’ meeting is supreme body of BI management. All shareholders delegate to the meeting their representatives that have one vote when taking decisions disregarding the size of contribution to the capital of BI. If BI has only one shareholder, his written decisions are equal to decisions of the General meeting. The General meeting has the right to:

1. Change and supplement the statutes;
2. Choose (appoint) members of the council and reviser and recall them, confirm regulations of council work;
3. Choose the head of administration and fix his remuneration;
4. Foresee compulsory tasks of activities;
5. Decide on rates of services and works if they are not decided by the Government;
6. Fix salaries for members of the council and reviser;
7. Confirm annual financial report;
8. Establish branches of business incubator;
9. Reorganise and liquidate business incubator;
10. Determine posts of business incubator administration staff and their salaries.
General meeting is convened once a year or more often, in 3 months from the end of economic year, on initiative of business incubator Board, shareholders or Managing Director.

The Board of business incubator is a joint body that elects from the members a chairman for 1 year. The Board has the right to:

1. Determine the order of tenants selection and moving from business incubator;
2. Analyse results of BI activities, estimates of income/ expenditure, data of inventory after inspection, to approve the regulations of administration work;
3. Present BI activities reports to General meeting;
4. Call and organise general meetings of BI;
5. Execute other functions set by General meeting if it does not contradict the law and incubator statute.

Fig. 3.3. BI organisational structure
Rights and responsibilities of Board members, the order of their appointment and recall and payment for their work are decided by regulations of work of the Board that is approved by BI General meeting. Decisions of the Board are made during meetings.

Activities of business incubator are organised and executed by administration regarding laws of the Republic of Lithuania, other legal deeds, statute of BI, staff posts rules, decisions of the council, regulations of work of the administration approved by BI Board. Administration is led by director. He organises and executes BI activities, manages its affairs except of those that belong to the competence of business incubator general meeting and council. Functions of business incubator director are:

1. To lead the work of business incubator, to prepare BI business plans, to present them for approval to BI general meeting after discussions in the council;
2. To Carry out decisions made by BI general meeting according to his authorisations;
3. To open and close bank accounts, to ensure effective use and protection of BI property;
4. To employ and dismiss staff of BI;
5. To approve internal work rules of BI, rules of BI personnel, other internal documents;
6. To sign bank and financial papers on behalf of business incubator;
7. To represent BI in court, state and governmental institutions and in relations with other private and legal entities;
8. To establish branches of BI under decision of BI General meeting;
9. To have other rights and responsibilities that do not contradict the law of the Republic of Lithuania and other legal deeds.

Establishment of business incubator is organised by Managing Director hired by the founders, preferably with managerial experience.

Depending on the number of served companies BI should have 1-3 project managers, a secretary and a financial manager. Managers keep contacts with tenants and external partners, work tasks delegated by BI director. Usually ten tenant companies need one manager. Secretary provides services to BI tenants. To provide additional services and works special employees – consultants may be hired.
3.6. Financial calculations

In this chapter all investment needs of BI are described:

1. Capital investment necessary for BI establishment and for further funds raising for activities development.
2. Operational expenses ensuring normal functioning of BI.

Capital investment:

a) Preparation of BI investment business plan;
b) Registration of BI as a legal entity;
c) Formation of BI authorised capital;
d) Obtaining licence for scientific-consulting activities;
e) Preparation or rent of services;
f) Furniture, equipment;
g) Lease of garage (if necessary);
h) Premises protection;
i) Installation of BI telephones;
j) Other technical infrastructure (such as Internet)
k) Unforeseen expenses (incidents).

In order to determine the level of expenditure it is necessary to use existing standards or to set up standards for use of available resources. For instance, the size of authorised capital necessary for establishment of business incubator is decided according to scheme of organisational works. Counting operational expenses, it shouldn’t be deviated from the project prepared for establishment of new working places in SMEs sector.

Further foreseen expenditure in business incubator should be described. In this stage the calculation is related to receptivity of BI (the maximum number of tenants) and to “quality” of small companies that leave incubator every year.

Project financing from governmental programmes and possibilities of payback must be analysed separately.

Cash-flow plan must be executed. It is desirable that local audit company would check presented financial documents. Furthermore, it is necessary to describe BI needs for financial resources, to prepare schemes of foreseen financial resources and project financing, to look over the guarantee system. Regarding the most important aspects, special attention should be paid to estimation of constant means and economic environment (inflation, taxes, etc.). It is very important to present to potential investors the large analytical
work carried out by project authors. Even difficult-to-predict factors must be mentioned, as well as alternative ways to solve the problems.

Thus financial calculations are to be carried out in order to estimate need for resources for BI establishment and financing of activities in chosen period (e.g. first 3 years of BI activities are subsidised).

In calculations the least price for rent should be used as to satisfy clients needs for necessary premises in first critical years of activities development.

It should be noted that office premises in BI are provided together with complex of services that include heating, electricity, protection of general BI area, etc. The price for premises rent can be stated separately or together with these services.

In Lithuania the rent is differentiated according to the period of activities:

- **1\(^{\text{st}}\) year of the company in BI**: 25 % of basic (market) price;
- **2\(^{\text{nd}}\) year**: 50 % of basic price;
- **3\(^{\text{rd}}\) year**: 75 % of basic price.

Basic price can involve costs of heating, electricity, communications services, land taxes, salaries, short-term assets, current repairs, advertising, etc., counted for 1 m\(^2\).

Constant tenants (companies satisfying the conditions to move from BI, successfully developing their activities and allowed staying at BI in order to attract other tenants) pay 100 % of basic rent.

According to the data of market research, prognosis of tenants’ number, structure and filling up of premises is to be made. This data as well as data from market research about services and training needs, future BI income is calculated.

BI expenditure consists of expenditure for general building maintenance, energy, salaries for technical and managerial staff, social insurance, marketing, communications and other expenses according to specifics of BI. According to this information pessimistic, optimistic and basic scenarios of activities are designed. Cash flows, investment payback period, influence of risks factors are calculated.
3.7. Risks estimation

After analysis of situation, market research and estimation of possible economic and social changes we can suppose the following factors that might hamper the development of business:

1. Growth of maintenance costs because of inflation.
2. Decreased interest in BI:
   2.1. because of the influence of established new business incubators,
   2.2. because of changes in governmental politics.
3. Inner problems of BI:
   3.1. because of legal conflicts evicting tenant companies;
   3.2. because of necessity to change BI management staff.
4. Problems that could arise when implementing the project because of lack of financial resources.
5. Natural disasters.

In order to overcome possible difficulties and obstacles, following solutions are possible:

1. If decreased interest in BI is noticed, more active advertising should be started immediately, especially emphasising advantages of this BI comparing to possible analogical business support structures: possibility to use professional consultations of university and other specialists, to participate in organised events – seminars, conferences, etc. this additional advertising could be financed from the means for unforeseen expenses.
2. Internal BI problems because of legal conflicts moving from BI tenant companies should be solved hiring skilled lawyers and selecting accurately potential candidates to become BI tenants.
3. If necessity to change BI management staff occurs, it is purposeful to announce it openly, to disseminate information in mass media. Candidates should be selected by special professional commission. It is necessary to look for possibilities for BI management personnel to improve professional skills in foreign business incubators or similar business support structures.
4. In case of unforeseen lack of financial resources during implementation of the project, it can be recommended to address various Lithuanian and foreign funds that could support such organisations as BI.
5. Actively advice BI tenants to insure their property.
4. THE ROLE OF BUSINESS INCUBATORS IN TECHNOLOGY TRANSFER

4.1. Technology incubators

One of the major elements affecting the level of the economy’s innovativeness is the transfer of modern technologies. This is connected with many other issues, such as commercialisation of the results of R&D work or a dissemination of the most recent developments to the possibly largest group of recipients. For many years in the developed economies actions have been taken to create an environment in favour of development of knowledge and to introduce mechanisms of transferring the results of this development to economic practice. Among more difficult barriers to overcome is the one of finding a common information exchange forum for scientists and practitioners. This problem is particularly complex in case of small and medium enterprises [7,23,29,36].

The ability of firms to innovate and grow is widely recognised as the fundamental driving force behind rising incomes and living standards. Small innovative firms, including new technology-based firms, are a major part of this process as they speed structural change and create new jobs to replace those destroyed by the decline of older industries or the downsizing of large firms. Public initiatives to foster the emergence of new and innovative firms have taken on an increased importance in many countries in recent years. In this context, business incubators have emerged as important tools of regional economic strategies and, more recently, technology and innovation policy.

In the case of technology incubators, support may be justified on the basis that market or systemic failures impede the commercialisation and diffusion of technology by new firms. The greater uncertainty associated with technology increases the risks inherent to new business start-ups; incubator services help reduce this uncertainty, thereby increasing the chances for survival. On balance, evidence on survival rates of technology-based firms suggest such firms are in fact a lower risk, but the problem may be one of perception among investors and reflect different levels of experience in assessing risky projects (European Commission, 1996). Technology incubators are also supported as a means of increasing returns from public R&D spending by promoting its commercialisation and diffusion.

Technology Incubators. What are they? These are incubators whose primary goal is the development of technology-based firms. These are mainly located at or near universities and science and technology parks. They are
characterised by institutionalised links to knowledge sources including universities, technology-transfer agencies, national laboratories and skilled R&D personnel. Specific industrial clusters and technologies may also be targeted such as biotechnology, software or information and communications technologies. A main aim is to promote technology transfer and diffusion while encouraging entrepreneurship among researchers and academics. In some countries, technology incubators not only focus on new firms but also help existing technology-based small firms, including subsidiaries of larger established firms.

4.2. Emergence of technology incubators

Since the 1980s, technology incubators have become an important focus of technology and innovation policies in North America, Europe and, more recently, Japan, largely due to the growing importance of small and medium-sized enterprises (SMEs). At the aggregate level, small technology-based firms are significant creators of employment, facilitate structural change and stimulate economic growth. About 93 per cent of high-tech firms in the USA have less than 500 employees and 70 per cent have less than 20 employees. While the reasons for different rates of performance may vary (e.g. access to capital, university links, competence centres), it is widely acknowledged that the creation and growth of technology-based firms can be inhibited by lack of finance, management skills, technology and access to markets.

Technology incubators are difficult to categorise and the concept of technology incubation differs widely from one country to another; incubators may be distinct entities within universities or science parks or be a part of innovation centres. In some cases, technology incubators are owned and managed by the host institution but with some autonomy or they may be owned by several stakeholders. In the USA approximately 30 per cent of business incubators are technology-oriented. In Europe the growth of technology incubators has been very much tied to the development of science and technology parks wherein incubators are part of an integrated process for helping tenant firms commercialise knowledge emerging from the park. In Germany, 73 per cent of all technology and business incubation centres are located either near universities or other research establishments. Newly-industrialised and transition countries such as Mexico, Hungary, Poland and Russia have also developed business incubator programs, many of which focus on new technology-based firms.

Technology incubators require the active involvement of local stakeholders from the outset, including representatives from economic development
agencies, entrepreneurs, investors, and universities. Advisory boards set the policy and objectives of the incubator, select and hire the incubator manager and oversee tenant interaction. At the level of tenant firms, most of them are small operations and do not have a “board of directors”. Advisory boards fill this gap by acting as a monitoring presence and a source of guidance in business planning and management. Advisory boards are an important conduit for developing networks that can help tenant firms access information, technology and financing. In many instances, individual venture capitalists or business angels sit on advisory boards and assist companies in raising equity finance.

4.3. Incubators in science and technology parks

While the large majority of technology incubators are less than ten years old, the “incubation” of technology-based firms finds its origins in the practice of linking research universities to private industry and capital. Following the development of the Stanford Research Park in 1951 and the Research Triangle Park in North Carolina in 1959, public-private partnerships for creating a research base for the development of new firms became central to state and local economic development strategies throughout the USA. In the 1960s, France launched the Sofia-Antinopolis Technology Park followed by similar initiatives in Toulouse and Grenoble. The “technopolis” concept in France extends beyond the cross-fertilisation between universities, research and industry to include urban development. In general, European science and technology parks, with the exception of a few in France, tend to be smaller than those in the USA which are quite large and involve several hundred firms and thousands of employees. In the UK, public support for incubating technology-based firms dates to the establishment of the Cambridge Science Park in 1970 which was followed by a rapid growth in the number of science parks during early 1980s*. [36].

Following the evolution of science and technology parks from bases of industrial production towards technological development, the incorporation of incubators represents the entrepreneurial development phase – as distinct from the institutional building phase of the 1970s – of their development. Whereas the traditional role of universities in science parks was to attract major research laboratories (either from government or industry), their role has expanded to include support for entrepreneurs and small knowledge-based firms. One factor that contributed to the creation of technology incubators in universities and science parks, at least in the United States, has been changes in intellectual property-protection legislation that has allowed universities to keep the rights

* Business incubators: a source of jobs and growth
of innovations resulting from federally-supported research. Also, requirements that universities commercialise research results as a means of securing additional federal funding for research may have accelerated this trend. Similarly, in the United Kingdom, financial constraints on universities in the early 1980s and relatively flexible rules with regard to the ability of faculty to participate in commercial ventures, were factors in the development of university-based science parks (European Commission, 1995).

However, the targets of technology incubators differ widely from one country to another. In Belgium and in Spain, the focus of science parks and incubators, at least initially, was on attracting branches of multinational firms. In Germany, a survey of technology and innovation centres found that 99 per cent targeted innovative start-ups and entrepreneurs (ADT, 1997). In 1985, France’s Sofia-Antipolis technology park opened its first incubator in 1985, the Centre d’Accueil des Technologies (CAT), specifically targeting entrepreneurs based on the university-incubator model in the United States. In Japan, the development of incubators in science and technology parks in the late 1980s did not target entrepreneurs per se but was more a tool to attract existing small firms or subsidiaries of larger technology-based firms. [5,9,10,29,36,43].

4.3.1. Physical infrastructure

In addition to shared office space and administrative services, technology incubators require access to specific facilities such as laboratories and testing facilities. At the same time, while some incubators have a large on-site laboratory and related equipment, they tend to be technology-specific and do not always meet the needs of other firms in the incubator. For many smaller technology incubators, access to laboratories and testing facilities is provided through partnerships/referrals with universities, technology transfer agencies, or the leasing of equipment. For incubators located in science and technology parks, the infrastructure is generally provided by the parks or it may be provided through links with host universities and outside agents (e.g. national laboratories, research centres). In Canada, the Laval Science and Technology Park recently launched an incubator known as the Quebec Biotechnology Innovation Centre. Incubator firms have access to the Park’s facilities such as laboratories, pilot production plants, and access to research branches of major pharmaceutical companies located in the Park.
4.3.2. Management support

Owners of new technology-based firms require the business know-how to develop and commercialise their innovations. Business support from technology incubators begins with the evaluation and selection of incubator tenants based on their business plans. Many incubators have adopted review methods based on the “due diligence” concept to screen potential tenants and increase the number of quality firms. Incubators may also provide or broker technology assessment and market studies whereby the potential to commercialise and market a technology is reviewed and analysed by the entrepreneur with the help of experts. Marketing services are also very important. In some cases, marketing assistance may be provided by other tenant firms, third parties, or even by university students who conduct market research for tenant firms. Incubators also provide training services as a way to strengthen the longer-term ability of tenant firms to survive. For example, some incubators may provide entrepreneurial training, business planning workshops and seminars. Technology incubators can also act as a bridging institution between the vast panoply of business and export support services provided by various government agencies, chambers of commerce, small business divisions of accounting firms, etc. Like advisory boards, well-trained and active managers are important to the success of incubators and their tenant firms. Incubator managers play a critical role in selecting and screening of tenant firms and assisting them in their development.

4.3.3. Technical support

The main objective of technology incubators is accelerating the transfer and diffusion of technological know-how. Experience from various incubators suggests that having an appropriate technology transfer environment is necessary for incubator firms to be able to acquire and use technology in their own development. Co-operation between technology-transfer programmes and incubator firms as well access to external technical facilities, libraries, and databases is also important. Another essential practice among university-related incubators is the use of faculty and students on a “loan” or consulting basis. Incubators may also broker relations with outside expertise through a contract or a grant.

4.3.4. Access to finance

Equity financing is essential for start-up businesses, especially technology-based firms. While venture capital funds are a potential source, they generally
are not an option for firms with little experience and without a proven market record. Venture companies generally invest in later-stage investments and established firms (OECD, 1997). Trying to fill this gap is a major task of technology incubators, as well as business angels. On the one hand, incubators can help firms prepare their business plan before soliciting investors for early-stage financing. As well, incubators may organise venture forums and act as gate-keepers for investors. Incubators may also develop new venture funds drawing on private sources or in partnership with public support. For university-related technology incubators, royalty financing based on future returns from innovations is one way of helping technology-based start-ups obtain equity capital. Incubators may also take equity in tenant firms which generates future revenue to incubators as these firms grow. In Israel, technology incubators are allowed to own up to 20 per cent of their tenant firms. Among European Business Innovation Centres (BICs), some 23 per cent invest directly in projects. This not only helps the client firms expand at a critical stage but it can garner additional support and attention from outside investors, including business angels.

4.3.5. Legal assistance

Tenants of technology incubators often require legal assistance for incorporation, drafting licensing agreements, and ensuring intellectual property protection (e.g. patents). While legal assistance may be too expensive for all incubators to provide directly, the incubator manager can help by maintaining a legal referral service. Support may also come from the local community, university law schools or law firms that provide low-cost or pro-bono legal services. University-related incubators can tap into legal interns as a way to help tenant firms while providing law students with training and experience. Intellectual property rights (IPR) protection is critical for helping tenant firms develop the market for their technology as well as accessing seed and early-stage finance. In university-based incubators, the university generally owns the rights to an innovation that is then licensed to companies. In technology parks that deal with more than one university, incubators may have to deal with different IPR regimes. Technology incubators generally broker legal assistance for IPR rather than provide it directly.

4.3.6. Networking

Networking is an important element of successful technology incubators. Incubators may organise venture forums/fairs to bring together potential investors and tenant firm owners. In Canada, the Ottawa-Carlton Research Institute (OCRI) holds monthly meetings to bring together experienced
business executives. Increasingly, technology incubators are also establishing links with incubators in other regions or even in other countries as a way to broaden their sources of information but also as a way to build markets for their tenant firms and diversify their client base. Maintaining links to graduate firms is also important. In Australia, some 72 per cent of graduate firms remain in the local area or region, a figure slightly below that of graduate firms in the United States (80 per cent). While the large majority of incubators are sponsored by regional and local actors, central governments may play a role for example by linking them to other business services. A recent trend among both general business and technology incubators is the provision of services to existing firms outside the incubator facilities, known as affiliate clients and to large or established firms known as “anchor” firms (these may include graduates of incubators). The servicing of affiliates not only helps increase incubator revenue but serves as a marketing tool and a way for tenant firms to co-operate with outside firms.

While most technology incubators are facilities-based from the outset, some are being created without facilities as mere providers of business and technology services to existing small firms. One reason is that this allows time for incubators to build or acquire infrastructure and facilities that are better suited to client needs. Another reason relates to the costs of large facilities-based incubators. In regions with low critical mass, occupancy rates may be insufficient for the incubator to break-even, despite the incentives of below-market rental fees and services. Depending on the sponsors of the incubator and the existing technological infrastructure, an “incubator without walls” may be a cost-effective option for helping new technology-based firms grow. In Australia, such “virtual incubators” are being used to help link isolated businesses in the northwestern territories via computer and telecommunications networks. In Russia, three “virtual” incubators have been established in Moscow, Tomsk and Novgorod.

4.4. Regional innovation policy development

The experience of developed economies indicates that there are vast possibilities of small and medium firms, especially those being established by people connected with scientific environment. It turns out that a majority of new products of decisive importance comes from laboratories other than those owned by large companies. However, to increase the interest in innovations and to provide for a diffusion of technological achievements requires the development of a special infrastructure, a specialisation in undertaking definite tasks and co-operation of different partners within the framework of regional innovative systems being established. A regional innovative system is to be
understood in terms of a set of interconnected institutions, located within a
given territory, involved into innovativeness processes and technological
progress or promoting them. One of the features of this system is co-operation
between public institutions and the private sector. To identify such a system in
greater detail, a pragmatic approach may be applied consisting in an analysis
of institutions existing within the framework of the present administrative
division of the state. [38].

In the political system transformation process the links between science and
research-development institutions and the economic sector have been broken
or seriously damaged. In a command economy the links of vertical character
prevailed i.e. they were organised and supervised by the central
(governmental) bodies. Transformation of the economy towards an effective,
market-oriented one requires the establishment of horizontal links between
R&D institutions and producers, to provide for a steady inflow of modern, pro-
ecological technologies, a diffusion of innovations and commercialisation of
the outcome of R&D work.

The Western European countries experience shows that there is a low
effectiveness of increasing dynamism of technology transfer and commercia-
lisation if there exist no regional (local) institutional solutions, which provide a
bridge between science and the economy, or if no stimulation is provided to
innovative behaviour or new forms of innovativeness financing.

A regional innovation system is being developed in three directions:

- Organisation of institutional infrastructure
- Establishing a system of financing and risk management in innovativeness
  and technology transfer
- Stimulating entrepreneurship in advanced technologies.

Following the theoretical breakthrough of endogenization of innovation to the
productive process, a variety of tools have been developed by enterprises and
the public administration in order to intensify R&D and assure the quickest
possible diffusion of innovative results. Empirical studies suggest that new
product innovations share common traits, and they occur in disproportionate
numbers in companies and units located in, or near, affluent markets with
strong science institutions and entrepreneurial – oriented financial institutions.
Based on the empirical evidence of various countries the transfer of technology
from its source to the production units becomes thus one of the tools of
industrial policy. Many ways and forms are identified, ranging from transfer of
knowledge incorporated in equipment or the human element, to intangibles
like patent licensing and transfer of know-how. In economically active regions this refers to university-to-industry advanced-technology transfer and aims at the commercialisation of state of the art technology, incorporated in products, which are in their early life cycles. Despite the fact that technology policy tries to increase this tendency, its momentum comes from market mechanisms.

The role of the Science and Technology Park is to create an innovative environment and also to connect the scientific and technical with the regional development. The business incubators’ main role is to produce successful graduates – businesses that are financially viable and free-standing when they leave the incubator, usually in two to five years. Like venture capitalists, incubators impose selection criteria upon prospective clients. Their goal is to create scale or intention economies, for the exploitation of new knowledge in certain geographical areas while developing incubators, knowledge intensive companies and Science and Technology Parks.

4.5. Organisation of technology transfer

Technology transfer is coordinated by various centres. One of them is located in the USA and is called National Technology Transfer Centre (NTTC). The National Technology Transfer Center (NTTC) was established in 1989 by congress to provide American companies and individuals with access to federal R&D to better enable them to compete in the international marketplace. Staffed with technology transfer specialists, technical area experts and information management professionals, the Center provides technology transfer support via several different areas: access to $70 billion worth of research and development, 100,000 research professionals at over 700 federal laboratories and universities; technology assessment services; product testing and prototyping and professional training and development. These services build upon each other to create NTTC’s full service commercialisation center. In 1990 in this centre there was information compiled on more than 20000 various technologies. The NTTC fuses technology and the marketplace.

Another big technology transfer centre – PAX – is situated close to London. The professionals in technology transfer, Pax is a powerful independent private sector international technology transfer organisation based in Berkhamsted, close to London, England, with a comprehensive network of technology transfer Associates and Facilitators around the world. Services include: Finding high value technology-led business opportunities for industrial companies; Technology marketing; Technology management and licensing consulting; Expert Witness work in patent and licensing litigation. Centre has a strong core group in the UK, with an international network of over 100
Associates and over 1000 Facilitators worldwide. They provide cost effective, results oriented, technology transfer service in the international market.

USA National Engineers Academy develops technology transfer between USA and Germany defining the technology transfer process as “technology improvement and cooperation strengthening among technology related organisations transferring technology from more competent partner to less competent one”. This process takes place between USA Abrams Technology Transfer National Academy and German Cognition and Perspectives National Academy.

Technology transfer is the transfer of innovations originating in one country, research organisation or company to the other country, research organisation or company. Innovations can include new products, processes, work methods or use of specialised experience. In all cases the knowledge goes from the novator to one or several receivers who in this way avoid the need of conducting independent research or checking and evaluation of research results. Technology is the main factor of economic and social development of nations so technology transfer is supported by governments of many countries. EC wants to foster technology transfer as well for the reason so that to avoid technology cartelisation in certain EU regions. Technology transfer often inflicts the emergence of new management ideas and methods although some technologies can be simplified in order to make them understandable to local people. [4,5,34,36,38].

Technologies are transferred point-to-point meaning that a concrete donor transfers technology to a separate receiver, for example one company to the other or one research institute to the other etc. Diffusion on the contrary is based on the situation when there are many receivers having easy access to the technology. Technology transfer agreements conducted point-to-point require two-way partner negotiations and include issues on the protection of confidentiality of knowledge being transferred. The term “hard technology” sometimes is used to describe patents, technical equipment, projects, technical specifications etc. “Soft technology” on the contrary is a management of technical processes, organisation and administration. The soft technology generally is not related to the author rights and is not patentable. It is important to understand that modern industrial technologies are multidimensional and include much more than just patents, projects, use of computers, machines etc. The critical aspects of modern technologies are linked with management and support services, product improvement, research or expertise necessary for production methods.
There is a simplified model of technology transfer indicated in picture 4.1 [34]. Technology commercialisation and sales is much more complicated process that requires higher intelectual preparation than just simple sale of goods. Scientists who create technologies not necessarily need to be or are good managers so here the intermediate link between science and industry is needed. The intermediaries helping to commercialise technologies often are called double brokers as far as they have well know not only new technologies and conducted research but also industry demands. Often intermediaries’ role is conducted by business incubators, technology/innovation centres or private institutions. Double broker must well know the specifics of conducted research, technologies being created, market situation, companies needs etc. so that to be able effectively help in technology commercialisation.

Technology transfer is reflected in picture 4.2 with the help of physics laws. It is known that a certain energetic barrier $E$ has to be overcome in order for the atom to move from one level to the other in hard body. The possibility of such movement depends on the body temperature $T$ and is proportionate to $e^{-E/T}$. Thus this overall high $N_1$ and low $N_2$ concentration atoms stream according to the first law of Fick is in direct dependence: $J=DN_1-N_2$ where $D=D_0e^{-E/T}$. The atom stream will be the bigger, the bigger is the concentration change $(N_1-N_2)$, the higher temperature $T$ and the lower energetic barrier $E$.

In the case of technology transfer lets imagine that innovations and science novelties take place of atoms here. Before scientific novelties get to the market they have to overcome certain barrier $E$, which consists of objective and subjective factors existing in technology transfer environment. The factor of temperature in technology transfer is replaced by the level of industry investment. In this case $N_1$ stands for the stream of knowledge and novelties and $N_2$ for the number of applied novelties. The coefficient $D_0$ is on the contrary proportionate to the time of overcome of barrier.
Fig. 4.2. Technology transfer scheme
Same as trying to increase the stream of technologies it is equally important to increase money allocations for the technologies creation which would in turn increase $N_1$ and a stream $J$. It is also very important to increase the diffusion coefficient $D$ which in this case stands for the investment climate. Various technology support centres acting as mentioned double brokers play a very important role in decreasing barrier $E$. Although these centres alone would not be able to increase the innovations stream $N_1$ if parallely there would not be R&D policy shaped, institutional infrastructure created, investment climate improved, tax concessions applied etc.

4.6. The European framework for technology transfer, innovation & regional development

One of the new elements in the fifth periodic report on the social and economic situation of the regions in the European Community (Competitiveness and Cohesion: Trends in the Regions) is the view that many of the causes of regional disparities in economic development may be traced to disparities in productivity and competitiveness. In turn, regional productivity and competitiveness are considered as dependent variables for the capacity of regional firms to innovate the production process, to introduce new products in the early stages of their cycle, to lower costs through innovation in logistics, and to increase market adaptability. Innovation and intellectual property are among the strongest drivers of competitive achievement. There are clear statistical links between R&D, management capability, intellectual property, innovation, and rising market share, growing added value and jobs creation. [33].

While innovation has become a key issue for the wealth and prosperity of the regions, quantitative data and a number of research reports have established that the geographical distribution of technological and innovative effort in the European Union is extremely unequal. Many of the factors sustaining innovation, Research and Technological development in particular, are unevenly distributed between E. U. regions. There are regional disparities in factors of innovation, indicating a “technology gap”. The “technology gap” is very important both in quantitative terms and in terms of effects on the convergence process, since it reproduces the conditions of uneven development. The innovation capacity of less developed regions cross dynamically the cohesion process, as regional disparities are nurtured by disparities in technology and innovation. This correlation has introduced a

clear interest for the diffusion of technology and innovation, both in the framework of R&D programmes, and in the regional and cohesion policy of the European Commission.

Innovation and technology diffusion in less developed regions were supported by various actions of the R&D framework Programmes targeting on research and technology dissemination (SPRINT, Value, Innovation Programme, etc.), the Community Support Frameworks, and the Community Initiatives designed to encourage R&D in peripheral regions. However, the implementation of innovation and technology support programmes in the less developed regions has been limited.

For the period 1994-99, the European Commission has decided to increase the amount of the structural funds and to provide technical assistance for developing regional research and technological development strategies. In this perspective, a number of innovative regional actions has been designed or extended, such as the Science Parks Consultancy Scheme, the Regional Innovation and Technology Transfer Infrastructures and Strategies, the Regional Technology Plans and the Regional Innovation Strategies.

The implementation of these strategies is a positive step beyond comparative advantage strategies, focusing on the exploitation of lower labor costs, which were the usual policies in the less developed regions. But they encounter significant obstacles, both on the level of applied research and technology supply as well as on the level of the demand for R&D and the understanding of the capability of R&D to increase business competitiveness.

Regional Technology Plans are part of this concern. They use research and technology development policy in order to promote economic development, to increase productivity and competitiveness, and to reduce inequalities among the European regions.

Under this perspective, the objectives of the Research and Technology Plans are twofold. On the one hand, to encourage regions to develop regional innovation strategies and to improve the capacity of regional actors to make policies, which take into account the real, needs of the productive sector and the strengths and capabilities of the regional R&D community. On the other hand, to provide a framework for both the regions and the European Community for optimising policy decisions regarding future investments in R&D initiatives at a regional level. In this sense, elaborating an RTP may accelerate the process to receive financing for R&D projects through the
Structural Funds and better adapt these projects to the regional technology and innovation needs.

As defined in the Regional Technology Plan Guide Book each plan ought to reflect specific orientations:

- A bottom-up approach, giving emphasis to the regional technology demand and SMEs;
- A regional approach focusing on the development of a territorial entity on the basis of a consensus between the government, the private sector, the universities and the research centers;
- A strategic approach, combining the analysis of the regional technological development and the definition of long term priorities and short term actions;
- An integrated approach, linking the efforts of the public and private sectors towards the common goal of increasing regional productivity and competitiveness;
- An international approach, considering the global market trends and the enhancing international technology and economic co-operation.

Regional infrastructure, technology and innovation services, developed in the framework of a regional strategy, may improve the innovation capacity of regional firms and increase their competitiveness on the regional, national and international markets.

However the management of regional competitiveness is rather different than the usual economic meaning of the word. Regional competitiveness is understood as the capacity of the region to attract and maintain firms with stable or increasing standards of living for those who participate in it. This capacity is based on the resources available in the region, the established physical infrastructures, and the integration of activities at the local level.

The approach for the development of Regional Innovation Systems (RIS) fostered by the European Commission has been given a political impulse and legitimacy by a number of key policy documents since 1994. Firstly the RIS are an attempt to give a practical content to the so called Delors' White Paper on “Growth, Competitiveness, and Employment”, namely:

“Stimulating the development of ‘clusters’ of competitive activities that draw on the regional diversity of the Community. The proliferation within the Community of ‘clusters’ that combine industrial, technological and geographical advantages may hold one of the keys to job creation. This requires the active involvement of all the actors concerned, something which Lena can be greatly facilitated by structural measures taken at Community and national level. In this area, as in the preceding ones, the main emphasis should be on a horizontal, transsectoral and multidisciplinary approach...” (European Commission, 1992,p.79).

Secondly, RIS translates into practice the proposals made in the 1993 Commission Communication on the “Cohesion and RTD Policy- Synergies between Research and Technological Development Policy and Economic and Social cohesion policy”, namely:

“The Commission is therefore willing to provide technical assistance through the structural funds for developing regional research and the technological development strategies in the context of the preparation of the next round of CSFs in partnership with the Member States...” (European Commission 1993 p.11).

Thirdly, the R. I. S can be regarded as a response to the suggestion to the Commission made by the Regional Policy Committee of the European Parliament about “increasing awareness in SMEs from LFRs about RTD activities (European Parliament, 1995)”. In 1995, the Green Paper on Innovation [16], in its twelfth action line “encourage innovation in enterprises, specially SMEs, and strengthen the regional dimension of innovation “ clearly supported an action at Community level through:

“...developing support for regional innovation strategies and inter-regional technology transfer...” recognising that “The local or regional level is in fact the best level for contacting enterprises and providing them with the necessary support for the external skills they need...It is also the basic level at which there is natural solidarity and where relations are forged...(European Commission 1995,p.57)”

Most recently, in May 1998, the Directorate Generals Research and Regional Policy have published a second joint communication on the theme “Reinforcing Cohesion and Competitiveness through Research, Technological
Development and Innovation”. In the light of experience, including the RIS projects, the RIS projects, this Communication recommends that:

- Public inventions should be directed towards developing integrated frameworks which in turn should have strong links to the market;
- These framework should address the environment in which firms – SMEs in particular- and RTD and innovation player work;
- They should be based on an effective accurate ‘needs analysis’;
- *Consensus, partnership* and commitment of key players are essential”.

Innovation Relay Centers (IRC) were established in 1995 on the initiative of EC. Innovation Relay Centres (there are 68 such centres in EU, Central and Eastern Europe countries, Norway, Switzerland and Israel from year 2000) function as common network for brokerage of technologies, information and consultation. Technical IRC assistance creates preconditions for successful participation of national companies and scientific research centres in European market of technologies, that is helps to expand international partnership and cooperation.

![Fig. 4.3. European IRC network](image-url)
4.7. Promotion of innovations in SMEs

All kinds of innovations that increase income, assure reinvestment possibilities or make production process faster and more effective are a must for the successful and continuous economy development. Depending on the type, origin and possible effect of innovations we can discern these kinds of innovations:

- scientific;
- scientific/technical;
- organisational/managerial;
- legal;
- social;
- complex.

**Scientific innovations** comprise the process of new scientific directions or use of one scientific achievements in some other field. Such fields as biotechnologies, radiophysics, space biology etc. can be an example of scientific innovations.

**Scientific/technical innovations** – complex realisation of scientific/technical novelties through the innovation cycle.

**Organisational/managerial innovations** – new management methods and procedures introduction in organisation; new work organisation forms.

**Social innovations** comprise the totality of measures needed to change interrelations of various social groups, improve work conditions and change economic, politic, ecological, cultural aspects [31].

Most often there are these five stages of innovation process excluded:

- Idea;
- R&D;
- Experimental production;
- Mass production;
- Sales.
When a technology that was developed in an industrial society – a particular social, economic and cultural environment – is put to work in a different environment we get the process called technology transfer. This entails much more than just sending some machinery and starting it up. Indeed, the key to successful technology transfer is adapting the technology to its new environment. This modification to fit in better with the economic, social, physical and cultural environment often requires subtle changes in the recipient society, including the creation of local groups of experts able to initiate technical modifications.

Technical innovations that are required to adapt technology to its new environment are just the tip of the iceberg. In the context of technology transfer, the meaning of “environment” is also much wider than is normally understood. By environment we mean much more than geography and climate. Geography and climate are themselves crucial in any agricultural technology transfers because crops are site and climate specific. But even here, environment includes additional factors such as social attitudes and beliefs, level of economic development, local, regional and national policies, availability of skilled human resources, business environment, social institutions and the many other factors that make up the cultural matrix with which technology must mesh and within which it must thrive.

The key to successful technology transfer has always been the local knack to adapt an imported technology to its local and new environment. The greater the similarity between the environment of a donor and recipient, the greater the potential for successful adaptation and thus successful technology transfer.

There is a link between science and market portrayed in Fig. 4.4. It can be seen that different levels of closeness exist in different stages of research.

The definition of technology transfer as adaptation of technology to a new environment should remind us that there are three different types of technology transfer. In addition to (1) the transfer of technology from one society to another, there is also (2) the transfer of technology within a society, say from aerospace to medicine, or from one application to another, from one function to another. Another type of technology transfer from one environment to another is (3) the transfer from research laboratory to commercial application. What works in the laboratory, or operates on a small scale must be transferred to society.

There are distinct stages in the technology transfer process. Their number is a function of how much detail we are interested in looking at. [39]
4.8. Ten-stage model of technology transfer*

I. **Important artefacts.** Learning how to use artefacts is usually no problems. When economic recourses are plentiful, there is no need to choose carefully or agonise over learning maintenance since these thongs can be left for foreigners to do. Saudi Arabia during the oil boom years is an example that comes to mind. When money is plentiful, there is no further need to work toward technology transfer. Yet countries must make choices; some buy new, others second hand industrial products and equipment. Even in poorer countries it has often been true that technology transfer at this stage has been associated with a large influx

---

* Romualdas Sviedrys, A conceptual framework for understanding technology transfer to the third world. - Lection materials. - 2001, Kaunas
of foreigners whose skills were needed to run the complex artefacts that were imported – modern combat planes, nuclear power plants, petrochemical complexes and so on. Learning how to use imported artefacts well can constitute that initial small triumph that a learning process requires.

II. **Service and maintenance.** This is the next hurdle that any recipient must successfully negotiate. Maintenance may be a very difficult concept to transfer; it often leads to a serious clash with established cultural norms of the recipient. Many transfer projects die a natural death at this stage due to additional factors such as lack of hard currency to buy spare parts, or a deliberate embargo. But primarily, Third World countries are littered with the countless rusting skeletons of machines for which spare parts were included neither in the initial nor in the operating budgets. Learning to maintain artefacts and being able to do so properly is an enormous achievement.

III. **Local assembly using imported parts.** This step is often visible in automobiles, airplanes, tractors, and electronic goods. Very often these goods are assembled in special economic zones and exported back to the developed countries. Slight modifications are introduced if assembly is for local markets. Offshore assembly using low labor costs constitute a source of exports that generates hard currency to finance further technology transfers, purchase of spare parts, and pay for foreign experts whose skills are needed.

IV. **Spare parts production.** Spare parts production triggers large additional technology transfers in process technologies which often must start again at stage I and go through maintenance learning, and so on. Local entrepreneurs begin to appear to exploit opportunities. Spare parts production may entail local production of chemicals that are needed, foundry work and so on. The level of technology mastery is very different when a country is producing about 10% of the component parts of a car than when it is able to produce 50% or 90%. It takes time to move from a few spare parts produced locally to a situation where all parts can be produced locally. At this stage, important substitution can be a powerful economic incentive to continue the technology transfer process.

V. **License for local production.** Often a subsidiary of a multinational company will produce locally, or grant a license for a local company to produce their product. If no license is granted, then local companies can
copy and produce for local markets or for export. Copying of foreign designs should be considered as a sign of progress in the process of technology transfer. It is a clear signal that the mastery of technology has begun. It is an indication of increasing confidence, and it creates the ability to substitute for imports. For donor countries this is the first warning flag of competition ahead. Licensed or unlicensed production often incorporates minor improvements and modifications on foreign designs. Korea, Taiwan, Brazil, Spain and a large number of countries can increasingly produce under license. Israel, in response to the French embargo of 1967, chose to produce the Mirage fighter-bomber without French permission.

VI. **Improvements on foreign designs.** If improvements are universal improvements rather than just reflect adaptation to local conditions, advances towards local designs with export potential will be possible. This is clearly a further realisation of the potentials present in stage V. Together stages V and VI constitute the pivotal stages in moving from passive reception to active mastery. Following the French embargo, the Israelis switched to American jet engines and produced a copy of the Mirage locally. Gradually, they added hundreds of modifications that resulted in the *Kfir*, which was exported to several countries. One squadron is currently used by the U.S. Navy as an “aggressor” squadron to provide realistic training for Navy fliers.

VII. **Major improvements and modifications of foreign designs.** With this stage, the ability to transfer technology from one application to another becomes increasingly necessary. A growing pool of locally educated technicians and engineers must be created. The latter entails graduate level educational institutions to allow them to begin gearing up with local research done by locally trained people. The ability to modify process technologies when product innovations are made is also required. Such developments were well illustrated in the Israeli experience. The second generation *Kfir* had a host of modifications that incorporated lessons learned in the 1973 war.

VIII. **Capacity to make one’s own designs.** Now local research and developments centers are able to work on original research projects. Local designs made by locally trained people are the long-term goal. The first designers often get their training abroad, but then return to teach at the graduate level.
IX. **Self-sustaining growth of innovations and technology-initiating status.** Clear signs of an incipient technological autonomy begin to manifest themselves. There is the creation of forward and backward linkages in both economy and technology. Locally produced technology begins to sell abroad; the country begins to get patent and royalty payments on its technologies, and to complain about other upstarts who copy its designs illegally.

X. **Capacity to compete internationally.** At some point a country becomes an acknowledged source of technology which constitutes a “graduation diploma” of recognised technological excellence. Germany and the USA were such at the turn of the century; Japan clearly entered this stage about ten or twenty years ago (depending on the technology), and Israel is about to get this recognition in some areas.

4.9. **Certain rules to be followed in technology transfer process** *

- The university has to design appropriate interface – structures that allow for overcoming rigid regulations and barriers in order to facilitate collaborative projects with industrial companies

Traditional universities have originally not been designed for technology transfer purposes. For this reason, the university structure has to be adapted to be able to fulfil the pre-requisites for efficient collaborations with industry. In many cases annexed structures with some independence from the university are the best way of handling industry collaborations efficiently. Such structures usually fit very well to the expectations of industry managers, e.g. to deal with equivalent counterparts who possess the power to negotiate an agreement and who are personally liable for securing its due fulfilment.

- A large portfolio of technology transfer services is needed to individually respond to the specific needs of different kinds of industrial companies.

* Inno, GmbH (D), “Good Practice In The University Technology To Industry”, EIMS publication No 26, Vol. 2/3
An important step towards more collaboration with industry consists in developing a need-oriented technology transfer offer. A well-designed portfolio of technology transfer does not only provide different “entry points”. When a company’s needs change over time – which in likelihood will happen - they still may find an appropriate solution for their problems within the university’s offer portfolio. Furthermore, the portfolio should also allow for a progressively intensifying chain of technological collaboration activities: the success of one technology transfer project should be the basis for the next, possibly more ambitious one. In such a way, a strategically designed portfolio of technology transfer offers first helps to market the university to potential partner companies and then provides the necessary impetus for the establishment of long – term relationships.

- An active marketing approach directed towards different target groups of industrial companies is necessary to attract a significant number of industrial partners.

The mere existence of a need – oriented technology transfer offer is not enough. The technology transfer programme has to be actively promoted among potential industrial companies on two levels. On a global level, the university has to establish a positive image – oriented general marketing, the project marketing consists of searching for direct contacts to industrial partners. There are various good practice mechanisms for efficiently establishing first contacts to industrial companies. There are, for instance, the participation in and also organisation of different kinds of events industrial companies usually attend, the collaboration with so – called “multiplicators”, the offer of different “entry services” and many more.

- Long term relationships to industrial companies are much more successful in exploiting the potentials of university – industry collaborations than singular technology transfer projects.

Particularly in their early stages, university – industry collaborations generally suffer from a “cultural gap” which separates the two parties. Company managers generally have rather limited confidence to the performance delivery of university researchers, until the researchers have actually proven their ability to deliver. Only then, after the first successful results, a level of trust and commitment can be reached which allows for more intense co-operations and, possibly, for co-operations on the “core” problems of the company. Only long – term relationships lead to an understanding of each others potentials which is deep enough to enable a profound matching of offers and needs. Knowing and utilising each other’s strengths is the best way to reach synergy
effects. Therefore, the most successful examples of transferring university technology to industry are based on a purposeful development of strong and durable relationships.

- Technology transfer to SMEs, works best when it is combined with networking and supported by easily accessible financial support programmes.

When considering technology transfer to SMEs, a real need for smaller projects has occurred. A university can handle such small projects efficiently either by grouping SMEs with similar interests or by using specialised financial support programmes. Grouping SMEs with similar interests allows reaching sufficient project volumes, which are necessary to tackle a somewhat complex problem. It furthermore leads to an interchange of experience between the SMEs and may even stimulate some technology-based sales relationships between them. The targeted use of financial support programmes can attract SMEs full costs for its services. But it is important to provide SMEs with easy access to these public support programmes. A good practice to meet such a requirement consists, for instance, in giving a university the possibility to directly distribute on the basis of pre-negotiated criteria some limited funding to eligible SMEs without requiring any bureaucracy from them.

- University spin-offs can be very effectively supported by specially designed activity programmes.

The development of new technology based firms out of the universities works best if purposeful encouragement and well-designed support measures are available. Apart from mechanisms which create more awareness among university researchers for the possibility of founding technology-based companies, support mechanisms such as tailored training programmes for entrepreneurs, employing senior business managers as mentors who advise the spin off companies as well as club and networking activities have proven their effectiveness of fostering the foundation of new spin-offs.

It is worth noticing that in general the foundation of spin-offs is highly independent from other technology transfer activities of a university. This means that even if a university does not provide any (other) technology transfer services, it is possible to successfully support the foundation of spin-offs.
4.10. Problems in technology transfer

The main problem that donor firms clash with is the question of how to transfer the technology to the other country i.e. either in the form of licence, direct foreign investment, contract or patent. Technology receivers have to pay attention to the local situation where the technology, which is being transferred, will have to thrive. The technology has to be integrated into existing administration structures, work methods, standards, training suitability in the local environment and possibility of using local grants, subsidies and their range.

The main reasons resulting companies participation in technology transfer are the following:

- Increase in company’s profitability;
- Gain of competitive advantage in foreign markets providing technologically superior production;
- Reception of grants and subsidies from foreign governments. Some underdeveloped countries require that multinational companies bring new technologies as a condition for their activity in local market;
- Overcoming of purchasing power difficulties in own country;
- Exploration of superior capital markets, possibilities to use qualified labour etc. in foreign countries;
- Increase in competence and potential in foreign branches of the company.

Successful technology transfer includes organisation of training process for technology receivers. This is pretty difficult to organise in cases of transnational transfer because of language barriers, differences in standards, production methods, quality control perspectives and regulations and conduct of national officers. Sometimes there might be a need to create a comprehensive documentation, quality guides and training programs in local language. Receiver’s ability to gain advantage from technology transfer depends on the initiativness of its specialists, flexibility of existing systems and countries technological infrastructure. [27,29,30].

For the technology transfer in Lithuania the symbiotic system is needed which would help to create a powerful, self-sustaining science sector. This symbiotic system should create a firm link between fundamental and applied research programs. Nevertheless, both fundamental research and applied research programs have to be purposeful as far as only applied research results
originating from fundamental research create the greatest value and increase capital. Accumulated capital should be brought back to the research sphere. In this way there would be the greatest progress in all science and research fields achieved. Funds accumulated from the research could be directed to the process of high-tech ideas maturing and implementation in mass production process. The outcome of such activity could result in new jobs creation in productively functioning companies. Many of Lithuanian enterprises have already understood that acquiring and use of new technologies is precondition and even main condition of their competitiveness and possibility to export.

Due to the globalisation processes in modern economy the technology market has also became international. From this aspect Lithuania faces several problems at one time. It is necessary to create and save local technology market and at the same time internationalising it.

Favourable national policy plays a very important role in development of technology transfer. Nevertheless, it has to be admitted that Lithuania so far lacks integrated and consistent policy. There are no priorities formulated even for the separate fields and there still many barriers have to be removed so that technology transfer market could successfully function.

Firms that in their strategic plans foresee introduction of new technologies and that are interested in innovations do not receive any specific support from Lithuanian government in comparison to those that do not declare such things. Firms do not receive any tax reductions when acquiring new technologies and especially nonmaterial property.

Scientific research institutes should do an active work in order to establish links with the industry and especially in case of technology transfer. On the other hand technology monitoring and improvement is also not possible without mentioned link.

Support to the innovation activity and introduction of innovations has to be also foreseen on national level. This should be reflected by proportionately allotted assignments from national budget for both fundamental and applied research. There should also be promoted technology transfer in SME sphere.

Apart from all importance of the matter the funding for the applied research decreases year to year because of the unfavourable economic situation. Commercialisation of novelties (patenting and licensing to the industry) is sluggish. In such a situation when local financing is scare in order to achieve
sufficient technological level the need for international technology transfer becomes apparent.

Namely, from all technology transfer forms found in practice the direct foreign investment and joint ventures are the brightest examples of international technology transfer. Therefore, when analysing technology transfer problems in Lithuania the experience of multinational companies should be mainly taken into account.

There is widely known that technologies are the basis of economic and social development of nations so the import of technologies is actively supported by governments of many countries. Lithuania is no exception. But in which form technologies have to be transferred must be decided by management of multinational companies and their decision will mainly depend upon receiving country’s economic conditions, its legal environment (tax policy, patenting etc.) or availability of specific resources. The World practice has shown that only well functioning intellectual property system influences successful technology development activity or scientific research and promotes investment. It must be noted here that World trade in licences makes 15 per cent and from two to three times exceeds trade in goods. [17,18,27,29,41].

4.11. Conclusions

1. Innovations in SMEs is a driving force of business development and economy growth.
2. International business is a primary source of technology transfer among nations.
3. Variety of technology transfer methods eases the adoption of transferred technologies in concrete places.
4. Technology incubators are the structures promoting development of technology enterprises and rendering support for these companies.
5. There exist many forms and ways of technology transfer but all of them aim to renew production, create new products and promote economy growth.
2. Академия менеджмента и рынка. Как создать и сделать успешным бизнес-инкубатор. – 1996, Москва


34. Некоторые закономерности переноса знаний и технологий в производственную сферу / Д. К. Даукеев и др. – Алматы: КазгосИНТИ, 1995.

35. О. В. Айгистова, В. Л. Горбунов и др. Основы построения бизнес-инкубаторов. – 1999, Москва.


38. Programme of support to the development of regional institutions for technology transfer. – 1997, Warsaw.


Reference materials (Internet links)

1. European Commission - Green papers:
http://europa.eu.int/comm/off/green/index_en.htm
Related documents:
- Green Paper on Innovation, COM(95)688, December 1995
- Promoting Innovation Through Patents - Green Paper on the Community patent and the patent system in Europe, COM(97)314, June 1997

2. European Commission - White papers:
http://europa.eu.int/comm/off/white/index_en.htm

3. European Commission Internet site:
http://europa.eu.int/comm/index_en.htm

4. Leonardo da Vinci program:
http://europa.eu.int/comm/education/leonardo/leonardo2_en.html

5. “Training network of Lithuanian business incubators” project partners internet addressess:

KTU Innovation Centre (Lithuania)
http://idc.ktc.lt

Aachen Technology Centre (Germany)
www.agit.de

Alytus Buseness College (Lithuania)
www.aavm.lt

ATLANTIS Consulting S.A. (Greece)
www.atlantisresearch.gr

Business and Innovation Center in Northern Seeland (Denmark)
http://www.innovation.dk/

Latvia Technology Park (Latvia)
http://www.rtu.lv/www_ltp/ltp.htm

Ministry of Economy of the Republic of Lithuania (Lithuania)
www.ekm.lt

Telsiai County Governor Administration (Lithuania)
http://www.is.lt/telsiai.aps/
Kaina sutartinė.
Leidykla „Technologija“, K. Donelaičio g. 73, LT-3006 Kaunas
Spausdino KTU spaustuvė, Studentų g. 54, LT-3031 Kaunas