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DEVELOPMENT



## **A technology park in Białystok: from building to concept**

**Results of the REDIS Implementation Lab, Białystok, 29/9 – 1/10 2010**

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## 1. INTRODUCTION

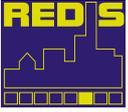
The city of Białystok is a member of the REDIS-project, an EU-sponsored exchange programme of eight cities that have the ambition to use their science base as a driver for local economic development.

In the context of the REDIS programme, in autumn 2010, Białystok hosted an Implementation Lab, a method that helps to audit an urban planning project using the expertise of partners from different countries. A delegation of the partner cities paid a 3-day visit to the city and made a critical assessment of the development of the city economy, and more in particular, the plans to create a science and technology park (see annex 1 for the program). The audit focused on the question how to position this park as a catalyst for the emerging local and regional knowledge economy.

The first day of the implementation lab was meant to inform the partners in more detail on the development of the urban economy and the key stakeholders in the park. A number of local stakeholders delivered presentations and presented their views to the audience. During the second day of the lab, the audience was split into two working groups, where each group was a mix of foreign and local participants/stakeholders. The groups elaborated their observations and produced a series of recommendations and ideas for the park but also more in general to guide Białystok into the knowledge economy.

This report contains the outcomes of the implementation lab. First, for readers not familiar with Białystok, it sketches some basic features of the city (section 2), and a description of the park (section 3). Next, it summarizes the views, visions, ideas and recommendations that were developed during the implementation lab (section 4).

The results are the fruits of a combined effort of all the people who were involved in the group discussions and the presentations. The author is highly indebted to all the participants in these groups, and in particular to the other workshop leader, Mr. Volkmar Pamer, who did an excellent job in moderating the discussions, and members of the local support group, who prepared the meeting so well.



## 2. Białystok

### 2.1 Introduction

Białystok, with a population of almost 300,000 is a city located in northeastern Poland. It is the administrative, economic, and academic centre of the Podlaskie region. The city has concrete plans to develop a science park, in order to promote the local knowledge economy and create an environment for knowledge based firms. Funding for the park has been arranged, the location has been selected (south of the city centre), and infrastructures are being constructed. Preliminary ideas have been developed on the content focus on the science park. However, there is no clear concept yet, nor a management structure for the park.

### 2.2 Socio-economic context

In this section, we sketch the context in which the science park in Białystok is being developed. For this, we analyse the key ‘foundations’ of the knowledge based urban economy, as identified by van Winden et. al (2004): the urban economic base, the knowledge base, quality of life, and accessibility. These foundations set the margin for the transition of a city towards a knowledge-based economy. But first we briefly sketch the political and administrative context.

#### *Political/administrative context*

Poland is a parliamentary republic. Self-governmental authorities exist at the regional, county and local levels of public administration, but all legislative powers and a substantial proportion of the executive power comes from the central state institutions. National government institutions play a central role in physical planning and spatial development policy. The National Development Plan is the leading planning document. In higher education and science policy, the role of the national government is dominant. Universities have few degrees of ‘local freedom’.

There are 16 regions in Poland, and Białystok is the capital of the Podlaskie region.

The regional self-government has full responsibility for strategic and spatial planning at this level, though the margins and conditions are set by national policy. At the lowest level of public administration, local (municipal and rural) self-governing communes are responsible for preparing and approving a ‘strategy for local development’, that has to fit in the national and regional plans, and is to be funded by higher government levels.

Poland is struggling with a number of planning challenges. Since the end of socialism, public planning institutions have weakened (they were strongly associated with state planning and dictatorship), but they have not yet been replaced by an adequate new system (although much has happened in 19 years time). But overall, it proves to be very hard to align national, regional and local policies. Many ‘integrated’ plans are made, but sectoral approaches (dominated by national government) still prevail. Most funds allocated under the 2004-2006 National Development Plan were channeled through sectoral programs, on which regional governments had hardly any influence (WSE, 2007). Moreover, private developers have become very powerful and it proves difficult to defend the public interest (UN Habitat, 2007).

In Poland, the distance between science and the business community is still very large, and, as we’ll see later, this hampers the development of Białystok’s science park. The educational system is centrally organised, and there are little if any incentives for scientific institutions to co-operate with companies. There are hardly any institutional possibilities to channel the rewards of contract



research to academic institutes or individual researchers<sup>1</sup>. Also, the careers of researchers depend on their publication record only, so they have few incentives to work with companies.

National R&D policy is changing, however. R&D expenditures are to be doubled, and funding will be more focused: a concentration on the best research units, and a focus on research fields with economic potential (WSE, 2007).

EU funding has become very important for Poland (and for the city of Białystok) since Poland's entrance to the EU. Many projects are funded with ERDF and ESF funding. Importantly, recently an operational programme (2007-2013) has been drawn up for the 5 provinces in east Poland (considered the poorest ones in the country), which can be seen as an important step in a decentralization process. The programme sets ambitions and targets for the integrative development of the region, and it provides substantial additional funding for projects in these provinces. The funding of Białystok's science park largely (90%) comes from this source, but this also implies that the science park should be developed in line with the programme's guidelines.

### *Economic base*

The beginning of Białystok's rapid development was marked in the mid 19th century by the construction and development of a railway line running across the city and the first textile manufacturing plants that appeared here. What is left of the times of the city's rapid development as a centre of textile industry is a handful of old villas, that belonged to manufacturers who had moved to Białystok to escape high duty on goods exported from the Polish Kingdom to the Russian Empire. The early years of the 20th century were marked by the emergence of the engineering industry, with the proliferation of electrical machinery industry, food processing and plastics processing industry after World War II under socialism.

Currently, there are about 76,000 people employed in the city (2006). They work in trade and services (21%), production (20%), transportation, warehousing and communication (12%), financial agencies, real estate and business services, hotels and restaurants (12%) and healthcare and social welfare (about 11%). The number of jobs has decreased substantially: between 2000 and 2006, more than 4,000 jobs got lost. The job losses are localized in the public sector, however. The private sector grew with more than 4,000 jobs, and now accounts for 53% of employment. The unemployment rate is 10.8% (2006; Source: Statistical Office in Białystok, 2007).

There is no dominant industrial branche, and there are few large players in the region that conduct high-level research. Among the leading branches are:

- Food processing industry (PMB S.A. – meat processing plant, Agrovita Białystok Ltd. – fruit and vegetable preserves producer, Polmos Białystok S.A. – spirits producer, Kompania Piwowarska – the Brewery of Białystok, Chłodnia Białystok S.A. – frozen food producer)
- The electrotechnical and electrical machinery industries (Bison-Bial Factory of Equipment and Holders – manufacturer of machine equipment and devices, NIBE Biawar S.A. – electric water heaters producer, Altrad Spomasz S.A – producer of concrete mixers, Philips DAP Polska and Biazet S.A – production of household appliances)

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<sup>1</sup> One interviewee told this story: a top technology company wanted to collaborate with the Technical University of Warsaw to co-develop a new product. But the firm found out there was no way of transferring money from the firm to the university, or to arrange a contract. Therefore, the technology manager of the firms subscribed to the university as a student. That was the only way to gain access to the knowledge at the university (for free...)



- Timber industry (Biaform S.A. Plywood Plant, Forte – Białystok Furniture Factory S.A.)
- Plastics processing (Rosti Polska Ltd., Bianor Ltd. – producers of synthetic components for household appliances)
- Textile industry (Biruna textile Plant S.A. – manufacturer of coat fabric and tapestry fabrics, Agnella S.A. Carpet Factory – producer of carpets, “Kostar” Clothing Industry Plant – producer of underwear, “Pasmanta” S.A. Haberdashery Factory – producer of trimming for clothing, shoe wear and backpacks)
- General and specialized construction industry

Efforts are made to create ‘clusters’ i.e. groupings of similar companies and research institutes that develop activities together. An example is the timber industry cluster that has emerged. To promote investment, the city is creating a Special Economic Zone where firms can locate under favourable conditions (low rents, tax breaks). To the North of the city center, a former military area is to be transformed into an urban area. The area is to be destined for business service functions (back offices, call centres, administrative functions). In general, prices of land and real estate are low, even in a Polish perspective.

Białystok’s main exporting industries are agriculture, food, light, electrical machinery and chemical industries. The main trading partners of the city are Germany, Russia and Belarus.

A few years ago, Białystok benefited from its location as ‘switchboard’ between the EU and Eastern Europe. But recently, there is hardly any impact of the economic growth in nearby Russia and Belarus. New regulations on both sides on the border have made trade more difficult, and this especially hits smaller trade companies in the city.

Income levels are low from a European perspective. The average gross monthly income per capita is 2331 Zloty (Euro 712).

#### *Knowledge base*

Białystok is a major regional academic and scientific center in east Poland, with a number of university-level schools and a student population of around 50,000. The oldest institutions of higher education include: The Białystok Medical University (Akademia Medyczna), The Białystok Technical University (Politechnika Białostocka), and the University of Białystok. Nonstate universities comprise such schools as The Białystok Higher School of Public Administration – a prizewinner of the “Rzeczpospolita” national daily 2005 poll to choose Polish best undergraduate university, The Białystok University of Finance and Management, Higher School of Economics and Higher School of Mathematics and Applied Computer Sciences. Białystok’s oldest university is the Archdiocese Seminary, established after World War II and continuing the academic tradition of the Theology Department of the Stefan Batory University in Vilnius ever since.

Higher arts education offered in Białystok is provided here by local branches of Warsaw universities. Moreover, there is the Faculty of Puppet Theatre Art of the Aleksander Zelwerowicz Theatre Academy in Warsaw, and the Białystok Branch of the Frederic Chopin Academy of Music in Warsaw.



The educational institutions of Białystok are a key economic factor in the city. They employ about 10 thousand people, which is 7.5% of all the employed in the city (<http://www.amb.edu.pl/en/sites/city.html>), and the students bring fresh new knowledge into the labour market.

The scientific potential of the city is there in terms of quantity, but from a quality perspective (in international comparison) the knowledge base is not that strong. Few professors have experience in business. Also, education in entrepreneurship is in its infancy, so students are not encouraged to start their own enterprise, let alone researchers. A key challenge for Białystok's is therefore to improve this, and also to capitalize on the scientific knowledge created by the academic institutions. The Science Park could and should contribute to this ambition.

### *Accessibility*

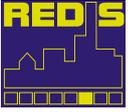
Białystok is located at 188 km from Warsaw, and 54 km from the border with Belarus. Nine road and railway tracks cross here, and the city is part of the international railway route Berlin - Warsaw - St. Petersburg - Moscow. Its location in the neighborhood of Belarus, Lithuania and Russia, as well as the convenient transportation links, create excellent conditions for the development of economical and cultural contacts with countries of Eastern and Southern Europe. Nevertheless, from a Polish and EU perspective, Białystok is a peripheral city.

The quality of the infrastructure currently leaves much to be desired. Large parts of the main road track to Warsaw are no highway, and also the urban road infrastructure needs improvements (substantial investments are planned for the coming years). Moreover, for air transport, the city depends on Warsaw Airport, which is located some 200 Km away. This seriously impacts the attractiveness of the city as a business location, especially for internationally active firms. There are concrete plans to create a regional airport (in Sanniki, about 20 km to the north west of Białystok), and this will bring relief in this respect. Moreover, the city invests heavily in roads and public transport systems, and the rail and road connections to the capital will improve significantly in the years to come.

### *Quality of Life*

Białystok has for centuries been a multicultural, multinational and multireligious city where the Poles, Belarussians, Lithuanians, Jews, Tartars, Germans and Russians co-existed. This has shaped the city's built environment and contributed to the richness of its cultural life. The city enjoys a lively cultural scene: Białystok is the seat of many cultural institutions, culture promotion associations and artist unions. The Municipal Art Gallery "Arsenal" promotes Polish modern art and its latest achievements. The recently renovated Białystok's Concert Hall hosts artists from both Poland and abroad. The city counts 143 'buildings of cultural value', the most outstanding one is the Branicki palace-garden complex, dubbed "the Polish Versailles". Over the last years, the quality of public space has strongly improved in the city, mainly in the inner city where the central square was refurbished in an impressive way.

Białystok functions as a base from which to explore the world-class unique natural complexes. Several dozens of kilometers away from Białystok lies the Białowieża Primeval Forest – the only Polish national park included on UNESCO's World Heritage list as a World Biosphere Reserve. The last decade of the 20th century was epitomized by rapid development of tourist infrastructure of the city. Today, Białystok has an up-to-date accommodation, catering and entertainment infrastructure in terms of Poland's highest standards.



### *Summing up..*

The Science Park of Białystok is being developed in a fragile economic context. The economy strongly depends on lower level activities, there are few knowledge intensive businesses, and there are no strong leader firms. The universities and other institutes are clearly an asset, and attract a number of students which are the future workforce of the knowledge economy. However the quality of the academic institutions, overall (with some significant exceptions), does not meet international standards and, what is worse, there is no culture of co-operation between academia and the business sector. Quality of life in the city is already good for Polish standards, and being improved rapidly: the city has a project portfolio of Euro 400m, to make the city more attractive (for firms, residents and tourists) and accessible. This will help to improve the city's image and attractiveness for knowledge workers and firms. Especially a regional airport and faster connections to Warsaw are needed to improve connections with major European cities and to make the city more interesting for investors. The flawed Polish system of higher education and the weak co-operation between business and science are large barriers for developing a science park. Few companies in Białystok are knowledge intensive, reducing the scope for business-university co-operation.

## **2.2 Białystok's Science Park: an introduction**

The "Białystok Science and Technology Park" is being constructed on a plot of land (about 3 Ha large) at the southern edge of the city, on an accessible location. The city owns the land and undertakes initiatives to create a science park at that location. Currently, the city is preparing the infrastructure for the park. The first stage of implementing the "Białystok Science and Technology Park" project, planned for execution in 2009 – 2013, involves the preparation of the land, the development of an incubation area with the Technology Incubator base, the Technology Centre and the park administration offices – 13,000 sq. m. in total.

It is an ambitious venture: creating the park involves an investment of €36m, 90% of which will be funded by European funds. This European funding comes from the Operational Programme (2007-2013) that has been created for the 5 provinces in Eastern Poland. The infrastructure and buildings should lay the basis for investments by companies. The city, albeit the main funder and initiator, does not want to unilaterally determine the exact set up of the park and its mix of occupants. Rather, it hopes that a fruitful co-operation between firms and university/research institutes will emerge and bring consensus about the park's setup, its concept, and its management model. The concept of the science park is not yet elaborated, and the city considered the REDIS Implementation Lab as a catalyst for this process.

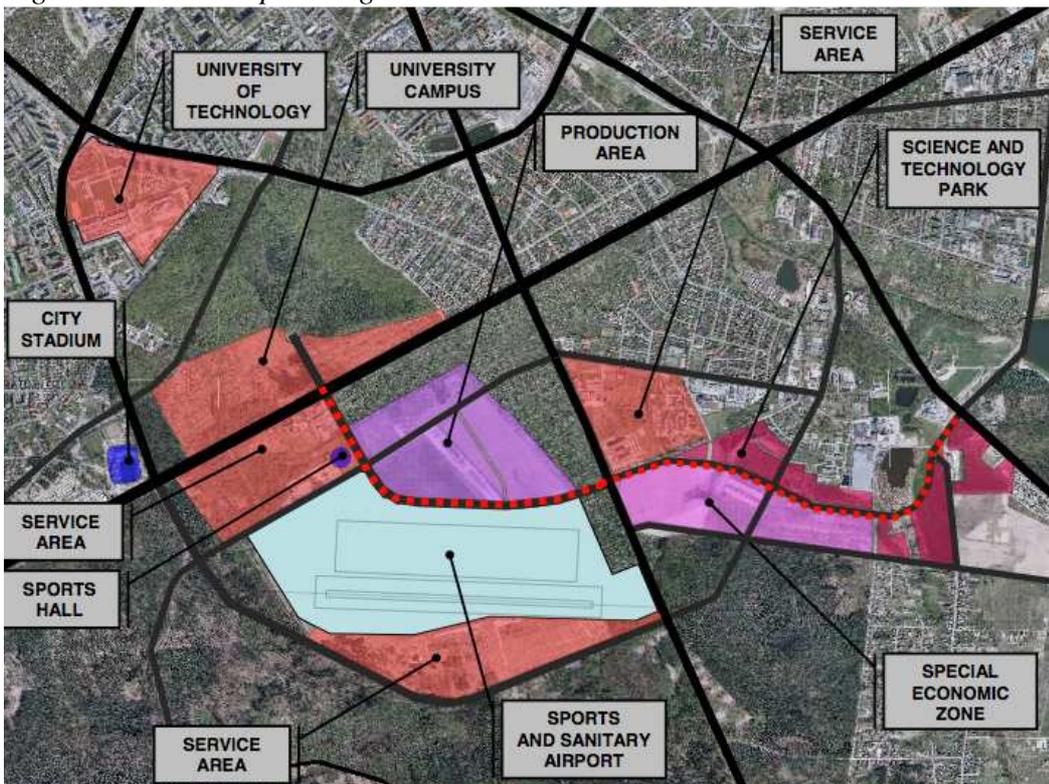
### *Management*

So far, the city has been the main actor. It owns the land; it prepares the investments in infrastructure, and organizes the funding from the operational programme for East Poland. But as a next step, the ambition is to design a new management model, more at a distance from the municipality. It is not clear what the model will look like: it is hoped that REDIS can contribute to the generation of ideas in this respect. The institutional form of the park should be in line with the regulations and guidelines of the Operational Programme for East Poland. The operational programme is managed by the Ministry of Regional Development. But also, the Association of Polish Entrepreneur Agencies is involved.

Figure 1 The Science and Technology Park: Artist impression



Figure 2 The wider planning area



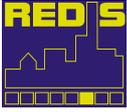


### *Stakeholder situation*

The main stakeholders in the development of the science park are: local government, universities, local entrepreneurs, and funding bodies (operational programme). Local government has been active in propelling the idea of a science park. It has the means to develop it, and also the planning capacity and support from the region. It does not have a clear vision on what the park should be like, however, and wants to leave the development of the concept to others. Up till now, the city has organized some local support group meetings with stakeholders, including university representatives and the entrepreneur agency of the city. The universities are, up till now, not deeply committed to the science park. As said, they have few incentives to collaborate with business. What is worse, the university is creating its own new campus site, fully independent of the Science Park, not very far from the future location of the science park. Also, the university wants to create its own incubator, without any alignment with the incubator to be created at the Science Park.

Some local entrepreneurs are interested in locating at a science park. Moreover, some company representatives are involved in the planning and conceptualization of the area.

A key issue for Białystok is how to create a common vision, a realistic and feasible strategy, and implement it. There have been several meetings and consultations, involving stakeholders on several levels (strategic, operational) but until now this has not yet resulted in a shared ambition that can be translated into a concrete action plan. In fact, each stakeholder has its own strategy and does not strategically align it to the others.



## 4. RESULTS OF THE IMPLEMENTATION LAB: OBSERVATIONS AND SUGGESTIONS

### 4.1 Introduction

In the preparation of the implementation lab, the local support group asked the visitors to address the key issues mentioned in the last section. During the lab, two groups of 10-15 people each reflected on these issues. Each group consisted of a mix of local people (knowing the local situation well), and project partners from abroad. Each group made observations (based on presentations on day 1 and the bustour/guided walk) and developed a set of suggestions and recommendations. Below, they are elaborated. First, we describe a number of observations that were made in the groups, concerning Białystok in general and the science park in particular (4.2); next, we present ideas and recommendations on the concept and business models for science park (4.3), and urban planning ideas and requirements for the development (4.4).

### 4.2 Observations on Białystok and the science park

#### *Białystok*

The first impression of typical foreigners visiting the city is the remoteness from Warsaw International airport. It is a long journey either by bus or train, and this surely hampers the development of the city as a business location. Improvement is urgently needed, and underway, and on the longer run, the city could regain a prominent position as hub between Poland and its eastern neighbors. The city stands out as a student city, with some 50,000 students in several universities. This talent pool gives the city a lead, and should be seen as a key asset for knowledge based development. Currently, too many students are forced to leave the city because they can't find a job. It was noted that the ageing of the population in the region could, on the long run, undermine Białystok's position as student magnet.

The city has some very attractive spots, including the refurbished city centre that has strongly gained in quality of the last years. Though many old buildings were destroyed during various wars, the cities' volatile history is alive in many monuments, museums etc, and some significant interesting buildings were preserved or rebuilt. In a relatively short time span, the city has managed to create the feel of being a modern European city. Moreover, it has large, interesting green zones.

In terms of its economy, the city lacks a clear profile; there is no dominant or visible specialisation, nor are there large international players. This makes the economic positioning of the city (and the science park) difficult. Moreover, there an enormous array of support measures for companies (both start-ups and incumbent firms). Much of the support is aimed to promote innovation, but given the low-tech nature of many firms in the region, there may be a mismatch here. Also, there are many different agencies and funds, each with different conditions, making it complex for especially small firms to apply. Some wonder if there is not *too much* support for firms: in the end, entrepreneurship is about risk taking rather than collecting subsidies. Finally, it seems that many students have entrepreneurial ambitions: recent research shows that 46% of the students have ambitions to start their own company. The entrepreneurial spirit is clearly present in the student population, and this is an asset for the region.

At the same time, at the universities, the awareness of (and support for) entrepreneurship seems to be low. Scientists in Białystok are not trained to think in terms of markets for their products and inventions. This needs to be changed if Białystok wants to 'sell' its science base and make money out of it. A starting point would be to create stronger educational elements in entrepreneurship at



the (under)graduate level. Second, there should be more internships and doctoral thesis written for companies: that would help to close the gap between business life and academia. Thus, more efforts would be needed to increase education in entrepreneurship, and to encourage researchers to start their own firms.

The physical layout of the city was perceived as rather haphazardly. There is substantial urban sprawl, dots of activity are spread over the city. The current trend in West-European cities to densify cities, especially around public transport nodes, is absent in Białystok. Car traffic is dominant and will probably remain so, even with strong investments in public transport; new projects –including the science park and the new university campus- are built in a similar vein.

The city has an impressive portfolio of projects that are being carried out: it is really ‘under construction’, asking much effort from the various municipal services. The city has built up an impressive experience in running large projects and obtaining EU funding. But some of the participants note a lack of integrality or ‘grand design’ that links the projects together. They note a focus on ‘hard’ infrastructure, whereas developing a knowledge economy is primarily about people and soft networks.

#### *The science park*

The participants note that the science park is being built –mainly funded by EU funds- but none of the stakeholders shows a strong commitment to use it or move there. The focus is on building equipment and infrastructures, and much less on exploitation, and on the long run, this may be a costly strategy. So far, there is no shared idea or vision on how the science park could contribute to the economy. The city is in the lead (and has been over the last years), but other stakeholders seem insufficiently involved.

There are doubts about the simultaneous but seemingly unrelated development of the science park and a new university campus; the connections between both developments are weak. The same holds for the new ‘special economic zone’, a low-tax area for business that is being developed in an area close to the science park. Importantly, current discussions on the Science Park are hardly embedded in a wider discussion of the future of Białystok as a city of knowledge and science. Only recently, a comprehensive strategy was adopted by the Council., including some general views about the knowledge economy and the Park. The region has developed its plans for the period 2007-2013 (for the operational programme) and it includes a component on technology and R&D development. The strategy is an important step forward, but what lacks is an integrated and more elaborated vision on Białystok’s knowledge economy of the future, in which the science park should have its role. The discussion is dominated by funding opportunities and rules of the Operational Framework rather than by strategic considerations.

Moreover, the Science Park is a green field settlement: it is developed at virgin lands at the outskirts of the town. This may have a negative impact on Białystok’s ‘green triangle’, which is a rather unique feature. Redeveloping a brownfield location could have been a better –and admittedly more costly- option on the longer run.

Nevertheless, the fact is that the city has a strong science base, which offers economic spin-off opportunities that are currently not reaped. The science park, provided it is developed with a clear concept in mind, could be a catalyst in this respect.

The Science Park could be a competitor for existing business premises in Białystok, but given its focus on science-based activity it will have a clear identity and image. It is important to realize that Białystok is not the only city with ambitions to create and nurture knowledge-based firms: other cities in Poland do the same. There are many initiatives under way to create science parks or similar concepts, and some cities are ahead of Białystok in this respect. The city of Suwalki (Northeast Poland) for instance already has a science park up and running. The city of Rzeszow (in the South east) has successfully created the ‘aviation valley’ concept, to develop the aviation industry, and in this setting is developing the Aeropolis Technology Park. The concept is attracting investors from abroad (Borg Warner, and US producer of turbochargers, recently announced a big investment project (Source: Warsaw Business Journal, 2008). This last example shows the power of having a strong concept and focus, and Białystok could learn from that. Creating a strong science park could reinforce Białystok’s position as a business location, but distinction, quality and focus is needed to attract international investors. The first challenge is to organize actors locally.

#### **4.3 Suggestions for concept & business models**

It is unlikely that the university will relocate facilities to the Science Park, or open its own new labs and facilities here; it lacks the means, it already has its facilities in place, and it will prefer its own new campus. Therefore, the science park will not be a ‘mixed zone’ for enterprises and academic institutions that share facilities and benefit from each other’s vicinity (let alone a full fledged ‘urban quarter’ that includes housing and leisure functions). Nevertheless, the science park can be a catalyst for regional co-operation between business and academia, and can help to build a knowledge-based economy. Based on the observations, and combined with the insights and experiences of the participants, we derive a set of suggestions and recommendations for the concept of the science park.

As a starting point, the science park should help to address the main challenge of Białystok: generating or promoting innovative business, where possible with a link to the strong knowledge base in the city (*business first*). Business is the answer to create wealth, tax incomes, and to stop the exodus of talent. How to translate this starting point into concepts for the science park? Two tracks were recommended:

##### ***Track 1: Use the Science Park to develop highly innovative companies***

One key idea –stemming from experience in other European cities- is that top-level equipment (laboratories, infrastructures, machines etc.) in the science ark could help to generate business activity around it. The problem is: how to select the right equipment to be installed? The city is not in the position to make this choice. Therefore, we suggest an alternative path. The city could identify leading professors with ambitions and good ideas. They can be invited to make a proposal to obtain unique equipment they would need. Next, the most promising plans from an economic perspective (in terms of potential for business development) can be selected and investments can be made.

Some alternative (but related) ideas were suggested for this track:

- Attract venture capital/business angel funds to the S&T park. Nationally and internationally, there are many wealthy people looking for attractive/risky investments in new ventures. Actively luring this venture capital to the science park could make a contribution to enhance business activity.

- Make a special economic zone (SEZ) for knowledge-based firms. The current SEZ is open to all. Creating a more specific and targeted SEZ for knowledge-based firms would help to increase the 'knowledge face' of Bialystok and to lure investors or firms. A strong link with the science park would be needed.
- Build up alumni networks. Currently, most students leave the town after graduation, and gain business experience elsewhere. Some of them may become successful entrepreneurs; others may be willing to return to 'family-friendly' Bialystok after some years in the capital or elsewhere. It is important to signal to those people that the city is working on its knowledge profile, and offers a real alternative as a place for knowledge business. Alumni policy can play a role in this respect, and here also, the city would need to co-operate with the university.
- Incubation/start-up support. The Science Park could be the one-stop-shop for business support in the region. This could be achieved by locating technology transfer agencies in the park (the key to the labyrinth of the universities), but also all sorts of government agencies that provide business support. This would make life much easier for innovative firms. More in particular, the S&T park could provide legal advice for academic start-ups and as such play a catalytic role in commercialization of academic research. Currently, there are many legal complexities that hamper commercialization, among other things concerning intellectual property regulation and contractual issues between universities and companies. The Science Park could be the one-stop-shop/expertise centre for researchers or companies that seek legal advice in these domains.
- Finally, the S&T park could be developed as an 'entry point' for external companies to tap knowledge from the region. Large players from outside could be invited to the S&T park – for example around a specific theme- and may be brought into contact with smaller local firms or research teams that could do business for them. This would partly compensate the fact that the city lacks big business.

### ***Track 2: Support local companies in their upgrading process***

It is a fact that currently, the vast majority of companies in the region are not very innovative or knowledge intensive. With this in mind, it is advisable to consider the S&T park as having a role in the *upgrading process* of the regional economy. Several ideas were generated:

- Use the S&T park's premises to organize technology demonstrations & training for SMEs, for examples about the use of ICTs, on-line business models, modern marketing tools, etc.
- Be good and tell it: put 'innovators' in the spotlights. The S&T park could be the venue for an annual 'innovation award', or a permanent exhibition about the most innovating SMEs in the region.
- Establish a central agency for business support and funding. This is not only relevant for knowledge-based firms but for any company in the area.
- Create a 'switchboard' between students and companies for apprenticeships & thesis work. The S&T park could become a matchmaker between students that look for apprenticeships or thesis topics, and the needs of local companies. That facilitates the sharing of knowledge.



### *Steps to be taken*

A key question for the city is how to get things done, how to develop the concept for the S&T park, and how to run it. In this process, we suggest three steps:

Step 1. Create a dynamic team to develop the concept, elaborate ideas mentioned above, based on discussions with innovation leaders in the city. The team should consist of leading people with an innovative and co-operative mindset, preferably with different backgrounds in the triple helix (i.e. academia, city, and business).

Step 2. Evaluate the ideas developed above (and others), the basis of two criteria: 1) business impact: will it generate jobs, innovation, new business? and 2) probability/feasibility: is it workable, what is the cost-benefit ratio, are the suggested plans realistic? How committed are the partners?

Step 3 make a Masterplan for the implementation and management of the S&T park. This plan should contain an outline of the steps towards realization of the ideas: the concept design, and the management/exploitation of the R&T park, budgets, programming of the activities. Preferably, this plan should be part of a larger strategy for the region's knowledge economy.

## **4.4 Suggestions for urban planning**

During the implementation lab, we also developed suggestions related to urban planning, not only on the S&T parks' site but in a wider context. The following recommendations were developed:

- There is a need for an integrated public transport concept for the urban region. Part of the concept would be a plan to improve or change the image of public transport. Otherwise, car traffic will continue to increase, to the detriment of the urban quality (with negative impacts on the ability to attract talent and companies). Closely related to this, it is recommendable to develop a bike and pedestrian concept for the city.
- Particular attention is needed for the 'gateways' of the city, i.e. the places where people normally enter town. It is our impression that the quality of these gateways (like the bus terminal) can be improved, and this would help to ameliorate the first impression of visitors and their feeling of being welcome.
- One of the city's key strengths is its vast amount of green spaces in the city. Preserving this quality is a challenge, especially in times of rapid development and land claims of various kinds. We suggest considering a 'green belt' policy to connect current green zones, and make them accessible and feel as a whole. The banks of the river also qualify to belong to this zone (see figure 3).
- In terms of connections, it is advisable to connect the 'knowledge dots', i.e. to make sure that the different elements of the knowledge base (old campus premises, new S&T park, new campus, special economic zone) are linked well by public transport. Moreover, a 'walkable and bikeable' road from the S&T park area along the forest could make the city more attractive.
- Finally, the city should consider developing a 'brownfield policy'. Currently, most new developments take place on Greenfield sites, whereas many brownfield sites in the city are

left abandoned. This strategy is understandable from a financial perspective, but not sustainable.

Figure 3. Greenbelt, and connections between related sites.



## Annex 1 Programme of the implementation lab

**Wednesday 29<sup>th</sup> September**

Venue: Ludwik Zamenhof Centre, ul. Warszawska 19

<b>8:50</b>	<b>Departure from the hotel to Ludwik Zamenhof Centre</b>
<b>9:00</b>	<b>Registration</b>
<b>9:30</b>	<b>Welcome and opening of the Implementation Lab</b> Krzysztof Karpieszuk – Secretary of the City Jerzy Szerszunowicz – Head of Ludwik Zamenhof Centre
<b>9:40</b>	<b>City of Białystok – general and economic view</b> Tomasz T. Buczek – Head of Strategy and Development Department, Municipality of Białystok
<b>10:05</b>	<b>Podlaskie Region</b> Jolanta Miczejko Marshal's Office, Department of Regional Policy
<b>10:30</b>	<b>European funds in city development</b> Ewa Bajdałów – Deputy Head of European Funds Office, Municipality of Białystok
<b>10:50</b>	<b>Cluster of digital education</b> Wojciech Winogrodzki – T-matic Grupa Computer Plus Sp. z o.o. – President of the Board
<b>11:10</b>	<b>Coffee break</b>
<b>11:30</b>	<b>Survey on Science and Technology Park carried out at Białystok University of Technology</b> – dr Krzysztof Dziekoński – Białystok University of Technology, Faculty of Management
<b>11:40</b>	<b>Planning and urban development of the city</b> <b>Local urban development plan for the area of Science and Technology Park in Białystok</b> <b>Urban planning in the city – Market Square example</b> Piotr Firsowicz – Head of Urban Development Department, Municipality of Białystok, Krzysztof Czarnomysy Urban Development Department, Municipality of Białystok
<b>12:30</b>	<b>Lunch break</b>
<b>13:15</b>	<b>Study visit to the city and Science and Technology Park area</b> Justyna Sołowiej – Head of Innovation Economy Office, Municipality of Białystok
<b>14:30</b>	<b>Presentations of Higher Education Schools in Białystok</b> University of Białystok – dr hab. Beata Godlewska-Żyłkiewicz, prof. UWB - Vice-Rector for Research and International Relations Białystok University of Technology - prof. dr hab. inż Lech Dzieńis – Vice Rector for Development and Cooperation



	Medical University of Białystok prof. dr hab. Adam Krętowski – Vice Rector for Research
<b>15:30</b>	<b>Coffee break</b>
<b>16:00</b>	<b>Support to entrepreneurship and innovative projects</b> Andrzej Parafiniuk – Podlaska Regional Development Foundation, President of the Board
<b>16:20</b>	<b>Science and Technology Park in Białystok</b> Malgorzata Piekarska - Mayor's Representative for Science and Technology Park
<b>16:45</b>	<b>REDIS issues – REDIS partners' meeting</b> Willem Van Winden - lead expert UE, Klaus Puchta – REDIS lead partner, City of Magdeburg
<b>17:30</b>	<b>End of the working session – departure to the hotel</b>
<b>18:30</b>	<b>Guided city walk - optional</b>
<b>19:45</b>	<b>Dinner – Esperanto Café, ul. Rynek Kościuszki 10</b>



## Thursday 30<sup>th</sup> September

Venue : Ludwik Zamenhof Centre, ul. Warszawska 19

8:30	<b>Study visit to Białystok University of Technology</b>	
10:00	<b>Coffee break</b>	
10:15	<b>REDIS expert's recommendations. Reflections on day 1, questions and answers, and planning of day 2.</b> <b>Presentation of workshops. Distribution of the groups</b> Willem Van Winden (lead expert UE)  <u>Group 1:</u> Park development (concept), cooperation of science and entrepreneurship/marketing and branding  <u>Group 2:</u> Urban planning/ marketing and branding	
10:30	<b>Group 1</b>	<b>Group 2</b>
	Facilitator & opening note Willem Van Winden	Facilitator & opening note Volkmar Pamer
	1) Observations stage	1) Observations stage
	2) Suggestions stage	2) Suggestions stage
12:30	<b>Lunch break</b>	
13:30	<b>Presentations of findings/suggestions (plenum). Identification and presentation of the specific issues/problems to be analysed within each group.</b> Facilitators of the groups	
14:00	<b>Working session (groups)</b>	
	3) Agreeing suggestions and recommendations	3) Agreeing suggestions and recommendations
15:00	<b>Coffee break</b>	
15:30	<b>Working session (2 groups). Time to built proposals, formulate concrete tasks and policy recommendations</b>	
16:30	<b>Conclusions and information about day 3 presentations</b> Facilitators/ organizers	
17:00	<b>End of the working session</b>	
20:00	<b>Dinner – 7 Pokus, ul. Słonimska 2</b>	



## Friday 1<sup>st</sup> October

Venue : Branickich Guests' Palace – ul. Kilińskiego 6

<b>9:00</b>	<b>Opening of the day 3 IL</b>
<b>9:10</b>	<b>Final and closing session :</b> <b>Presentation of day 2 discussions, conclusions and recommendations</b> (by Willem Van Winden/ Volkmar Pamer)
<b>10:00</b>	<b>Q&amp;A session</b>
<b>10:15</b>	<b>Speech of dr hab. Tadeusz Truskolaski, prof UwB (Mayor of Białystok)</b>
<b>10:30</b>	<b>Interview opportunities – Press conference</b>
<b>11:00</b>	<b>Lunch</b>
<b>11:45</b>	<b>End of the Białystok IL</b> <b>Departure by bus to the airport</b>