



# FROM INDUSTRIAL ZONES TO LOCALISATION OF KNOWLEDGE ECONOMY

## OD PRŮMYSLOVÉ ZÓNY K ZNALOSTNÍ EKONOMICE

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### Abstract

This paper presents the implementation of an industrial zone in Pilsen region. Building industrial zones as a municipal investment in the first phase of the project has brought economic diversification potential. Successful implementation of an industrial zone in the second stage, allowing public-private partnerships. Only allow diversification of economic potential in the third stage of economic strategy to revise and strengthen scientific research capacity. Creation and implementation of industrial zones is discussed in a broader ties with local legislation, regional planning and social context.

### Key words:

Pilsen region, industrial zone, knowledge economy, Science and Technology Park

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## 1 Introduction

This presentation will introduce the case study of realisation of long-term regional economic strategy of transition from industrial economy to knowledge economy. Using examples of projects of industrial zones and projects of support of knowledge economy, it presents methods of strategic planning. The projects are described not only on technical and economic principles, but also taking into account wider social relations in the region.

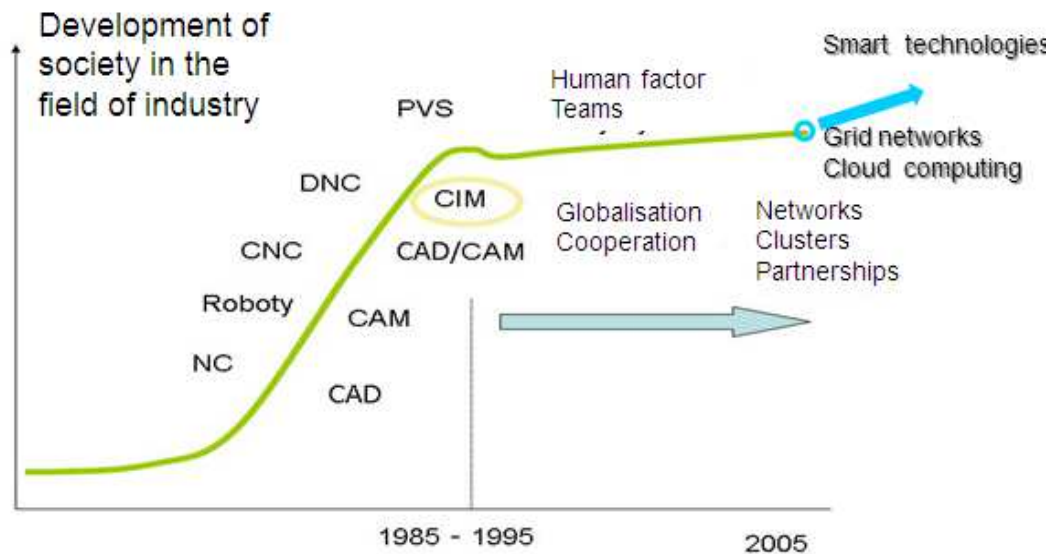
## 2 Knowledge Economy

The economy has undergone from 1989 to 2010 significant development and the main role means here the knowledge economy. We can say that Knowledge is the input which replaces materials.

The main characteristics are:

- Production relations.
- Intangible capital.
- Market segmentation.
- Intellectual work.
- Scale.
- Organization.

Indicators and consequences of technical and organisational changes in industry shows picture no. 1.



**Pic. 1 Indicators and consequences of technical and organisational changes in industry**

### **3 Pilsen region**

Pilsen region is characterized by a high number of small settlements with uneven geographical distribution. Mid-size towns are missing, structure of settlements is different from the rest of the Czech Republic. District Pilsen city with its 180 thousand inhabitants represents a contrary to small settlements.

Pilsen's functions influence the whole region but mainly the central parts of districts Plzeň-south, Plzeň-north and Rokycany. Predominant position of Plzeň in economic potential of the region is documented by the fact that out of 100 strongest companies by turnover in the Plzeň region 47 are located in Plzeň and another 16 in districts Plzeň-south and Plzeň-north.

#### **3.1 Development Axis, Transportation, Energy generation and distribution**

Historical route Praha-Plzeň-Nürnberg represents the main development axis. Highway connecting Plzeň with Bavaria and Prague respects this route. The importance of the development axis was further strengthened by the finalization of circumferential highway of Plzeň city. Optimization of railway line Plzeň - Stříbro in 2007 supplemented this axis with an effective rail connection.

The road network in the Region is made up of 5,007 km of roads. Compared with other regions in CR Region has the lowest proportion of first class roads and 8.1% in the proportion of class II. occupies the fourth class place in the country. Highway to decompose in the Region with 89 km. Length of railway lines was in 2003 in Region 713 km, of which 237 km are electrified. Five railway lines of national importance crosscut in Plzeň.

Pilsen is a town with an active support of investors. Historically, the Pilsen area focuses on the economic-oriented and heavy on the food industry (as Pilsner Urquell and Skoda Plzen). The city covers an area of 137.65 km<sup>2</sup>, and lives in it 171 thousand inhabitants. Budgetary expenditures approximately CZK 6 billion.

#### **3.2 Industrial Zone Borská pole**

In early 1990s the City authorities defined development opportunities anticipating diversification of the city's economic potential considering new social conditions. The aim was to create conditions for attracting investments in advanced sectors (production of



electrical machinery, instruments and appliances, precise engineering machines and tools). To reach this aim the City has financed the Industrial Zone infrastructural development. About 40 foreign and local investors have established operations between 1998 and 2005 within the Zone. In 2006 a private project of ready-to-lease halls with total capacity of 85,000 sqm has been started at the west of the zone.

### **3.3 Economic strategy of the region**

The economic strategy is consisted from four main points:

- Emergence and realisation of a large-scale and far-reaching technical and economic (production) space.
- Establishment of industrial zone in economic and social relations
- Economic strategy based on traditional potential of the university, public and private investments
- Science & technology park

## **4 City of Pilsen Development Program**

Development program which was finalized and approved in fall of 2002 is based on a similar 1998 document. Program's economic part considers expected trends in the Czech Republic and estimates strengthening role of education and increased pressure for social economic impact of universities in regions. Program defines strategy of economic growth:

- Support of investors with advanced projects characterized by technology transfer, in-house R&D facilities and innovation abilities
- Strengthening of advanced sectors: strategic services, pharmacy and biotechnology, materials and technology of their production.

Measures suggested to reach strategic aims:

- Attract companies offering high value added jobs (highly qualified)
- Support set up and growth of small and mid-sized innovation companies
- Support increase of education level
- Organization of scientific conferences allowing information transfer and coordination of research plans
- Active allocation of grants for implemented projects of applied research in technical and related science
- Further development of ZČU research center, namely laboratories and software to create conditions for spin-off companies trading research results of the center

### **4.1 Integrated Pilsen development plans**

Integrated development plan Plzeň University City (IPRM) constitutes an ambitious elaboration of City's economic strategy. The aim is to improve conditions for knowledge economy and stimulation of economic development. There are University of West Bohemia, Medical College of Charles University, Plzeň City, Nuclear Research Institute Řež, Škoda Research, and Regional Technical Museum are partners in this project. IPRM presents 123 project plans supporting science, research, knowledge economy and also improving traffic service between the Industrial Zone Borská pole and university campus. Investment value of these projects reaches 10 billion Kč.

Fundamental projects apart of public transportation expansion include:



- construction of second phase of Science and Technology Park Pilsen
- further expansion of university campus and purchase of instruments and laboratory equipment
- construction of biomedical research centre adjacent to university hospital

Integrated development plan Plzeň - Capital of European Culture 2015 assumes significant synergy with IPRM.

Very important was a support of science and research by regional authorities. In Pilsen there was e.g.:

- In 1992 BIC (Business Innovation Centre) was established by Plzeň City. BIC company is focusing on consultancy and information provision about EU subsidies and operation of entrepreneurial incubator in facilities at the edge of the IZBP.
- In 2000 RRA (Regional Development Agency) was established by Plzeň City and Plzeň Economic Chamber. The Agency leads efforts in defining resorts for economic and social development of the region.
- Regional Innovation Strategy was launched in 2004. It offers resorts supporting knowledge economy embarking admission of the Czech Republic into European economic area. Final report establishes foundations for long term strategy for Plzeň City and region.
- Plzeň Science and Technology Park (VTP) was established in 2005 by Plzeň City with the aim to develop a complex of laboratory and office facilities for location of research and development teams. Project is financially supported by EU and first phase was finalized in January 2008. It is used by teams of University of West Bohemia as well as private companies.

## **5 Establishment of S&T Park in Pilsen**

The company Společnost vědeckotechnický park Plzeň, a. s. (plc) (pic. 2), was established by two shareholders: Plzen region and City of Plzen (50:50). The company Společnost vědeckotechnický park Plzeň, a. s. (plc), was established by two shareholders: Plzen region and City of Plzen (50:50). The goal of the company was to build and operate the science and technology park with the goal to support applied research in the region. Aims of the company were defined as follows:

- Create conditions for the emergence of qualified jobs
- Create conditions for attracting new investors in the field of innovatoin and „high-tech“
- Use the science & technology park as a unique space for cooperation between academic institutions and the commercial sector
- Create space for realisation of resupts of applied research and transfer of advanced technologies into practice
- Improve the environment for the development of innovative small and medium-sized companies
- Support long-term economic growth in the region, the prosperity and competitiveness of which are based on a high share of advanced technologies



**Pic. 2 S&T Park in Pilsen**

### 5.1 Financing of the project

Plzeň Region reduced its share in the company to 5%. By purchasing 27 shares from the Region, the City increased its share in the company to 95% in August 2005. In May 2005 the City accepted the commitment to finance the project by increasing the basic capital of the company STP a.s., by subscription of shares up to the level of max. 100 mil. CZK from the expected costs of the project (250 mil. CZK). Payments were divided according to the time of realisation during 2005 – 2008 (2005 - 6 mil., 2006 - 70 mil., 2007 - 10 mil. CZK). It was ordered to maintain the ratio of shares in the company, an agreement of all shareholders was concluded in accordance with § 205 of the Commercial Code on gradual proportional increase of basic capital of the company. Financing of the project is listed in the table No. 5-1 and 5-2.

**Tab. 5-1 Financing of the project in 1st phase**

| Size and costs                          | Total area  | 1st phase (2005-2008) |
|---|-------------|-----------------------|
| <b>Size</b>                             |             |                       |
| Land area (m <sup>2</sup> )             | 40 000      | 12 300                |
| Built-up area (m <sup>3</sup> )         | 61 000      | 33 000                |
| Area for rent (m <sup>2</sup> )         | 8 000       | 4 700                 |
| <b>Planned costs</b>                    |             |                       |
| Costs of buildings, excluding VAT (CZK) | 300 000 000 | 187 000 000           |
| Costs of infrastructure (CZK)           | 25 000 000  | 13 000 000            |



**Tab. 5-2 Financing of the project in 2nd phase**

| Characteristics of the project          | Science & technology park |
|---|---------------------------|
| Type of the project                     | Public financing          |
| Investor                                | City of Plzeň             |
| Area of office and laboratory buildings | 5 990 m <sup>2</sup>      |
| Total investment                        | 300 mil. CZK              |
| - Frant from Structural Funds of the EU | 225 mil. CZK              |

Following points show timetable of construction and realisation of the S&T Park Plzeň:

- March 2005: Planning Permit for S&T Park issued
- May 2005: Business Plan completed, Feasibility Study completed, application for EU funding submitted
- September 2005: designer for the S&T Park selected
- November 2005: Ministry of Industry approved EU grant
- April 2006: Building Permit issued and valid
- June 2006: selection of construction company
- September 2006: start of construction – 1st phase of S&TP
- November 2006: selection of bank to provide loan for prefinancing (until completion – grant = ex-post)
- December 2007: completion of construction

## 5.2 S&T Park – two phases



**Pic. 3 Location of Buildings in S&T Park**



**Tab. 5-3 Distribution buildings**

| Building      | Use   |
|---------------|---|
| A, B, C, D, E | Offices, conference rooms, cafeteria                  |
| F, G, H       | Production space, development workshops, laboratories |

### 5.3 Technical and economic parameters of the project

| Characteristics of the project                                 | Technology park     |
|--|---------------------|
| Type of the project  | Public financing    |
| Investor   | VTP Plzeň a.s.      |
| Areas of office and laboratory space                           | 8000 m <sup>2</sup> |
| Number of new jobs   | 100                 |
| Investment   |                     |
| - City of Plzeň (and Plzeň Region)                             | 85 mil. CZK         |
| - grant from the Structural Funds of the EU                    | 150 mil. CZK        |
| - Total  | 235 mil. CZK        |
| Number of tenants in the Park                                  | 13                  |
| Potential for development of the Park                          |                     |
| Total number of jobs   | 100                 |
| Costs of 1 job created   | 2,350,000 CZK       |
| Gross costs on 1 m <sup>2</sup> of laboratory and office space | 30,000 CZK          |
| Share of EU grant on total costs                               | 64 %                |
| Time of realisation of the project                             | 2005 - 2008         |

## 6 Conclusion

Regional economy benefits are not only from primary employment but also from synergic effects. Ties of companies located in IZBP with host economy are rather close as almost three quarters of companies use local subcontractors for covering over a half of their demand. The most common cooperation type is purchase of goods or services. There are five R&D centers linked to manufacturing located within the grounds.

The main partners of the project S&T Park are:

- University of Western Bohemia – Center of New Technologies:
  - New materials
  - Laser technologies



- Termical analyses
  - Calculation simulation of strongly non-linear actions
  - ŘEŽ Research Centre – private research institute
    - Nucleas energy
    - New materials for nuclear engineering
  - Further partners: BIC Plzeň, Škoda Výzkum, FORTECH ...
- Synergic potential of the region is considerable, e.g.:

- City, highway, EU
- Borská Pole
- Brownfield ŠKODA
- University → innovation
- Clusters, smart technologies
- Science and Technology Park
- IPRM University City

New working possibilities brought to the region foreign investors. These brought modern methods of industrial engineering which were subsequently spread across the region, to S&T Park too. S&T Park certainly supports the economic potential of the region.

### Literature

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