Overview of technology mapping activities in Polish foresight initiatives*

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AGENDA

- TECHNOLOGY and FORESIGHT

- Technology mapping and technology roadmapping

- Diagnosis of current state of technology in Polish foresight initiatives

- Best practices of diagnosis of current state of technology from Poland

- Basic methodology assumptions of technology mapping – *NT FOR Podlaskie 2020. A regional strategy of nanotechnology development*
TECHNOLOGY AND FORESIGHT

Due to great significance attached to technology development as one of the elements driving contemporary economy, what seems vital is technology monitoring through observing its current state, as well as defining possibly occurring relations among technologies, so as to determine, ultimately, their development schemes.

Determining the current state of technology within foresight research, which could be defined as technology mapping, is an essential observation element and the basis of technological environment changes predictions.

http://www.emeraldinsight.com
Technology mapping was initially described as a tool for working out strategic investments.

In the report which concluded the methodology applied in the project, the executors presented technology maps concerning health care area, grouped into seven clusters. Relationships among elements on the map as well as technologies developed on other maps, without the incorporation of a time factor, were also indicated.
Different people use the term ROADMAPPING (or even TECHNOLOGY ROADMAPPING) to mean different things.

M. L. Garcia, O. H. Bray, 1998

The roadmap is not intended to be a detailed review of existing and likely technologies, but rather an indicator of the needs for technology development to which an appropriate response can be made by industry and academia.

R. Phaal, C. Farrukh, D. Probert, T-Plan: Fast Start to Technology Roadmapping – planning your route to success, Institute for Manufacturing, Cambridge 2011, p. 4

Foresight Vehicle Technology Roadmap - Technology and Research Directions for Future Road Vehicles, Society of Motor Manufacturers and Traders Ltd, London 2004
The essence of the technology mapping method consists in an advanced diagnosis of the current state of technologies, in a way that allows for identification, categorization and spatial location of technologies, at the same time incorporating potential relationships among the technologies.

Both methods – technology mapping and technology roadmapping – seem to be separate, though connected.

The term technology mapping is often encountered in Polish literature as the Polish term for the technology roadmapping method; however, it seems to be a simplification resulting from a rough translation.
The Technology Perspective Kraków-Małopolska 2020

Priority technologies for sustained development of the Podkarpackie Voivodship

Technological development scenarios of the copper ores and accompanying materials mining industry in Poland

Technological development scenarios of the bituminous coal mining industry

Technological development scenarios of modern metallic, ceramic and composite materials

The Opolskie Voivodship as a Region of Sustainable Development – Regional Foresight by 2020

Advanced industrial and ecological technologies for the country’s sustainable development

Zero-emission power management in Poland’s sustainable development conditions by 2050

Food and nutrition in the 21st century – a vision of Polish food industry development


Regional foresight of the Zachodniopomorskie Voivodship

Technological foresight <<NT FOR Podlaskie 2020>> A regional strategy of nanotechnology development

Foresight of priority, innovative technologies for automation, robotics and measuring technology

Technology foresight for industry INSIGHT 2030

Technology foresight of public services development in Metropolitan Area of Upper Silesia

Technology foresight for polymer materials

Foresight for priority and innovative technologies of hard bituminous coal mining waste management

Foresight for surface properties formation leading technologies of engineering materials and biomaterials

LORIS Vision. Regional technology foresight

Modern technologies for textile industry. A chance for Poland
TECHNOLOGY MAPPING IN POLISH FORESIGHT INITIATIVES

- analysis of publications and patents
- technology cards (in different forms, uniform and not)
- database of technologies
- technological review
- a regional technological profile
- analysis of the current state of technology
- atlas of technology clusters
- expert analysis of technology innovation
- inventorying of existing knowledge reserves
- network analysis
- descriptions of distinguished technology groups and individual technologies
- region's knowledge maps
- analysis of relationships among technologies

SWOT analysis, namely distinguishing a technology's strengths and weaknesses, and opportunities and threats for its development
STEEP analysis (or its modification), identifying factors which influence the development of a given technology

http://philsimonsystems.com/blog/technology/web2-0/tech-unemployment/
The Technology Perspective Kraków-Małopolska 2020

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Priority technologies for the sustainable development of the Podkarpackie Voivodship:

- relationships among leading technologies, in the aspect of their favourable or unfavourable influence on simultaneous development;
- an expert assessment;
- however, visualization of the collected data was not carried out, leaving the data in the form of a table of averaged expert assessments.

Food and nutrition in the 21st century –

- the examination of relationships among technologies, incorporating both influences and relations...
**BEST PRACTICES of TM POLISH FORESIGHT INITIATIVES**

**Advanced industrial and ecological for the country**

- uniform technology
- a base of knowledge

**Technology foresight for industry INSIGHT 2030**

- the atlas of technology clusters - project seems to be interesting, unfortunately, in practice was restricted to location of technology.
The Technology Perspective

Kraków-Małopolska 2020

- region's knowledge maps
- technology index cards
- a map of relationships among technologies

Ten distinguished technologies of the future were assigned to categories of complementary, supporting and supplementary technologies. Assessment was done by experts.

The collected and analysed data was drawn up in the form of future technologies net.
Alicja E. Gudanowska, *Overview of technology mapping activities in Polish foresight initiatives*

**BASIC METHODOLOGY ASSUMPTIONS OF TECHNOLOGY MAPPING**

The conducted review and the critical analysis of the documentation of Polish foresight projects allow for distinguishing of elements of the diagnosis of the current state of technology which can be held as recommendations in the scope of using the methodology of technology mapping. They are the following:

- Distinguishing of relationships among technologies on the basis of expert knowledge.
- Preparing maps representing possibly existing relationships among technologies.
- Network analysis – helpful idea.
BASIC METHODOLOGY ASSUMPTIONS OF TECHNOLOGY MAPPING

TECHNOLOGY MAPPING should allow for construction of a series of maps and visualizations, enriched with descriptive or tabular data on technologies, reflecting the current (at the moment of the analysis) technology state.

The aim of such proceedings is providing the fullest possible knowledge about technologies, coming not only directly from technological experts' answers, but also from the analysis and visualization of information collected during workshops or expert consultations.

This approach bases on expert knowledge, but is complemented by categorization of obtained data and accessible result presentation which allows for noticing relationships among technologies which wouldn't be visible in text descriptions frequently used in foresight research.

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Thank you for your attention
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