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Strategic Policy Intelligence Tools in building and managing the Knowledge Integration Community (KIC)

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Koblenz

17-23 July 2016

Knowledge Integration Community (Industry, Government, Research and Education;
**Two binding mechanisms: knowledge exchange (KE) and the study of innovations in knowledge exchange (SIKE).
(E.B. Acworth, University-Industry engagement: The formulation of knowledge integration community (KIC) model
at the Cambridge-MIT Institute, Research Policy 2008 Np. 77
http://www.sciencedirect.com/science/article/pii/S0048733308000929**
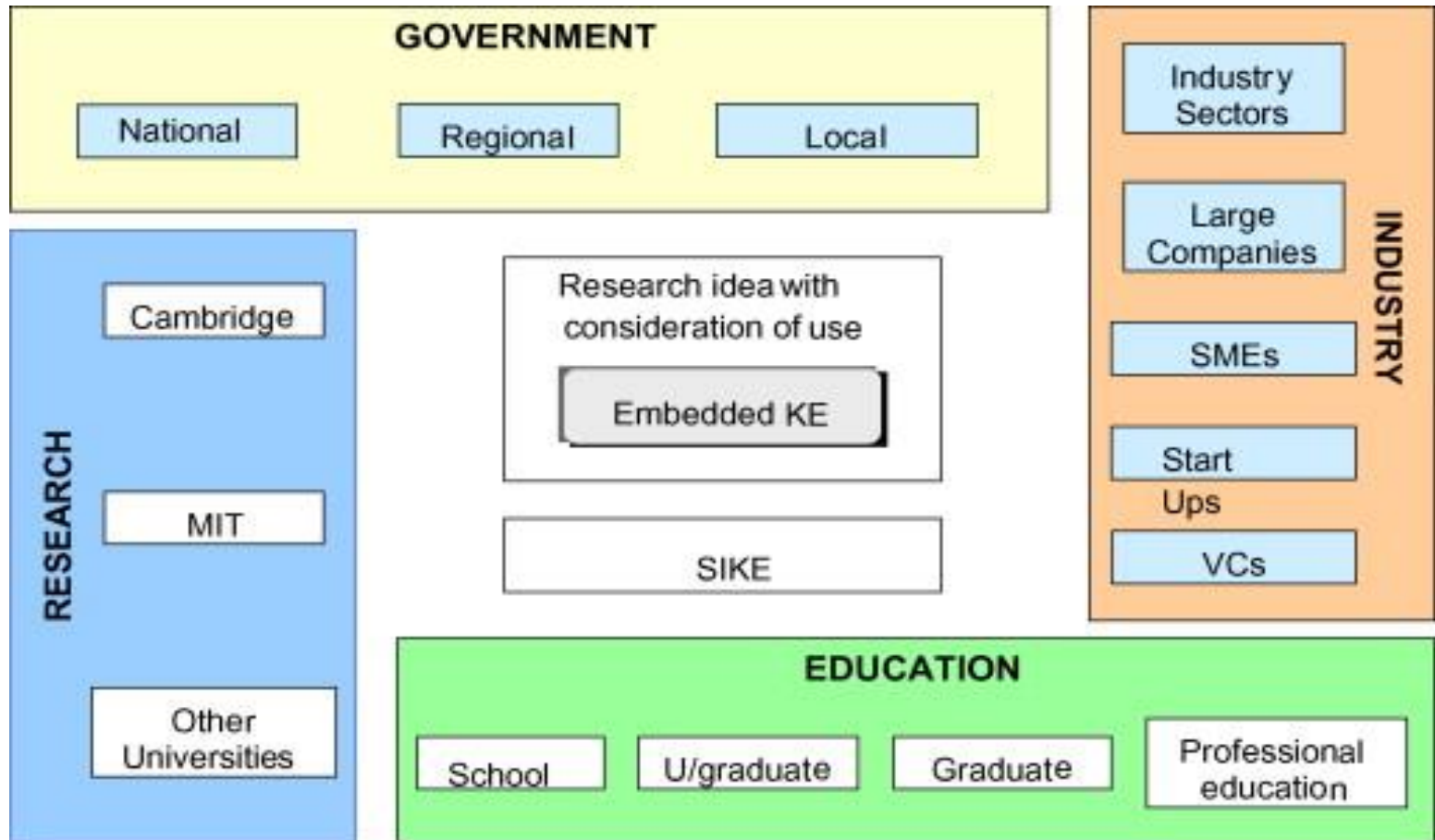
Roots of KIC

❑ Massachusetts Institute of Technology (USA);

❑ University in Cambridge (GB);

❑ British government and private investors;

The initiated process of the co-operation was called "exchange of knowledge". It was opposed to the traditional term "transfer of knowledge".

„Exchange of knowledge" process suggests that between different regional actors (Industry, Government, Research and Education) are multidirectional flows of knowledge and experiences.

The cooperation between all regional actors has technological, economic and social charakter - pparallel students were being trained, results of research works were being commercialized as well as regional problems were being solved.

Wroclaw Research Center EIT+

❑ Wrocław Research Center EIT+ came to the existence with the use the KIC idea;

❑ The Center formed by 6 regional state universities (e.g. Wrocław University of Technology), the authority of the Wrocław City, the authority of the Lower Silesia Region;

❑ Interest area: Innovative technologies – nanotechnology, advanced material, medical technologies, communication and information technologies;

❑ Financial resources: European projects, regional projects, privet business;

❑ co-operation with universities in the field of „exchange the knowledge";

How to build and manage the process of „exchange of knowledge"

By using SPI tools:

❑ Innovation Audit

❑ Benchmarking

❑ Foresight

❑ Technology Assessment

❑ Evaluation

THE EUROPEAN PROJECT REGSTRAT

Wrocław University of Technology participated in the European project:

❑ **Strategic Policy Intelligence Tools** for Better Science and Technology Investment Strategies in Europe's Regions" (RegStrat).

THE PURPOSE AND THE SCOPE OF THE PROJECT REGSTRAT

The RegStrat project concerned using SPI tools to manage better different organisations in the field of the effective investment planning in the area of research, the development of the technology and the creating of innovation.

PARTNERS OF THE WROCŁAW TECHNICAL UNIVERSITY IN THE REGSTRAT PROJECT

- ❑ Steinbeis Europa Zentrum der Steinbeis Stiftung für Wirtschaftsförderung, Stuttgart (Germany),

- ❑ Instituto Regionale di Ricerca della Lombardia, Mediolan (Italy),

- ❑ Forfás, Dublin (Ireland),

- ❑ Fundacion para el Desarrollo de la Ciencia y Tecnologia en Extremadura (Spain),

- ❑ Institute of Baltic Studies, Tartu (Estonia).

VALUE ADDED FOR THE REGSTRAT PROJECT

Outline of the RegStrat project rationale (modified):

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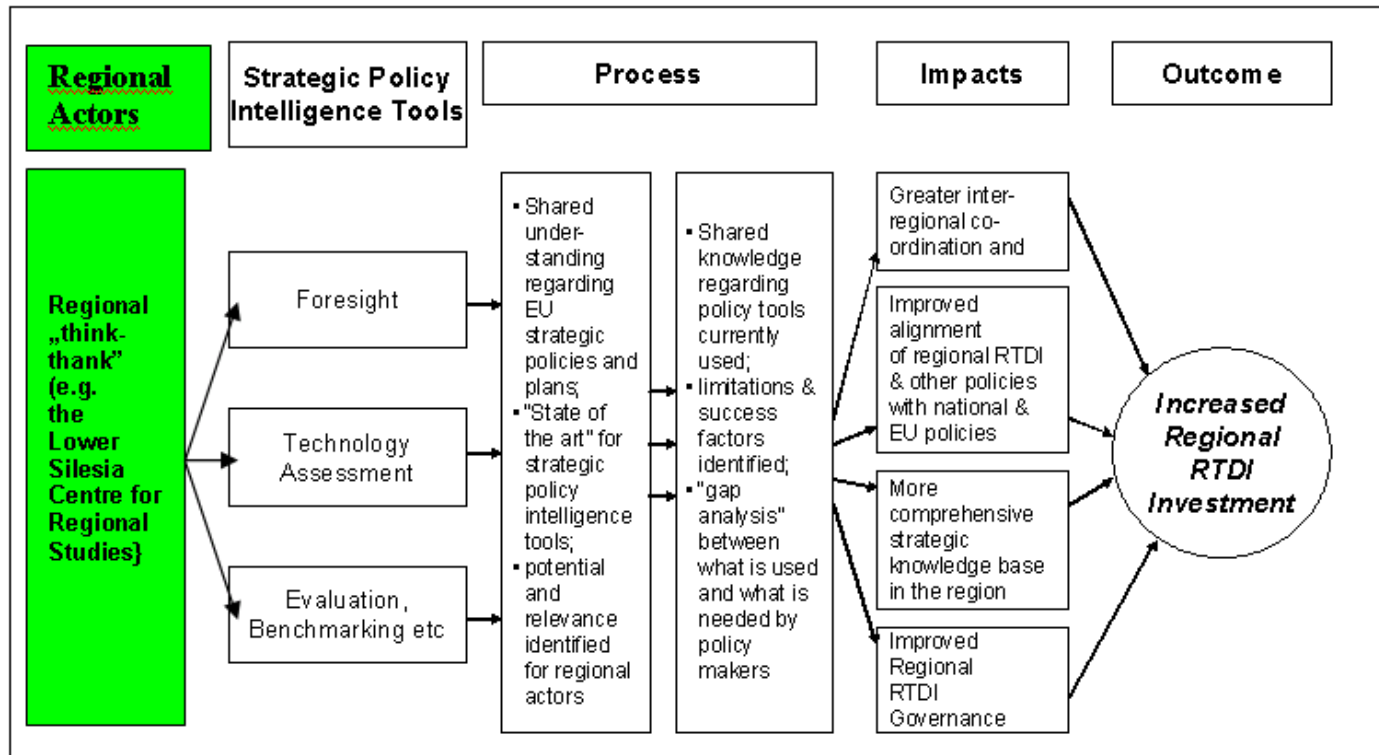
Strategic Policy Intelligence Tools

❑ Innovation Audit

❑ Benchmarking

❑Foresight

❑Technology Assessment

❑Evaluation

Innovation Audit

❑ A innovation audit is a method of investigation which aims at evaluating the technological capacity and technology needs of an organisation, and also at assessing related non-technological innovation in organisation process;

❑ A innovation audit describes the strengths and weaknesses of a regional system of innovation and helps to find the solutions of problems in the field of technological chances, research and regional development, new innovations and social changes.

❑ A innovation audit helps to identify the activities and factors base in order to carry out the strategic development plan.

Steps of an Innovation Audit Exercise

1. **Definition and design** of the exercise;

2. **Collection of information** on the principal assets of the region's innovation system: business firms, research centers ant technology transfer units, supportive public policies and linkages between these assets;

The list of key assets in a region

❑ Dynamic enterprise structure;

❑Presence of international companies;

❑Networks and clusters;

❑Entrepreneurial culture and local role models;

❑Capital market (including seed capital for new start-ups);

The list of key assets in a region

❑ Knowledge centres (higher education institutions, private and public research institutions, etc.);

❑ Enterprise training institutions;

❑ Physical infrastructure (transport, ICT, utilities, etc.);

❑ Policy infrastructure (support and regulatory; enthusiastic regional champions);

❑ Quality of life;

3. **Diagnosis** of the strengths of these assets and linkages;

4. **Developing** an action plan for the region including measures to enhance performance and overcome weaknesses;

5. The **presentation** of the report and finding to the RTDI policy- makers;

BENCHMARKING

Benchmarking is as the tool competitiveness supporting **Benchmarking** is an improvement process in which an system (e.g. Organisation, company, etc.) carries out three activities:

❑ compares its performance against best-in-class external system;

❑ researches how these systems have achieved their superior performance;

❑ Uses the collected information to improve its own performance;

Steps of a Benchmarking Exercise

1. **Planning Phase** -the definition of the scope (the object to be benchmarked), the formation of the a benchmarking team, the definition of the performance measures, and the identification of the benchmark targets;

2. **Gathering Information Phase** – defining and collecting indicators from official sources and ad hoc survey;

3. **Comparing and Understanding Phase** – the collected data are assembled in a database and a Benchmark Index report is generated. The report provides comprehensive and quantifiable performance indicators, highlighting the region's strengths and weaknesses against those of the comparator group;

4. **Analyzing the Information Phase**– an analysis is carried out to elaborate and interpret the data, identify performance gaps, analyze the potential reasons underlying the performance gaps, and identify the improvement areas on which action should be focused;

5. **Implementation** Phase – consists of a critical review of the results and the complication of a final report. A transparent and coherent action plan is development in order to implement reforms on a systematic data;

6. **Monitoring** Phase – entails a control and revision phase, checking the implementation of action plans/ policies, identifying the deviations, and providing feedback for the next planning phase;

FORESIGHT

❑ Foresight is the process involved in systematically attempting to look into the longer-term future of science, technology, the economy and society, with the aim of identifying the areas of strategic research and the emerging generic technologies likely to yield the greatest economic and social benefits (B. Martin SPRU);

❑ The goal (of Foresight) is not to predict the future but to understand how the future is shaped and on that basis to explore a range of possible futures with a view to selecting one that is desirable and attainable.

Steps in a regional Foresight Exercise

1. **A phase to understand the point of departure (the diagnosis):** positioning the foresight exercise in time and space; deciding on its coverage and foci (subjects of analysis); identification of key players associated with the chose topics; detecting internal and global factors of chance and driving forces; identifying current strengths and weaknesses.

2. A phase to explore what can happen (analysing, thinking and debating the future):

❑ Elaboration of a shared picture of the present long-term dynamics;

❑ Elaboration of a shared perception of the possible futures, and, through the elaboration of exploratory scenarios, identification of the key challenges to be faced;

❑ Definition of a shared vision of a desirable future;

(3) **A strategic phase (shaping the future**): development of recommendations about what can be done; elaboration of a common impleme4ntation strategy and concrete actions to achieve the goals set; evaluation and monitoring of the foresight process and the subsequent implementation activities; dissemination of foresight results to key stakeholders;

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Technology Assesment

❑ TA has been described as a „systematic, multi-disciplinary research and structured communication process which integrates stakeholder opinion and expert knowledge (national and international) regarding the potential long-term applications and socioeconomic impacts of emerging technologies and outlines development pathways on which public and private investment decisions can be made"

❑ TA has been described as a (technical) early-warning system (in which mostly expert participants are involved) towards a more policy and problem-oriented approach aimed also at identifying economic and social goals to which emerging technologies can make imporytant contributions.

Steps in a technology Assessment Exercise

1. **Planning the TA exercise**:

❑ Defining the focus (technology areas or problem aspects) and main activity lines of the exercise as well as the depth and breadth of the assessment;

❑ Scanning the „S&T environment" and prioritising the fields of action;

❑ Identifying the affected groups and individuals, the implementing organisations and users;

❑ Designing a tailored set of communication tools to share information and offer platforms for response and involvement;

❑ Defining the key process features (overall architecture, methods and techniques);

2. **Context Analysis and Research Phase:**

❑ Identifying the „state of art" for the technology, its socio-economic context and possible future developments;

❑ Mapping stakeholders and public behaviour concerning possible development paths and uses od technologies;

❑ Researching the scientific origins and social conditions of technology or technology-induced developments;

3. **Impact Analysis**:

❑ Assessing the intended and unintended effects (with their likehood and magnitude) including their dynamic interactions, delayed effects, and their impacts on the economy, social systems, politics, culture and environment;

❑ Analyzing the risk and problems as well as the opportunities and benefits using scientifically-based impact and cross-impact analysis;

❑ Analyzing the interests and values that are affected by the potential impacts;

❑ Specifying the uncertainties associated with each assessed consequence.

4. **Option Evaluation/ Appraisal and Communication**:

❑ Identifying policy options using scenario-planning to identify the range of opportunities for modifying technologies, creating organizational instruments for handling technologies and/or implementing changes in the societal context in which the technology is embedded;

❑ Designing ways to involve decision-makers and affected groups in the identification, selection and evaluation of polity options, and, where appropriate, in the implementation and management of mitigation measures;

❑ Exploring the unintended impacts associated with each policy option (using scientifically-guided but stakeholder-driven and value-based techniques);

❑ Designing technological modifications or organizational strategies for the promotion of positive, and the mitigation of negative impacts and policy options;

❑ Communicating the outcomes of the exercise appropriately;

Evaluation

Evaluation is a systematic and objective process that assesses the relevance, efficiency and effectiveness of projects, programmes and policies in attaining their originally stated objectives.

The task of evaluation is to address three issue:

❑ Are we (policy-makers) doing the right thing (appropriateness?);

❑ What are the results of our actions (impacts)?

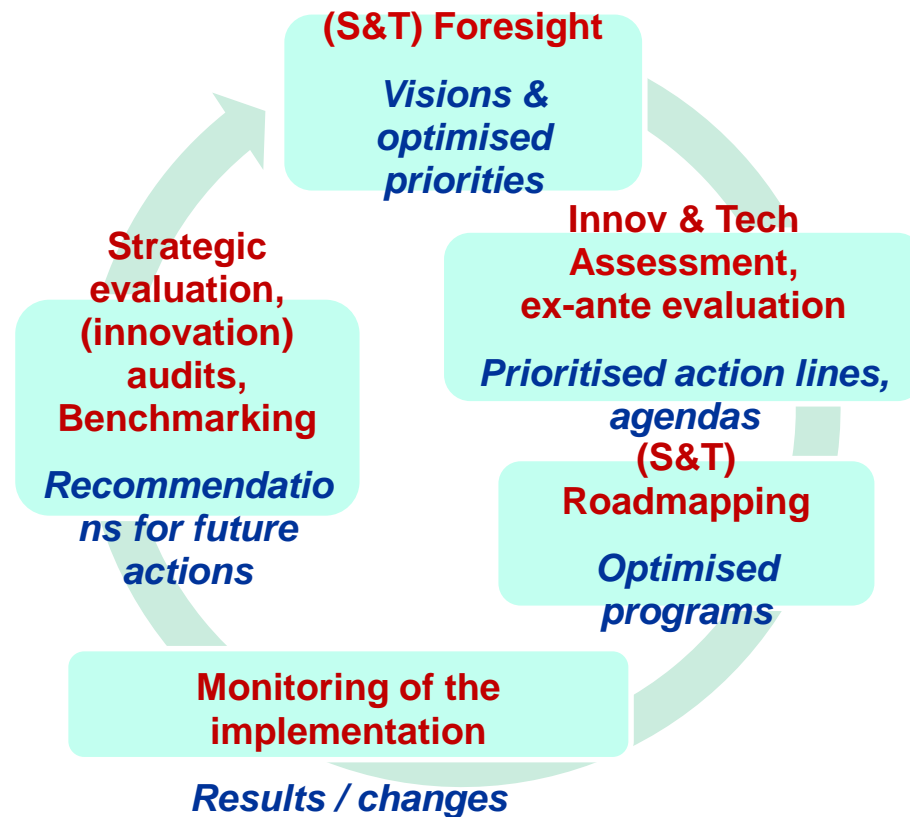❑ Could we do it better (effectiveness)?

Type of evaluation

❑ **Monitoring** – ogoing collection and review of information;

❑ **Ex-ante or planning evaluations** – are conducted at the design stage and define project/ programme/ organization objectives and how tey will be achieved;

❑ **Mid-term, Intermediate or Interm evaluations** – are used to review progess;

❑ **Ex-post evaluations** – messure the effects of a policy intervention, its impacts and outcomes;

The cycle of SPI Tools

(S&T) Foresight

Visions & optimised priorities

Innov & Tech Assessment, ex-ante evaluation

Prioritised action lines, agendas

(S&T) Roadmapping

Optimised programs

Monitoring of the implementation

Results / changes

Strategic evaluation, (innovation) audits, Benchmarking

Recommendations for future actions

DATA FOR THE TOOLS SPI (exemplary)

❑ Basic economic indicators about a region;

❑ Education/ human Capital in a region;

❑ Innovative potential of region;

❑ Working personnel in space of B+R in a region;

❑ Innovative actions in a region;

❑ Innovative "productivity" of region (number of scientific publications, number of the patents registered in European Patent Office, number of the registered patents from space of hi-tech in European Patent Office, balance import/ export on a sector, balance of technology, direct investments);

SOURCES OF DATA FOR INSTRUMENTS OF SPI

- ❑ Regional statistic office;

- ❑ National statistic office;

- ❑ EUROSTAT;

- ❑ European Innovation Scorboards,

- ❑ Data from European reports;

- ❑ Conferences and papers

- ❑ Scientific research

REALIZATION OF BENCHMARKING EXERCISE
in Lower Silesia Region

❑ we collected only a part od data;

❑ main source of data (secondary source) was Polish official statistical office (GUS);

❑ there are barriers in the receipt of data from space of researches, development of technology and innovation in relation to provinces (e.g. import of regionlny, technological balance, number of the patents registered in EPO)

❑ shortage of data - their receipt would require translation of primary (money, time, method, people) researches

BARRIERS IN APPLYING SPI TOOLS in LOWER SILESIA REGION

❑ small experience of regional actors in the application of tools SPI in the administration by region,

❑ fragmentary knowledge in the region about innovative processes in the area of research, the development of the technology and of innovation,

❑ small knowledge among actors about the innovative solutions in other regions (in Poland and Europe),

❑ creation in the region of platforms" the exchange of knowledge" about innovative undertakings in the region between the regional actors,

❑ Small number expert institutions supporting regional authorities, universities, business organizations in the realization of innovation policy and strategy in the region;

CONCLUSIONS FROM THE BENCHMARKING EXERCISE

❑ Effective using SPI tools requires having details about innovative processes in the region;

❑ Regional cooperation with institutions entertaining with bringing themselves and the accumulation of data (e.g. Regional Statistical Offices), showing current and future areas of research from which one should draw data;

❑ Deepening the cooperation with the institutions in other provinces, in order to conduct the shared benchmarking;

❑ Vocation in regional of institution dealing with regional studies (Lower Silesia Centre for Regional Studies);

❑ Deepened cooperation and with institutions regional in Europe and USA; receiving their possessions, conducting the shared more than regional benchmarking;

❑ Adaptation of SPI methods for needs of the regional management, their popularization (with using experience of the college in the region);

❑ Analysis and drawing results of the benchmarking up;

❑ Delivering aggregated benchmarking data for self-government authorities, supporting regional action in the decision making about directions;

❑ Recommendation of instruments of SPI as a permanent process engaging all regional actors;

Thank you and
very much for your attention!

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