



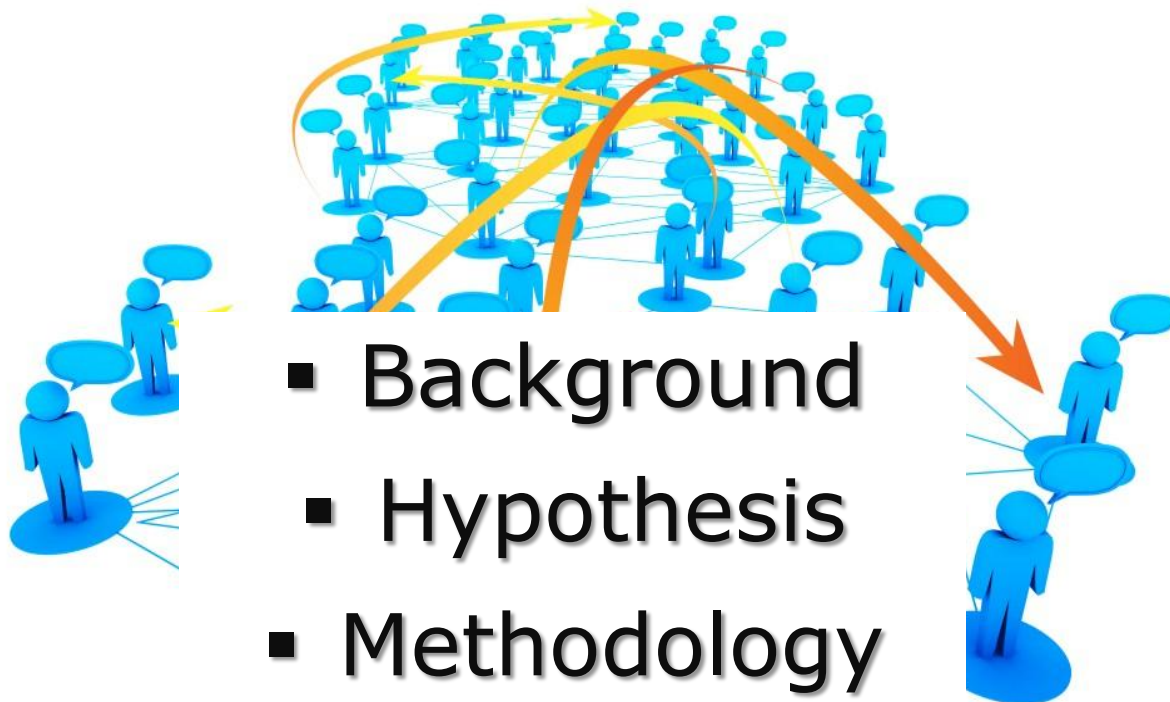
"The real measure of success is the number of experiments that can be crowded into 24 hours."

Thomas Edison

Rules of cooperation between science and business in the area of smart specialization at the regional level - an attempt of evaluation

Ryszard Ćwiertniak MSc

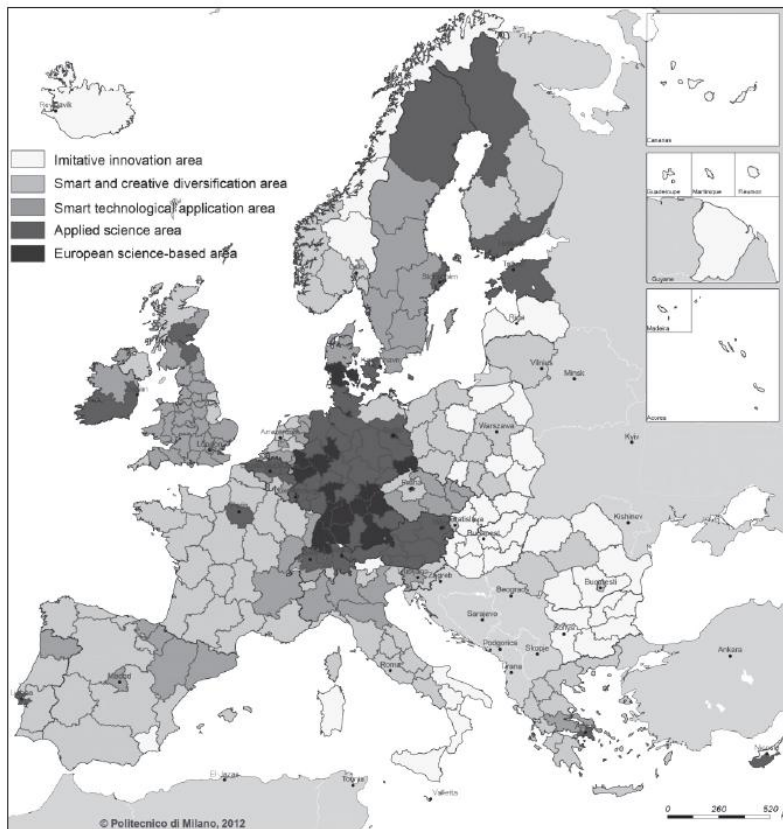
AGENDA:



- Background
- Hypothesis
- Methodology
 - Results
- Conclusions

SMART SPECIALIZATION

Territorial patterns of innovation in Europe.



Source: Capella & Lenzi, 2012

- SmSp on the top of EU agenda between 2014 and 2020
- SmSp will impact significantly EU regional policy and especially EU innovation development
- Universities occupy a special role due to their expertise in the areas of education, innovation, and technology transfer
- Innovation aspect is also central in competence networks, involving universities as regional innovation engines for new business and regional network creation



STRATEGY FOR SMART, SUSTAINABLE AND INCLUSIVE GROWTH

Priorities, development goals and flagship initiatives of the "Europe 2020" Strategy

Strategic priorities	Development goals	Flagship initiatives
Smart growth	TARGET 2: To improve conditions for research and development (3% of EU GDP for R&D investments) TARGET 4: Increasing the educational attainment level	Innovation Union Digital Agenda for Europe An Agenda for new skills and jobs An industrial policy for the globalisation era
Sustainable growth	TARGET 3: Reducing overall greenhouse gas emissions by 20%	A resource-efficient Europe Youth mobility
Inclusive growth	TARGET 1: Achieving a 75% employment rate for the population aged 20-64 TARGET 5: Promoting social inclusion	European platform against poverty and social exclusion

Source: own study based on *Europe 2020. A strategy for Smart, sustainable and inclusive growth*, Ministry of Economy, Warsaw 2010, pp. 4-9.



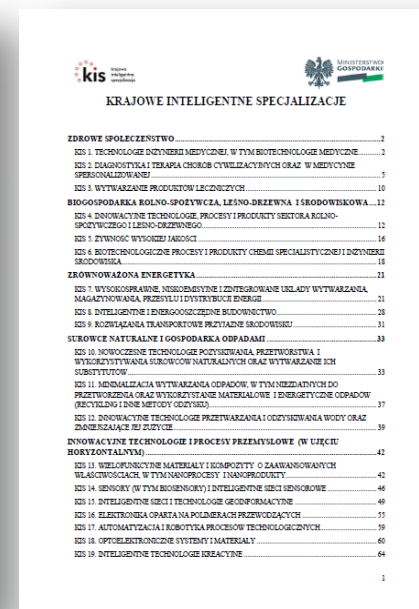
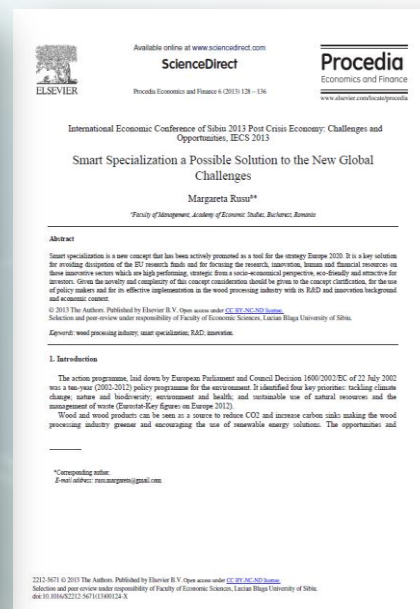
SMART SPECIALIZATION

I. HEALTHY SOCIETY	1. Medical engineering technologies, including medical biotechnologies. 2. Diagnosis and treatment of civilization diseases and personalized medicine. 3. Production of medicinal products
II. AGRI-FOOD, FORESTRY-TIMBER AND ENVIRONMENTAL BIOECONOMY	4. Innovative technologies, processes and products of the agri-food and forestry-timber industry. 5. Healthy food (high quality and organic production). 6. Biotechnological processes and products of household chemistry and environmental engineering
III. SUSTAINABLE ENERGY	7. High efficiency, low-emission and integrated energy production, storage, transmission and distribution systems. 8. Smart and energy efficient construction. 9. Environmentally friendly transport solutions
IV. NATURAL RESOURCES AND WASTE MANAGEMENT:	10. Modern technologies for sourcing, processing and use of natural resources and production of substitutes thereof. 11. Minimizing waste, including waste unfit for processing and use of waste for material and energy purposes (recycling and other recovery methods). 12. Innovative technologies for processing and recovery of water and reducing its consumption
V. INNOVATIVE TECHNOLOGIES AND INDUSTRIAL PROCESSES (IN HORIZONTAL APPROACH):	13. Multifunctional materials and composites with advanced properties, including nano-processes and nano-products: 14. Sensors (including biosensors) and smart sensor networks. 15. Smart grids and geo-information technologies. 16. Electronic based on conducting polymers. 17. Automation and robotics of technological processes. 18. Optoelectronic systems and materials



SMART SPECIALIZATION

Literature:



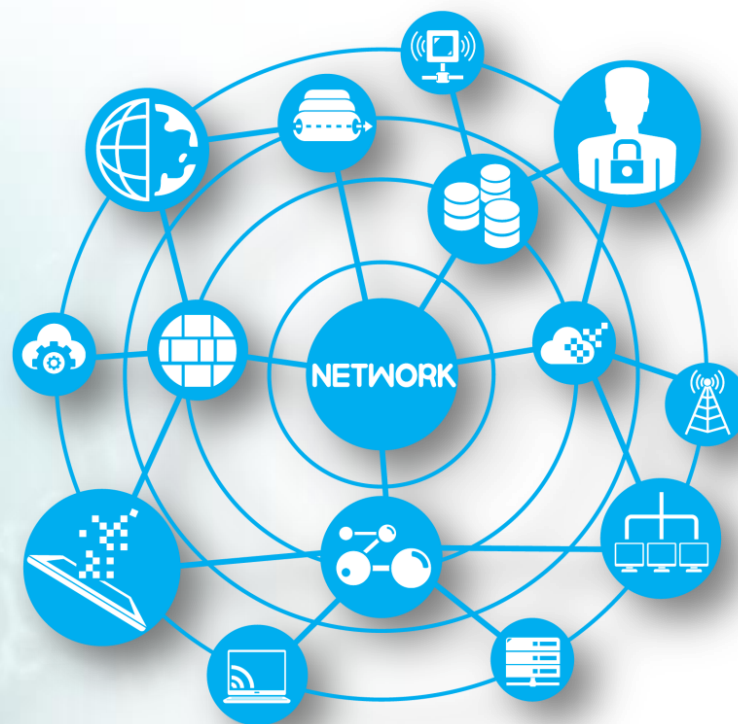


DEFINITIONS

Cooperation	voluntary arrangement in which two organizations engage in a mutually beneficial exchange
University-Business Cooperation (UBC)	kind of formal and informal cooperative interactions between universities and business for mutual benefit
Main domains of cooperation	<p>Education – (1) curriculum design and delivery, (2) lifelong learning, (3) student mobility</p> <p>Research – (4) temporary movement of teaching staff or researchers, (5) R&D, joint R&D activities, contract research, R&D consulting, cooperation in innovation, joint supervision of theses</p> <p>Valorization – (6) creation of entrepreneurial culture or of start-up, and (7) commercialization of R&D</p>

NETWORKS

- Strategic alliance
- „Network organizations”, dynamic network
- Tension and perturbations





BARRIERS AND DRIVERS

FACTORS	Influence on ...
Connections	negatively associated with UBC, including cooperation in relation to curriculum design and delivery, lifelong learning, student mobility, professional mobility, R&D and commercialization
Funding	
Organizational culture	
Internal characteristics	
Resource availability	positively associated with UBC, including cooperation in relation to curriculum design and delivery, lifelong learning, student mobility, professional mobility, R&D and commercialization
Relationships	





THE MAŁOPOLSKA REGION



MAŁOPOLSKA

Gross domestic production in Małopolska 2007–2011

Specification	2007	2008	2009	2010	2011
GDP in current prices (in PLN mn)					
Poland	1,176,737	1,275,508	1,344,505	1,416,585	1,528,127
Małopolska	86,974 (7.4% PKB of Poland)	95,020 (7.5% PKB of Poland)	99,610 (7.4% PKB of Poland)	104,089 (7.3% PKB of Poland)	113,948 (7.5% PKB of Poland)
GDP per capita (in PLN) Małopolska					
				31,501	34,107

Source: The Central Statistical Office (GUS), <http://stat.gov.pl> (20.09.2014).



THE MAŁOPOLSKA REGION



SMART SPECIALIZATION

i) life science, ii) sustainable energy, iii) information and communication technologies, iv) chemistry, v) production of metals and metal products and manufacture of non-metallic minerals, vi) electrical and mechanical engineering, vii) creative and free time industry



HYPOTHESIS

Smart specialization is one of mechanisms to improve the cooperation between science and business (UBC)



MAŁOPOLSKA



METHODOLOGY

← English_Współpraca_jednostki naukowej WYŚLIJ

PYTANIA ODPOWIEDZI

Cooperation R&D units with companies in the area of smart specialization in Malopolska

The Regional Innovation Strategy of the Malopolska Region in 2020 sets out the key regional specializations (ie. Smart specialization region) that are to be one of the conditions for starting EU funds in the new financial perspective and a platform for cooperation between science and business innovation.

This survey is part of a research project conducted by the employees and associates of the Department of Economy and Public Administration Cracow University of Economics. The questionnaire is anonymous, and its fulfillment will take you approx. 5 minutes. Please feel free to providing reliable answers to our questions.

Type of R&D unit. (select type)





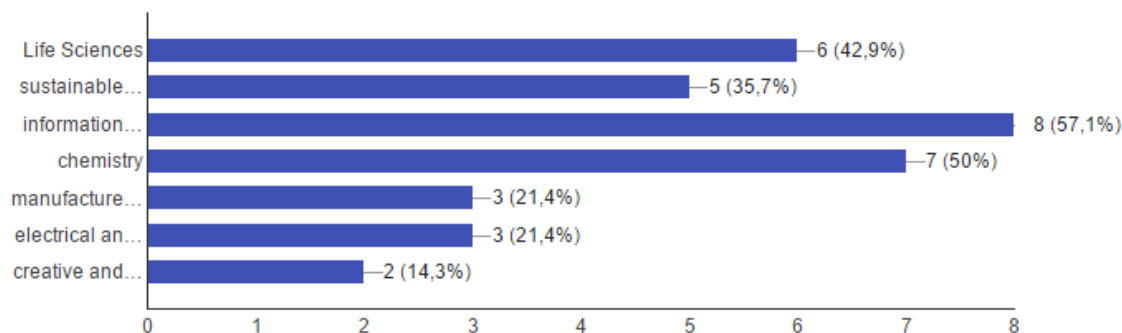
RESULTS (R&D units)

Type of R&D unit. (select type)



- research unit, including technology transfer center
- laboratory
- Business Authority Environment
- company held the status of R&D unit

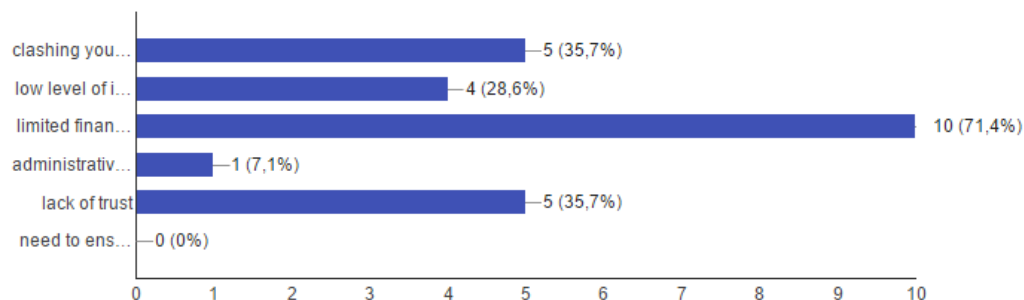
Field of the smart specialization. (select field)



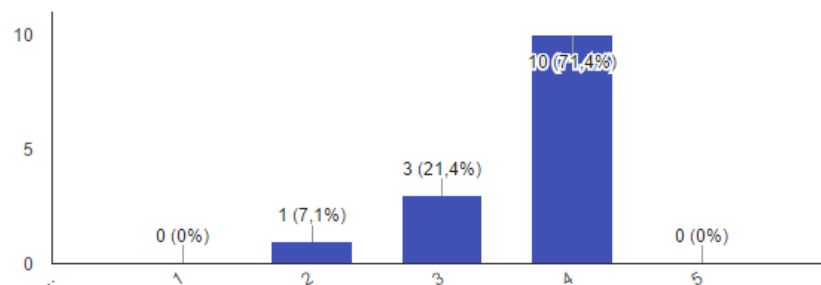


RESULTS (R&D units)

What kind of barriers You had to overcome in order to improve the relation with company? (please select the type of barriers)



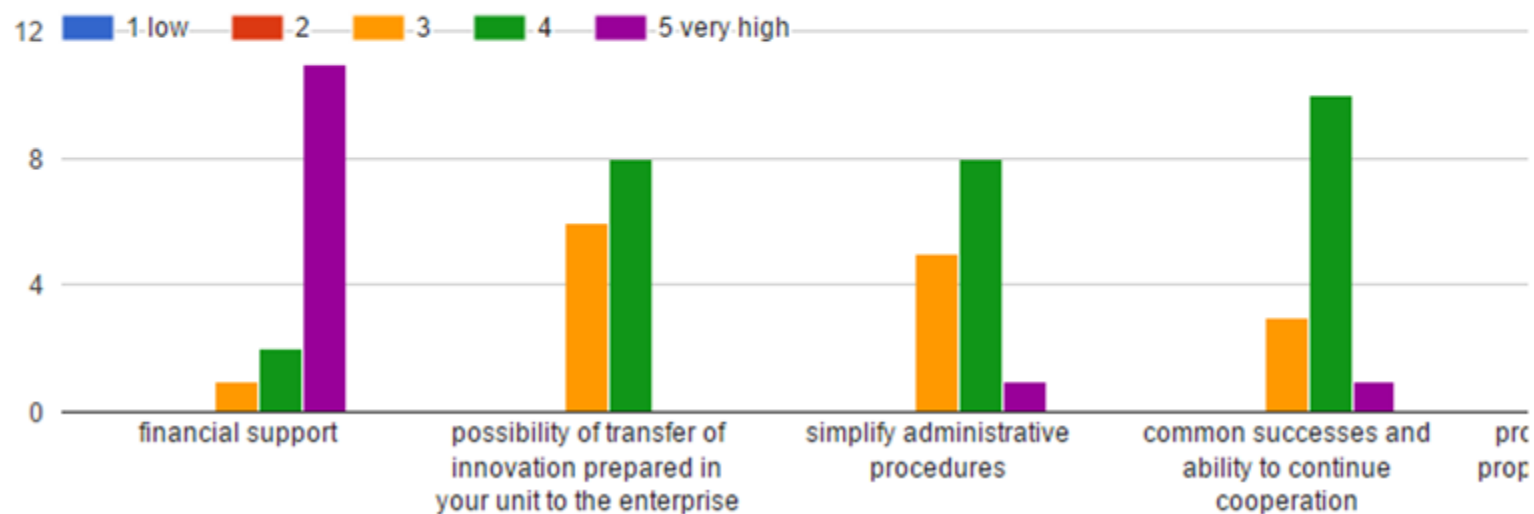
Is it possible to improve your cooperation with companies in the future? (please mark the evaluation on a scale of 1 - 5)





RESULTS (R&D units)

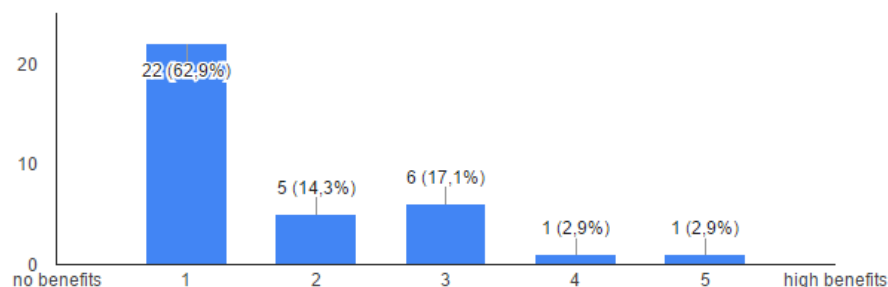
What kind of individual factors can strengthen your cooperation with companies?



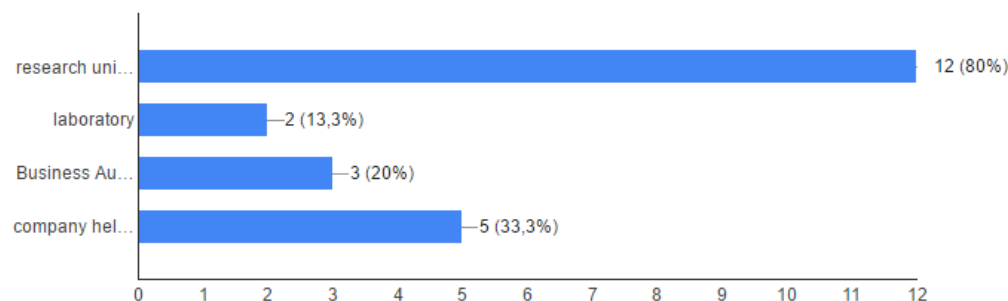


RESULTS (companies)

25. Does Your company work with R&D sector in the field of innovation in the area of smart specialization in Malopolska? (please mark the evaluation on a scale from 1 - 5)



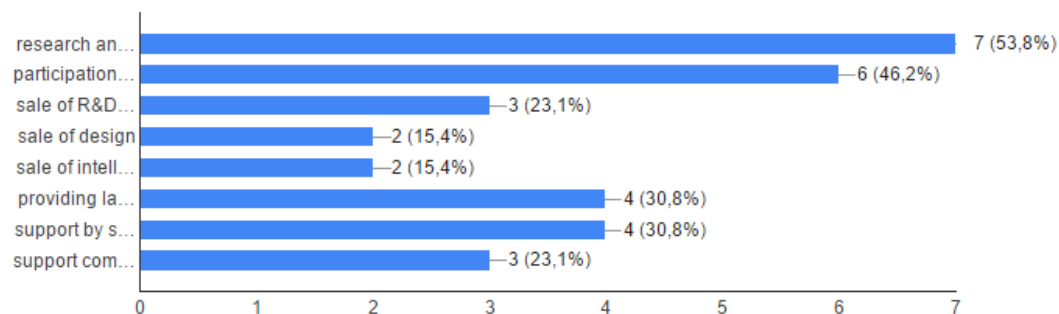
26. With what kind of R&D unit you cooperate. (select type)



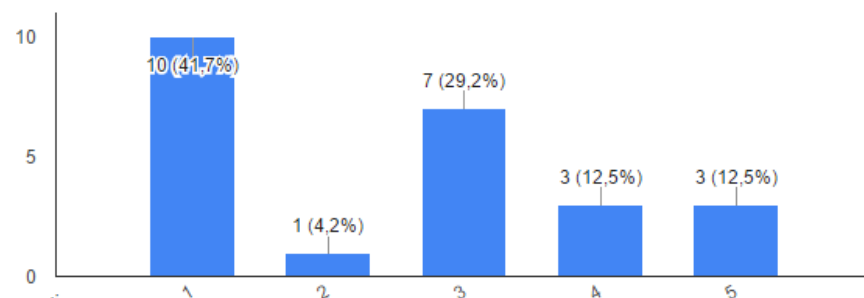


RESULTS (companies)

27. Please specify the range of your cooperation. (please select a type)

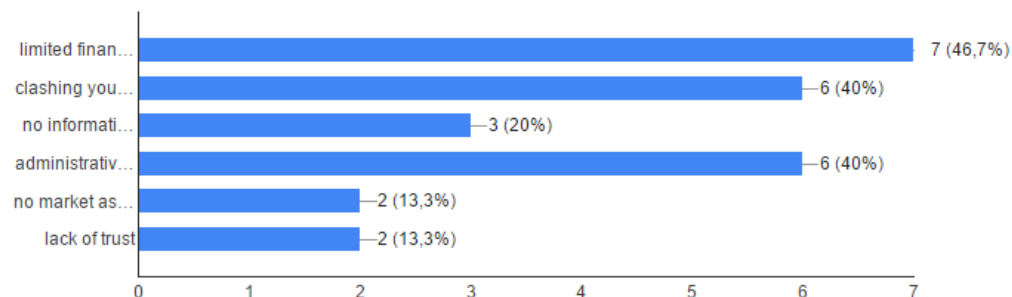


28. Do you think that the work with R&D unit is beneficial for your company?
(please mark the evaluation on a scale from 1 - 5)

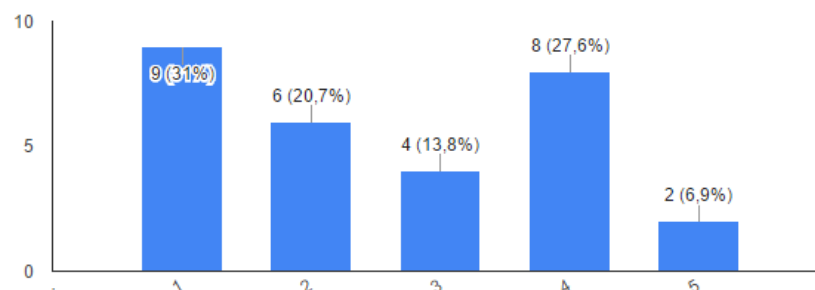


RESULTS (companies)

29. What kind of barriers you have to overcome in order to improve the relations with R&D unit? (please select the type of barriers)

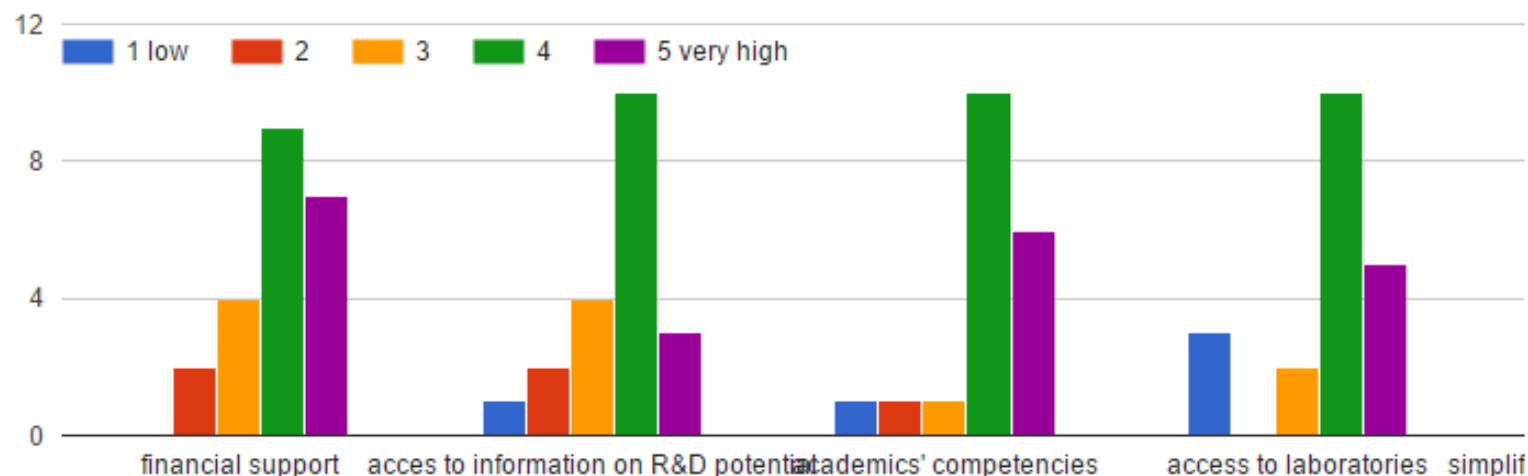


30. Is it possible to improve your cooperation with R&D sektor in the future? (please mark the evaluation on a scale from 1 - 5)



RESULTS (companies)

31. What kind of individual factors may strengthen your cooperation with R&D units?

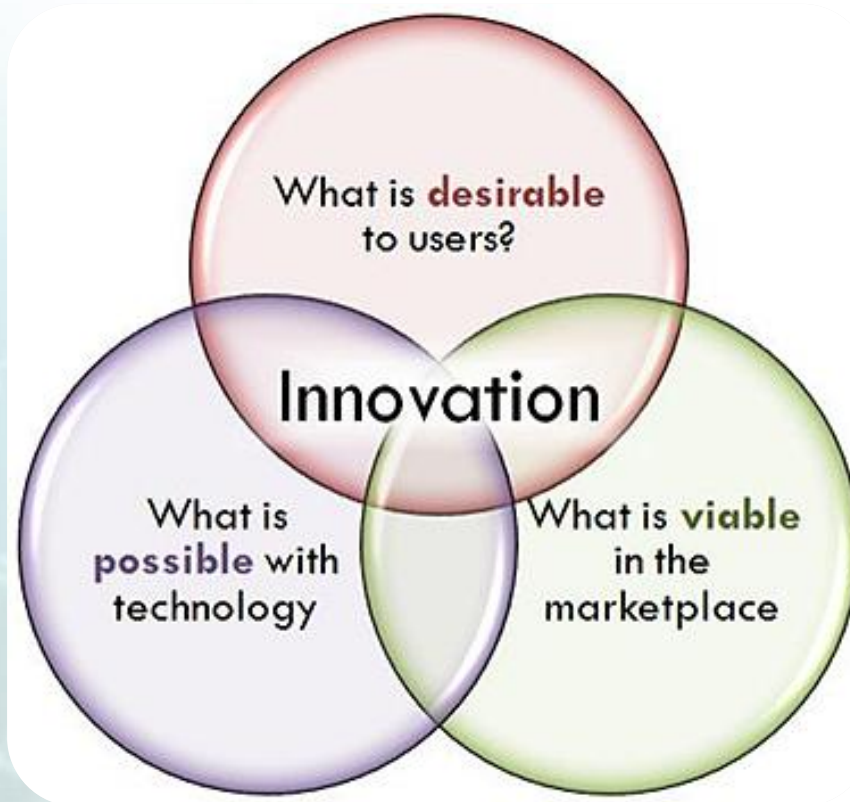




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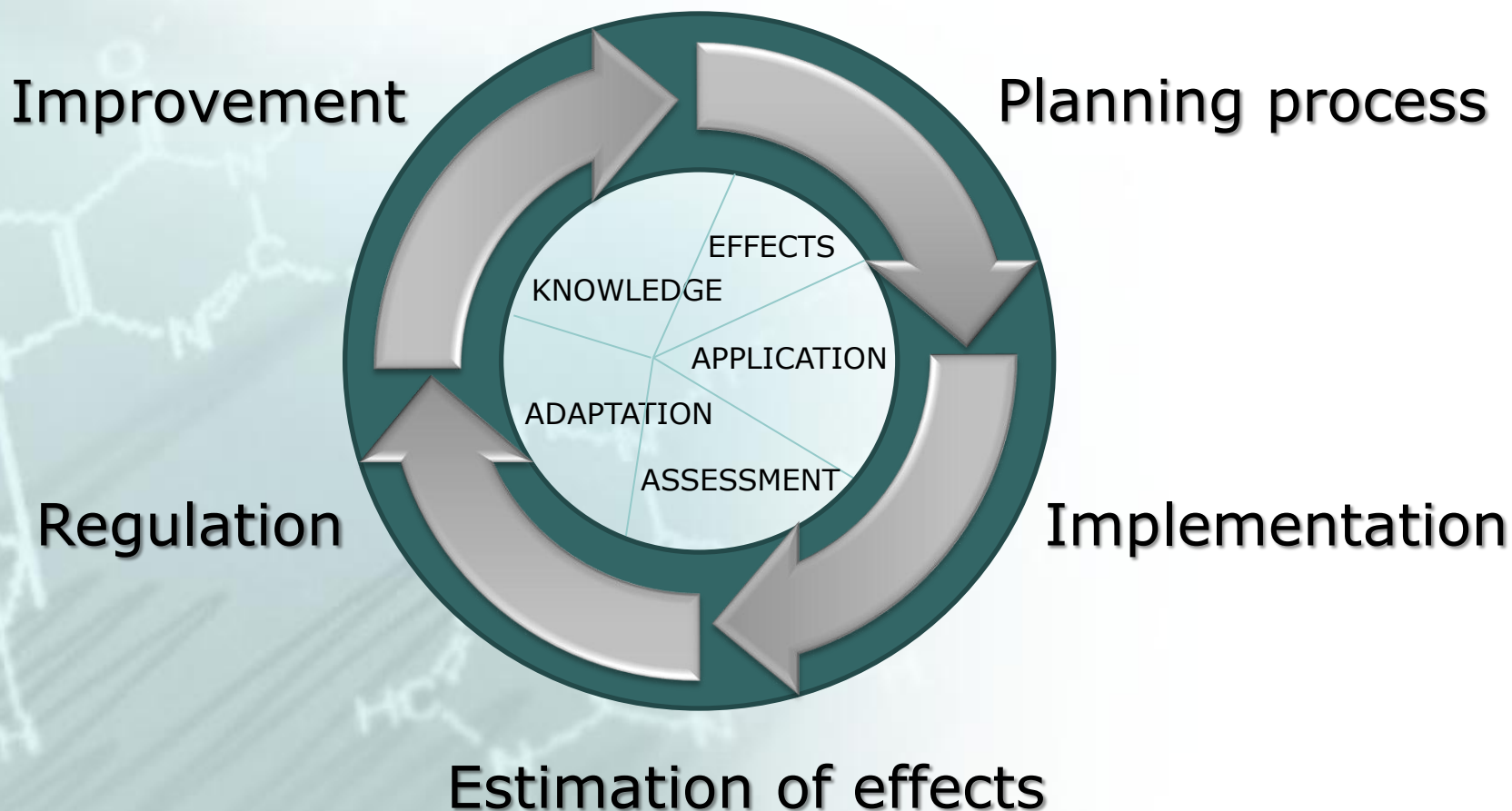
CONCLUSIONS (MICRO)

- Formal procedures
- Project management in cooperation
- Commercialization
- Successes in innovation
- TTC's in all universities
- New channels of cooperations





EVIDENCE-BASED MANAGEMENT





INNOVATION POTENTIAL

MARKETING			
Category	Characteristics	Assessment	
		Points	Description
Marketing Potential - MP	The ability to fast, accurate and correct assessment of market needs and consumer expertise to formulate on the basis of assumptions a new product	1	There is no separate cell and marketing is not conducted
		2	There are separate organizational units that deal with the occasional study of the needs of customers
		3	There is a department of marketing and management system, and are conducted systematic research requirements and customer satisfaction
		4	There are extensive cell marketing and there is a clearly separate component of the organizational structure responsible for customer relationship management
		5	There is expanded section devoted to relationships with customers and can use information about the necessary changes innovative



INNOVATION POTENTIAL

R&D

Category	Characteristics	Assessment	
		Points	Description
R&D Potential – RDP	The ability to transform the exact guidelines for the product on the product, which takes into account the needs of customers	1	There is lack of services and activities related to research and development
		2	There is a R&D department dealing with the adaptation of solutions from outside the company to the needs of manufacturing organizations, some minor improvements to its products
		3	There are separate divisions involved in the design of new products and preparing them for implementation
		4	The organization leads to a limited extent their own research to constant modernization of existing and periodic creation of new products
		5	The organization conducts its own research and collaborates with specialized units of the R&D to the constant modernization of existing and periodic



INNOVATION POTENTIAL

INFORMATION SYSTEM

Category	Characteristics	Assessment	
		Points	Description
Information Potential - IP	The ability to capture, collection, processing and dissemination of information useful for the development of the organization	1	Information is stored on papers
		2	There is internal computer network, which covers 30 - 50% of staff
		3	Internal network covers all employees
		4	There are different databases and are used in modern computer systems
		5	IT system are located and used with a variety of expert systems

$$IP = \frac{3(MP + RDP) + 2IP}{8}$$

Assessment	Characteristics
1-2	There is no potential for innovation
3	There is a potential for innovation, but it is not used in the right way
4	It shows a significant innovation potential
5	There is a large innovation potential, which is effectively used in the process of development



LEWIN'S FORCE FIELD ANALYSIS

DRIVING FORCES

Positive forces for change

Increased efficiency ...

Technical and technological progress ...

Subordination ...

The pressure of public opinion ...

Access to ...

RESTRAINING FORCES

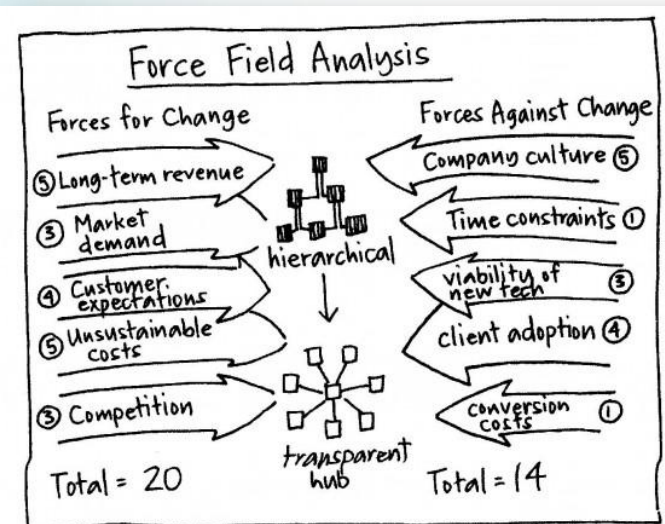
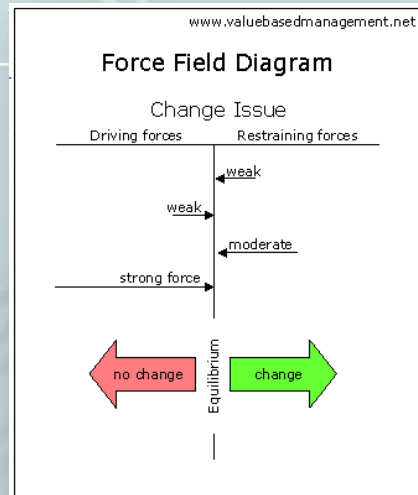
Obstacles to change

Limitations of financial resources ...

The passion for tradition ...

The risk of economic loss or loss of position ...

Lack of support for ideas ...





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Thank you for your attention

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