

Evaluation of Tekes Funding for Research Institutes and Universities

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AEA Conference, Denver 6th November 2008



Tekes

Background



- A focus of Tekes (Finnish Funding Agency for Innovation and Technology) funding for research institutes and universities is the renewing and collaborative technology, service and business oriented research projects.
- My paper presents recent evaluation results of the Tekes projects for research institutes and universities that were carried out in the early 2000s.
- Tekes database includes evaluation results of around 2500 Tekes funded projects and 100 research organizations.



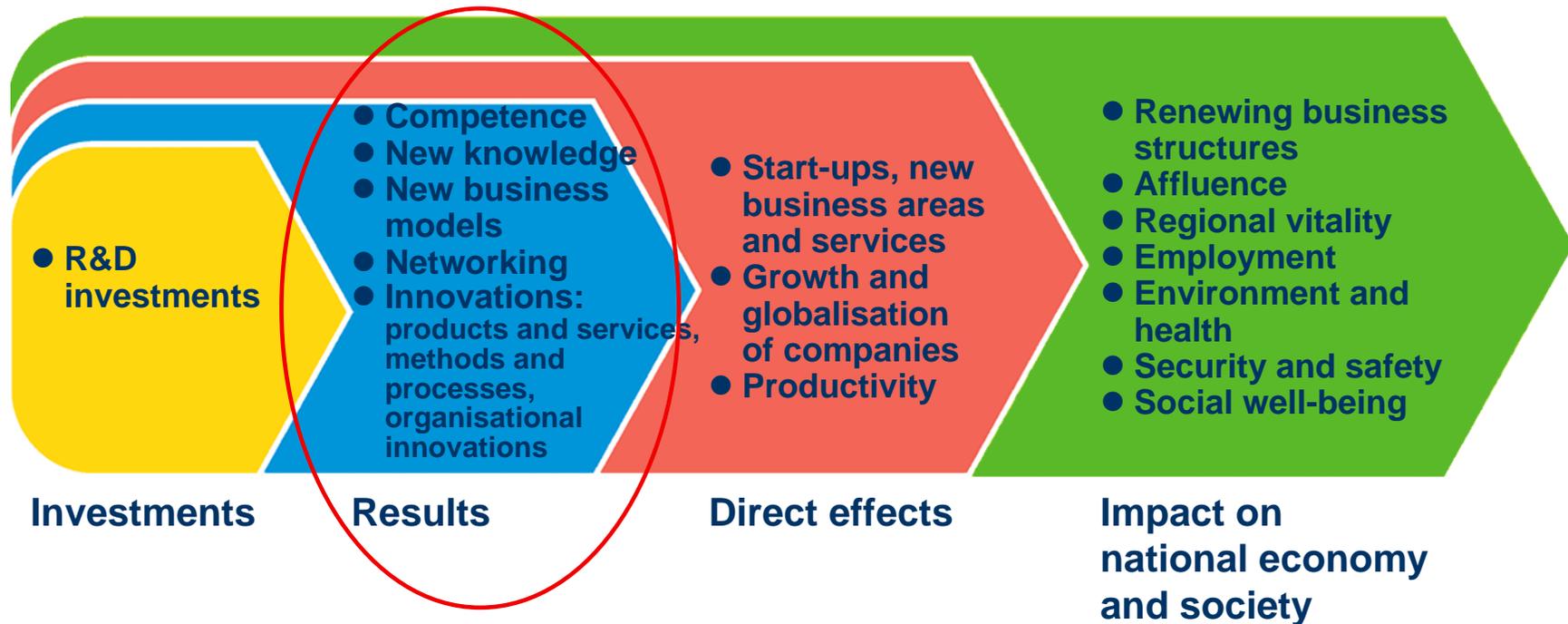
Goal



- **First, it shows recent findings of the projects of Public Research using the evaluation model and impact assessment implemented in Tekes.**
 - **Tekes evaluation model concentrates on additionality effects including R&D investments, results, direct effects and impact on national economy and society.**
- **Second, it emphasizes several improvements**
 - **Ex post evaluation and impact analysis it can be found more precise and accurate evaluation results,**
 - **Ex ante decisions when planning new funding for public funding (research institutes and universities)**
 - **Project Additionality**
 - **Behavioral Additionality**
 - **Cognitive Additionality**
 - **How to evaluate talent?**



Four-step Model of Evaluation and Impact Assessment in Tekes



How can we evaluate intangible capital?



Tekes Funding by Numbers



Tekes Funding for Public Research in 1999–2007

Year	Number of projects	Tekes funding Mill. EUR	Total project costs Mill. EUR	Share of Tekes	Project size Mill EUR
1999	1031	153,4	223,9	69 %	0,22
2000	995	139,8	196,1	71 %	0,2
2001	922	145,8	198,1	74 %	0,21
2002	798	144	229,8	63 %	0,29
2003	801	161,9	239,6	68 %	0,3
2004	779	172,4	244,6	70 %	0,31
2005	745	178,9	242,8	74 %	0,33
2006	729	194,6	291,9	67 %	0,4
2007	570	185,1	255,8	72 %	0,45

Tekes funding for Public Research in 2007

	Funding, Mill EUR	Number of Projects	Share of Funding
Strategic basic research	43,2	78	23 %
Challenging research at the long run	119,1	383	64 %
Applied research	22,8	109	12 %
Total	185,1	570	100 %



Goals of Tekes funding for Public Research (Research Centres and Universities)

- **Goals of Tekes funding**

- 1) **Strategic basic research**

- **Basic research, founding of new phenomenon and cognizance, no company funding needed**

- 2) **Challenging research at the long run**

- **Foresight of operational preconditions in economic life, mainly company funding needed**

- 3) **Applied research**

- **Newest research foundations applied to company needs, active company-based governance and executive group, at least a quarter of company funding**

What are those incentives and talents that make it exceptionally renewing and creative?



Tekes





Dimensions of Additionality

Georghiou and Clarysse have broadened a concept of behavioural additionality to describe the dimensions before, during and after the project (Georghiou – Clarysse (2006), Kiuru – Kotala (2008), Hyvärinen (2005), Hyvärinen – Rautiainen (2006))

Before and during the project (ex ante):

- **Project additionality**
 - Whether project has been realized without public funding. The definition is closely connected with input additionality.
- **Acceleration additionality**
 - participation in the public funded R&D-programs accelerates implementation of the project.
- **Scale and scope additionality**
 - projects that are realized more broadly or activities are spread to new markets, technology areas or new interest groups.
- **Challenge additionality**
 - public funding encourages to increase a risk-taking in order to set more challenging goals of R&D activity.
 - How public R&D funding might help companies and research centres to make more challenging R&D that without public funding?



Dimensions of Additionality



After the project (ex post):

- **Network additionality**
 - the ability of public funding instruments to increase networking and co-operation
 - how permanent those changes might be after the project...to define ability to bring about new more advanced projects and increases persistent R&D-work and impact of permanent changes.
- **Management additionality**
 - what is the ability of public funded R&D to influence favourably the leadership processes of companies and research centres.
 - The effects can be influence the next projects or more fruitfully to organization of R&D units, commercialization of R&D or new leadership strategies.
- **Cognitive capacity additionality**
 - How public R&D funding might influence to clients' know-how or knowledge base. refers to growth of knowledge and capability
 - Public R&D funding has permanent changes inside companies, universities or research centres concerning on their intangible and human capital, absorbing and knowledge capacity.





How to define and evaluate talent?

Characteristics of talent or genius that have derived to exceptional accomplishments. (DeLozier- Grinder 1987, Dilts- DeLozier 2002, Toivonen-Asikainen 2004, Toivonen 2008)

- Up-time strategy

- Talented personalities know when it is valuable to live in present and when to update their knowledge with some earlier experience and when to think the future. They can live fully in present, collect full information about it and take new experiences or situations without presuppositions.

- Goals

- Talented personalities have clearly defined and well-formed challenging goals and they are hard-headed to reach it. They don't give up, they fight...A goal is deeper and extensive that includes a mission of whole their lives.

- Perspectives

- Talented personalities can view their goal from various points of views and change it flexibly when necessary. For example they can see it from the point of view of others etc.

- Visualization

- They have a strong visual imagination and they can use it by changing their visualization in order to examine their goal from the various points of views. Imagination is one of the most valuable resources in their work.



How to define and evaluate talent?



- **As if exploration**
 - They develop first several models and strategies to act before they start to consider how they realize it in practise. The test several methods before they choose the first best model to continue.
- **Consciousness and unconsciousness (C&U)**
 - They solve problems using flexibly their consciousness and especially they can put their work to more aggregate picture.
 - They are skilful to solve problems intuitively without exact analysis. Therefore their creative skills are well-formed and they can flexibly use their creative part.
 - Moreover, they expeditiously know whether - conscious or unconscious - knowledge is workable to make solutions in particular situation.
- **Details and general view (D&G)**
 - Talented personalities move flexibly in different levels from details to the general view and vice versa. They can apart a whole picture from the details and on the contrary they can find fascinating details from the general view.

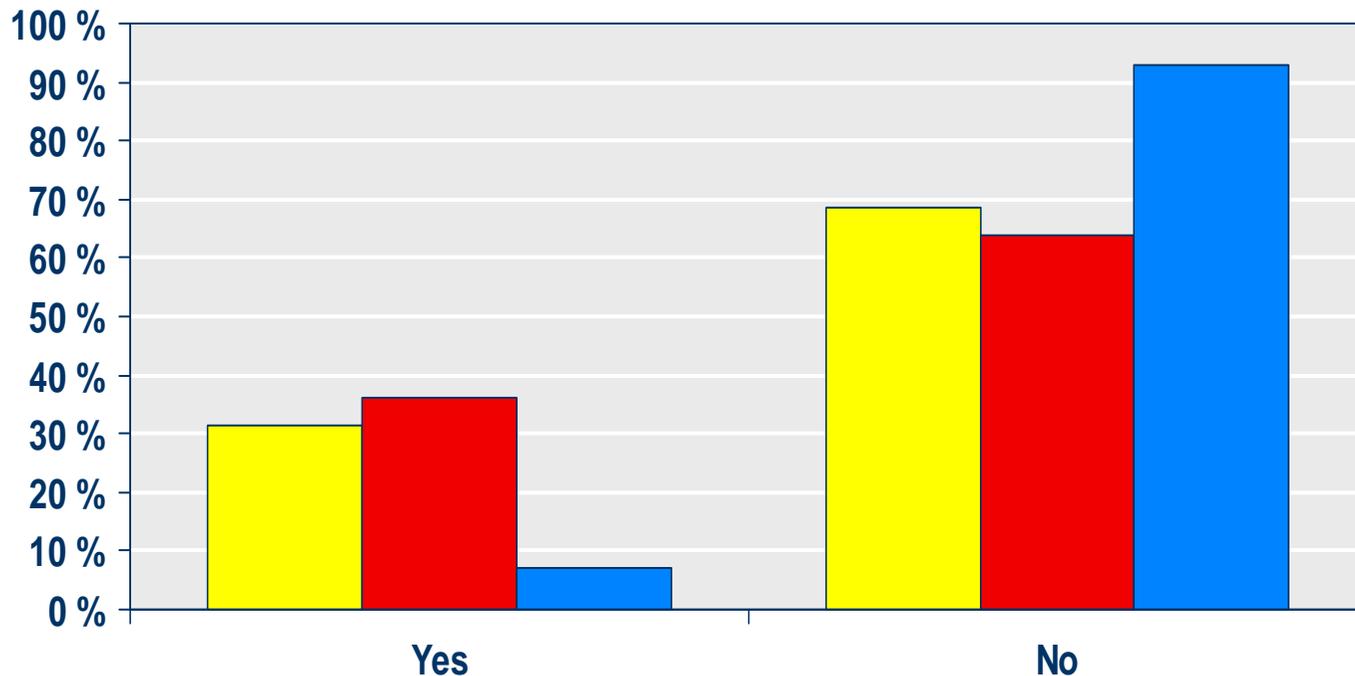
“If we can put somehow these characteristics to our evaluation process - whether ex ante or ex post - we can more precisely define the real effects of R&D funding”



Project Additionality

- Whether the project had been realized without Tekes funding?

Questioning 3 years after the project

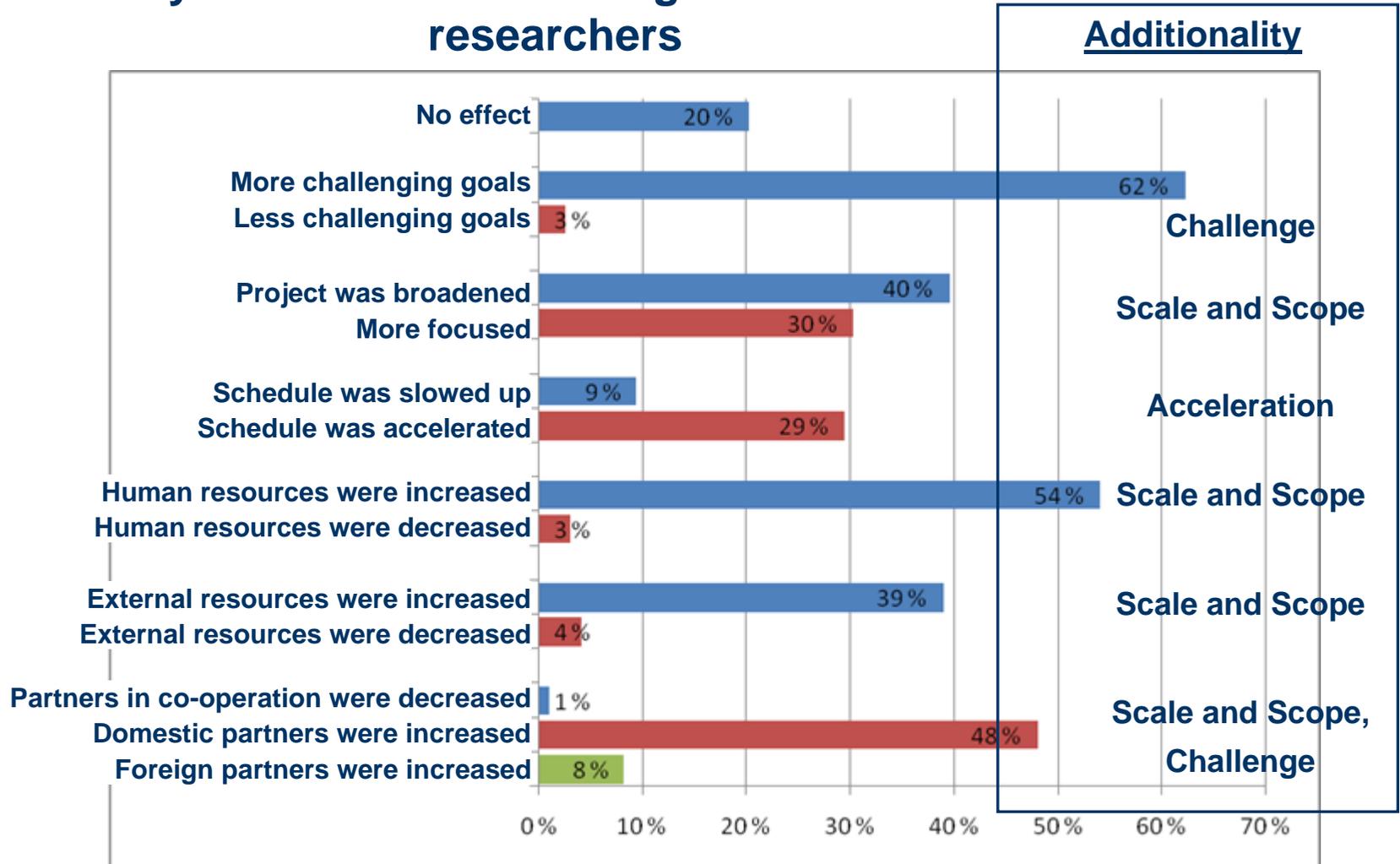


- Product Development Projects of Companies
- Research Projects of Companies
- Research Projects of Universities and Research Centres



Additionality before the Project

- Each Tekes application has been evaluated and most of accepted projects are adapted ex ante by Tekes criteria and negotiations with researchers

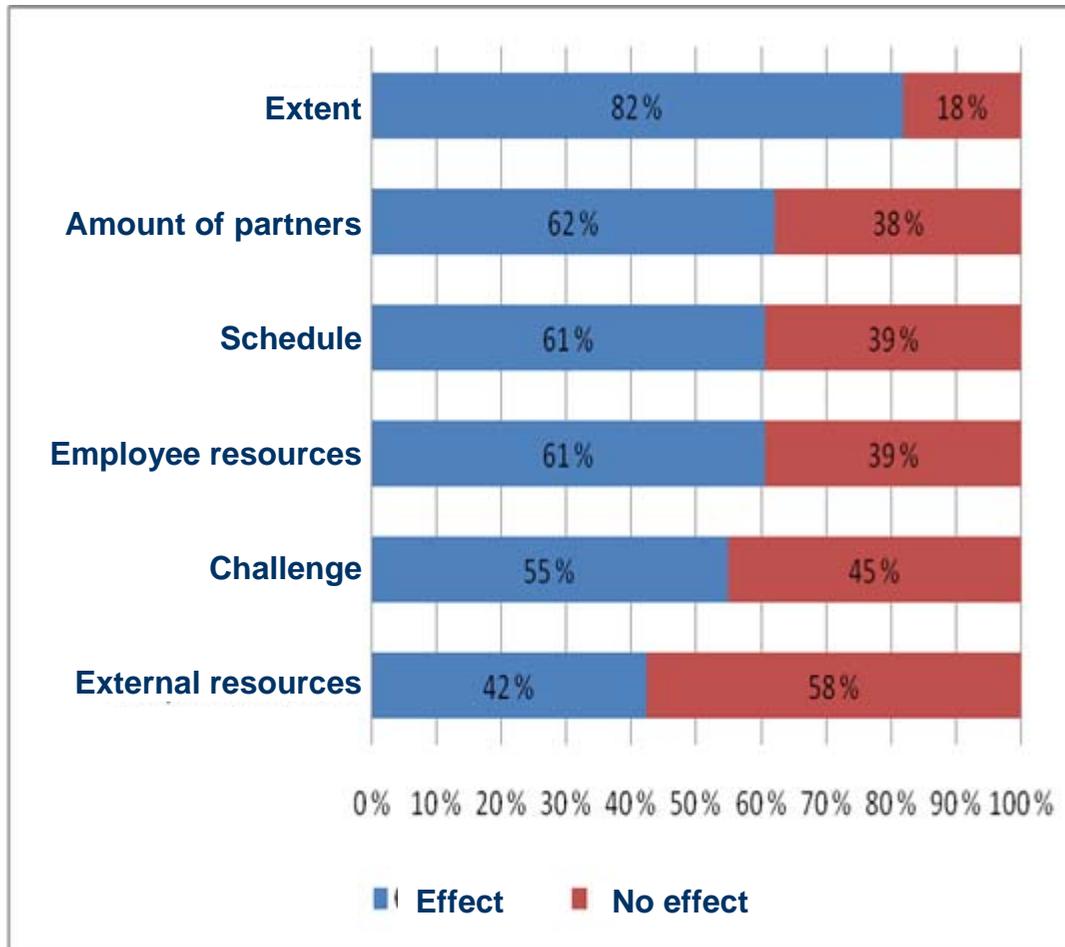


Source: Tekes projects ended in 2000-2002



Additionality before the Project

- How Tekes has impacted on the realization of the project? Survey Tekes projects ended in 2003-2004. Source: Ahonen et al. 2008, Evaluation of Public Research Funding of Tekes



Additionality

Scale and Scope

Scale and Scope

Acceleration

Scale and Scope

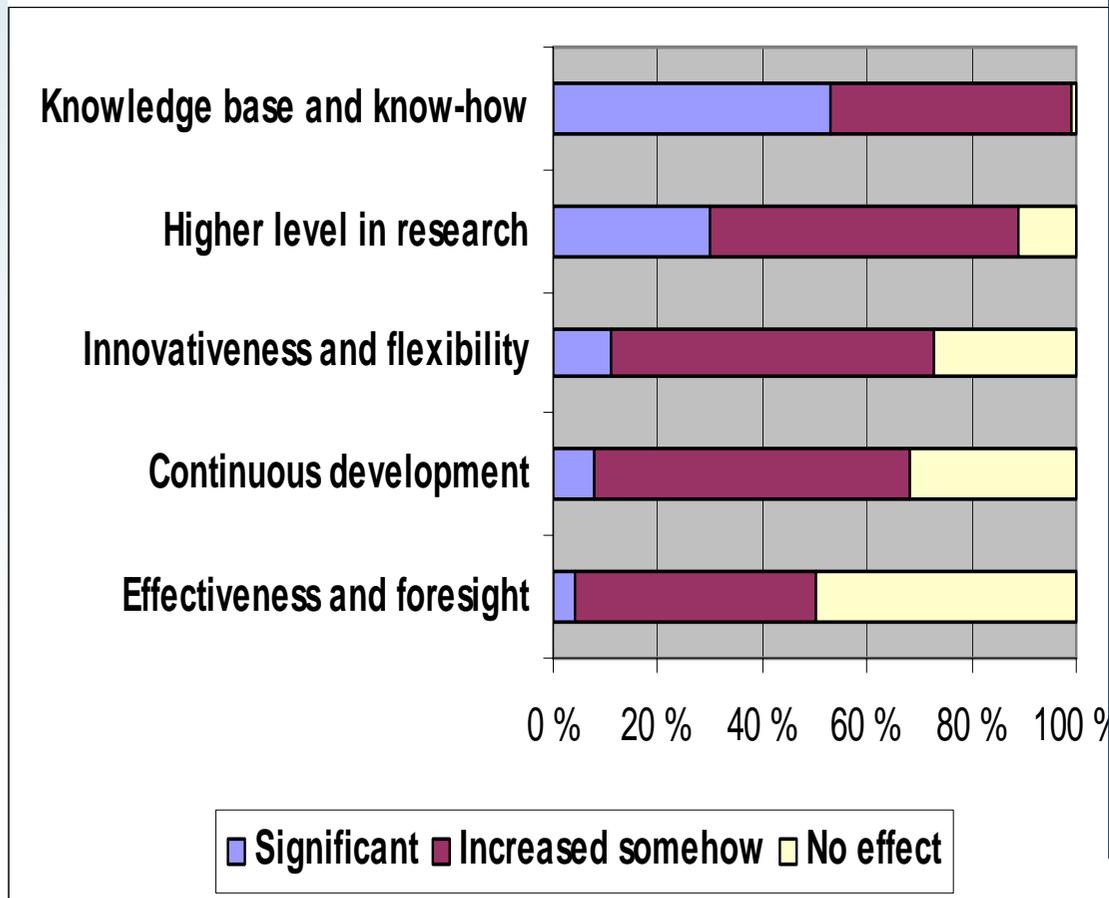
Challenge

Scale and Scope,
Challenge



Additionality after the Project and Talent

Impact of the research project on research activities
Questioning 3 years after the project



Additionality

1) Cognitive

1) Cognitive
2) Management
3) Network

1) Cognitive
2) Network
3) Management

1) Management
2) Network

1) Management
2) Network

Talent

All characteristics

1) Goals
2) As if
3) ...

1) Perspectives
2) D&G
3) ...

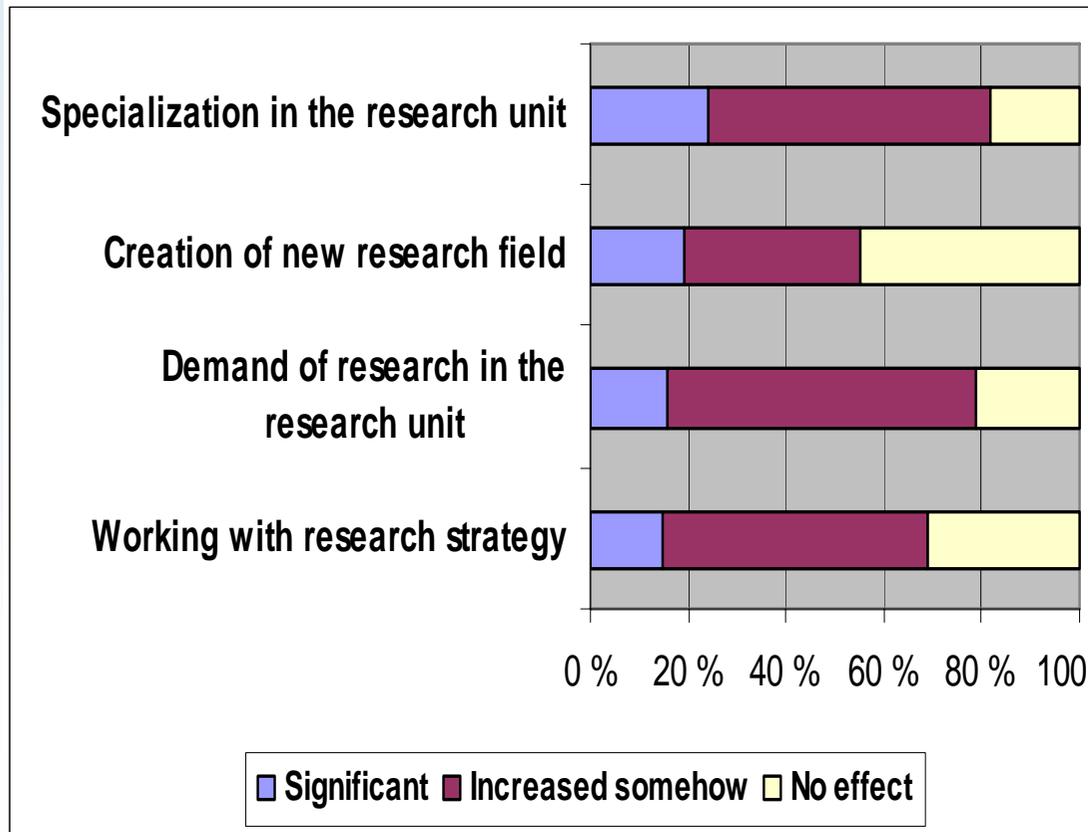
1) Visualization
2) C&U
3) ...

1) Up-time
2) D&G
3) ...



Additionality after the Project and Talent

Impact of the research project on research activities
Questioning 3 years after the project



Additionality

- 1) Management
- 2) Cognitive

- 1) Network
- 2) Cognitive

- 1) Management
- 2) Network

- 1) Cognitive
- 2) Management

Talent

- 1) D&G
- 2) Perspectives
- 3) ...

- 1) Goals
- 2) As if
- 3) ...

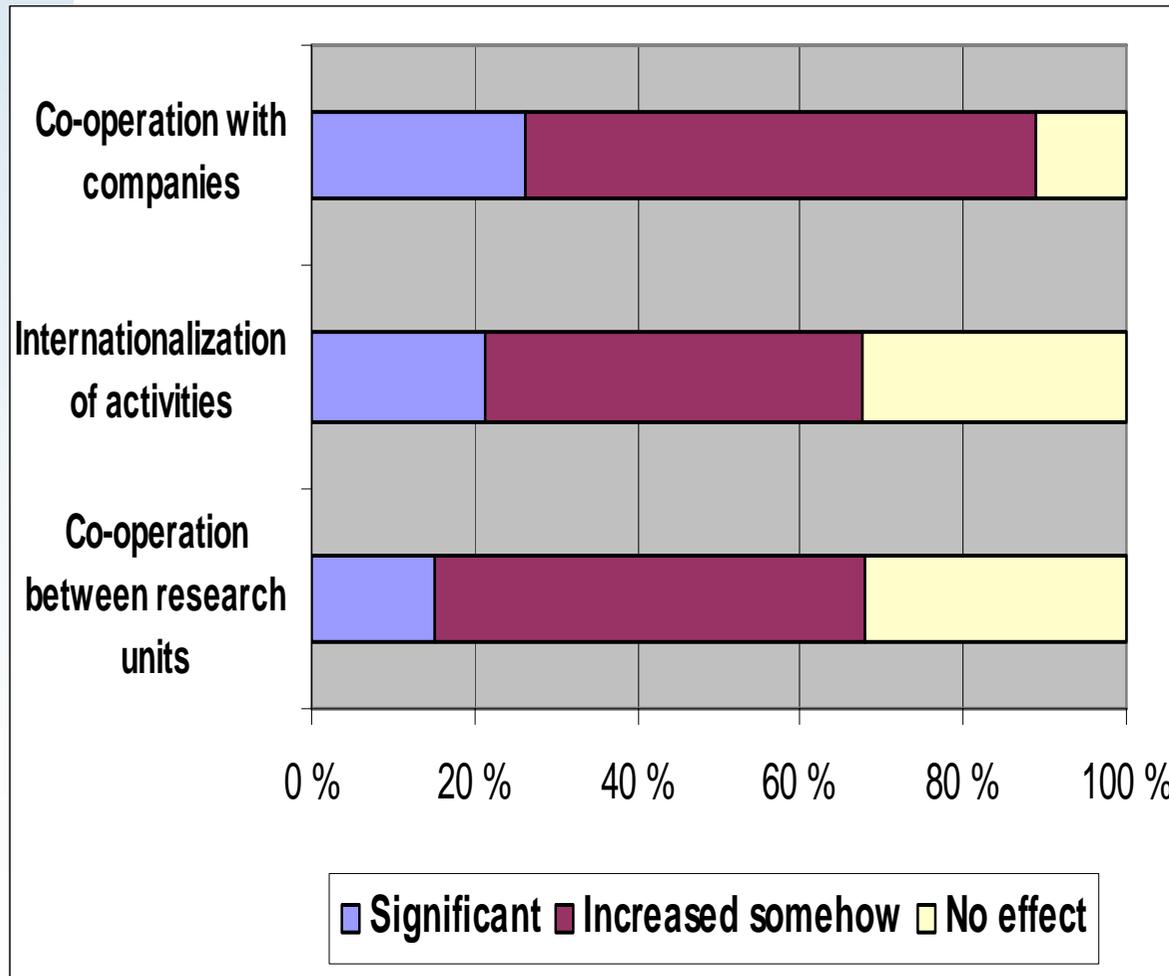
- 1) Perspectives
- 2) Visualization
- 3) ...

- 1) Visualization
- 2) C&U
- 3) ...



Additionality after the Project and Talent

Impact of the research project on research activities
Questioning 3 years after the project



Additionality

- 1) Network
- 2) Management

Talent

- 1) Perspectives
- 2) D&G
- 3) As if
- 4) ...

- 1) Cognitive
- 2) Network



Conclusions



- We should take a deeper look to talented behavior and compare it with evaluation of additionality
- How can this be done? For example, we can choose those most well-succeeded research groups by using our additionality analysis and interview them by trying to find such talented behavior
- Not easy task but we should consider it when we ex ante evaluate these research projects
- However, it is easier when we have framework of talented behavior in our mind.

What kind of talented behavior we need in R&D work?





Thank You!

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Tekes