



Academy of Finland State of
Scientific Research in Finland
2016

Special Theme: Broader impact

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Academy of Finland – Finnish Research council

Mission

- fund high-quality scientific research,
- provide expertise in science and science policy, and
- strengthen the position of science and research.

Research funding

- 437 million euros (507 MUSD) in 2017
- Each year, contributes to some
 - 2,700 researchers 'work (FTEs) at universities and research institutes.
 - 20 % of research spendings at the universities



Academy of Finland's reviews of state of scientific research in Finland

- Supports universities and research institutes in developing their activities
- The 2016 review analysed
 - research personnel and funding
 - publishing, scientific impact and co-publications
 - bibliometric analyses compare Finland to research-intensive countries worldwide
- **Special theme in 2016: The broader impact of research in society**
- The goal: to understand and make visible
 - different **types of contributions** of research to society
 - different **pathways** from research to impact
- Not a quantitative impact assessment

Four different research fields: Complementary views of research and its impact



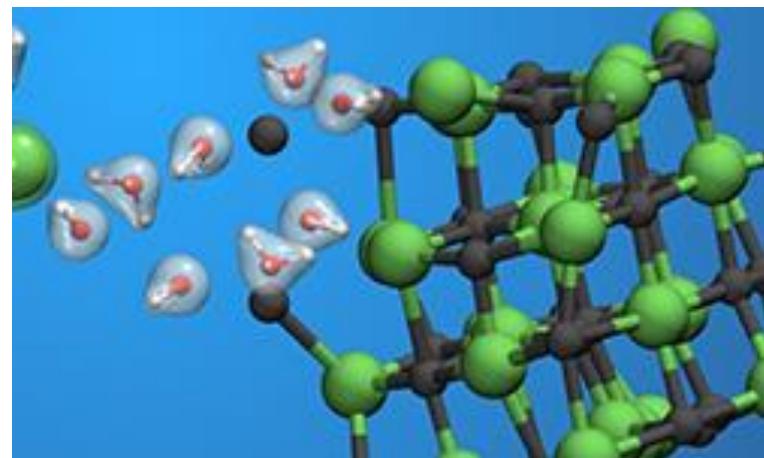
Ecology, evolutionary biology
and ecophysiology



History



Medical engineering and
health technologies

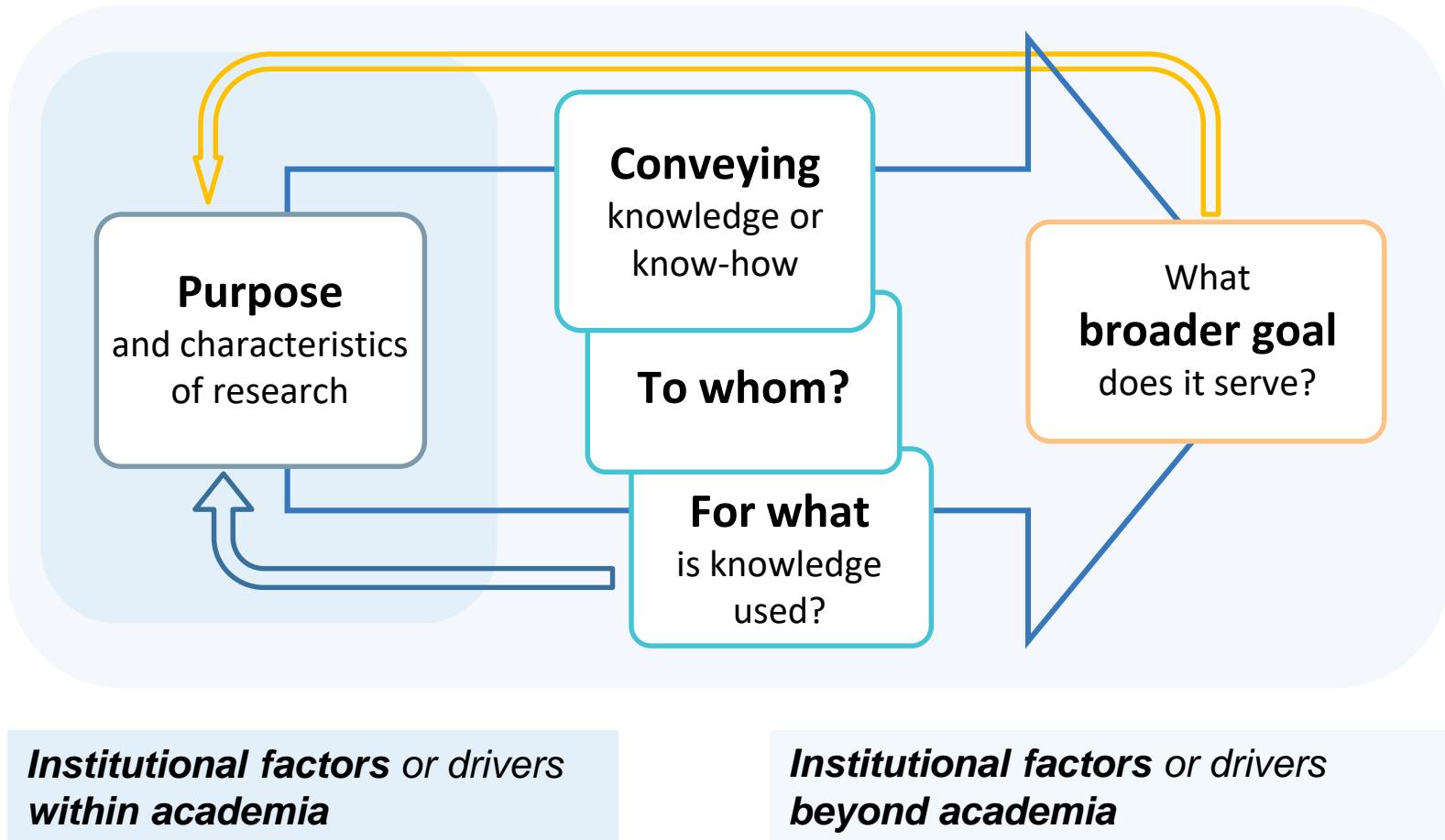


Materials science and technology

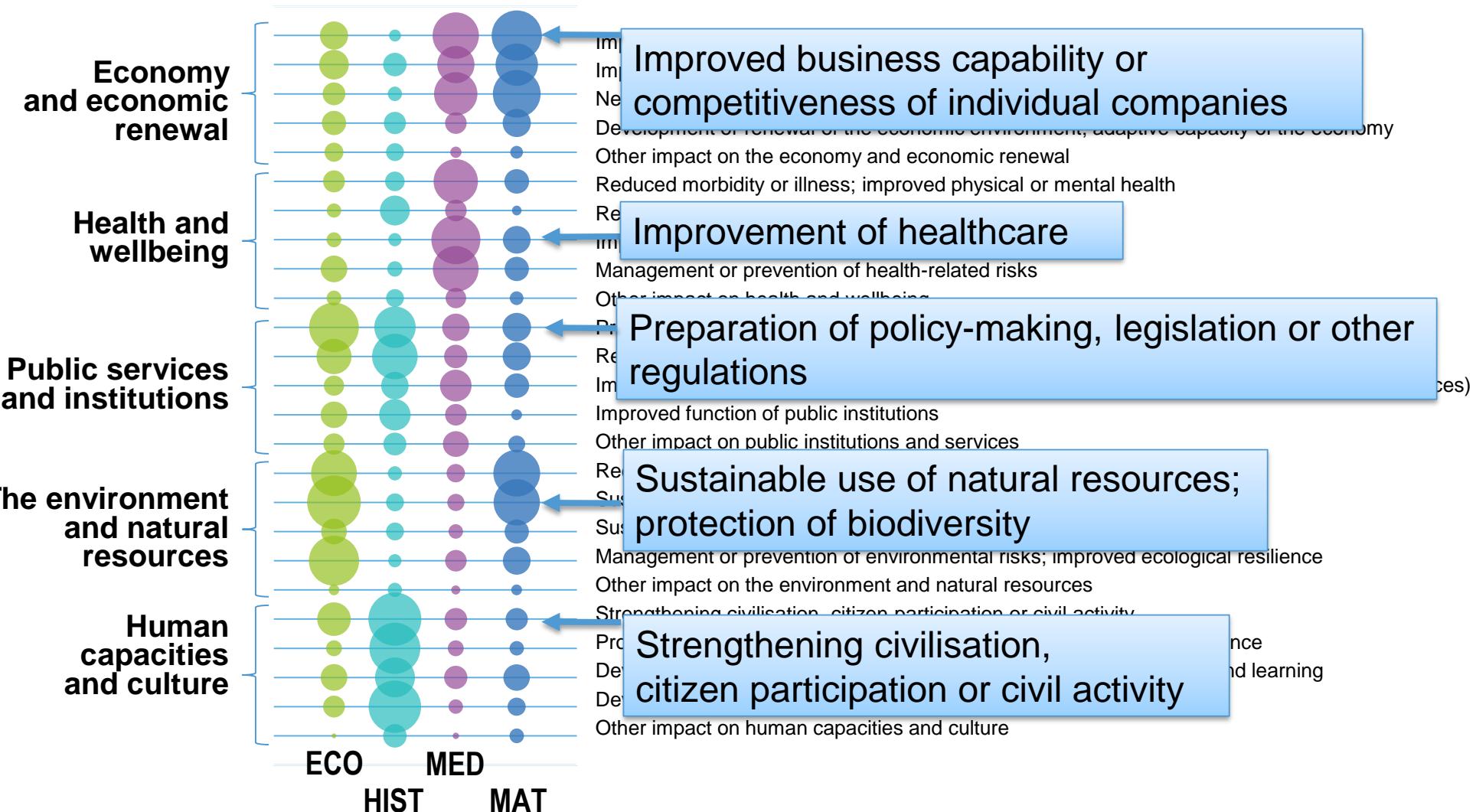
Multifaceted dataset: surveys, interviews, statistics

- Impact explored from the direction of research activities
- The analysis combined qualitative and quantitative methods
- Surveys
 - the **broader impact of research** on society
 - the **role of doctoral degree holders** in society
 - approx 35 % response rate for both surveys
- Group interviews: researchers and research users
 - 10 groups, 70 participants
- Statistics: the placement of doctoral degree holders in working life

Impact dynamics – a simplified illustration and survey logic



Contributions of research to society in four research fields



Source: Academy of Finland's survey on the broader impacts of research on society, 2016.

Science and humanities contribute to society in many different roles

Examples from Finland

- **Human understanding and world view**
 - Popular professors Kari Enqvist (cosmology) and Esko Valtaoja (astronomy) put things in perspective
 - **Wealth and prosperity**
 - Nokia would have never become so successful without decades of investment in telecommunications research
 - **Basis for decision-making**
 - Helsinki Graduate School of Economics recently established, following an initiative from prime minister Juha Sipilä
 - **Practice development**
 - Important PISA success factor: Teachers with University Master's degree

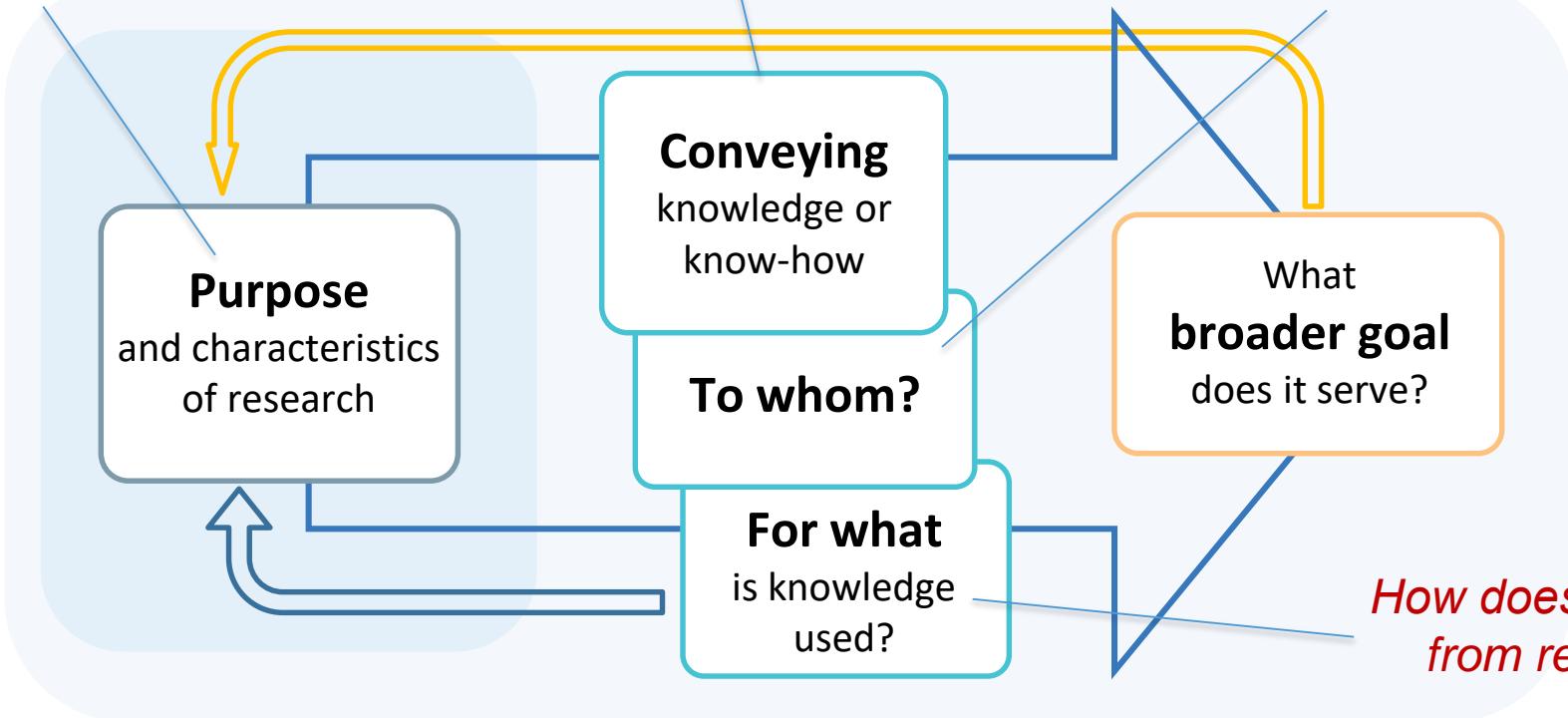


Further question relating: Role-specific pathways to impact?

*How does research
reach and be taken up by...*

What makes
research relevant for ...

*Intermediaries between
science and ...*



***Institutional factors or drivers
within academia***

***Institutional factors or drivers
beyond academia***

Challenges constraining the impact of research on ...

	Human understanding and world view	Policy and decision-making	Professional practice	Wealth and prosperity
How does ... benefit from research?	<ul style="list-style-type: none">• “Enlightenment”• World views• Democratic development• Collective identities	<ul style="list-style-type: none">• Information of issues under policy consideration• Recognition of new problems faced by society• Legitimation and accountability of policies• Information of policy context• Information of policy alternatives	<ul style="list-style-type: none">• Tools for conducting the work• Renewal of practices• Revealing the broader consequences of practices• Evaluation of practices	<ul style="list-style-type: none">• Inventions• Intellectual property• Skilled workforce• Absorptive capacity• Knowledge as a public good
What makes research relevant for ...?	<ul style="list-style-type: none">• Conceptualization of societally important phenomena• Tools for individual and collective sense-making• Situating knowledge in a meaningful context• Relevance may rise and fall along with public interest	<ul style="list-style-type: none">• Focusing on policy-relevant topics• Framing and scaling research according to policy concerns• Reconciling information between different perspectives and disciplines• Independence from particular interests	<ul style="list-style-type: none">• Built-in relevance of applied research fields• Familiarity with the problem context• Field experiments• Dynamic relationship between pure and applied research	<ul style="list-style-type: none">• Complementary competences• Focusing on nationally important fields• Sensitivity to international contexts• Responding to market needs• Willingness of risk-taking• “Pasteur’s quadrant”• Relevance of basic research

Impact Assessment at Academy of Finland: Strengthening the position of science and research

Our results

- **make the broader impact of research visible** for policy makers and citizens
- help **create common understanding** of what constitutes the broader impact
- help scientists to **position their work in the broader context** of society, by
- providing concrete **examples** of the benefits of scientific knowledge **in different contexts**

We think our work may also support

- developing context-dependent indicators and incentives for the future

- More information
- [State of scientific research - Academy of Finland](#)
- <http://www.aka.fi/en/research-and-science-policy/state-of-scientific-research/broader-impact-of-research-in-society/>
- http://www.aka.fi/globalassets/30tiedepoliittinen-toiminta/tieteentila/aka_tieteen_tila_2016_eng_150317.pdf