

Interactive part Consortium meeting 12 November 2024

How are we creating impact?



The interactive session of our meeting was chaired by WP4 lead Bastiaan Krom. The following questions were addressed by the participants:

1. **To push or to pull?** Does discovery lead to innovative application?
2. **Did 'Open Science' deliver?** Does open science lead to more societal impact?
3. **Curiosity killed the cat!** Should society fund curiosity-driven research and is this currently sufficiently the case?
4. **There are many things you can do, but only a few ONLY you can do!** Is Team-science increasing impact?

The outcomes of this session were discussed plenary, in the presence of the advisory board members. The main message: curiosity-driven research is important, but funding is not always easy to find. Open science is not new, as it was always open, now there are considerable costs incurred for open access publishing that are not necessarily efficient. It should be considered to create Teams that include a range of expertise's in different aspects of impact-creation.

Questions for interactive session: How can we go from science to society?

Question 1 To push or to pull?

Does discovery lead to innovative application? What is needed in skills/collaborations to achieve this? What are the implications for funding schemes? Does needed application (societal demand) lead to discovery? How are needs channeled from society to research? Does a need for professional guidelines lead to required information? Does new information lead to changes in guidelines? What is needed in skills/collaboration to achieve this? What are the implications for funding?

Push examples:

- *grapheen telecom (good)*
- *Health apps (bad)*

Pull examples:

- *Most innovations (e.g. cancer therapy)*

Research ideas from society; research agenda (NWA)

Researchers bridge between society and policy

There is a shift to pull-driven research

Funding schemes are more 'pull' focused (society and societal problems = wicked problems).

For curiosity-driven it is more difficult to get funding.

Fundamental research can also be society driven (pull) e.g. microbiome research

Start-ups, fundamental research -> society

Training and education, open mind/curiosity

It is a matter of perspective

Professional guidelines: are these guidelines pushed by researchers to profession or demanded by profession/policymakers/society?

Question 2 Did 'Open Science' deliver?

Do the benefits (for whom?) justify the costs (>10 M€ annually) to the research community? Does this lead to more societal impact?

With Open Science, we think of open access publications and sharing of data (FAIR principle), the grantor/NWO obliges us to comply with this (also policy of knowledge institutions). Mainly researchers benefit from this (quality checks, data sharing may reduce new research projects -> make better use of available data). With Open Science it is possible for the community to read our papers as well. However, they usually cover a small piece of a puzzle and are difficult to understand (not written for the lay person). Organizations such as Voedingscentrum can translate scientific knowledge into messages that the community can benefit from. With Open Access, they don't have to pay for access themselves (otherwise subscription to journals).

Money for open access can/should be spent more wisely by investing in science communication (and implementation).

Creating data should be valued more -> research community benefits from sharing, all data should be shared.

Main comment from the audience: there never really was 'Closed Science' so why should we pay for 'Open Science' now?

Question 3 Curiosity killed the cat

Is there tension between curiosity driven, society driven or industry driven research? Why? Why not? How do we manage this tension? How do we train new generations? Separate curricula for each focus? Shared? Should society fund curiosity-driven research and is this currently sufficiently the case?

All scientific research, regardless of its immediate application, contributes to the collective knowledge and understanding of the world, which can have far-reaching societal impacts in the long term.

Researchers should approach their work with a passion for discovery and a commitment to advancing knowledge, rather than feeling pressured to market their research as a product.

Both fundamental and impact-focused research are driven by curiosity and a desire to understand the world, with the potential for significant societal benefits arising from both approaches.

For instance, the evolution of machine learning from its inception in the 1950s to its widespread use today illustrates how research that may not have immediate applications can still have profound long-term impacts on society.

Question 4 There are many things you can do, but only a few ONLY you can do!

Can/should it be expected from scientists to translate their findings to society in the shape of

- 1 Information/outreach
- 2 Application/IP
- 3 Policy/guidelines?

Or alternatively seen: Interaction with:

- professionals
- Public domain
- Government
- Industry?

If not, who should do that? Does this mean an additional type of training or does this “grow on you”?

Diversity among scientists, some are more generalists, others are more specialists. Also, this role is dynamic over time, i.e. during a career one moves from detailed curiosity driven research to applied/translatable research. Cycle of learning, also, cycle of research: from bed/chair to bench and back.

Generalists and experts can be trained, during education or afterwards in seeing opportunities for impact, approaching stakeholders, however it is the competence of an individual if it is achieved at an effective level. Within a team, this role should be present, yet not in every person.

Like in many cases, it is mostly important where to get the expertise that is missing.

