

Background Paper - The rationale behind “Translation By Design” Workshop, April 24 2023

This background paper was prepared prior to the workshop held on April 24th in Brussels, and was distributed to speakers and panelists to prepare the ground for discussions.

Understanding today’s research ecosystem

Scientific research is too often reduced to a simplistic dichotomy: on the one hand, fundamental research exploring theoretical and methodological questions, and on the other, applied research directed to ‘solving challenges’. The reality is of course more complex, with researchers often working simultaneously on questions addressing both fundamental and challenge-based problems. This is just as true for researchers in the social sciences and humanities (SSH) as it is for researchers in medical and technical sciences.

Whatever the traditions of scholarship are across the academic community, the challenge for science policy making is how to ensure that fundamental scientific enquiry quickly progresses and is translated into tangible innovative outcomes and ultimately societal benefit.

Translational research - a concept originating from medical sciences– refers to the “effective translation of the new knowledge, mechanisms, and techniques generated by advances in basic science research into new approaches for prevention, diagnosis, and treatment of disease [...] essential for improving health.” (Fontanarosa & De Angelis, 2002).

In other words, research is developed and designed with the end product in mind (e.g. “reverse engineering”). All sciences and scientific disciplines today are strongly encouraged to consider what benefits can be achieved for society in the longer term. However, not all disciplines and researchers can rely on well-established infrastructures, such as those developed already to support research translation in medical science. While medical sciences provide an exemplar framework, which has been effective in improving success rates in translating medical science research into better treatment outcomes, it may not be the same framework needed for other scientific fields to translate research into practice. Disciplines like Social and Humanities aim to improve human and social conditions through a wider range of approaches and therefore in a multiple pathways structure; the “end product” is diverse by definition and results originally directed at one ‘challenge’ may find application across a wider set of social issues.

In many other areas of the research ecosystem, such as evaluation and knowledge and technology transfer, training and lifelong learning for researchers could be strengthened. This may be through focus on specific aspects of the research process, or through broader reshaping of research culture and its structures. A major area where Europe is still lagging behind is the ability to harvest SSH research for social benefits in the way that it can for medical and technical sciences because there is currently not just a single model of translational research in the social sciences, arts and the humanities. Furthermore, current knowledge structures create a gap or a space which may remain neither addressed, nor identified, and where neither individual researchers nor institutions (funders, universities, research institutes, etc.) have traditionally coordinated their efforts. Sometimes, this “space” is called interdisciplinarity, sometimes “proof of concept”, a model that allows fundamental research to spin off into something more commercially viable or recognized for the benefits of society at large including think tanks, NGOs and policy making. Yet the methods, approaches and mindset for such “space” are multiple and fragmented, but remain unfunded, unstructured, not rewarded and not exploited fully.

This workshop aims to establish basic translational principles, applicable across research disciplines, and to explore how to empower and train academic institutions and academics to accelerate research translation. In medicine, research translation is often designated as “team science”, indicating how an interdisciplinary combination of knowledge and skills are needed to turn research into societal benefit. In SSH there are multiple approaches which do not always facilitate collaboration with other sciences, e.g. mental and physical health and wellbeing. In this workshop we want to start addressing some first order questions; Is there an equivalent model that will function in SSH? How could a culture and mindset change in funders and academic institutions be encouraged so that research becomes ‘translational by design’? What role should researchers and universities play in supporting translational journeys from early-stage research to application, policy adoption and real-world changes? What systems need to change, and how, to facilitate translational research by design?

Specifically for health and SSH collaboration, it seems critical that social research is considered as biological findings leading to novel health intervention can be strongly modulated to real world conditions and how population profile impacts on health care delivery. Such a key social component can lead to new research questions to be addressed back in the lab and to our societies and policy makers.

What is translational research all about?

The fundamental characteristics and attributes required to be a successful translational scientist go beyond the competencies of existing individual disciplines and include a broad understanding of the translational continuum, the full embrace of a team science approach to research, and a focus on developing innovative solutions to persistent problems in translation, among others¹.

In 2017, workshop co-organiser EATRIS co-founded “Translation Together²”, with US-based National Institutes of Health - National Center for Advancing Translational Sciences (NIH-NCATS), a unique collaboration of leading translational research organisations from around the world, leveraging their complementary scientific and operational strengths, shared insight of the challenges facing translation, and their collective voice to advance the science and understanding of biomedical translation. Translation Together notably identified 7 key desirable characteristics³ of individuals who seek to increase the efficiency and efficacy of translation:

- **Rigorous Researcher:** Conducts research at the highest levels of rigor and transparency within their field of expertise, possesses strong statistical analysis skills, and designs research projects to maximise reproducibility.
- **Boundary Crosser:** Breaks down disciplinary silos and collaborates with others across research areas and professions to collectively advance knowledge for social benefits.
- **Domain Expert:** Possesses deep disciplinary knowledge and expertise within one or more of the domains of the translational science spectrum ranging from basic to applied research and domains in between.
- **Team Player:** Practices a team science approach by leveraging the strengths and expertise and valuing the contributions of all players on the [translational] science team.
- **Process Innovator:** Seeks to better understand the scientific and operational principles underlying the translational process and innovates to overcome bottlenecks and accelerate that process.

¹ The Fundamental Characteristics of a Translational Scientist C. Taylor Gilliland, Julia White, Barry Gee, Rosan Kreeftmeijer-Vegter, Florence Bietrix, Anton E. Ussi, Marian Hajdich, Petr Kocis, Nobuyoshi Chiba, Ryutaro Hirasawa, Makoto Suematsu, Justin Bryans, Stuart Newman, Matthew D. Hall, and Christopher P. Austin ACS Pharmacology & Translational Science 2019 2 (3), 213-216
DOI: 10.1021/acspsci.9b00022

² <https://translationtogether.org/>

³ The characteristics have been slightly re-worded to be relevant outside medical science.

- **Skilled Communicator:** Communicates clearly with all stakeholders in the translational process across diverse social, cultural, economic, and scientific backgrounds, including wider community members.
- **Systems Thinker:** Evaluates the complex external forces, interactions, and relationships impacting the development of social interventions, including citizens' needs and preferences, regulatory requirements, current standards of policy cycles, market and business demands.

What does Europe need to accelerate research translation?

Other countries, such as the USA, where the concept of translational research emerged in the early 2000's, are making a substantial translation push, as evidenced by the Biden administration assigning the US National Science Foundation "an added mission in 2022: to accelerate translation of scientific discoveries from lab to market, with \$1.5 billion in the 2023 financial year to get things moving."⁴

The workshop's afternoon session will lay the foundations for a future call to action, to support a thriving culture of translation in Europe across scientific disciplines. Preliminary priorities may include:

- Supporting the emergence of "translational enablers", academics by training, with an industry outlook, institutionally embedded to help cross disciplinary boundaries
- Scaling up university and lifelong learning programmes that can train future translational scientists according to the 7 characteristics described above.
- Recognising and acknowledging translational skill set as part of formal academic assessment.
- Encouraging innovative approaches for effective public-private and public-public collaboration.
- Shifting the role of funders to go from "fund and forget" to supporting research with longer term societal benefits beyond research project lifecycles.

Additional priorities will be identified throughout the day, and participants will be offered the opportunity to join future advocacy efforts led by the organisers.

⁴ <https://sciencebusiness.net/news/International-news/us-research-translation-push-making-strides-getting-science-public>

About the Workshop Co-Organisers

About EATRIS: EATRIS is the European Infrastructure for Translational Medicine. It is a non-profit organisation that brings together academic resources and services for researchers to translate scientific discoveries into benefits for patients. Users are given access to a vast array of expertise and facilities from over 145 top-tier academic centres across Europe. EATRIS focuses on improving and optimising preclinical and early clinical development of drugs, vaccines and diagnostics, and overcoming barriers to health innovation. www.eatris.eu

About EASSH: European Alliance for SSH is the largest advocacy and science policy organisation for the art, social sciences and humanities in Europe. The alliance has over 70 member organisations including a wide range of disciplinary areas, stakeholders and universities from across Europe – and encompassing over 100,000 researchers. <https://eassh.eu>

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