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Collaborative research across the entire research
and innovation spectrum:

EU-LIFE recommendations for the Strategic
programming of Horizon Europe's Health Cluster

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EU-LIFE, an alliance of 13 life science institutes from across Europe, carries out excellent science resulting in global scientific, economic and social impact. Indeed, in the year 2017, together these institutes were awarded 116 ERC grants, published more than 1,000 papers in tier 10 journals and developed more than 86 patents and 6 spin-outs. They employ and train 7,400 staff and scientists.

Limited opportunities for collaborative research in biomedicine in Horizon 2020

A recurring theme of discussions since the alliance's inception in 2013 has been the **increasing lack of opportunities for collaborative research in biomedicine at a European level**. This observation is confirmed by the data extracted from 10 EU-LIFE member institutes, which demonstrates a 60% drop in the level of participation of these organisations in Health Societal Challenges (SC1) consortia between FP7 and Horizon 2020 (they took part in 107 collaborative FP7 projects and in only 42 in Horizon 2020 collaborative Health Societal Challenges projects). Why is this happening? Finances do not provide an answer as the budget for collaborative projects in SC1 increased from FP7 to Horizon 2020. And while it has been widely acknowledged that overall success rates are decreasing in Horizon 2020 compared to previous programmes from 21.7% to 14.7%¹, this data alone cannot account for such a dramatic decrease.

What are the barriers?

An internal study exploring the potential barriers for EU-LIFE researchers to participate in Horizon 2020 has identified, for example, that **within the Horizon 2020 Health 2014-2015 Work Programme only 3 calls on "Personalising health and care" focussed on understanding mechanisms and fundamental principles in health and disease (low Technology Readiness Levels - TRLs)**, while 31 focussed on diagnosis, ICT, innovative technologies, care systems and health policy. In Horizon 2020, there has been a clear shift away from projects focusing on understanding

¹https://ec.europa.eu/research/evaluations/pdf/archive/h2020_monitoring_reports/h2020_monitoring_flash_092018.pdf

fundamental mechanisms and towards projects applying technologies, interventions and systems that exploit previously identified fundamental mechanisms.

While it is important to ensure further translation of discovery research to create impact in peoples' lives, increasing consensus² shows that real health impact is not sustainable without strong and **continued support for research aimed at understanding the fundamental mechanisms behind health and disease**. Innovation is not a linear undertaking that takes knowledge gained from discovery research in a straight line to applications, but includes many feedback loops. Many questions about health and disease, operating in different global environments, need an urgent answer. **Long-lasting innovation requires international research collaborations** and without it, we risk losing the scientific foundations of future impact.

Evidence from EU-LIFE suggests that Horizon 2020 has focussed its support on late stage research, perhaps in an attempt to realise short-term impacts. This is reflected, for example, in a majority of calls focusing on very high TRLs with short-term patient benefit rather than a longer-term approach, which could benefit a far greater number of European citizens in the future. A further barrier is the clear lack of opportunities for research institutes or universities to take a coordination lead in the collaborative projects under the Health societal challenge: in an analysis of 34 calls³ of SC1 in H2020, it would be only possible for a research centre to coordinate a project in 3 of them - which highlights the limited, accessory role of discovery research in collaborative projects in H2020.

Finally, the obligation to largely include higher TRLs in a single project - either explicitly stated or implied by evaluation practices – hinders the participation of researchers focused on the more mechanistic aspects of health and disease.

6 Recommendations for Horizon Europe

History shows that a short-term vision of impact does not contribute to long-standing, sustainable impact. Addressing unmet medical needs requires a return to a more balanced portfolio of research across the entire research and innovation spectrum. This is the only way to ensure a steady flow of powerful innovations from the bench to bedside.

EU-LIFE hereby proposes a set of recommendations for the strategic programming of Horizon Europe. Some complement the existing model of H2020; others are game-changers such as implementing new evaluation models or an evolution of models already in operation in other funding organisations.

² See for example <https://news.harvard.edu/gazette/story/2018/04/most-transformative-meds-originate-in-curiosity-driven-science-evidence-says/>

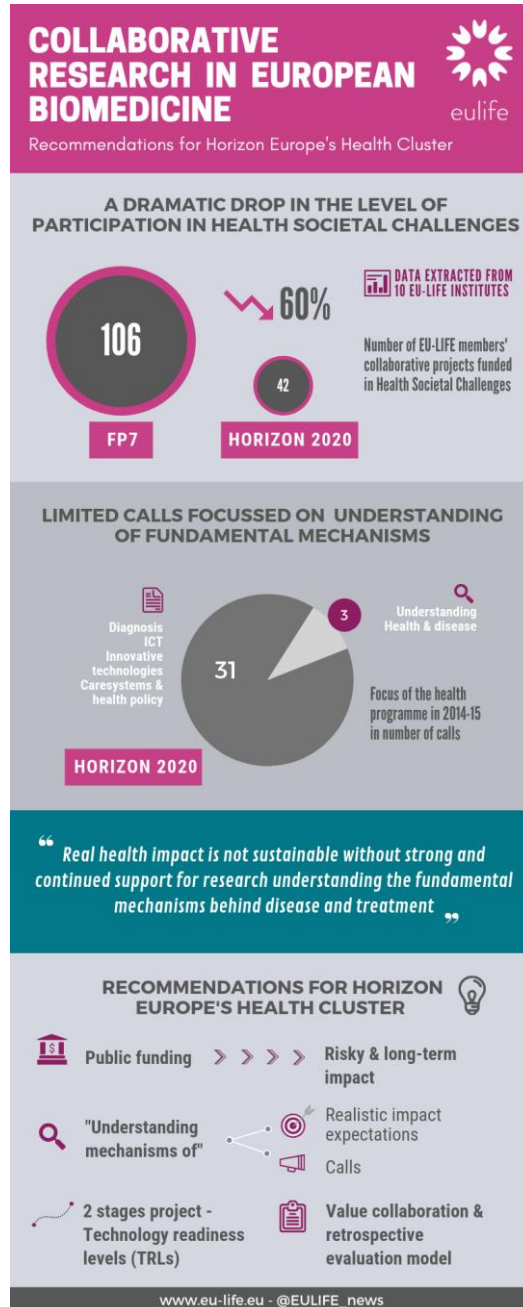
³ H2020 Work Programme 2014-2015 for Health, Demographic change and wellbeing, calls on Personalising Health and care

Recommendations:

- **Re-balance public funding** in the Health Cluster **towards collaborative, long-term impact research and leave the investment in short-term research (higher TRLs) to the private sector.** Whereas the less risky, close-to-market stages are amenable to private funding, lower TRLs that encapsulate longer-term impact are higher risk and therefore they are not fundable by industry or the private sector - this should be the main responsibility of public funding in Horizon Europe.
- **Define major challenges for specific disease areas and include calls for proposals on “understanding mechanisms of”** to ensure collaborative approaches regarding the fundamental understanding of mechanisms that form the knowledge base of disease and treatment.
- **Build a more realistic definition of impact.** Impact in the current calls requires heavy speculation as to what might happen, often ending in hand waving and the description of “impact unicorns”. We instead recommend a **shift towards explaining how the current research environment facilitates further development and exploitation** to enable research impact. An example of good practice is the impact case studies of the UK’s Research Evaluation Framework (REF)⁴.
- Use a **wider and modular definition of “expected impacts”** by taking into account what is more commonly the result of discovery research in the area of the call, and by including **“fundamental understandings” as expected impact.** **Value the collaborative aspect** of the project as a measure of impact as developed by the Chan Zuckerberg Science programme. **Brief officers and evaluators to appreciate the impact of research for the area and TRL in question.**
- Remove the - direct or indirect - pressure to cover too many and too high TRLs in a single project by **introducing several stages for a research theme:** the first stage starting at lower TRLs and if successful progressing to higher TRLs. The National Institute of Health in the U.S. follows a similar approach.
- **Implement a retrospective model of evaluation for collaborative research:** Rather than evaluating “unicorns”, evaluate a track record of generating impact. Look back at what research has achieved following funding at the portfolio or programme level. For example, the Howard Hughes Foundation and the OncoCode system in The Netherlands have a similar approach for individual researchers that could inspire the design of this approach.

⁴ <https://www.ref.ac.uk/>

Graphic summary





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