



NETHERLANDS FEDERATION OF
UNIVERSITY MEDICAL CENTRES

'Towards the 10th EU Research & Innovation Framework Programme' (FP10)



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Preface

This position paper by the Netherlands Federation of University Medical Centres (NFU) titled “Towards the 10th EU Research & Innovation Framework Programme (FP10)” provides key recommendations to shaping Europe’s future research and innovation agenda. This document emphasises the need for enhanced strategic autonomy, societal well-being, and economic resilience within the European Union. Drawing on input from various stakeholders, it advocates for an ambitious framework that will guide European research and development (R&D) from 2028 to 2034.

The framework comes at a crucial time when Europe is facing profound challenges, including climate change, technological disruptions, health crises, and geopolitical tensions. These factors demand a coordinated, well-funded approach to drive innovation across various sectors such as data-driven technologies, sustainability, and planetary health. The 10th Framework Programme (FP10) aims to strengthen Europe’s competitiveness on the global stage by supporting cutting-edge scientific projects, while promoting sustainability and resilience in an increasingly unpredictable world.

At its core, FP10 will prioritise excellence, fostering collaboration across research institutions, universities, businesses, and governments. Recommendations from the NFU underscore the importance of ensuring that Europe maintains its position as a global leader in research by continuing to fund fundamental and applied research, including clinical trials, rare diseases, and innovations in animal-free research.

This paper calls for an increase in funding, proposing a budget of at least €200 billion, ring-fenced for R&D activities. It also suggests better integration of research ecosystems at both European and international levels, ensuring that Europe can navigate the complex societal and geopolitical landscape ahead.

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Director NFU

Executive summary

In this position paper, the NFU offers key recommendations to the European Commission for enhancing the Research and Innovation Framework Programme 2028-2034, drawing on the experiences of the UMCs in current and past research and innovation (R&I) programmes. With this document, the joint UMCs aim to contribute to the discussion on optimising the new framework programme for the sustainable health and well-being of all European citizens. Additionally, the NFU underscores the necessity for increased funding of critical research areas such as data-driven innovation, prevention and planetary health.

A. Key recommendations to improve the next R&I Programme

1

Excellence first

Excellence should remain the overarching objective and main criterion in the next framework programme.

2

Balance in calls for different Technology Readiness Levels (TRLs) across pillars

For FP10 to stimulate truly innovative knowledge, policies, technologies and products, it is vital to increase funding for fundamental (or pre-competitive) research projects in the successor to the current Pillar II.

3

More room for fundamental collaborative projects in clusters

R&I actions in the successor to Pillar II should provide ample opportunities for fundamental, applied, translational and clinical research.

4

Balance in calls for projects of different sizes

To ensure more dynamic and diverse outcomes, FP10 should balance calls for smaller and shorter projects with larger ones, allowing a mix of consortia of different sizes working towards the same goal.

5

More opportunities for clinical trials

For FP10 we recommend:

1. Extended support for academic institutions with guidance documentation related to structuring clinical trials in European projects;
2. Flexible, simple and user-friendly funding mechanism to facilitate the unique features of a clinical trial and necessary, flexible consortium structure. Support

academic institutions with guidance documentation on how to budget and implement investigator-initiated clinical studies;

3. Flexible consortium structure and project duration to accommodate changes related to patient recruitment and sites; and
4. Review funding conditions for regulatory support and training of academics in the regulatory process.

6 Animal studies and animal-free innovations

In the period of transition to animal-free research, there needs to be a proper allocation of funds for research projects that include animal studies as well as investment into animal-free research (3Rs).

7 More research needed on rare diseases

We recommend the Commission to bring together all current and future efforts, from across all relevant EU DGs, under a single, coherent, comprehensive programme with clear and measurable objectives.

8 Standardise partnerships under FP10

Transparency and inclusiveness are important principles that should be safeguarded across all EU funding schemes. To improve current practices with the desired thematic partnerships, we need the European Commission to develop standardised formats and simple procedures for partnerships across all disciplines under FP10.

9 Keep what really works and let go of the rest

To attract a diverse range of talent, FP10 should offer a variety of research opportunities, ranging from individual endeavours to collaborative efforts within both small and large consortia. It is essential to recognise the overall value of research, especially in light of trends favouring directionality and prescriptiveness, which can inadvertently stifle scientific freedom and hinder innovation.

Missions should have clear, measurable goals and be linked closely with other framework instruments to enhance their relevance and effectiveness. If these criteria are not met, the missions should be adjusted or reconsidered. Achieving mission objectives requires support beyond the Framework Programme and involves other EU, national and regional programmes. FP10 should focus on supporting the R&I component, as this is its core strength.

10 Negotiation of a realistic budget for FP10 and ring-fencing it

To ensure Europe remains an economic world leader and independent, it is crucial to invest in R&I. A budget of at least €200 billion for FP10 is necessary to realise this ambition and ensure Europe remains at the forefront of global innovation. It is imperative to ring-fence the FP10 budget to ensure that the allocated funds are used exclusively for R&I purposes. Additionally, any unspent funding should be reinvested in R&I to maximise the impact of the budget.

B. Major research areas that require more funding

1

Data-driven innovation

The Dutch UMCs possess the ability to develop and implement data-driven innovations with their understanding of the medical context, access to large amounts of clinical data, research capacity, educational infrastructure and a multidisciplinary approach. However, to succeed in the digital transformation and to ensure Europe's leadership in digital health, the EU should increase investment in optimising data infrastructures, AI and medical technology, next-generation personalised treatments, innovative training programmes, and sharing of population and patient cohorts.

2

Prevention

Effective prevention requires a comprehensive, evidence-based approach focused on lifestyle, early detection, mental health and structural changes across the lifespan, with sustained funding to ensure a long-term impact.

3

Planetary health

Sustained funding is needed at the organisational, regional and global levels to reduce healthcare's ecological footprint, foster a healthy living environment, and mitigate the impact of climate change on human health.

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About the University Medical Centres of the Netherlands

The University Medical Centres (UMCs) offer an excellent infrastructure for innovative health-related research due to the combination of an academic hospital and the associated medical faculty. With the unique combination of patient care, education, research and valorisation embedded in their structure, and a strong collaboration with all relevant stakeholders in this quadruple helix, UMCs are very well suited to contribute to addressing the health-related challenges Europe and its citizens are facing.

The way in which the UMCs are organised enables the entire research and innovation cycle to be carried out. In the (bio)medical scientific field the UMCs are among the best in the world. The embedding of science and education in the most complex care enables the UMCs to have a major impact in providing care to their patients according to the latest insights of medical science, training the health care professionals of the future, and ensuring there is sufficient knowledge and expertise to make the healthcare system resilient and sustainable. With intensive mutual collaboration between the UMCs as well as through regional, national and international collaboration, the UMCs are capable of contributing even more to societal challenges. Collaborative projects with European research partners are vital to advance scientific breakthroughs and complement each other's distinctive expertise, including interdisciplinary backgrounds, skills and infrastructures.

The UMCs are responsible for 40% of the total scientific output in the Netherlands. International collaboration plays a crucial role in contributing to a country's scientific impact, especially partnerships between excellent research partners. Numerical evidence to back this up has been provided by Elsevier in the impact analysis report '[The Netherlands as a Science Nation](#)'. Medical science in the Netherlands has the greatest impact: 89% above the world average, according to Elsevier. Another recent bibliometric analysis worth highlight is the [Research Impact Analysis of the Dutch UMCs 2024](#). The table on page 35 of the report underlines the importance of European (and other international) funding for supporting biomedical and health research.

The Netherlands Federation of University Medical Centres (NFU) connects the seven UMCs in their core common tasks. Its general objectives are: (i) to promote the interests of the UMCs; (ii) to play an intermediary role in overarching agreements; and (iii) to promote collaboration between the individual UMCs. The NFU stimulates the formation of partnerships with other healthcare parties and research institutes, including universities, on regional, national and international levels. Moreover, cooperation between all academic partners in the Netherlands has proven to be important for agenda-setting, participation and implementation of policy efforts on themes such as [Open Science](#), including [Recognition and Rewards](#) and Open Access, and Economic and Research Security.

Participation in Horizon Europe

Dutch UMCs have been active participants in EU-funded research and innovation programmes, across all pillars and actions. The overview below shows that almost 50% of the subsidies granted to Dutch participants in Cluster 1 (Health) projects has been granted to the UMCs. And the same applies for over 40% of the IHI projects, over 16% of the ERC projects and 20% of the MSCA projects.

Table 1: Overview of subsidies granted to UMCs vs other Dutch participants

Horizon Europe themes	Granted finance Horizon Europe (M€)*	Amount to Dutch participants (M€)	Amount to UMCs (M€)
Cluster 1 - Health	3,553,424	405,197	201,638
Cluster 1 - IHI	183,837	45,517	18,842
ERC	6,209,950	708,433	115,254
MSCA	2,448,996	214,261	42,121

* Reference data from 5 August 2024. Granted finance is only added to the Horizon Dashboard of the European Commission after concluding the projects contracts

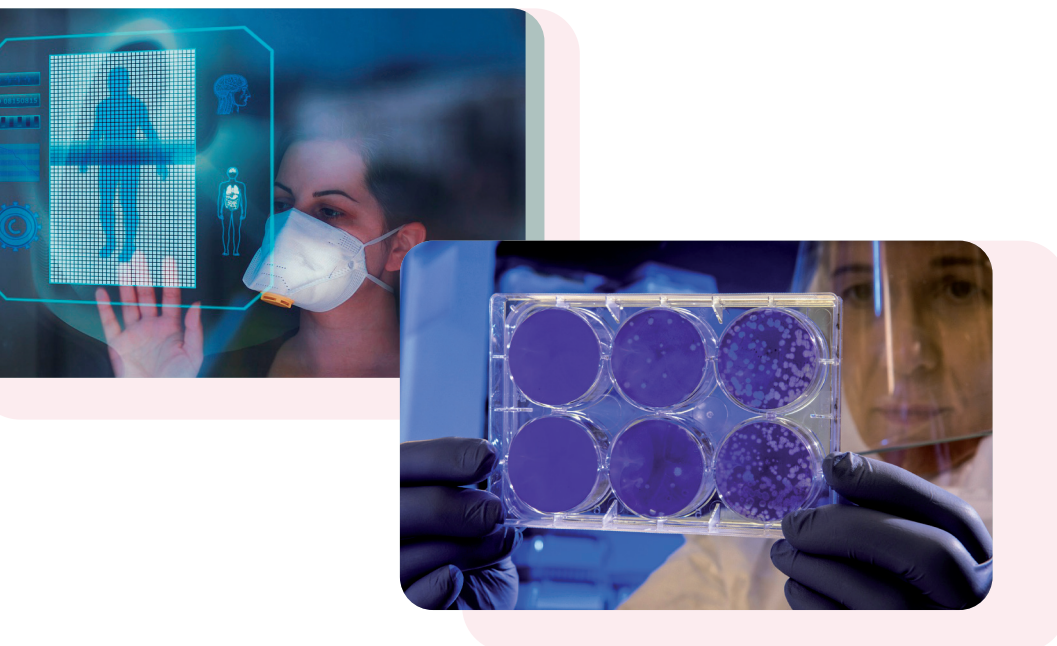
Furthermore, 72% of the Horizon Europe projects with Dutch participation is coordinated by one of the UMCs. Compared to the total EU contribution in amount of subsidies granted to Cluster 1 projects (Health and IHI), the Netherlands is ranked 2nd with 11.4%, below Germany (12.7%) and above France (7.5%). Concerning the number of participations in Cluster 1 projects, the Netherlands takes 4th place (587 project participations), after Spain (750), Germany (716) and Italy (588).



Introduction

In this position paper, the NFU offers key recommendations to the European Commission for enhancing the Research and Innovation Framework Programme 2028-2034, drawing on the experiences of the UMCs in current and past R&I programmes. With this document, the joint UMCs aim to contribute to the discussion on optimising the new framework programme for the sustainable health and well-being of all European citizens. Additionally, the NFU underscores the necessity of increased funding for critical research areas such as data-driven innovation, prevention and planetary health. This paper details the significance and focus of these areas, highlighting their added value for the European Union and their alignment with current and anticipated European policy and regulatory developments.

This NFU position paper aligns with and supports the more general recommendations expressed by various European research networks, such as LERU, The Guild and EU-LIFE, and by Dutch networks such as Neth-ER and the Universities of the Netherlands. Additionally, this paper provides specific recommendations for biomedical and health research.



A Key recommendations to improve the next R&I Programme

1

Excellence first

Since the start, the framework programmes have allowed excellent and high-quality research to thrive in Europe and beyond. Excellence should remain the overarching objective and main criterion in the next framework programme. The European Research Council (ERC), for example, guarantees excellence and scientific breakthroughs in the health research domain. Excellent fundamental research and early-stage research collaborations are essential to generate cutting-edge knowledge and innovations. Such excellent research must continue to have its place across the entire next framework programme.

2

Balance in calls for different TRLs across pillars

Emphasise fundamental research in Pillar II

For FP10 to stimulate truly innovative knowledge, policies, technologies and products, it is vital to increase funding for fundamental (or pre-competitive) research projects in the successor to the current Pillar II. As most innovations are rooted in (fundamental) research, robust support for research is required to sustain the innovation pipeline. To clarify and emphasize this, FP10 should introduce “Research Actions” (RA) as a new instrument, alongside the existing Research & Innovation Actions (RIA), Innovation Actions (IA) and Coordination and Support Actions (CSA).

Sustain funding of the entire research continuum

Sustained funding of the entire research continuum is imperative to drive medical progress and improve healthcare outcomes. Sustained investment in fundamental and translational research, applied and innovative research ultimately benefits the healthcare system, patients and society as a whole. We often see that the fundamental research leads to innovation, enabling technological advances.

Example



European Research Council (ERC) Advanced Grant project Glycotreat¹ ERC has enabled technological advances by revealing the vital role played by cell surface glycans in regulating the immune response. In Europe, 50% of schoolchildren suffer from one or more allergies; the technologies developed by Glycotreat can lead to the treatment of allergies.

EIC project INTRECOM is developing a fully implantable AI-based brain-computer interface which will enable real-time decoding of a person’s intended speech, and automatic transmission to receiving equipment in a bid to unlock the potential of these patients to communicate.

Redefining innovation evaluation: a shift from TRLs to a holistic framework

FP10 should recognise the complex, interconnected nature of R&I by moving away from the use of Technology Readiness Levels (TRLs) for funded projects. The TRL framework artificially segments R&I into a linear process, which is often not reflective of the actual, more complex and systemic R&I processes. Instead, FP10 should adopt a more holistic approach that better captures the iterative and multifaceted nature of achieving impactful innovation.

3

More for fundamental collaborative projects in clusters

Encourage diverse research projects

While some innovations arise independently of research, most are deeply rooted in it. Innovations often result from multiple iterations and can generate new research questions, for example when new materials or medicines do not yield the desired outcomes. Thus, R&I actions in the successor to Pillar II should provide ample opportunities for fundamental, applied, translational and clinical research.

Invest in pre-competitive research

The EU should significantly increase investment in pre-competitive research across disciplines to address existing knowledge gaps, whether in human biology, behaviour, culture or planetary processes. Enhanced understanding in these areas will not only benefit society but also lead to the development of more and better innovative products and technologies.

4

Balance in calls for projects of different sizes

Promote a mix of smaller and larger projects

A varied mix of consortium sizes and project durations can lead to more dynamic and diverse outcomes. Smaller consortia could focus on specific research areas, while larger ones might cover broader R&I processes or close-to-market activities. Although funding fewer but larger consortia per call might be easier to manage, it becomes increasingly difficult to find coordinators for these large consortia, and larger projects tend to be less agile. Therefore, FP10 should balance calls for smaller and shorter projects with larger ones, allowing a mix of consortia of different sizes working towards the same goal. This approach should be tailored to the specific needs of each goal or topic, as some areas may benefit more from larger projects than others.

Introduce follow-up funding

FP10 should introduce 'follow-up funding' for consortia from the collaborative, challenge-driven programme. This concept, similar to proof-of-concept grants but broader, would allow projects to achieve specific outcomes that need additional time. Follow-up funding could range from small grants for short periods to larger projects building on previous EU-funded results. The application process for these grants should be streamlined to ensure consortia can continue their work without interruption. To ensure that the EU framework programme remains accessible to all, including newcomers or less experienced applicants, it is crucial to design the programming and application process to be fair and inclusive. By finding a balance between supporting experienced consortia and welcoming new participants, this approach would foster better synergies between the successors to the current pillars and other relevant EU programs.

More opportunities for clinical trials

Sustaining the efforts for early clinical studies in European-funded programmes

Academic investigator-initiated clinical trials are essential for several reasons. First and foremost, they address pressing clinical questions that may not be of interest to pharmaceutical companies but are crucial for improving patient care. These trials focus on evaluating interventions that have the potential to fill unmet medical needs or improve existing treatment options. Additionally, investigator-initiated clinical studies foster collaboration between researchers, clinicians and patients, facilitating a multidisciplinary approach and patient engagement.

The Dutch UMCs' expertise in clinical trials is largely recognised in Europe with the convergence of regional networks, collaborations among clinics, research hospitals, government bodies, academic institutions and diverse industries. In particular, we recommend that early clinical studies should remain a top priority in the EU. FP10 should take this into consideration and increase support for initial translational research phases, providing resources to validate concepts, assess challenges and build a foundation for larger clinical studies. Increased financial backing for pilot studies and feasibility assessments is essential. Aligning clinical trials with Horizon Europe's requirements is challenging, necessitating specialised support. Strengthening this domain is imperative for medical advances and improved patient care.

Carry out extended support to boost clinical research in Europe and further recommendations

The next framework programme should sustain investigator-initiated clinical studies for those medical conditions that are under-researched while providing flexible funding mechanisms that accommodate the unique challenges associated with these investigations: longer funding periods, streamlined application processes, and increased financial support for pilot studies and feasibility assessments.¹

Specialised support and coordination mechanisms are necessary to successfully conduct investigator-initiated clinical trials through Horizon Europe funding². Conducting an investigator-initiated clinical trial is expensive, the administrative burden associated with regulatory submissions, ethics committee approvals and data management can be significant, especially for small or medium-sized companies and for university medical centres. For FP10 we recommend:

1. Extended support for academic institutions with guidance documentation related to structuring clinical trials in the European project;
2. Flexible, simple and user-friendly funding mechanism to facilitate the unique features of a clinical trial and the necessary, flexible consortium structure. Support academic institutions with guidance documentation on how to budget and implement investigator-initiated clinical studies;
3. Flexible consortium structure and project duration to accommodate changes related to patient recruitment and sites; and
4. Review funding conditions for regulatory support and training of academics in the regulatory process.³

¹ <https://ecrin.org/funding-multinational-clinical-trials>

² [Funding for multinational clinical trials](#) | Ecrin

³ Welcome to STARS! - Stars (csa-stars.eu)

Example



The impact of clinical trials led by academia is evident for rare diseases, where the small patient population can dampen commercial interest, making European funding more relevant for non-commercial clinical trials. European-funded programmes act as a catalyst for clinical innovations in less researched areas where medical conditions are poorly understood. For example, under Horizon Europe, the [SIMPATRIC](#) Consortium comprising 22 international partners spread across Europe and Canada will promote drug-repurposing trials for the treatment of rare neurological disorders in Europe.

6

Animal studies and animal-free innovations

Internationally, the EU plays a leading role in phasing out the use of animals in testing and improving animal welfare in general. In relation to the modernisation of science, the European Commission (EC) should continue its strong support for research into the development of alternatives to animal testing. At the Dutch UMCs, animal studies take place for research purposes in compliance with all national and European laws and guidelines (including strict ethical approval procedures and according to the principles of the three R's: replacement, reduction, refinement). We support the EC in their 2023 statement (ref: [Commission acts to accelerate phasing out of animal testing \(europa.eu\)](#)) that it is not required now to reach the goal of phasing out the use of animals in research, training and education via a legislative procedure. Innovations in animal-free methods are promising, but they cannot replace all animal studies yet. In the period of transition to animal-free research, there needs to be a proper allocation of funds for research projects involving animal studies, as well as investment into animal-free research (3Rs). Especially in specific fields of biomedical research (e.g. development of new medicines), animal studies remain crucial due to the lack of decent alternative models. There is also a clear need for new models based on patients' own tissues, which could provide a much better picture than animal models. We therefore recommend allocating more funding for R&I in FP10 for the development and implementation of alternative models to animal testing.

Example



3D bioprinting enables new opportunities for lab-made human tissue to be used for biomedical studies. However, the challenge lies in the existing complexity in capturing morphogenesis processes or functions of organs. In the H2020 FET-OPEN project [ENLIGHT](#), coordinated by UMC Utrecht, researchers are developing a novel 3D printing technique that uses visible light tomography to shape the cells or biomaterials into living tissue in ultrafast, multi-material, high-resolution mode while enabling 3D printing of cell functions. Being able to print life-like human organoids in the future holds the promise to greatly reduce the need for animal testing.

7

More research needed on rare diseases

We do appreciate the EU for having the strategic objective to improve patient access to diagnosis, information and care for rare diseases. It is evident that rare disease research has been an EU priority for the last two decades. Important [achievements](#) have been made, and the currently fully operational European Reference Networks as well as the new European Rare Disease Research Alliance, the successor of the European Joint Programme on Rare Diseases, are testimony to this. Europe has indeed established itself as a global leader for rare diseases. However, strong and continued support is needed during the next framework programme to address all the urgent needs that still exist and cannot be fully met within the timeframe of the currently planned actions and projects or across all relevant policy areas. For this, we would recommend the Commission to bring together all current and future efforts, from across all relevant EU DGs, under a single, coherent, comprehensive programme with clear and measurable objectives. The current Europe's Beating Cancer Plan may act as best practice and inspiration towards an all-encompassing Europe's Beating Rare Diseases Plan across all relevant policy areas, providing optimal synergies and complementarity.

8

Standardise partnerships under FP10

The thematic partnerships under Horizon Europe deliver an important contribution towards understanding, implementation and impact for a number of highly relevant health topics such as antimicrobial resistance, rare diseases, brain health and health care systems. With the transition from Horizon 2020 to Horizon Europe, a so-called rationalisation effort has been made to simplify the partnership landscape by limiting the number of partnerships and instruments through which they are implemented. Despite these efforts, a myriad of formats for the different *co-funded* partnerships still exists, with differences in matching required from institutes that apply for funding, whether they have (a limited number of) open calls for proposals, and whether co-financing is available from national governments. For example, the follow-up partnership for the European Joint Programme on Rare Diseases (EJPRD) – ERDERA – consists of a consortium of 180 institutes, dividing €200 million in funding. Only a very small amount of it will be shared through open calls for proposals, and most will be spent within the consortium on pre-defined tasks and activities. At the other end of the spectrum, we have for example the European Partnership for Personalised Medicine (EP PerMed), where almost all resources are spent through open calls for proposals, yet the available co-financing from the different Member States is unpredictable for each call, which hampers inclusivity and therefore the success of the partnership.

While the *co-funded partnerships* remain difficult to navigate, the *institutionalised partnerships* such as the Innovative Health Initiative (IHI) and the European & Developing Countries Clinical Trials Partnership (EDCTP) are examples of well-functioning and important partnerships that are open and inclusive and deliver important contributions to (public) health through R&I.

Transparency and inclusiveness are important principles that should be safeguarded across all EU funding schemes. To improve current practices with the desired thematic partnerships, we need the European Commission to develop standardised formats and simple procedures for partnerships across all disciplines under FP10.

Keep what really works and let go of the rest

FP10 should serve as a comprehensive and well-funded global initiative, leading the way in supporting cutting-edge research. It acts as a crucial precursor to unlock the full potential of valorisation, innovation and impact.

To attract a diverse range of talent, FP10 should offer a variety of research opportunities, from individual endeavours to collaborative efforts within both small and large consortia. It is essential to recognise the complete value of research, especially in light of trends favouring directionality and prescriptiveness, which can inadvertently stifle scientific freedom and hinder innovation. Strengthening the foundations of our knowledge base and capacities is vital to addressing long-term needs. Ultimately, prioritising research ensures a sustainable supply of fuel for future innovation and impact.

The NFU advocates fostering synergies between FP10 and other programmes while avoiding duplication of efforts and funding. Maintaining a persistent goal of simplification of instruments, administrative rules and procedures is necessary and key to encouraging improved participation. Specifically, we recommend reevaluating and streamlining the complex EU innovation support landscape. In FP10, the European Innovation Council (EIC) should continue and enhance its role. Simultaneously, we propose implementing the European Institute of Innovation & Technology (EIT) in Pillar III while ensuring self-sustainability for well-functioning EIT partnerships (KICs).

To strike an appropriate balance, we suggest reversing the emphasis between Research and Innovation Actions (RIA) and Innovation Actions (IA). Research remains fundamental for innovation. FP10's pillar structure, akin to Horizon Europe's, should be retained, but each component should be thoughtfully refined and simplified.

Importance of keeping missions in FP10 with a focus on the Cancer Mission

Maintaining missions within FP10 is crucial for aligning R&I efforts with Europe's strategic goals. These missions focus on major societal challenges such as climate change, health and digital transformation, ensuring that R&I investments make a meaningful impact.

FP10 missions should:

- **Set clear and ambitious targets:** Inspire and mobilise resources across Europe.
- **Encourage collaboration:** Involve academia, industry and government to drive innovation and enhance Europe's global competitiveness.
- **Focus on measurable impact:** Achieve outcomes that directly address societal challenges.
- **Be flexible and adaptive:** Allow for adjustments based on new needs and scientific advancements.

Further development of EU missions is essential. Each mission should include an R&I component supported by FP10 and an implementation component backed by relevant EU sectoral programs.

A thorough evaluation of EU missions is necessary to ensure they meet the framework programme's goal of funding cross-border R&I activities. Missions should have clear, measurable goals and be linked closely with other framework instruments to enhance their relevance and effectiveness. If these criteria are not met, the missions should be adjusted or reconsidered.

Governance of the missions needs to be adapted. Achieving mission objectives requires support beyond the Framework Programme and involves other EU, national and regional programmes. The FP should focus on supporting the R&I component, as this is its core strength.

10

Negotiation of a realistic budget for FP10 and ring-fencing it

Strategic goals of Europe require investment in R&I

To ensure Europe remains an economic world leader and independent, it is crucial to invest in R&I. This investment will help attract and maintain top talents, foster innovation and drive economic growth.

Increasing R&I funding

Achieving excellence in R&I requires increased funding at both the European and national levels. The goal is not only to meet but significantly exceed the long-term 3% target of GDP investment in R&I. A budget of at least €200 billion for FP10 is necessary to realise this ambition and ensure Europe remains at the forefront of global innovation. This increased funding will support cutting-edge research, foster collaboration across borders, and drive technological advancements that benefit society as a whole.

Ring-fencing the FP10 budget

It is imperative to ring-fence the FP10 budget to ensure that the allocated funds are used exclusively for R&I purposes. Additionally, any unspent funding should be reinvested in R&I to maximise the impact of the budget. This approach ensures that the funds are not diverted to other areas and that the full potential of the investment is realised.

Maintaining funding for health and life sciences research

In light of international political and economic developments, it is vital to maintain the current level of funding for Health and Life Sciences research within FP10 and the EU4Health program. Health and well-being are consistently ranked as top priorities by EU inhabitants, reflecting the importance of continued investment in these areas. This sustained funding is crucial for advancing medical research, improving healthcare delivery, and addressing public health challenges.

Health, a sensitive key sector for future technologies

Health is recognised as one of the “sensitive sectors and key technologies of the future”, alongside defense, space and artificial intelligence (AI). The EU aims to build its own capacity in these areas to reduce harmful dependencies and protect its open markets. The Council of the EU, in its recent conclusions on the future of the European Health Union published on May 29, encourages the next Commission to prioritise health. This emphasis on health underscores its critical role in ensuring the well-being of EU citizens and the resilience of the healthcare system.

B Major research areas that require more funding

We emphasise the need for increased focus on three critical areas: data-driven innovation, prevention and planetary health. These areas are pivotal for achieving sustainable health outcomes and addressing contemporary and future challenges.



1. Data-driven innovation

In the rapidly evolving landscape of healthcare, medical centres have to adopt data-driven innovations to keep pace with the global shift towards digitalisation. Data-driven innovations, including data-generating equipment and efficient data infrastructures, drive the “learning healthcare system” by integrating knowledge generation and healthcare delivery. This way, patient outcomes continuously fuel the research system, and research findings in turn are translated into clinical practice, using the most current real-world data to improve healthcare. The Dutch UMCs possess the ability to develop and implement data-driven innovations with their understanding of the medical context, access to large amounts of clinical data, research capacity, educational infrastructure and multidisciplinary approach. However, to succeed in the digital transformation, the EU should increase investment in this area, focusing on:

- **Further optimising data infrastructures and transdisciplinary collaborations**, to achieve excellence in fundamental, translational and applied R&I.
- **Investing in the transdisciplinary and international gathering, sharing and reuse of data from population and patient cohorts**, to provide insights into diverse healthcare needs, and facilitate longitudinal studies and tailored interventions.
- **Accelerating the use of Artificial Intelligence (AI) and medical technology in science and healthcare innovation**. Predictive and generative AI, along with medical technology, are revolutionising healthcare by boosting scientific productivity, diagnostic accuracy, treatment effectiveness and healthcare efficiency. These advances contribute to improved health outcomes and health system transformation. The development and implementation of AI and medical technologies should be human-centered and ethically sound, thereby empowering patients and citizens regarding the use of their data.
- **Investing in next-generation personalised treatment and healthcare**, which is crucial for advancing our understanding and management of diverse diseases across various populations. By integrating existing and newly collected data, we can test and refine innovative models to understand disease mechanisms on a large scale. This approach allows for the development of more precise and effective treatments tailored to the unique genetic and environmental backgrounds of individual patients. Furthermore, leveraging revolutionary technologies such as induced pluripotent stem (iPS) cells, CRISPR-Cas gene editing and single-cell RNA sequencing provides unprecedented opportunities to create next-generation medicines. The potential use of AI in this endeavour can further enhance our ability to predict treatment outcomes and optimise

therapeutic strategies. By combining these cutting-edge tools, we can pave the way for a future in which healthcare is highly personalised, leading to better patient outcomes and more efficient healthcare systems.

- **Addressing innovative training in order to respond to the shortage of healthcare professionals**, focusing on high-demand professions, fostering collaboration and enabling scalability to multiple sectors. By leveraging research on digitalisation, virtualisation and simulation, the training and continuous education for healthcare professionals will be enhanced. This contributes to the upskilling and career development of healthcare professionals. Translational research skills are vital for developing AI solutions that are not only technologically advanced but also clinically relevant, ethically sound and practically implementable in real-world healthcare settings. This training ultimately enables researchers to create AI technologies that can effectively improve patient care and outcomes while addressing the unique challenges presented by AI in healthcare. At the same time, training needs to address the unique challenges and opportunities presented by the shortage in the healthcare workforce in Europe.

EU added value

Europe has the potential to become a frontrunner in the ongoing digital health transformation. The EU was the first in the world to adopt the AI Act, which provides rules on safety, transparency and non-discrimination in the application of AI. In addition, the European Health Data Space (EHDS) will offer a trustworthy and efficient system to facilitate sharing and reuse of health data for R&I. Europe's strong starting position should serve as a springboard for accelerating the digital health transformation by setting next-generation standards and prioritising investments in cutting-edge technologies. The challenge aligns with the current Horizon Europe targeted impact of Cluster 1 "Health" Destination 5 "Unlocking the full potential of new tools, technologies and digital solutions for a healthy society" and with the expected impacts of Cluster 4 "Digital, Industry and Space". These topics should be sustained in FP10 to support work on pathways for AI in healthcare, fostering the development and uptake of new AI-based products and services to improve patient safety and wellbeing while preserving privacy.

Europe's leadership in digital health transformation is strengthened by the research (data)infrastructure under Horizon Europe, particularly under Pillar I. The [European Strategy Forum on Research Infrastructures \(ESFRI\)](#) provides the necessary backbone to achieve Horizon Europe's goals of addressing global challenges and strengthening the ERA, by facilitating the development, monitoring, implementation and evaluation of research infrastructures on a European scale. In FP10 investment into efficient research (data)infrastructures should be sustained, with a focus on the accessibility, usability and integration of data, to keep Europe at the forefront of digital health innovation.

The challenge of data-driven innovation builds on the possible 'ERA Action on AI in science' 2025-2027, which aims to harmonise the approaches of the European Commission and member states towards responsible integration of AI in science and research. It supports coordinated policy measures to accelerate AI adoption in



European science and research. In addition, the Marie Skłodowska-Curie Actions (MSCA) under Horizon Europe have become increasingly important in providing funding for training in AI and translational research. In line with the goals of MSCA, the Dutch Digital United Training Concepts for Healthcare (DUTCH) initiative develops and implements innovative digital training programmes for healthcare. This training will equip researchers with the skills necessary to bridge the gap between AI development and clinical implementation. It fosters interdisciplinary collaboration, which is crucial for successful AI implementation in healthcare, and helps researchers navigate complex ethical issues surrounding AI use.

Example

The Marie Skłodowska-Curie Actions (MSCA) play a role in this by fostering the training of researchers to deliver solutions for health care professionals. The [Tool4teams](#) project, for example, aims to enhance the safety and effectiveness of healthcare by researching innovative tools that enable teams to perform optimally in complex medical environments. MSCA actions should be strengthened in the next framework programme to ensure they continue to play a vital role in enhancing mobility and boosting the appeal of the research profession and in creating impact in complex healthcare settings.



2. Prevention

Despite a major focus by multiple previous work programmes on prevention, challenges persist such as an ageing population, lifestyle-related diseases, disparities in health access and increasing pressure on healthcare. The NFU underscores that effective prevention requires a comprehensive approach, involving medical interventions, lifestyle changes, societal engagement and systemic changes. Further research into more effective prevention strategies – that align with the target population’s need and preferences – and the corresponding economic and societal (long-term) value of prevention is highly needed.

The Netherlands is strongly positioned in prevention research across the whole lifespan, from prenatal health to healthy ageing. Dutch UMCs explore a wide range of factors, from early childhood care and genetic factors to environmental influences and social determinants of health¹. In addition, the UMCs are increasingly integrating lifestyle factors and prevention into patient care² and medical training³, thereby continuously refining prevention strategies based on evolving evidence. Investment in longitudinal cohort studies, which track health changes across generations, should continue in FP10 to broaden the knowledge needed for interventions and policies that optimise (early) interventions for better health outcomes. Emphasis should be placed on lifestyle and behaviour, mental health and early disease detection. Furthermore, investing in evidence-based databases is critical for developing and refining these prevention strategies.

EU added value

One of the current strategic ambitions of Cluster 1 “Health” is to enhance disease prevention and health promotion, focusing on healthy ageing, physical and mental health over the life-course, and personalised prevention strategies. Despite the increased attention being paid to these topics, current frameworks often fail to stimulate effective solutions for unmet health needs. Therefore, continuous emphasis on these areas is essential in the next framework period to generate more evidence on the efficacy, cost-effectiveness and safety of prevention strategies. The Employment, Social Policy, Health and Consumer Affairs (EPSCO) Council advocates a European evidence-based database, consisting of data on disease prevention and health systems gathered by independent researchers, to identify high-priority unmet health needs⁴. Besides, the [OECD Health at a Glance 2023](#) report emphasises prevention as key to improving public health and reducing healthcare costs. According to this paper, priority areas for Europe are:

1. lifestyle and behaviour changes;
2. vaccination programmes;
3. early detection and screening of non-communicable diseases;
4. mental health prevention programmes; and
5. environmental health.

In addition, the “Health Promotion & Disease Prevention” work programme of EU4Health complements Horizon Europe’s framework programme in this ambition.

¹ [Science and innovation](#) | NFU

² [Healthcare](#) | NFU

³ [Training and education](#) | NFU

⁴ Council of the EU, 26 June 2024, [Outcome of proceedings](#)



3. Planetary health

The [WHO](#) has declared climate change as the greatest challenge of the 21st century. Global warming, biodiversity loss and environmental pollution contribute to a growing ecological footprint and have both direct and indirect effects on human health. The healthcare sector faces these challenges while simultaneously contributing to environmental degradation and climate change through its own practices. Solutions to prevent the broad spread of risk factors and large-scale outbreaks can only be achieved through international collaboration. The Dutch UMCs acknowledge the importance of planetary health research and the urgency to sustain and intensify research and international collaborations on this topic. Addressing these issues requires an integrated, anticipatory approach that operates on multiple levels.

Organizational

Healthcare practices and facilities have a significant impact on the environment, through energy and water usage, waste production and chemical pollution. In the Netherlands, the healthcare sector is responsible for around 7% of the greenhouse gas emissions⁵. The majority of them is due to the production of chemical products, including medicines. In an environment where our goal is to improve people's well-being, this is highly controversial. To address these challenges, it is important to invest in research focused on enhancing the circularity in both healthcare practices and facilities. This includes developing sustainable treatments, low CO₂-emission alternatives, and minimising waste and excessive use. Regularly assessing the ecological footprint is also essential to continually improve sustainability in the healthcare sector. The Dutch UMCs signed the Green Deal "Working together towards sustainable healthcare", committing to minimise their emission of greenhouse gasses and impact on the environment, emphasising the circular use of raw and processed materials⁶.

Regional

On a regional scale, fostering a healthy living environment is essential for the well-being of communities. More attention should go to creating urban spaces that promote physical activity, reduce pollution and ensure access to green spaces. Research programmes of the UMCs in the Netherlands are investigating the health impacts of pollution and environmental factors, including heat stress, microplastics, pesticides, food contamination, allergies and mental problems⁷. Better integrating the living environment and exposome in clinical research will improve our understanding of the environmental factors contributing to negative health outcomes.

5 [The impact of Dutch healthcare on the environment. Environmental footprint method, and examples for a health-promoting healthcare environment | RIVM](#)

6 [Sustainability | NFU](#)

7 [Planetary Health. An emerging field to be developed - KNAW](#)

Global

Climate change and pandemics are challenges that cross national borders. The COVID-19 pandemic has served as a wake-up call, highlighting the urgency of preventive measures to minimise the effects of future health threats. To protect human health and improve resilience against the impact of climate change, funding is needed to

6. expand knowledge on preventing and mitigating the negative health effects of environmental change;
7. monitor these effects and identify vulnerabilities to create effective strategies;
8. prepare the healthcare sector for anticipated climate change effects; and
9. develop robust response mechanisms, including vaccine and medicine development, to effectively manage inevitable crises.

The important aspect here is promoting knowledge and data sharing and intensifying international collaborations. Currently, there are disparities in the availability and generation of data and evidence across different geographical regions. For example, researchers in the Global South experience difficulties in accessing funding for climate and health research⁸. By investing in bold, forward-looking climate and public health action with a truly global focus, Europe can play a pivotal role in mitigating global health threats and ensuring a healthier planet for future generations.

EU added value

The challenge of planetary health builds on the European partnerships for Global Health (EDCTP) and Pandemic Preparedness, which both aim to strengthen research capacities for preparedness to predict, prevent and respond to (re)emerging infectious diseases. The importance of global initiatives was underscored during the COVID-19 pandemic and should be intensified to effectively combat future health threats. The Strategic Foresight Report 2023 of the EC describes the social and economic challenges the EU will encounter on its path towards sustainability and climate neutrality, and highlights the need for public funding for innovations for sustainability. Furthermore, enhanced funding for R&I on planetary health contributes to the realisation of the strategic plans described in the European Green Deal.



⁸ [EU Climate & Health conference: Researchers, policymakers and funders gear up and prepare for a bold and inclusive research and innovation agenda - European Commission \(europa.eu\)](https://ec.europa.eu/commission/presscorner/detail/en/ip23_1000)

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