

Kunnskapsdepartementet

## Tematiske innspill til EUs kommende rammeprogram for forskning og innovasjon - 24/5497

NTNU takker for muligheten til å komme med innspill til tematisk innretning av FP10. Nedenfor følger innspill på tematiske områder av stor forsknings- og samfunnsmessig betydning for Norge, Europa og verden.

### 1. Hvilke tematiske områder er det spesielt viktig at vi samarbeider om på europeisk nivå i det kommende rammeprogrammet?

#### 1.1 Civil security and emergency preparedness

As described in the 2024 Sauli Niinistö report [Safer Together Strengthening Europe's Civilian and Military Preparedness and Readiness](#), the new European reality is rather grim. We are experiencing acute climate change, biodiversity loss at an unprecedented scale, the bloodiest war in Europe since the Second World War and the aftermaths of the most severe pandemic in a century. This happens with the backdrop of a dramatically changing geo-political and security landscape and the situation calls for cross-disciplinary efforts.

Reinforcing the European Union's preparedness is urgent. Civil security and emergency preparedness address the society's ability to protect itself against and deal with incidents that threaten fundamental values and functions and endanger life and health. Research at a pan European level is needed to develop appropriate prevention, proactive and reactive response patterns in and across nations and sectors at several levels. If we are to succeed in creating a resilient, safe and secure society, ensuring a sustainable future and defending European democratic values, we must adapt to the changes that have already taken place, prevent new irreversible changes and develop new sustainable solutions.

#### 1.2 Democratic resilience

Inclusion, democracy, and resilience are perspectives of crucial importance underpinning the European way of life. These perspectives are fundamental in tackling the broad societal challenges facing Europe in the coming decades. The strategic priority of inclusion, democracy and resilience from Horizon Europe should be strengthened and further developed in FP10. Democratic resilience should be stressed as a fundamental part of societal preparedness as such. This relates to how especially young people position themselves in society and how they see their role as contributing to a vital and viable democracy. Fighting exclusion and strengthening participation in the pursuit of sustainability can transform individuals into true citizens, empowering them to contribute to decision-making processes and reinforcing democracy, tackling crises and counteracting extremism.

#### 1.3 Just climate transition

Climate transition is a pressing challenge and goal in Europe, as it is globally. Trade-offs within sustainability (ecological, economic and societal) are often mediated through differential power and interests that define the outcomes of sustainability choices. Climate change and loss of nature are threats to all communities, at the same time we see that measures to counter the threat trigger strong counter-reactions. Transition

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action and policy triggers conflicts locally, tools such as green taxation trigger uprisings and resistance. It is important to know more about why climate measures are perceived as unfair or representing only selected interests in society. Will climate transition equally distribute benefits and limitations to all? Are all interests and voices represented/included in the processes of transition? How are more than human interests reflected in climate debates? Whose knowledge counts and how are alternative systems of knowledge such as those held by indigenous communities be incorporated into sustainability trade-offs? Will climate transition in Europe, reinforce or transform the exploitative practices of production for example in the global mining industry? These are some critical questions to be asked when evaluating sustainability trade-offs in transitions in terms of values such as fairness and justice.

#### 1.4 Energy

Norway is uniquely positioned for offshore energy, which has the potential to contribute to climate and energy security goals across Europe. A joint challenge for many of the technologies needed, such as offshore wind, offshore grid, CO<sub>2</sub> transport and storage infrastructures, as well as hydrogen pipelines, is the need for sustainable industrial scaling to the level of deployment required to deliver Europe's goals of net-zero emissions by 2050. Holistic approaches are required to make sure that European energy and climate goals will be accomplished all along respecting humans and safeguarding nature and other interests. Questions related to this sustainable scaling are:

- materials for the energy transition, both access and the extent to which these can be recycled (circularity),
- holistic approaches jointly considering socio-economic impacts, public engagement, as well as environmental effects and biodiversity, and
- competences and capacity building.

For cities and neighbourhoods, regulatory issues facilitating test arenas for innovation should be considered.

For hydropower, a key challenge is how to build more flexibility into the systems using pumped hydro, as well as building higher power capacity into existing plants.

Challenges within clean refrigeration & heat pump technology (which will support and add value to EU and Norwegian based companies, R&D and educational flagships):

- Ultra Low temperature refrigeration needs to become environmentally friendly (no F-gases, no PFAS) and enable energy efficient liquefaction of hydrogen, ammonia and carbon dioxide (part of CCS).
- High temperature heat pumps are needed to achieve the decarbonization of the European industry when providing process heat up to 200-250°C. Refrigeration and heat pump units are also the most cost-efficient charging devices for thermal energy storage units, required to utilize smart storage of renewable power and supporting to stabilize the European power grids.

#### 1.5 Oceans and Coast

Heating, pollution, acidification, and oxygen loss pose serious threats to the health of the ocean and to all living beings in the ocean. To tackle the needs for protection, restoration and sustainable development, there is still a need to better understand the oceans, coast and the Arctic.

The coast is particularly important as the interface between sea and land where many people live, often raise conflicting demands for development, protection and restoration. The Arctic plays a crucial role in the global climate system and there is an urgent need to understand the very fast development due to global warming.

Ocean economies are among the most rapidly growing in the world. The market value of marine and coastal resources and the developing industry is estimated by UNDP to be US \$3 trillion per year, which is about 5 per cent of total global gross domestic product. To ensure a sustainable use of the coast and the oceans, there is a need to work together as a global community.

### 1.6 Health

A healthy population is vital for Europe's prosperity, and a strong public health system is central to our societal model. However, with changing demographics and an aging population there is a need for new solutions for organizing healthcare systems and technology that can increase efficiency and reduce the need for more healthcare personnel. Digital transformation focusing on data sharing, telemedicine, AI and sensors will be essential for this. Medical imaging, omics, big health data analytics are essential for advancing personalized healthcare and precision medicine, supporting the EU's goal of developing tailored treatments to improve patient outcomes and reduce healthcare costs. A focus on sustainable biotechnology, regenerative medicine, such as stem cell therapies, nanomedicine and tissue engineering will enhance Europe's competitiveness in cutting-edge medical technologies. Stronger collaboration between academia, industry, and healthcare systems can facilitate this, as well as translational research that bridges the gap between scientific discoveries and real-world applications.

Understanding the causes of non-communicable diseases and how to prevent them are crucial to reduce healthcare resource needs and work disability, increasing the European workforce and reducing government spending on social security. A focus on exercise and sports science, both preventative and health-enhancing physical activity, aligns with EU policy promoting the role of sport for people, the community, and the economy.

### 1.7 Digitalization

NTNU regards the thematic areas as central also for Norway and believe that we can contribute with education and R&I particularly in security and digital support for the society. The former thematic areas had digital transition as one of five areas and the digital transformation has been in the headlines for the last years. It is a natural development and a suitable conclusion from the surrounding developments that the focus has changes. That said, we believe that the digital transformation has a crucial role in the change in society and in strengthening Europe's competitiveness.

Digital transformation is essential for most thematic areas, and it needs to be detailed what the different areas need from the digital transformation. A more digital society also calls for security that suits all Europeans so that everyone can use new digital solutions without threatening the civil security or their own personal security. Trust in new technological solutions will be essential, as well as a human centered development so that European democracy can remain through the digital transformation. This means that our values and cultures should be prioritized in the development of new solutions.

It is also essential that Europe has its own tech companies. What this means needs to be detailed. We miss a thematic area that put strength on the need for tech companies to enhance European competitiveness.

## 2. Områder der de europeiske partnerskapene og samfunnsoppdrag er viktige virkemidler

Se også [NTNUs position paper on FP10](#)

**Revision and continuation of the Mission *Restore our ocean and waters by 2030*:** The mission *Restore our ocean and waters by 2030* should be continued in FP10, but also be subject to revision. It is not likely that all the goals in the existing Mission will be reached in the given timeframe. Also, it would be relevant to work

further on how to protect and develop the oceans and waters for a sustainable future. In such a Mission it will be paramount to build upon established networks and constellations and continue to develop them as open-ended cooperative fora. Utilizing investments in research infrastructure, will give high efficiency.

**A new Mission on *Resilient democracies and societies*:** According to the United Nations Office for Disaster Risk Reduction resilience can be described as the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management. In contrast to the pan European project, the current trend at a global level is that democracies are being dismantled and illiberal regimes are emerging. The liberal values, that have in many ways been taken for granted in Europe, are not as self-evident as was thought until very recently. This challenges our understanding of the resilience of our democracies and calls for a joint mission throughout the European society.

**A new Mission on *Obesity*:** Overweight and obesity are major risk factors for various diseases and a major driver of healthcare needs and costs in Europe. Despite public health efforts, weight problems are increasing, with over half of the European population currently overweight or obese. A Mission to significantly reduce overweight and obesity in the European population should provide new approaches to counter this major health problem through new knowledge, innovative solutions and coordinated policy development across Europe through transdisciplinary and trans-sectorial collaborations.

**A new Mission or Partnership on *Chemical use and pollution to human health and nature*:** There is a need to increase our knowledge about the consequences of climate change and environmental pollution on human, animal and nature's health and how we efficiently can prevent them, adapt to them and secure biological diversity and sustainable and safe food production in Europe.

### 3. Andre forhold

Excellent research is and has been an important pillar in the European framework programmes. We would like the tenets of inclusion and openness in Europe to extend to the many different career paths that researchers have taken, to have a more holistic view of what constitutes early and mid-career researchers to include those who have taken career breaks for reasons other than clinical training, sick leave or parental leave.

We also believe that the excellent research pillar can be exclusive to certain fields of research at the costs of others, such as those within global health. A bottom-up global health excellence thematic area is an avenue that could be exploited to form synergies with other parts of European research that foster collaborations with low- and middle-income countries for more effective tackling of global challenges.

We regard the prospect of an increase in diversity in funding instrument a possible threat for Norwegian research and innovation. Our experience with Digital Europe has made us aware of future risks concerning the development towards research programs that are not covered by the EEA agreement. This concerns the European competitiveness fund, and it concerns any separate dual use research program if formal civil R&I on technology with dual use potential is taken out of FP10 in a separate program where Norway is not a partner.

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