

# R&I systems and strategies - change and uncertainty

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## Change and uncertainty, also for R&I agencies

- Global challenges
- Technology
- Changes in the policy environment
- Changing research and innovation policy
- Covid and its aftermath





Norway

SDGs

Green digital transition  
Health and welfare

R&I systems and strategies





Population: 5,4 mill

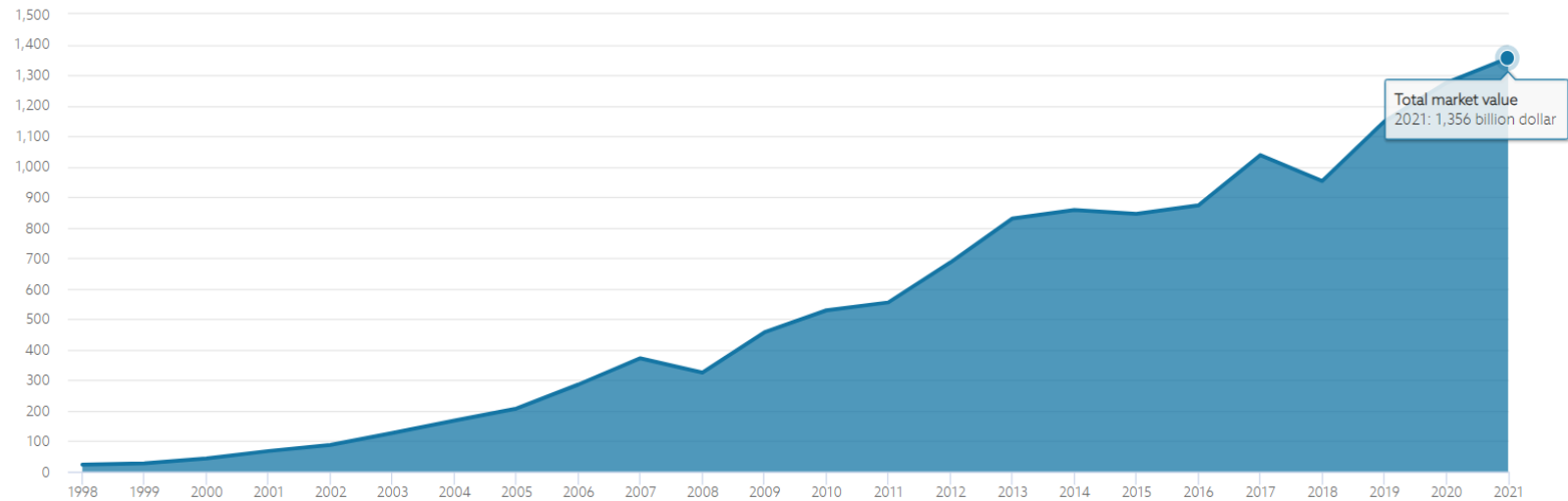


R&D: 2,1 % av GDP



The aim of the oil fund is to ensure responsible and long-term management of revenue from Norway's oil and gas resources, so that this wealth benefits both current and future generations.

Kroner  Dollar



#### Market value

The fund's market value is affected by investment returns, capital inflow and withdrawals, and exchange rate movements.

#### Return

Since 1998 the fund has generated an annual return of 6.6 percent.   
7,417 billion kroner.



## Three imperatives to enhance Norway's economic competitiveness

- Shifting towards a more diversified economic structure, meaning less reliance on the oil and gas industry
- Moving towards a more competitive, effective and efficient innovation system
- Achieving structural transitions while ensuring that grand challenges are addressed







Norwegian Ministry  
of Education and Research

Meld. St. 4 (2018–2019) Report to the Storting (white paper)

# Long-term plan for research and higher education 2019–2028

**Enhancing competitiveness and innovation capacity**  
**Tackling major societal challenges**  
**Developing academic and research communities of outstanding quality**



Seas and oceans



Climate, the  
environment  
and clean  
energy



Public sector  
renewal and  
better public  
services



Enabling and  
industrial  
technologies



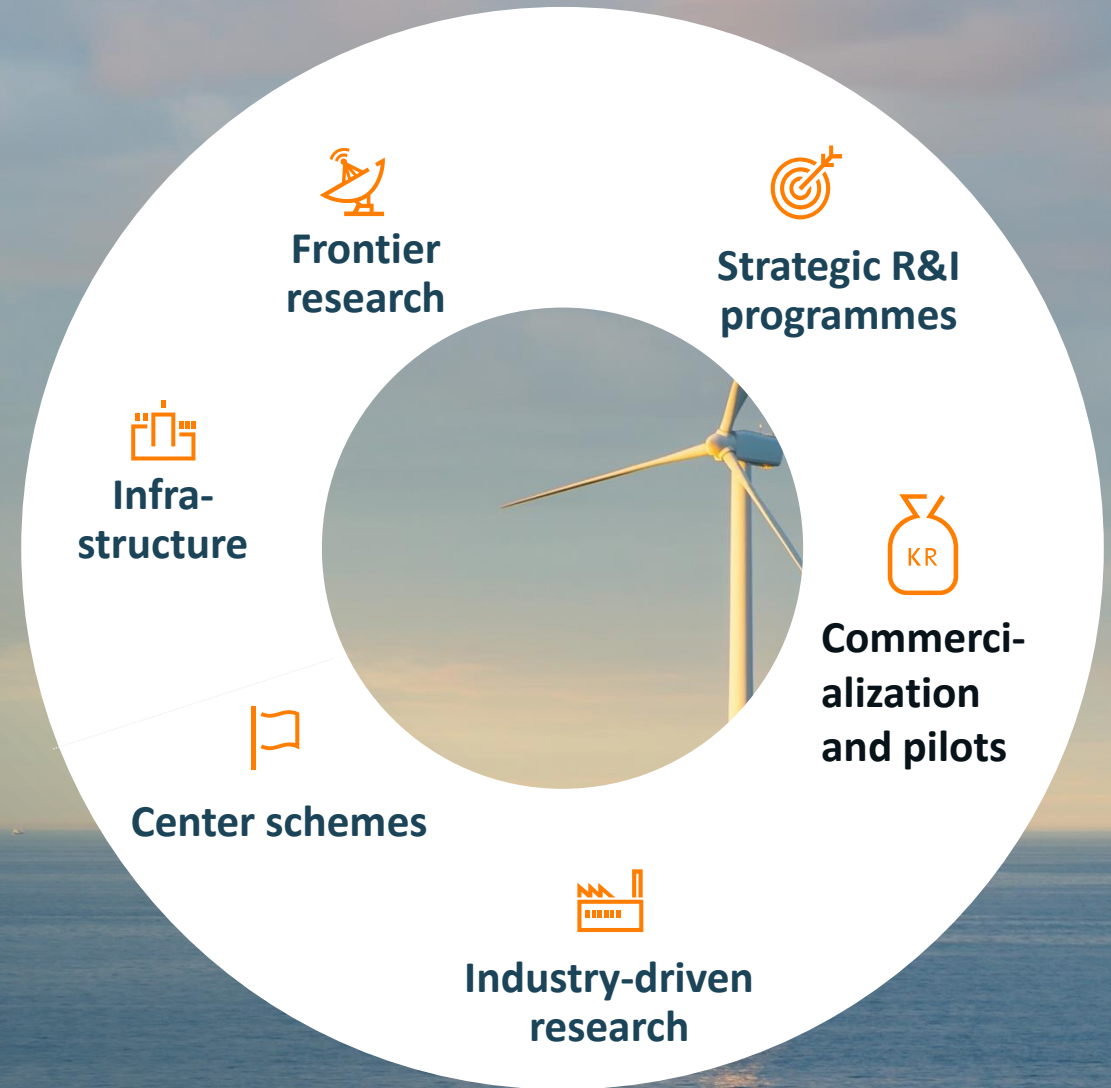
Societal  
security and  
social cohesion  
in a globalised  
world





## RCN - a R&I agency

- All subjects and disciplines
- All thematic areas
- From basic research to research-based innovation and commercialization
- Promote a society where research is created, used and shared and contributes to the sustainable solutions
- Distributes approx. 28% of all public spending on R&I





## OBJECTIVES



## STRATEGIC AREAS

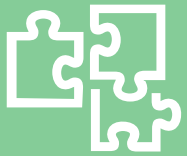


A well-functioning research and innovation system





## A well-functioning R&I system



**Productive interaction between education, research and innovation**



**High participation in international research cooperation**



**Ethical and socially responsible research and innovation**



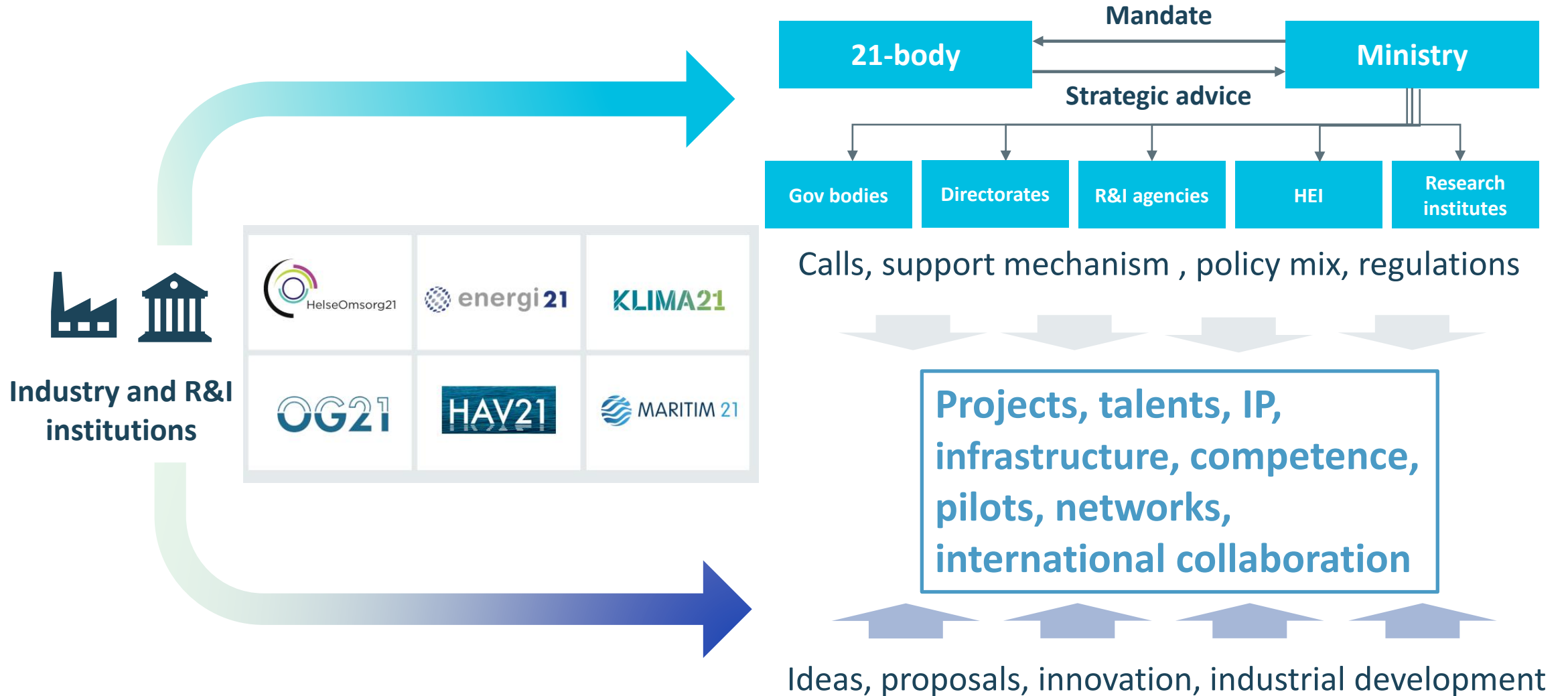
**Open research and innovation processes that facilitate broad-based access to and verification of results**



**Relevant, up-to-date and widely accessible research infrastructure**



# R&I strategies anchored in the ministries, developed by stakeholders and implemented by the R&I actors

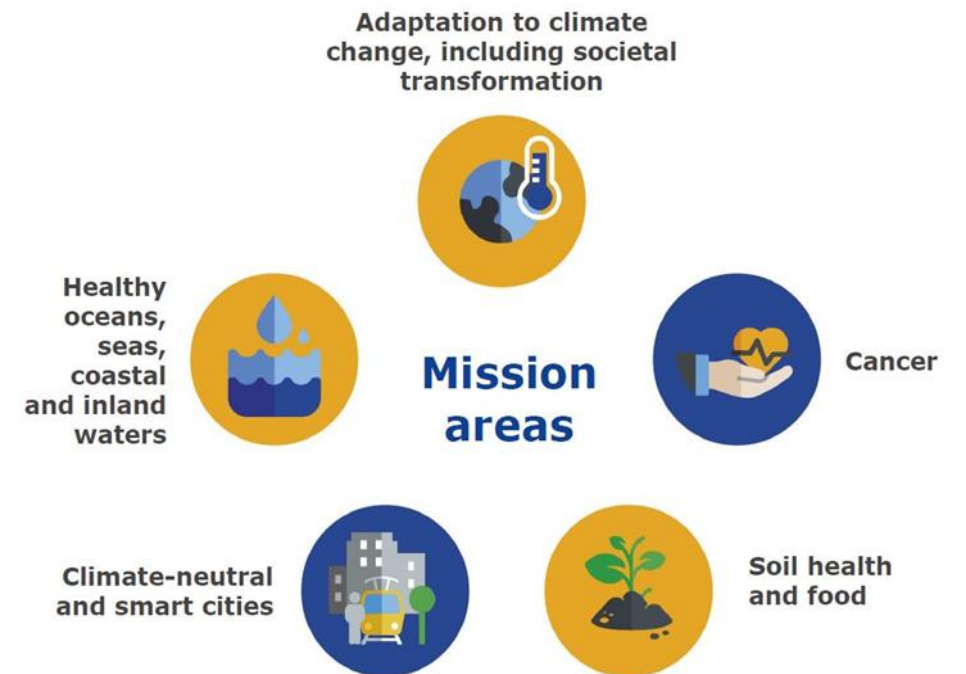






# Missions along three lines

1. Large, cross-sectoral initiatives coordinated at government level
2. Coordinated R&I initiatives
3. The mission of Horizon Europe





# Digital Life – addressing societal challenges from technology convergence, following a functional genomics program



## Digital Salmon

- establish a systems biology framework for adapting salmon breeding and nutrition strategies to modern feedstuffs



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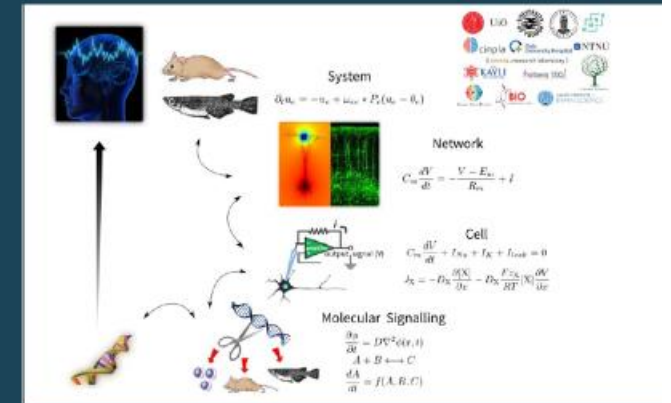


## Digital Brain

From genes to brain function in health and disease

- Understand disease mechanisms for mental illnesses such as schizophrenia and bipolar
- Identify new targets for treatment
- Transdisciplinary platform with integration of mathematical modeling, experimental neuroscience and clinical measurements

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# Large cross-sectoral social mission: Norway after the oil

- New jobs in new industries and value chains that compete in international markets and ensure export revenues and development of the welfare society.
- All within the framework of zero emissions and sustainability
- Investments to develop top level R&I institutions, talents, infrastructure, to develop climate-friendly and sustainable solutions, and environmental, social science and humanities research for fair and inclusive restructuring





# Changing research and innovation policy

## 01

Shift towards more directional innovation policy and missions

## 02

Expectations that innovation should and can address societal challenges

## 03

Expectations of innovation policy as driver of transformation





## Key questions

- What are good or useful criteria or guidelines for choosing missions?
- An accelerator mission aiming at accelerating the progress towards some target, normally technological ambitions or capacities?
- A transforming mission aiming at transforming a complex system?
- Which are the problem areas best suited for a mission-approach, and why?
- Which are the appropriate national and institutional capabilities for a mission?
- Can strategic R&I programmes be scaled up to national level missions?
- Which are the typical mistakes to be avoided, given international experience?





# What to do for R&I agencies

- Getting serious about
  - education and life-long learning
  - multidisciplinary
  - co-creation
  - disruption and transformation (governance, institutions, leadership, silos)
- Strong cooperation to develop, implement and scale
- Finding the right balance and combining
  - technological openness **and** key technologies,
  - societal challenges **and** serendipity





# R&I policy

## - uncertainty, complexity and crisis

A significant opportunity!

- C19 learnings and achievements
- Increasing interest in R&I
- Mandate to take informed risks and to lead
- Sense of urgency promotes agility
- Consensus to drive change and transformation



# RESEARCH AND INNOVATION FOR SUSTAINABILITY

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