Norway –
R&I strategies and
SDGs.

Inger Midtkandal
Research Council of Norway

UN – MoST Joint Capacity Building Workshop on
Science, Technology and Innovation for Sustainable
Development Goals. Global STI
Dec 12th 2019, Guilin, China
Agenda

01 Setting the Norwegian scene
02 Our R&I strategies and SDGs
03 A few examples: 21-strategies
04 Implementation and results through institutional collaboration: Pilot-E
Setting the Norwegian scene
Population: 5 258 317

Total area of 385 252 square kilometres

Norwegian and Sami are the two official languages

GDP: $ 391 billion
GDP per capita: $ 73 450
A resource-based economy

• Mining
• Minerals
• Hydroelectricity
• Petroleum
• Fishing & seafood
• Shipping
Norwegian Research — strong fields

• Renewable energy
• Geology
• Petroleum technology
• Climate change
• Marine sciences
• Maritime
• Clinical medicine
• Public administration
A society based on...

- Trust
- Technology
- Higher education
- Equality
- Cooperation
Our R&I strategies and SDGs
Linking our R&I strategies, SDGs and ODA agendas
In the Government’s view, the Sustainable Development Goals are a crucial component of dealing with the global challenges of today, and will play an active role in how these are followed up.
The Research Council’s strategy for sustainability – objectives

The Research Council will promote knowledge and solutions that will:

• resolve national and global challenges relating to sustainability in society

• facilitate industrial development that enhances sustainability and increases green competitiveness
A few examples: 21-strategies
Figure 2. Smart Specialisation methodology

Source: Joint Research Centre, Smart Specialisation Platform
Basic Idea with 21-processes: R&I strategies with direction given from industry.

Industry, R&I institutions, NGOs, Civil society

21-body

Mandate

Ministry

Strategic advice

Gov bodies
Directorates
SIVA
Research Council of Norway
Innovation Norway

R&D and innovation policy:
Calls – Support mechanism – Policy mix – regulations

Projects .......... Good
Competence ... Relevant
Candidates......... Right

Ideas – proposals – innovation – industrial development
Basic Idea with 21-processes: R&I strategies with direction given from industry.

Industry, R&I institutions, NGOs, Civil society

Government

R&D and innovation policy:
- Calls
- Support mechanism
- Policy mix
- Regulations

Value Creation /Solutions!

Industry/Research/Users

Ideas – proposals – innovation – industrial development
Need for sustainability – in society and industry

The word *sustainability* reflects different aspects and approaches
The aim of the strategy is three-fold

The aim of the Health&Care21 process is to promote evidence-based health and care services characterized by high quality, patient safety and efficiency.

• Better public health – for individuals and the population as a whole, quality of care, patient safety, user involvement, innovation and efficiency.

• Breakthrough research at a high international level—research excellence, world-leading research groups, and research in its own right.

• National economic and business development—profitable and internationally competitive health and care industries, increased foreign investments in health-related R&D and innovation.

3 GOOD HEALTH AND WELL-BEING

Milestones Health&Care21
Objective 1
Increased value creation based on national energy resources and utilisation of energy.

Objective 2
Restructuring of the energy system through the development of new technology to reduce energy consumption and greenhouse gas emissions, and through efficient production of more environment-friendly energy.

Implemented through RCN program ENERGIX: € 50+ mill to R&I projects in 2018

Objective 3
Development of internationally competitive expertise and industrial activities in the energy sector.
Maritime – the most global industry in Norway

• 8 % of GDP (ex. O&G)
• 17 % of national export
• 74 mill US $ investments from RCN in R&I in 2019
• Norway ranked as 4th overall maritime nation in 2018
• Oslo ranked 1st maritime technology capital in 2019
• Green investments pay off!
Maritime21 – an integrated R&I strategy for maritime industry in Norway

Objective: encourage research, development and innovation activities that promote sustainable growth and value creation, boost the competitiveness of the maritime industry and realize the potential of the maritime industry through synergies with the other marine industries.
A national industry with increasing regional specialisation
**Value creation**

**OCEAN INDUSTRIES**

**Existing ocean industries**
- Shipping and logistics
- Offshore oil & gas
- Fishery
- Aquaculture
- Coastal/ocean tourism
- Security/surveillance at sea

**Emerging ocean industries**
- Renewable ocean energy
- Offshore aquaculture
- Marin biotechnology
- Deep sea mining
- Ultra deep oil & gas
- Marin carbon capture

**Value chains**

**Technologies**
- Advanced materials
- Nanotechnology
- Biotechnology
- Underwater technology
- Sensors and image processing
- Satellite- and communication systems
- Digitalisation
- Autonomous systems
Thematic priorities in RCNs Maritime and offshore Research program
MAROFF = Maritime21 strategy

• **Opportunities in ocean industries**
• Autonomous and remote controlled vessels
• Digital transformation of the maritime industry
• **Promoting greener maritime activities**
• Arctic and northern areas
• Safety and security at sea
• IMO has set a target of **reducing GHG emissions from International Shipping by 50% by 2050** compared to 2008 levels – and reach 100 % reduction in this century

• The Norwegian Government’s ambition is to **reduce emissions from domestic shipping and fisheries by half by 2030** and promote the development of low- and zero-emission solutions for all vessel categories. To achieve this ambition, it will be necessary to speed up the green transition in the shipping sector *(*The Government’s action plan for green shipping*)
Promoting greener maritime activities

- Contribute to reaching climate goals
- Increased opportunities for industry
- RD&I in
  - New energy carriers
    - Zero- and low emissions
    - Battery, hydrogen and LNG
  - Energy efficiency
    - Important incremental improvements
    - Improvement "from tank to propeller"
  - Emissions reductions
    - Incentives and regulation
  - Carbon Capture Storage and Utilisation

Implementation and results through institutional collaboration

- **Pilot-E**: Fast track from concept to market.
TOOL BOX of schemes

- Research Council of Norway
- Innovation Norway
- Enova
- Transnova

- Norwegian energy resources
- Changing the energy system
- Business development
- Environmental transportation

- Researcher Projects
- Knowledge-building Projects
- Innovation Projects
- Development Grants
- Risc Loans
- Scheme for Project and Investment Grants

- Skattefunn
- The Scheme Environment Technology
- New Technologies Market Introduction Scheme
- Market Change Support Scheme
TOOL BOX of schemes

Tools and schemes for different purposes and different TRLs

Challenge: How to combine these tools to solve societal challenges – missions – and at the same time develop business?
TOOL BOX of schemes

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PILOT-E – basic idea: - Fast-TRACK through the toolbox of schemes

Innovation Projects
New Technologies Market Introduction Scheme
Market Change Support Scheme
Development Grants
Risc Loans
Scheme for Project and Investent Grants

PROJECT

MARKET INITIATED BY A MISSION

Research Council of Norway
Innovation Norway
Enova
Wide thematic scope – different market segments – a new cluster of maritime emission-free suppliers

- **Supply**
  - **SIEMENS**
    - 0-emission operation offshore wind power

- **Passenger vessels**
  - **WARTSILA**
    - Urban water shuttle
  - **BRØDRENE AA**
    - Passenger vessel

- **Ferry**
  - **KONGSBERG**
    - Emission-free autonomy ferry
  - **FISKARSTRAND**
    - Hydrogen and battery ferry

- **Battery**

- **Hydrogen**
«Future of the Fjords»
Pure electric
Wide thematic scope – different market segments – a new cluster of maritime emission-free suppliers

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13.12.2019
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A new cluster of maritime emission-free suppliers

13.12.2019
First region in the world with only emission free ferries and passenger vessels by 2024?

Electric ferries – a success for the climate and for Norwegian battery production

"By as early as 2022, so many electric ferries will be in operation that annual emissions of CO2 into the atmosphere will be 300,000 units less than at present, which corresponds to the discharges of 150,000 cars."

Achieving zero emissions from Norwegian ferry operations by 2030 is by no means unrealistic," say Ole Kristian Talle and Edward Sandvik of the Norwegian Public Roads Administration.

In 2019, the world’s first all-electric ferry commenced operations on the Lærdal–Oppenel crossing. By 2022, over 70 battery-powered ferries will be trafficking Norwegian fjords.
Some concluding reflections:

• Top down and bottom up
  • Ownership by Ministries
  • Stakeholder engagement and participation

• Short/medium term vs Long term

• From Priorities to Implementation

• Institutional collaboration

• SDGs give justification, momentum and direction
RESEARCH FOR INNOVATION AND SUSTAINABILITY

Thank you for your attention!

Inger Midtkandal

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