The Norwegian Scheme
Centres for Research-based Innovation (CRI)

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The Research Council of Norway
The Research Council of Norway (RCN) is a strategic governmental agency

- Adviser to the government on research-policy issues
- Finance and stimulate public and private R&D
- Create arenas for cooperation and knowledge distribution
RCN - The distribution of funds (2005)

- Programmes
- Independent projects
- Infrastructure
- Misc.

$1\text{ Euro} = 8\text{ NOK}$

Division for Science

Division for Strategic Priorities

Division for Innovation

Total NOK 4607 mill (575 mill Euro).
CRI - The flagship in the portfolio for long term industrially oriented research

**Width**

- **Tax refund**
  - Broad mobilisation of SMEs
  - Bottom up
  - Simple, non-bureaucratic

- **User oriented projects**
  - Competition – potential for innovation
  - Additionality important
  - Lead to innovation

- **Specific programs**
  - Strategic efforts
  - Specific challenges
  - Thematic areas

- **CRI/Strategic grants**
  - Long term research
  - Competence
  - International orientation

**Depth**
Centres for Research-based Innovation Objectives

- Stimulate innovation in Norwegian enterprises by encouraging long term research
- Support active research cooperation between innovative enterprises and excellent research groups
- Strengthen industrially oriented research groups working in international networks in the scientific forefront
- Stimulate researcher training in fields of importance to the future of the companies
- Encourage the transfer of knowledge and technology
Motives for starting the CRI-Scheme

International experience with Competence Research Centres

- Performs long-term research with involvement of enterprises
- Creates networks between enterprises, between research groups, and between business sector and academia
- Patience required: Often 7-8 years until results lead to innovation
- Serves as bridgeheads for international collaboration
- Attracts young talent and educates highly skilled personnel of importance for future development
Competence Research Centres

Norwegian challenges – Based on evaluations of technological research

- A need to stimulate more long-term thinking in companies, too much focus on short term challenges
- National investment in industrially oriented fundamental research should be increased
- A need for mechanisms aimed at business and research groups with ambitions to be in the front internationally
- Make it attractive for research oriented enterprises to establish activities in Norway
### CRIs operate in Pasteur's Quadrant

<table>
<thead>
<tr>
<th>Fundamental understanding</th>
<th>Oriented towards application</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Curiosity (Bohr)</strong></td>
<td>Oriented basic research (Pasteur)</td>
</tr>
<tr>
<td>Who wants to be here?</td>
<td>Applied research (Edison)</td>
</tr>
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</table>
Criteria and requirements for CRI applications

- Scientific quality on a high international level
- The main selection criterion is the potential for innovation and value creation for partners and Norwegian society at large
- No predefined thematic priorities, but the portfolio of CRIs should be diverse
- The application included:
  - Vision and research plan
  - Management and organisation
  - International cooperation and researcher education
  - Senior researchers’ profile and expertise
  - Letters of Intent from the partners
A major investment in long-term research

- 14 centres established
- 140 MNOK (17.5MEuro) yearly from RCN
- At least 50% of the funding from the consortium
- At least 25% of the funding from the business partners (NGO)
- Total budget NKr 300 million per year for eight years, total investment NOK 2.4 billion (Euro 300 million)
Organisation of CRI

- Management
  - Strong scientific standing
  - One research plan
  - A board controlled by the user partners

- Host institutions: Universities, Research Institutes, and Enterprises with strong research standing

- Active participation by all partners

- Public enterprises or other research institutions may participate as partners

- International cooperation and researcher training important
## 14 Norwegian Centres for Research-based Innovation

<table>
<thead>
<tr>
<th>Name of centre</th>
<th>Host Institution</th>
<th>Thematic area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine bioactives and drug discovery</td>
<td>University of Tromsø</td>
<td>Bio-Science</td>
</tr>
<tr>
<td>Medical Imaging Laboratory for Innovative Future Healthcare</td>
<td>NTNU</td>
<td>Medicine</td>
</tr>
<tr>
<td>Stem Cell Based Tumor Therapy</td>
<td>Rikshospitalet - University hospital</td>
<td>Medicine</td>
</tr>
<tr>
<td>Tromsø Telemedicine Laboratory:</td>
<td>Univ. Hosp. North Norway</td>
<td>ICT/Medicine</td>
</tr>
<tr>
<td><strong>Information Access Disruptions</strong></td>
<td>Fast Search &amp; Transfer ASA</td>
<td>ICT</td>
</tr>
<tr>
<td>The Michelsen Centre for Industrial Measurement Science and Technology</td>
<td>CMR</td>
<td>ICT</td>
</tr>
<tr>
<td>Statistics for Innovation</td>
<td>Norwegian Computing Centre</td>
<td>Services</td>
</tr>
<tr>
<td>CREATE - Centre for Research-based Innovation in Aquaculture Technology</td>
<td>SINTEF Fisheries and Aquaculture</td>
<td>Bioproduction</td>
</tr>
<tr>
<td>COIN - Concrete Innovation Centre</td>
<td>SINTEF</td>
<td>Materials</td>
</tr>
<tr>
<td>Norwegian Manufacturing Future</td>
<td>SINTEF</td>
<td>Productivity</td>
</tr>
<tr>
<td>Structural IMpact Laboratory</td>
<td>NTNU</td>
<td>Materials</td>
</tr>
<tr>
<td>Center for e-Field and Integrated Operations for Upstream Petroleum Act</td>
<td>NTNU</td>
<td>Petroleum</td>
</tr>
<tr>
<td>Multiphase Flow Assurance Centre</td>
<td>Institute for Energy Technology</td>
<td>Petroleum</td>
</tr>
</tbody>
</table>
Centres for Research-based Innovation
14 centres - but not 14 buildings

- A long-term binding partnership between research institutions and companies actively engaged in research with the companies in the driving seat

- Commitment and authority on the part of the Centres' leadership essential to success

- Collaboration between companies and research institutions places heavy demands on organization and leadership
CRIs - Criteria for success (1)

Research

- Long-term industrial research of at a high international level in the field outlined in the project description,
- Doctoral degrees, scientific publications, papers at recognised international conferences
- A distinct research profile and successful at the international level, i.e. researchers win prizes or are invited to be keynote speakers at international conferences
- Researchers from the host institution and partners participate actively in the centre's research
- The centre's user partners have increased their research activities
CRIs - Criteria for success (2)

Innovation and value creation

- The centre's research has engendered innovation and enhanced competitiveness among user partners and expectations about social ramifications.
- The centre has achieved mutual mobility of personnel between the centre and the user partners.
- The centre has ensured that the competence and results achieved by the research are effectively transferred to the partners.
- The CRI paves the way for results that fall outside user partners' core areas to be commercialised by other means.
The centre is successful in international research cooperation, e.g. as a player in the EU's framework programme.

The centre engages in active collaboration with international research groups and to the internationalisation of Norwegian research and industry.

The centre attracts outstanding foreign researchers, including research fellows and senior staff as visiting foreign researchers.
CRIs - Criteria for success (4)

**Researcher training and recruitment**
- The centre attends effectively to education of researchers
- The centre is actively engaged in education, especially at the masters level
- Improve recruitment to the centre's subject areas with particular emphasis on increased recruitment of women

**Partners and funding**
- The host institution and partners increase their funding to exceed the minimum requirements.
- Active efforts are made to attract new partners and the centre's partners also include small and medium-sized enterprises with a high technology and innovation profile.
- The centre has been successful in securing other external funding, i.e. EU funding