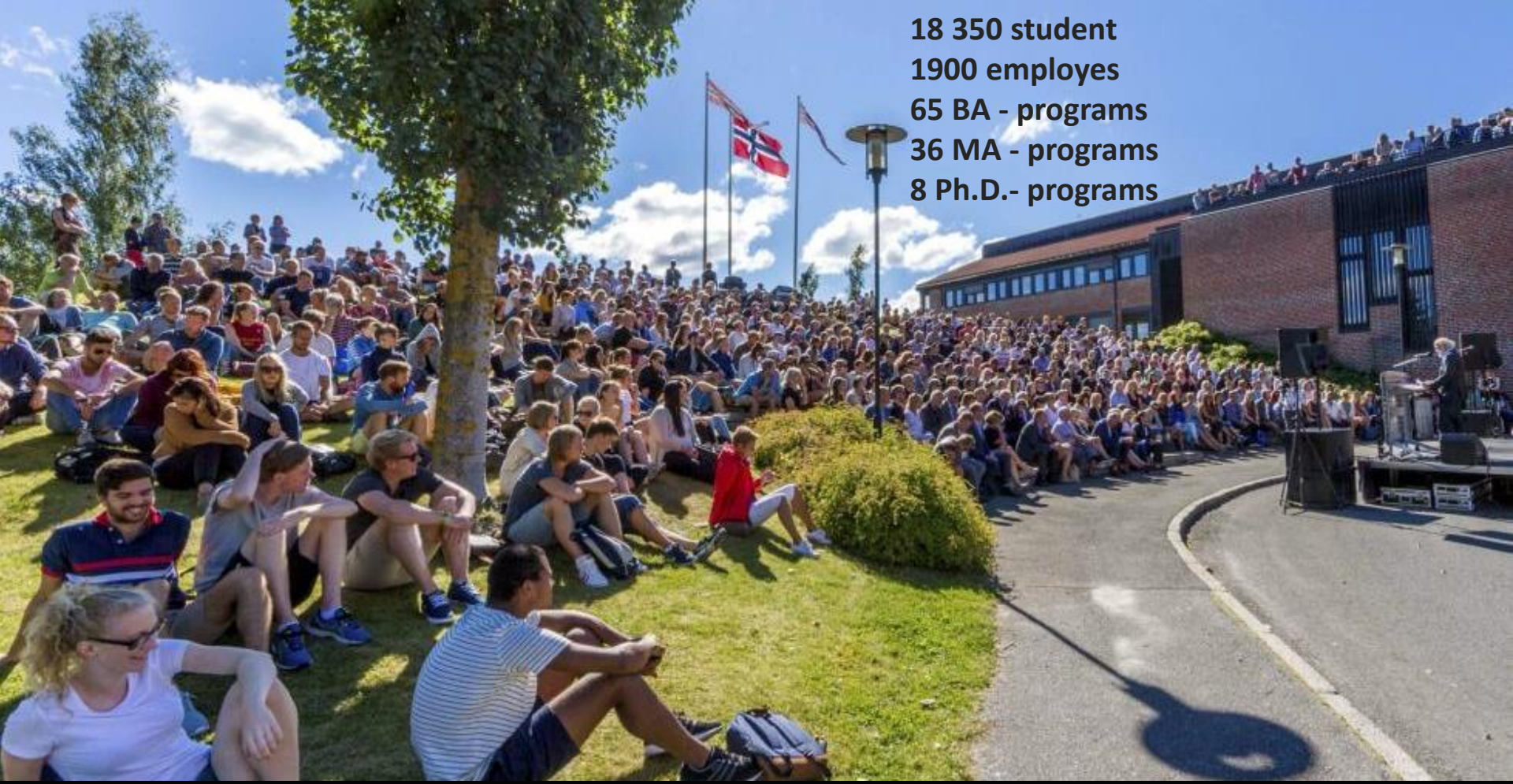
Is the Norwegian experience relevant for the changing education landscape in Ireland?

Petter Aasen
Rector/president
University of South-Eastern Norway

THEA Colloquium 2020


Norwegian Sea
Sweden
Norway
Finland
Baltic Sea
Estonia
Latvia
North Sea
Moscow


Kartverket
Bergen
Haugesund
Stavanger
Sandnes
Egersund
Flekkefjord
Farsund
LAND
SJØ
FLYBILDER
ENKEL
PLAST- / PAPIRKART
HØNEFOSS
DRAMMEN
RAULAND
KONGSBERG
NOTODDEN
VESTFOLD
BØ
PORSGRUNN


18 350 student
1900 employes
65 BA - programs
36 MA - programs
8 Ph.D.- programs

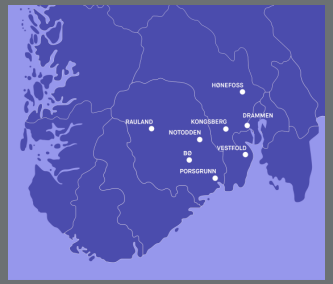
CAMPUS BØ
2930 students

CAMPUS DRAMMEN
2950 students

CAMPUS KONGSBERG
1350 students

CAMPUS NOTODDEN
1750 students

Multi-campus organization
The DNA of USN



Ensure access to higher education of high international quality and increase research and innovation to promote regional development.

CAMPUS PORSGRUNN
2500 students

CAMPUS RAULAND
120 students

CAMPUS RINGERIKE
1400 students

CAMPUS VESTFOLD
5250 students

NATIONAL POLICY

National policy instruments

Institutional policy

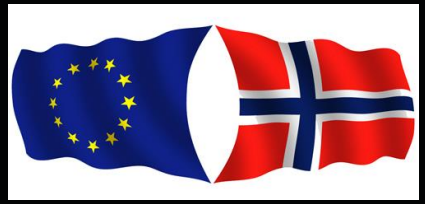
Higher education in Norway

Continuously reformed over the last 30 years

- 1994: The merger of non-university colleges
  - 98 vocationally-oriented colleges were amalgamated into 26 new state university colleges.
  - University Colleges eligible to provide a full scope of educational options, including university degrees at bachelor, master and Ph.D. levels, engineering degrees and professional vocation degrees (eg. teacher and nurse).
- 1995: New Act on Universities and Colleges
  - All public higher education institutions under the same act.
- 2002: The Quality Reform
  - Changed the entire system of higher education to comply with the Bologna process.
  - University colleges can apply to be accredited as a university. Institutional accreditation, presupposes that the institution meets defined national requirements. Based on evaluation by the Norwegian Agency for Quality Assurance in Education the institution can apply to the Ministry of Education and Research to change the institutional status.
- 2015: The Structural reform
  - Included mergers between university colleges and universities and university colleges.
- 1994 - 2020: Gradual development from a binary to a unified higher education system
  - Currently 10 universities, 6 state university colleges and 5 scientific colleges owned by the state.

European Commission 2003

The role of the universities in the Europe of knowledge



- *«After remaining a comparatively isolated universe for a very long period, both in relation to society and to the rest of the world, with funding guaranteed and a status protected by respect for their autonomy, European universities have gone through the second half of the 20th century without really calling into question the role or nature of what they should be contributing to society. The changes they are undergoing today and which have intensified over the past ten years prompt the fundamental question: Can the European universities, as they are and are organized now, hope in the future to retain their place in society and in the world?»*

Trends in higher ed.

- Higher education as mass education
- From public good to exchange relationship (value for money)
- From input to output steering and financing
- Combining research, education and innovation
- External funding
- Specializing for quality
- World class excellence/Globally competitive & Make sure that knowledge works/ Locally engaged
- New ways of teaching and learning
- Campus development, (physical, virtual)
- Quality, efficiency, diversity

From building institutions and a national system to rebuilding institutions and the national system

Our common challenges

Globally

- Climate
- Poverty
- Energy
- Health

Nationally/regionally

- Sustainability of our welfare state
- The green shift
- Norway's competitive edge

National goals for higher ed.

- Education and research of high international quality
- Robust academic environments
- Good access to education and research based competence throughout the country
- Strengthening of knowledge based regional development
- World-leading research groups
- Efficient use of resources

The structural reform: Concentration for quality

Mergers to enhance quality in research and education, secure good access to education and research based competence throughout the country, and to strength knowledge based regional development.

Stricter requirements for study program accreditation and institutional accreditation.

NATIONAL POLICY INSTRUMENTS

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Output-oriented, formula-based funding model

- A performance-based funding model introduced in 2002:
  - The education component aims to improve education as measured by the credits and graduates produced and number of international exchange students.
  - The research component rewards increase in research activity as measured by research publications, and increase in external funded research activity.
  - Basic component, which is makes up 60 per cent of the total allocation.

Programs for funding research and innovation to promote national/regional development

The Research Council of Norway

Promote competitiveness and growth in Norwegian trade and industry by providing financial support and advice for research and innovation.

- Ear-marked resources for strategic university college programs
- Regional research fund

Innovation Norway

Contributes to sustainable growth and exports for Norwegian businesses through capital and expertise.

- Norwegian Innovation Clusters.

Siva
Selskapet for industrivekst

Facilitates growth and development in industry and business in Norway

The Ministry of Education and Research has strategic development agreements with each individual institution to accommodate diversity within higher education systems.

Followed up annually through "a management dialogue" with each institution.

- A diversified system has been encouraged since one single institutional type cannot fulfil all needs and expectations from society. The labels 'multiversity' and 'mission overload' illustrate the fact that a more diversified system is needed to handle all the tasks and expectations that HEIs are facing from both students and society at large.
- 'There is no single excellence model: Europe needs a wide diversity of HEIs, and each must pursue excellence in line with its mission and strategic priorities' (The European Commission 2011).

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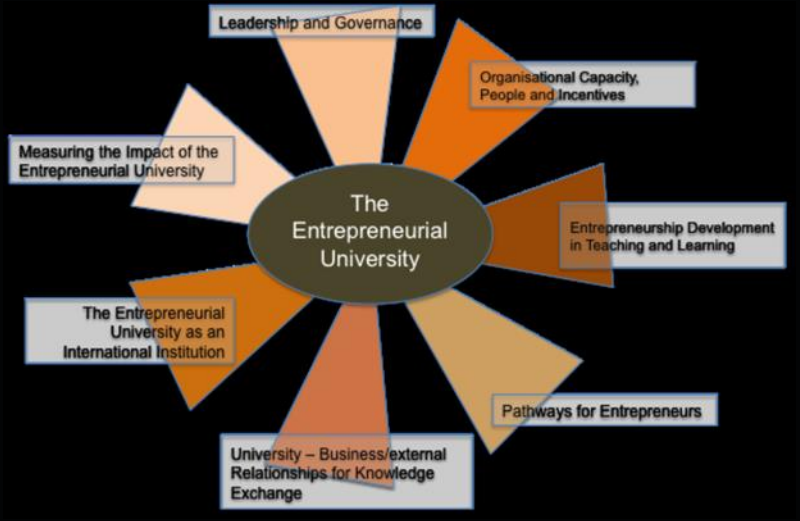
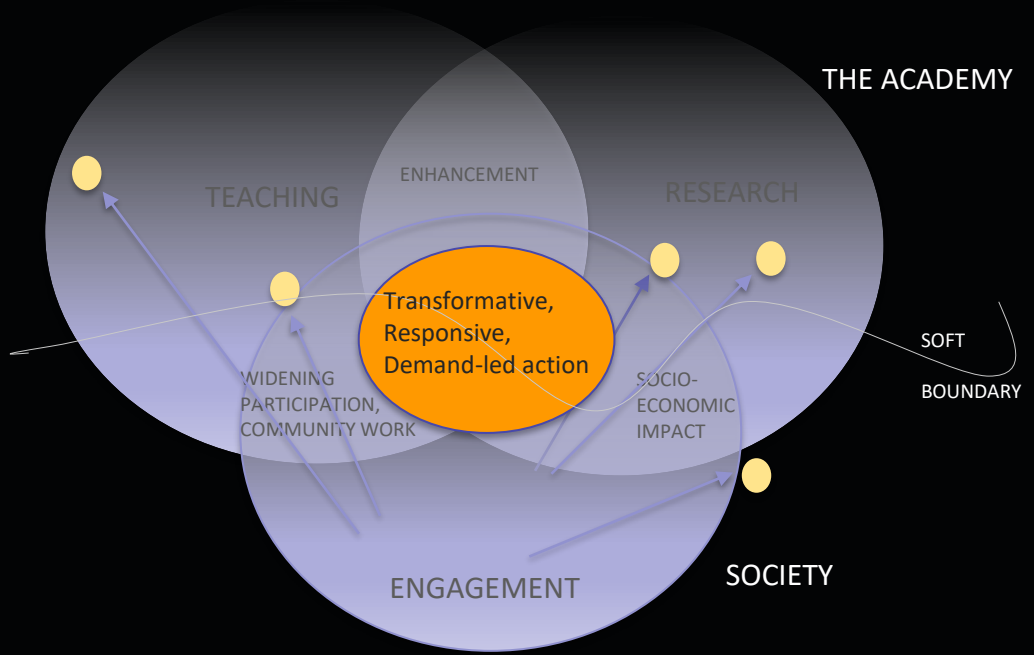


The Civic University

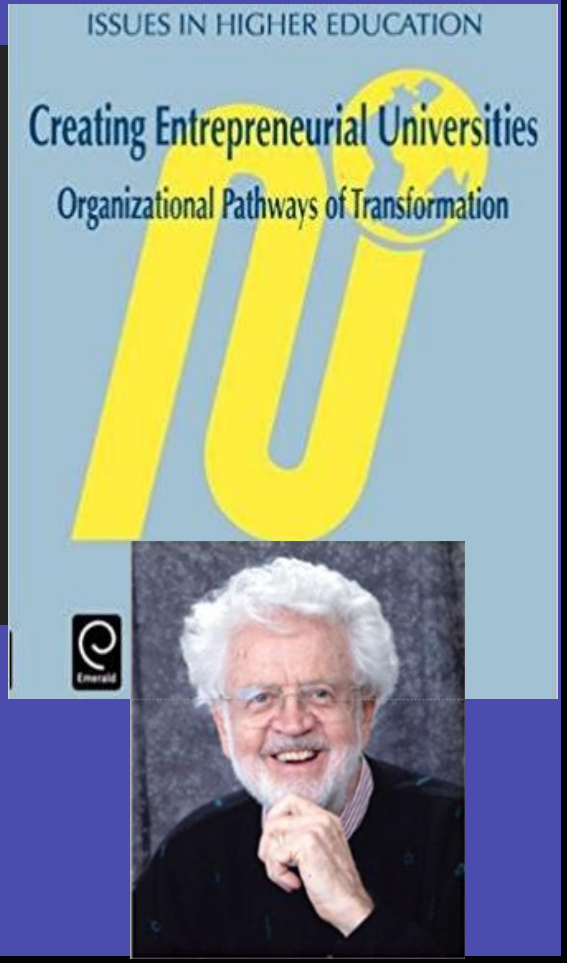


The Entrepreneurial University

Structural arrangements aimed at:

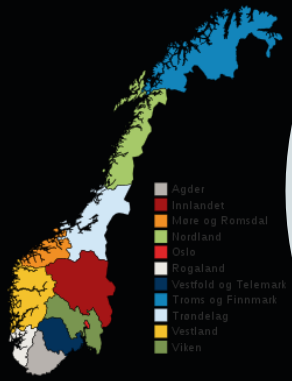
- *Coupling*: **Internal collaboration**

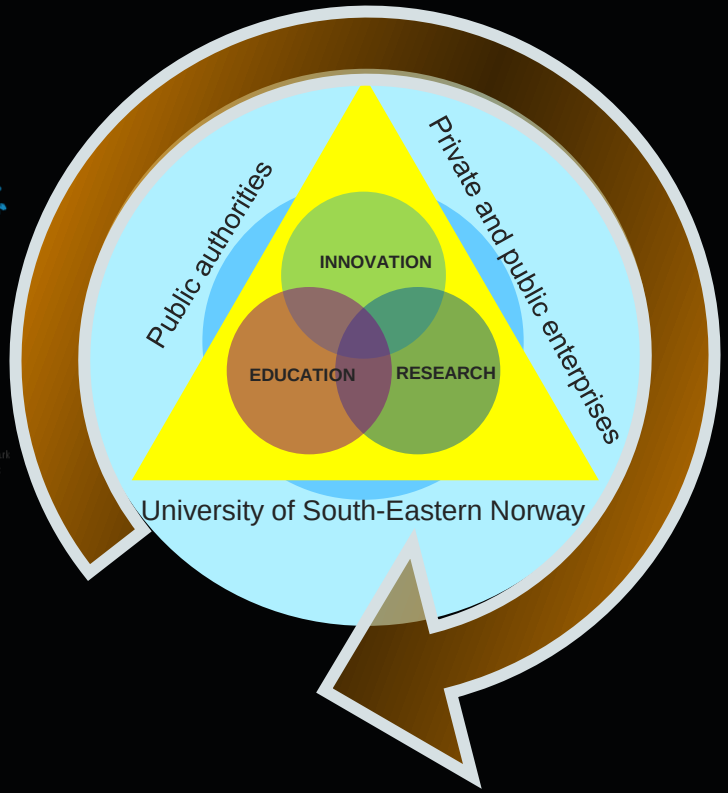
- *Bridging*: **Fostering external partnerships**



Regionally Engaged and Internationally Competitive

Institutional "strategic work philosophy"



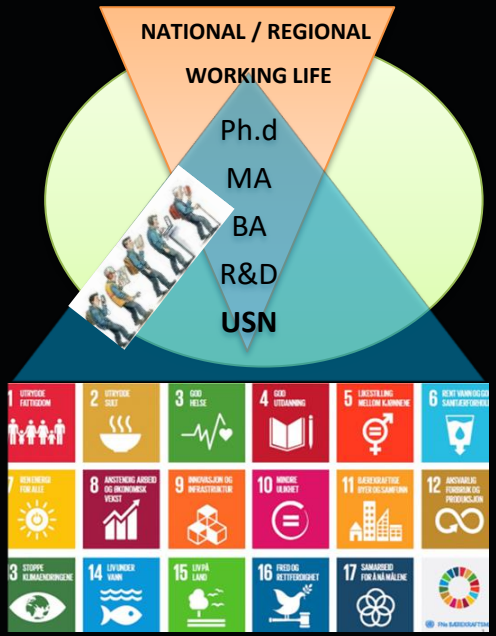


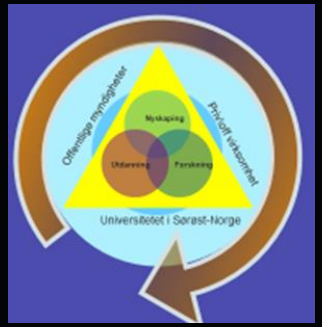
Regional based but not a regional university. Internationalization should be an integral part of all aspects of academic activities at USN:

- increases quality in our education and research,
- strengthen competitiveness on national and international financial arenas,
- international cooperation in research and education is the key to solve a number of global challenges.

University of South-Eastern Norway

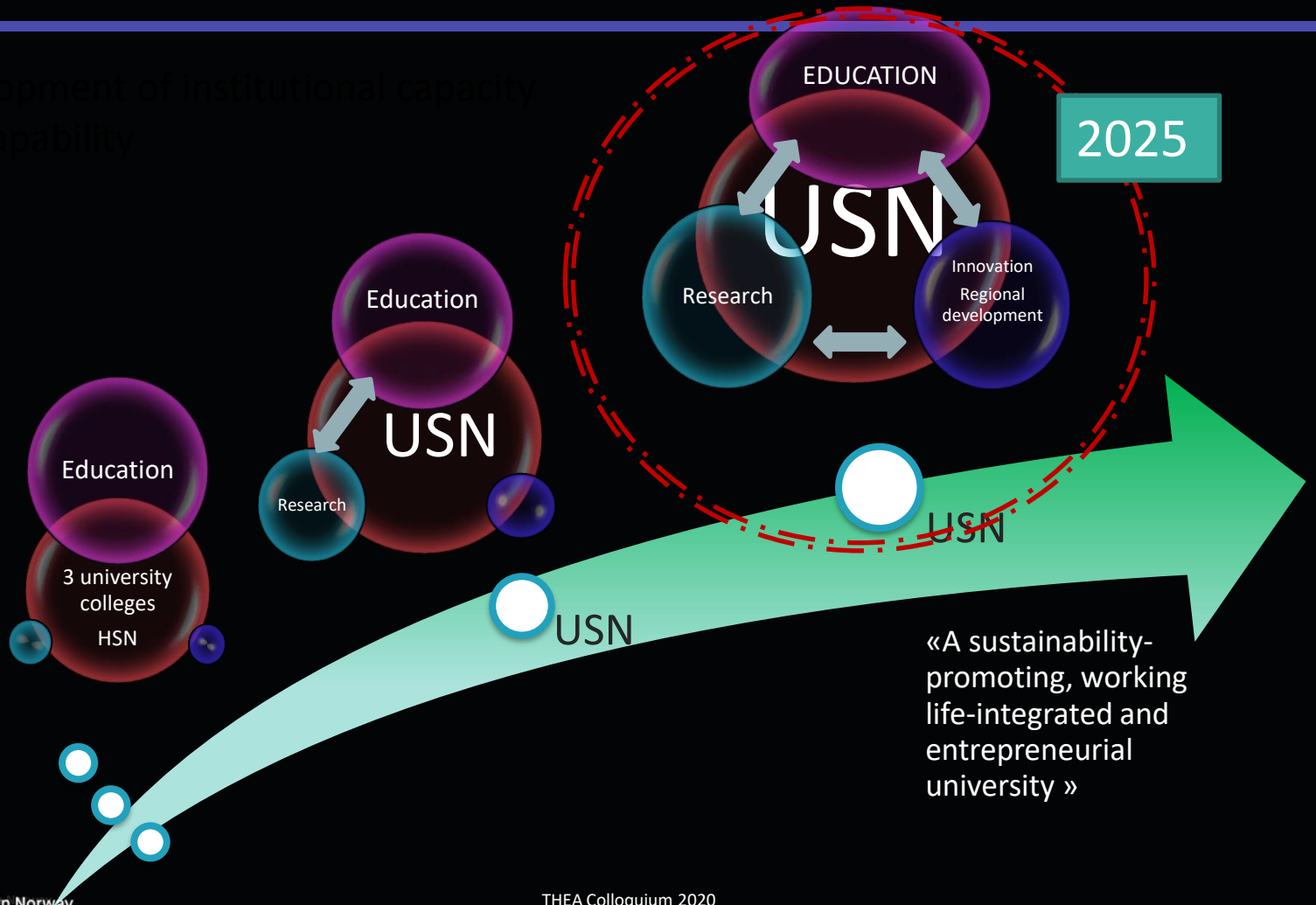
«Knowledge for a sustainable society through co-creation»





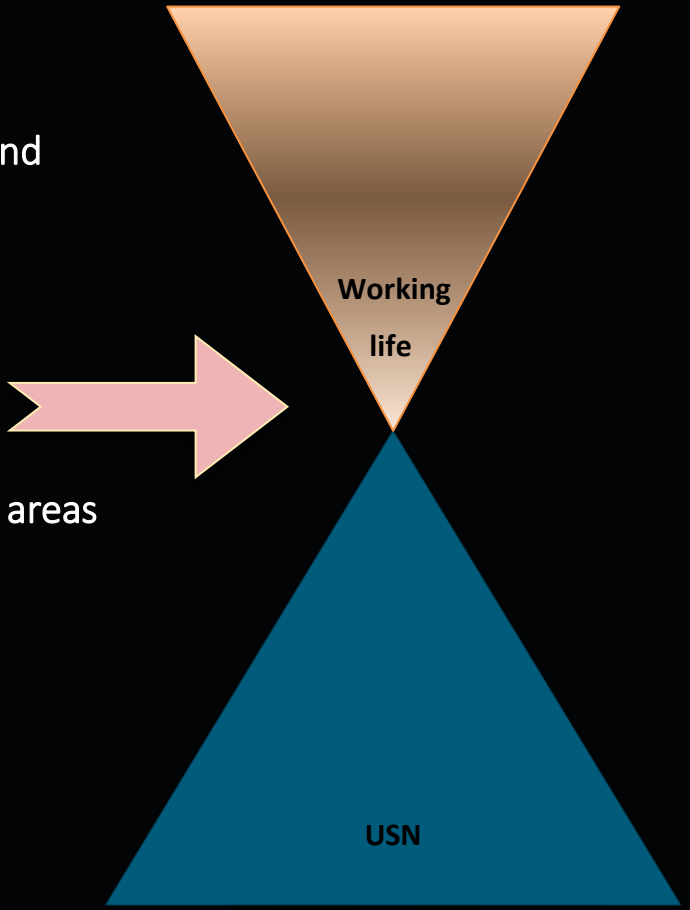
A entrepreneurially, working life integrated and sustainability-promoting university

Development of institutional capacity and capability



Building Research and Innovation capacity

- Increase research active academic staff: Competence development and recruitment policy
- Work load allocation model – Average 30 percent R&D&I
- Administrative support unit at institutional level
- Strategic planning & prioritization
- Criteria for establishing research groups
- Research Centres to strengthen and profile interdisciplinary research areas
- Ph.D. program as a lever
- Regional engagement – applied and user-oriented research
- Securing research based education programs
- Internal financial incentives
- Increase external funding



Faculty of Technology, Natural Sciences and Maritime Sciences

- Department of Natural Sciences and Environmental Health, Campus Bø
- Department of Electrical Engineering, IT and Cybernetics , Campus Porsgrunn
- Department of Process, Energy and Environmental Technology, Campus Porsgrunn
- Department of Maritime Operations , Campus Vestfold
- Department of Microsystems , Campus Vestfold
- Department of Science and Industry Systems, Campus Kongsberg

USN School of Business

- Department of Business and IT, Campus Bø
- Department of Business, Marketing and Law, Campus Ringerike
- Department of Business, Strategy and Political Sciences, Campus Drammen and Kongsberg
- Department of Business, History and Social Sciences , Campus Vestfold

Ph.D. programmes

// Applied Micro and Nano systems
// Cultural Studies
// Ecology
// Marketing Management
// Nautical Operations
// Person-centred Healthcare
// Process, Energy and Automation Engineering
// Research training in pedagogical resources and learning processes

A regional world-class industrial triangle

KONGSBERG

KONGSBERG

PORSGRUNN

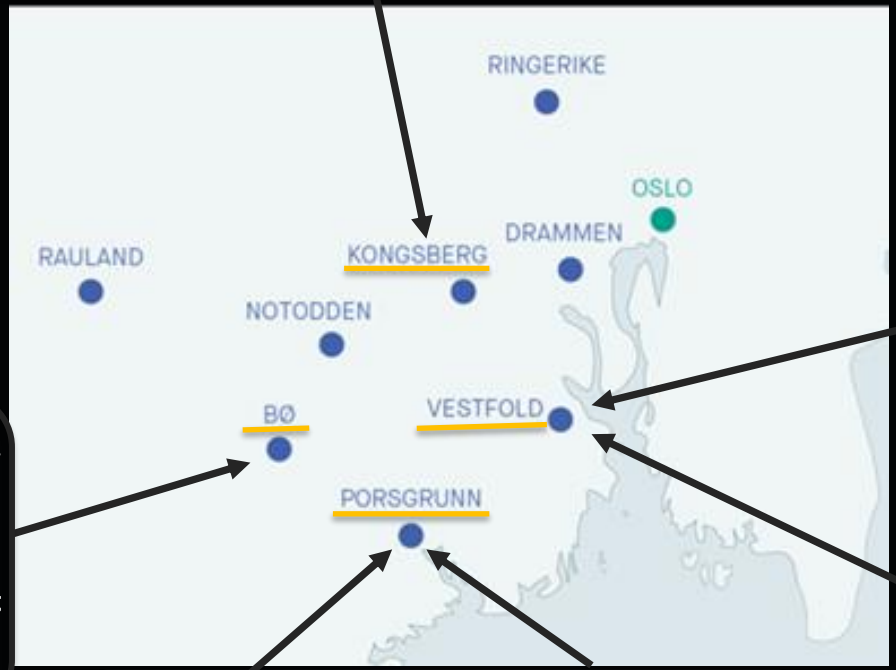
YARA

VESTFOLD

GE Vingmed Ultrasound

System industry

System Engineering, Computer Science, Industrial Economy



Electronics industry

Micro and nano system technology,
Smart systems integration

Natural resource-based industry

Environmental Science
Ecology
Sustainability Management

Maritime industry

Nautical operations
Maritime management
Marine engineering
Shipping and logistics

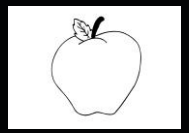
Process industry Energy industry

Process, energy and automation technology

The Performance Agreement - 3 target areas

- **USN DIGITAL**

- **USN PARTNERSHIP**



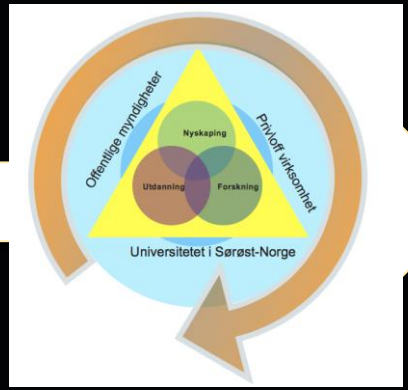
- **USN PROFESJONAL**

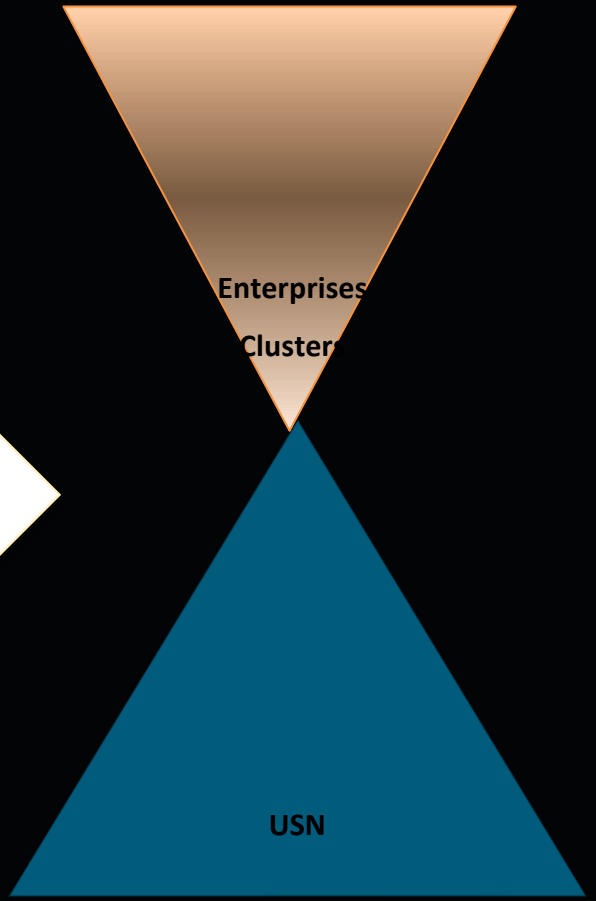
USN Partnership

- Strengthen the interaction and integration with knowledge-intensive businesses through new and innovative educational programs and R&D-activities.
- Educate candidates with updated researched based knowledge, digital proficiency and innovative power to strengthen the business sector's global competitiveness, to promote sustainable growth and to solve global challenges.

USN Partnership: Activities or «Tools»

- USN Industrial Academy





USN Industrial academy
Industrial Master
(3 years work integrated program)

Networks and agreements between the university, partner companies

and students

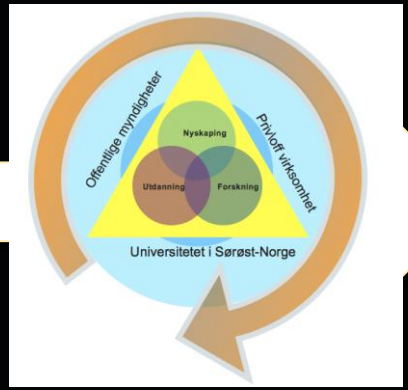
The Academy now has 86 partner companies

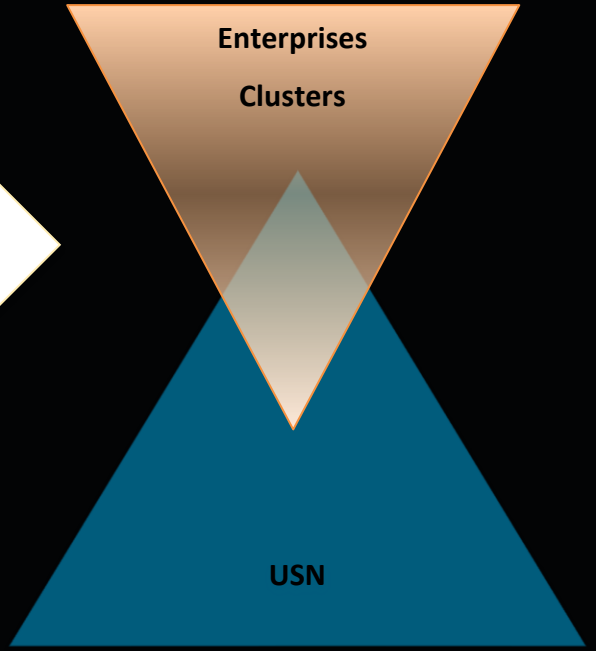
The Industry Master Model Includes:

- Students have temporary paid employment in a partner company that ensures 50% relevant practice during their study
- A didactic model that ensures deep learning in academic communities
- Student-active learning; the focus is on the learning of the students; how to function in complex organizations solving complex problems
- Industry-as-laboratory master project
- The course “Reflective Practices” as a binding element between learning at the university and in the company

USN Partnership: Activities or «Tools»

- USN Industrial Academy
- R&D&I-Experts





R&D&I - Experts


TechnipFMC


semcon
devotek


KONGSBERG


Skagerak
Energi


indra
RODENSTOCK

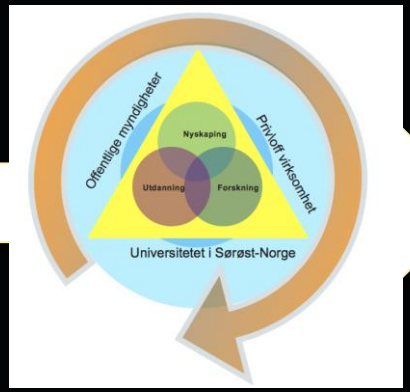

BELLONA

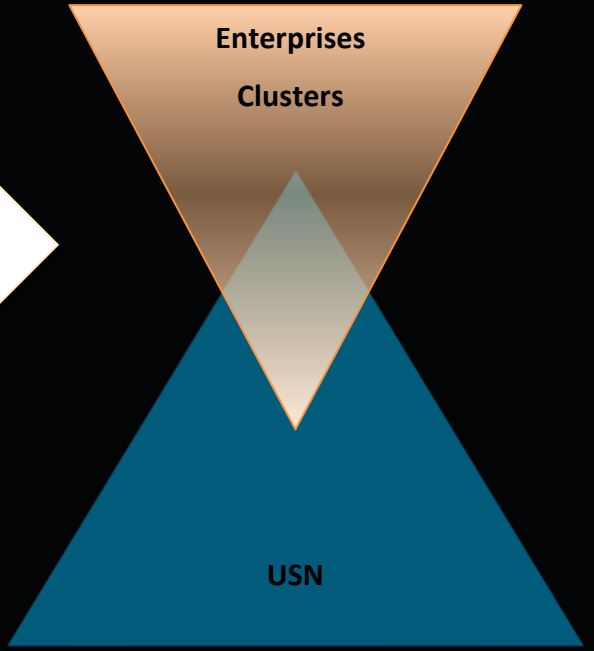

vekst i
grenland


indra

USN Partnership: Activities or «Tools»

- USN Industrial Academy
- R&D&I-Experts
- Donation professorships
- Industrial Ph.D. Scheme – Doctoral Projects in Industry





Donation Professorships and Industrial Ph.D.

Khrono

Fakta

Gaveprofessorater - 52,5 hele stillinger

Disse tre har oversikt offentlig presentert:

Universitetet i Sørøst-Norge (USN)

Oppgir 17 stillinger

Handelshøgskolen BI

Oppgir 2 stillinger

Norges Handelshøgskole (NHH)

Oppgir 2 stillinger + 2 II-er stillinger

Disse har ikke offentlig oversikt:

NTNU

Oppgir 12,5 stillinger

Høgskolen Innlandet (HINN)

Høgskolen har støtte fra Sparebankstiftelsen Hedmark til 6 professorårsverk for perioden 2018 – 2020.

Støtten er gitt til å støtte HINNs arbeid med universitetsakkreditering.

Universitetet i Stavanger

Oppgir 3 stillinger + 3 II-stillinger

Høgskulen på Vestlandet

Oppgir 3 + 2 på gang

Universitetet i Bergen

Oppgir 1-2 stillinger + noen II-er stillinger

Universitetet i Oslo

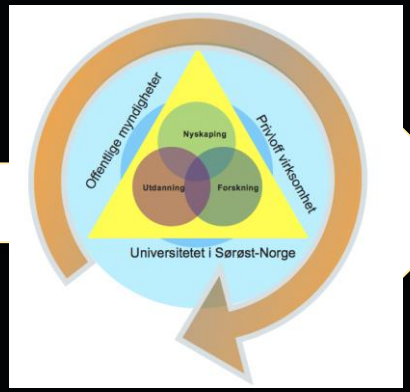
Oppgir 1,7 stillinger + noen II-er stillinger

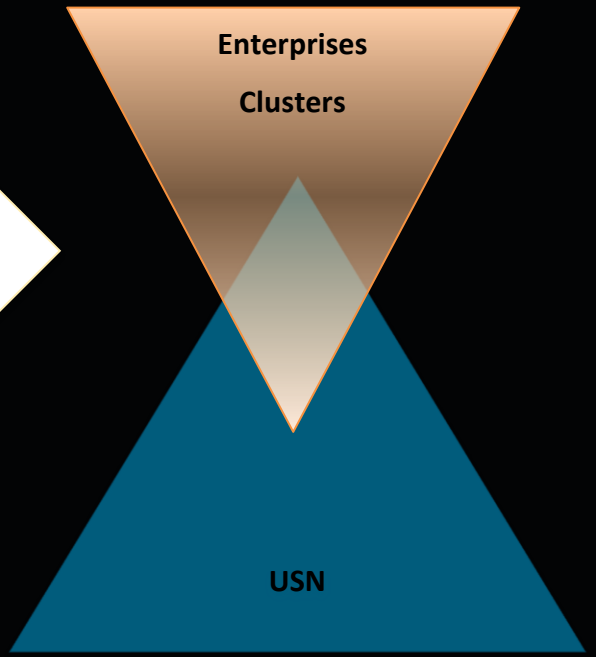
UiT Norges arktiske universitet

Oppgir tre gaveprofessorat.

USN Partnership: Activities or «Tools»

- USN Industrial Academy
- R&D&I-Experts
- Donation professorships
- Industrial Ph.D. Scheme – Doctoral Projects in Industry
- **Interaction arenas with companies and clusters**






Industrial Green
Tech
Cluster
HERØYA INDUSTRIPARK
SINTEF
Funzionano
SINTEF MOLAB
REC
SOLAR'S MOST TRUSTED
BREVIK engineering
NOKAS
RHI MAGNESITA
YARA
Periti
NORCEM
HEIDELBERGCEMENT Group
proventia
GRENLAND HAVN
USN
vekst i grenland
INEOS
Norsk Spesialolje
Vi tar vare på den brukte oljen
inovyn
An INEOS company
BILFINGER
BERGFALD
miljørådgivere
Bjorstad dalen
ERAMET
isola
norner
The Polymer Explorers
OIW
equinor
University of South-Eastern Norway

Electronic Coast Cluster

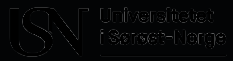
Project AUTOSTRIP

«Autonomous Systems within Transport and Industrial Processes»

- Vision: Increased value creation in the industry by utilizing autonomy in society
- Main goal - More businesses, more jobs and increased R&D activity in existing industry through strengthened cooperation with academia within autonomous systems
- Sub goals
  - Enhance USN´s research capacity and quality within select competence areas
  - Increase the number of candidates in digitalization, autonomy and entrepreneurial competence
  - Strengthen businesses´ capacity and ability to adapt autonomous systems
  - Increased visibility and communication concerning available competence and opportunities

Partners: NRC, 3 counties, several municipalities, a wide range of regional businesses (selection), USN, regional industrial networks

SAMS - The Norwegian business cluster for autonomous mobility and transport systems

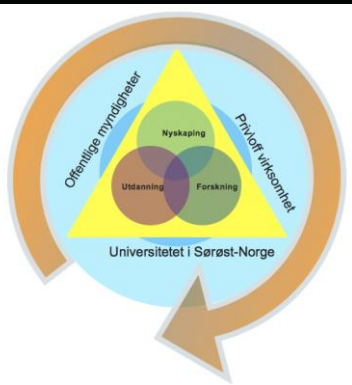


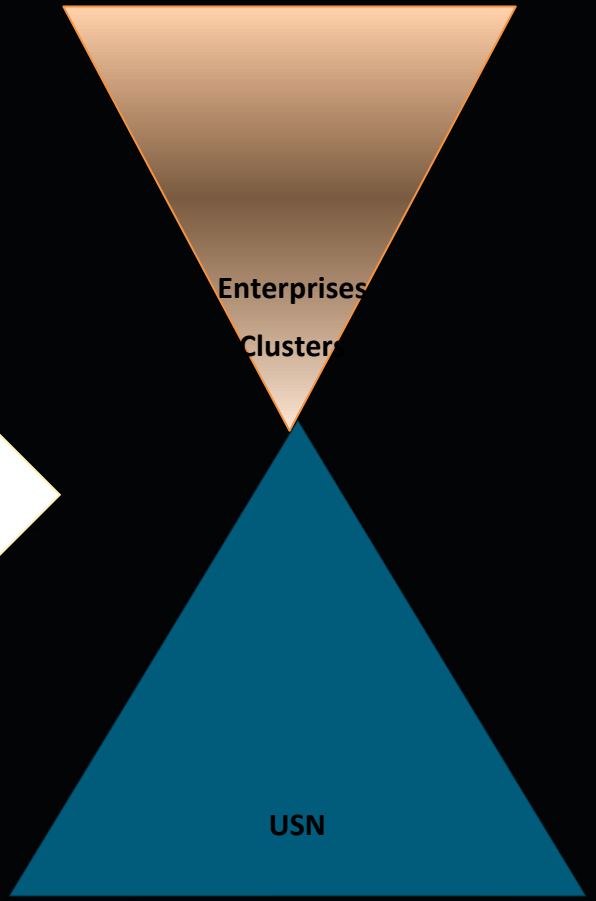
Inspire Invest AS

Sponsors:

USN Partnership: Activities or «Tools»

- USN Industrial Academy
- R&D&I-Experts
- Donation professorships
- Industrial Ph.D. Scheme – Doctoral Projects in Industry
- Interaction arenas with companies and clusters
- **National and regional research infrastruktur**





MST-Lab at USN Campus Vestfold–
Systems, Packaging and interconnectivity

Main facts:
Location: Campus Vestfold
Cleanroom Area: 500 m^2
Ultrasound/Charact/Bio Labs: 600 m^2
Start: 2002 - New lab 2012
Type: R&D, Education, Industry projects.
160 high tech tools
Staff: 5 Engineers.


The Research Park in Vestfold

Main competence:
- Packaging of microelectronics
- Characterization SEM
- Electroplating
- Chip/Wafer-bonding
- Flip-Chip interconnect
- BioMEMS

Approx 30 Active inustry partners, BOA projects
- Sensonor
- PoLight
- Projection Design - Barco
- Kongsberg NorSpace
- Kongsberg Maritime
- GE Vingmed Ultrasound
- SINTEF
- Jotun
- SensoCure
- Memscap
- ++

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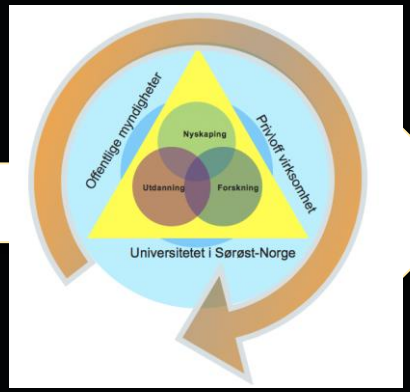
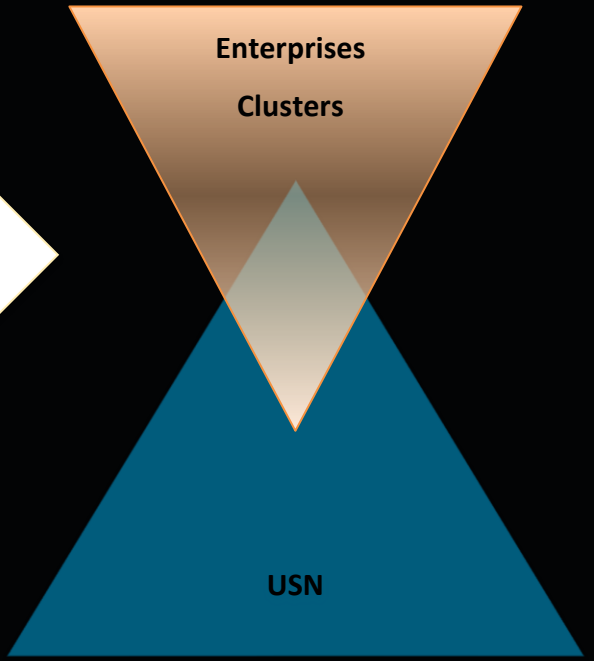
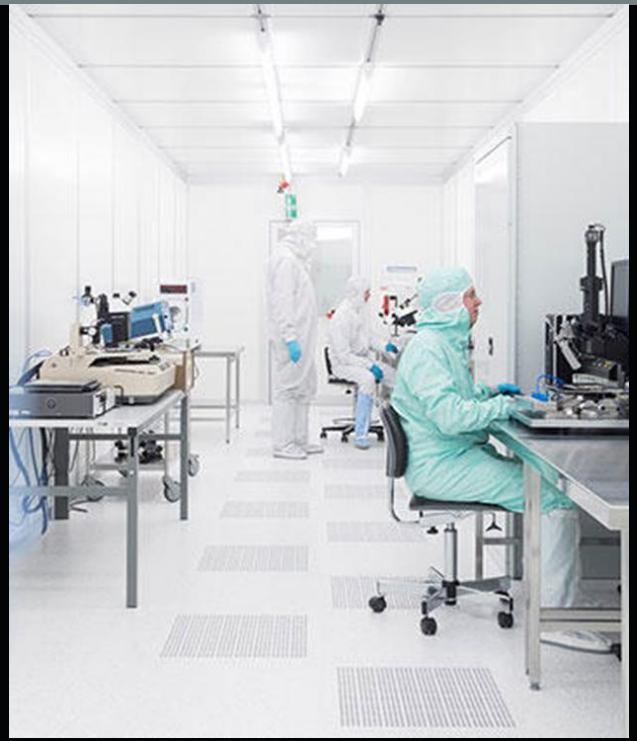
USN Partnership: Activities or «Tools»

- USN Industrial Academy
- R&D&I-Experts
- Donation professorships
- Industrial Ph.D. Scheme – Doctoral Projects in Industry
- Interaction arenas with companies and clusters
- National and regional research infrastruktur
- **USN Research & Innovation Centres**





USN Innovation Center - microsystems, nanotechnology and electronics



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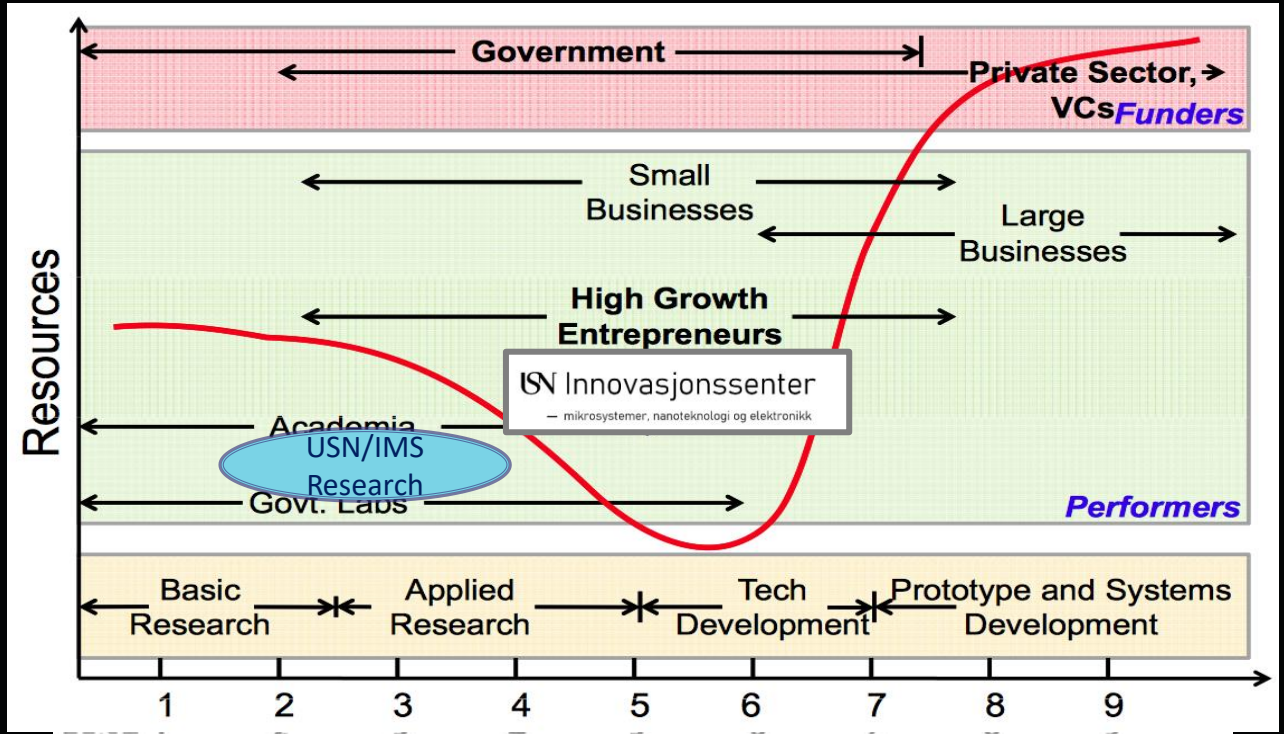

EU-strategy


Horizon Europe (2021-2027)
Pillar 1
Open Science
€25.85bn
European Research Council
Marie Skłodowska-Curie Actions
Infrastructures
Pillar 2
Global Challenges and Industrial Competitiveness
€52.7bn
Clusters
- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and natural resources
Joint Research Centre
Pillar 3
Open Innovation
€13.5bn
European Innovation Council
European innovation ecosystems
European Institute of Innovation and Technology
Strengthening the European Research Area
€2.1bn
Sharing excellence
Reforming and Enhancing the European R&I system


First valley of death
Second valley of death
Innovation cycle
Research
Basic research to Proof of concept
Pre-seed
Proof of concept to early commercial stage
Start-up & Growth
Market deployment from demonstration to scale-up
EU support to innovation (bottom-up)
ERC
EIC Pathfinder
EIC Accelerator

The sciences provide premises

- The university is diverse
  and a loosely coupled system.

- Institutional strategy must be translated,
  implemented and institutionalized
  at the operational level
  in the professional environments.

- *"Personal skills and strategic capacity are essential, but the unique core of the university requires substantial collegial participation".*

Is the Norwegian experience relevant for the changing education landscape in Ireland?

Thank you for your attention!

Petter Aasen
Rector/president
University of South-Eastern Norway

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