NTNU | Kunnskap for en bedre verden

Digital Innovation Hubs in Norway:

Process at NTNU– open meeting 2021-05-11

Linda Hald

Introduction

- NTNU had ambitions to host an EDIH – European Digital Innovation Hub

- One motivation found in the EDIH specification:
  - At the core of the EDIH, there is normally a research & technology organisation (RTO) or university lab offering technology services.

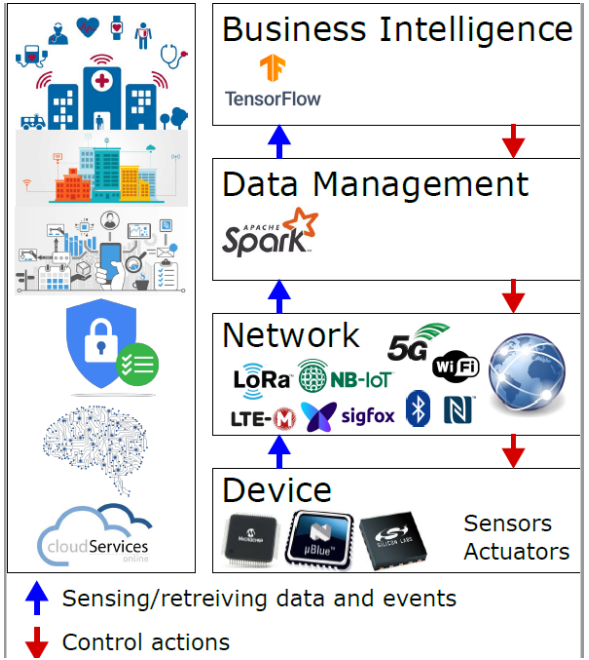
More specific motivation for NTNU

Increase	Access	Provide	Strengthen	Increase
Increase visibility and accessibility to NTNU's expertise and infrastructure nationally and internationally	Better access to European R&D networks, which in turn increases the opportunities for cooperation in international R&D projects	Provide opportunities to commercialise R&D results e.g. licensing of technology	Strengthen our post-graduate education role.	Increase NTNU's contribution to ensuring that Norwegian companies and the public sector have better access to digital solutions and knowledge nationally and internationally – which promote their competitiveness and efficiency

NTNU has responded to the national Expression of Interest call and have been designated as a Norwegian candidate qualified to respond the restricted EU call to be launched end of May

Title/scope:

AI and Cybersecurity solutions for Critical Infrastructures, Advanced Production Processes and Services - NEDIH



Internet of things (IoT)

- Wikipedia: The Internet of things (IoT) is a system of interrelated computing devices, mechanical and digital machines provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction

Cyber-Physical system

- National Institute of Standards and Technology - NIST definition:
  - Cyber-Physical Systems (CPS) comprise interacting digital, analogue, physical, and human components engineered for function through integrated physics and logic.
  - These systems will provide the foundation of our critical infrastructure, form the basis of emerging and future smart services, and improve our quality of life in many areas.

IoT systems /Cyber physical systems – broad range of systems

Consortium

- NTNU
- SINTEF
- DigitalNorway
- Telenor Research
- Nordic Semiconductor
- Digitaliserings-direktoratet
- Trøndelag fylkeskommune
- Energy Valley

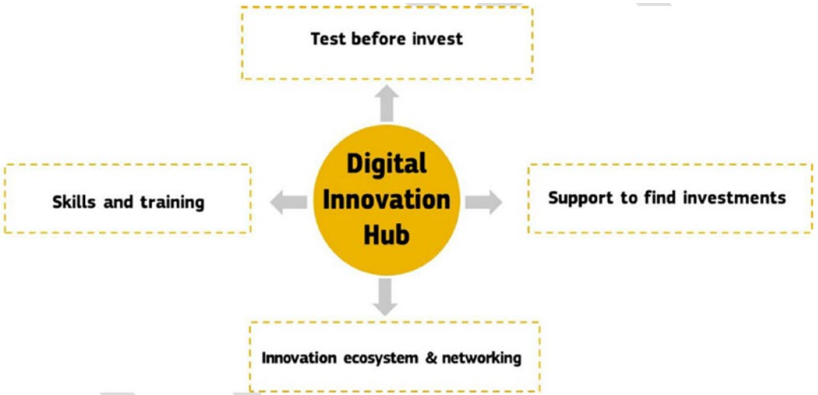


Figure 3. Main functions of European Digital Innovation Hubs

Services – test before invest

In general: Technologies and use case testing, validation and prototyping for IoT /cyber-physical system applications with emphasis on AI and cyber security aspects

- IoTs and CPS use case development, modelling, implementation and testing
- Access to AI infrastructure and technologies in Norwegian Open AI lab
- Assessment of AI readiness (SME competence, data availability and quality, ICT infrastructure..)
- IoT remote sensing and monitoring/asset management services – in laboratory or real life/living lab environments – maritime, aquaculture, energy and other critical infrastructures
- Cybersecurity testing, training and auditing in the Norwegian Cyber Range
- …..

Skills and training

- Mentoring – consultancy services - Access to specialist expertise
- Education and skills development – “EVU courses”
- Technology intelligence services
- …

Services - support to find investment

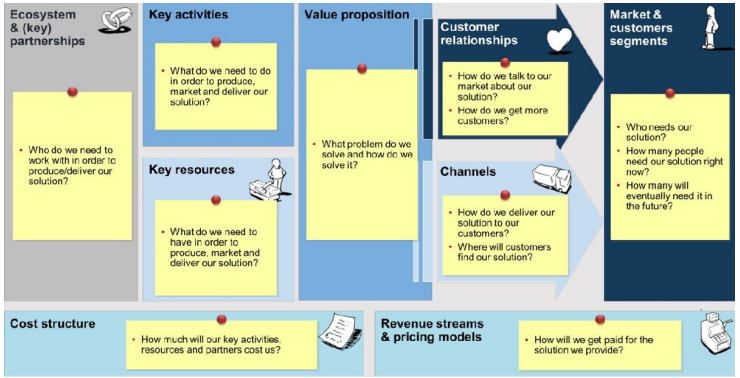
- Application development support
- Brokerage services
- (Financial institutions e.g. banks in the consortium?)

Services Innovation ecosystem and networking

Services	Activities
Community building	Scouting, brokerage, awareness creation, dissemination, ecosystem building
Strategy development	Market intelligence, market assessments, road mapping, technology watch
Ecosystem learning	Workshops, seminars to share knowledge and experience
Representation, promotion	Representing regional/national interests at meetings and conference, organising study visits, roadshows, policy advocacy for SMEs

Partners

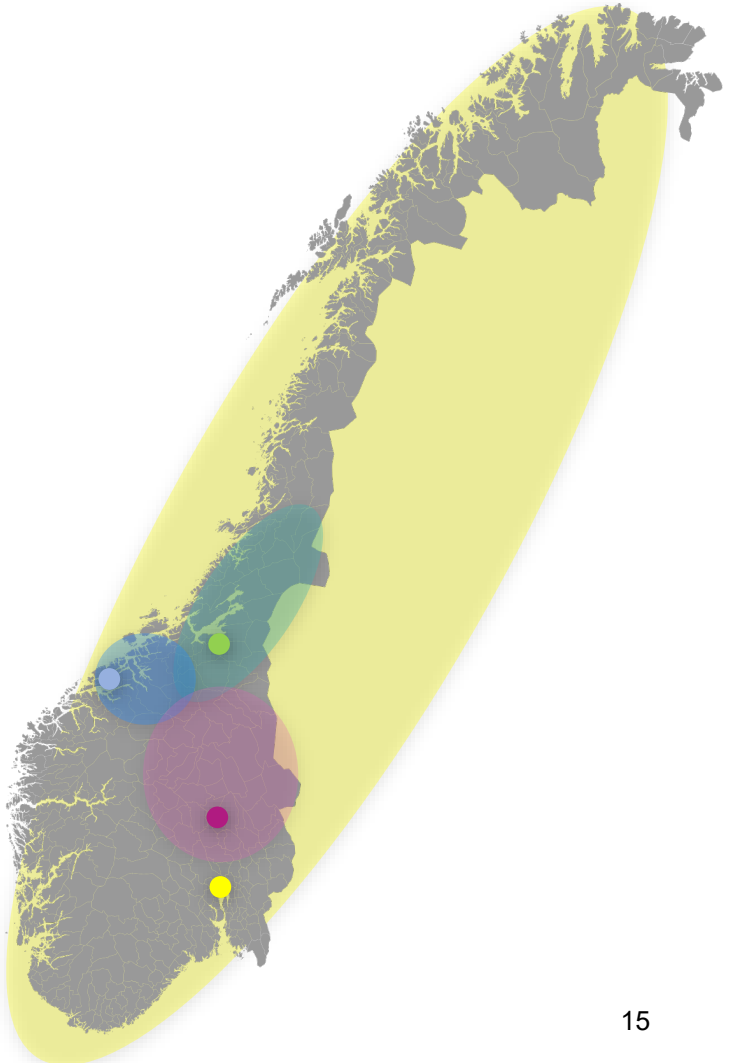
- **Industrial clusters:** Industrial Green Tech, Arctic Cluster Team, EYDE, SAMS klyngen, Solenergiklyngen, Renewable Energy Cluster (RENERGY), The Norwegian Smart Grid Centre, Smart Grid Services Cluster, Ocean Autonomous Cluster, Aquatech Cluster, Smart Innovation Norway.
- **Norwegian Catapults**: DigiCat, Future Materials (MIL), Manufacturing Technology – Raufoss
- **Technology providers:** Telenor Norge, OSC
- **Incubators**: Proneo, PROTOMORE
- **Industry parks**: Herøya Industripark, Mo Industripark
- **Public sector:** Innlandet county council, Viken county council, Trondheim Municipality
- **Industry Associations**: KS, NHO, Energy Norway



Regions covered

National scope **with offices in**

- Gjøvik
- Ålesund
- Trondheim
- Oslo



Access to IoT /cyber-physical systems laboratories, living labs and associated centers and partners are key elements in the EDIH

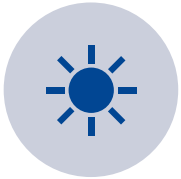
Important labs/ test infrastructures are listed in a later slide

Laboratory partners that might provide/support EDIH services are candidates for consortium participation

Relevant expertise centers such as SFIs, SFFs, FMEs are important knowledge and expertise sources

The EDIH represents also a possible dissemination and technology transfer channel for such centers.

Domains



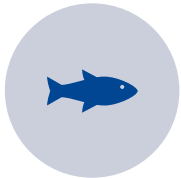
RENEWABLE ENERGY

PROCESS INDUSTRIES & MANUFACTURING

TRANSPORTATION/ AUTONOMOUS SHIPPING

PUBLIC INFRASTRUCTURES

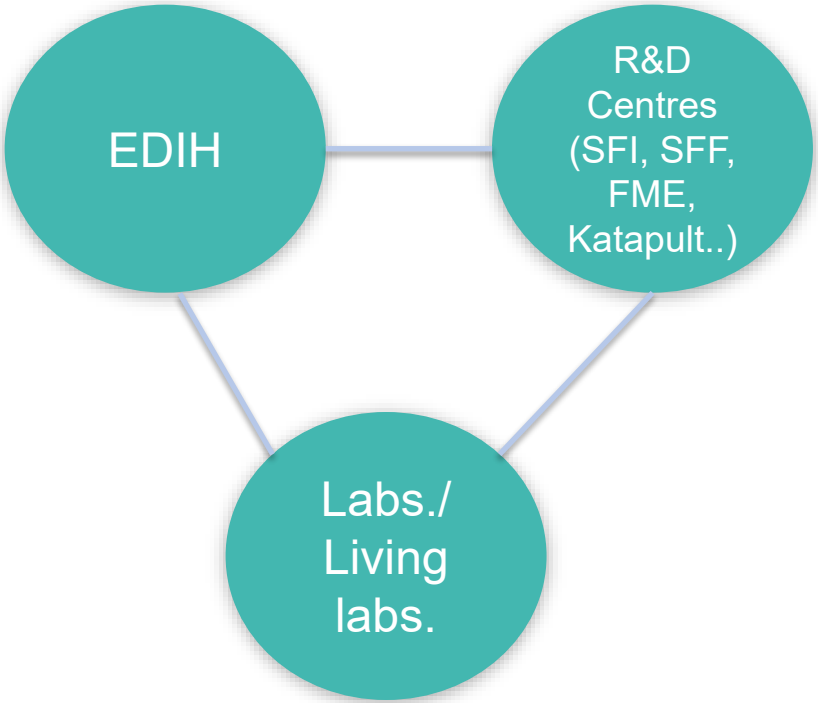
MARITIME OPERATIONS



AQUACULTURE & AGRICULTURE

…

Important elements



The main services are related to NTNUs laboratory infrastructure and living labs within:

- AI
- Cybersecurity

Supported by infrastructures like

- IoT
- Communications – 5G
- Drones
- AR/VR
- Maritime/automomous operations
- Aquaculture
- Smart grid/smart energy
- …

Important labs:

- Norwegian Cyber Range
- NAIL

With links to:

- National Smart Grid Laboratory
- AUR Laboratory
- Offshore Simulator Centre
- IoT lab
- MANU lab
- Unmanned Aerial Vehicles Laboratory (UAV-Lab)
- VR lab Dragvoll
- NTNU Centre of Fisheries and Aquaculture (SeaLab)
- ….

Application process

- The selection of the final EDIHs is a 2-step process.

- The first step is the national call for expression of interest, resulting in the designation of a Norwegian list of potential hubs.

- The second step is expected to be launched at the end of May 2021 by EU, inviting all designated, eligible hubs to respond to a restricted EU call for proposals.

Result 1. stage

When the deadline for applications expired on 15 September, eight associations had applied for a place on the list of candidates for the European Digital Innovation Hub in Norway. A panel consisting of experts from Siva, the Research Council, the Norwegian Directorate for Digitalisation and Innovation Norway has now assessed the candidates and chosen to let everyone go on.

Further process

- Regarding NTNU's desire to host an EDIH, then the following happens:
  - It is likely that we will merge with 3 other EDIH applications led by UiO / NORA, ÅKP and Smart Innovation Norway.
  - DigitalNorway will coordinate the hub

- Thank you!

- For further questions, please contact
  - Kjell.sand@ntnu.no
  - Trym.holter@ntnu.no