

ANNUAL REPORT 2021

Here you will find the summary of
Centre for Digital Life Norway from
2021 and the launch of DLN 2.0!

About Centre for Digital Life Norway

The Centre for Digital Life Norway (DLN) is a national centre for biotechnology research, education and innovation. The centre facilitates transdisciplinary collaboration across institutions, fields of research and the research projects in the centre.

The centre is a collaborative project between the Norwegian University of Science and Technology (NTNU), the University of Oslo (UiO), the University of Bergen (UiB), the Norwegian University of Life Sciences (NMBU), Oslo University Hospital (OUS), SINTEF and UiT The Arctic University of Norway.

The centre is run by a competence hub and includes a research school and research projects. The competence hub is funded by the Research Council of Norway, and the second funding period DLN 2.0 started in February 2021.

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Comment from the centre director

I am privileged to present the 2021 annual report for the Centre for Digital Life Norway (DLN). 2021 has been a special year for our Centre. First, we have had a parallel startup of a second funding period (DLN 2.0: 2021-2026) and conclusion of the first funding period (DLN 1.0: 2016-2021). Secondly, 2021 became a new Covid-19 pandemic year.

The End report of DLN 1.0 summarizing activities and achievements was submitted before Christmas representing a strong foundation of experiences and practices for DLN 2.0.

In particular, the white paper entitled “Transdisciplinarity in Digital Life Norway” was written based on research and interviews summarizing the achievements of the first funding period with respect to defining and implementing transdisciplinarity. This paper was also presented and debated during the Digital Life annual conference in Oslo in November 2021, and later included as a book chapter.



Trygve Brautaset
Scientific director DLN 2.0

With DLN 2.0, a new Centre organization has been built with seven partner institutions on board and a strong competence hub centered around an Operational Management Team (OMT), an Expert Task Force (ETF) and a Junior Resource Group (JRG).

In line with this, new scientists and advisors with diverse competences and skills have entered the Centre to ensure continuation and development. The mandate and vision of the Digital Life initiative remains, and we believe that the new DLN 2.0 organization should be stronger and better rigged for achieving our ambitions.

During 2021, some of our research projects have gradually come to an end and five new research projects have joined the Centre. This is a dynamic evolution of our centre, and the call for digital biotechnology projects to apply for DLN membership is open. In total, the Digital Life community is constantly increasing; we have reached 40 research projects and our DLN Research School encompasses more than 500 members. The scientific outcome in publications, PhDs, training of postdocs, and other dissemination activities is high and new national collaborations are established within the DLN network.

The annual meeting of the DLN Research School was arranged as a physical meeting in Tromsø in September 2021. The impact of Digital Life on education of PhDs and scientific publications is significant. The successful industry internship programme launched in 2020 was run again with seven PhD candidates, and a third round of this popular programme is currently open for applications. 2021 also featured a thought-provoking public seminar series in Trondheim on responsible research and innovation (RRI) that helped DLN reach new audiences.

DLN has continued training researchers on data management, storage, and sharing, and strengthened collaboration with European data infrastructures. This year we congratulated our winner of the first-ever DLN FAIR data award 2021, for excellence in FAIR data management in Norwegian life science.

The DLN project “A roadmap for academic research-based innovation” phase 1 has finally been completed and culminated in a second extensive report entitled “Moving the Digital Life Sciences in Norway towards increased innovation”. The report represents the basis for phase 2 starting in 2022 that will be fully integrated into DLN 2.0. This project builds on recent activities such as DLN’s first Innovation Resource Grant to support dedicated time for strategic planning and will test out new directions for future innovation.

The continued pandemic has affected our Centre activities also in 2021 and working digitally has become part of life. In my preface to the annual DLN report one year ago I ended with the following phrase: “-we are very much looking forward to the time when we can open up for physical meetings and interaction – hopefully very soon.” I have learned to be careful optimistic during the last two years of pandemic, and I certainly hope to meet you all in person at a DLN event soon.

Trygve Brautaset
Scientific director DLN 2.0

Comment from the board chairperson

As I write this, life in Norway has pretty much returned to normal. Let us hope it stays that way! I want to congratulate all members of the Centre for Digital Life Norway with successfully getting through a period of tough, but necessary restrictions imposed by the government to halt the spread of the SARS-CoV2.

The year 2021 marked the start of the second 5-year period of DLN. The new 5-year period also marked several organizational changes.

First, the center ownership structure was expanded to include all seven involved institutions as equal partners with full board representation.

Second, the different work packages were collapsed into a common organization run by the operational management team. This team of highly competent staff, employed in three different cities, were already working digitally before the pandemic hit us all.



Finn-Eirik Johansen
Board chairperson

They continue to be the glue of the center, working digitally and physically from Tromsø to Ås, via Trondheim, Bergen and Oslo.

Third, the former work package leaders, together with new scientists from all seven partner institutions became the joint expert task force (ETF). The ETF will serve as an internal scientific council and together with the institutional representative board members; the ETF provides a connection to the host institutions. Finally, we formed a junior resource group, giving an opportunity for early career researcher to get more involved in DLN.

In 2021, one of our industry representative board members, Gerd Nilsen, rotated out. Gerd has been a board member since the foundation of DLN in 2016 and has been a great asset to the center, providing a different perspective from those of us entangled in academia. To replace Gerd, we were very lucky to recruit Tom Pike. Tom has industry experience from both large life science companies and small startups, and is currently board chairperson of the technology transfer office Inven2.

Although off to a rocky start in 2020, the first phase of the Innovation Roadmap Project was concluded in 2021. One outcome of phase one is a list of possible actions to promote innovation, which will be tested on research projects in the center in phase two. As such, DLN research projects may themselves become research subjects for innovation actions. I hope you will be eager to participate and that this will spur more innovation from DLN projects; and as importantly, provide critical knowledge about best practices to support innovation from academic research.

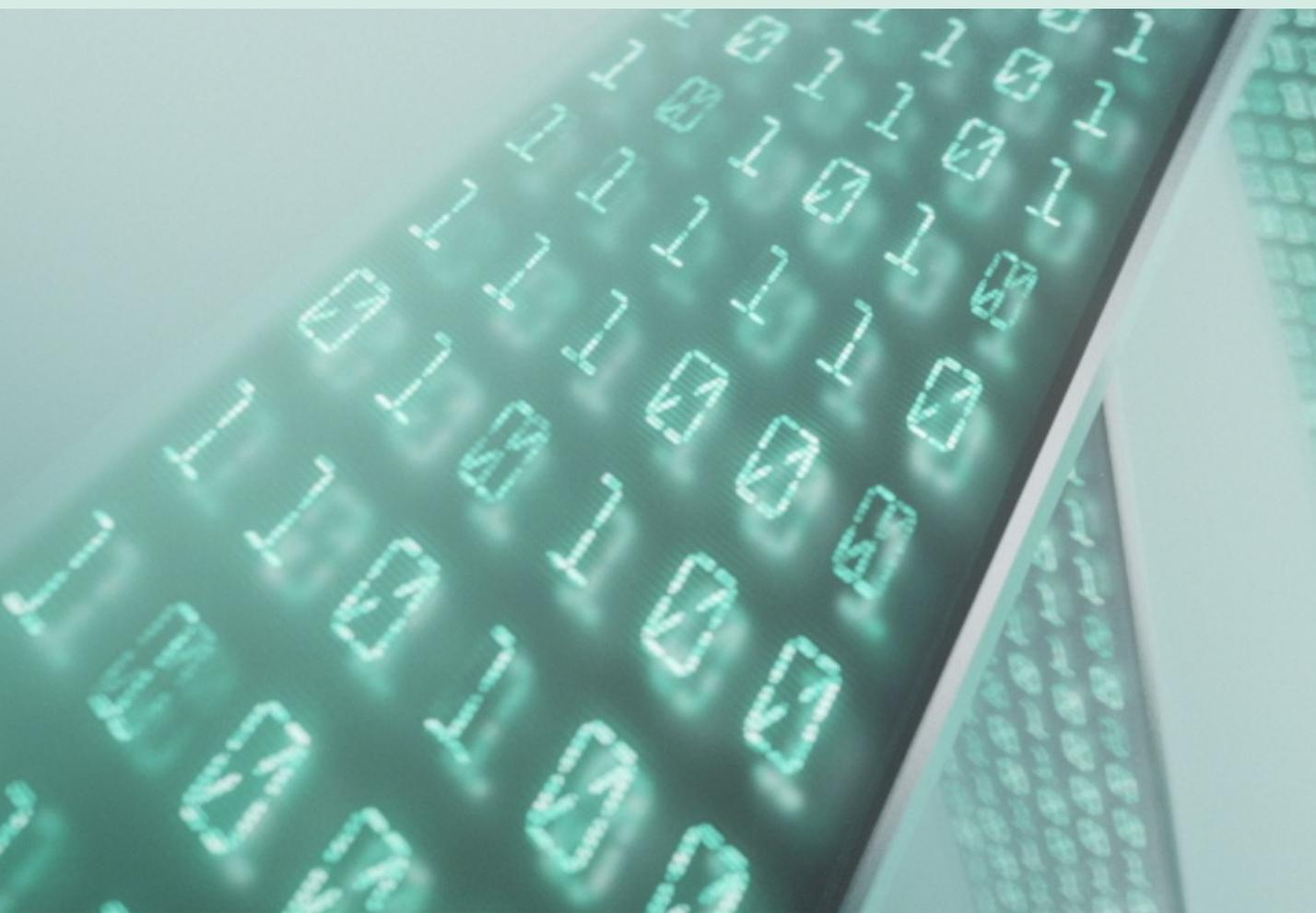
[The EMBL](#) is a European organization that has the potential of being for molecular biologist and bioinformaticians what CERN is for nuclear physicists. Unfortunately, EMBL is not well known in Norway and underused by Norwegian researchers. It was fitting that EMBL reached out to DLN to gather support for their ambitious new research program, and in response, we wrote a support letter for EMBL to the Norwegian ministry of education. The goals and objectives of the new [EMBL program](#) is largely overlapping with those of DLN, so I encourage you to look at the opportunities they provide.

Although life is back to normal in Norway, the events in the Ukraine during the last few days has shocked and horrified us all. It is understandable if you feel scared, lonely, worried about the people of Ukraine, depressed and unmotivated for work in the current situation, particularly if you are a foreign national working in Norway. I encourage you to talk to friends, colleagues or health professionals if necessary.

Most of all, I wish you all a better 2022.

Finn-Eirik Johansen
Board chairperson

The Centre for Digital Life Norway transforms Norwegian biotechnology research and education to increase innovation and value creation for society. The Centre has research projects all over the country. Transdisciplinary collaboration is our trademark.



UNIVERSITY
OF OSLO



UNIVERSITY OF BERGEN



Norwegian University
of Life Sciences



www.digitallifenorway.org

UIT The Arctic University of Norway

Centre highlights

In February 2021 the second funding period started. A new Centre organization has been built for the second period, DLN 2.0 (2021-2026), which includes seven partner institutions on board and a strong competence hub centered around an Operational Management Team (OMT), an Expert Task Force (ETF) and a Junior Resource Group (JRG). The seven partner institutions are - NTNU, UiO, UiB, UiT, NMBU, SINTEF, OUS.

In this report we will present highlights from seven focus areas:

COLLABORATION ACROSS DISCIPLINES AND PROJECTS

The Digital Life community explored new ways of working across projects, disciplines, and sectors.

INNOVATION AND INDUSTRY COLLABORATION

Collaboration during 2021 on the Roadmap to Innovation has laid a strong foundation for novel innovation activities in the coming years.

DATA MANAGEMENT

The first-ever winner of DLN FAIR Data Award announced!

RESPONSIBLE RESEARCH AND INNOVATION (RRI)

DLN co-hosted a public seminar series highlighting the intersection of science, policy, privacy, and other fundamental societal issues.

TRAINING AND CAREER DEVELOPMENT

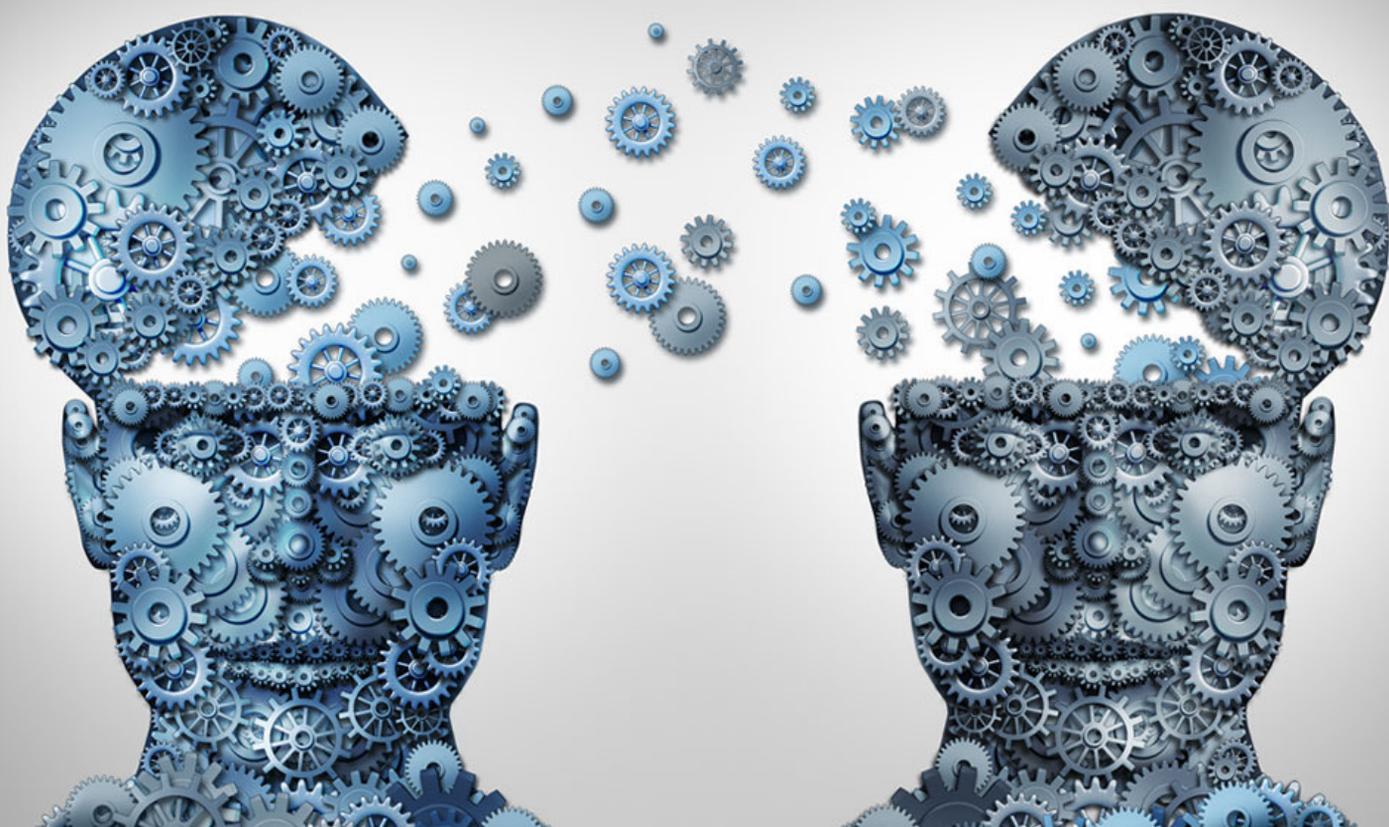
Successful second round of DLN's industry internship programme

DIGITAL LIFE NORWAY RESEARCH SCHOOL

Provided several courses for members despite pandemic year and successfully executed The 5th Annual Research School Conference

COMMUNICATION AND THE DIGITAL LIFE NORWAY COMMUNITY

Five new projects joined the Centre. The annual DLN Conference in Oslo was a success despite pandemic restrictions. Digital Life researchers participated in numerous courses – both online and in person



COLLABORATION ACROSS DISCIPLINES AND PROJECTS

Synergies in the Norwegian life science community

We put emphasis on facilitating and supporting collaborations and connections across projects, disciplines, and actors.

Cross-project activities

With the aim to promote collaboration between the projects in the centre, DLN has a tradition of supporting cross-project activities.

This year, we also invited and encouraged specifically for cross-project meetings at the Digital Life conference. Interested projects got to know one another and find common grounds for further synergies. In all, four new collaborations were funded in 2021, where the activities will take place in 2022.

Digital breakfast seminar series

In 2021, we continued our longstanding breakfast seminar series *Digital Frukost*.

Digital Frukost is an open breakfast seminar series focusing on research activities at the interface between the biological sciences and that of mathematics, computer science, physics, engineering or social sciences (Digital). Examples of such research activities could be mathematical or computational modeling of biological systems, application of engineering/control systems theory on biological systems or inspired by biological systems, application of mathematics/statistics/machine learning to analyze big data in health or marine sector; from sensor systems, imaging, omics technologies, policy making based on scientific models etc.

Here is a list of events in the Digital Frukost series in 2021:

- [Digital frukost: Digital optimization of the feed-microbiome-host axis](#)
- [Digital frukost: Engineering aspects of mucus and the effects of bacteria](#)
- [Digital frukost: Corals, cucumbers and ctenophores: How eukaryotes manage the plans for their power stations](#)
- [Digital frukost: Intelligent systems for disease risk prediction](#)
- [Digital frukost: Genome-scale models of microbial communities and their application to biotechnology](#)
- [Digital frukost: The genomics of breast cancer](#)
- [Digital frukost: Rights to genetic resources in a global innovative world](#)
- [Digital frukost: Critical reflection on open life science – then, now, future](#)
- [Digital frukost: From mechanistic modelling to clinical decision support - Examples from reproductive endocrinology](#)

After years of Digital Frukost events, we performed an internal evaluation of the events within the DLN Operational Management Team and invited members for the DLN Expert Task Force.

From the origin, these were physical events, meant to connect researchers from digital disciplines (such as mathematics and bioinformatics) and biology and life science in Bergen. Since then, and with the transition to digital format, it has evolved to be more inclusive and target a wider range of researchers and topics.

We also see the benefits of collaborating with other networks and organizations, such as NORA, to raise important topics to a broader audience. However, this also means that the physical meeting place, as was initially intended and is still asked for, not only in Bergen, is missing.

We are now in planning of event series to meet this aim in 2022, in collaboration with the Innovation Roadmap-project.

Transdisciplinary publication of the year

A major aim of the digital life initiative is to create convergence across disciplines, an objective that can be both challenging and time consuming. In order to acknowledge the efforts in the Norwegian communities, we have continued the established Transdisciplinary publication award from previous year. For the 2021 call, DLN received 10 applicants and organised a selection committee with a wide range of relevant expertise.

[Read more here.](#)

Other collaboration activities

Centre for Digital Life Norway has initiated other activities to increase collaboration between relevant centres, networks, and host institutions. Here are some of them:

- [Digital Life Norway meets dScience – how can Norwegian biotechnology benefit from cross-centre collaboration?](#)
- [AlphaFold v2.0 and RoseTTAFold protein folding prediction workshop](#), in collaboration with NORA, ELIXIR Norway, Oslo Cancer Cluster, and dScience
- “AI in Molecular Life Science” workshop, November 12th, Oslo Science Park. From the overarching objective of forming a national network for AI in molecular life science with an integrated aspect of responsible research and innovation (RRI), we gathered important actors within the field, including NORA, NAIL, CLAIRE, dScience, and CEDAS, for an introductory meeting and brainstorming of ways forward.



INNOVATION AND INDUSTRY COLLABORATION

Creating a Roadmap to innovation for Norwegian life sciences

DLN's work on "A roadmap for academic research-intensive innovation" led by UiO Professor Arnaldo Frigessi, continued this year with the publication of its second report, "[Moving the Digital Life Sciences in Norway towards increased innovation - Lessons from international innovation practices](#)" (the "TO BE" report).

This second report builds on the [2020 "AS IS" report](#) that discusses DLN and its context in the Norwegian research and innovation system and pinpoints issues and weaknesses in the system that could be improved to increase the innovation rate from academic research.

DLN looks forward to phase two of the Roadmap initiative, which will over the coming years design and initiate a change process in the Norwegian innovation system, with the aim of increasing innovation from academic research within transdisciplinary digital biotechnology.



["Moving the Digital Life Sciences in Norway towards increased innovation - Lessons from international innovation practices" \(the "TO BE" report\).](#)

Innovation resource grant 2021

Many biotechnology projects struggle with an unmet need for human resources with capacity and interest to focus on innovation, and to work on business development activities needed to bring ideas from research into a validated business concept.

Therefore, in 2021 DLN offered a major grant as one of the pilot activities included in the Innovation Roadmap action plan, to fund 6 months' full-time salary for a team member to focus on business development of a specific business idea coming from project.

PROVIZ, led by NTNU Prof. Tone Frost Bathen, received the first-ever Innovation Resource Grant, following evaluation of three proposals by a DLN selection committee. PROVIZ is developing AI-based software to identify prostate cancer in MR imaging. The grant will be implemented during the first half of 2022.

Collaboration to support innovation

The main focus of DLN Innovation is to support innovation and commercialisation within the research projects that are part of the centre. This is done through a variety of services that we offer, often in close collaboration with other relevant actors supporting innovation. A new collaboration with the Danish accelerator BioInnovation Institute (BII) was initiated in 2021. BII offers two innovation programmes of funding and expertise – Venture Lab and Creation House – with the objective to bring academic projects with a commercial potential from idea into a company which can attract external funding.

n, such as the TTOs, incubators and business clusters.

During 2021 DLN Innovation coordinated a BII pitch day where DLN projects were given the opportunity to present their ideas to BII and get feedback. One project, AIRDEM, decided to apply to the Venture Lab programme and was successful to be one of the projects that made it all through the due diligence phase of the evaluation. Although the project was not selected among the final projects who were approved for the programme, the evaluation process in itself brought valuable feedback and learning to the team.

DLN Innovation was also successful to receive a 800 KNOK grant from the Regional Innovation Program in Oslo Akershus together with The Life Science Cluster. The money will be used to investigate how DLN and the cluster can collaborate to help academic research projects develop products and services that covers the needs of the society and the industry. The project, named cScience, focuses on circular bio-economy and the three DLN research projects SmartSoil (UiO), Oxymod (NMBU) and BEDPAN (UiO) have been included as cases. The project will be concluded mid 2022.

DLN met virtually with Norwegian life science stakeholders at the Nordic Life Science Days. Attendance at this important arena helped showcase the research and the activities in the centre and strengthen the centre's international network. The Centre co-hosted a digital booth with the Oslo Cancer Cluster, Aleap, Inven2, The Association of the Pharmaceutical Industry in Norway (LMI), Nansen Neuroscience Network, Norway Health Tech, Norwegian Inflammation Network (NORIN), The Life Science Cluster, UiO:Life Science, Innovation Norway, and the Research Council of Norway.

[Digital Nordic Life Science Days](#)

Competence developing of the digital biotech research community

DLN held a know-how webinar series this year to support competence-building on innovation within the digital biotechnology research community.

- [Know-how webinar on regulatory affairs: Basic principles medical devices – part 1](#)
- [Know-how webinar on regulatory affairs: Basic principles medical devices – part 2](#)
- [Know-how webinar on regulatory affairs: Software as a medical device](#)
- [Know-how webinar on IPR in digital biotech – part 1](#)
- [Know-how webinar on IPR in digital biotech – part 2](#)
- [Know-how webinar on open innovation in bioinformatics](#)



Data Management

The Data & Models focus area supports the research projects in their use and development of methods, data and knowledge management and infrastructures. Below you can see our key activities in 2021.

DLN FAIR data award 2021

For the first time, DLN announced a call for awarding the best FAIR data from life science research in Norway. The evaluation of the ten nominated candidates were performed by a committee of OMT and ETF members, as well as invited experts from Bergen University Library and University of Vienna.

The first-ever DLN FAIR Data Award went to Ingvild Bjerke, a post-doctoral researcher in neuroscience at University of Oslo.



The winner, Ingvild Bjerke, impressed the evaluation committee by showing a substantial effort in providing extensive sets of neuroscientific data FAIR through the [EBRAINS](#) infrastructure

Digital competence workshops

One of the pillar activities in DLN is to improve digital competence of Life Science Researchers both within and outside of the Centre. To achieve this goal, we have collaborated with other initiative to provide workshops on different topics.

Together with the Norwegian research infrastructure services – NRIS , ELIXIR Norway and the UiB digital lab we have provided two digital introductory courses in 2021 on the use of the UNIX shell, code management with git and programming in R or Python following the Software Carpentry curriculum.

Following the big demand, we have experienced earlier on the Data Management Planning workshops for life science projects, we have organized another 5 workshops in 2021 together with ELIXIR Norway, BioMedData and the universities. Since we started with this workshop series in 2020 in total more than 370 researchers have been at one of our DMP workshops and we keep experiencing a high demand and are getting positive feedback.

Strategic infrastructure development

Infrastructure for digital life science is one of the key gaps identified in the TO BE report. Together with ELIXIR Norway and the University of Manchester we are trying to improve the existing integration between the Norwegian e-infrastructure for Life Sciences (NeLS) and the metadata management platform FAIRDOM SEEK. The improved user-interface will become available in 2022.

Communication

We have identified management and sharing of research data as a key for successful and responsible innovation. In order to anchor this in the sector we have participated in several rounds of consultations on the topic in 2021.

We also published an [opinion piece](#) with concrete policy suggestions to the Research Council on how to improve sharing of data to maximize societal gain.



The image shows a screenshot of a news article from Khrono. The article title is "Slik kan Forskningsrådet sørge for meir deling av forskingsdata". The author is identified as "DEBATT • MARTA EIDE OG KORBINIAN BÖSL". The article text states: "Senter for digitalt liv Norge foreslår tre konkrete tiltak Forskningsrådet kan setje i verk for å fremje god deling av forskingsdata, og som vil gje norsk forskning eit massivt fortrinn." Below the text is a photograph of a woman with long blonde hair, wearing a dark blazer, sitting on a blue sofa and gesturing with her hands while speaking. At the bottom of the article, there are two author profiles: Marta Eide, Seniorrådgjevar for data og modellar, PhD, and Korbinian Bösl, Senioringeniør for data og modellar, PhD. Both are associated with the Senter for digitalt liv Norge.

Opinion piece (kronikk) in Khrono on the value of data sharing.

Data management events

Below is a list of DLN Data management events in 2021:

- [Workshop: Software carpentry](#)
- [Data Management Planning workshop for Life Science Projects – Ås](#)
- [Data Management Planning workshop for Life Science Projects – Bergen](#)
- [Data Management Planning workshop for Life Science Projects](#)
- [Data Management Planning workshop for Life Science Projects](#)
- [Open Access Week 2021](#)
- [Data Management Planning workshop for Life Science Projects](#)



RESPONSIBLE RESEARCH AND INNOVATION (RRI)

Learning through transformation

The increasing focus on generating sustainable innovation and value growth has also implied a shift of focus for RRI activities in DLN. While being a central mandate of the Centre, Responsible Innovation (RI) aspects of the [Innovation Roadmap project](#) has pointed to the increasing importance of understanding the broader societal impacts of innovation springing out of DLN projects.

Simultaneously, Responsible Innovation also requires a recognition of researchers' societal responsibility from ideation to realization and market. RI is a cross-cutting theme in the TO BE report and integrated into the planning of concrete pilot activities in the Innovation Roadmap project.

Policy forum and expanding the learning arena with Research Council of Norway

The policy forum held in April, as part of a recurring series jointly planned with the Research Council of Norway, focused on supporting a learning arena and discussion around DLN as a policy experiment on RRI. The forum is also an opportunity to providing valuable feedback from the Centre's activities around how prioritized areas such as fostering transdisciplinarity and convergence is cultivated in the Centre's activities. Further, Research Council of Norway has been involved in further dialogue.

Increased collaboration and joint summer school with AFINO

[AFINO](#) (Ansvarlig forskning og innovasjon i Norge) is a virtual research center focusing on RRI and corporate social responsibility (CSR). The RRI-dimension of both virtual centres provides many possibilities of mutual learning and collaboration.

During 2021, DLN and AFINO initiated a closer collaboration and participated in each other's events.

In August 23-27, the [AFINO summer school](#) was held close collaboration with DLN research School, school was held in close collaboration with the DLN Research School. The week-long summer school focused on the synergies of RRI and inter- and transdisciplinarity and adapting to the changing landscape in which RRI is practiced. The week provided many unique insights into the multifaceted arena of RRI within our two centres.

RRI-inspired transdisciplinary side-quest

DLN encourages early career researchers to reflect on their role as scientists in society and think outside the box in conveying or representing their research.

This call aimed to stimulate new ways of thinking about the role of DLN research in a societal context, and to potentially stimulate new ideas towards the application of ongoing or future research. In 2021, DLN received six proposals ranging from topics in the biomedical field microscopy and machine learning.

DLN congratulates the team behind the project 'The autophagic symphony – Unveiling the final rhythm' as winner of DLN's RRI-inspired transdisciplinary side quest call. We look forward to 'hearing' how the project evolves!"

The autophagic symphony – Unveiling the final rhythm



Amani al Outa
UiO

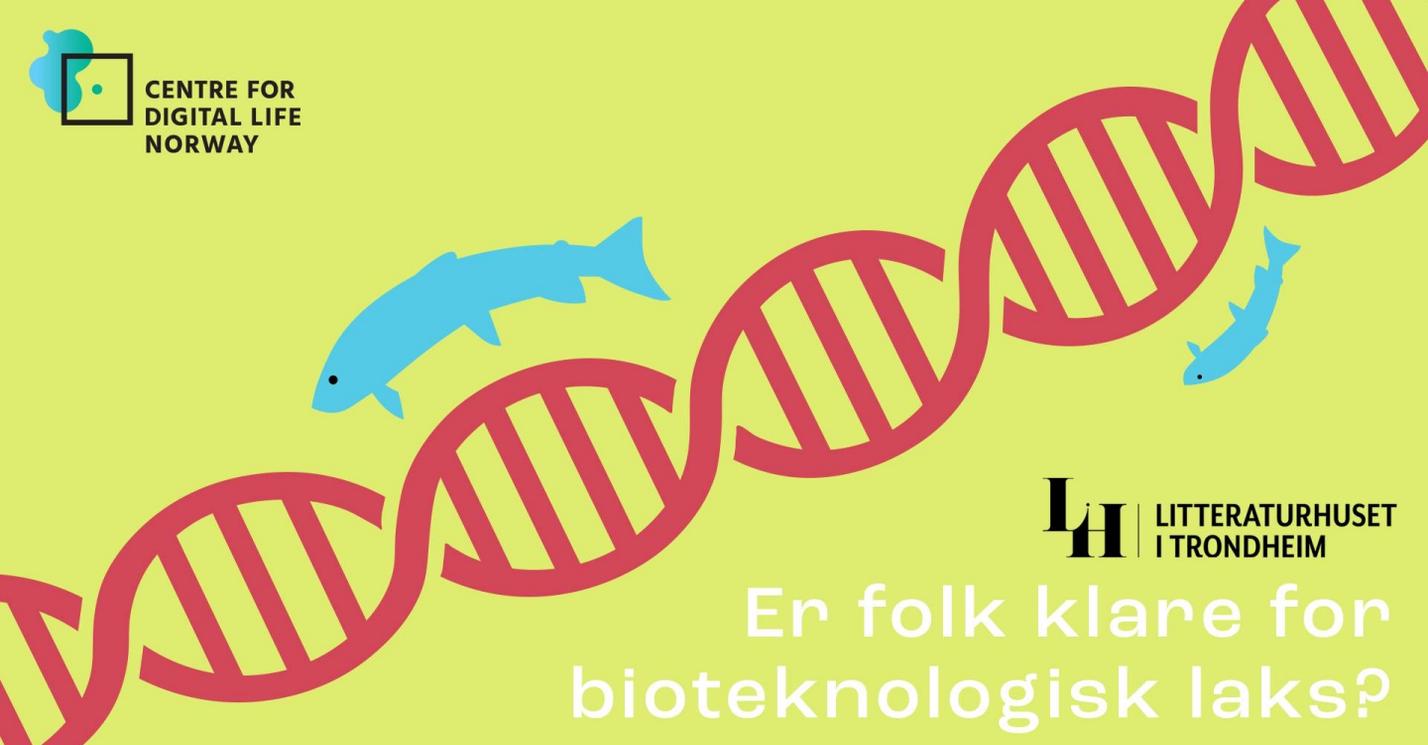


**Alexander Refsum
Jensenius**
RITMO, UiO



Helene Knævelsrud
OUS

[Read more about the project here.](#)



Er folk klare for bioteknologisk laks?

RRI seminar series

Together with Litteraturhuset i Trondheim, DLN co-hosted a seminar series for the public highlighting the intersection of science, policy, privacy, and other fundamental societal issues. Several debates in the series were broadcast on Radio P2, helping reach a wider audience during the pandemic.

- [Er vi klare for en bioteknologisk laks?](#)
- [Helsesdata som gullgruve?](#)
- [Bør Norge satse på egen legemiddelproduksjon?](#)
- [«Bioøkonomi» – den nye oljen, eller bare fyll til politiske festtaler?](#)



TRAINING AND CAREER DEVELOPMENT

An industry internship has been described as a "[golden ticket](#)" for PhD students. In 2021, nine PhD students affiliated with DLN had the opportunity to spend three months in industry, through the second round of DLN's popular Industry Internship program.

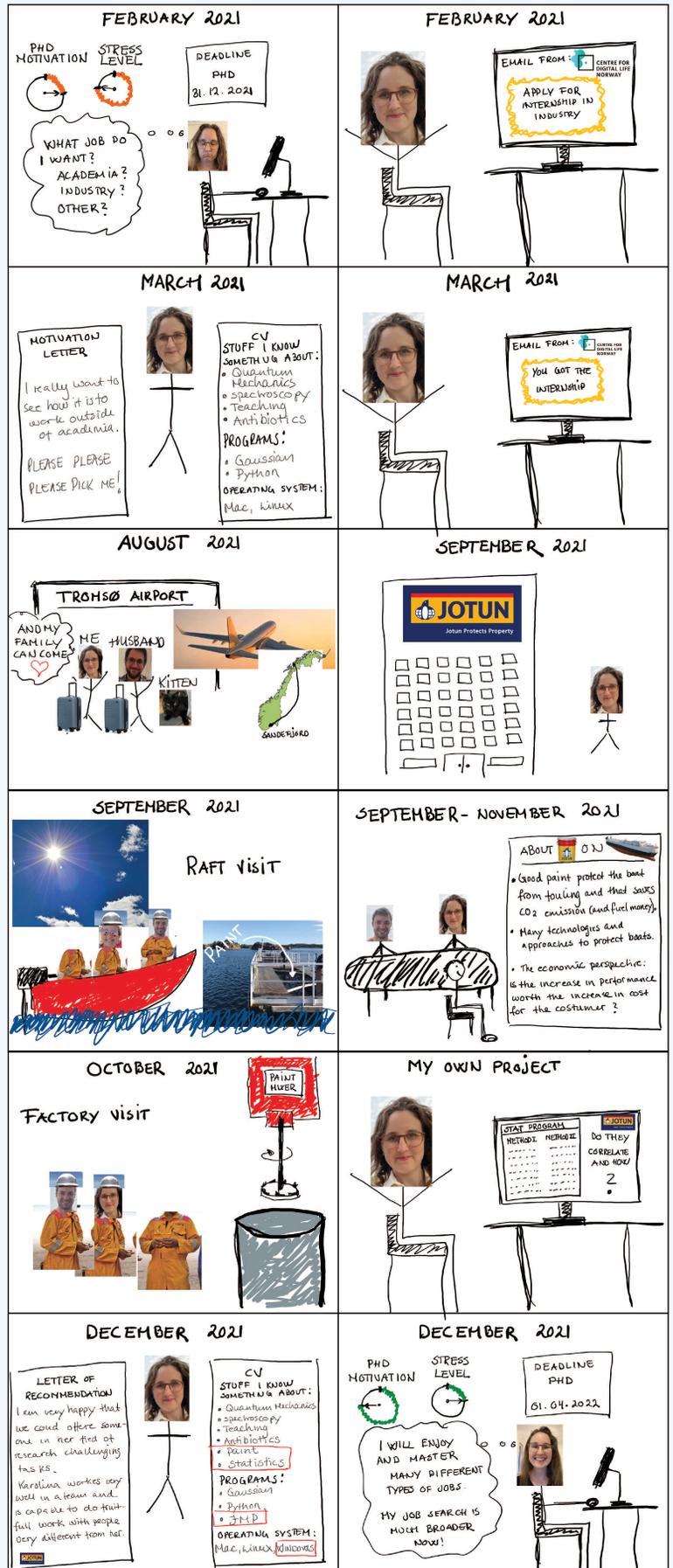
These students, from NTNU, UiO, UiT, and NMBU, got real world experience at biotech companies in Norway and Sweden which can offer a unique opportunity for career development and network building.

Due to positive feedback from both industry and academia, we launched a new call for the industry internship programme 2021. Nine candidates were sponsored this second call.

DLN Industry Internship Experiences

The industry internship programme has been very popular amongst the members for the DLN Research School and host companies. Here you can read some first-hand experiences from 2021:

- [There is a place for you outside of academia - insight from four industrial internships](#)
- [New Experiences from the Digital Life Industry Internship Programme](#)
- [Cartoon: the DLN industry internship program](#)



Candidates & companies

Below you can see a list of all the candidates and companies.

First round, call 2020

Name	Affiliation	Company
Karina Dale	UiB	STIM AS
Marte Jenssen	UiT	Xellia Pharmaceuticals AS
Nancy Saana Banono	UiO	Theracule
E-Ming Rau	NTNU	Vectron Biosolutions AS
John Zobolas	NTNU	AstraZeneca
Eric Juskewitz	UiT	GlucoSet
Kathleen Heck	NTNU	IDL Biotech AB

Second round, call 2021

Name	Affiliation	Company
Madeleine Gundersen	NTNU	ClexBio
Lisa Tietze	NTNU	Seaweed Solutions AS
Melina Mühlenpfordt	NTNU	Amicoat
Franziska Knuth	NTNU	AstraZeneca
Gabriela Carril	NMBU	BioMar
Florian Weber	UiO	Jotun AS
Nils-Jørgen K. Dal	UiO	Mycoteam
Céline Richard	UiT	Vectron Biosolutions AS
Karolina Solemslid Eikås	UiT	Jotun AS



Mobility grant

DLN teamed up with the Swedish life science research institution Science for Life Laboratory (SciLifeLab) to help DLN PhDs and postdocs connect with excellent research groups at SciLifeLab to apply for the Research Council of Norway's three-year researcher projects with international mobility.

The purpose was to promote international mobility and career development among researchers early in their careers, and to contribute to the transfer of knowledge to Norwegian research environments.

As a result of this matchmaking process **Christa Ringers** at the Kavli Institute for Systems Neuroscience at NTNU was granted 3,9 MNOK for the project "Phenotypic Drug Screening to support personalized medicine for colorectal cancer". She will share her time between research groups at SciLifeLab and Uppsala University and the research group of **Åsmund Flobak** and **Astrid Lægreid** who are PIs of the DLN projects **DrugLogics** and **PRESORT** at NTNU.

[Read more here](#)

RRI Course

[Science, Technology, and Society: RRI Course Digital Life Norway](#)





DIGITAL LIFE NORWAY RESEARCH SCHOOL

Science based on convergence in line with the Digital Life mission is challenging, intellectually as well as culturally. It requires that talented young researchers are given opportunities to explore new horizons and embark on challenging scientific and societal problems, perhaps at the risk of failure.

In addition, they will meet the intellectual challenge of scientific work in true transdisciplinary research groups, integrating knowledge across boundaries. Excellent researcher training and networking through the research school is a main success factor for the entire Digital Life mission.

Promoting transdisciplinary integration

The main goals of the research school are to promote transdisciplinary integration, build a culture for innovation, and create a new collective team spirit among all younger scientists who are connected to digital biotechnology.

An important challenge for the research school is to create a distinct scientific profile and a feeling of belonging and commitment in a large and highly transdisciplinary group of PhD-students, postdocs, and their supervisors. The most important networking activities are PhD-courses, generic courses, and the annual 2-day conference for members.

Trying to bring together young researchers with such diverse and transdisciplinary backgrounds is challenging, but in many ways, we have already succeeded in creating fora where PhD-students and postdoctors can broaden their horizons and networks. There are good reasons to be optimistic of the Digital Life-concept among young researchers.

Transdisciplinary grants for young researchers

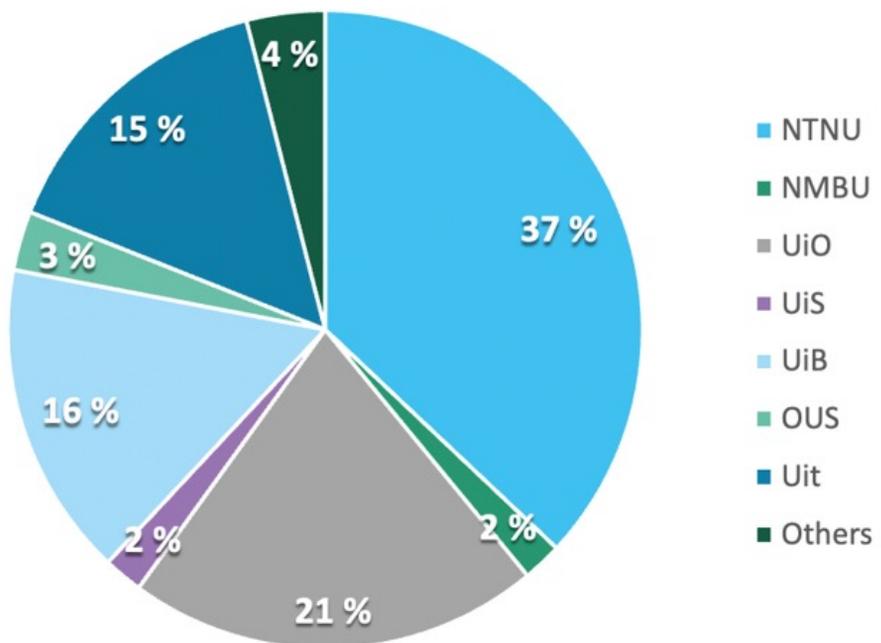
Often, young researchers have great ideas on transdisciplinary collaborations, but lack the funding that would make it possible to proceed with. Therefore Digital Life Norway launched transdisciplinary grants for young researchers.

[Read more here.](#)

Memberships

The research school opened for memberships December 2016, and currently has 527 members, 358 PhD-students and 169 postdoctors, whereof 296 are female and 231 male. Our network also includes PhD-supervisors and newsletter subscribers. The members come from a wide variety of scientific fields, from humanities, medical physics, and computer science to more classic disciplines of biotechnology.

DLN RESEARCH SCHOOL MEMBERSHIP BY UNIVERSITIES



Events

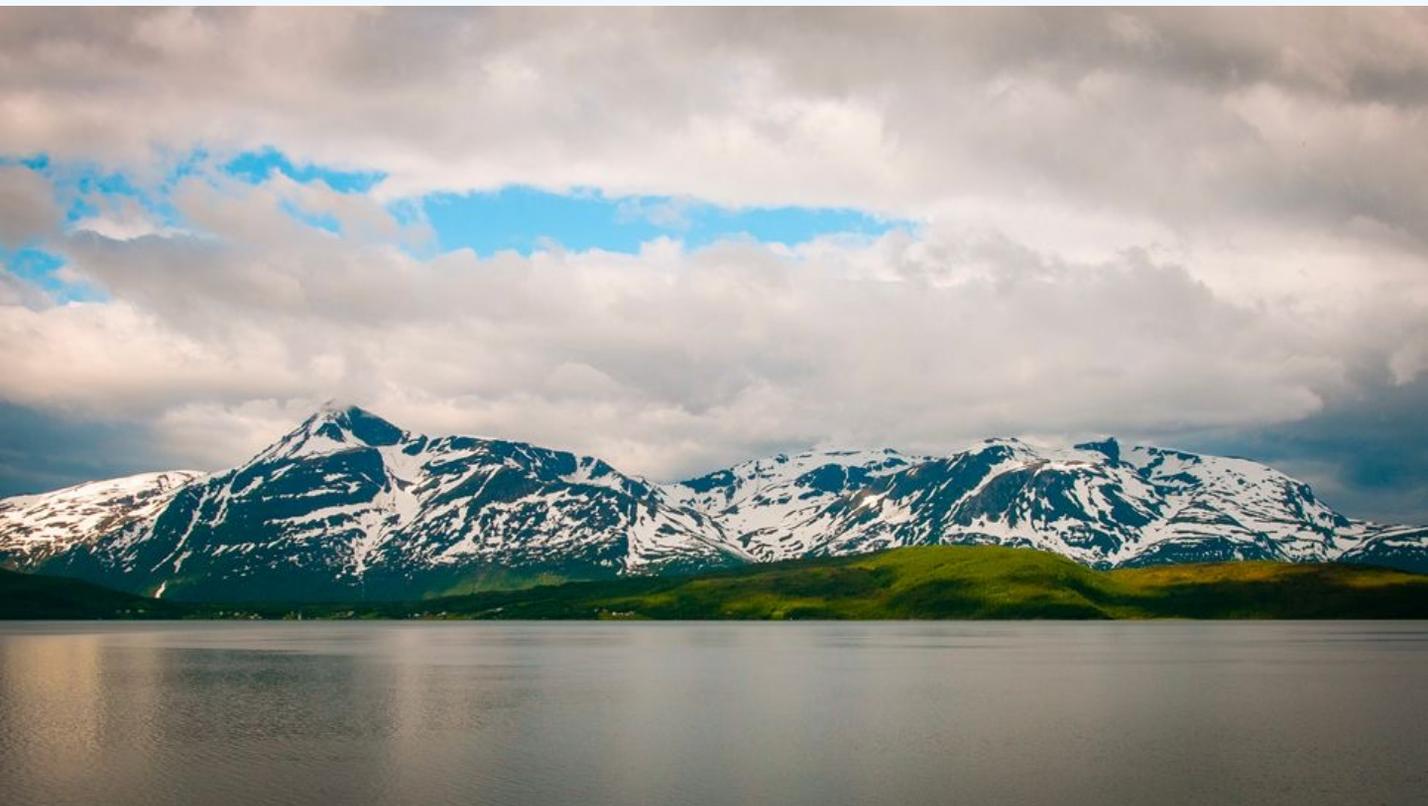
The main purpose of the research school is to create a community for PhD students and postdocs within the Digital Life Norway disciplines. Normally this is predominantly pursued through physical events where young researchers can meet and get to know each other. In 2021 due to covid-19 many events have been cancelled and some digitalised.

[A complete overview of the 2021 events can be found on our website.](#)

The 5th Annual Research School Conference

The annual conference for and by the members of the research school.

[Time and place: Sep. 6, 2021 – Sep. 8, 2021, Malangen Resort \(Tromsø\)](#)



Digital Life 2021



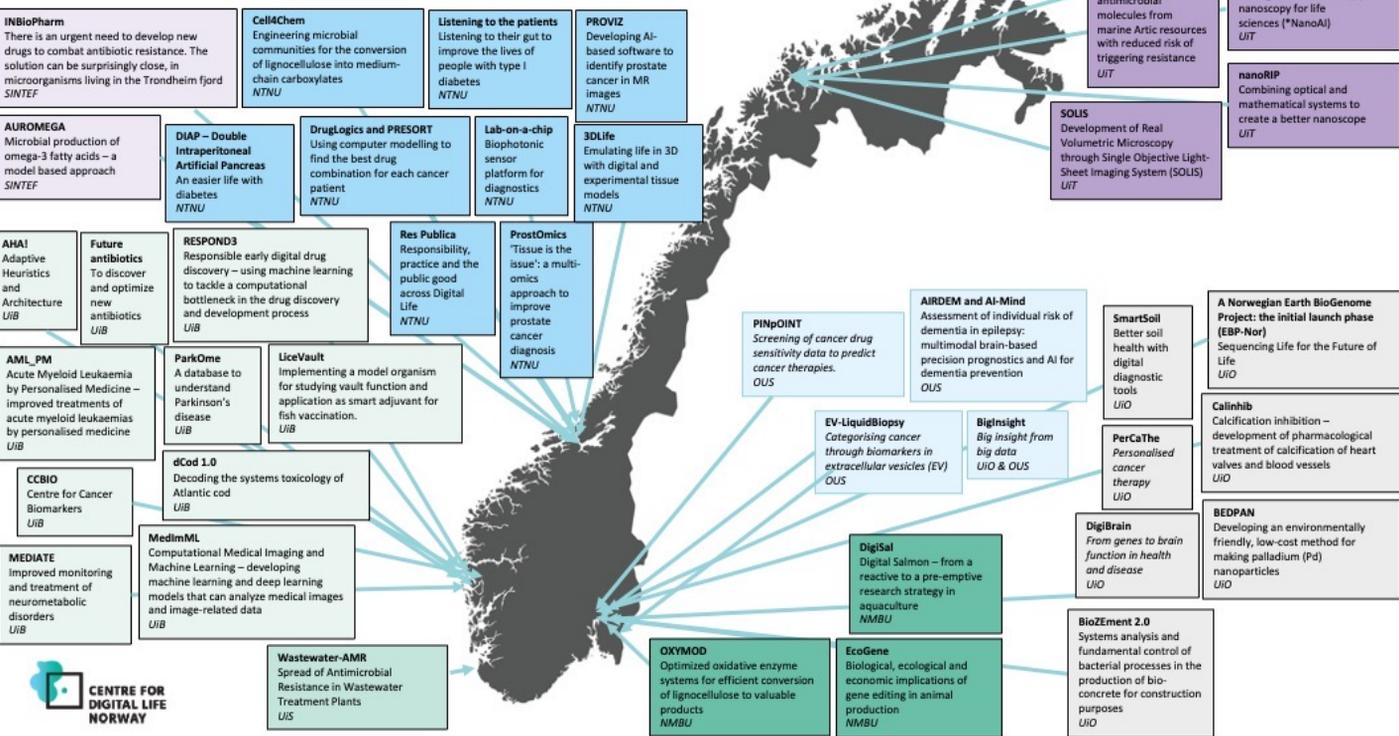
COMMUNICATION AND THE DIGITAL LIFE NORWAY COMMUNITY

Welcoming five new projects to the centre

In 2021, five new projects entered the centre. DLN has now 40 member projects based in all the seven partner institutions.

In 2022 all new projects will be onboarded and integrated into the Centre.

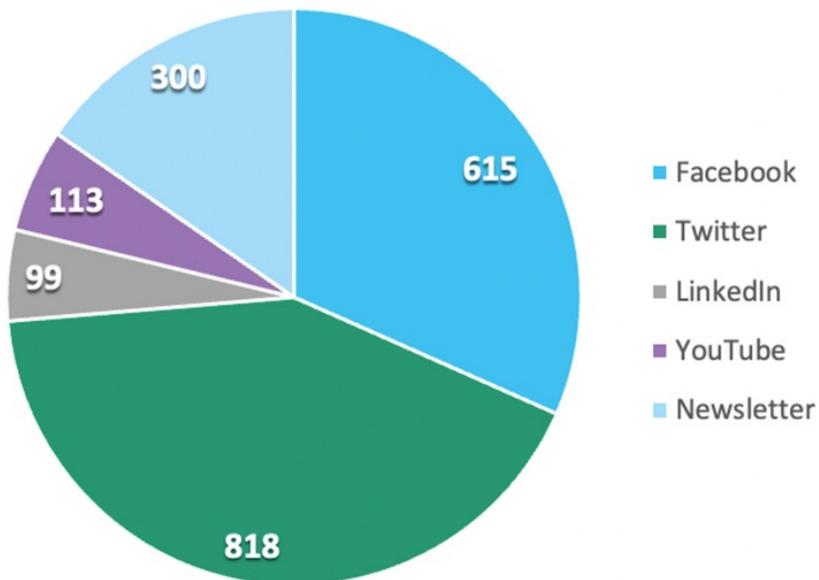
DLN Research Projects across Norway



Monthly newsletters & social media

Information about the centre's activities are published on our website digitallifenorway.org and shared through [monthly newsletters](#) and on [Twitter](#), [Facebook](#), [LinkedIn](#) and [YouTube](#).

SUBSCRIBERS



Oslo and online, 11 November

Digital Life 2021



Digital Life Conference 2021

We would like to thank everyone thatin the 2021 Digital Life Conference at Oslo Science Park in November 2021! The conference had excellent talks on biotechnology and intellectual property rights, and important discussions about transdisciplinarity following the launch of the whitepaper "Transdisciplinarity in Digital Life Norway".

[Please find a summary of the conference and videos of selected presentations](#)

Data analysis' saving the world - science not fiction

The evening before the main DLN conference we launched a pre-event where young researches connected to the DLN member projects could present their research.

[Please find a summary and recordings for the presentations below \(in Norwegian\).](#)





40 TRANSDISCIPLINARY BIOTECHNOLOGY PROJECTS



Projects highlights

The centre has 40 transdisciplinary biotechnology projects led by universities and research institutes all over the country. The projects combine biotechnology with digital technology in health, aquaculture, agriculture, and industrial biotechnology.

Click on the project name to read more about highlights from 2021.



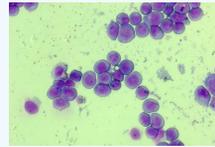
[3DLife](#)



[AHA!](#)



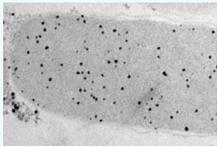
[AIRDEM](#)



[AML PM](#)



[AUROMEGA](#)



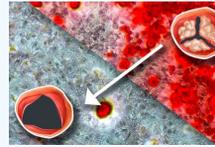
[BEDPAN](#)



[BigInsight](#)



[BioZement 2.0](#)



[Calinhib](#)



[CCBIO](#)



[Cell4Chem](#)



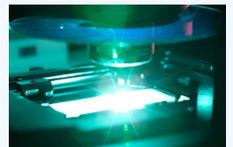
[dCod 1.0](#)



[DIAP](#)



[DigiBiotics](#)



[DigiBrain](#)



[DigiSal](#)



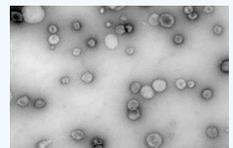
[Druglogics/
PRESORT](#)



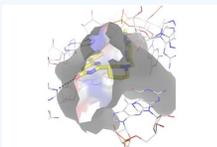
[Earth BioGenome
Project \(EBP-Nor\)](#)



[EcoGene](#)



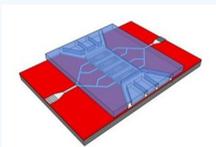
[EV-LiquidBiopsy](#)



[Future
antibiotics](#)



[INBioPharm](#)



[Lab-on-a-chip](#)



[LiceVault](#)



[Listening to
the patients](#)



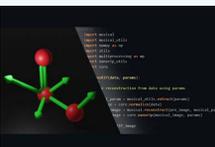
[MEDIATE](#)



[MedImML](#)



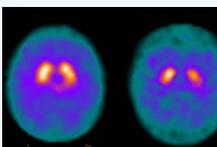
[NanoAI](#)



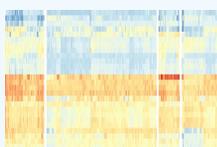
[NanoRIP](#)



[OXYMOD](#)



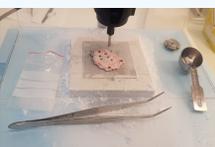
[ParkOme](#)



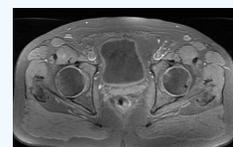
[PerCaThe](#)



[PINpOINT](#)



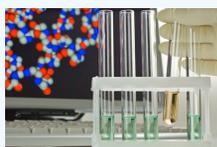
[ProstOmics](#)



[PROVIZ](#)



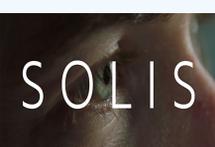
[Res Publica](#)



[RESPOND3](#)



[SmartSoil](#)



[SOLIS](#)



[Wastewater
AMR](#)

PhD defences in the projects 2021

Several PhD candidates in the research projects in the Centre for Digital Life Norway defended their theses in 2021. Click on the name of their theses to download from the host universities of the candidates.

AUROMEGA - Microbial production of omega-3 fatty acids – a model based approach

E-ming Rau, NTNU

[Utilizing inhibitors and genetic engineering to study the biosynthesis of unsaturated fatty acids and lipids in two thraustochytrid strains](#)

Proviz - Developing AI-based software to identify prostate cancer in MR images

Mohammed R. S. Sunoqrot, NTNU

[Computer-Aided Diagnosis of Prostate Cancer Using Multiparametric MRI: Preprocessing, Segmentation and Quality Control](#)

DIAP - Double Intraperitoneal Artificial Pancreas

Ilze Dirnena-Fusini, NTNU

[Intraperitoneal insulin administration - superior choice for an artificial pancreas?](#)

dCod 1.0 - Decoding the systems toxicology of Atlantic cod

Shirin Fallahi, UiB

[Dynamic modelling of biochemical reaction networks and sampling methods for constraint-based models](#)

Oxymod - Optimized oxidative enzyme systems for efficient conversion of lignocellulose to valuable products

Eva Madland, NTNU

[Interactions between carbohydrate-binding modules and carbohydrates – An NMR study](#)

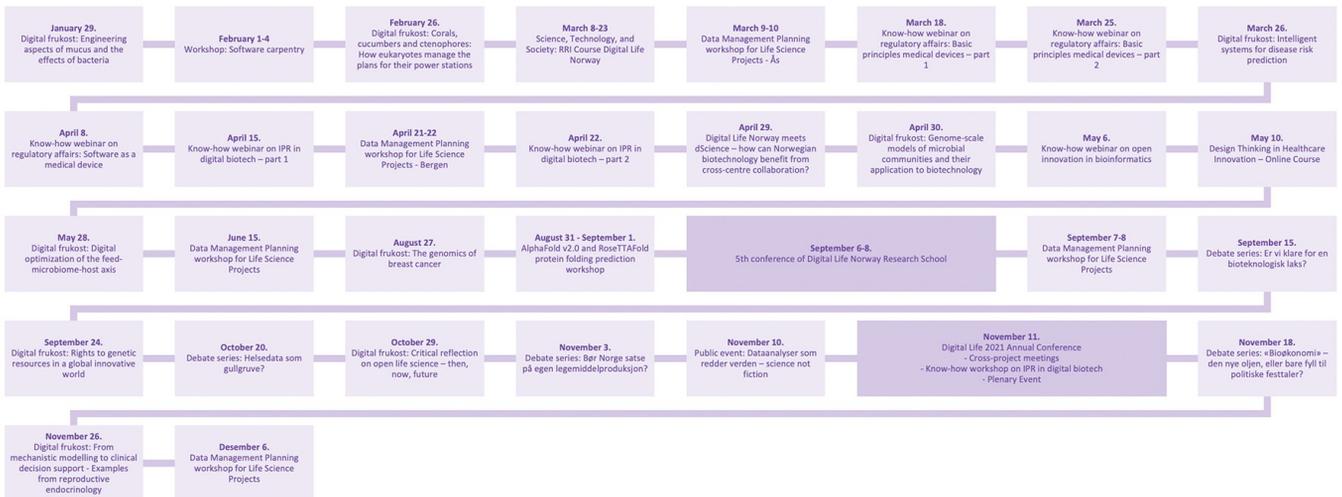
PerCaThe - Personalised cancer therapy

Salim Ghannoum, UiO

[The role of Golgi fragmentation in breast cancer cell migration and tumor progression: an integrated experimental-computational approach](#)". Place: [Institute of Basic Medical Sciences, Faculty of Medicine, University of Oslo](#)

2021 AT A GLANCE

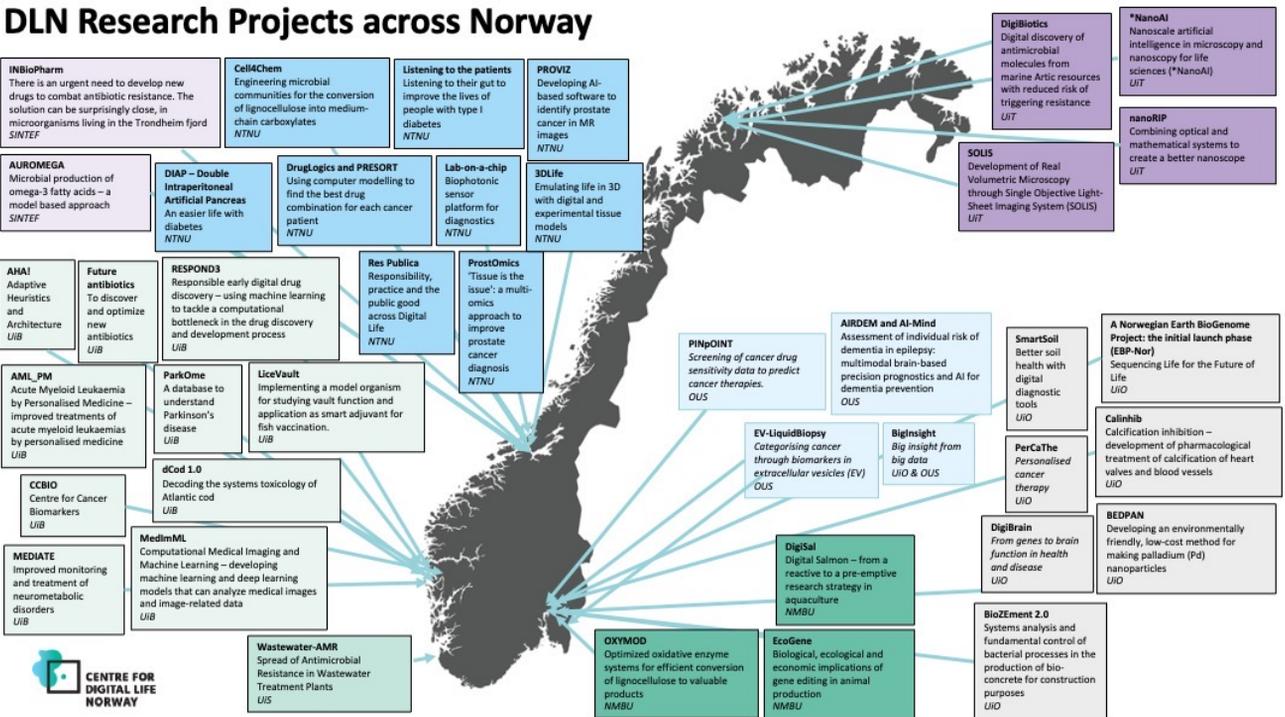
Event timeline 2021



[Links to the events 2021](#)

Facts and figures

DLN Research Projects across Norway



Centre for Digital Life Norway - seven partner institutions



UNIVERSITY OF OSLO



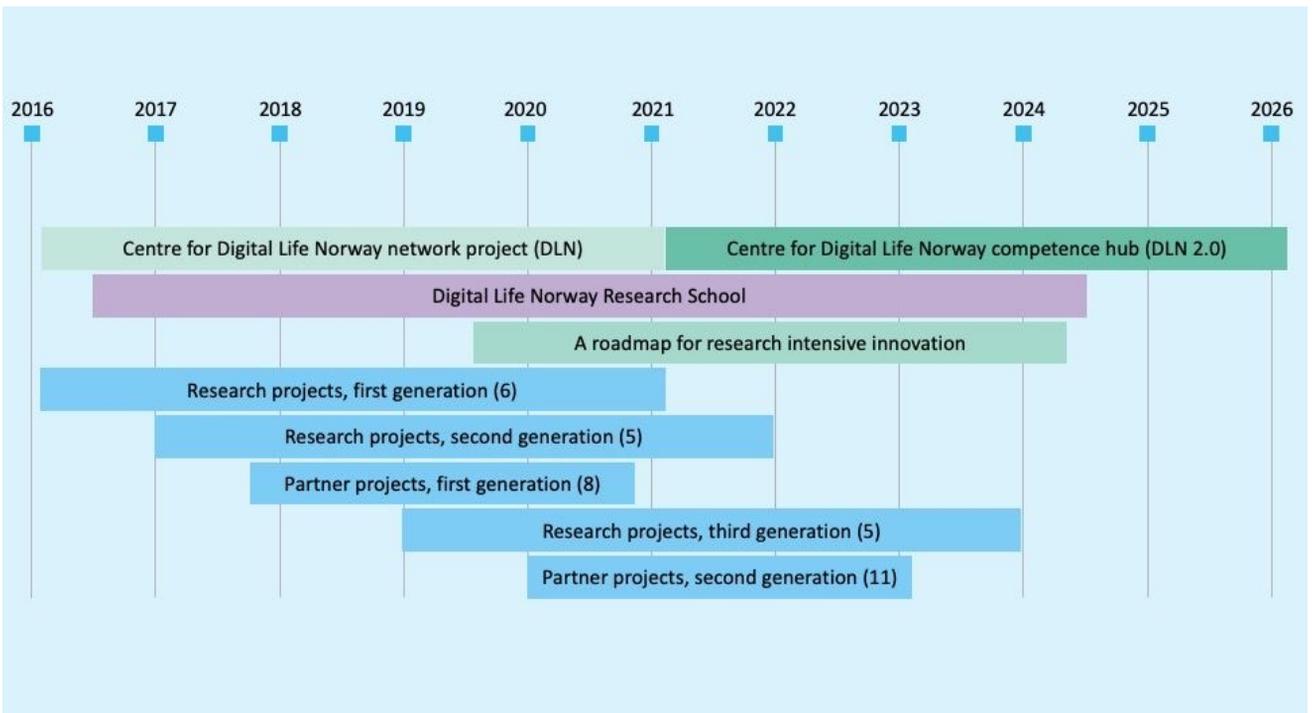
UNIVERSITY OF BERGEN



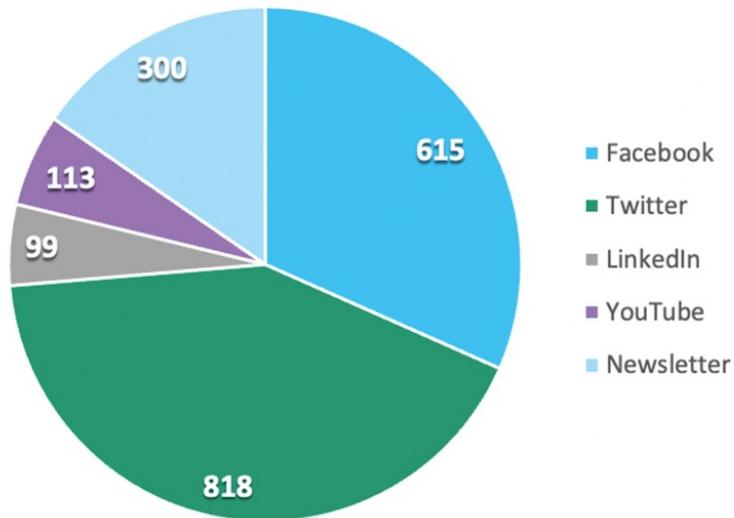
Norwegian University of Life Sciences



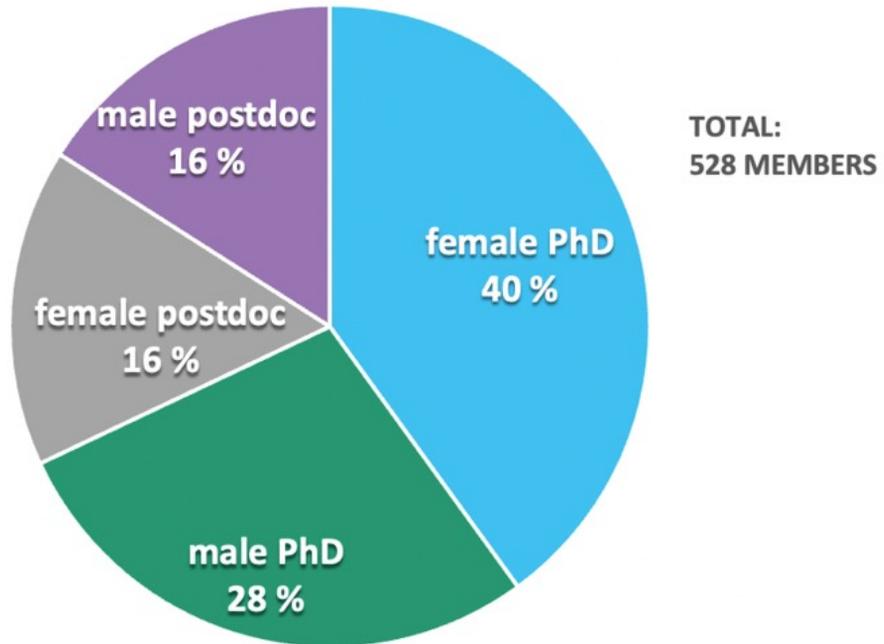
UiT The Arctic University of Norway



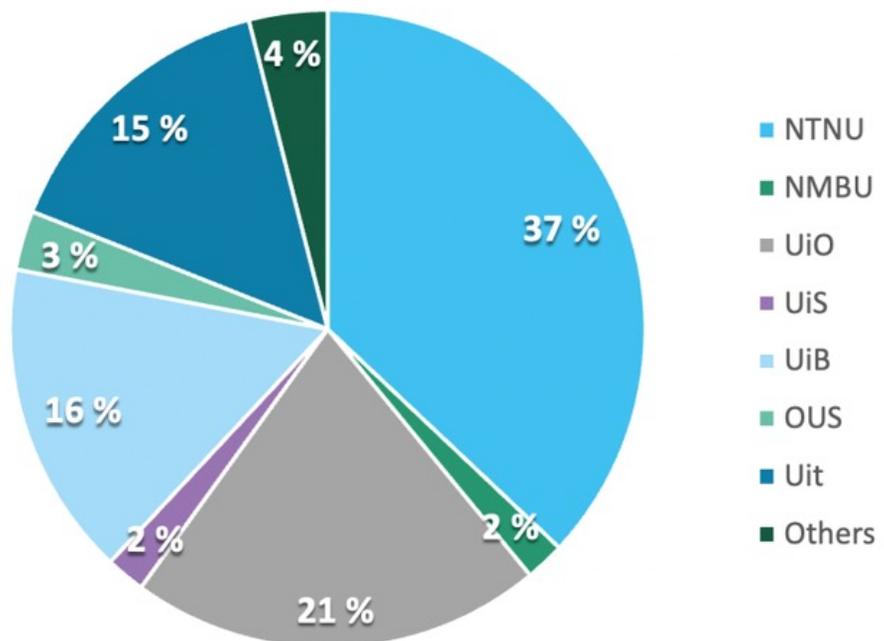
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MEMBERS DIGITAL LIFE RESEARCH SCHOOL



DLN RESEARCH SCHOOL MEMBERSHIP BY UNIVERSITIES



The People

Board

Members from the seven host institutions, NTNU, UiO, UiB, NMBU, OUS, SINTEF and UiT, in addition to industry representation and the Research Council of Norway.



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Chairman of the board,
University of Oslo
(UiO)



**Øyvind Weiby
Gregersen**
Board member,
Norwegian University
of Science and
Technology (NTNU)



Marit Bakke
Board member,
University of Bergen
(UiB)



Sigrid Gåseidnes
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of Life Sciences
(NMBU)



Peder Heyerdahl Utne
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University Hospital
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Board member,
NorthSea Therapeutics
B.V.



Tom Pike
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Advisory bodies

The international advisory committee (IAC)

The Digital Life Norway (DLN) International Advisory Committee (IAC) is a stakeholder panel consisting of internationally renowned experts in fields of high relevance to the DLN mission, with a proven track record in managing large and complex academic structures. The IAC serves as consultants and advisors to the DLN competence hub by reviewing the progress of DLN 2.0 with an international lens. In addition, the IAC contributes independent recommendations on academic matters, DLN's internal operations, and DLN's role as a national network.



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Scientific Advisory Board



Ulrike Felt
Scientific Advisory Board

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