

Utvalg: IU 4/22	Innovasjonsutvalget	Dato: 7.9.2022
IU-sak: 22/22		Arkivsaknr.:

UiB idé – evalueringsprosess og presentasjon av prosjekter

Bakgrunn

Andregangsutlysning av UiBs verifiseringsprogram UiB idé hadde søknadsfrist 15. mars 2022. I IU-møte 20.4.2022 sak 11/22 ble innovasjonsutvalget orientert om innkomne søknader og den videre prosessen. De 31 søknadene (19 forsker-, 12 studentprosjekter) som kom inn ble vurdert av Forsknings- og innovasjonsavdelingen. Kvalifiserte søknader ble deretter vurdert av evalueringskomitéen. Her presenterer vi en oversikt av innsendte søknader, en oppdatering om evalueringsprosessen, og den resulterende innstillingen fra evalueringskomitéen for prosjektfinansiering, som ble godkjent av universitetsledelsen.

Evalueringsprosess

Forsknings- og innovasjonsavdelingen satt sammen et team på fire innovasjonsrådgivere for å utføre en kvalifikasjonsvurdering basert på søknadskriteriene detaljert i *UiB idé program* (https://www.uib.no/sites/w3.uib.no/files/attachments/uib_ide_programnotat_2022_0.pdf), og for å gjennomføre et forhåndsutvalg som begrenset antall søknader sendt til evalueringskomitéen til maksimalt 10 student- og 10 ansatt søknader. Det var 9 kvalifiserte student- og 14 kvalifiserte ansatt søknader. 9 student søknader og 10 ansatt søknader ble deretter vurdert av evalueringskomitéen (ledet av en ekstern innovasjonseksper, jf. IU-sak 11/22), og søkere ble invitert til pitching-runden. Ett studentprosjekt trakk seg på dette tidspunktet.

Pitchingdagene var satt til 8. juni (studenter) og 9. juni (ansatte). Pitching-formatet var 8 minutters presentasjon, 8 minutter Q&A og 10 minutter diskusjon i komitéen etter at søkerne hadde sluttet. Etter at alle pitchene var fullført for dagen, diskuterte og sammenlignet evalueringskomitéen alle søknader og valgte vinnerprosjektene basert på pitchene, Q&A og original søknad. Øremerkede midler var tilgjengelig for 3 student- og 4 forskerprosjekter, selv om evalueringskomitéen uttalte at flere prosjekter var av høy kvalitet og ville ha fortjent støtte. Evalueringskomitéen valgte deretter ut 7 prosjekter for finansiering i et anbefalingsbrev til universitetsledelsen. UiB idé programleder fra FIA bistod evalueringskomitéen under pitching- og vurderingsprosessen.

Liste over søknader

Studentsøknader:

Project title	Applicant	Faculty, Department	2nd Faculty, Department
Verdens mest bærekraftige fôrpellet	Aslak Heining	MN, BIO	JUSS
SafeSki	Mia Laastad Bjørlykke	MED, K1	KMD, Design

Hjelpesiden.no	Frida Røvik	PSY, ISP	
Kvikk Forsikring	Thea Svinø Tørgriksen	SV, Infomedia	JUSS (Jusskontakt)
Gutsy Objects	Mia Laastad Bjørlykke	MED, K1	KMD, Design
Onna Digital Learning Platform	Alma Hjort af Ornäs	KMD, Design	
Tingbibliotek – Internasjonalisering av et lokalt konsept	Fredrik Salhus	KMD, Design	
Sustain It	Hannah Johansson	HF, SVT	
Cellen	Morten Haukaas	MED	
Complex problem tests, a tool to assess interdisciplinary competencies	Luc François Messi Beba	HF, IF	
Utvinning av vannets potensielle energi ved hjelp av lav verdig bølgeenergi	Damian Ruja	MN, Matematikk	
Modeling and simulation of cardiovascular circulation system for (...)	Masoud Rashidi	MED	

Blå = fikk finansiering; grønn = kvalifisert; grå = trukket tilbake; rød = ikke kvalifisert

Ansattøknader:

Project title	Applicant	Faculty, Department	2nd Faculty, Department
An Eco-friendly Icephobic Lubrication	Bodil Holst	MN, IFT	MN, BIO
Communicating cognitive decline: Language games with tactile and visual objects	Jan Reinert Karlsen	HF, SVT	KMD, Design
OFF-ON double functionalized nanodiamonds for targeted cancer treatment	Harsh Nitin Dongre	MED, K1	
Precision surgery – developing intraoperative tumour-targeted fluorescence imaging	Line Bjørge	MED, K2	
Preventive Dental-Socket Cap (SCap) for Bone Regeneration	Mohamad Hassan	MED, IKO	
Biosensor for miljøgifter - XENOSENS	Anders Goksøyr	MN, BIO	
Using Vitamin Privilege to Improve Drug Delivery to the Brain	James Lorens	MED, IBM	
Behandlingsapp for jetlag og andre døgnrytmeforstyrrelser	Ståle Pallesen	PSY, ISP	
A novel bioreactor platform for stem cell expansion for bone regeneration	Shuntaro Yamada	MED, IKO	
Neurofeedback guided Music Therapy for Parkinson's Patients	Mengyun Wang	PSY, IBMP	
EXPAND – Enabling Cross-disciplinary Pedagogical Activities and Dissemination	Martin Fernø	MN, IFT	MN, Matematikk; MN, GEO; UM
In-silico discovery platform for lipid drug carriers	Markus Miettinen	MN, Kjemi	
Designing and piloting a musical physiotherapy service to promote seniors' health and functional independence	Stavros Skouras	PSY, IBMP	
OmniAlder: Mobile app to aggregate and visualize wearable data for older adults	Juan Carlos Torrado Vidal	MED, IGS	
Radio Multe: Community radio for an intercultural city	Karen Werner	KMD, Samtidskunst	
Toward new antibiotics targeting bacterial fatty acid synthesis	Bengt Erik Haug	MN, Kjemi	MED, IBM
Farmakologiundervisning I VR – en pilot	Jon Andsnæs Berg	MED, K2	

Utvikling av mRNA vaksine til fisk	Gyri Teien Haugland Røsland	MN, BIO	
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Blå = fikk finansiering; grønn = kvalifisert, invitert til pitching; gul = kvalifisert, ikke invitert til pitching; rød = ikke kvalifisert

Liste av finansierte prosjekter

Studenter:

SafeSki. Mia Laastad Bjørlykke (MED); veileder Guttorm Brattekjø (MED). **100.000,-**

Verdens mest bærekraftige fôrpellet for Cherax quadricarinatus. Aslak Heining (MN); veileder Henrik Glenner (BIO, MN). **100.000,-**

Hjelpesiden.no. Frida Røvik, Mari Aune, Elin Hanevik (PSY); veileder Tormod Bøe (ISP, PSY). **100.000,-**

Ansatte:

Communicating cognitive decline: Language games with tactile and visual objects. Jan Reinert Karlsen (SVT, HF). **475.000,-**

An eco-friendly icephobic lubrication. Bodil Holst (IFT, MN), Øyvind Halskau (BIO, MN). **275.000,-**

OFF-ON double functionalized nanodiamonds for targeted cancer treatment. Harsh Dongre (K1, MED). **483.000,-**

Precision surgery – developing intraoperative tumour-targeted fluorescence imaging. Line Bjørge (K2, MED). **467.000,-**

Tildelt beløp (total): 2.000.000,-

Evalueringskomitéens begrunnelse for støtte

SafeSki - en hybrid mellom skikjelke og vindsekk, Mia Laastad Bjørlykke (MED). Veileder: Guttorm Brattekjø (K1, MED).

Prosjektet: SafeSki is a light and useful duo product, a hybrid between a windsock and a ski sled. The purpose of this product is to ensure security and the ability to self-help in the winter mountains. The potential for using the results is great, the main goal in the long run is to distribute the product to auxiliary corps, hiking teams and private hikers. Something that in demanding situations can be life-saving. A small-scale market study has already been carried out which shows that the market for the product exists, our challenge is to reach this market in the best possible way.

Innovasjon: The product idea has been generated from both observation and personal experience as well as empathy for those who need the product and the use of existing solutions; resulting in a human centred-first approach (rather than technology first), this is to be commended. The idea being generated by a student of medicine gives this project a valuable process for product development; again focusing on human factors first. Therefore, the project leverages the great opportunities for multidisciplinary working across the university (inc. BAS), testing on the mountain medicine course. The reductive description of the product idea [a hybrid between a windsock and a ski sled] mustn't distract from the originality of the idea and the further value that the process of product development

opens. One such area, the committee suggests, is the material science of the product which will expand the innovation value generated from this concept.

Innvirkning: The project's focus is to develop the product initially for emergency responders and extreme users. Therefore, the potential for users in life threatening situations, confronting extreme natural environments, is of great value. However, the product clearly has potential value not limited to mountains as safety equipment for leisure skiers.

Secondly the product development process will also bring about emergent opportunities and new value in material development, mountain medicine/rescue procedures, etc.

Anbefaling: The committee unanimously agrees to put forward this project for UiB idé funding of 100.000,- for the following:

- The approach to the solution and the process for product development is grounded in the human factors, leveraging the knowledge available at the University (a different approach than if it was developed outside the University).
- A competent team and excellent project partners has already been established.
- The project plan and budget is feasible and focuses on critical factors for proof of concept. Furthermore the process will identify the key challenges and success criteria for the second phase (post UiB idé funding) therefore making this project a good investment in innovation.

Verdens mest bærekraftige fôrpellet for Cherax quadricarinatus, Aslak Heining (BIO, MN).

Prosjektet: I prosjektet er det fokus på bærekraftig oppdrett av den australske ferskvannshummeren rødklo (*Cherax quadricarinatus*). Produksjonen av rødklo foregår i vertikale produksjonsmoduler tilkoblet RAS-system. I prosjektet skal utvikles fôr basert på restråstoffer spesialtilpasset rødklo for å oppnå karbonnøytral proteinproduksjon. Prosjektet gjennomføres i regi av oppstartsbedriften Pure Lobster.

Innovasjon: I forskningsløpet er det oppdaget at rødklo produserer et enzym som gjør at arten bryter ned cellulose. Dette betyr at arten i praksis kan spise alt nedbrytbart materiale. Eksisterende kommersielt fôr er imidlertid ikke optimalt for arten. I prosjektet skal det utvikles et spesialtilpasset fôr for rødklo basert på restråstoffer og bærekraftige ingredienser som råstoff fra lakseindustri, alger og prosessert matavfall. Karbonnøytralt fôr er unikt i oppdrett av vannlevende arter.

Innvirkning: Bærekraftig og billig oppdrett av den australske ferskvannshummeren rødklo vil kunne gi verden tilgang til en viktig og bærekraftig proteinkilde. Prosjektet har derfor stor nytte for samfunn og miljø i internasjonal skala. Det finnes i dag en rekke patenter for ulike fôrsammensetninger for ulike arter, som også inkluderer restråstoffer. Ingen av disse er imidlertid optimalisert for den såkalte «grow-out-fasen» i artenes vekst. En vellykket gjennomføring av prosjektet åpner muligheter for patentering.

Gjennomføringsevne: Det tverrfaglige teamet i Pure Lobster har inngående kunnskap om artens biologiske egenskaper og atferd. Prosjektet er godt forankret akademisk med en tydelig og gjennomførbar prosjektplan, og det er også koblet til eksterne partnere som NCE Seafood, Marineholmen RASlab og VIS Innovasjon.

Anbefaling: Komitéen anbefaler prosjektet for finansiering basert på dets innovative tilnærming til en viktig samfunnsutfordring. Prosjektet svarer godt på FNs bærekraftsmål. Komitéen anbefaler en offensiv tilnærming til patentering.

Hjelpesiden.no, Frida Røvik, Mari Aune, Elin Hanevik (ISP, PSY).

Prosjektet: Helsefagstudenter, frivilligheten, helsepersonell, brukere og pårørende opplever at det er behov for en samlet oversikt over hjelpetjenester. Grovskissen til hjelpesiden består av nasjonale tilbud der brukere kan få hjelp digitalt via telefon, e-post eller chat.

Innovasjon: Det finnes per i dag ingen samlet oversikt over digitale hjelpetilbud nasjonalt eller lokalt. En slik oversikt vil spare både tjenesteytere og -mottakere for ressurser, og vil bidra til å koordinere innsats fra kommunepsykologer, fastleger og andre som står rundt den som trenger hjelp. Nyskapingen består i å samle tilbud på en oversiktlig og brukersentrert måte i dialog med brukere, pårørende og private/ideelle/offentlige tjenesteytere.

Innvirkning: Oversikten dekker et reelt behov for både tjenestemottakere og tjenesteytere, og vil kunne både gjøre livet til den enkelte og deres familie lettere, men også være et tydelig signal til helsemyndighetene om behovet for en slik oversikt. Ved å støtte dette studentdrevne prosjektet håper UiB Idé at prosjektgruppen kan ferdigstille en brukersentrert og forankret prototype som potensielt kan plukkes opp og driftes av det offentlige.

Gjennomføringsevne: Prosjektet er driftet på frivillig basis av studenter, og det er komitéens anbefaling av prosjektgruppen bruker støtten til å innhente designstøtte til å teste og raffinere prototypen som nå foreligger. Vi legger dermed til grunn at prosjektperioden ikke avsluttes ved semesterstart etter sommerferien, men at den gjennom innkjøp av profesjonell støtte kan fortsette utover høsten slik at en forbedret prototype foreligger på nyåret.

Anbefaling: Komitéen anbefaler prosjektet "Hjelpesiden - finn hjelp for din utfordring" for finansiering. Prosjektet kan utgjøre en viktig forskjell for både tjenesteytere og -mottakere innen psykisk helsefeltet. Komitéen anbefaler prosjektgruppen å innhente profesjonell designkompetanse til fasilitering av verksteder og/eller visuell/systemdesign av siden slik at "Hjelpesiden"-prototypen forbedrer sitt brukergrensesnitt. Videre anbefaler komitéen at prosjektgruppen oppretter dialog med nasjonale offentlige og ideelle aktører som Helsedirektoratet, Folkehelseinstituttet, Mental Helse og andre som kan tenkes å ha gode innspill til hvordan nettsiden kan videreutvikles og driftes utover prosjektperioden.

Communicating cognitive decline: Language games with tactile and visual objects, Jan Reinert Karlsen (SVT, HF).

Prosjektet: The project "Communicating cognitive decline: Language games with tactile and visual objects" investigates the interaction between persons suffering from chronic neurological disorders and their caregivers and medical support staff. Specifically, the project targets persons with early stages of dementia and their caregivers. Cognitive decline can make a person unable to express themselves, anxious or withdrawn, while caregivers can be left feeling frustrated. On a systemic healthcare level, communication is key for diagnosis and care provision. For chronic neurological diseases, however, it is common that aspects related to the meaning and experience of the disease are not given sufficient attention within the medical setting. The project addresses this problem by providing a new method for patients and caregivers to express their illness experiences, suffering, and unique needs. It will re-develop a tactile and visual communication toolkit that has been designed within a master's thesis project at the institute of design (KMD).

Innovasjon: The innovation in this project lies not only in the development of a new product - a communication toolkit - but even more so in the re-shaping of the dynamics between patient, caregiver and healthcare professional, and in moving a "disease-centric" dogma of care provision to an "experience-centric", "needs-centric" and "human-centric" one.

Innvirkning: The new communication opportunities provided by the toolbox can release people with dementia from frustration and allow caregivers and doctors to better understand their suffering and the new form of life emerging with the onset and progression of the disease, resulting in more humane and personalized practices in dementia care and treatment. The toolbox has the potential to not only aid in the communication between patient, caregiver and healthcare professional, but also to create an open debate on the importance of an experience-centric approach to healthcare provision, especially in chronic diseases.

Gjennomføringsevne: The project benefits from a strongly interdisciplinary approach and has secured relevant competences from the health ethics, medical and design fields. The project plan is deemed feasible, while the larger societal debate on care provision will likely grow beyond the scope of the project.

Anbefaling: The committee recommends funding of the project due to its ambitious and innovative approach in not only challenging the status-quo of patient care in dementia, but also providing an alternative solution. The project is broad in scope, conceptually highly novel, and uses multidisciplinary approaches and competences from multiple UiB faculties (HF, MED, KMD).

An Eco-friendly Icephobic Lubrication, Bodil Holst (IFT, MN) and Øyvind Halskau (BIO, MN).

Prosjektet: "An Eco-friendly Icephobic Lubrication" aims to develop a new solution for eco-friendly skiing wax based on polar bear hair-grease. Today the most effective anti-ice adhesion lubrications all contain fluor, which is harming the environment.

Innovasjon: The idea of using polar bear hair-grease to develop a new eco-friendly icephobic lubrication, is both original and innovative. The project looks to nature for inspiration and answers. Polar bears are the only mammals known to deliberately exploit sliding on snow/ice for movement, leading the team to investigate the icephobic properties of polar bear fur. Preliminary tests show that the ice-adhesion of fresh polar bear fur is very low and comparable to the adhesion of the best racing fur used for skiing (unpublished results).

Innvirkning: Fluor based lubricants have been forbidden in many contexts so there is a need for alternative, efficient and environmentally sound solutions. Lubrication that can withstand ice-formation is important for a range of applications from skiing to windmills in arctic conditions. A successful completion of this verification project will be a submitted patent application on a functioning artificial polar bear hair grease inspired lubrication formulation.

Gjennomføringsevne: The proposed project is ambitious in its timeline and deliverables but is based on a solid foundation of preliminary data and familiarity with methods that make the project plan credible. The project consists of a strong, interdisciplinary team and has already established relations with VIS and industry partners.

Anbefaling: The committee recommends funding of the project due to its creative and innovative approach to develop a new solution for eco-friendly icephonic lubrication. The team has a strict project plan that allows them to verify a technical proof-of-concept. The committee encourages the team to explore the development of commercial products together with VIS and partners after UiB idé.

OFF-ON double functionalized nanodiamonds for targeted cancer treatment, Harsh Nitin Dongre (K1, MED).

Prosjektet: Skin, oral and vulva cancers are commonly treated by excision, and in some cases by immune- and chemotherapy. Current treatments are limited in specificity and toxicity, resulting in

recurrence of the cancer or in debilitating side-effects. The project *“OFF-ON double functionalized nanodiamonds for targeted cancer treatment”* aims to develop a nanoparticle-based solution that focuses on treatment specificity and provides proof-of-concept for a new cancer treatment that allows to control both duration and location of the cell-destroying action, thus keeping side effects minimal.

Innovasjon: Recent advances in biomedicine have led to new tools such as diamond nanoparticles and light-activated treatment modalities to allow for enhanced specificity of and control over treatments. This project makes excellent use of these developments by testing a new combination of functions attached to nanodiamonds that allows for a) targeting and destruction of tumor cells upon exposure to blue light, and b) emission of blue light upon activation via near infra-red light. Goal is to eventually develop a topical cancer treatment that can be activated and deactivated with near infra-red light, which has the property of reaching cancer cells that are embedded up to 20 mm deep. Activation will then lead to a targeted destruction of cancer cells and thus to reduced side effects. The combination of technologies and effects of the proposed approach is innovative and builds on the current state-of-the-art.

Innvirkning: At the project level, the proposed experiments represent a concise proof-of-concept on the feasibility and efficacy of the technology and would – if the outcome is successful – allow to initiate the commercial development of the technology in partnership with UiB’s technology transfer office VIS. On the societal level, the envisioned new therapy could offer safe and effective treatment to thousands of cancer patients, including reduced risk of recurrences, and significantly reduce treatment costs.

Gjennomføringsevne: The proposed project is ambitious in its timeline and deliverables but is based on a solid foundation of preliminary data and familiarity with methods that make the project plan credible. The applicant is embedded in a high-performing research environment with a proven track-record in this technology area.

Anbefaling: The committee recommends the funding of all eligible expenses of the proposed project for its inventiveness, high societal impact potential, and solid work plan that will allow for the clear verification of a technological proof-of-concept.

Precision surgery –developing intraoperative tumour-targeted fluorescence imaging, Line Bjørge (K2, MED).

Prosjektet: The success of cancer resection is closely linked to the surgeon’s ability to visualize cancerous tissue in real-time during the surgical procedure. For epithelial ovarian cancer, this is achieved using fluorescent contrast agents that bind to the tumor and thus provide guidance to the surgeon during the procedure. Current contrast agents are however hampered by inconsistency between patients, low signal-to-noise ratio, and a lack of suitable pre-clinical animal models to predict efficacy in humans. The project *“Precision surgery – developing intraoperative tumour-targeted fluorescence imaging”* addresses these challenges by using new cancer biomarkers and developing better dyes, and to test these in veterinary clinical trials with pet dogs to improve the chances for a successful translation to humans.

Innovasjon: The innovation is based on the in-depth understanding of the practical limitations of current cancer resection procedures, and the targeted improvement of these limitations based on their causes. The resulting innovation is a new imaging probe based on a new cancer biomarker that is coupled to a dye with improved signal-to-noise ratio. The innovation will ultimately be a more effective surgery procedure to remove epithelial ovarian cancer.

Innvirkning: The potential impact of this project is not just significant, but also quite feasible due to the competence of the project team. An optimized visualization probe will reduce recurrence rates and

increase survival, minimize removal of healthy tissue and thus improve the functional outcome, and reduce patient morbidity operation time and hospital stay, which leads to health cost benefits. Ovarian cancer is a significant burden to society, and this project will directly and positively impact women's health. The successful development of this probe would put Haukeland University Hospital into a leading position in this procedure within the nordic

Gjennomføringsevne: The project group joins expert clinical, pre-clinical and veterinary competences and has a solid project plan. A verification of the new probe in companion dogs seems feasible.

Anbefaling: The committee recommends funding of the project due to its palpable and meaningful potential outcome. The applicants are leading experts in the field. A positive impact for both Bergen as a specialist center for fluorescence image guided cancer surgery, and for women's health in general, is possible and thus merits support.

Oppsummering

Saken legges fram til orientering i IU