UiB idé: Evaluation of 2021 pilot program;

Summary

A rectorate-FIA work group developed UiB idé between September 2020 and February 2021. The work group received inputs from similar programs at NTNU (NTNU Discovery) and at UiO (UiO Verifiseringsmidler), and from an advisory reference group consisting of external innovation actors (industry, public sector, students). A program team and a program leader from FIA were appointed to coordinate UiB idé, and a 4-person evaluation committee with innovation experts from industry, public sector and academia was selected to act as independent reviewing panel.

Table 2. Number of applications submitted and funded
36 applications submitted
- 15 students, 21 researchers
8 projects funded
- 4 students, 4 researchers

After establishing a program website, UiB idé was launched on February 12, and a mobilization campaign was initiated to inform both students and researchers about the new funding opportunity. By the end of the application deadline on April 6, a total of 36 applications spanning all faculties and the University Museum (*table 1*) were submitted through the submission portal. An administrative assessment of the submissions was conducted by the program team at FIA, and due to the large number of applications, a pre-selection process was introduced in collaboration with the evaluation committee. Ten student and 12 researcher applicants were then invited to pitch their ideas to the evaluation committee. The committee selected 4 student and 4 researcher projects and recommended to the UiB leadership for funding *(table 2)*.

Table 1. Number of applications received and funded (in parentheses), per faculty
Faculty of Medicine 11 (3)
Faculty of Mathematics and Natural Sciences 9 (3)
Faculty of Social Sciences 4 (1)
Faculty of Fine art, Music and Design 4 (0)
Faculty of Law 3 (1)
Faculty of Psychology 3 (0)
Faculty of Humanities 1 (0)
University Museum 1 (0)

Seven of the 8 projects were initiated over the summer (1 postponement). Project implementation varied between projects, with some requiring significant adjustments, while others followed a predicted course. Overall, the projects resulted in numerous concrete outcomes, see *table 3* below. Here a brief description of the individual projects:

Researcher project 1. *"Development of innovative immunotherapy for Acute Myeloid Leukemia (AML)."* UiB idé funding: 350,000,-

The project aimed to improve a cancer immunotherapy by reducing its toxicity. UiB idé funded a proof-of-concept experiment to evaluate the ability of the new method to destroy cancer cells while sparing healthy cells in an animal model by instructing the immune cells to only attack cells that carry a cancer-specific antigen. While the final report is still out, the project resulted in an application to the highly competitive Horizon Europe EIC Pathfinder program, which expands on the ideas tested in the UiB idé project.

Researcher project 2. *"Diamond Sensor for Point of Care Diagnostics."* UiB idé funding: 500,000,-

The project aims to introduce a fundamentally new method, a diamond-based field-effect transistor (dFET), to the medical diagnostics field, to test the possibility of using the method as a detection tool of biomarkers of diseases. If successful, this project could open entirely new and more simple ways to diagnose diseases. This project was postponed to 2022 to allow the project holder to focus on an ERC grant application.

Researcher project 3. *"A New Immunotherapy for Treatment of Brain Cancer."* UiB idé funding: 500,000,-

The project aimed to introduce a "molecular switch" to a common immunotherapy against glioblastoma that would result in a strong immune response against cancer cells, thus improving tumor eradication. Proof-of-concept work in cell cultures and animal models were the scope of this UiB idé project. While the project allowed the researcher to create the cell cultures and animal model, the results did not support the test hypothesis. Despite the negative outcome, the researcher will pursue the approach in a different cancer type, before dropping it in the event that the proof-of-concept cannot be demonstrated.

Researcher project 4. "*Communication System for Ingestible Specimen Collection Device."* UiB idé funding: 218,400,-

The project aimed to build and test a prototype for a wireless communication system between an ingestible, sensor-equipped capsule and an external transceiver, with the goal to develop an ingestible medical device to collect probes from the small intestines for diagnostic purposes. The researcher managed to complete the design of the electronic system and to add a sensor into the device, the time was too short to finalize the building and subsequent testing of the prototype. This work will be continued after project end, and works are in plan to obtain further innovation funding from the Research Council of Norway with the support of VIS. During the UiB idé project, a patent application for the system had been filed.

Student project 1. *"Utvikling av produksjonsmodul for effektiv produksjon av australsk ferskvannshummer."* UiB idé funding: 100,000,-

The project was embedded into the activities of the UiB student startup *Pure Lobster* and aimed to design a vertical production module for the growth of an Australian crayfish for food production, and simulate the water flow and food distribution pattern, followed by the building and testing of a physical prototype. The UiB idé project resulted in 3D drawings of a new production module, and flow simulations of the design. The simulation data, however, remain to be analyzed, and the prototype built and tested. In the meantime, an application to RCN's STUD-ENT funding scheme is in planning to ensure the continuation of the project. Data generated from the UiB idé project are significant to strengthen the STUD-ENT application. Preparations for a patent application have been initiated, and further strengthening of the technological component with the biological work has occurred through the initiation of a Master's project based at UiB (inst. biovitenskap).

Student project 2. *"The Ascender - Making Life Simpler."* UiB idé funding: 50'000,-

The project has the goal to develop a new generation of walkers that allow users to get over obstacles (sidewalks, doorsteps etc.) more easily and independently. Several rounds of prototypes incorporating a new wheel system were built for testing. Each iteration revealed new insight, but none of the results so far have been adequate for further development. A next round of prototype is in the works. At the same time, preparations for a patent application have been initiated, and clarity was obtained that the further path toward commercialization would be to licence a patent to already existing manufacturers of walkers.

Student project 3. *"Tempo: A Math-less Clock for People with Down Syndrome."* UiB idé funding: 100,000,-

The project aimed at developing an alternative way to analog and digital clocks to communicate time for people who struggle with mathematics and the abstract concept of numbers, as it is for example

common in people with Down Syndrome. The output will be a mobile app that guides the user through the passage of time by representing time as visual metaphor. The project, now named *Diem*, produced app prototypes in different versions, and additional user groups were targeted, namely people with dyscalculia and dyslexia. Feedback was collected from 15 test users with dyslexia, outlining the need for further iterations before freezing the app design.

Student project 4. ***"Plattform for å gjøre reparasjon enkelt og tilgjengelig."*** UiB idé funding: 100,000,-

Goal of this project was to establish a platform to offer repair services, to prolong the usage and lifetime of goods and reduce the consumption of materials. The project resulted in a platform hosted on Shopify, which still needs further development and testing. The project holder did a significant effort to connect to the right support system to develop both a virtual marketplace for repair services, and to build a business model, by reaching out to VIS, attending entrepreneurship courses, and joining Gründer Academy. A partnership with other entrepreneurs was started, but later dissolved due to differing goals and timelines. Since the project holder has started a Master's project, a request for a postponement of project continuation has been sent.

A.2 Conclusions

Program development: The development of UiB idé was institutionally well anchored and benefited from valuable input from existing programs in other institutions and from external experts. For the 2022 program, the external reference group was replaced by own data based on program evaluation and feedbacks collected from applicants, evaluation committee members and program administrators.

Mobilization: Considering that it was a pilot year, the mobilization window was somewhat short. Many of the communication channels still had to be established. For 2022, the window has been extended, and mobilization channels that had been established in 2021 have been activated for the prompt spreading of information about UiB idé. An additional event for idea development and project team building, targeting students (*UiB idé vors*, Feb. 14), has been offered.

Application process: Information about the program was presented clearly on the program website. The applicants were pleased that they received prompt and thorough guidance from the program team at FIA to their questions. The application window was however too short, especially for students. Workload peak for program applicants and program administrators was during the Easter break. Students were required to get approval from the head of department of the academic mentor, which was difficult to obtain on a short notice. Role description for mentor and head of department was somewhat unclear. There was a technical bug in the submission portal, which did not give an automatic confirmation when the applications were received. In preparation for the 2022 call, the technical issue has been solved, the application window increased, and the institutional anchoring of student projects via academic mentor clarified.

Administrative evaluation and pre-selection: The large number of applications necessitated an additional pre-evaluation step, since the workload to external evaluation committee members would have been too great. Administrative evaluation and pre-selection were conducted in tandem with the leader of the evaluation committee, and of the 4 projects that ranked just above or below the cut-off, the full committee was consulted to select the 2 strongest ones. Administrative evaluation following project criteria was in some instances difficult, especially in regard of project maturity (is it an applied research project, or a true innovation project? Is the project idea already too mature for UiB idé?). Furthermore, the pre-selection workload was significant for the leader of the evaluation committee. For 2022, selection templates that were used to evaluate the projects will be adjusted to improve evaluation and selection. There should be a maximal number of projects that will be received by the

external evaluation committee, to protect their workload. The suggested number is 20 (10 student applications, 10 researcher applications). A new mechanism that is independent from the external evaluation committee has been introduced to allow for support of promising innovation ideas that might not make the cut to the full evaluation, with a mandate to the FIA program team to organize the support of these "early" ideas.

Evaluation by expert panel: The pitching format (presentation, Q&A with evaluation committee) and experience was perceived very positively by applicants and evaluators. The pitching day for the researcher applicants was a bit too long (12 pitches); a 10 pitch per day maximum is recommended. The committee had good discussions after the completion of all pitches, and common agreement for which applications should be supported was found. The formulation of recommendations to UiB leadership was more time-consuming than anticipated. A format for these recommendations has been established and will be used in 2022 to aid the writing of the recommendations.

Project initiation: There were delays in the payout of project funds, and payment form to student projects had to be solved (FIA/ØKA). The starting period also coincided with the begin of the summer break. Together, this resulted in a delayed start for some of the projects. For 2022, the payout of project funds needs to be accelerated, and the applicants need to be afforded more flexibility for project start to allow projects to organize their project tasks and teams. This is reflected in a modification in the 2022 program which allows for up to 3 months from the announcement of funding to project initiation.

Project implementation: Most projects saw significant changes compared to what their project description was predicting; in most cases, it was a result of adjustment to project progress. For 2022, it is recommended that each project is assigned an innovation advisor from FIA to offer support where necessary. Closer interaction of the projects with other support structures, for example research advisors at institutes and faculties, and with VIS, is recommended.

Outcomes: By January 2022, i.e., 6 months after project start, 4 out of the 8 projects have concluded, 2 have requested an extension, 1 postponed the start to January 2022, and 1 is yet to file a final report. According to the purpose of UiB idé, the projects were evaluated whether they produced results according to defined project milestones, whether they succeeded in verifying their innovation idea, resulting in a go/no-go decision for their path forward, and whether they were able to define and initiate the next step in this path forward. Plans for further funding, and integration into the larger innovation support system, e.g. at VIS, are important factors. Projects were also reviewed for their efficiency in budget use. Furthermore, the educational effect of the program in terms of increased innovation skills in the participants was explored. Figure 1 presents an overview of the outcomes at the project level, while figure 2 presents a quantified assessment of the project outcomes (score scale from 0-5), split between researcher and student projects (caveat: data from only 2 researcher projects available). While all initiated projects generated activity and results, not all projects were able to complete in time and reach a clear go/no-go decision regarding continuation. The evaluation suggests that the program had great educational value especially for students, while the researcher overall succeeded better in generating outcomes according to project plans, and to initiate follow-up activities.

Table 3. Concrete results from UiB idé 2021 projects

1 patent application filed
1 application to EIC Pathfinder submitted
1 application to STUD-ENT (Innovasjon Norge) in preparation
3 physical prototypes built
2 app testing platforms built
2 new cell systems created
4 collaborations with external partners entered

Figure 1. Project outcomes

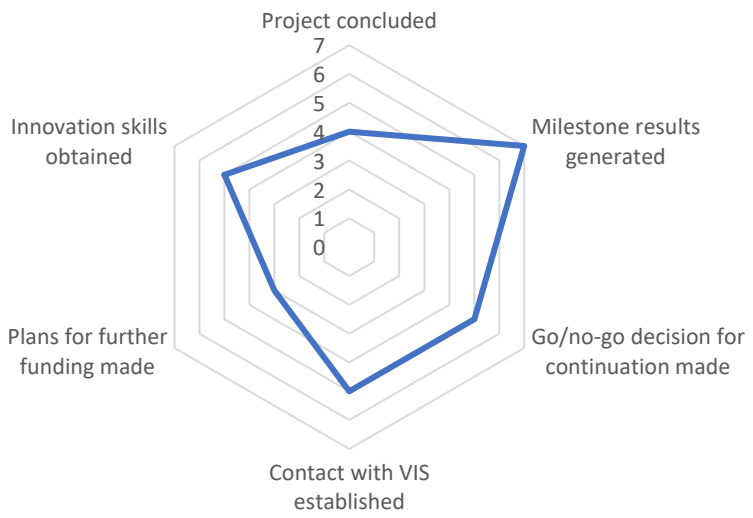
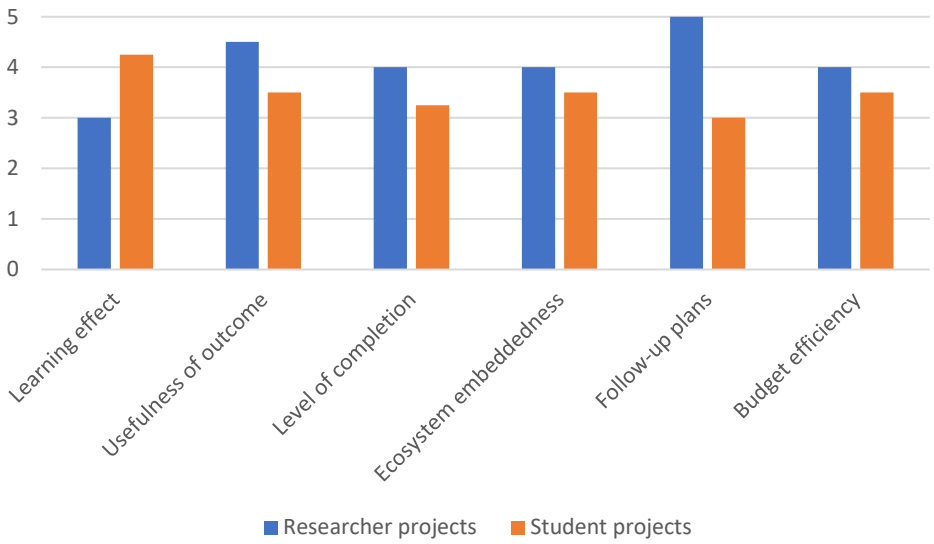


Figure 2. Qantification of project outcomes (scale from 0-5)



At the institutional level, the program aimed to contribute to the building of awareness and culture for innovation among students and researchers, build an innovation ecosystem at and around UiB, and create meeting points for UiB students and researchers interested in innovation. UiB idé also serves as a tool to capture innovations systematically and early, to guide them toward other funding sources, and to contribute to the flow of innovation projects from UiB to VIS. In the preparation of and mobilization for UiB idé, open and engaging discussions around innovation were held with all faculties, resulting in some cases in follow up activities, such as in discussions of innovation concepts in general, and the presentation of UiB idé in particular, at different course programs for students and for researchers. An UiB idé innovation workshop for students was organized at the Norwegian Ocean Observation Laboratory, with contributions from Start Bergen and VIS. Internal and external publications about UiB idé and UiB idé projects were published in Teknisk Ukeblad, Teklab, På Høyden, and on faculty and central university webpages. The projects, also those that did not receive funding, were presented to VIS (level of detail: headline and project summary). Some of the projects received support from VIS for their further development. Formal and informal innovation actors in and around the university were made aware of the program, and contributed to it in different forms (e.g., as

evaluators, reference group members, incubator and accelerator options). Taken together, UiB idé had a strong effect in creating innovation awareness at UiB, and in engaging with the surrounding innovation ecosystem. Further communication of the impact of UiB idé within UiB, and with the general public, is planned when the long-term effect of the program become more visible. Increased interaction with other innovation actors, such as VIS, is desirable.