

Til Universitetsstyret
Fra Universitetsdirektøren

Sakstype: Vedtakssak
Møtesaksnr.: V-sak 3
Møtenr.: 3/2020
Møtedato: 5. mai 2020
Notatdato: 20. april 2020
Arkivsaksnr.:
Saksansvarlig: Kristel Jæger Skorge, avdelingsdirektør
Saksbehandler: Mette Sollihagen Hauge, seniorrådgiver Avdeling for forskningsadministrasjon

Videreføring av UiO: Livsvitenskap

UiOs tverrfakultære livsvitenskapssatsing ble etablert 2015. Satsingen ble etablert for å styrke kvalitet og samhandling i forskning; rekruttere, utdanne og utvikle talenter. Denne skal også fremme innovasjon innen livsvitenskap for miljø og helse.

I styrets behandling mars 2015, ble det lagt til grunn at «*Satsingen skal underlegges en internasjonal evaluering etter fem års virketid eller ved terminering hvis dette skjer før fem år*».

I samråd med universitetsledelsen og satsningens styre ble det bestemt at evalueringen skulle gjennomføres av et internasjonalt sammensatt Strategic Advisory Board (SAB) for satsingen. Denne er nå levert. Følgende områder blir drøftet i evalueringen: Tverrfaglig forskning og utdanning, innovasjon, samt satsingens fokus på aktiviteter (vedlegg 1).

Parallelt med denne evalueringsprosessen har universitetsledelsen og styret ved satsingen utarbeidet en utviklingsplan for perioden 2020-2022 (vedlegg 2).

Basert på arbeidet med utviklingsavtalen og SABens evaluering foreslås noen justeringer i retningen av videre arbeid i regi av satsingen:

Konvergensmiljøer

Dagens konvergensmiljøer har stor bredde, men det tverrfaglige arbeidet har foreløpig ikke kommet så langt som man kunne ha ønsket. Samtidig må man være seg bevisst at konvergensmiljøene trenger tid for å få til den gode kommunikasjonen over disiplingrenser. Dette er en problemstilling som satsingen vil jobbe videre med, både i dialog med eksisterende konvergensmiljøer og ved utlysning av nye. Rammer og føringer for den neste kunngjøringen av konvergensmiljøer er ennå ikke definert. Spørsmålet om hvordan man



kan sikre reell tverrfaglighet vil bli inkludert i diskusjonen om hvilken retning neste konvergenstmiljøutlysning skal ta.

Utdanning

Satsingens arbeid med tverrfaglig utdanning er foreløpig på planleggingsstadiet. Satsingen kan ikke eie studieprogrammer eller emner, men ønsker i løpet av 2020 å samarbeide med fakultetene om å etablere en tverrfakultær pool av emner innen ulike områder av livsvitenskap som kan tilbys en tverrfaglig studentgruppe.

Innovasjon

SPARK Norway er satsingens fremste tiltak innen innovasjon, og legger til rette for innovasjons-arbeid innenfor gjeldende rammer ved UiO. Selv om det kan være utfordrende å arbeide med innovasjon og bedriftsetableringer innenfor dagens stillingsrammer har SPARK - programmet vist seg som et svært positivt tiltak og vil opprettholdes.

Evalueringen viser at satsingen er inne i gode prosesser med viktig nybrottsarbeid.

Ledelsen mener at grunnlaget for å anbefale en videreføring av satsingen UiO:Livsvitenskap er tilstrekkelig.

FORSLAG TIL VEDTAK:

1. Satsingen UiO: Livsvitenskap videreføres til 2025. Dette innebærer at grunnfinansiering, midler til rekrutteringsstillinger og satsingstildeling videreføres.

Arne Benjaminsen
universitetsdirektør

Kristel M. J. Skorge
avdelingsdirektør

Vedlegg:

1. General Assesment of UiO:Lifes Science 2020 av 10. mars 2020
2. Utviklingsplan 2020-2022 UiO:Livvitenskap

GENERAL ASSESSMENT OF UiO:LIFE SCIENCE 2020

Melissa Parker, Sirpa Jalkanen, Jari Koistinaho and Laurence D Hurst, March 10th, 2020

1. INTRODUCTION, BACKGROUND FOR THE INITIATIVE

The UiO:Life Science initiative was established in 2015¹, with the following mandate:

The life science initiative is responsible for implementing UiO's life science strategies, and will plan its activity based on life science strategies overall perspectives within the six agreed areas:

1. *Strengthen quality and collaboration in research,*
2. *Recruit, educate and develop talents,*
3. *Promote innovation in life sciences for environment and health,*
4. *Life sciences, ethics and society,* 5. *Interaction and internationalization*
6. *Infrastructure.*

The initiative will provide the basis for research and teaching of high international quality across the entire breadth of life sciences at UiO. The initiative will have an interdisciplinary perspective with a view to utilizing academic convergence in the life sciences underlying disciplines. The focus will be on special priorities:

- *Interdisciplinary research and research collaboration that addresses grand and important issues in life sciences.*
- *Development of interdisciplinary education and teaching programs in life sciences over a broad joint portfolio and with a uniform framework.*
- *To link and secure interaction between research and education.*
- *Strengthen the competitiveness of the field in relation to external financing, especially Horizon 2020.*
- *Development of bioinformatics and biostatistics as a common resource for the life sciences communities in the Oslo region.*
- *Innovation and entrepreneurship in the life sciences.*
- *Measures to help the life sciences also benefit from UiO's professional environments in the humanities and social sciences.*
- *Be a premise provider for the planned life science research and teaching building, including chemistry and pharmacy.*
- *To develop the Oslo region as a leading environment in the life sciences where UiO actively collaborates with Oslo University Hospital, the Regional Health establishment, and the Norwegian University of Life Sciences as well as innovation environments and business in the sector.*

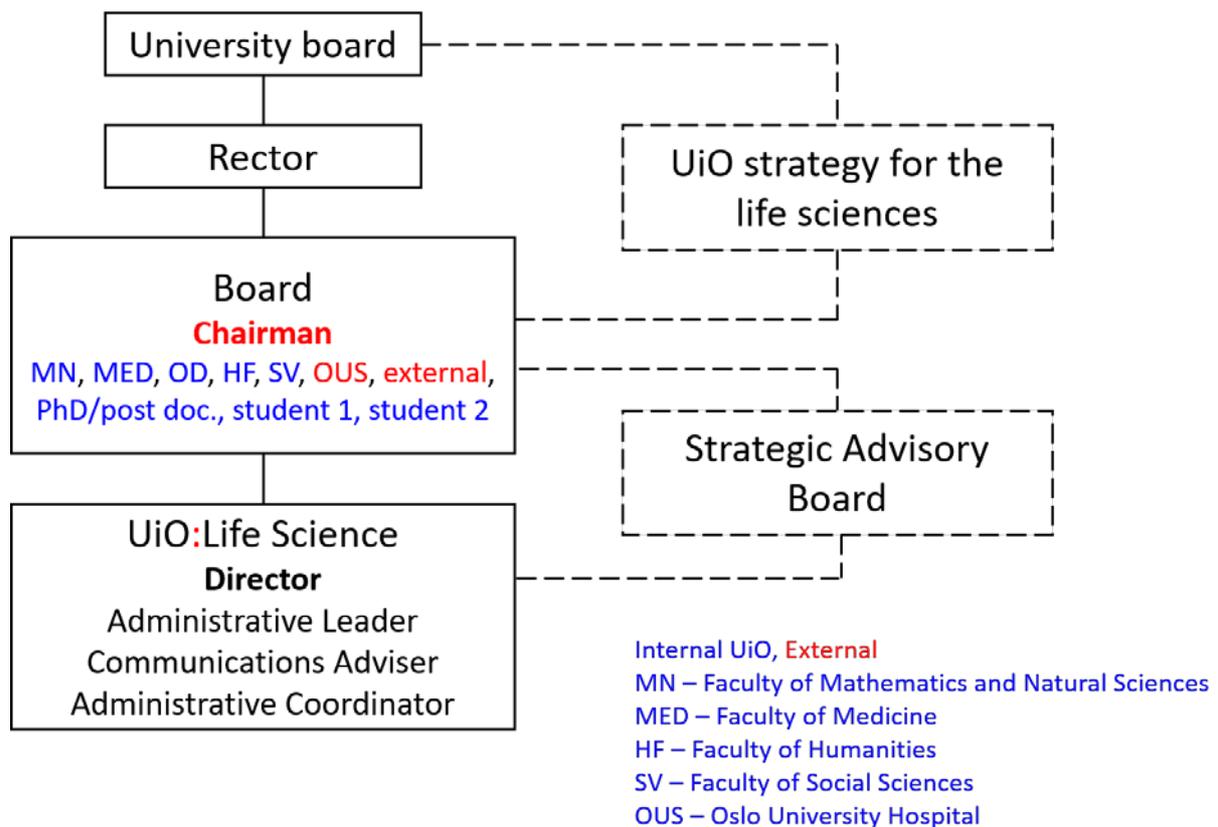
Once the organization of the LV initiative has been established, the bodies of the initiative are expected to submit to the rectorate and overall plan for activities during the period of operation.

¹ <https://www.uio.no/om/organisasjon/styret/moter/2015/2/v-sak-6-livsvitenskap.pdf>

The different activities within UiO:Life Science have evolved as results of answers to different needs and initiatives from inside and outside of UiO, as an emerging strategy within the framework of the mandate. As the initiative has four employees, there will always be dependance on collaborators to start new activities.

Organisation

The UiO:Life Science initiative is organised as a unit that reports directly to the University Rector.



Evaluations

UiO:Life Science conducts internal evaluations of all activities to guide their further development. The most thorough evaluations have been conducted of the convergence environments and of the SPARK Norway program in 2019. For neither activity have there been any graduates yet, and it is too early to evaluate results or views from external stakeholders. The evaluation processes have however provided useful feedback for future actions and development of the activities.

2. CURRENT ACTIVITIES

2.1 Convergence environments

The largest activity in the UiO:Life Science portfolio is the convergence environments. These are interdisciplinary research groups that receive 3 - 4 PhD or post doc. positions with coverage of running expenses, in addition to funding for convergence activities for the whole projects. The first call was out in 2016, and the first generation of convergence environments hired their candidates from late 2017 through 2018. The second call was announced in 2018, and the second generation convergence environments started hiring their candidates in late 2019. The applications were evaluated by an international review panel. To help initiate interdisciplinary collaboration and network building, UiO:Life Science has set up web pages and arranged workshops with speed dating to help researchers find each other across disciplines.

The recruitment positions have been allocated to eight faculties and one museum in the current convergence environments.

The first generation convergence environments were evaluated in 2019 as a three part process, firstly with meetings with the different convergence environments, secondly with a gathering of all convergence environments and group work, and thirdly with a web-based survey. The participation in the different elements of the process was lower than anticipated, and this is in itself a finding for follow-up. Other findings were:

- The success of the convergence environments can be assessed using five different perspectives: Publishing, Synergy and results, Educational value, Communication and understanding and Mind-set and habits. The evaluation process has not identified operational goals within these perspectives, but has explored key elements within these perspectives.
- Interdisciplinary publication is not an immediate outcome of the convergence environments, but is in most cases planned further down the line.
- A large majority of respondents agree that the convergence environment has contributed to inform/shed light on important issues in society.
- There is a general understanding that there is research in all the convergence environments that would not have been carried out in single-discipline-projects.
- A large majority of respondents agree that the PhD/postdoc candidates in the convergence environments receive interdisciplinary training, significantly different from other candidates at the departments, and also that being part of a convergence environment was a good career choice for themselves.

- The respondents are mostly satisfied with the collaboration and the shared understanding of knowledge production in the convergence environment, but a bit less satisfied with the amount of time the members have allocated to communicate across disciplines.
- A large majority of respondents agree that the convergence environment project has changed their mind-set towards more interdisciplinary questions.
- Cultural and traditional differences between social sciences and natural sciences is challenging both in practical organization of the projects and in the understanding of knowledge production.

All in all the evaluation shows that interdisciplinary research continues to be challenging, but rewarding, also beyond the initial phase, and leaves a number of issues for further exploration in the development of the convergence environments for the future.

Assessment:

There is some excellent intra-discipline research at UiO. There clearly are centres of excellence at UiO: the output from CEES, neuroscience and within cancer research, for example, are strong. We appreciate the desire to gain synergy by encouraging excellent researchers to collaborate across disciplines. The convergence initiative in bringing together highly diverse skill sets and knowledge is risky and it is probably too early to assess how novel or successful the outputs will actually be and whether interdisciplinarity will become embedded in the system.

We were impressed by the extent to which a broad diversity of faculties were involved (unusually involving experts in law, philosophy, theology). This being said, the extent of active involvement seemed more limited than the on-paper involvement. More generally, the evaluation – which highlighted that publication output to date has not been interdisciplinary – suggests that breakthrough interdisciplinarity remains some way off. We have, under recommendations, suggested potential mechanisms that might help address this. We were encouraged by evidence for mind-set change. We were also encouraged too that all had outreach or networking activities and regard this as an important part of the convergence environment work.

We were discouraged that a common issue was time allocation. We also were concerned that only just over one half of the recipients of convergence funding responded to the questionnaire, which may reflect similar time pressures (or failure of the less well functioning convergence environments to respond). We speak to time flexibility in recommendations.

Overall, the convergence environments are risky and have yet to prove their worth. However, we would expect many to struggle, not least because of differences between humanities and science PhD structures. A broader diversity of forms of convergence environments may be required.

2.2 SPARK Norway

The second largest activity measured in funds is the SPARK Norway program. This is an innovation program where researchers with innovation projects with a commercial potential within the health industry widely defined can get mentoring and help building networks for two years, along with up to 500 000 NOK per year for two years based on milestones in the project. The first pilot projects were admitted in 2017, and regular admission rounds were carried out in 2018, 2019 and 2020, and 23 projects have been admitted, with the first nine graduating from the program in March 2020.

The SPARK Norway programme was evaluated in 2019 through a survey among the different members of the programme. The purpose of the survey was to gather information about how the different members of the programme views the programme, and what elements of the programme have room for improvement.

Key findings were:

- The participants are in general very satisfied with the programme
- The different roles in the programme still needs to be clarified and optimized
- The mentors, as well as the global network, can be utilized even more
- The regular meeting places needs to continue to be dynamic, and continually revised and improved
- The programme makes the academic participants more prone to become entrepreneurs or play an active role in a startup venture instead of pursuing a purely academic career (change of mindset)

In addition, the evaluation gave useful detailed information about areas of improvement, followed up by the SPARK Norway management team.

Assessment:

The SPARK initiative holds promise and we were encouraged by the presentations at the opening conference. That 50% of the respondents considered the program to be very successful is encouraging. Funding, networking and mentorship seem to be key and are working well.

Judging from the presentations we heard, we were struck by how much of the innovation work came from fundamental/inquisitive science that threw up useful results (e.g. the phone app for visualization of ultrasound data came from basic computer science on data processing). This underpins the need for fundamental curiosity-led science and innovation science to coexist within one scientific ecosystem. We believe UiO:Life Science has the potential to do this, but we saw little formal recognition of the need to be driven by, and enable, enquiry-based science. If anything, the consistent insistence on (ill defined) socially relevant science has, we suggest, turned some away from the “playful” science that will lead to great innovations. We also heard that academics moving forward with potentially commercial products were not relieved of the normal burden of academic duties disincentivising further work in this area. This needs addressing either within or outside of the UiO:Life Science.

Overall SPARK Norway appears to be pleasing the recipients of funding: over 90% report SPARK to be delivering on or exceeding expectations, 2/3 report that they would be happy to apply again and none consider it unsuccessful in enhancing innovation. With these striking figures, we are confident that it has the potential to deliver commercial value, but it is not there yet (but neither would we expect it to).

2.3 Oslo Life Science conference/Communication and outreach

Another large activity for the UiO:Life Science and its collaborators is the annual Oslo Life Science Conference, starting out as a four hour event in 2016 and arranged for the fifth time over four days in 2020. The conference has events for a wide range of audiences.

Assessment:

Promotion of the public understanding of science should be one of the core activities of UiO:Life Science. We saw little evidence of a coordinated strategy of promotion of UiO: Life Science research through the media with worldwide reach. We would have liked to have heard more about the outreach strategy – perhaps next year. Academics should be encouraged to provide press releases whenever possible (with appropriate training). Similarly, the translation of science through to, for example, improved healthcare, should both be done and be seen to be done. In this

context, we should emphasise that socially relevant science is not just science to address immediate medical needs (for example) but should also include science that is brain stimulating! People are hungry for understanding. Outreach and engagement are thus part of impact. The beauty and importance of asking fundamental questions needs consistent communication with both national and international reach. This is a balance that needs addressing by UiO:Life Science which appears to consider engagement and impact as distinct entities.

The annual conference appears to be a fairly effective tool for local engagement. The main event was very well organised and polished. It was not however a forum for discussion, which could be questioned (experts in education know that didactic communication is not as effective as active engagement). Additionally, we would have liked to have heard more about the science and not so much about structures for promotion of innovation advocated by non UiO folks (we are not sure what audience these talks were intended for). Indeed, we are minded to say that the best talks were from UiO:Life Science researchers including the short talks on convergence and SPARK that had clear engagement from fundamental science through to discoveries and applications. The Darwin Day initiative later in the conference, with some world class speakers, ticks both the local engagement box and the internationalization box.

2.4 Total portfolio of activities

Apart from the previous mentioned, UiO:Life Science has the following activities:

- Summer projects for students: 40 students each year get the opportunity to spend their summer participating in a research project in different departments throughout UiO
-
- Support for internationalization and open events
- Support to promote student innovation in life sciences (under development)
- Development of interdisciplinary education in collaboration with the Faculties
- Different collaborations internally at UiO as well as externally. –

A budget has been developed for the next five years based on current activity levels.

Assessment:

UiO:Life Science has an unusual portfolio of activities that look to encourage work not classically encouraged by funding agencies. Two activities between them, however, consume nearly three quarters of the budget (in the priorities for the next 5 years), these being the Convergence

environments (58.3%) and SPARK Norway (14.3%). By contrast, interdisciplinary education (0.5%), student innovation (0.2%), communication and outreach (1.2%) between them are less than 2%. Given that both convergence and SPARK are high risk (with little evidence for gain as of yet), we would suggest that the portfolio is biased towards the risky end, while neglecting a strategy for promoting tomorrow's leaders in these areas either through interdisciplinary education, awareness or hands-on innovation.

We suggest that strategies to de-risk should be developed. While the convergence environments have very broad faculty involvement, we could imagine strategies to enable a greater diversity of types of convergence environments, including both narrow and broad. Narrow ones, bringing together workers from the same faculty or similar faculties, to do work that neither would have done on their own might be more obvious but is also less risky (e.g. oncologists and evolutionary biologists to tackle optimal anticancer drug therapy delivery or ecologists, gastroenterologists and microbiologists to tackle microbiome issues, ulcerative colitis, Crohn's disease etc).

We would also suggest that as the seedbed for novelty, internationalization might be given greater prominence. At 3.1% of the budget this is respectable, but longer-term inward visits by key international players should be encouraged.

3. ADVICE FOR FUTURE ACTIVITIES, INCLUDING IDENTIFICATION OF EXISTING AND POTENTIAL CHALLENGES AND HOW THEY COULD BE RESOLVED.

3.1 General comment: encouraging communication.

A challenge that UiO:Life Science has is the size of its umbrella community. It is so very large that it is extremely hard for people to know each other. This lack of communication between members is a concern, although we note that it is by no means unique to UiO, nor UiO:Life Science. Indeed, it is a common concern in many other Higher Education Institutions within Europe and beyond. With respect to UiO:Life Science members, anecdotally, we heard of colleagues in the same centre, on different floors who did not know about each other. UiO, through UiO:Life Science, should show that the scientists will benefit if they know about and collaborate with their colleagues, and that communication is central to this. Increased flexibility in teaching and research allocation could leave more time for communication between research groups and be part of the solution.

The convergence scheme partially addresses this by encouraging inter-department/faculty cooperation. However, intra department/centre interactions appear to be quite limited. We see great potential in UiO:Life Science via its convergence remit in finding ways to stimulate more such interactions. These might include, but are not limited to:

- a call for conferences/workshops with both intra and inter faculty work being promoted
- an internal annual research day in which representatives (at all academic levels) speak about their work
- regular coffee mornings, social events etc.
- easy administration for the scientists: make the processes transparent and easy, removing a major potential source of inertia
- Convergence environments that are more narrowly interdisciplinary (examples as above).

Organization of these activities could serve also educational aspects for encouraged communication and should thus reach the younger generation of researchers as well.

3.2 Convergence

The core question for the development of the convergence program is how to generate ideas and find the right colleagues. Currently speed-dating is required prior to presentation of a convergence application. We would not discourage the speed dating approach, but it is only one of many possible approaches. We would also suggest that an alternative avenue could be interdisciplinary sandpit events², initiated from the bottom-up but with a clear remit to encourage disparate fields to engage.

Your scoping exercise for shared areas of importance/interest as regards who goes into the building (which we will not consider in this document) can equally well serve as a foundation for identification of areas of cross-discipline interest. For example, antimicrobial research was identified by many and will interest researchers in dentistry, medicine, agriculture, evolution, ecology and computer science (note new AI methods to discover novel antibiotics) but potentially also psychology– how to convince people to not take antibiotics for viral infections, anthropology

² see <https://www.sciencedirect.com/science/article/pii/S1462901112002134>

–why it is that some people take antibiotics appropriately, while others do not, and the wider political and social issues influencing these patterns, philosophy– can we defend antibiotics given to farm animals. We can envisage similar synergies in oncology, a tumour being an evolving organism can be treated as such, but adaptive therapies require patients to be taken off drugs that work for longer term gain. Medical ethicists need to be involved in consideration of such issues, while anthropologists can usefully record, and reflect on, patients’ experiences of introducing therapeutic changes. Evolutionary biologists need to consider optimal strategies to prevent tumour progression in response to evolving resistance to anticancer drugs.

How to evaluate convergence. Evaluation here is tricky. UiO:Life Science needs to be aware that the convergence strategy is risky. The potential collaborations between academics from different mind sets can be fragile and undermined, not only by divergent intra-departmental definitions of excellence, but also different disciplinary definitions of excellence. But this is no reason not to try. The key here is to encourage the groups to be playful and not having onerous reporting and stringent success criteria. Indeed, short term requirements for delivery are themselves an impediment to more playful collaborations. If the group fails, then so be it. Almost certainly, useful insights will emerge, even if they are not the ones that were initially envisaged. We might suggest that the question is not how to evaluate (this being very top down) but how to incentivise from the bottom up. Light transparent admin is really helpful in this context.

We note from the written report on the survey that finding the time to collaborate was a core problem – so, maybe, those participating in convergence projects could be allocated extra time to do so or possibly relieved from an administrative task that they would rather not to do.

3.3 Innovation

While we were presented with helpful information on the SPARK program, the key first step here is to evaluate the reasons for both success and failure. In addition, we need to evaluate why academics are not applying into the program (you evaluated those who joined or applied, not those who never applied). We need to address:

- What is holding academics back, both those who applied and those who did not?
- What was it that really helped the ones who succeeded?
- How could success have been made easier?

Answers to these questions should very easily lead to strategic adjustments. The information that innovation became an extra burden on the time of already hard-working academics suggests that the UiO:Life Science is missing key tools to enable innovation and not yet sufficiently investing in translation. Perhaps some of these colleagues could have some of their responsibilities bought out. Alternatively, resourcing potentially successful innovation projects with commercialization experts could speed up the translation and save researchers' time for the work they do the best: research. Innovation and commercialization is not something to be done on the side. It is to be noted that as academic researchers are evaluated and ranked based on their publication record and research funding, they tend to see efforts put on innovations and commercialization unrewarding. Again, flexibility in work allocation seems to be the key and easy administration for innovative scientists is a necessity. We do not have clarity on what would fit within the remit of UiO rather than UiO:Life Science as regards these issues, so leave it for broader consideration.

3.4 Education

The interdisciplinary education program is currently underdeveloped but in the process of being developed. We were encouraged by the enthusiasm for hands-on, interdisciplinary and evidencebased changes to teaching practice. Evidence-based approaches to assessment also need consideration. Structurally there is perhaps something amiss if a body with no formal teaching requirements is handed the remit of restructuring teaching. This almost looks like a structure set up to be ineffective. This being said, we can imagine areas where progress could be made by UiO:Life Science, possibly in collaboration with faculties and departments, although getting busy academics to engage is another issue:

- A system to engage with academics on evidence-based teaching and assessment methods that are both more effective and lighten the load.
- A system of grants to help academics develop and evaluate new modes and resources
- A system of recognition of excellence in teaching and in teaching innovation
- In parallel with the convergence/interdisciplinary ethos of UiO:Life Science is a novel undergraduate and/or Masters program on human sciences, from basic biology, including psychology and behaviour, through human geography to medicine, sociology and anthropology. This could be modelled on comparable degrees at Oxford University and

UCL. One of the many advantages of developing such a programme is that, over time, students will graduate with a rigorous understanding of the biological and social sciences. While some of these students will probably end up specialising in a particular discipline, many also make major contributions to inter-disciplinary research projects. They never forget their training!

We are aware that with just four administrators the latter is a big task for UiO:Life Science, but we suggest a system in which UiO initiates the normal processes of course development but with a major lead in from UiO:Life Science (again we are not clear on UiO admin structures so cannot be more specific).

In turn for academics, particularly Early Career Researchers and PhDs, we could envisage UiO:Life Science establishing a program of continued education aligned with its interdisciplinary/innovation focus including:

- How to write a successful grant application
- How to write a scientific paper
- What a patent is and how, when and why to make one
- How to become a successful group leader
- How to be an entrepreneur
- How to deal with the challenges of doing inter-disciplinary research

In addition, mentoring programs would be good especially for young group leaders. This also will be fruitful to all participants. Young revolutionary ideas combined with experience, wisdom, national influence and wide international networks would be great. From our knowledge of some influential Norwegian scientists, they appear to have quite direct contacts with the politicians, providing UiO:Life Science with an unusual opportunity.

3.5 Equipment

Life sciences depend on often expensive equipment that can, optimally, be employed by many. Operating such equipment often requires special skills. There appears to be a need for tighter integration between the faculties and UiO:Life Science in this coordination. Presently, the big kit issues are divested to a different body. There are key questions of resources that should be

inhouse versus outsourced with associated cost savings (sequencing is key here). Similarly, strategic thinking regarding the framework for computing is needed. We have progressed from an age of computing being done on individual machines, to servers, to cloud resources. UiO:Life Science needs to be informing these difficult decisions, even if monetarily they are covered elsewhere. With the wrong strategy the performance will be both costly and sub-optimal for UiO:Life Science. Costly equipment where possible should be core facility and supported with personnel when necessary.

3.6 Vision

UiO:Life Science has a vision for excellence, interdisciplinarity, all done with impact. Looking forward, we think it important to take this vision and use it as the spring-board for future decisions. For example, as regards the new building, the process appears to be a slightly strange one in which the building precedes the vision for the building, rather than vice versa. With reference to the processes concerning the Life Science Building, the SAB has sketched out a potential vision of the building as a worldwide centre of excellence in all aspects of human biology, from fundamental mechanisms, through to understanding of disease (via molecular mechanisms), to potential innovation and new drugs (making sense of chemistry and pharmacy in the building) is one that is coherent, exciting and fits with the grander visions of UiO:Life Science. We can see a strong case for involvement from academics working in, for example, human evolutionary genomics, health care sociology etc.

We suggest any such vision be presented to the academic body for feedback and consultation (academics tend to think that “consultation exercises” are nothing more than cynical attempts at manipulation).

3.7 Recurrent themes

From our deliberations above, and in informal discussion with several UiO academics under the UiO:Life Science umbrella, we identified a series of themes that were recurrent. Some reflect the centralization of administration seen in Universities the world over, some reflect issues that appear to be rather particular to UiO (or Norway perhaps). We are unclear on whether UiO:Life Science has the tools to resolve any or whether this requires strategic thinking higher up. The issues are:

A top down approach

Along with increases in administration in higher education and research, we often see increasing top-down modes of administration. This is an avoidable cause of frustration for academics and explains a lack of buy-in. A bottom up approach just takes a little bravery from the centre in strategizing about engagement before strategizing more generally. For UiO:Life Science's ongoing definition of theme areas, for the convergence engagement and for the restructuring of teaching modes, to name but three, a bottom up approach would provide both greater relevance of the resulting structures and better buy in. It will also encourage young hungry scientists to think outside of their comfort zone.

Inflexibility and incentivisation

Whether it be teaching, research (including convergence), innovation or public engagement, one theme we heard repeatedly from academics covered under the UiO:Life Science umbrella was that to achieve excellence required the academic to do absolutely more work. We heard from the innovators, for example, that the admin burden of further development and commercialization required considerable time input that was disincentivizing as this had to be done *in addition to* the other jobs. Similarly, we heard of groups in which some members wanted to specialize more into teaching and to develop novel teaching resources, while others in the same group wanted the opportunity to develop a high-profile research strand.

We wish to strongly maintain the view that the best researchers and the best innovators should teach, but that does not mean that anyone should be constrained by their portfolio of responsibilities. Enforcement of the same teaching and research allocation to all academics may appear equitable but it also does not play to the individual strengths. This can both disincentivise academics from pursuing novelty and put an unnecessary leash on the most successful and wellfunded researchers and innovators. A core issue is the extent to which UiO:Life Science values the functioning of groups, rather than seeing them simply as a collection of individuals. Allowing groups to decide on flexibility in allocations would, we suggest, be a potential way forward. This requires bottom up, group view of the world. We understand that such a transition may not be easy and may be out of the control of UiO:Life Science, but if recognised as an issue should be presented by UiO:Life Science as an impediment to progress.

Communication

While the convergence framework is potentially an excellent tool for encouraging some members to communicate with diverse fields, there seems to be an acute problem of more academically localised communication. We have made a number of suggestions to improve this.

4. OVERALL APPRAISAL

The 2030 strategic report envisages that "*UiO will exploit all the opportunities that the new life science building provides in responding to society's expectations.*" We have every confidence that a strong backbone of excellence and investment is in place in UiO:Life Science to achieve this goal. SPARK Norway is well received, the convergence environments are ambitious but may need a diverse portfolio of types (and definitions of interdisciplinarity). Our recommendations should be considered as ways to enhance these core activities to achieve even better results. We also emphasise, however, that work is needed to mould societal expectations (beyond academia) such that the core importance of fundamental science triggers both brain stimulation and innovation, be it in medical, veterinary or agricultural biosciences. Case studies such as the Bell labs and LMB in Cambridge, which have a world class reputation for academic brilliance matched with downstream impact cannot be emphasised enough.

UTVIKLINGSPLAN 2020–2022

UIO:LIVSVITENSKAP

Hovedutfordringer og konkretisering av tiltak

Revidert i styret for UiO:Livsvitenskap 31. januar 2020

Hovedutfordring 1: Sikre at UiOs initiativ for å fremme konvergens innen forskning og innovasjon gir en tydelig merverdi internt og bidrar til bedre vekselvirkning med eksterne aktører nasjonalt og globalt, inkludert næringsliv, Oslo universitetssykehus (OUS), Norges miljø- og biovitenskaplige universitet (NMBU), Oslo kommune, offentlig forvaltning m.fl.

i. Hvor er vi? Utgangspunkt for vurdering av fremtidig utvikling.

- Seks konvergensmiljøer i drift fra 2017. Åtte nye, med deltagere fra syv fakulteter og to museer, oppnevnt av UiO:Livsvitenskap sitt styre i mars 2019. Ny utlysning planlegges høsten 2020.
- SPARK Norway etablert med til sammen 17 prosjekter etter tildelinger i februar 2019.
- Fortsatt er for få studenter på bachelor- og masternivå ved UiO involvert i innovasjon, selv om aktiviteter er i støpeskjeen, f.eks. biomakerspace-pilot i 2019.
- UiO sin involvering i regionens livsvitenskapsklynger og interaksjonen mellom de store relevante livsvitenskapsaktørene i regionen (UiO, NMBU, OUS, Oslo kommune m.m.) kan struktureres og samordnes bedre.

ii. Hvor skal vi?

- Tverrfaglig forskning innen helse, miljø og bærekraft er langt mer utbredt. Livsvitenskapsbygget er en avgjørende faktor sammen med de tre tverrfakultære satsingene. Konvergensmiljøene til UiO:Livsvitenskap produserer genuint nyskapende tverrfaglige vitenskapelige artikler og når opp i konkurransen om forskningsmidler fra eksterne kilder. Etablerte nettverk består også når et konvergensmiljø avsluttes. Spesielt viktig er varig involvering av humanistiske og samfunnsvitenskapelige fag.
- UiO:Livsvitenskap støtter opp under innovasjonsløftet bl.a. ved å bidra til at flere universitetsansatte og studenter tar ideer ut i markedet, starter egen bedrift osv. SPARKkonseptet er utvidet til også å omfatte sosial innovasjon, drevet av miljøer fra humaniora og samfunnsvitenskap, men støttet av SPARK Norway
- Studenters og ansattes kjennskap til innovasjonsprosesser fra utvikling av idé til produkt eller tjeneste er vesentlig høyere. Biomakerspace er fullt operativt i samarbeid med studentorganisasjonen Insj UiO.
- Møtearenaer og sømløse samarbeidsformer med næringsliv innen livsvitenskap etablert. UiO:Livsvitenskap bidrar aktivt til koordinering av samarbeid med ulike aktører, blant annet ved å medvirke til utviklingen av Oslo Science City. UiO:Livsvitenskap bidrar til at UiO er en tydelig og verdsatt samarbeidspartner overfor Oslo kommune, bevilgende myndigheter, næringsliv, sykehus, andre utdanningsinstitusjoner og offentlig forvaltning.

iii. Hvordan måler vi måloppnåelsen?

- Telle vitenskapelige artikler publisert av konvergensmiljøene og søknader de får innvilget. I tillegg defineres egne kriterier for evaluering av tverrfaglige konvergensmiljøer i løpet av 2019.
- SPARK Norway-prosjektene har resultert i oppstartbedrifter, utviklet teknologi som er lisensiert ut til tredjepart, startet klinisk utprøving og/eller har lyktes med å hente inn ekstern finansiering for å utvikle prosjektet videre.
- Studenter deltar i innovasjonskurs og -emner (se under) i regi av UiO:Livsvitenskap. Godt tilfang på søknader til biomakerspace.
- Intensjonsavtaler med flere store bedrifter er tegnet. Satsingen bidrar konstruktivt inn i en rekke aktiviteter og prosjekter med andre samfunnsaktører.

iv. Oppfølging av tiltaket

- UiO:Livsvitenskap følger opp konvergensmiljøene og legger til rette for videre utvikling. Prinsipper for utlysning av og rollen til fremtidige konvergensmiljøer avklares, bl.a. med innspill fra strategic advisory board (SAB). Bruken av satsingens strategiske midler for å fremme tverrfaglighet systematiseres. Rapport med resultater av egevaluering av konvergensmiljøene ferdigstilles våren 2020.
- SPARK Norway videreutvikles. Et alumnitilbud til avtroppende prosjekter kommer på plass i 2020. Satsingens erfaring og kompetanse benyttes til å utvikle konsepter og modeller for sosial innovasjon.
- Utvikling av biomakerspace frem mot 2024, inkludert oppfølging av intensjonsavtale med Bayer (undertegnet februar 2019). Se også hovedutfordring 2.
- Tett kontakt med norske industribedrifter, spesielt innen helsesektoren, med mål om å tegne flere intensjonsavtaler og iverksette konkrete tiltak. Nært samarbeid med livsvitenskapsklynger. Satsingen arbeider for å representere UiO i aktuelle lokale og nasjonale beslutningsfora og samarbeidsgrupperinger på tvers av akademia, næringsliv og forvaltning.

Hovedutfordring 2: Finne sin rolle innen utdanning i samarbeid med UiOs og fakultetenes ledelse

i. Hvor er vi? Utgangspunkt for vurdering av fremtidig utvikling.

- Emnetilbudet ved fakultetene inkluderer et stort antall åpenbare livsvitenskapsemner som viser et betydelig tverrfaglig potensial.
- Generiske ferdigheter er formelt inkludert i utdanningen som elementer i regulære, tematiske emner, men er ofte lite vektlagt og synliggjort.
- Begrensede muligheter for å benytte sommerferien til å få relevant praksiserfaring, spesielt på tvers av faggrenser.
- Få kontaktpunkter mellom våre kandidater og potensielle arbeidsgivere utenfor akademia.

ii. Hvor skal vi?

- Tverrfaglige livsvitenskapsemner, i uendret eller tilpasset form, brukes aktivt i mange studieprogrammer.
- Nyopprettede emner tilbyr ytterligere tverrfaglig kompetanse, inkludert kjennskap til innovasjon, gründervirksomhet, økonomi og lovgivning, FNs bærekraftsmål m.m.
- Mange studenter får anledning til å bruke sommerferien til faglig og tverrfaglig utvikling.

- Interesserte livsvitenskapsstudenter oppnår lettere kontakt med potensielle arbeidsgivere i næringslivet.

iii. Hvordan måler vi måloppnåelsen?

- Statistikk for antall studiepoeng avlagt på tvers av fakulteter over tid.
- Tverrfaglige studietilbud er lette å finne frem til og bruke. De er kjent og etterspurt av studentene.
- God tilgang på relevante prosjekter og søkere til UiO:Livsvitenskap sine sommerstipender.
- Det fortsetter å være stor interesse for arrangementer hvor studenter og bedrifter møtes. iv.

Oppfølging av tiltaket

- Kartlegge aktuelle emner med opptakskrav, opptaksrammer osv. Benytte strategiske midler til å revidere eksisterende emner der det er nødvendig. Kartleggingsarbeid, inkludert vurdering av potensialet for utvikling av nye emner, pågår våren 2020 i samarbeid med studieseksjonene ved fakultetene. Tekst for utlysning av stimuleringsmidler innenfor livsvitenskapsrettet undervisning utarbeides sammen med dedikert komite. UiO:Livsvitenskap vil på sikt profilere aktuelle tverrfaglige livsvitenskapsemner.
- Etablere et kontaktnett av grupper og enkeltpersoner med etterspurt kompetanse på tvers av UiOs fakulteter og sentre. Innhente tilbakemeldinger fra bedrifter og institusjoner som overtar våre kandidater etter endt studieløp – hva etterspør de? Benytte strategiske midler til å stimulere opprettelse av nye emner (med studiepoeng) eller kurs (uten studiepoeng). Koordinering med relevante eksisterende tiltak, som «Honours»-programmet ved Det humanistiske fakultet og Det matematisk naturvitenskapelige fakultet og helseinnovatørskolen ved Det medisinske fakultet. Arbeidet pågår gjennom 2020 med tanke på gjennomføring av pilottiltak mot slutten av året.
- Sommerstipendordningen opprettholdes og utvikles etter innspill som kommer inn gjennom evaluering av tiltaket.
- *Young talents – career opportunities beyond academia* videreføres som et sentralt arrangement under den årlige Oslo Life Science-konferansen og er en sentral møteplass mellom våre kandidater og potensielle arbeidsgivere.

Hovedutfordring 3: Vise internt og eksternt hva konvergens er. Øke forståelsen for begrepet og vise hvordan konvergenstilnærming til ulike utfordringer fremmer innovative løsninger

i. Hvor er vi: Utgangspunkt for vurdering av fremtidig utvikling.

- UiO:Livsvitenskap bruker aktivt begrepet *konvergens* for å beskrive synergieffekten det gir å bringe sammen forskere fra ulike fagfelt og la dem arbeide sammen med store og komplekse samfunnsutfordringer. Likevel er mange, også internt ved UiO, fortsatt ukjent med hva *konvergens* og *livsvitenskap* faktisk innebærer.
- Oslo Life Science-konferansen blir arrangert for femte gang i februar 2020 med livsvitenskap i det neste tiåret som tema for hovedarrangementet.

ii. Hvor skal vi?

- Ansattes og eksterne kjennskap til begrepene *konvergens* og *livsvitenskap* og potensialet som ligger i tverrfaglig samarbeid er vesentlig høyere.
- Oslo Life Science-konferansen etablert som Norges viktigste møteplass for alle typer aktører innen livsvitenskap. Ønsker også nordisk tilsnitt på konferansen.

iii. Hvordan måler vi måloppnåelsen?

- Følge opp nullpunktsmål for kjennskap til satsingene som ble gjennomført i 2017, gitt at alle tre satsingene har kapasitet til det.
- Lage oversikt over deltakernes tilhørighet både type organisasjon og geografisk

iv. Oppfølging av tiltaket

- Snakke høyere og tydeligere om konvergensbegrepet i dialog med samfunnet for å skape forståelse både hos politikere, forskningsinstitutter og klynger samt internt.
Vise de gode eksempler fra satsingen, som konvergensmiljøer, SPARK Norway-prosjekter og Oslo Life Science-konferansen.
Vise eksempler på større konvergenssatsinger på den internasjonale arena knyttet til FNs bærekraftsmål.
- Invitere inn samarbeidspartnere lokalisert utenfor Oslo-regionen og profilere Oslo Life Science-konferansen både nasjonalt og i Norden.