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New funding tools

Work Package 3

Interactions with industry

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EXECUTIVE SUMMARY

This report presents challenges with taking academic innovations further along the value chain to mature them for uptake in commercialization processes and develop them into products and services in defined markets. To underpin this, a concrete funding tool is described, and this is exemplified as developed and used by the Research Council of Norway. The name Optimization is chosen to underline the focus on optimizing research data to make them ready for entering a commercial development track and a verification phase - if possible

The report is a desktop study summarizing background and experiences and is meant to be taken further in new transnational funding activities.

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INTRODUCTION

In its nature and according to the OECD definition, biotechnological R&D needs to have an applied aspect; “... *for the production of knowledge, goods and services*”. This implies that researcher driven biotechnology projects aimed at value creation from marine biomass should be on a TRL level of 2 – 4/5. The challenge in such a setting is that a scientist mainly is concerned with the lower TRL levels 1 – 2/3 and therefore needs support when moving the research towards the higher levels. This also moves closer to the much mentioned academy industry gap where experiences, communication tool, funding tools and other supporting measures often are weak and in valorisation strategies emphasized as a challenging phase for bringing academic innovation to commercial products and services.

The universities and institutes have established technology transfer offices or similar instruments to work in this space connecting academic innovations to industrial developments and markets. Funding agencies have funds available to support phases of this challenging and potentially valuable knowledge transfer. Most often these funds are directed towards the verification phase where an innovation is established, patented and have reached a TRL of 6/7. In such cases there is still a gap in this early tech transfer phase where the scientists need funds to optimize their research based innovation to a level where tech transfer and verification is feasible.

FUNDING TOOL

To overcome this gap, some funding agencies have schemes covering these R&I needs, and e. g. The Research Council of Norway (RCN) have named this "Optimisation projects" and developed this during 4 years. This type of project is designed to further develop a research based innovation by optimising the research data in directions needed for verification and later uptake by commercial actors. A tech transfer office participates in the project to investigate application areas for the innovation with a view to develop a future product, process or service. The existing results and concepts must have clear commercial potential, where there is a need for development and conceptualisation of the technology in order to adapt it for future commercial application. A first version of a business plan is required 2 years after the project starts and clear go/no go milestones are agreed and followed up as part of the project contract.

Research activities in optimisation projects must be classified as applied research, on the continuum between basic research and proof-of-concept activities. Activities may include development and demonstration of technology concepts, verification of research results, validation of technology in the laboratory, etc. Projects must be classified as TRL 2–5 on the [EU's Technology Readiness Level \(TRL\) scale](#). A successful project will be ready for the proof-of-concept phase and sufficiently mature for applicants to continue verification activities with commercial actors involved.

The pre-commercial activities must clearly enhance the benefit of existing research results and must be necessary for developing a concept towards commercial application. Pre-commercial activities are activities that should be included at an early stage of an optimisation project to maximise the commercial potential. This may involve, for example, protecting existing or future intellectual property rights (IPR), ensuring that due consideration is given to future regulatory requirements, or supporting strategic processes that affect the commercialisation opportunities for the future product, process or service.

Examples of activities in an optimisation project:

- Optimisation of previously generated research results for commercial application;
- Investigation of the market potential of a concept;
- Investigation and clarification of potential application areas;
- Assessment of the patentability of the research results, development of patent examples and submission of the first patent application;
- Establishment of a strategy for future commercialisation;
- Assessment of and adaptation to future regulatory requirements;
- Courses and travel to obtain new knowledge and establish networks;
- Involvement of and dialogue with relevant stakeholders/social actors;
- Affiliation of mentors, advisors or the like.

Projects will be closely monitored throughout the project period, and if necessary, allocations may be scaled down or terminated, depending on the results achieved underway.

Requirements regarding project partners and project organisation

An optimisation project may include multiple partners, but at least one partner must be a Technology Transfer Office (TTO).

The project proposal must reflect the strategic objectives and priorities of the applicant's institutions and its affiliated TTOs. A TTO must help design the project and approve the grant application and project description. The TTO must have a clear, central role in the project, and must lead the pre-commercial, non-R&D activities. The TTO is responsible for finalising a sound plan for future realisation of the commercialisation potential within two years of project start-up, which should be a prerequisite for continuation of the project.

It is important that focus is placed on the commercial potential of the project and that the research is conducted in keeping with this. Applicants are expected to draw upon external experts, project partners or subcontractors when special expertise is needed. Projects may need expertise in technical implementation of research and optimisation activities, expertise in regulatory requirements that must be considered at an early stage in the development pathway, and knowledge about how to develop an effective market strategy. External experts may come from companies serving as subcontractors under the project.

Immaterial rights (IPR) arising from the project must be available for licence negotiations with all relevant commercial stakeholders. Project partners should not automatically be granted a licence to these rights. During the project period, the academic applicant(s) must have ownership of or unlimited access to IPR, but relevant industries should be invited to follow the project as advisors or in a steering committee to secure industrial relevance.

An optimisation project is closely monitored, and involves more reporting and follow-up points than an ordinary researcher lead project. The project manager should therefore be selected among persons having time and interest to lead and follow up this type of project.

Guidelines for applicants

- Describe the technological basis, and explain how the project complies with the definition of an optimisation project.
- Make a detailed overview of the activities to be carried out during the project period and the name of the responsible party.
- Explanation why the selected methods and solutions will yield the best results with a view to future commercialisation.
- Justify that matters related to the protection of relevant IPR have been investigated and no barriers to commercial exploitation have been identified.
- Describe the role of the project manager and/or other project participants in the pre-commercial activities and how their competence-building within this area will be executed.
- The project must establish a steering group in which at least the Project Owner and TTO are represented. The inclusion of a person with business experience in the steering group will be considered an advantage. The TTO is responsible for establishing the steering group.
- Describe the project's potential for value creation in society at large and beyond its commercial potential. This may involve issues related to the environment, employment, sustainability and knowledge. Applicants must demonstrate an understanding of who the

relevant social actors/stakeholders outside the project are and include plans for involving these.

Priority will be given to projects that:

- Seek to create a new or improved product, process or service;
- Have clear and realistic commercial potential;
- Will benefit society and demonstrate an understanding of the importance of involving social actors/stakeholders at an early stage;
- Are realistic and feasible.