

EIC Summit 2022

Day 2, Session 12h-12h45 (45 min), Breakout 2

Title: **Pathfinder knowledge valorisation and technology transfer – how to make it happen?**

Session description

In the actual world driven by technological innovation knowledge value-chains are becoming increasingly complex. New market opportunities are dynamically created by emerging technologies and disruptive innovation. Needs and diverse knowledge transfer channels and tools widen the range of stakeholders of research and innovation (R&I) knowledge valorisation. New forms of collaboration between academia, industry and public sector, involvement of citizens and the international context of R&I activities create new opportunities, but also come with some challenges.

This session is dedicated to R&I knowledge valorisation with a focus on technology transfer from research towards markets. The discussion will focus on the complex and challenging task of scientific and technological knowledge valorisation and turning of R&I results into sustainable solutions of social and economic value. The participants will discuss the best practises to strengthen the impact of R&I investments on economy and society in the fourth wave of innovation driven by emerging technologies and disruptive innovation (so called 'deep-tech'). The session will provide interesting experiences of successful collaboration between ambitious researchers and Technology Transfer Offices (TTOs) in pushing their results towards the market. We will also hear about the ATTRACT model, a novel approach to accelerating the valorisation of fundamental science in a co-innovation approach. The session will also give some insight into key barriers and practical difficulties for an efficient and impactful uptake of technological results. The session will end with Q&A.

Moderator and 3 participants

First and Last Name	Position, Institution	Role
Spela Stres	EIC Board Member, Head of Center for Technology Transfer and Innovation, Jozef Stefan Institute	Moderator
Hans Boumans	Director, TNO	TTO representative
Gernot Faustmann	TT Officer, University of Graz	EIC Transition
Victoria Cochrane	Research Office Associate Director, ESADE	EIE Scaleup

Session organization

1. **Intro** (5 min) by Spela
2. **Tour de table** + question on best practice, more concretely (10 min)
3. **Vehicles of Knowledge Valorisation/ Transfer** - the importance of spinout creation vs collaborative research and patenting and licensing (10 min)
4. **Barriers** to knowledge valorisation, in particular in EIC Pathfinder and Transition (10 min)
5. **Closing remarks**: most crucial advice to Pathfinder researcher and to TTO in the beginning of their collaboration (10 min)

EIC Transition 101058142 PureSurf “Bio-based surfactants from renewable waste streams for the circular economy” (example of successful collaboration with TTO)

Mono-beneficiary: University of Graz

Project abstract

With climate and environmental concerns topping the global agenda, industries across all sectors are under tremendous pressure to rapidly change their existing fossil-based practices by shifting toward cleaner, greener, more sustainable (in one word: future fit) solutions in business and production, while maintaining economic competitiveness internationally.

Surfactants (17 million t/year market globally) are omnipresent in key industrial segments (detergents, personal care, coatings, agrochemicals, pharmaceuticals) and companies are actively looking to shift toward bio-based alternatives while maintaining product performance. Surprisingly, the valorization of renewable waste streams occurring in large quantities for making novel surfactants has not been adequately exploited so far. The reason for this is the lack of fundamentally new technologies in this area.

With the credo: Superior performance and clean conscience, PureSurf introduces ground-breaking manufacturing concepts to produce novel high-performance bio-based surfactants from currently underutilized renewable waste streams. In ERC PoC PURE project, novel green surfactants were obtained by green and scalable synthetic pathways, resulting in 2 patent applications. Building on this, the PureSurf validation activities will include:

- Upscale at least one gemini anionic and one zwitterionic surfactant structures to 1 kg to validate their properties, using clean starting materials
- Upscale (to 5 kg, TRL5-6) at least one selected example using industrial waste streams
- Determine properties, ecotoxicity, biodegradability (also anaerobic) as well as performance in industrial applications
- Critically compare to existing surfactants, establish a business case and prepare an investor ready technology.

The PureSurf team, consisting of leading experts in green chemistry, engineering and business with strong industrial network, aims to establish a spin-off company and become frontrunner in bio-based surfactants.

Additional information

The project team is closely working with a group of advisors which includes the TTO of the University of Graz.

The project builds on the IP agreement between the University of Groningen and the University of Graz. During the ERC-PoC project “Prototyping emerging bio[1]based products from lignocellulose by zero-waste pathways” three inventions, including “Novel zwitterionic surfactants based on lignin-

derived phenols”, “Novel synthesis of fully bio based anionic disulfonate surfactants” and “Novel amino acid and amine-oxide based surface active agents from lignocellulose derived phenolics” were conceived. For these three inventions, 60% of the shares are held by the University of Graz (UniGraz) and 40% of the shares are held by the University of Groningen (UniGro). A “Joint Ownership and Exploitation Agreement” and a “License Option Agreement” between UniGraz and UniGro were concluded on September 17, 2021. Most importantly it was agreed that: i) UniGraz takes the leading role regarding exploitation activities including the registration of patent applications; (ii) universities are committed to support patent applications to an extent necessary for the EIC Transition project and the related entrepreneurial activities (iii) universities will contribute to realizing an adequate nationalization strategy and (iv) the EIC Transition/entrepreneurial team has been granted an option until May 31st, 2026 for an exclusive, royalty bearing license for the relevant IP.

European Innovation Ecosystems (EIE) Scaleup project ATTRACT (example of an innovation ecosystem for technology transfer)

Consortium: CERN (COO), EIRMA, ESRF, AALTO, ILL, ESADE, EMBL, EuXFEL, ESO

Project abstract

The ATTRACT Phase-1(B) project delivers an important new angle to the already established and highly regarded ATTRACT Model which created an European eco-system for breakthrough detection & imaging (D&I) technology development based on co-innovation. The precursor H2020 ATTRACT Phase-1(A) and Phase-2 projects have already proven that - in principle - the development of breakthrough innovation from basic science towards market applications does not need to be a matter of chance. It can lead to much faster results if managed and supported consistently through the creation of a trusted ecosystem between research, academia, industry and public/private investment communities. In neither precursor projects, however, the ATTRACT Consortium specified topics to be funded and opted for a bottom up approach.

In light of the societal challenges that Europe faces, the ATTRACT Consortium now feels compelled to explore whether such approach remains valid, or whether ATTRACT - as an instrument - can work equally well when an element of research pre-determination is introduced. In the ATTRACT Phase-1(B) project, the pre-determining factor is 'D&I for Earth observation and monitoring', as such technologies directly contribute to a better understanding of the dynamics of nature-human interaction, environmental changes and Climate Change. The ATTRACT Consortium will fund 30 breakthrough D&I concepts at €100.000 each. Third Party Open Call applicant consortia will have 12 months to investigate the scientific merits, technical feasibility, and potential game-changing applicability potential of their concept up to TRL level 3-5. Technologies should be capable of collecting data (physical, chemical, biological, etc, characteristics) with high specificity and extreme sensitivity whilst offering high spatial and temporal resolution and massive parallelism. They should be suitable for seamless integration into pervasive, low cost, and low-power ICT systems (incl. portable, wearable, IoT).

Additional information

The ATTRACT model is a novel approach to valorising the knowledge stemming from research and technology infrastructures. Starting in Horizon 2020 ATTRACT Phase 1 provided seed funding to small projects to create a proof of concept in detection and imaging technologies. It brings together the research community working on the cutting edge of fundamental science with the next wave of innovators. Fundamental science gains a faster pathway to useful economic and societal applications and research infrastructures benefit from improvements in breakthrough technologies and instruments that advance fundamental science. The ATTRACT Phase 2 focuses on building a thriving innovation ecosystem around these projects and scaling up the technology developed in phase 1. A novel feature of the ATTRACT model is the involvement of students to bring a fresh design thinking insight to apply the deep tech developments from ATTRACT to societal challenges. This co-innovation approach helps to ensure that the concepts and technologies stemming from fundamental science and basic research are more quickly developed to provide benefits to society and people.

In Horizon Europe the ATTRACT model is funded by the European Innovation Ecosystems work programme due to its nature as an ecosystem building tool and the mandate of the EIE work programme to provide a bridge between the Innovative Europe (Pillar III) component of Horizon and other parts other parts of the Framework Programme. This new phase of ATTRACT focuses on detection and imaging for earth observation and monitoring as such technologies can directly help to gain a better understanding of nature / human interaction, environmental challenges and climate change.