

Documentation

2nd German-Greek Workshop on Knowledge and Technology Transfer (Online) on June 30, 2021

Dear workshop participants,

We would like to truly thank you for your active contribution to the »2nd German-Greek Workshop on Knowledge and Technology Transfer«. Your innovative ideas and valuable insights into your project-specific transfer concepts contributed to the success of the second workshop that took place virtually on June 30, 2021, due to the ongoing Covid-19 pandemic. Your active contributions and openness to engage in constructive discussions were crucial to secure the success and tangible outcomes of this workshop. The participation of more than 80 participants shows to us the high interest on the overall workshop topic of knowledge and technology transfer.

This was the second of two workshops. The aim of the first workshop held from June 11-13, 2019 at the National Centre for Scientific Research DEMOKRITOS in Athens, Greece, was to define the transfer basis and discuss issues on the practical utilization of project results. The aim of the recent second workshop was to promote the exchange of good practices on knowledge and technology transfer and about common hurdles in developing transfer concepts, specifically addressing the challenges of implementation and commercialization from a user's perspective. As a preparation for and building on the outcome of the first workshop, we asked you and all other 24 German-Greek research and innovation projects to actively reflect and further develop their Transfer Canvases in advance of the workshop.

The overall workshop concept was designed and implemented by the Fraunhofer Center for International Management and Knowledge Economy IMW and facilitated by the DLR Project Management Agency as well as its Greek counterpart, the GSRI. The workshop concept was developed within the IntTransNet research project, which is funded by the BMBF and aims to develop novel instruments and approaches to intensify cross-border collaboration between science and industry in research and innovation under the so-called "2+2 Model". We would like to thank the BMBF, GSRI, PT-DLR as well as the panelists for facilitating and supporting the workshop. This document summarizes the workshop design, its key results and provides a preliminary outlook on recommendations for policy and future transfer enabling activities. We hope that the workshops were as valuable to you as it was for us and we hope you enjoy reading this documentation.

Background

Germany and Greece are connected through an intensive scientific and technological exchange, institutionalized by the German-Greek Research and Innovation Program. In 2016, the German Federal Ministry of Education and Research (BMBF) and General Secretariat for Research and Technology (GSRT) of the Ministry of Education, Research and Religious Affairs of the Hellenic

Republic¹ agreed to continue their research and innovation dialogue and intensify their support for bilateral R&D projects in areas of mutual interest. The 2nd German-Greek Research and Innovation Program aims to intensify cross-border collaboration between science and industry. Both sides have committed more than 18 million Euros funding 24 application-oriented R&D projects in six research fields, namely Agrofood-Bioeconomy, Culture-Tourism-Culture/Innovation and Social Challenges, Energy, Health, Key Enabling Technologies and Materials. The transfer of R&D results (knowledge and technologies) in practical applications (products, processes and services) as well as the involvement of young researchers are of particular importance in this program.

These efforts notwithstanding, leveraging the innovation potential from publicly funded R&D projects has yet to reach their full potential. Therefore, the BMBF and GSRT jointly agreed to implement a workshop on knowledge and technology transfer aiming at awareness-raising and empowerment of the 24 German-Greek projects funded by the 2nd German-Greek Research and Innovation Program. Such a format would have a threefold aim: (1) supporting the innovation orientation in the collaborative project, (2) exploring innovation potential in an early stage of the innovation process, (3) promoting mutual learning among all 24 German-Greek research and innovation projects. The workshop has been realized in two stages and aims to enable researchers and representatives of private companies and public sector organizations to jointly develop transfer concepts to fully leverage their innovation potential.

Workshop Goals and Design

The aim of the »2nd German-Greek Workshop on Knowledge and Technology Transfer« was to promote the exchange of good practices on knowledge and technology transfer enabling the practical utilization of research results. For this specific purpose and inspired by the Business Model Canvas², the Fraunhofer team developed the so-called Transfer Canvas supporting the transfer potentials of hypothesis-driven discovery processes into applied R&D projects.

The 1st workshop focused on exploring and documenting the transfer basis of the funded projects, such as the project team, the practical application resulting from the project results and the expected R&D results. The 2nd workshop addressed issues related to the practical utilization, specifically addressing the challenges of implementation and commercialization from a user's perspective. Building on the outcome of the first workshop in Athens, we kindly asked all 24 German-Greek research and innovation projects to actively reflect and further develop their Transfer Canvas (cp. fig.1) in advance of the workshop.

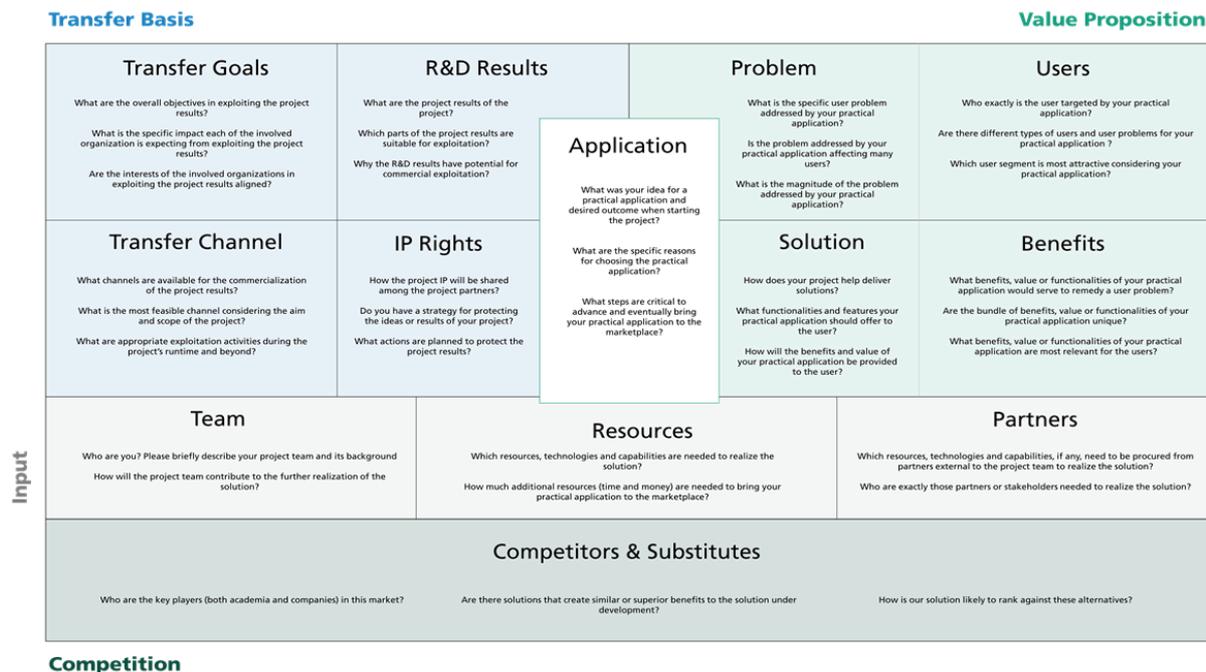
To do so, we contacted all project member organizations prior to the workshop and encouraged all project teams to jointly review the results of their (digitized) pre-filled Transfer Canvas (outcome of the 1st workshop in June 2019) prior to the workshop). Planning of transfer activities in early stages of the innovation process is key to enabling the applicability of research results and for delivering the envisaged benefits and impact to users and relevant stakeholders. Thus, we kindly

¹ Following change of government in July 2019, now Greek General Secretariat for Research and Innovation (GSRI) of the Ministry of Development and Investment.

² A strategic management tool developed by Alexander Osterwalder.

asked all German-Greek projects to elaborate the remaining building blocks of their project-specific Transfer Canvas. Rather than a static documentation, the contents of the Transfer Canvas may be regarded as hypotheses framework that requires further empirical validation.

Figure 1: The Transfer Canvas - A practical framework supporting transfer planning



Source: Fraunhofer IMW

The workshop material has been provided digitally for each project team via its own project folder on a Fraunhofer cloud server. To support the preparation of the workshop, we offered two preparatory meetings on the 1st and 10th of June 2021. We are pleased that more than 25 participants joined our two preparatory meetings and that 18 projects submitted their updated Transfer Canvas prior to the workshop. Unfortunately and due to the shortened online-format, we have not been able to invite all submitted projects to present their updated Transfer Canvas. Therefore, we selected seven projects according to the following criteria:

- Presentation of at least one project per thematic area yielding six projects;
- (As energy is a relative large group, we decided to select two projects from this field.);
- Availability of a completed Transfer Canvas that addressing all building blocks;
- Comprehensibility of the presentation for non-project members;
- Addressing of the value and potential use of the project results beyond science.

Workshop Summary

The workshop was carried out with the immense attention of more than 80 German and Greek participants. The high participation rate confirms the relevance of the workshop topic. The workshop was designed in three blocks: introduction, presentation of selected transfer canvases, followed by panel discussion and conclusions (see agenda at the end of the documentation).

The workshop was opened by Dr. Karen Böhme, the workshop moderator, and followed the opening remarks of Dr. Christos Dimas, Deputy Minister for Development and Investments in charge of Research and Technology; Mr. Thomas Rachel, Parliamentary State Secretary to the Federal Ministry of Education and Research BMBF and Dr. Steffen Preissler, Deputy Head of Fraunhofer IMW (cp. fig. 2).

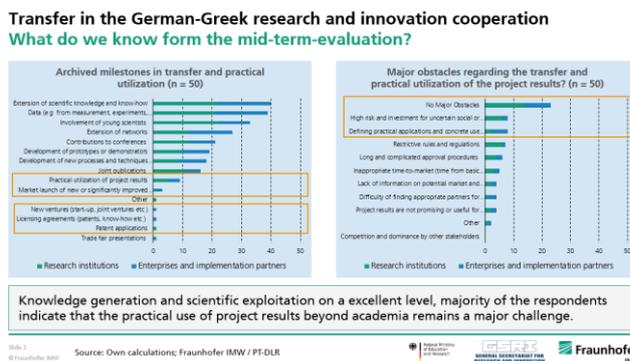
Figure 2: Opening remarks



Source: Fraunhofer IMW

The welcome remarks highlighted in particular the excellent German-Greek cooperation in research and innovation. The speakers emphasized the relevance of cooperation among relevant stakeholder along research and innovation chain to tap the innovation potential as well as the importance of knowledge and technology transfer in this respect. Furthermore, Mr. Rachel, Dr. Dimas as well as Dr. Preissler mentioned that the success of the 1st German-Greek workshop provides a productive platform to address common transfer challenges and deepening the cooperation in research and value creation.

Figure 3: Introduction to the workshop



Source: Fraunhofer IMW

Following the welcome addresses, Mr. Manuel Molina Vogelsang from the Fraunhofer IMW welcomed all participants and introduced them to the workshop format (cp. fig. 3). Addressing the workshop topic, Mr. Molina Vogelsang stated that knowledge and technology transfer is a complex and often challenging process. The transfer challenge is usually not rooted in ideas, knowledge and solutions resulting from scientific research. The challenge is rather associated with the practical implementation and use of research results beyond science. Thus, the user interaction and users problem orientation even in an early phase of the research and innovation process is key to deliver scientific, social or commercial impacts.

During the 1st workshop in 2019, the focus of transfer planning was particularly concentrated on the transfer basis - such as defining the practical application, the competencies of the project team

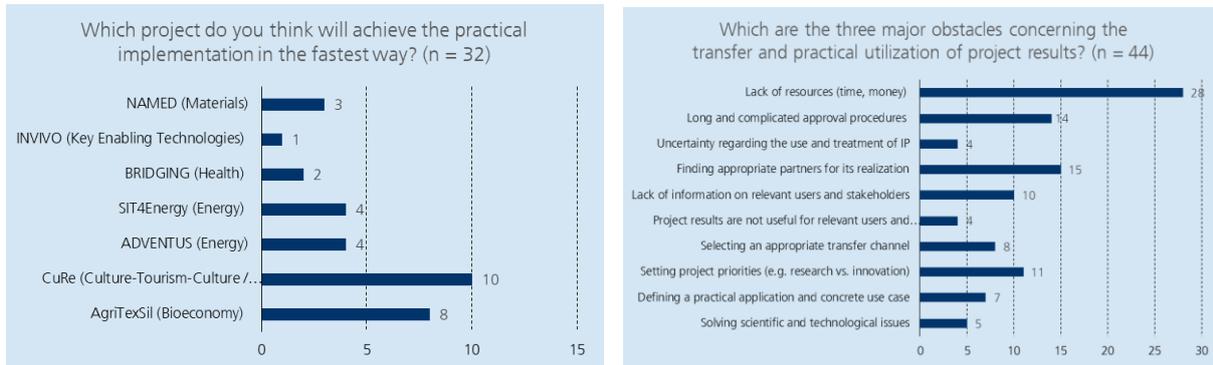
and the expected R&D results. The 2nd workshop focused on the practical implementation of the research results and expected innovation resulting from the R&D efforts. The following seven projects have been invited to present their transfer concept:

- **AgriTexSil** – Development of a textile with Silica coating for environmental friendly control of insects in agricultural production (Thematic area Bioeconomy) – Professor Dr. Nikolaos Katsoulas (University of Thessaly)
- **CuRe** – Cultures and Remembrances Virtual time travels to the encounters of people from the 13th to 20th centuries. The Cretan experience (Thematic area Culture-Tourism-Culture / Innovation and Social Challenges) – Iosif Klironomos (Foundation for Research and Technology-Hellas)
- **ADVENTUS** – Advanced Small Wind Turbines (Thematic area Energy) – Dr. Dimitrios Misirlis (Aristotle University of Thessaloniki)
- **SIT4Energy** – Smart IT for Energy Efficiency and Integrated Demand Management (Thematic area Energy) – Dr. Stelios Krinidis (Centre for Research and Technology Hellas)
- **BRIDGING** – BRucellosis IDendification in Greece aNd Germany (Thematic area Health) – Dr. Akrivi Chrysanthopoulou (Democritus University of Thrace)
- **INVIVO** – Inspection and Visualization of Vehicles in motion based on Optical 3D-Metrology and Embedded Vision for an innovative fleet monitoring and turnaround management (Thematic area Key Enabling Technologies) – Leontaris Lampros (Centre for Research and Technology Hellas)
- **NAMED** – Development of NAnotechnology-enabled “next-generation” MEmbranes and their applications in Low-Energy, zero liquid discharge Desalination membrane systems (Thematic area Materials) - Dr. Nikolaos Kanellopoulos (Institute of Nanoscience, National Centre of Scientific Research Demokritos)

In a supportive atmosphere, the selected project teams were given the opportunity to present their transfer concept of their projects in an innovative way. Each project was kindly asked to present the building blocks of their Transfer Canvas in a five minutes “pitch” focussing on the practical utilization of the project results rather than the scientific-technological outcomes. The presentations were followed by inquiries and comments from the workshop participants. The presentations and the following discussion indicated that planning and realizing knowledge and technology transfer is a complex process and very context-dependent - regardless of the thematic area. A shared understanding and alignment among project team members is an important enabling factor for the development of a well-grounded transfer concept. It has become clear that complementary activities such as patent and market analysis, business model development and partnerships are required to further valorize the project results. For instance, it has become apparent in CuRe project presentation that lead user and implementation partners, e.g. the Historical Museum of Crete, are important stakeholders enabling the applicability of research results and for delivering the envisaged benefits and impact to users.

After the pitches, participants were invited to share their opinions about the readiness of the projects as well as about potential hurdles to transfer activities by using a voting tool (cp. fig. 4). The survey results at the end of the 1st session confirm that further development efforts are required to fully leverage the innovation potential. According to the participants’ voting, the lack of resources, finding appropriate partners for the implementation as well as legal and regulatory concerns are mayor hurdles concerning the transfer and practical utilization of the project results.

Figure 4: Participants voting at the end of session I – Presentation of the Transfer Canvas



Source: Fraunhofer IMW

The presentation was followed by a panel discussion among Thomas Doppelberger, Head of Fraunhofer Venture, Michael Dritsas, Head of the Cabinet Office of Deputy Minister Dimas and Dr. Steffen Preissler, Deputy Head of Fraunhofer IMW (cp. fig. 5). Building on the results from session I, the panel discussion contributed to the larger context of bilateral support for German-Greek cooperation in research and innovation. The panel discussion started with a common definition of the term “innovation” followed by a constructive feedback to the presented transfer canvas.

Figure 5: Panel discussion



Source: Fraunhofer IMW

Concerning the identified hurdles at the project-level, the panellists agreed that transfer is a complex and time-intensive task demanding further resources and competencies. Successful

transfer activities require a well-balanced team comprising different skills and competencies. Integrating transfer or market experts in the project teams may contribute to leveraging the projects' impact. These experts may complement the scientific project team and contribute to the transfer planning by performing transfer-oriented activities such as coordination and integration of different project results or securing additional funding among others. In addition, incorporating the market and customer perspectives in the research design shortly after the initiation of a project is of particular importance to tackle the transfer challenge.

The successful cooperation among different partners in different countries is a challenge per se. However, considering the transfer of research results into practical applications in a very early stage of collaborative R&D takes time and requires resources. Therefore, the panellists agreed that the success of the 1st and 2nd German-Greek Research and Innovation Program should be continued by further bilateral research and innovation measures. The support and scientific monitoring of research and development projects in transfer planning has been considered particularly valuable. Formats like the German-Greek Workshop on Knowledge and Technology Transfer should be continued. In addition to the excellent research cooperation, the innovation-oriented collaboration may contribute to the German-Greek partnership.

Finally, Stefan Kern, Head of Section Cooperation with European Countries, Israel at the BMBF and Dr. Maria Christoula, Head of International Scientific and Technological Cooperation Directorate at the GSRI summarized the workshop results. Both thanked the participants and organizers for a lively and interesting workshop and expressed their hope that success of the German-Greek cooperation will continue. Also the feedback given by the participants was positive, expressing the hope that this workshop supports concrete actions addressing value enhancement in cross-border and cross-organizational in future programs.

Workshop Conclusions and Lessons Learned

The promotion of applied R&D cooperation between research institutions, companies and implementation partners is a key goal of the 2nd German-Greek Research and Innovation Programme. Thus, the transfer of research results into practical applications, namely the contribution to innovation, is a crucial criterion for its success, fostering competitiveness and value creation in Greece as well as Germany. Innovations, however, occur from interactions and knowledge exchange between diverse stakeholders from science, industry, politics and society.

Having this in mind, our workshop gained substantially from the openness and willingness of the participants to present their transfer concepts and to actively engage in vibrant as well as constructive discussions. Finally, this was crucial to secure success and tangible outcomes of the 2nd German-Greek workshop on knowledge and technology transfer – those were:

- Ample scope for leveraging the projects societal and economic impact: The presentations showed that – of course, in different levels - the projects revealed untapped potential for future value creation, going beyond the scientific community. Here, a structured exchange and internal agreement on a shared transfer concept – facilitated by workshops and learning formats on knowledge and technology transfer - is considered to be of high value, both for the teams as well as the Research & Innovation Program itself.

- Demand for an active planning and management of the transfer process: Given the complex nature of decisions concerning the practical use of project results, the prospects of economic and social impacts can be enhanced by systematically planning and assessing the various pathways for transfer activities beginning from the early stages in the research and innovation process.
- The transfer of project results and its practical utilization does not exclusively depend on further R&D activities: Supplementary transfer-oriented activities such as exploration of market opportunities and business development are needed to strengthen the knowledge and technology transfer in the German-Greek research and innovation cooperation.
- To tap the full innovation potential higher maturity levels are needed: Facilitating follow-up projects within a similar partner structure could contribute to further the valorization of project results. Thus, a 3rd German-Greek Research and Innovation Program, with a strong focus on applicability of project results would be very much appreciated.

Workshop Agenda

June 30, 2021

08:00

Log-in to WebEx Conference

09:00 – 09:30

Welcome and Introduction

Thomas Rachel, Parliamentary State Secretary to the BMBF
Dr. Christos Dimas, Deputy Minister for Research and Technology
Dr. Steffen Preissler, Deputy Head of Fraunhofer IMW

Moderation: Dr. Karen Böhme

09:30 – 09:45

Wrap-up 1st Workshop Athens and Introduction to the 2nd Workshop

Manuel Molina Vogelsang, Fraunhofer IMW

09:45 – 10:45

Presentation of Transfer Canvas: Seven “pitches” from all 6 thematic areas

Presentation of 7 transfer canvases that shall be prepared by all 24 German-Greek projects previous to the online-workshop (pre-workshop assignment). The “pitch” of 7 selected transfer canvases shall show what has been achieved so far and what challenges may be addressed to fully leverage the innovation potential.

AgriTexSil – Professor Dr. Nikolaos Katsoulas, University of Thessaly
CuRe - Iosif Klironomos, Foundation for Research and Technology-Hellas
ADVENTUS – Dr. Dimitrios Misirlis, Aristotle University of Thessaloniki
SIT4Energy – Dr. Stelios Krinidis, Centre for Research and Technology Hellas
BRIDGING – Dr. Akrivi Chrysanthopoulou, Democritus University of Thrace
INVIVO – Lampros Leontaris, Centre for Research and Technology Hellas
NAMED – Dr. Nikolaos Kanellopoulos, NCSR Demokritos

Moderation: Dr. Karen Böhme

10:45 – 11:00

Break

11:00 – 12:00

Panel discussion: Developing Transfer Concepts in Applied R&D Projects

Panel discussion to promote the exchange of good practices on knowledge and technology transfer, practical utilization of research results, specifically addressing the challenges of innovation and commercialization from a user’s perspective. The discussion is partly interactive and open to the audience and therefore can pick up questions from the projects.

Thomas Doppelberger, Head of Fraunhofer Venture
Michael Dritsas, Head of the Cabinet Office of Deputy Minister Dimas
Dr. Steffen Preissler, Deputy Head of Fraunhofer IMW

Moderation: Dr. Karen Böhme

12:00 – 12:15

Wrap up and Conclusion

Stefan Kern, Head of Section Cooperation with European Countries, Israel, BMBF
Dr. Maria Christoula, Head of International Scientific and Technological Cooperation Directorate, GSRI