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## FERN.Lab: knowledge and technology transfer from science to market and society

### *Abstract*

Knowledge and technology transfer (KTT) between academia and society is a key driver of innovation and economic development. This is best facilitated by an academic intermediary who can provide meaningful interactions. An academic intermediary can ensure expertise and knowledge are communicated using a common language and that goals and expectations are clear between partners.

In the field of remote sensing intermediaries play a particularly essential role. The rapid expansion of the remote sensing sector over the last decade, including sensor technologies and the volume of freely available data has created a bottleneck between available data and ready to use products outside of academia. Regional and municipal government agencies, small-medium enterprises (SMEs), and Non-Governmental Organizations (NGOs) who would greatly benefit from remote sensing data often lack expertise and capacity to produce or access high quality products and technologies. Additionally, large private sector companies with expertise in internal Research and Development (R&D) departments who operate on profit-driven strategies may limit investment in new untested RS solutions because of limited market size or monetarization risks. Academic institutions are well positioned to act as intermediaries to develop robust KTT strategies to support the demand for high quality RS data and technology.

Several initiatives to improve KTT have been made by Space Agencies, academic institutions or private companies. All these initiatives focus on profit-based operation predominantly by licensing developments and products or the creation of spin-offs. The following aspects are not considered:

1. Missing benefit for scientists.
2. Undervaluation of the social impact of KTT. KTT is often seen as a profit-driven initiative only.
3. Science to Market based on Open Science and Open Source.
4. KTT should not only be viewed as an exit strategy for scientists to leave academia.

To address these bottlenecks and establish a long-term innovation platform and thematic KTT infrastructure, the Helmholtz Innovation Lab - FERN.Lab - Remote Sensing for Sustainable Use of Resources was founded at the Geodesy Department of the German Centre for Geosciences (GFZ) in January 2020. FERN.Lab is funded by the Helmholtz Association. The goal of FERN.Lab is to facilitate KTT and deliver remote sensing products to commercial and non-commercial partners by acting as an expert intermediary platform.

We will present approaches to improve this process from science to market and society. FERN.Lab is working on different transfer strategies to bridge in-house development to external users, enable KTT in R&D projects, doing contract research and act as honest brokers for information services and knowledge platforms. All these approaches include business development, scientific development, software development, and public relations. It addresses directly institutional, financial and skills gaps that can cause the KTT process to fail. By implementing a robust KTT framework for remote sensing products, the impact of research has the potential to be much broader and farther reaching. Additionally, these efforts can improve the acceptance of remote sensing outside of academia and improve and modernize methods used in diverse sectors which in turn can benefit not only individual partners but also politics, society, and the environment.