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# FROM LAB TO MARKET: UNLOCKING THE COMMERCIALIZATION POTENTIAL OF UNIVERSITY-BASED SPACE TECHNOLOGY RESEARCH FOR SUSTAINABLE DEVELOPMENT IN ASIA

**Abstract**

University-based space technology research has been recognized for its effectiveness as a solution for sustainability for years, with applications in atmospheric monitoring, disaster response, ocean health assessment, precision agriculture, and more. Its commercialization potential also attracts entrepreneurs and investors to bring the research results out of the lab onto the shelf, which is more common in the West thanks to the more progressive sustainability agenda, maturity of technology transfer, entrepreneurial mindset, as well as investor appetite. However, transforming research outcomes from university labs into commercial products, particularly in space technologies, is notably difficult. This issue is even more pronounced in Asia, which is a laggard in both commercializing and adopting space technology despite the pressing need for sustainability solutions. This paper, authored by three Asian experts—a renowned satellite technology scholar and two seasoned private equity investors—aims to explore effective strategies for transitioning university-based space technology research into commercially viable, sustainability-focused enterprises in Asia.

The paper examines the commercialization pathways, delving into the inherent challenges faced by researchers and investors in Asia, and proposes solutions to enhance the funding and application of space technologies for sustainable development. The research methodology includes journal reviews, policy research, industry and ecosystem analyses, and interviews with stakeholders, including space technology researchers, private equity investors, entrepreneurs, university technology transfer offices, and technology ecosystem operators. This comprehensive approach provides both a top-down and bottom-up view of the issue. The inclusion of case studies adds practical relevance to the real-world application.

The findings highlight several "misalignments" in the commercialization pathway, including the disconnection between academic research and entrepreneurial skill sets, the mismatch between investor timelines and the lengthy RD cycles characteristic of space technologies, and the friction between regulatory requirements and the flexibility needed for sustainability product testing. These issues are analyzed within the Asian context, emphasizing unique challenges and opportunities.

Successfully commercializing space technology research can lead to the creation of new ventures, stimulate economic growth, and advance the space technology ecosystem, thereby fostering further research and innovation in sustainability. The paper concludes by advocating for increased collaboration among industries, academic institutions, financial market practitioners, and government bodies as a crucial strategy for narrowing the misalignments. Additionally, the paper suggests more innovative financial and management approaches, such as the "founder partnership approach" for business model and operation setup, and the establishment of an accelerator-investment fund combo for seed funding.