

IDEAS TO ACTION TO PROGRESS: THE INNOVATION JOURNEY FROM ACADEMIA TO INDUSTRY

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 Sustainable
 Digital Finance

 **ELEVANDI**



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ELEVANDI

Elevandi is set up by the Monetary Authority of Singapore to foster an open dialogue between the public and private sectors to advance FinTech in the digital economy. Elevandi works closely with governments, founders, investors, and corporate leaders to drive collaboration, education, and new sources of value at the industry and national levels. Elevandi's initiatives have convened over 300,000 people to drive the growth of FinTech through events, closed-door roundtables, investor programmes, educational initiatives, and research. Its flagship product is the Singapore FinTech Festival alongside fast-rising platforms, including the World FinTech Festival, Point Zero Forum, and the recently launched Elevandi Insights Forum.

For more information, visit www.elevandi.io

Global Center for Sustainable Digital Finance

The Global Center for Sustainable Digital Finance (www.sustainable-digital-finance.org) is a joint initiative from Stanford University KAIST and the University of Zurich. The Center focuses on research, education and impact initiatives. It works together with public and private sector institutions, start-ups, regulators and policy makers to foster innovation on a global scale.

Executive Summary

This white paper synthesises insights from a roundtable discussion on accelerating the transition of innovations from academia to industry, especially in sustainable digital finance. Key themes included the need for robust institutional support, innovative funding models, public-private partnerships, supportive regulatory frameworks, interdisciplinary collaboration, and adapted investment strategies. Institutions such as universities and central banks are urged to foster sustainable economic growth by supporting the commercialisation of academic research.

Funding emerged as a significant barrier, particularly for early-stage ventures in clean tech and hard tech sectors. Traditional venture capital models, with their short-term horizons, often fail to support the long-term, high-risk nature of sustainable technologies.

The discussion highlighted the need for new financial intermediation models that provide patient capital, with institutional investors like university endowments and pension funds identified as potential sources. Additionally, public-private partnerships (PPPs) were recognised as crucial for driving sustainable innovation by providing the necessary resources, expertise, and regulatory support to scale sustainable technologies. By implementing these actionable insights, stakeholders can create a conducive environment for the commercialisation of sustainable technologies, addressing global challenges such as climate change and driving progress towards a more sustainable future.

Introduction

The urgent need to address climate change and other sustainability challenges necessitates the rapid transition of innovations from academia to industry. Discussion at the roundtable covered a wide range of topics, from the role of universities in fostering innovation ecosystems to the challenges of funding and scaling startups, especially in hard tech. This report presents the key insights and actionable outcomes derived, supplemented with research findings.

Enhancing University-Industry Collaboration

Universities are pivotal in the innovation ecosystem by conducting foundational research and nurturing early-stage ideas. However, the transition from academic research to commercial application is often slow and fraught with challenges.

To address this gap, establishing dedicated innovation hubs within universities is essential. These hubs should focus on bridging the gap between research and industry by facilitating partnerships with industry players, providing incubation services, IP consultation, and offering commercialisation support.

Legal and IP concerns often hinder collaborations between academia and industry. Large corporations are typically protective of their intellectual property, which can create barriers to collaboration. Addressing these concerns through the establishment of clear and fair IP policies that encourage knowledge sharing and commercialisation can facilitate greater collaboration and innovation. Furthermore, developing joint research programmes for graduation thesis at the undergraduate and graduate level with industry can ensure that academic research aligns with market needs and transitions quickly to commercial applications.

For example, Stanford University, the University of Zurich, and KAIST established the Global Center for Sustainable Digital Finance. This initiative aims to analyse how digital finance and fintech can promote sustainability in the financial industry. The study conducted by the Center involved examining startups and theory to identify the gaps in the research landscape. It found that most research in this field focuses on financial inclusion, with less attention given to climate-related issues. The latter is a significant gap that needs to be addressed.

The development of such hubs should not only focus on technical and business support but also on fostering a culture of entrepreneurship within the academic environment. This involves creating programmes that encourage students and researchers to pursue entrepreneurial ventures, and providing them with the necessary skills and resources to succeed. Programmes like the Fintech Future Entrepreneurs Bootcamp by the Reserve Bank of India, which collaborates with the Indian Management Institute, can serve as another example. This programme aims to bring academic ideas to commercial realisation through structured bootcamps and mentorship.

By providing a structured environment that supports both technical development and business acumen, universities can significantly enhance their contributions to economic development and innovation. The collaboration between academia and industry can be further strengthened through regular industry-academia conferences and workshops, fostering a continuous exchange of ideas and the formation of strategic partnerships.

Addressing Funding Gaps for Sustainable Innovation

A significant barrier to scaling sustainable innovations, particularly hardware-heavy projects, is the lack of appropriate funding mechanisms. Traditional venture capital models are often unsuitable for these investments due to their long-term nature and high capital requirements. There is a notable funding gap in the climate tech sector, with a decline in investment from 2022 to 2023. Early-stage startups, particularly in climate fintech, face challenges in securing necessary funding to reach market readiness.

To bridge this funding gap, creating specialised funding vehicles such as evergreen funds or public-private partnerships is crucial. These funds should provide long-term capital for sustainable innovations, supporting projects through their entire lifecycle, from R&D to commercialisation. For instance, the European Investment Bank has launched various initiatives aimed at supporting sustainable innovation, such as providing loans and equity investments specifically targeted at early-stage and growth-stage companies in the clean tech sector.

Encouraging institutional investors, such as university endowments, pension funds, and sovereign wealth funds, to allocate a portion of their portfolios to long-term investments in sustainability-focused startups can also play a significant role. These investors typically have long-term horizons and can provide the patient capital needed to support the development and commercialisation of breakthrough technologies. Initiatives such as MIT Sloan School's Regional Entrepreneurship Acceleration Program (REAP) can help in identifying and addressing the most pertinent funding challenges. The Program brings together stakeholders from various sectors, including central banks and government bodies.

Another critical player in supporting sustainable innovation is central banks. Central banks can increase their traditional mandates to actively support sustainable economic growth. For instance, the Central Bank of Hungary, Magyar Nemzeti Bank, has established a green mandate and collaborates with universities to promote digitalisation and sustainability. By partnering with academic institutions and creating programmes that foster entrepreneurship, central banks can help bridge the funding gap for early-stage sustainable innovations.

The establishment of new financial products tailored to the needs of sustainable innovations can also play a vital role. For instance, green bonds and impact investment funds are financial instruments specifically designed to support projects that generate environmental and social benefits. These instruments can attract a broader range of investors, including those who prioritise ethical and sustainable investments. Furthermore, creating financial incentives for private investors to support sustainable innovations, such as tax benefits or matching funds, can stimulate more significant investment in this sector.

Developing New Financial Intermediaries

Current financial intermediaries are not effectively bridging the gap between early-stage investors and late-stage commercialisation, particularly for clean tech and hard tech innovations. The “valley of death” for technology commercialisation is a well-documented challenge where early-stage innovations struggle to secure necessary funding to reach market readiness. Traditional venture capital models do not align well with the needs of sustainable innovations, which require patient capital and long-term support.

Establishing new types of financial intermediaries that can provide continuity of funding and support throughout the innovation lifecycle is necessary. These intermediaries should act as “anchoring” investors, staying involved from early stages through to commercialisation. The concept of boundary-spanning intermediaries is essential. These entities would engage a diverse range of investors, including those traditionally not involved in venture capital, such as impact investors and philanthropic organisations.

A successful example of such an intermediary is the Asian Institute of Digital Finance, established by the Monetary Authority of Singapore (MAS) in collaboration with the National University of Singapore. This institute focusses on bringing academic research to market by supporting fintech startups with funding, mentorship, and access to industry networks. By creating similar entities focused on sustainable innovation, it is possible to provide the necessary support and funding continuity for clean tech and hard tech startups.

Additionally, there is a need to develop specialised incubators and accelerators that cater specifically to sustainable innovations. These programmes can provide startups with the necessary resources, mentorship, and access to networks to help them scale their innovations. By offering a structured support system, these incubators and accelerators can increase the success rates of startups and facilitate their transition from early-stage innovations to commercially viable products.

Fostering Sustainable Practices at the Micro Level

Sustainable innovation is not just about developing new technologies; it also involves changing behaviours and practices at the bottom level. For example, smallholder farmers and local communities often face significant barriers to adopting sustainable practices. Smallholder farmers understand the benefits of sustainable practices but often face short-term economic pressures that force them to prioritise immediate productivity over long-term sustainability. Traditional funding mechanisms that provide fixed rewards for sustainable practices do not effectively address the productivity-sustainability trade-off faced by these farmers.

Designing incentive programmes that link sustainability rewards to productivity gains can ensure that participants see immediate benefits from adopting sustainable practices. For example, a project in Indonesia involving smallholder oil palm farmers demonstrated that incentives tied to productivity were more effective in promoting sustainable practices than fixed rewards. The new incentive scheme directly linked sustainability rewards to production output, which significantly increased the willingness of farmers to invest in sustainable practices.

Collaborating with local governments, NGOs, and community organisations to understand the specific barriers and motivators for adopting sustainable practices is essential for tailoring programmes. It is crucial to understand the local context, including cultural aspects and resource constraints, to design effective incentive systems. For instance, in the case of smallholder farmers in Indonesia, the involvement of local NGOs and government agencies helped ensure that the incentive programs were aligned with the needs and realities of the farmers.

Additionally, educational programmes that provide farmers with the knowledge and tools needed to implement sustainable practices are crucial. These programmes should be designed to be accessible and practical, and take into account the literacy levels and resource availability of the target population. The example of an “AI in Business and Finance” specialisation programme in Hungary by the Magyar Nemzeti Bank can be highlighted as a model of how educational initiatives can promote sustainable innovation by equipping participants with the necessary skills and knowledge.

Conclusion

Accelerating the transition of innovations from academia to industry is critical for addressing global sustainability challenges. This requires a multi-faceted approach that includes strengthening university-industry collaborations, creating new funding mechanisms, developing effective financial intermediaries, and fostering sustainable practices at the grassroots level.

By implementing these strategies, stakeholders can create an environment that supports the rapid commercialisation of sustainable innovations and contribute to a more sustainable future. A solution approach is the creation of a global, neutral, academic-led platform which brings together different stakeholders and (re-)defines the futures rules of how this can be achieved. The design and creation of such a platform shall be an ongoing activity and be part of the discussion at the Singapore FinTech Festival this November.



Contributors

Alokik Advani

Fidelity International Strategic Ventures

Soh Young In

KAIST & Stanford

Andreas Iten

Tenity

Oliver Marchand

MSCI

Thomas Puschmann

Stanford & UZH

Anikó Szombati

Magyar Nemzeti Bank

Elena Walder

Übermorgen Ventures

Yanchong Karen Zheng

MIT