Training Programme on Technology Transfer January – July 2024

Findings report

Report prepared by

Nguyen Truong Phi - Ministry of Science and Technology
Huynh Thanh Cong – Vietnam National University Hochiminh City
Pham Thu Thuy - Vietnam National University Hanoi
Le Nguyen Doan Khoi – Can Tho University
Nguyen Dang Tuan Minh - KisImpact Social Enterprise
Phan Huong – British Embassy Hanoi

Vietnam attendance in this training was supported by the South Asia Research Hub, Foreign, Commonwealth & Development Office (FCDO), and Department of Science, Innovation and Technology (DSIT), Government of United Kingdom. The views expressed in this report, however, do not necessarily reflect the official policies of the Government of United Kingdom.

Summary

A seven-month hybrid training course about “Technology Transfer at Universities” was delivered by the Royal Academy of Engineering (RAEng) from January to July 2024 with sponsorship from Department of Science, Innovation and Technology (DSIT) for delegates from the Philippines, Thailand and Vietnam.

The course aimed to equip participants with knowledge, skills and professional networks to improve the quality and effectiveness of tech transfer activities in their respective countries and institutions.

The course involved three online training sessions, an in-person one-week training in the UK and a number of online drop-in sessions. The British Embassy Hanoi, with support from the UK’s Foreign, Commonwealth and Development Office (FCDO)’s RIDA fund, sponsored travel and subsistence for five Vietnamese officers to attend the one-week in-person training in the UK in April 2024.

Through the sponsorship for Vietnam’s attendance, RIDA also aims to gather evidence and recommendations on how the UK government and institutions can effectively support Vietnam to improve the governance and practice of the tech transfer and commercialisation at universities.

Evidence collected through this activity suggest that the UK and Vietnam have distinct approaches to technology transfer, with significant differences in their academic and business environments.

In the UK, technology transfer is supported by a well-established infrastructure involving both internal and external stakeholders. This includes industry partners, investors, regional development agencies, and patent agents. UK universities have dedicated Technology Transfer Offices that play a crucial role in protecting and commercialising intellectual property (IP), and ensuring that research outputs are translated into economic and societal benefits. Conversely, Vietnam's approach is still developing, with ongoing efforts to strengthen its technology transfer mechanisms and foster better collaboration between academia and industry.

HMG support in Vietnam should initially focus on transferring UK’s basic and well-established toolkits and models of enhancing the links between academia and business. It will be sensible for the UK to start with leading and committed Vietnamese universities, and bring together representatives from government departments and accelerators.

Background

The RAEng got funds from the DSIT to run a training course about "Technology Transfer at Universities" for technology transfer officers from the Philippines, Thailand and Vietnam in FY2023/24. The course was based on RAEng's strong experience in the field and engagement with UK universities. Nevertheless, DSIT did not cover the costs for partner countries' attendance.

The British Embassy Hanoi found RAEng's offer very useful for the engagement and capacity building for Vietnam's STI ecosystem. In November 2023, the Embassy's proposal case to the RIDA1 was approved to cover travel and subsistence for five Vietnamese delegates to attend the one-week training in the UK in April 2024.

The following five delegates were identified based on their organisations' mandates and each person's role in each organisation. It was a balanced group in terms of the presence of a governmental ministry, three leading universities and a private accelerator. The cohorts included three man and two women.

No.	Full name	Role	Organisation
1	Dr Nguyen Truong Phi	Head of Division	State Agency for Technology Innovation, Ministry of Science and Technology
2	Dr Huynh Thanh Cong	Deputy Director General	Department of Science and Technology, Vietnam National University Hochiminh City
3	Ms Pham Thu Thuy	Officer	Department of Science and Technology, Vietnam National University Hanoi
4	Dr Le Nguyen Doan Khoi	Director General	Department of Science and Technology, Can Tho University
5	Ms Nguyen Dang Tuan Minh	CEO	KisImpact Social Enterprise

This report presents the evidence obtained through the training and provides a number of recommendations that the HMG policy makers in the region may want to focus moving forward.

A full programme of the training is provided in Annex 1 of this report.

Findings

1. Comparison of UK and VN's approaches, academic/business environment, and best practices in running Tech Transfer programmes

Issue	UK Approach	Vietnam Approach
National Legal and Policy Framework	- **Intellectual Property Law:** The UK has a robust legal framework governing IP, including patents, copyrights, trademarks, and trade secrets. Compliance with these laws is essential for successful technology transfer.	**- Intellectual Property Law** amended in 2022, gives more autonomy to research organisations and scientists. IP generated from a state-funded research project is assigned to the Lead Research Organisation. However, it remains a public asset and is controlled by regulations on public assets. The transfer of ownership and exploitation rights to other organisations is still limited. Civil servants are not allowed to establish and own companies. Rather they can contribute their IP as capital of a company. - **Capital Contribution:** Technology can be contributed as capital in enterprises, with valuation in Vietnamese Dong and compliance with relevant laws. However, regulations on IP valuation are still limited and have not been recognised by many financial institutions.
Government's incentives	**1. Government Office for Technology Transfer (GOTT)** • **Purpose**: Supports UK public sector organisations in unlocking the potential of their knowledge assets. • **Knowledge Asset Grant Fund**: Provides funding of up to £250,000 for projects aimed at exploiting high-potential intangible assets.	• Vietnam attracts technology projects and encourages high technology transfer from abroad through various support policies, such as corporate income tax exemptions, land rent exemptions, subsidies for technology transfer costs. • Vietnamese government supports domestic businesses to absorb and apply technology through training,

Issue	UK Approach	Vietnam Approach
	2. Higher Education Innovation Fund (HEIF) • **Objective**: Supports knowledge exchange activities in universities, including technology transfer. • **Funding**: Allocates significant resources to help universities commercialise research outputs and engage with businesses. **3. Research and Development (R&D) Tax Incentives** • **R&D Tax Credits**: Allow companies engaged in qualifying R&D activities to claim tax relief on eligible expenditures. This includes enhanced deductions and payable tax credits for SMEs. **4. Innovate UK** • **Funding Competitions**: Provides grants and loans for innovation projects, including those focused on technology transfer. • **Knowledge Transfer Partnerships (KTP)**: Links businesses with research organisations to facilitate the transfer of knowledge and expertise. It provides financial support for graduates to undertake technology transfer projects in SMEs. **5. Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS)** • **Tax Relief**: Offers tax incentives to private investors who support early-stage companies, including university spinouts.	professional consultation and technology matching activities.

Issue	UK Approach	Vietnam Approach
	6. Proof-of-Concept Funding • **Cross-Disciplinary Program**: £20 million allocated for proof-of-concept research to help universities develop and commercialise new technologies.	
IP Policies at Universities	- **University Ownership of IP:** According to the Patents Act 1977 and Copyright, Designs and Patents Act 1988, universities claim ownership of IP created by their staff during employment. This consists of inventions, software, databases, and other types of creative works. - **IP Policies**: IP policies and regulations at universities provide specific guidelines on ownership, management, and exploitation procedures. These are frequently in line with guidance provided by organisations such as the European Commission. **- Professor's Privilege:** Historically, some European countries allowed academics to retain full ownership of their research, incentivising commercialisation. UK universities have been found to take significant equity stakes in spinout companies. The average equity stake increased from 19.1% to 22% over the last year, despite recommendations to reduce these stakes. Some universities, like the University of Leeds, have taken stakes as high as 43.3%. - **Exceptions for Academic Works**: Universities frequently waive their ownership rights for specific academic works, like journal articles and textbooks, so that staff can maintain the copyright.	- **Some universities in Vietnam have established IP policies** and regulations to manage IP rights created by their faculty, staff, and students. - The university holds the IP rights if the work is created using the university's resources, facilities, or funding. If these conditions are not met, the IP rights belong to the individual creator (e.g. faculty member or student). - **Faculty members** are required to annually declare their published research works and commit to transferring the rights to publish and use these works to the university for research and teaching purposes, if requested. - **Students** must transfer the rights to publish and use their graduation theses and dissertations to universities, free of charge, for the university's research and teaching purposes. - The university and IP rights holders share the income from commercial exploitation of IP in proportion to their ownership, as defined in the IP policy. - Universities like VNU-HCM and its member institutions have established various IP management units. VNUHCM established IP Tech Transfer

Issue	UK Approach	Vietnam Approach
	- **Student IP**: It is typical for universities to require students to grant them a non-exclusive license to utilise materials created during their studies, for purposes such as teaching, assessment, and quality control. **- Collaborative Research:** Universities negotiate IP ownership and access rights with external partners during collaborative research, with the goal of retaining rights or receiving compensation.	Office (iptc.vn) which is responsible for developing policies and regulations on IP protection and technology transfer from research results in VNU-HCM. This model initially works to govern their intellectual assets.
Initiatives to support IP development and protection at universities	- **The Innovation to Commercialisation of University Research (ICURe)** programme helps university researchers explore and validate the commercial potential of their research. The programme typically runs for 12 to 16 weeks, depending on the specific cohort. Participants receive up to £35,000 in funding to support their market exploration activities. - **The Lambert Toolkit** for Collaborative Research: to increase the flow of IP from universities to businesses by offering a set of standardised IP agreements that cover a range of collaboration scenarios. The toolkit represents a consensus between industry and academia on IP ownership and access rights. - **IP Management Support**: Universities provide support services to help researchers identify, protect, and commercialise their IP. This includes assistance with patent filing, licensing, and spin-out company creation. - **Collaborative Research Initiatives**: Schemes like the Scottish Universities Physics Alliance (SUPA) facilitate collaborative R&D projects between universities and industry, leading to the generation and protection of IP.	- University-level Research Conferences: Universities organise research conferences on IP to promote knowledge sharing and research in this field. These conferences often collaborate with businesses to provide a platform for discussion and learning. - Training Courses: Universities offer annual training courses on IP, providing knowledge and skills to lecturers, researchers, and students. - Vietnam Intellectual Property Research Institute, under MOST, conducts research, education, training, appraisal, consultancy and valuation in the IP field. - The Fulbright Intellectual Property and Technology Transfer Programme, launched by Fulbright University Vietnam, aims to train researchers and innovators from 13 Indo-Pacific countries.

Issue	UK Approach	Vietnam Approach
	- **IP education**: many universities offer specialised courses and degrees in IP law, including: University of Oxford, which offers an MSc in Intellectual Property; Queen Mary University of London, which is ranked highly for IP/patent law research; University of Cambridge, London School of Economics, and University of Nottingham.	
Tech Transfer Offices (TTOs):	**Role and Function** • **Protection and Commercialisation**: TTOs are responsible for protecting and commercialising intellectual property developed at universities. • **Support for Spinouts**: TTOs help create and support spinout companies, licensing technologies, and facilitating industry collaborations. **Incentives for TTO Staff** • **Reward Schemes:** Some universities have implemented incentive schemes for TTO staff to encourage successful technology transfer activities. These schemes are often funded through HEIF and license/royalty income.	All VN universities have Science and Technology Departments, which are responsible for managing and supporting administrative procedures to enable research projects to run properly according to regulations. Only a few large universities have established Tech Transfer Centres to enhance tech commercialisation. These TTOs are still in the process to develop and sustain their business models.
Academic and Business Environment	- **Academic Environment:** UK universities are independent and develop their own strategies for IP management and commercialisation. They engage in various activities such as collaborative research, academic consulting, and licensing of technology. *Some keys weaknesses in IP ownership* - Ownership Ambiguity: While universities generally claim ownership of IP created by their employees	- **Academic Environment**: Vietnamese universities and research institutions are increasingly involved in technology transfer, supported by government policies and incentives. *Some keys weaknesses in IP ownership* - Weak IP creation and commercialisation: The impact of

Issue	UK Approach	Vietnam Approach
	(faculty and staff), the rights around IP created by students, especially those involved in research, are more ambiguous. This can lead to disputes over IP ownership between universities and spin-out companies founded by student researchers. - Tension Between Commercialisation and Academic Freedom: Universities face a tension between commercializing IP to generate revenue, and maintaining academic freedom and the open exchange of ideas. Overly aggressive IP ownership policies can hinder collaboration and the free flow of information. This can have negative consequences for scientific progress. - **Business Environment:** The UK tech sector is thriving, with significant investment in tech startups and scale-ups. Regions like London, Thames Valley, Manchester, and Cambridge are key tech hubs with strong research and development bases.	the IP system on economic growth in Vietnam is limited, as most R&D activities are still weak. - Lack of incentives for researchers: Most creators and researchers do not actually gain much benefit from IP ownership, as IP is usually owned by the organisation. - Suppression of patents and information: There are problems with the privatisation of government information and suppression of patents in Vietnam. This restricts the free flow and sharing of knowledge. - Flaws in the "marketplace of ideas": The justification for IP based on a "marketplace of ideas" is flawed, as this marketplace is shaped by economic inequality and serves to legitimize the role of elites. This undermines the case for IP ownership. - **Business Environment:** Vietnam is focused on attracting foreign investment in high technology and developing local supply chains. However, there are challenges in achieving technology spillovers from foreign-invested enterprises to local businesses.

2. Lessons and best practices in the UK that can be taken to Vietnam.

2.1. Effective Linkages between Internal and External Stakeholders in Technology Transfer at Universities

External Stakeholders: UK universities benefit from robust engagement with external stakeholders, including industry partners, investors (angel investors, venture capitalists), regional development agencies, local enterprise partnerships, entrepreneurs, patent agents, and lawyers. These stakeholders support the commercialisation of research and contribute to

economic growth. TTOs play a crucial role in connecting these external entities with university initiatives, enhancing entrepreneurial outcomes and innovation.

Internal Stakeholders: Internal stakeholders include academic researchers, university management, TTOs, research support functions, IP management teams, commercialisation and innovation teams, and finance and contracts departments. These groups collaborate to protect and commercialise university research, creating economic benefits for both the institution and society. TTOs provide expertise and guidance, facilitating smoother commercialisation processes and supporting academics in their entrepreneurial endeavors.

Linking Internal and External Stakeholders: Key strategies include:

- Establishing clear communication channels between TTOs and internal stakeholders through regular meetings, workshops, and newsletters.
- Developing a stakeholder engagement plan to identify and prioritise stakeholder groups.
- Providing training for researchers and faculty on IP management and the technology transfer process.
- Collaborating with external stakeholders to identify commercialisation opportunities and secure funding.
- Supporting spin-out companies with access to incubators, accelerators, and venture capital.
- Regularly reviewing and adjusting stakeholder engagement strategies to ensure effective collaboration.

2.2. Measuring Technology Transfer Impact

Measuring technology transfer is crucial for assessing its social and economic benefits, improving strategies, and fostering innovation. UK universities excel in licensing and company formation, with metrics such as research expenditure, license income, start-up formation, patents, and stakeholder engagement used to evaluate performance. Key frameworks include:

- **Research Excellence Framework (REF):** Assesses research quality and provides insights into technology transfer practices.
- **Knowledge Exchange Framework (KEF):** Measures the impact of university research on businesses, organisations, and communities.

2.3. Education for Innovation and Technology Transfer

The cohorts visited three leading universities during the week in the UK.

University College London (UCL):

- **UCL Business (UCLB):** Supports researchers in commercialising inventions through IP protection, funding access, and industry partnerships.
- **Department of Management Science and Innovation:** Offers programmes focused on technology entrepreneurship and innovation management.
- **UCL Advances:** Provides non-degree education on commercialisation processes.

University of Cambridge:

- **Cambridge Enterprise:** Offers a course on research commercialisation and supports technology transfer across various disciplines.
- **Significant Financial Support:** Invests in spin-outs, leading to successful companies like X01 Therapeutics and Cambridge Epigenetix.

University of Southampton:

- **IT Innovation Centre:** Collaborates with researchers and industry to advance information technologies in various sectors.
- **Education Practice and Innovation MSc:** Focuses on professional development and contemporary teaching and learning models for innovation.
- **Educational Innovation Initiatives:** Enhances teaching and learning through technology and innovative educational practices.

2.4. UK Facilities and Initiatives for Innovation and Industry Collaboration

The UK government has introduced several initiatives to enhance collaboration, resource sharing, and innovation across the nation. A few highlights include the following:

Catapult Network

- Consists of nine independent technology and innovation centers.
    - ✓ Cell and Gene Therapy
    - ✓ Compound Semiconductor Applications
    - ✓ Connected Places
    - ✓ Digital
    - ✓ Energy Systems
    - ✓ High Value Manufacturing
    - ✓ Medicines Discovery
    - ✓ Offshore Renewable Energy
    - ✓ Satellite Applications
- Provides expert assistance and specialised facilities to bridge gaps between businesses, academia, and research organisations, promoting collaboration and innovation.

Agri-Tech Centers

- Comprises four centers focusing on precision engineering, data analytics, crop health, and livestock production.
- Develops technology-driven solutions for the agri-food sector by pooling resources and expertise.

SETsquared Partnership

- A collaboration among five leading UK research-intensive universities: Bath, Bristol, Exeter, Southampton, and Surrey.
- Recognised globally as a top university business incubator.
- Supports and accelerates the growth of high-tech startups and scale-ups by leveraging the combined expertise and resources of these institutions.

Recommendations for UK-VN further collaboration

1. Translate the Lambert Toolkit to Vietnamese language for University Use in Technology Transfer

- **Objective**: Facilitate standardised technology transfer agreements and improve collaboration between universities and industry in Vietnam.
- **Actions**:
    - Translate the Lambert Toolkit into Vietnamese, ensuring all legal and technical terms are accurately rendered.
    - Provide training sessions for university TTOs, legal teams, and researchers on using the toolkit effectively.
    - Promote the use of the toolkit across Vietnamese universities to streamline IP management and commercialisation processes.

2. Build a Network of Innovators to Become Industry Consultants

- **Objective**: Create a trusted pool of consultants to bridge the gap between academia and industry, drawing on lessons from Cambridge University.
- **Actions**:
    - Identify and recruit leading researchers and innovators from Vietnamese universities and research institutions.
    - Provide training on consultancy skills, emphasizing communication, project management, and industry engagement.
    - Develop a platform for matching consultants with industry needs, facilitating collaborations and ensuring mutual benefit.
    - Encourage consultants to engage in regular knowledge exchange and professional development activities to stay updated with industry trends and technologies.
    - Promote success stories and case studies of effective consultancy engagements to build trust and demonstrate value to industry partners.

3. Adapt the ICURe Programme to Vietnam context

Objective: Bridge the gap between academic research and commercial application, focusing on the Engage and Discover phases, modeled after the UK's ICURe (Innovation to Commercialisation of University Research) pre-accelerator programme.

4. Improve the Measurement of Technology Transfer Impact

Vietnam can adopt frameworks from the UK to measure the impact of technology transfer. Key metrics include research expenditure, license income, start-up formation, patents, and stakeholder engagement.

Frameworks to Adopt:

- **Research Excellence Framework (REF):** Assess research quality and provide insights into technology transfer practices.

- **Knowledge Exchange Framework (KEF):** Measure the impact of university research on businesses, organisations, and communities.

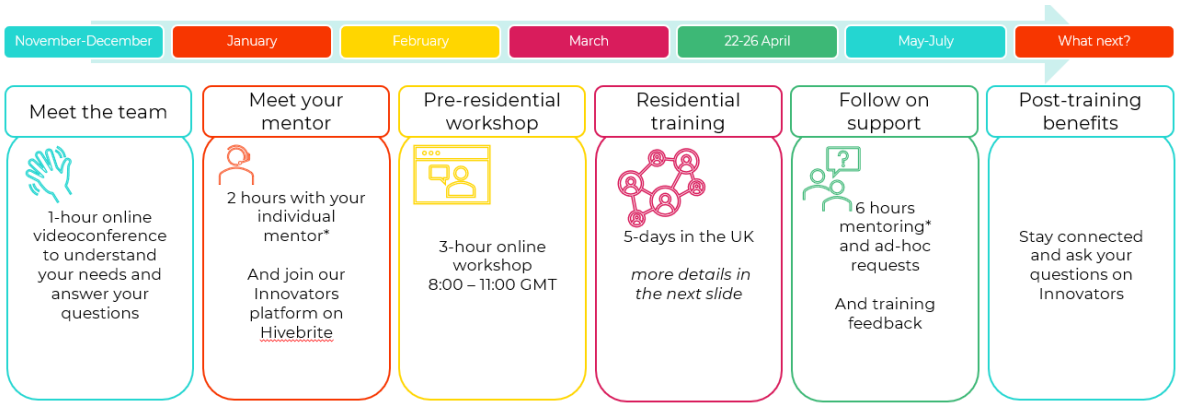
5. Learn and adopt SETsquared Partnership model

A collaboration among leading research-intensive universities supporting high-tech startups and scale-ups through combined expertise and resources.

6. Build a Community Among ASEAN Countries for Commercialisation Connected with the UK Network

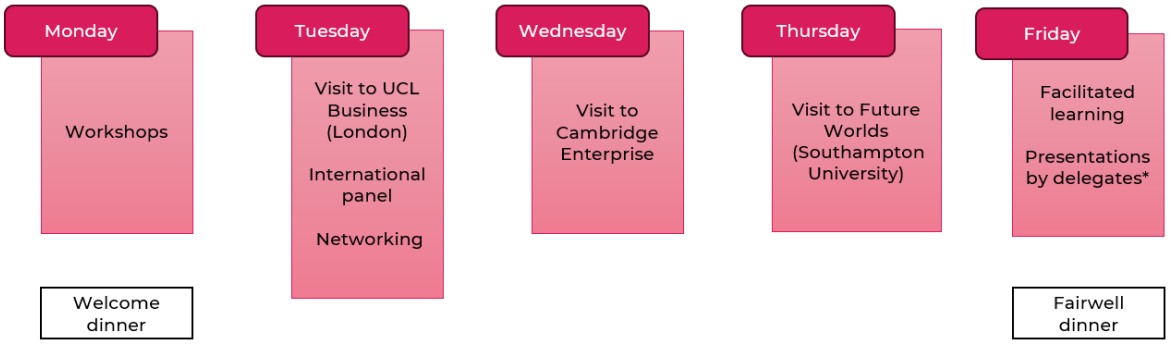
- **Objective**: Foster regional collaboration in commercialisation and connect it with the UK's innovation ecosystem.
- **Actions**:
    - Establish a network of innovation hubs and TTOs across ASEAN countries, promoting knowledge exchange and collaboration.
    - Facilitate regular virtual and physical meetings, workshops, and conferences to share best practices and experiences.
    - Create specific focus groups within the network for areas like blue economy innovation, biotechnology, and health technology.
    - Leverage UK expertise and resources by inviting UK experts to participate in ASEAN network activities and providing reciprocal opportunities for ASEAN innovators in the UK.

Annex 1. Training Programme



*minimum number of hours. Mentoring can be grouped per institution.

5-day in the UK



Annex 2. Other Information and Resources

Lamber Toolkit
https://www.gov.uk/government/publications/the-lambert-toolkit-8-years-on

E-lucid platform for online IP Licensing
https://e-lucid.com/

Innovation-to-Commercialisation of University Research
https://www.icureprogramme.com/