

Brought to you by



In Collaboration With



MINISTRY OF HIGHER EDUCATION

Creating value through collaborations: Lessons learnt from the UK-Malaysia Higher Education Partnerships 2020

30th November 2020 | Tuesday | 4.00 pm – 5.40 pm

Forward

Successful technology transfer process in bringing promising research and development results to market depends on a range of factors – from having established technology transfer offices and experience staff and resources in universities, research institutes and other public research organisations to industry linkages and collaborations. Encouraging partnerships between the UK universities with Malaysian universities' technology transfer offices to share their expertise and best practices will help boost Malaysia's ability to turn scientific knowledge into new, commercialised products and services. In addition, bringing the UK universities into contact will help foster more cross-border research collaborations and increase international research and industry networks.

The British Council in Malaysia in partnership with the Ministry of Higher Education Malaysia has recently pursued a project on 'Enhancing the Sustainability of Technology Transfer and Research Management in Higher Education Institutions through strategic UK-Malaysia University Partnerships', with the aim to develop a small number of collaborative partnerships between higher education institutions in the UK and Malaysia.

This forum will provide a platform for the project leads of these nine UK-Malaysia Higher Education Partnerships to showcase their collaborative project outcomes and share their experience, good practices, new models and knowledge expertise in technology transfer that were made possible as a result from these partnerships.

This forum will also highlight some of the key points from the scoping report, current changes taking place in the technology transfer landscape in Malaysia, as well as the way forward for UK-Malaysia Higher Education Partnerships which will also extend to strengthening University-Industry links through partnerships.

Report Contents

ii	Forward
1	Overview of the programme: Introductions, scene setting and strategic context, including forward look YBhg. Prof. Dato' Dr. Muhammad Fauzi Bin Mohd. Zain Director, Department of HEIs Planning and Excellence Ministry of Higher Education Prabha Sundram Head Education British Council, Malaysia
2	Overview of the projects and outcomes, recap on the history of the programme Key messages from the funded projects: outcomes and progress Dr Dan King, Director, Research Consulting Consultant on behalf of the British Council
3	Introduction on some of the cross-cutting “themes” Dr Dan King, Director, Research Consulting Consultant on behalf of the British Council
4-5	First Theme: The collaborations: lessons learned and the sustainability of collaborations Speakers 1) Cranfield University & University of Malaya (UM) • Peter Collier IP and Commercialisation Manager, Cranfield University • Dr Fauziah Shahul Hamid Head, Centre for Research in Waste Management / Senior Lecturer, University of Malaya 2) Aberystwyth University & Universiti Teknologi Malaysi (UTM) • Dr Rhian Hayward MBE CEO, AberInnovation, • Associate Professor Dr Noor Azurati Binti Anmad Deputy Director of Innovation and Commercialisation centre, Universiti Teknologi Malaysi (UTM) Moderator Prabha Sundram Head Education, Malaysia British Council

6-7

Second Theme: Industry engagement

Speakers

1) Newcastle University & Universiti Tenaga Nasional (UniTEN)

- **Dr Luke Judd**

Business Development Manager, Newcastle University

- **Prof. Agileswari Ramasamy**

Deputy Dean Research and Postgraduate College of Engineering,
Universiti Tenaga Nasional

2) University of the West of England (UWE), Bristol & Taylor's University

- **David Ludlow**

Associate Professor of European Smart Cities, University of the
West of England (UWE), Bristol

- **Dr. Sarfraz Nawaz Brohi**

Program Director (Software Engineering), Taylor's University

Moderator

Dr Dan King,

Director, Research Consulting

Consultant on behalf of the British Council

8-9

Third Theme: Developing technology transfer experience and capability

Speakers

1) Coventry University & University of Malaya

- **Dr Brian More**

IP Commercialisation Director, Coventry University

- **Prof. Ir. Dr. Fatimah Ibrahim**

Director, UM Centre of Innovation and Commercialisation,
University of Malaya

2) University of Nottingham & University Malaysia Perlis (UniMAP)

- **Prof Deborah Hall**

Professor of Hearing Sciences, University of Nottingham

- **Mr Mohammad Shariff bin Ismail**

Lecturer in Business Innovation, University Malaysia Perlis, UniMAP

Moderator

Kuek Yen Sim,

Head, Newton Fund (Science & Research)

British Council, Malaysia

10

Closing remarks and observations

Prabha Sundram

Head Education

British Council, Malaysia

Overview of the programme: Introductions, scene setting and strategic context, including forward look

Welcoming Speech and Project Overview by Ms. Prabha Sundram

The British Council's Higher Education Partnerships (HEP) programme is a regional East Asia initiative that aims to increase collaborations and support internationalisation in areas such as transnational education, research and innovation, academic and student mobility, policies and capacity building in the area of higher education. In Malaysia, based on the British Council's consultation with the Ministry of Higher Education, the UK-Malaysia HEP programme was designed to develop partnerships for knowledge exchange and capacity development in the area of technology transfer within higher education institutions. The aim of the project is to develop a small number of collaborative partnerships between higher education institutions in the UK and Malaysia. The Virtual Forum serves as a platform for six out of nine funded UK-Malaysia Higher Education Partnerships to present their project outcomes and lessons learned as a result of these partnerships. Despite delays and restriction due to the pandemic, some projects have achieved wider institution-to-institution engagement, identified sustainable funding opportunities, including participation of organisations beyond the academic partnership. Moving forward, it is hopeful that the network effect can propel more strategic partnerships that are mutually beneficial to both UK's and Malaysia's stakeholders.

Opening Speech by YBhg. Prof. Dato' Dr. Muhammad Fauzi Bin Mohd. Zain

Yang Berbahagia. Prof. Dato' Dr. Muhammad Fauzi Bin Mohd. Zain, the director of Department of HEIs Planning and Excellence, Ministry of Higher Education expressed the idea behind the HEP programme as a way to facilitate mutual beneficial higher education partnership opportunities between UK-Malaysia higher education institutions to enhance the sustainability of the technology transfer. Referring to the current higher education landscape in Malaysia, the theme of this programme, technology transfer is aligned with the 7th shift under the Malaysia Education Blueprint – Innovation Ecosystem. Innovation has been identified as a major driver to stimulate national economic growth. The 9 projects selected work on the pillars of technology transfer and research management. The aim for these projects are to build linkages between UK and Malaysian universities while leveraging on industry expertise to share best practices.

Overview of the projects and outcomes, recap on the history of the programme

Key messages from funded projects: outcomes and progress by Dr. Dan King

Dr. Dan King, Director of Research Consulting and Consultant on behalf of the British Council on this project, briefed the audience on how the project started with strategic priorities that were identified in Malaysia for the development of technology transfer, a realisation about the potential of research to make an economic differences and contribution in Malaysia. As the initiative was announced between British Council and Ministry of Higher Education, an initial scoping study, followed by partnership development workshops and a call for proposals were initiated. This led to nine projects between 10 UK and 8 Malaysian higher education institutions being funded by the programme.

The nine projects address different aspects of technology transfer and can be broadly grouped into three areas:

Approaches and performance of technology transfer	Technology transfer in life, biology, health and agriculture sectors	Technology transfer in sustainable urban environments
---	--	---

Most projects involved industry partners with a total participation from more than 40 companies and 3 governmental agencies. The majority of the projects had the unique opportunity to build international partnerships and a number of them are planning to extend those partnerships beyond the original scope of the project, which include the potential of teaching partnerships and publications in the respective sectors. To further sustain the development under their projects, some partnerships have developed Memorandums of Understanding, while two have been awarded additional funding. The COVID-19 pandemic has generated significant challenges, through flexibility and some changes to planned activities, these have been largely mitigated and the outcomes largely achieved. The participants, British Council and Ministry of Education are given credit for this.

Every project has organised face-to-face visits and workshops were the most common types of engagement activities undertaken. The others include engagement with the industry, site visits to facilities such as laboratories, training or capacity building sessions, as well as involvement of stakeholders beyond the project team. To ensure sustainability, most of the project partners have collectively planned for, applied for or been awarded further funding. Knowledge-based output such as publications and training materials were also created and will be used in future workshops. To strengthen and ease the partnership process moving forward, three out of nine projects have developed and in progress of signing Memorandum of Understanding between the universities. Collaborations beyond the original scope is on the horizon, which could involve further research and joint education programmes, which could involve further research and joint education programmes.

Introduction on some of the cross-cutting “themes” by Dr. Dan King

The event included speakers from six of the nine funded projects and in addition to giving an overview of the whole project we have also asked them to focus on three themes that are:



Lessons learned from the collaboration, and the sustainability of the developing collaborations,



Industry engagement supported through the project

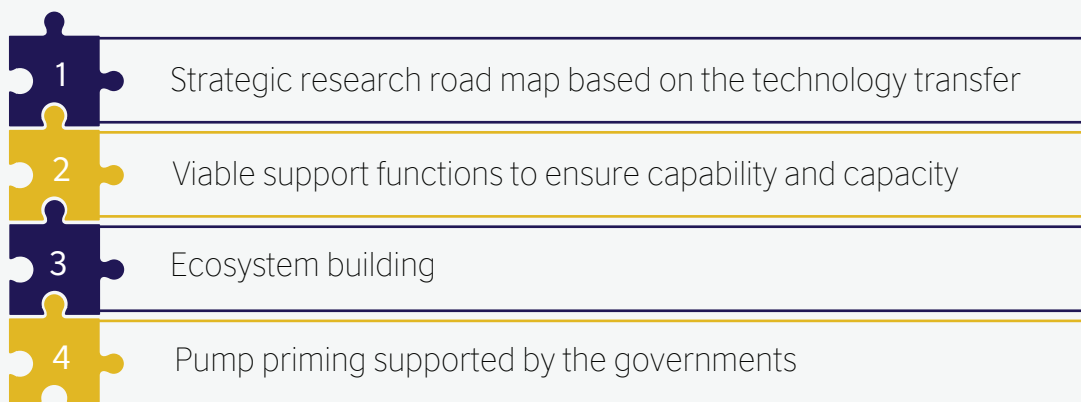


Developing technology transfer capacity and experience – observations and lesson learned.



First theme: The collaborations: Lessons learned and the sustainability of collaborations

Mr. Peter Collier, IP and Commercialisation Manager of Cranfield University represented the partnership between Cranfield University and University of Malaya. The universities partnership aims to enhance sustainability of technology transfer in integrated solid waste management and resource efficiency. Mr. Collier illustrated the sustainability of technology transfer as four building blocks consisting of:



The focus of the project was synthesized from the global and local challenges together with the commercial state-of-art development. The local and global challenges are interlinked and there have been substantial movements in Malaysia to advocate for solving the problems of plastic waste, non-sanitary landfill, waste segregation and food waste. Globally, countries are witnessing exports of waste, pollution, low carbon energy and the reduce-reuse-recycle-recover campaigns. The project also looked into successful collaborations and past activities such as the biofertilisers product derived from palm oil mill residues in Malaysia. The projects organised workshops that brought together governmental agencies, policies makers and stakeholders such as start-up companies and waste management practitioners to investigate the sources of and interventions for waste issues. The participants intended to adapt the existing technology to local-context applications, such as emerging solutions to trace, analyze, sort, segregate, recycle and recover wastes. The project successfully gathered insights on local adaptation and social sciences collaboration, such as food waste and composting. The waste management process can be further enhanced if grass roots organisations can be empowered to work more productively. Other insights include how to improve energy recovery from waste, the improvement achieved using biomass feedstocks to reduce reliance on fossil fuels and the hidden potential to recover through landfill mining and reduce land or water contamination. Through this project, the partnership has bid for the NERC/GCRF Research Call on “Reducing Impacts of Plastic Waste in Developing Countries” with a proposal on Integrated evaluation for PLAS^Tic waste management in MALaysia and InDONesia to minimise impact on the environment (PLASMADON). Continuous engagement is expected and a proposal has been submitted to the Malaysian Biomass Climate Action Initiative under UK PACT (Partnering for Accelerated Climate Transitions). Mr. Collier wrapped up his presentation by expressing optimism in this partnership and believe that each step in this process so far could be a HEP programme as the original project has a wide focus.

Associate Professor Dr. Noor Azurati Binti Ahmad, Deputy Director of Innovation and Commercialisation Centre, Universiti Teknologi Malaysia (UTM) presented the 2nd project under this theme: Towards Best Practice in Commercialisation of Bioprocessing and Biorefining Research Outputs in Collaboration with Industry. The project is a best practice sharing partnership between Aberystwyth University (AU) and UTM. The partnership was initiated early 2019 through a UK-Malaysia HEP workshop that highlighted 3 successful translational projects based in UTM. UTM Technovation Park is looking forward to provide a more conducive environment for incubation and start up with the collaboration from AberInnovation Hub. AU and UTM have conducted working trips to visit each other followed by a survey to assess their academic staff to assess their attitudes to and willingness for commercialization activities.

Through the project, the relationship between universities and other stakeholders have been strengthened. Each university has facilitated workshops that host industry partners who are start-up or spin-off companies. A needs analysis of industry also have been conducted while matching the needs of AU and UTM R&D capabilities. More ideas about collaborative projects that can cater to industry needs and commitments have been curated. The potential projects consist of 5G in-campus implementation, hydrothermal extraction technology, food waste valorisation, feedstock for bio jet fuels, techno economic model and probiotics and enhancers in aquaculture. A comprehensive roadmap has been created to ensure the most effective technology transfer approaches for the animal feed and biorefining sectors. The plan ahead includes a MOU signing between UTM-AU-AberInnovation Hub in December with potential joint laboratory and incubation programmes.



During the Q&A session, Mr. Collier explained that the broad HEP programme has massive opportunities for partners to develop deeper understanding for each of the process in the pipeline. With that, more standalone projects can help to deliver impact to the subcategories. Dr. Rhian Hayward, CEO of AbberInnovation pointed out the differences between spin-off companies from AU and UTM. This mainly involves post-doctoral researchers who establish startups and considering leaving the academia to do so. UTM has a flexible system where the entrepreneurs can opt for a sabbatical period to build their new ventures . They can choose to return to academic work regardless if the venture is successful or has failed. AU has considered this as a key learning for future setup to encourage more academicians setting up their own startups.



Second theme: Industry Engagement

Dr. Luke Judd, Business Development Manager of Newcastle University presented the University Tech Transfer Partnership between Universiti Tenaga Nasional (UNITEN) and Newcastle University (NU). The overarching aim of the collaboration is to strengthen the partnership between the two institutes on top of the existing cooperation in academic development. The universities hope to instil new partnership in energy security knowledge exchange. The real time energy simulator can be set up in UNITEN benefitting from the technology developed in Newcastle. The project team is also hopeful to access the UK and Malaysian market information through technology transfer opportunities. The other opportunities include future translational research joint-funded projects and sharing of best practice in technology transfer.

One of the key outputs of the partnership is the understanding of structural differences in technology transfer department between the two universities. This can help to inform future development on commercialisation strategies and policies. Progress has been made on the real time simulator lab, which is going to be established at UNITEN with NU advising on the current capabilities and mirroring the NU's SmartGrid Lab. A second life batteries joint translational project was also ongoing but the progress was affected by the outbreak of the pandemic. The future plan is to increase the data sharing between SmartGrid and UNITEN real time simulator, as well as a potential transfer programme between the two universities. Dr. Judd has called out the most important part of a technology transfer, which is to deliver the technology to the industry. This partnership is ready to do so thanks to the industry players involved in the early stage such as Siemens, TNB, Tyne Pressure Testing and Northern Gas Networks.

Dr. Sarfraz Nawaz Brohi, as the Program Director of Soft Engineering, Taylor's University led the HEP project titled Knowledge Exchange on the Opportunities and Challenges of Implementing UK-based Smart City Governance Initiatives from Malaysia. The project was conceptualized based on the discussion centred around the challenges of mobility and pollution. The universities exchange local context knowledge about the existing innovations in the UK and Malaysia before initiating the knowledge transfer process. This was followed by the proposal to British Council and other agencies to apply for full-scale implementation grants. To build empathy and understanding in the smart city context, an international forum on knowledge exchange was organised for industry players and academia. Taylor's University also conducted a workshop that uses round table discussion format to identify opportunities and challenges of implementing UK-based smart city governance initiatives in Malaysia. This was made successful by sharing from the UK academic counterparts and brainstorming about the potential solution transfer from the UK to Malaysia.

Through the forum and workshop, a few industry players (MIMOS Berhad, Fusionex and Basis Bay) were identified and they were invited to furnish the project partners with more market and industry knowledge. This also opened up the possibilities of collaborations in the future. The key insight for this partnership is the significance of multi-partner engagement and co-design. Hence, the partners need to develop common language of communication to ensure seamless implementation of solutions.

The project also will explore the blue ocean such as ICT application to governance process and decision making while driving transitions to carbon neutral and sustainable cities. The project is planning to design a smart mobility technical solution for the integration of public transport hubs/stations to major hospitals and clinics in KL. This will be especially helpful for elderly and patients who are not able to access these facilities on foot. The vision is to have eco-friendly solution with a reduced carbon footprint using state-of-the-art technology. The project team is also drafting several proposals concerning Smart City governance to facilitate transition to a more open and integrated smart-city ecosystem.



In the Q&A session, Dr. Luke Judd emphasized on the importance of input from Tenaga Nasional Berhad as the industry player and major stakeholder. The involvement has triggered the application of second-life batteries to be used for energy storage that is more sustainable because of the “renewability”. Dr. Sarfraz echoed that by pointing out the industry’s input has encouraged the project to look at real-life implementation with various existing tools and platforms in the market. The different perspectives gained have enabled the team to dig deeper and consider other potential smart city applications.








Third theme: Developing technology transfer experience and capability

Prof. Ir. Dr. Fatimah Ibrahim, Director of UM Centre of Innovation and Commercialisation (UMCIC), University of Malaya (UM) presented on behalf of the partnership between Coventry University (CU) and University of Malaya: Building capacity to catalyse industry relationships – sharing good practice models for sustainable innovation. The project objectives are derived from the pillars of knowledge exchange, collaboration, shared methodology, capacity development, engagement and strategic development. Engagement with the IP commercialisation unit has started during the visit to CU to understand the organisational structure, IP management and IP marketing. The visits also include trips to the simulation centre, the spin-out company and the Castle Brook care home. In January 2020, the team from CU paid a visit to UM's Faculty of Engineering and the Centre for Research in Industry 4.0. During the visit, Dr. Brian Moore has conducted training at UMCIC on IP commercialization, licensing of technology and writing a business plan aimed at attracting investor funding. Other activities include visits to UM Power Energy Dedicated Advanced Centre (UMPEDAC) and a local engineering company DreamEdge.

One of the key outcomes is the best practice learned about human capacity in both organisations specifically in the technology transfer office. In the UK, there are permanent posting of roles such as a director assisted by executives in specific scientific disciplines, licensing officer, IP lawyer and administrative officer to ensure the office operate with high efficiency. The team from CU also learned about the pre spin-off (1 to 2 years) and accelerator programmes in Malaysia to prepare researchers for their entrepreneurial journey. Courtesy of the detailed sharing from both universities, four main focus areas on patent exploitation and technology transfer in Malaysia are established. Based on the learning, commercialisation and spin-out companies are able to create more revenue and jobs compared to patent applications. The dedicated human resources for commercialisation will help propel the process of patent commercialisation. A policy to reward revenue generated by University and technology transfer office will boost sustainable commercialisation, with the revenue being used to hire more qualified staff and reinvest into the national economy. The future collaboration pipelines for both universities are in place. MOU between the universities have been signed to generate long-term HEI-industry engagement and knowledge exchange. Training of trainers programmes will include delivery of IP masters level content. The other plans include cross marketing of IP between two universities, research about technology in healthcare and care homes, commercialization supported by advanced AI, Machine and deep learning, and support in cross funding from respective investors.

Professor Deborah Hall, Professor of Hearing Sciences for University of Nottingham shared about overview and outcomes of Sustainable Capacity Development in Technology Transfer and Research Management between University of Nottingham, Nottingham Trent University and Universiti Malaysia Perlis (UniMAP). The key focus of the project is on capacity development of technology transfer and research management. It covers the areas of governance, working with the industry and IP management under the umbrella of capacity development. The partners started the project by examining the similarities and differences of the technology transfer landscape between the UK and Malaysia. Malaysia and UK are on the same pathway and relevantly aligned. There are already existing platforms in Malaysia that can be utilised to adapt or adopt the UK approaches.

Professor Michael Carr, during his visit to Malaysia, has been of great support in conducting training and deep dive into adoption of UK's approaches and platforms by the Malaysian partners. From this visit, a train-the-trainer workshop was designed and delivered. The workshops aim to:

-  1 Share about the Malaysia and UK national perspectives
-  2 Understand the research journey from inception to commercialization
-  3 Comprehend the management of Background and Foreground of Intellectual Property
-  4 Have an overview on the Lambert Toolkit developed by the UK IP office
-  5 Reflect on each other's best practices

The workshops were well received by public and private universities, legal officers, research managers, technology transfer officers and senior innovation managers. The industry players also participated in the workshops with delegates in the roles of R&D managers, general managers and managing directors. The two workshops have been a good avenue to accelerate the capacity development among universities and industry players, as well as with the Malaysia's IP office staff in the second workshop. The feedback towards the workshops have been very positive with participants' delight about the new knowledge such as Lambert Toolkit, IP management in academia and understanding the cross-domain point of views. A training booklet (Commercialising Research and Intellectual Property: A user's introduction to the UK's Lambert Toolkit) has been produced as part of the sustainable knowledge cascade in this project.



During the last Q&A session, Prof. Fatimah reiterated that the most impactful part of the project is with regards to the IP commercialisation and negotiation training provided by the UK partner. The learning about proposal writing is beneficial for the university to understand the quick tips on how to attract investors' attention to the project. Prof. Deborah explained that the booklet is a complementary tool to the workshops especially to elaborate on the content and facilitate the activities. The workshops contained a high volume of information and the project team hope that the delegates can bring home the knowledge and explore further at their own leisure.

Closing Remarks

Dr. Dan King expressed his utmost appreciation towards all the projects involved in the HEP programme since 2018. The joint training workshops by the industry and academic have been one of the many outstanding achievements in this journey. At the heart of the industry engagement, it is the discovery of industry partners by the universities to collaborate towards shared goals and exploration of new opportunities.

Ms. Prabha Sundram thanked everyone who were involved and have contributed in the project including the MoHE, partner universities and wide ranging of stakeholders. She was delighted with the learning outcomes that is clear evidence of strong industry-academic collaboration. The creation of spin-off ventures, training toolkits and joint degree programmes are over and beyond what's expected when the programme started. It's definitely a journey worth sharing and following, to witness future development as a result