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University-industry collaboration: clash of two cultures

There is no doubt that one aspect of research productivity in Malaysian universities has improved since 2010. In terms of paper publication and citations, Malaysia has outperformed Thailand, Vietnam and the Philippines. As for field-weighted citation impact, Malaysia was above the world average in 2016, performing better than Thailand, Indonesia and Vietnam.

Using Scopus data for the 2014-18 period to assess annual scholarly output, Elsevier and the Malaysian Ministry of Education reported that Malaysia was second only to India when it came to the growth of its scholarly output, ahead of South Korea, Japan, Australia, Singapore and Thailand.

The number of Malaysian institutions included in the QS World University Rankings reached 20 in 2020, with one in the top 100, four in the top 200 and seven in the top 500.

To further boost research productivity and promote the transfer of university research findings, the Malaysian government has introduced various administrative policies and initiatives emphasising collaboration between universities and the private sector. The industrial PhD (MyPhD Industri) and 2u2i (two years at university and two years in industry) are among the initiatives introduced in the context of the University-Industry Collaboration (UIC).

The 2u2i programme represents a learning approach in which students are required to study on campus while doing industry placements. The programme aims to support flexible education and is under Shift 1 of the Malaysia Education Blueprint 2015-2025 (Higher Education): Holistic, Entrepreneurial and Balanced Graduates.

The industrial PhD, on the other hand, is a way of promoting academic and scientific exchange and enhancing communication between universities and industries.

From a learning perspective, both programmes aim to provide students with greater exposure to the real working environment and to user-oriented research and business skills experience. To ensure the content, delivery and learning methods offered by the universities are relevant and conform to industry needs, industry involvement in curriculum design for 2u2i is critically important.

But what are some of the challenges facing such initiatives?

Challenges for university-industry partnership

Reports by the 12th Malaysia Plan (2020-2025) and Science Outlook 2020 have highlighted that research and innovation outcomes and industry and community impact are still low and that UIC remains an underdeveloped agenda.

Research in this area has highlighted organisational cultural differences as the most difficult challenges. Prior research has cited universities' inflexibility, hierarchical communication style, bureaucracy and their lack of focus on an outcome-oriented culture as barriers to effective collaboration.

This means that, at the most basic level, there is a fundamental cultural dissonance between university

and industry involving different values and priorities. In such an environment, negotiations or collaboration cannot occur successfully.

Expectations of partnership outcomes are also different between universities and industries, leaving both partners frustrated and unmotivated to continue their research initiative.

Industry partners often insist on measurable goals and specific timeframes that provide a more precise focus.

However, a lack of urgency on the part of academic partners to meet deadlines or to address potential delays is perceived by industry partners as a laissez-faire approach to research and as a failure of good project management practices.

Academics, on the other hand, attributed the barriers to a lack of time due to their heavy workload and a shortage of laboratory facilities for research and development work. They also highlighted a lack of communication and coordination concerning research projects, potential partners and the strategic direction of the institution itself.

Even when policies were established, the reality was that the university strategy did not deal with day-to-day issues such as placement of academics in industry and vice versa, or how the strategy would benefit both parties.

There are also issues regarding academics' ability to engage in research on critical topics that are useful to the nation. Industry reiterated that investment in Malaysian universities is a huge risk and that the knowledge and technology know-how of academics is not increasing in line with the expectations of global industry.

As highlighted by previous national reports, much of the R&D work conducted in Malaysian universities has been merely duplications or reverse engineering of technologies already in place in developed countries.

A related concern was that the quality of research activities of professors has declined along with their research commitment and ethics. Universities need academic leaders who do not merely 'talk the talk' but also 'walk the walk'. This would give them invaluable credibility, both internally and externally with industry.

Finally, a lack of trust among partners has been identified as a key issue affecting the success of research and innovation. Trust takes considerable time to develop among partners, particularly among industries that are keen to protect their technological advantage in a highly competitive sector.

Tackling the culture divide

When it comes to the two initiatives mentioned above, the Ministry has drawn up guidelines to minimise culture clashes and to furnish opportunities for knowledge and technology exchange and expand researchers' experience, leading to more effective teaching and research that fulfil industry requirements. The mechanisms include consultancy and training as well as specially designed continuing education programmes and academia-industry mobility (AIM) including the placement and-or attachment of staff.

However, some universities have gone much further by insisting on a legally binding agreement with industry with respect to the right to publish results of industry researchers pursuing PhD studies at universities.

For example, one public university has drawn up a legally binding document that states that all rights over any new intellectual property developed by the student arising from the project should be vested in the university in accordance with its intellectual property policy.

The sticking point at the heart of university culture is the right to publish. To minimise clashes between university and industry in this area in the context of industry PhD programmes, public universities have duly acknowledged in their legally binding agreements that all data and information accruing from this agreement may be published by the university in accordance with its intellectual property policy.

The company has to be given a copy of any proposed publication at least 21 days prior to submission for review of patentable items or items

deemed confidential. Evidently, universities that have not adequately addressed these differences in their cultures, have not been very successful in attracting industry PhD candidates even though they are located in close proximity to regional industrial complexes.

According to the Ministry of Education, 30% of public university lecturers need to be well versed in industry requirements for universities to implement the 2u2i programme. Inevitably, that involves understanding industry culture with respect to confidentiality and its overall work culture.

Towards better research and innovation

Evidently, the establishment of trust and a shared vision as well as negotiation skills are needed to lay the groundwork for research collaboration, while good practice guidelines for effective management of projects need to be developed and understood by all stakeholders.

One possible approach is to establish a Responsible Research and Innovation (RRI) framework and adopt the processes used by the EU Horizon 2020 programme in which actors work together to reach socially desirable research and innovation outcomes while simultaneously adhering to ethical standards and focussing on sustainable development goals and the greater public good.

A shift from policy-based negotiations to principle-based negotiations should also be strongly promoted in the new Malaysian research and innovation ecosystem. The keys to principled negotiation are thorough preparation, open negotiation with positive messages, affirmative closing negotiations and effective follow-up implementation.

In the case of any dispute over the handling of IP, both universities and industries should be more flexible and realistic in their financial expectations. The goal is to get the technology out to be developed and commercialised for the public good. Also, making the first offer effectively, based on what is customary and standard in the technology sector anchors the negotiation, sets a ceiling and establishes the basis for a successful negotiation outcome.

Evidently, there must be a belief in the potential partners and a sense of trust that there is mutual benefit for both sides of university-industry collaboration in Malaysia.

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