

## Research Commercialisation: Roles of University Spin-Off at the University-Industry Interface

### Introduction

University's traditional paradigms to generate, perpetuate and disseminate knowledge are undergoing progressive shifts since the inculcation of research commercialisation idea. Conventionally, universities were allocated public funding to pursue research and development (R&D) while the privilege of picking research agendas in accord of nation's interests was handed to scientists. In the USA, however, following the enactment of the *Bayh-Dole Act 1980* and the passing of a series of laws, the background of university research has since experienced dramatic changes wherein the R&D philosophy had gained contemporary interpretations. These events are largely acknowledged to have had implications, to some extent, to the affairs of university research around the globe.

Nowadays, strategic partnerships between university and industry are growing to facilitate the flow of research outputs from labs into marketplace. Accordingly, applied research is gaining favourable attention over basic research, while scientists, conventionally known for their knowledge quests and non-meddling stances in commercial activities, are strongly urged to accommodate entrepreneurial approaches to advance further in career, as well as to give a proprietary research a priority. These scenarios illustrate the increasing influences of research commercialisation towards university's affairs worldwide thanks to its potentials as an alternative revenue streams and as a key player in the global economic race.

### University-Industry Connections

Research commercialisation is "a complex and heterogenous concept, requiring complicated interactions between research providers, the companies wishing to exploit the research and the investment sector" (ARC, 2000). Within the scheme, technology transfer plays the essential part of the efforts, while public research institutes, especially universities, has been identified as the main players alongside the industry sector.

The role of universities in the growth of national innovation systems and economy is well recognised, but the translation of research outputs into marketplace has rather not been as good, even in industrialised countries like Australia, Canada and Scotland. This is because technology transfer is considered problematic between research institutions and industry, even though the latter is well poised to exploit the university research. There are few contributors to this downside; fundamental differences in the nature of organisations involved, complicated stages of product development, and lack of communication between interested parties. It is argued the university-industry connection (UIC) is positive and productive when both parties are aware of each other's responsibilities and expectations, which can be promoted through various well-defined mechanisms. One of the solutions is through the establishment of university spin-offs (USO), which is defined as "a new firm created to exploit commercially some knowledge, technology or research results developed within a university".

The USO's business interactions are typically bilateral; in the first place, it commences by outlining research and business pursuits that are developed within the host university and followed by, at subsequent stages, mutual engagements with the industry in the management of products to the marketplace.

The synergy of the UIC has been demonstrated in a number of successful stories in several major industrialised countries. In Australia, a case study of the USO at RMIT University shows not only the university has benefited financially from the UIC, but so has the wider economy and society. For example, Inquiron Pty Ltd, a company that specialises in database systems, managed to sell TeraText, an advanced database technology developed within the university which includes knowledge bases, legislation systems, web portals and digital libraries to various Australian government departments, as well as to the federal government of Canada. Furthermore, the company entered an alliance with a US high profile science-based company to develop and commercialise TeraText Technology in North America and Europe under an intellectual property (IP) arrangement, which saw Inquiron Pty Ltd gaining more than AU\$12 million in licence fees over a six year period. Another benchmark for the UIC is also notable in the creations of high tech industrial clusters in a few regions, the best known examples being the synergy between Stanford University and Silicon Valley, Massachusetts, Cambridge, England, as well as in Oxford University and its vicinity. Other indicators might include the influences of university research in the advancement of other highly successful companies such as Google, Lycos, and Cirrus Logic etc.

## Conclusion

As public universities in Malaysia are actively building up credibility in R&D, issues of research commercialisation must be taken into considerable account given its impact on the national economic competitiveness and to the growth of science and technology in the long term. Establishing good research profiles must be given priority, particularly that of having economic and social dimensions in order to spur greater involvement from industry through the UIC initiative. The USO is seen as an effective medium at the interface of university and industry in a way that differences between players can be reduced and mutual involvement can be brought up to a win-win position. Moreover, it serves as a conducive platform for attracting venture capital investment, be it locally or overseas, apart from creating more new jobs and skills. Accordingly, the role of government in facilitating the UIC is absolutely central through various mechanisms and promotions such as providing greater amounts of funding, supportive new tax regimes for the players and by setting up a framework policy for the evaluation of research commercialisation in Malaysia.

## Source:

Sharma, M., Kumar, U. & Lalonde, L (2006). Role of University Technology Transfer Offices in University Technology Commercialisation: Case Study of the Carleton University Foundry Program, *Journal of Services Research*, 6., 109-139

*Research in the National Interest: Commercialising University Research in Australia.* (2000). Canberra: Australian Research Council.

Zhao, F. (2004). Commercialisation of Research: A Case Study of Australian Universities. *Higher Education Research and Development*, 23., 223-235

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