

UNIVERSITI TEKNOLOGI MARA

**DETERMINANTS FACTORS OF
BIOTECHNOLOGY
COMMERCIALIZATION IN
MALAYSIA: RESOURCE-BASED
VIEW PERSPECTIVE**

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ABSTRACT

Managing a firmly established biotechnology company in Malaysia is challenging and requires various resources and comprehensive capabilities. With tight resources and a challenging environment, biotechnology commercialization performance has now become the main agenda to strive for in the bio-economy. Thus, this present study bridges this gap by investigating the prominent resources crucial to Malaysian biotechnology companies that may play a central role in commercialization success. In particular, this study adopts the Resource-Based View (RBV) as a grounded theory to identify enabling factors comprising the four categories: human, technological, financial, and organizational resources. An administrated survey was distributed to a total of 225 Malaysian biotechnology companies with specific criteria; companies that involve in the commercialization of biotechnology-related inventions, technology, or product. A simple random sampling approach was implemented, and data was collected via an online survey and phone interview from September 2017 until January 2018. For analysis, partial least squares path modeling (PLS-PM) software was utilized in this study. A structure path modeling has been designed based on these constructs by relating it to commercialization success using the PLS algorithm and bootstrapping method. A quantitative survey indicated that biotechnology companies indispensable a resource-based view regarding technological capability, funding access, and new talent. This study benefits the literature in commercialization study by extending the understanding of biotechnology companies' resources and capabilities that are significant towards commercialization success. In addition, this study shed light on Malaysian biotechnology companies to develop a successful long-term business plan by concentrating on their competitive strategy, resources, and capability, thus leading to commercialization achievement.

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CHAPTER 1

INTRODUCTION

1.1 Research Background

The significance of university in generating new prominent knowledge and technological advancement need not be described. Science and technology from university expertise and innovation have long been driven towards competitiveness, economic growth, and wealth (Fayolle and Redford, 2014; Mian, 2011). In recognizing the importance of knowledge-based economies, Malaysian universities had been adapted to the new era. New manifestation arises; academic research and inventions should not take for generating knowledge alone but should drive the country's economy. Nowadays, Malaysian university is not the only place for knowledge dissemination, but this paradigm shifts towards including innovation and commercialization to generate national wealth. Academic research commercialization is significant because of its contribution to local economic growth (Heng et al., 2011).

Thus, the commercialization of academic-based research has become a significant focus of the Malaysian government. Under the Ministry of Science, Technology, and Innovation (MOSTI) and Ministry of Higher Education (MOHE), they play critical roles by supervising several entities involved in biotechnology, ICT, industry, and sea-to-space, such as the National Institutes of Biotechnology Malaysia (NIBM) and Academy of Sciences (ASM). At the same time, MOHE governs a network of centers of excellence with a solid international reputation to propel technology and innovation development.

Furthermore, recognizing the importance of commercialization, the pressure to speed up the transfer is significantly higher. Comprehensively, Malaysian universities gradually focus commercialization activities on their inventions as part of influential agenda for them to generate income, hence leading to entrepreneurial university statutes (Ismail et al., 2011). The cooperation between entrepreneurial universities and industry has