

A Case Study Analysis of Typhidot: An Example of Market-Oriented R&D Commercialization in Malaysia

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Abstract

Background and objective: despite many empirical studies on the success factors for R&D commercialization in the past few decades, the success rates have not improved significantly. Possible explanations for this could be that the processes involved and how these interact with other components of the commercialization ecosystem at the different commercialization phases are not well understood yet. Market-oriented approach to R&D commercialization was proposed in this study as a possible way of increasing the success rates of commercialization. **Materials and methods:** the case study approach was proposed to provide insights into the commercialization processes and how these interact with other components of the commercialization ecosystem. Typhidot, an acknowledged market-oriented R&D commercialization was selected for the case study. **Results:** the findings indicated different challenges at different phases of the R&D commercialization journey and many of the processes at the different phases were iterative in nature. A “Z to A” market-oriented R&D commercialization framework was proposed based on the Typhidot case study. **Conclusion:** while the “Z to A” approach was important basis for market-oriented R&D commercialization the study also highlighted the strategic choices of scaling up and the impact of the choice on business viability. A wrong scaling-up strategy would influence the diffusion rate and extent of R&D commercialization, which ultimately determined whether it would succeed or fail in the market place.

Keywords: market-oriented R&D commercialization, case study, Typhidot, commercialization ecosystem, Malaysia

1. Introduction

The field of R&D commercialization has gained considerable importance in the last fifty years; however, it has become especially significant in the last two decades when governments realized that in an ever increasing globalized world, nations and not just firms have to become competitive. And the key to national competitiveness is the ability of a country's economy to create new businesses which depends to a large extent on innovations; these in turn, are often the outcomes of successful R&D commercialization (see for examples, Ritchie Abidin et al, 2016; Adisetiawan, 2018).

The national measure of R&D intensity is the Gross Expenditure on R&D/GDP ratio (GERD/GDP); a higher ratio indicates higher relative spending on R&D. While higher GERD/GDP ratio in itself does not translate into higher success rates of R&D commercialization, given equal rates of commercialization success, countries with higher ratios would be able to generate higher number of innovations and thus, are more likely to be able to produce new businesses which in turn, positively impact economic growth.

Despite numerous empirical studies that identified specific factors contributing to higher rates of successful R&D commercialization (see for examples Adnan Hye and Islam (2013); Adusah-Poku, (2016) MOSTI (Ministry of Science, Technology & Innovation), (2012) and Aguilar-de Borja, (2018) the rates have not improved that significantly in the past decades, ranging from single-digit %-ages to more than 20%, depending on industry and level of economic development, e.g. about 5% for Institutions of Higher Learning & Government Research Institutes in Malaysia (Ahmad 2018; Ahmed et al, 2018), to more than 20% at Stanford& MIT in US (Aimer (2016)).

Ministry of Science, Technology and Innovation, Malaysia, MOSTI (Mohd Yusob, et.al.2015; Aina and Ayodele, 2018) has identified the following challenge to be addressed so that the benefits and effectiveness of research funded by public R&D expenditure in Malaysia will achieve better returns: