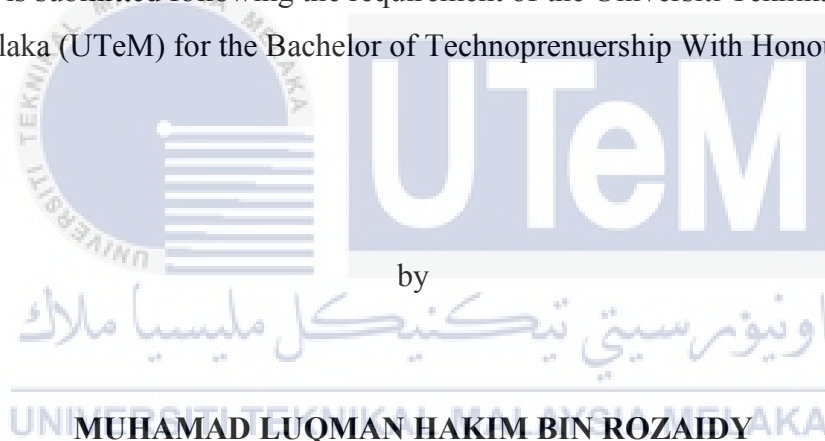




UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**THE CHALLENGES OF COMMERCIALIZING HIGH TECHNOLOGY PRODUCT:
A STUDY IN DK COMPOSITE (QUALITATIVE).**

This report is submitted following the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Technopreneurship With Honours.



by

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8 JULY 2022

DECLARATION OF ORIGINAL WORK

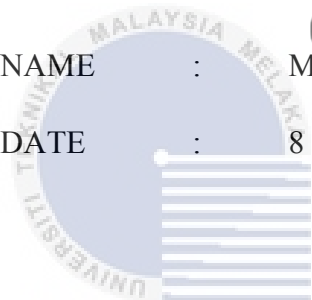
I hereby declare that all the work of this thesis entitled “THE CHALLENGES OF COMMERCIALIZING HIGH TECHNOLOGY PRODUCT: A STUDY IN DK COMPOSITE (QUALITATIVE)” is originally done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

SIGNATURE :



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DATE : 8 July 2022



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DEDICATION

I would want to express my gratitude for the time and effort that my cherished family members put into my education and for keeping me motivated to continue my education till I earned a degree. In addition, I would like to extend my heartfelt appreciation to my supervisor, Datin Dr. Suraya Binti Ahmad, as well as to my fellow students and friends for their support throughout my senior thesis. Throughout the entirety of this investigation, they have shown me unwavering support as well as sound advice. It is difficult to finish this study in such a short amount of time without their permission and encouragement.



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In the very last place, I would want to take this opportunity to thank all of the candidates who took the time and made the effort to fill out the interview session. I appreciate all you've done. They supplied insightful input, which was of great use to me in doing my research. I was able to effectively complete all of the components of an interview because of the guidance and support I received from the candidates. One more time, please accept my sincere gratitude and thanks for everything.

ABSTRACT

The high technology industry is one of the important industries that contribute to production in Malaysia. This technology is starting to grow and has been used widely in industries. As an industry, there will be exposure to multiple types of challenges in commercializing a high-technology product and then the industry might be wanted be sharing its plan, tactics, and tips for handling the issue to ensure the progress keeps growing. Therefore the purpose of this research is to investigate the status of the commercialization process in this industry, to examine the challenges faced in commercializing high-technology products, and to identify some strategies for the successful commercialization of high-technology products. In completing this research, the analysis that has been used is qualitative 3 Respondents have been selected among workers in the DK Composite and they were been interviewed to answer the research questions. After collecting the data, the researcher will analyze it to evaluate and gain the final result. The result of the interview will help the researcher in understanding and finish this research. Also, this study could contribute to helping others who are in the same industry or another industry and manage to solve the issue that has been faced.

Keywords: High technology, status commercialization, challenges in commercialization, strategies to commercialization

ABSTRAK

Industri teknologi tinggi merupakan salah satu industri penting yang menyumbang kepada pengeluaran di Malaysia. Teknologi ini mula berkembang dan telah digunakan secara meluas dalam industri. Sebagai sebuah industri, akan terdapat pendedahan kepada pelbagai jenis cabaran dalam mengkomersialkan produk berteknologi tinggi dan kemudian industri itu mungkin dikehendaki berkongsi rancangan, taktik dan petuanya untuk mengendalikan isu tersebut bagi memastikan kemajuan terus berkembang. Oleh itu tujuan penyelidikan ini adalah untuk menyiasat status proses pengkomersilan dalam industri ini, untuk mengkaji cabaran yang dihadapi dalam mengkomersialkan produk berteknologi tinggi, dan untuk mengenal pasti beberapa strategi untuk menjayakan pengkomersilan produk berteknologi tinggi. Dalam menyiapkan kajian ini, analisis yang telah digunakan adalah kualitatif 3 Responden telah dipilih dalam kalangan pekerja di Komposit DK dan mereka telah ditemu bual untuk menjawab persoalan kajian. Selepas mengumpul data, pengkaji akan menganalisisnya untuk menilai dan mendapatkan hasil akhir. Hasil temu bual akan membantu pengkaji dalam memahami dan menyelesaikan kajian ini. Selain itu, kajian ini boleh menyumbang untuk membantu orang lain yang berada dalam industri yang sama atau industri lain dan berjaya menyelesaikan isu yang telah dihadapi.

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Kata kunci: Teknologi tinggi, pengkomersialan status, cabaran dalam pengkomersialan, strategi untuk pengkomersialan

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LIST OF ABBREVIATIONS

ABBREVIATION**MEANING**

RO	Research Question
RQ	Research Objective
Tech	Technology



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CHAPTER 1

INTRODUCTION

1.1 Introduction

The background of the study, composited industry in Malaysia, problem statement, research questions, research objectives, scope and limitation of the study, the significance of the study, the outline of the research, and a summary will be discussed in this chapter.

1.2 Background of Study

High technology is nothing more than the myriad of electronic devices and gadgets which move on and off the store shelf with remarkable speed. The primary product characteristics behind these connotations are rapid change and extreme complexity because of which high technology is often associated with speedy product development and hyper-competition. The term high technology products are generally used for any product, ranging from sports shoes to RFID (Radio Frequency Identification), whose functioning is beyond the reach of common knowledge.

Malaysia is home to many high-technology companies that export their products globally. The electrical and electronics (E&E) industry — which includes semiconductors, solar and light-emitting diodes (LEDs) is the country's biggest export contributor, according to the Department of Statistics.

Commercialization can be understood as a way for entrepreneurs to be successful by constituting a mix of several entrepreneurial activities such as marketing. “There are a lot of stories of home-grown tech companies that have been successful overseas, but not in Malaysia. One of our own consulting companies — Nanopac, which is manufacturing nano solar panels — has been commercially successful in China, Vietnam, Thailand and India, but has had minimal success in our own market. Another company, which is manufacturing LEDs, has penetrated New Zealand and other overseas markets, but has yet to do so in the local market.”

The definition by Pellikka and Malinen (2011) state that commercialization brings high-technology innovations to the market and makes innovative products benefit society. Commercialization is not a straightforward process many challenges must be overcome. commercialization of innovation as activities required to introduce an innovation to market

(Kelmet al., 1995; Narayanan et al., 2000; Kwak, 2002; Andrew and Sirkin, 2003; Nambisan and Sawhney,2007; Nerkar and Shane, 2007).

We define the ability to commercialize technological innovations as a firm's capacity to bring technological innovation to market and reach some of the mainstream, beyond the initial adopters In particular, the ability to commercialize innovations can help firms penetrate existing or create new markets, which contributes to their sustained industry leadership and longevity (Wallsten, 2000; Salamenkaita and Salo,2002).

High technology is one type of technology that is markedly different from low or medium-tech. The difference is due to the need to apply high-qualified staff, a highrate of research and development, and complicated processes that result in specifichigh-tech products. Nevertheless, high-tech products have a short life-cycle as well as require excellent specialists, high R&D costs, and being innovative (Khamseh andDaneshjooovash 2018; Hashai and Zander 2018; Al-Kwifi 2016).

Moreover, the pur-chase of high-tech products makes a high level of uncertainty for customers duringthe decision-making process (Hashai and Zander 2018; Al-Kwifi, Ahmed, and am out 2014; Al-Kwifi 2016). Uncertainty of customers during the decision-making process creates difficulties in the marketing of high-tech products and makes uncertainty for the high-tech company (Mansour and Barandas 2017).

High-tech companies face more challenges in the commercialization of entrepreneurial ideas than low or medium-tech companies due to high-tech companies' lack of internal resources, the complicated process of opportunity recognition, the nature of competition, and limited management skill and knowledge (Guo 2019; Park and Tzabbar 2016; Siepel, Cowling, and Coad 2015).

1.3 Malaysia Composite Industry

The composite industry is one of the industries that grow in Malaysia not only, but Malaysia also penetrating globally. This industry starting to improvise the manufacturing industry with add on of composite material into the manufacturing element. A few manufacturing industries can be related is such as the aerospace industry, automotive industry, wood industry, and plastics industry are using composite materials to strengthen their manufacturing product.

The industries of plastics and composites have a vital enabling growth role for several industries like electrical, automotive, and building and construction. Malaysian Industry-Government Group for High Technology (MIGHT) reported that the local composites industry has grown from simple product-for-construction to product-for-aerospace applications.

1.4 Problem Statement

Even though many empirical studies conducted over the past few decades on the success determinants for research and development commercialization, the success rates have not considerably increased. This may be because the processes that are involved, as well as how these processes interact with other elements of the commercialization ecosystem at the various stages of the commercialization process, are not yet fully understood by the industry by Baharudin Kadir & Mohd Farid Shamsudin (2019).

Low commercialization of technologies in the majority of developing countries is also caused by low faith among entrepreneurs and manufacturers in indigenous inventions, inadequate mechanisms for technology transfer, and high levels of intellectual property rights (IPR) flexibility by Ajay Kumar (2020)

The paradigm for organisational competence has been frequently used to enlighten on the beginnings of technology commercialization. Technology commercialization is considered as being primarily driven by technological capabilities that allow an organisation to grasp and develop core technologies, foster organisational learning, and permit quick product creation. However, a company's ability to compete depends on both its technology-related and non-technology-related qualities. For instance where the example by undertaking strategic marketing planning, a company's marketing capabilities, for instance, allow it to advertise, monitor market needs, enhance its products, and satisfy client demands. X. Jiang, G. Wang, D. De Clercq and X. Yi(2020).

1.5 Research Questions

The researcher determined three research questions in this study:

- i. What is the status of commercialization activities in this industry?
- ii. What are the challenges that faced in commercializing high technology product?
- iii. What are the strategy for successfully commercializing high technology in the industry?

1.6 Research Objectives

In this research, there are three research objectives to be figured out:

- i. To investigate the status of commercialization process in this industry
- ii. To examine the challenges that faced in commercializing high technology product
- iii. To identify some strategies for successful commercialization of high technology product

1.7 Scope and Limitation of the Study

This research paper is focusing on the study of commercializing high-technology products. This study will be conducted by interviewing the DK Composite company's employee. The assigned respondents will be chosen respectively. The research will be carried out by distributing a questionnaire to the selected respondents.

The constraint of the study is the cooperation between the respondent and the researcher. The researcher may not be able to collect immaculate data from the company due to some secrets that the company cannot leak. Besides, the researcher faced time limitations in conducting the study. In 10 months the study needs to be completed such a time constraint due to the short period of doing the study.

1.8 Significant of Study

The findings of the study benefited the company and students. They will understand the challenges faced in commercializing high-technology products. Besides, students and companies can know the strategy for commercializing high technology products in the industry through this research and be able to identify the solution and benefit of commercializing high technology. In addition, the study provides empirical literature sources to future researchers which carry out an identical topic by putting in an existing body of commercializing high technology product

1.9 The outline of the research

Chapter 1, will the discussing background study, then understand the Malaysian composite industry, find the research question and research objectives, gather the scope and limitations of the study, and then brief the significance study.

Next chapter 2 will be discussed the literature review. This chapter will start with an introduction, the commercialization definition, high technology understanding, and type of challenges in the commercialization of a high technology product then finished with a summary.

While chapter 3, will explain research methodologies which are been done qualitatively. Then the primary and secondary input, sampling data, and the purpose of sampling and development of interviews question.

1.10 Summary

In this chapter, the researcher has explained the research introduction, the research background, the problem statement, the research question and the research objective, the cope and the limitation of the research, and the significance of the study..

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will the literature review and find the challenges in commercializing high-tech products in the market. By reading the relevant kinds of literature, the dependent variables and independent variables were defined. The literature review is required to develop a suitable research methodology method such as qualitative or quantitative research. At the end of this chapter, the proposed research framework can describe the theory and develop the hypothesis.