

INTELLECTUAL PROPERTY (IP) AWARENESS IN PROTECTING UNIVERSITY  
RESEARCH PRODUCT IN UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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‘Saya/Kami\* akui bahawa telah membaca  
karya ini dan pada pandangan saya/kami\* karya ini  
adalah memadai dari segi skop dan kualiti untuk tujuan penganugerahan  
Ijazah Sarjana Muda Pengurusan Teknologi’

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Date : 20 June 2014

To my beloved father and mother

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## **ABSTRAK**

Kajian ini memfokuskan tentang kesedaran perlindungan harta intelek untuk melindungi produk penyelidikan universiti di Universiti Teknikal Malaysia Melaka. Kajian ini ialah untuk mengenalpasti kesedaran penyelidik bagi melindungi produk penyelidikan universiti, untuk tentukan bagaimana cara yang sesuai bagi melindungi produk penyelidikan universiti, dan juga untuk mengenalpasti masalah-masalah yang dihadapi oleh penyelidik dalam melindungi produk penyelidikan mereka. Tambahan pula, signifikansi kajian ini ialah untuk menyedarkan penyelidik di UTeM tentang kepentingan melindungi produk penyelidikan universiti. Data utama untuk kajian ini dikumpul dengan menggunakan kaedah kualitatif dan kajian eksploratori. Untuk kaedah kualitatif, data dikumpul dengan menjalankan sesi temubual bersama pensyarah atau ahli akademik di UTeM untuk mendapat kefahaman yang lebih jelas tentang kajian ini. Kekurangan kesedaran dalam melindungi harta intelek untuk produk penyelidikan boleh menjadi masalah utama dalam kalangan penyelidik di UTeM. Penyelidik di universiti perlu ada kesedaran tentang kepentingan perlindungan harta intelek dan juga tentang fungsi perlindungan harta intelek untuk melindungi produk mereka daripada ditiru oleh orang lain. Tambahan pula, harta intelek ini mempunyai banyak jenis yang boleh digunakan untuk melindungi produk kajian universiti seperti paten, hak cipta, inovasi utility, dan lain-lain lagi. Manakala, masalah-masalah yang dihadapi bagi melindungi produk kajian seperti kekurangan duit, permohonan yang rumit, dokumen yang banyak digunakan telah dikenalpasti dalam kajian ini. Beberapa cadangan telah di cadangkan oleh penyelidik untuk menyelesaikan masalah-masalah yang dihadapi oleh penyelidik-penyelidik di UTeM dalam melindungi produk kajian mereka. Selain itu, cadangan-cadangan yang diberikan juga untuk membantu universiti dalam menggalakkan penyelidik-penyelidik di UTeM untuk melindungi produk kajian universiti.

## ABSTRACT

This study focuses on the awareness of IP protection of the university research product in the Universiti Teknikal Malaysia Melaka. This research identifies the awareness of the researchers in protecting their university research product, to examine the suitable ways in protecting the university research product, and to investigate the difficulties faced by the researcher in protecting their research product. In addition, the significance of this study is to create the awareness to the university and researcher about the importance in protecting university research product. The primary data was collected using the qualitative methodology and exploratory study. For the qualitative methodology, the data was collected by conducting the interview session with five academicians in UTeM to get more understanding and get depth insight for the finding of this research. Lacks of awareness of IP protection in protecting research products become a problem for researchers in UTeM to protect their research products. The researchers in the university should aware of the importance of IP protection and also understand the function of IP protection so they can protect their product from being imitated by others. In addition, there have few types of IP are used to protect research products likes patent, copyright, utility innovation and other types of IP. While, the difficulties faced in protecting research products such as lack of money, complicated application, many documents used are identified in this study. Few recommendations were provided by the researcher to resolve the difficulties faced by the researchers in protecting their research products. Besides that, the given recommendations also to help the university in encourage the researchers to protect university research products.

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## LIST OF ABBREVIATIONS

CRIM	: Centre of Research and Innovation Management
FKE	: Faculty of Electrical Engineering
FKEKK	: Faculty of Electronics and Computer Engineering
FKM	: Faculty of Mechanical Engineering
FKP	: Faculty of Manufacturing Engineering
FTMK	: Faculty of Information and Telecommunications Technology
IP	: Intellectual Property
IPT	: Institutes of Higher Education
MOA	: Ministry of Agriculture
MTA	: Material Transfer Agreement
MyIPO	: Intellectual Property Corporation of Malaysia
R&D	: Research & Development
RU	: Research University
UI	: Utility Innovation
UKM	: Universiti Kebangsaan Malaysia
UM	: Universiti Malaya
UPM	: Universiti Putra Malaysia
USM	: Universiti Sains Malaysia
USB	: Universal Serial Bus
UTM	: Universiti Teknologi Malaysia
UTeM	: Universiti Teknikal Malaysia Melaka
WARF	: Wisconsin Alumni Research Foundation

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction.**

Nowadays, university research products can be commercialized in the market. University research product are any invention, other than student academic product or work product that was created, developed, discovered, conceived or invented in the course of university research. As region and nation increasingly face major economic challenges, they seek ways to augment to opportunities for economic growth. It is also important for universities as one of the medium for economic growth to better understand the roles and the impact in protecting university research products. This research focuses in protecting the outputs from university research that are highly valued in the current growth economic. The university's mission is discovering and transmitting knowledge and providing service to the public creates an environment that is conducive to the conception and development of many forms of intellectual property.

## **1.2 Background of Study**

This study discusses awareness of the researchers in protecting university research product or output that was created by the researchers from Universiti Teknikal Malaysia Melaka (UTeM). As we know, all the researchers for all university needs to do research and produces their own product for their project. The researchers also can be from the students, lecturers or academicians, staffs that create a university research product. But this study focused more on the academicians as the interviewees because most of the researchers in UTeM are the academicians.

With protecting the university research products, the researcher can protect their own product from being imitated by others. So, this research is about to identify the awareness of the researcher in protecting university research product, to examine suitable ways in protecting university research product, and to investigate difficulties faced by the researchers in protecting university research product.

## **1.3 Problem Statement**

The protection of intellectual property (IP) for university research product gives exclusive rights to IP owners or researchers to control and exploit their research product. This includes the rights to make, use, distribute, sell and import. They also can commence legal action against the parties infringing their rights. However, many researchers unaware about the importance of intellectual property protection as well as the existence of the Intellectual Property Corporation of Malaysia (MyIPO) which has the main task of administering intellectual property rights in Malaysia. Besides that, the researcher's awareness about protecting university research product is still low and is only understood by parties with interest or institutions and organizations which are involved in this field.

These problems may arise due to:

- Lack of awareness among researcher about the importance of protecting their research product.
- Difficulties face by the researcher to protect their research product because lack of money, lack of knowledge about the IP protection.

Thus this research is about the awareness of the researcher in protecting university research product, how the researcher protecting their research product and what are difficulties faced by the researcher to protect their product.

#### **1.4 Research Questions**

1. What is IP awareness in protecting university research product?
2. How researchers protect their research product?
3. What difficulties faced by the researcher in protecting their research product?

#### **1.5 Research Objectives**

There are three objectives that need to be achieved to complete these studies which are to:

1. Identify the IP awareness in protecting the university research product.
2. Examine the ways of protecting university research product.
3. Investigate the difficulties face by the researcher in protecting university research product



## 1.6 Scope and Limitation

The scope of this study is to protect university research product that created by the researchers from Universiti Teknikal Malaysia Melaka (UTeM). The scope of this study is also to identify the researcher's awareness in protecting university research product and also to examine the ways of protecting university research product.

Besides that, the scope of this study is also to investigate the difficulties faced by the researcher in protect their research product. This study only conducted in Universiti Technical Malaysia Melaka (UTeM). The respondents for this research are academic from UTeM who produce university research product. There are seven faculties in UTeM that are Faculty of Mechanical Engineering (FKM), Faculty of Electrical Engineering (FKE), Faculty of Electronics and Computer Engineering (FKEKK), Faculty of Manufacturing Engineering (FKP), Faculty of Information and Telecommunications Technology (FTMK), Faculty of Engineering Technology (FTK), and Faculty of Technology Management and Technopreneurship (FPTT). This study only focused on five faculties out of the total of seven faculties that are Faculty of Mechanical Engineering (FKM), Faculty of Electrical Engineering (FKE), Faculty of Electronics and Computer Engineering (FKEKK), Faculty of Manufacturing Engineering (FKP) and Faculty of Information and Telecommunications Technology (FTMK) that can be the respondents for this research. Only five respondents were interviewed to get the result for this research.

The other two faculties have not been selected because those faculties do not have the research product, for FPTT their researcher do not create research product and for FTK, they are new faculty in UTeM. The interviewees were academicians from each five faculties. This is because they already had their own research product.

The limitation in this study is lack of the sources from books and journals because there is still lack of discussion about this research in Malaysia. Besides that, there also lack of the time to complete this research because these study only to complete for the final years project for the final year degree student.

## **1.7 Significant of study**

The significance of this study is to provide the richness of the information and the documents from the journal or secondary data to solve the research problems in protecting the university research product.

The significance of this study is also to create the IP awareness to the university and researchers about the importance of protecting the university research product. When they protect their product, they can commercial their research product in the market. It is also important for universities as one of the engine of economic growth to better understand the roles and the impact of protecting the university research products. Although numerous scholars assert that research conducted in universities has significant influence on innovation, assessing this influence and describing its nature remains a difficult challenge.

## **1.8 Summary**

This chapter explains the background of the study of protecting the university research product or output that created by the researchers from Universiti Teknikal Malaysia Melaka (UTeM). The research questions for this study are what is the IP awareness in protecting university research product, how researcher protecting their research product, and what the difficulties face by the researcher in protecting their research product. While the objectives of this research are about to identify the IP awareness in protecting the university research product, to examine the ways of protecting university research product, and to investigate the difficulties face by the researcher in protecting university research product. The scope of this study is to protecting the university research product that created by the researcher from the Universiti Teknikal Malaysia Melaka (UTeM). And the significance of this study is that it provides the richness of the information about the IP awareness in protect university research product.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

Research is undertaken to educate students, to stimulate a spirit of inquiry, to solve problems, and to discover new knowledge (University of Florida, 2013).

This literature review is about the related point that already done by other research about that point. A literature review summarizes, interprets, and critically evaluates existing "literature" (or published material) in order to establish current knowledge of a subject. The purpose for doing so relates to ongoing research to develop that knowledge: the literature review may resolve a controversy, establish the need for additional research, and/or define a topic of inquiry (McKinney. S, 2008)

#### 2.2 University Research Product

Prof. Ir. Dr. Mohd Jailani Bin Mohd Nor (2012) pointed that the university is committed to the further enhancement of its research quality and productivity by investing in excellence and by exploring new, innovative ways of collaborating that will ensure we generate high quality research outcomes closely aligned to state, national and international research priorities. While basic and directed research remains vital to our research effort, UTeM must strengthen the impact of our

research by further developing the links between our researchers, government, industry and the wider community. Emphasis will be given to collaboration with the national and multinational strategic industries.

Table 2.1: UTeM products for year 2012

Product Gallery 2012	
No. Name	Products
1 Aminurrahid Noordin	ForgetMeNot
2 Anuar Mohamed Kassim	Smart Eye
3 Dr. Abdul Rahim Abdullah	Multi Purpose Solar Lamp (MPSL)
4 Dr. Auzani Jidin	High Performance Direct Torque Control of Induction Motor Drive for Electrical Vehicle applications
5 Dr. Azma Putra	Paddy Straw And Sugarcane Fibers As Sustainable Green Acoustic Absorber
6 Dr. Azmi Bin Awang Md Isa	An Intelligent Mobile Qloist And Prayer Time Finder With Universal Local Time Synchronization For Smart Phone Application
7 Dr. Choo Yun Huoy	Intelligent Vacation Planner System (IPVS) Using Ant Colony Optimization
8 Dr. Hadj Efendy	Ceramic Membrane Support
9 Dr. Mohd Ahadlin Mohd Daud	Effect of Polymer Waste (thermoplastic) in Composite Structure Materials
10 Dr. Muhammad Fahmi Miskon	Laser Metric
11 Dr. Musthafah Mohd Tahir	UTeM 1 Perodua Eco-Challenge
12 Dr. Zahrliaza Zakaria	Tem Coaxial Cavity Bandpass Filter With Post-Manufacturing Tuning Capabilities
13 Engr. Khalrul Muzzammil Salpullah	JAKIM'S Halal Logo Recognition System For Android Smartphone
14 Engr. Siva Kumar	Self-Routing Traffic Light Controller For Cross Junction
15 Engr. Tajul Ariffin Abdullah	Handy Can Crusher (HCC)
16 Engr. Vigneeswara Rao Ganapathy	Intelligent Health Monitoring System by Using Wireless Zigbee Technology
17 Faizlan Abdul Aziz	Design and development of Remotely Operated Vehicle (ROV)
18 Khalil Azha Mohd Annuar	Portable Anti-Theft Device (PATD)
19 En. Mohd Yunazri Yaakob	Light Nonhyster Proof: A New Innovative Ceiling Panel
20 Ma Tien Choon	Design & development of Intelligent solar panel module to maximize output power for each solar cell in actual environments
21 Mohamad Lutfi Dolhailt	Shadow Play Wayang Kulit Using Multimedia Augmented Reality
22 Mohamad Ridwan Md Nawawi	Intelligent Parking Management System (IPMS)
23 Mohamad Zolnol Abdlin	Double Ring Circular Polarized Microstrip Patch Antenna
24 Mohd Farriz Basar	Portable Car Cooling System (Car-Cool)
25 Mohd Najlo Ali Mokhtar	ICE - Cooling Fan
26 Mohd Najlo Ali Mokhtar	Recycled Bottle Compression System
27 Mohd Saifuzam Jamri	Vibration Reverse System (VRS 1)
28 Mohd Yuhazri Yaakob	A New Future EcoA <sup>+</sup> Green Technology in Innovative Ceiling And Attic Panel
29 Mohd Yuhazri Yaakob	Green Solid Fuel Future Energy & Environmental Solution
30 Muhamad Faizal Yaakub	Evacuation Exit System Enhancement Devices (EESSED)
31 Normaiz Salim	Home Intergrated System Management (HISM)
32 Nurdiana Nordin	Real Time Advertisement System (READS)
33 Othman Aman	Pro-Tech Kinder
34 Prof. Madya Dr. Sazliah Salam	Assistive Audio-Visual Tools for Autism Occupational Therapy
35 Rahimah Abdul Hamid	Natural Illumination Device (NID)
36 Rohana Abdullah	Safety Life Jacket School Bag
37 Safarudin Gazzali Herawan	Low Cost Pressure Sensor
38 Wan Sazli Nasaruddin Saifudin -	FTMK Virtual Direction Navigation (V-DirNav) System
39 Zamani Md Sani	Smart Fan Controller (SMAFAC)
40 Fauzi Ahmad	Modelling, Simulation And Control of 3 DOF Motion Platform For Vehicle Dynamic Simulator

Source: Centre of Research and Innovation Management (CRIM) UTeM

Table 2.2: Awards and Recognition

Year	Gold	Silver	Bronze	Total
2005	1	2	5	8
2006	1	1	8	10
2007	4	11	15	30
2008	6	12	11	29
2009	9	14	13	36
2010	2	9	14	25
2011	13	27	25	67
<b>Total</b>	<b>36</b>	<b>76</b>	<b>93</b>	<b>205</b>

Source: Centre of Research and Innovation Management (CRIM) UTeM

Table 2.3: National Awards 2012

<b>BIL</b>	<b>PROGRAM</b>	<b>PERINGKAT</b>	<b>CATATAN</b>	<b>E</b>	<b>P</b>	<b>G</b>	<b>SA</b>
1	MTE 2012	Kebangsaan	Pertandingan	0	9	11	0
2	ITEX 2012	Kebangsaan	Pertandingan	5	8	3	0
		<b>JUMLAH</b>		<b>5</b>	<b>17</b>	<b>14</b>	<b>0</b>

Source: Centre of Research and Innovation Management (CRIM) UTeM

Table 2.1, 2.2, and table 2.3 show that UTeM already has their own research products that have been produced by their researchers from UTeM. Besides that, the researcher already achieved few award for their research project.

University Research means any research conducted by a University Person: (i) involving or utilizing the facilities, equipment or financial aid (including any grant funding) provided or administered by the University; or (ii) while acting within the scope of such University Person's duties or employment (Vice President Research & International, 2013).

Besides that, Hamidah Abdul Rahman et al (2012) pointed that research is exploring, investigating and examining new ideas and a key indicator for quality education in a higher learning institution. On the other hand, in a demanding, challenging and competitive world, Research University (RU) is, generally where social and economical growth takes place and only a small number of universities of higher education in Malaysia are fortunate enough to be awarded that position

While, according to Inayah Yaakub et al (2011) describe that in Malaysia, there are five research universities (RU) which are Universiti Kebangsaan Malaysia (UKM), Universiti Malaya (UM), Universiti Putra Malaysia (UPM), Universiti Sains Malaysia (USM), and Universiti Teknologi Malaysia (UTM).

University Research Product means any Invention, other than Student Academic Product or Work Product that is created, developed, discovered, conceived or invented in the course of University Research. For clarity University Research Product does not include teaching materials, lecture notes, textbooks, music, films, plays, and other dramatic works or writings that are scholarly in nature, developed or written by University Persons and University Research Product is subject to a Sponsored Research Agreement or other form of agreement under which the University has agreed to convey a license, an option, or any other interest in the University Research Product to the other contracting parties (Vice President Research & International, 2013).

## **2.3 Intellectual Property Right**

### **2.3.1 Intellectual Property**

Intrinsic to the work of a university, intellectual property refers to ideas, processes or inventions that are the products of intellectual endeavor. This often intangible form of property can be protected from unauthorized use, and it can be bought, sold or licensed and under Harvard's policy, the University owns intellectual property generated through research conducted with the use of its facilities and resources. All royalties and most fees resulting from the intellectual property are shared on an approximately 50/50 basis between Harvard and the individuals involved in its discovery. The inventors' portion includes an allocation for support of their research. The University uses its share to support additional (Isaac T. Kohlberg, 2009).

Intellectual property has been transformed from a sleepy area of law and business to one of the driving engines of a high-technology economy (New York Times, 1999). Besides that, Kamal Idris assert that Intellectual property policy should bring harmony to the conflicting interest of all the stakeholders in the

generation and commercialization of patent. Universities and R&D institutions should be dedicated to teaching and research, and to the dissemination of all new knowledge generated. The main focus of an IP strategy has been the protection and exploitation of the firm's technology patents but viewed in terms of a business asset of significant commercial value rather than merely a legal mechanism, patent can become a key to developing and sustaining a competitive advantage (Deloitte Research, 2007).

According to Chen Li (2010) the Director of Division of Science and Technology from University A, lack of experienced IP and marketing experts inhibited the IP management. While intellectual property can have significant commercial and financial benefits for individual, research groups and the Universities including: It converts knowledge into tangible assets which can be transferred, assigned and licensed; It can generate significant royalty revenues for the University and the researchers; Inventors qualify for income obtained from licensing in the form of royalty payment; It can provide a legal monopoly in technology niche area (Raguraman Gurusamy, n.d.)

Student IP is different to staff IP, in that the university does not own IP generated by students. However, there is often confusion on the part of the student in that they believe that they own the IP to any project that they have worked on. If a staff member had the initial idea for a project (whether that is a final year undergraduate project, a masters dissertation or a PhD thesis), or had some input into that project, then the staff member (and therefore the university) would have some claim on the IP; even if that idea only took two minutes to discuss and the student(s) then spent the next  $n$  years/months working on it (Kendall, 2012).

Intellectual property is an important component in a country's economic development where a continuous creation of intellectual property from time to time will increase the investment and trading activities. Intellectual property which is protected under the Malaysian laws includes Patent, Trade Mark, Copyright, Industrial Design, Geographical Indication and Layout-Designs of Integrated Circuit. Plant Variety is also another component of IP which is under the purview of the Ministry of Agriculture (MOA) (UTeM, n.d)

While Norlia and Zinatul Ashiqin (2013) pointed that steady management in the commercialization of a university not only depend on the strength of a product or the powerful infrastructure commercialization but also supported by the existence of the comprehensive Intellectual Property Policy of the University and promoting best practices in addressing issues related to each stage of commercialization. Norlia bt Yaakub and Zinatul Ashiqin bt Zainol (2013) also proved that University Intellectual Property Policies are rules or guidelines provided by the institution to manage the intellectual property system in the institution. This policy has the objective to promote research and development (R & D), regulating the interests of universities and researchers and to identify and ensure the ownership of intellectual property generated.

### **2.3.2 Ownership of Intellectual Property**

Universities and Research Institutions generally address intellectual property ownership issues through internal policies. These organisations vary in their practices as to whether they claim ownership of intellectual property generated by staff or within the organisation. Typically, however, they will seek to claim ownership. In addition, an organisation's policies often include provisions to encourage publication and the wide dissemination of research. However, where research leads to an invention, these policies usually provide for the organisation to delay publication while patenting and commercialisation are explored. Policies also normally provide that commercial development must be for the benefit of the organisation, the inventor, government and commercial or other partners. (Raguraman Gurusamy, n.d)

Many are unaware of the importance of intellectual property as well as the existence of the Intellectual Property Corporation of Malaysia (MyIPO) which has the main task of administering intellectual property rights in Malaysia. In a recent survey, it was clearly evident that the percentage of public awareness about intellectual property is very low and is only understood by parties with interest or institutions and organizations which are involved in this field (UTeM, n.d)