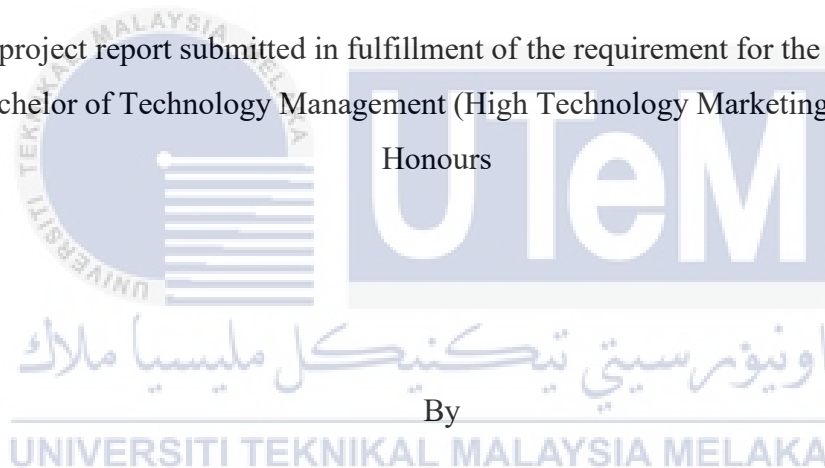




**UNDERSTANDING THE USAGE OF TECHNOLOGY ACCEPTANCE
TOWARDS THE AGRICULTURE IN MODERN WORLD**

A project report submitted in fulfillment of the requirement for the award
Bachelor of Technology Management (High Technology Marketing) With
Honours



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'With the exception of citations and quotations that have been properly acknowledged, I hereby declare that this thesis is based on my original work.' I further declare that it has not been submitted for any degree or award at Universiti Teknikal Malaysia Melaka or any other institution earlier or concurrently.'

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DEDICATION

I would like to appreciate the dedication to my precious parents, Mr Elangovan and Mrs Vasanki who have been my ultimate source of motivation. They always gave me strength when I thought of giving up, who continuously provide their moral, spiritual, emotional and financial support. A special thanks to my supervisor, Miss Atikah Saadah Binti Selamat and panel, Dr. Atirah Binti Sufian who guided me throughout this research. To my relatives, friends and who shared their words of advice and encouragement to complete this research project. Without their blessing and encouragement, this research is impossible to complete in a very short period of time.



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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRACT

A wide range of usage of technology in agriculture and the acceptance will be discuss in this research. In this research, we'll examine how effective the technology which used in agriculture will result in the agriculture performance in Malaysia. In this study, it includes of two main independent variable which are Perceive usefulness and perceive ease to use and the dependent variable agriculture performance in with modern technology in Malaysia. Quantitative research was used to conduct this research. Therefore, a questionnaire-based survey was used to collect data from 150 to 200 respondents among the management people from agriculture firm, co-workers, and farmers in Perak, Malaysia. This research uses quota sampling as non-probability sampling where samples were selectively to chosen. The data obtained is analyzed using Statistical Package from the Social Science (SPSS). From the results, perceive usefulness and perceive ease of use had strong impact on the usage of technology in agriculture. The hypothesis in this research was valid and supported by the findings. The findings of this study revealed that all relevant constructs had shown significant relationship between the usage of technology acceptance in agriculture performance in Malaysia.

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

In this chapter, it will discuss about our research topic of the “understanding the of technology acceptance in agriculture”. It includes the background of study, problem statement, research question, research objectives, scope and limitation of study, significant of study, and summary of this chapter.

1.1 BACKGROUND OF STUDY

Agriculture was an important step in the growth of sedentary human civilization, since it produced food surpluses that allowed people to live in cities. Agriculture has been around for thousands of years. Beginning at least 105,000 years ago, fledgling farmers began to sow wild grains approximately 11,500 years ago. Domestication of pigs, sheep, and cattle began around 10,000 years ago. Plants were grown separately in at least 11 different parts of the world. In the twentieth century, industrial agriculture based on large-scale monoculture grew to dominate agricultural production, despite the fact that around 2 billion people still relied on subsistence agriculture. Agriculture produces various key goods, which may be roughly classified as foods, textiles, fuels, and raw materials (rubber, woods, papers). Cereals (grains), vegetables, fruits, oils, meat, milk, eggs, and fungus are examples of food classes.

Modern agronomy, plant breeding, agrochemical including pesticides and

fertilisers, and technology advances have dramatically enhanced food yields while incurring ecological and environmental harm. Selective breeding and modern animal husbandry procedures have also increased meat output, but have generated worries about animal welfare and environmental impact. Contributions to global warming, aquifer depletion, deforestation, antibiotic resistance, and growth hormones in industrial meat production are all examples of environmental challenges. Agriculture contributes to and is affected by environmental deterioration, such as biodiversity loss, desertification, soil degradation, and global warming, all of which can reduce agricultural productivity. Although certain genetically modified organisms are prohibited in some countries, they are routinely used.

In today's modern time Technological innovations have greatly shaped agriculture throughout time. From the creation of the plow to the global positioning system (GPS) driven precision farming equipment, humans have developed new ways to make farming more efficient and grow more food. We are constantly working to find new ways to irrigate crops or breed more disease resistant varieties. These iterations are key to feeding the ever-expanding global population with the decreasing freshwater supply.

1.2 PROBLEM STATEMENT

Agriculture is one of the most vital industries for a country's development. This is because agriculture produces food for individuals while also providing a source of money for the government. Agriculture practices have declined in certain emerging and disadvantaged nations during the last few decades for a variety of reasons. The first factor is extreme climate change, which has resulted in a scarcity of nutrients and water in many areas. The second factor is a shortage of manpower, which is the most prevalent difficulty faced by countries that rely on agriculture. Nowadays, young people are reluctant to participate in agricultural operations because they believe it is unsuitable for the future generation, and they prefer to work for corporations. According to Margaret Cunningham (2021) one of the most serious issues confronting agriculture is the loss of agricultural land, since as more land is

lost, it becomes more difficult to produce the amount of food required to feed the world's rising population. Every year, about three million hectares of agricultural land are lost because the soil deteriorates and becomes useless owing to erosion, which occurs when soil components shift from one site to another due to wind or water.

To overcome this types of problems many countries are introduced many types of technologies in agriculture such as Drone technology, many harvesting machine, tractors, modern equipment, modern technique which gives proper nutrition to the soil in natural way. Besides, these technologies are also helps to reduce the cost in agriculture activities and also produce more outcome which helps to gain more profits. But still in many countries the agriculture activities are being lesser day by day although they have more opportunity outside there but they did not realized. In human civilization agriculture are our fundamental.



1.3 RESEARCH QUESTION

1.3.1 What are the relationship between perceive usefulness and perceive ease towards with the agriculture performance?

1.3.2 Which of the independent variable (perceive usefulness and perceive ease to use) have the most significant to improve the agriculture performance?

1.4 RESEARCH OBJECTIVE

1.4.1 To identify the relationship of perceive usefulness and perceive ease to use toward the agriculture performance.

1.4.2 To determine the factor which have the most significant improvement on agriculture.

1.5 SCOPE OF THE STUDY

The scope of this research paper is to focus on the acceptance of technology in agriculture activities in today's modern world. This research scope consist of latest technologies which used in modern agriculture and also the effectiveness. Besides problem solving, reasons of agriculture activities are being lesser and the importance of agriculture activity.

1.6 SIGNIFICANCE OF THE STUDY

The findings of this research will redound to the benefit of the society considering that technology acceptance play an important role in agriculture. Through this research, the community will further realize technology as an enhancing way towards agriculture. Moreover, the analysis presented in this research will convey valuable information for the future research that will explore other capabilities of technology in enhancing different industry. Besides, through the analysis made by this research, it will benefit the start-up agriculture industry in deciding which technology should they employ. As well, this research will enable the government or policy maker to gain more data or statistic on the technology which helps to enhance the agriculture industry revenue.

1.7 SUMMARY

As a conclusion, this research focus on the acceptance of technology in agriculture activities in today's modern world. The research starts with discussing the background of study and coming up with problem statement of this study. After that, the researcher had dedicated two research question and research objective for this study. The researcher also highlighted the scope and limitation in this study. Finally, the significant to conduct this study also be discussed in this chapter. In the next chapter, the study will continue with literature review of this research.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

Literature review is an evaluative research of information in the literature related to the research. It is important to establish a literature base because it provided a clear understanding of existing knowledge base for the problem occurred in the real world. Therefore, the literature review is based on the original, authoritative and present sources like journals, articles and others published sources. The definitions of agriculture technology will be discussed in this chapter. Perceive usefulness and perceive ease to use which are the independent variable such as types of technology, the effectiveness, how they use the technology and accept it as an easy way to use will also be discussed in this chapter.

2.1 AGRICULTURE TECHNOLOGY

Agricultural technology, often known as agro-technology, is the application of technology in agriculture, horticulture, and aquaculture with the goal of increasing output, efficiency, and profitability. Agricultural technology can refer to agricultural products, services, or applications that improve different input/output processes.

The 20th century saw significant breakthroughs in agricultural technologies, including the creation of synthetic fertilizers and pesticides, as well as new agricultural machinery such as mass-produced tractors and agricultural aircraft for aerial pesticide application. Agricultural plastics, genetically modified crops,

enhanced drip irrigation, and soil-less farming systems such as hydroponics, aquaponics, and aeroponics are examples of recent improvements.

Robots, temperature and moisture sensors, aerial photographs, and GPS technology are all often used in agriculture today. Precision agriculture and robotic technologies, as well as modern equipment, enable enterprises to be more lucrative, efficient, safe, and environmentally friendly.

2.2 INDEPENDENT VARIABLE

2.2.1 PERCEIVE USEFULNESS

Perceived usefulness is recognized to be a direct predictor of the intention to utilize the technology (Park et al., 2014). Perceived usefulness is interpreted differently by various researchers. This means that agriculture workers will have different perspectives on the extent to which the use of technology will assist them in making activities easier and more convenient to perform. Similarly, perceived usefulness is defined as an individual's perception that using the new technology would increase or improve his or her performance (Davis, 1993). If technology can increase the advantages of its use to the user, the user is more likely to continue using it since the user may receive benefits. Based on this context of the study, Agriculture workers will accept the Modern technology in agriculture if they provide benefits to them by, improving the Agriculture workers' performance and receiving benefits from using technologies such as machines, nanotech, drone technology, agrofarming technology and so on

2.2.2 PERCEIVE EASE OF USE

Perceived ease of use (PEOU) reflecting the extent to which a person believes it is easy to use a particular system. According to Davis (1989), perceived ease-of- use is "the degree to which a person feels that utilizing a

specific technology would be effortless." User-centric conception is ease of use. I have Specify the perceived ease of use as a self-determining factor to examine the impact of technology use in agriculture intention of users. According to Davis (1989), perceived ease of use is the degree to which a person believes that utilizing a particular system would be free of effort. Agriculture workers adopting the technology is as important as the easiness to use the technology. Individuals are more likely to accept a technology if it is easy and convenient to use. (Richad et al., 2019) further state that when the interaction between the user and the technology is clear and easy to comprehend, users of technology do not need to exert much effort in using them. In the context of this study, the perceived ease of use is used to measure the extent to which the technology acceptance is much user-friendly and convenient for agriculture workers to use to help to make easily for the agriculture activity.

2.3 DEPENDENT VARIABLE

2.3.1 AGRICULTURE PERFORMANCE WITH MODERN TECHNOLOGY

According to Mangla (2018), sustainability performance focuses on the efficient use and consumption of natural resources in order to achieve a balance in the ecological, economic, and sociological aspects of agricultural food. Agriculture performance consist of natural resources (air, water and sun light), the effectiveness of agriculture activity which consist of soil nutrition, soil quality, men power, technology which have used and so on.

Nidhi Sharma, Amit Kumar Mungarwal (2019) said Modern agriculture is driven by continuous improvements in digital tools and data as well as collaborations among farmers and researchers across the public and private sectors. During the Green Revolution in the 1960s, India could achieve self-sufficiency in food grain production by using modern methods of

agriculture like better quality of seeds, proper irrigation, chemical fertilizers and pesticides.

As time passed, more technological advances appeared in agriculture. The tractor was introduced, followed by new tillage and harvesting equipment, irrigation and air seeding technology, all leading to higher yields and improved quality of the food and fibre that was grown. It is possible for farmers to utilise scientific data and technology to improve crop yields and keep themselves up-to-date with cutting edge methods of farming.

2.4 USAGE OF TECHNOLOGY

Technology is the ever-changing consequence of collected knowledge and application in all techniques, skills, methods, and procedures employed in industrial manufacturing and scientific research. Technology is incorporated in the functioning of all machinery, with or without thorough understanding of their function, for an organization's stated purpose. Systems are the building blocks of society's technology. Systems apply the intended application of a technology's acquired knowledge by acquiring an input, adjusting this input for the system's intended purpose via a process, and then creating a result that affects the system's final intended purpose. This is often referred to as a technical system or a technological system.

Through the adoption of tools such as the internet and email for communications, word processing, spreadsheets, and presentations for office productivity, electronic databases for record keeping, and robots and artificial intelligence for automation, technology has evolved and shaped our workplaces in numerous ways. While technology, technological advances, and ultimately society's pursuit of the technological singularity have aided economic development and the rise of a leisure class, many technological processes produce unwanted by-products such as pollution and the depletion of natural resources from the Earth's environment. As a result, philosophical arguments have erupted on the employment of technology and whether technology helps or deteriorates the human state. Neo-Luddism,

anarcho-primitivism, and similar reactionary movements criticize the pervasiveness of technology by stating that technology harms the environment and destroys human relationships.

Despite this, philosophies such as trans humanism and techno-progressivism see ongoing technology progress as good to society and the human condition. Although technology is still being questioned and disputed, its critical role as the backbone of industrial production and scientific research continues to thrive.

2.5 TAM MODEL

The Technology Acceptance Model (TAM) is a hypothesis that describes how people perceive technology. Davis (1986) developed this model to describe how system parameters affect computer-based technology system users. TAM is the most extensively used model for identifying factors that influence technology adoption. According to the hypothesis, when consumers are faced with new technology, various variables impact their decision about how and when to utilise the technology (Ardiansah, Chariri, Rahardja, & Udin, 2020; Lindsay et al., 2011). TAM aims to explain the factors of general computer adoption and user behaviour across a wide range of end-user computing technologies and user groups (Rondan-Catalua et al., 2015). TAM was used to try to find basic factors that had been proposed by prior research. It defines the links between perceived utility, perceived ease-of-use, computer usage attitude, and desire to utilise technology (Teo et al., 2011).

This model demonstrates that when consumers are introduced with new technology, certain aspects impact their judgments about how and when to utilise it. The perceived utility and perceived ease-of-use are the two most essential variables. Thus, user acceptability of an information system is determined by two criteria, namely perceived utility and perceived ease-of-use, according to TAM. Together, these variables shape attitudes regarding the use of technology, which might influence behavioural intentions to use, ultimately leading to system usage.

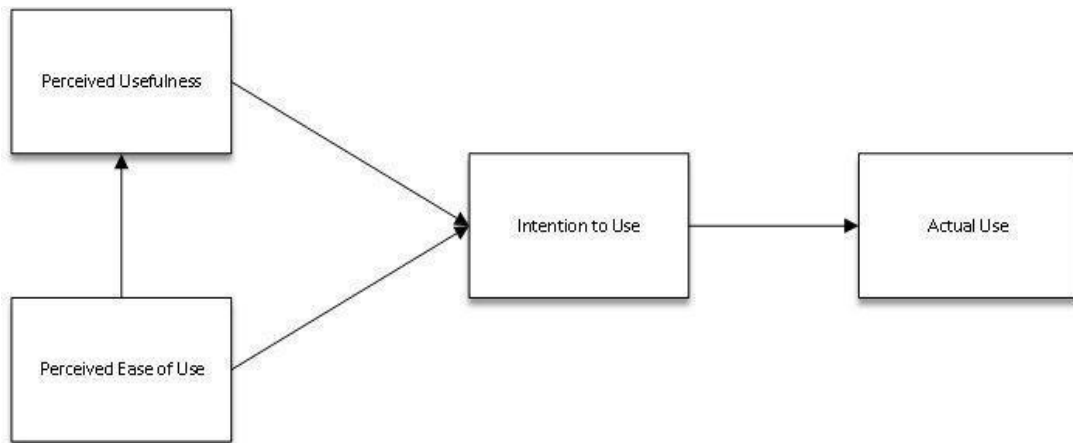


Figure 2.1 : TAM Model

2.6 RESEARCH FRAMEWORK

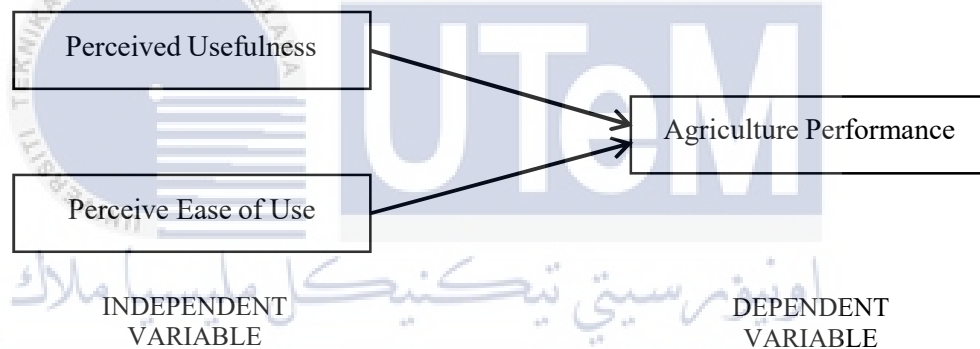


Figure 2.2 : Research Framework

2.7 HYPOTHESIS TESTING

A research hypothesis is a distinct, explicit, and testable claim or prediction regarding the likely outcome of a scientific research study based on a specific attribute of a population, such as anticipated disparities between groups on a given variable or correlations between variables. One of the most significant tasks in organizing a scientific quantitative research study is defining the research hypothesis. The researcher developed two hypothesis based on the study framework in Figure 2.2.

Hypothesis 1 (H1) : Perceive Usefulness

H1 : There is a significant relationship between perceive usefulness and towards agriculture performance.

Hypothesis 2 (H2) : Perceive Ease of Use

H2 : There is a significant relationship between perceive ease of use and agriculture performance.

2.8 SUMMARY

The researcher has examined the definition of agriculture performance, perceive usefulness, perceive ease of use, agriculture performance with modern technology, usage of technology and TAM Model. The researcher created a study framework with two independent variables and one dependent variable. The researcher also created two hypothesis tests to assess the link between the independent and dependent variables. The study will continue with the research methods of this research in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter was concisely described research methodology that associated with this study. As per Rajasekar et al. (2013), research methodology is known as an organized technique for problem-solving which is the scientific studies on how to conduct a research. Whereas according to Kothari (2004), research involve numerous elements such as defining issues, gathering data, making conclusion, conclusion testing and formulating hypothesis.

An organized plan of research method has been conducted for this study and includes design of study, sampling plan, instrument, and data analysis procedures. Moreover, all the research methods that been used are also has been explained in this chapter. Researcher also had explained research design and selected methodology. Source of primary and secondary data that been developed for this study has been further described. Other than that, population, and design of the questionnaire as well as sampling design are been discussed too. Several data analysis approaches are deeply explained, and the summary is included.

3.1 RESEARCH DESIGN

According to Saunders et al. (2020), a research design is a blueprint that is typically utilized in conducting a study on how to address research questions and achieve research goals by outlining the reason for selecting data sources, collecting techniques, and data analysis procedures. The purpose of research design is to assess

the validity of hypotheses that have been established. This study is looking at the usage of technology acceptance towards the agriculture in modern world.

3.1.1 QUANTITATIVE RESEARCH

Quantitative analysis is one of the data collecting designs that includes surveys, experiments, and observations. While developing the quantitative study, all variables should be link-able, quantifiable, and related to one another, and they should be referred to one another while developing the questionnaire. The survey questions include online surveys, smartphone surveys, face-to-face interviews, and various other options. Survey questionnaires with questions about relevant factors will be used in this study to analyse the association between the two variables.

3.1.2 EXPLANATORY RESEARCH

Explanatory research, according to Yousaf (2017), is undertaken to analyse topics that have never been thoroughly studied or well-investigated before. It is sometimes referred to as causal research. Aside from that. According to Saunders et al. (2020), explanatory research is concerned with investigating causal links between research variables. This will aid comprehension and inspire researchers to pursue opportunities to learn something new.

The goal of an explanatory research design is to investigate the cause and effect relationship between the independent variable and the dependent variable. All secondary data from current and historical studies would be evaluated in this study. The primary data would then be studied to identify the relationship between the deployment of technology acceptance and the agriculture performance.