

DETERMINANT THAT AFFECT
TECHNOLOGY ADOPTION IN AGRICULTURE
IN KELANTAN STATE

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A project report submitted in fulfillment of the requirement for the award of Bachelor
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“I declared that thesis entitle Determinant That Affect Technology Adoption in Agriculture in Kelantan State is the result of my own research except as cited in the references”

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DEDICATION

I dedicate this thesis to my family especially to my parent Mr. Mohd Yusoff bin Ishak and my loving mother Mdm. Fatimah Binti Mat Jusoh for nursing me with affections and love; lecturer at UTeM especially for my supervisor Madam Mislina Binti Atan@Mohd Salleh, friends and those people who have guided and inspired me throughout my journey of education.

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May ALLAH bless you all.

Thank you.

ABSTRACT

The Agricultural sector in the state of Kelantan is very important because the populations in the state of Kelantan are mostly involved in agriculture. The objective of this study are (1) To investigate what is the most important factor that involve in making the farmers in Kelantan state do not adopt the technology in agriculture, (2) To determine what strategies that have been implement by the organization in the government is the best for Kelantan farmers to adopt new technologies, and (3) To analyze the future plans by the organization to enhance the adoption of new technology in agriculture sector in Kelantan state. The factors that affect technology adoption in agriculture are Demographic Variables, Cost of Technology, Resources of Irrigation, Farm Size, Transportation Problem, Farmer Perception, and Institutions. Meanwhile, the strategies that will be implementing are Social Influences, Compatibility, Learning Techniques, Motivation, and Observability. This research is a descriptive case study. The qualitative method through in-depth interview with seven people within five organization which is Pertubuhan Peladang Negeri Kelantan, Lembaga Kenaf Dan Tembakau Negeri Kelantan (LKTN), Jabatan Pengairan dan Saliran Negeri Kelantan (IADA/JPS), Jabatan Pertanian Negeri Kelantan, and Lembaga Kemajuan Pertanian Kemubu (KADA).

Keywords: Kelantan, Agriculture, Technology Adoption, Factor, Strategy

ABSTRAK

Sektor pertanian di negeri Kelantan adalah sangat penting kerana penduduk di negeri Kelantan kebanyakannya terlibat dalam bidang pertanian. Objektif kajian ini adalah (1) Untuk menyiasat apa adalah faktor yang paling penting yang terlibat dalam membuat petani di negeri Kelantan tidak mengguna pakai teknologi dalam bidang pertanian, (2) Untuk menentukan strategi yang telah dilaksanakan oleh organisasi dalam kerajaan adalah yang terbaik untuk petani Kelantan untuk menerima pakai teknologi baru, dan (3) untuk menganalisis rancangan masa depan oleh organisasi untuk meningkatkan penggunaan teknologi baru dalam sektor pertanian di negeri Kelantan. Faktor-faktor yang mempengaruhi penerimaan teknologi dalam bidang pertanian adalah Pembolehubah Demografi, Kos Teknologi, Sumber Pengairan, Ladang Saiz, Masalah Pengangkutan, Farmer Persepsi, dan Institusi. Sementara itu, strategi yang akan dilaksanakan adalah Pengaruh Sosial, Keserasian, Learning Techniques, Motivasi, dan Diperhatikan. Kajian ini adalah satu kajian kes deskriptif. Kaedah kualitatif melalui temu bual mendalam dengan tujuh orang dalam tempoh lima organisasi yang Pertubuhan Peladang Negeri Kelantan, Lembaga Kenaf Dan Tembakau Negeri Kelantan (LKTN), Jabatan Pengairan dan Saliran Negeri Kelantan (IADA / JPS), Jabatan Pertanian Negeri Kelantan, dan Lembaga Kemajuan Pertanian Kemubu (KADA).

Kata Kunci: Kelantan, Pertanian, Penerapan Teknologi, Faktor, Strategi

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LIST OF ABBREVIATION

| ABBRV. | DETAIL |
|---------------|--|
| PPK | Pertubuhan Peladang Kelantan |
| LKTN | Lembaga Kenaf dan Tembakau Negara |
| IADA | Jabatan Pengairan dan Saliran Negeri Kelantan |
| JPNK | Jabatan Pertanian Negeri Kelantan |
| KADA | Lembaga Kemajuan Pertanian Kemubu |
| NKEA | National Key Economic Area |
| MEP | Mini Estate Paddy |
| TAM | Technology Acceptance Model |

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Technology transfer is a major component of international assistance to developing nations. Improved technology is expected to lend to expanded food production, increased income, and improved well-being for rural people. Economic and nutritional benefit emanating from technology adoption also are intended to have certain stabilizing and revenue generating consequences for the national economy (Mellor and Johnston, 1984). New international structures have been erected to generate agricultural technology, yet most innovations have not reached the Third World farmer and even fewer have penetrated and enervated subsistence farming systems or had the dramatic effects anticipated by their promoters (Johnston and Clark, 1982).

Technology transfer generally refers to the sharing or introduction of technology from one country to another country followed by the spread or expanded utilization of the new technology. But not all technology were selected or absorbed into everyday use, and what does find its way into the ordinary

practice of farmers and villagers often is severely modified or adapted to local conditions and preferences. The new and better way of growing plants are originated by institutions, firms, and enterprising individuals. There are lot of innovation have been done, improve varieties, breeds, practices, and inputs are spread, diffused, marketed, or introduced in multiple and diverse ways. Despite that, some innovation also reaches the farmer by accident and others through purposive intervention by governments, firms, or private institutions. Technology transfer is most often considered as public sector activity in whole or in part, as existing arrangements somehow do not supply the agricultural producer with sufficient or appropriate technology (Johnson, 1985; Sfeir, 1985).

1.2 Problem Statement

Every farmer has their own way of managing their farms. Even so they also need a little help to manage the process in handling their crops. As we know the developing countries such as the United States and Japan have their own technology to help farmers in their country farming. The technology is able to reduce the burden on farmers and reduce the time to complete a process in agriculture in their countries.

In this study, researcher wants to examine the factor that affects adoption in agriculture which focuses in the state of Kelantan. There are many factors that can affect adoption of technology in agriculture that have been state from the previous research and some of them are crucial. What the researchers discovered technologies in countries such as the US and Japan could help farmers in the state of Kelantan continued to facilitate the performance of their agricultural processes. So this is what researcher wants to happen in Kelantan state. But first

researcher needs to determine what the most crucial factor that affect adoption of technologies among Kelantan farmers.

The farmer is not the sole focus of technology transfer efforts, however. In many cases agricultural development depends on the availability and efficient operation of certain organization and infrastructure systems. The main reasons for non-adoption of technology are weak perceptions of technology and low education of farmers, low teaching capacities, limited knowledge among extension workers, disorganization, geographical conditions, and inadequate resources and funds, Truong (2008). In a number of local studies by Salleh et al. (2009), Hayrol Azril et al. (2009), Abu Samah et al. (2009) have agreed with findings by Truong (2008) which accentuated on factors such as education, negative perceptions, lack of capital, small land areas, ineffective infrastructure facilities, and limited capacity of extension workers as the main drivers that led to low technology adoption. Furthermore, effective program planning is needed to embolden farmers in adopting technology into their farming routine (Sork & Caffarella, 1990).

1.3 Research Question

1. What factors that cause Kelantan farmers do not adopt the technology in their agricultural activities?
2. What are the strategy that have been implement by organizations in the government to make Kelantan farmers adopt technology in agriculture?
3. What are the future plan by the organization that involve in making farmer in Kelantan to adopt the technology?

1.4 Research Objective

Throughout the research question that to be answered researcher aims to achieve research objectives such follow:

1. To investigate what is the most important factor that involve in making the farmers in Kelantan state do not adopt the technology in agriculture.
2. To determine what strategies that have been implement by the organization in the government is the best for Kelantan farmers to adopt new technologies.
3. To analyze the future plans by the organization to enhance the adoption of new technology in agriculture sector in Kelantan state.

1.5 Scope and Key Assumptions of the Study

In this section, the researcher will further explains the scope and key assumptions for the research study of determinant that affect adoption of technology transfer in agriculture sector at Kelantan.

1.5.1 Scope

The study is to be carried out on acceptance of the technology in the agricultural sector by the farmers in the state of Kelantan. A place that will be the study area is an agricultural area in Bachok, Machang, Pasir

Mas, and Pasir Putih of Kelantan, where it will be a major area in this study than in other agricultural areas in the state of Kelantan. Researchers will conduct the research on the organization responsible for the agricultural sector in the state of Kelantan. Among these is the Pertubuhan Peladang Negeri Kelantan, Lembaga Kenaf Dan Tembakau Negeri Kelantan (LKTN), Jabatan Pengairan dan Saliran Negeri Kelantan (IADA/JPS), Jabatan Pertanian Negeri Kelantan, and Lembaga Kemajuan Pertanian Kemubu (KADA). The researcher will interview the people that involve in helping farmer on the adoption of the technology. This is due to the interviewed institutions related to agriculture in the state of Kelantan and also allows the researcher to obtain detailed information about the study to be conducted. In addition, researchers also will better understand the factors that cause farmers in the state of Kelantan less regard to more advanced technology abroad. Among the factors that researchers want to understand fact is as follows:

- The factors leading to the adoption of technologies among farmers
- The level of awareness about new technologies among farmers
- The level of knowledge about how to use new technologies
- The tendency of farmers to change the way or manner in their farming techniques
- Whether the capital shortage of farmers in the state of Kelantan is a major cause of the acceptance of new technologies in a process of their daily farming?
- Whether the agricultural department in Kelantan also has the initiative in changing their farming methods?
- Whether agricultural technique adopted by farmers in the state of Kelantan is now adequate?
- Could the farmers understand the technology from abroad if the technology is brought into the state of Kelantan?

- If the class of the farmers in Kelantan understand the technology used by foreign countries takes place, would they accept therefore adopt the technology in their daily farming process?

This researcher need to understand the factors related to a stumbling block to the farmers in the state of Kelantan in applying these technologies in their daily farming activities. This can also help researcher understand how to overcome this obstacle factors thus creating a new alternative in helping farmers to facilitate the process of their farms thus increase the number of crops that can be produced with the use of these technologies.

1.5.2 Key assumptions of the study

Throughout the research study, the researcher had assumed the following assumption before conducting the research such all respondents that researcher interviewed will answer all questions honestly and to the best of their abilities. Second, this study was only focuses on respondents' behavior and their thought and does not take into economic factors

1.6 Importance / significant of the study

The main importance of the research study is the researcher want to explore the factor that affects adoption of the technology among farmers in Kelantan state. Another importance is the researcher also want to study about the strategies that can be implement to make the farmers more

understand about the abrased technology and also adapting it. In addition, throughout this research study, the researcher aims to increase the existing literatures on the technology transfer in agriculture sector in Kelantan state as a state that evolving their agriculture technology. The researcher will contribute some innovative suggestion towards the ways that will affect adoption of technology transfer in agriculture sector in Kelantan state.

1.7 Summary

In this study, two institution and observation on the farm was used as a basis to determine the relationship between the adoptions of technological changes among the farmer in state of Kelantan. It is hoped that the findings could benefit the farmer in Kelantan in many ways to enhance their farm productivity. It is hoped that the findings of this study can be used to improve the agriculture sector in Kelantan through better understanding on the issues of acceptance of technological changes and how these issues affect the ways of using technologies among farmer.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter is to discuss about the determinant that affect farmer to adopt technologies in agriculture sector. According to Schultz (1964) and Cochrane (1979), technological change has been a major factor shaping agriculture in the last 100 years. From the observation also we can see that farming practices are changing continually from time to time. In addition, farmers also learn about new technologies from various organization, programs, and projects dedicated to research or rural development. These organizations develop and promote new management, input and varieties practices. It is essential that these organizations be able to follow the results of their efforts and understand agricultural change in which all farmers participate. This is important that such organization do the research that develops innovations for farmers. Extension institution also needs to promote new technologies and various type of rural development project that