UNIVERSITI PUTRA MALAYSIA

GRADUATE FARMERS' PERCEPTION ON THE ACCESSIBILITY OF ONLINE INFORMATION PROVIDED BY AGRICULTURAL AGENCIES

NORFARYANTI KAMARUDDIN

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By

NORFARYANTI KAMARUDDIN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in fulfilment of the Requirements for the Degree of Master of Science

June 2007

DEDICATION

I dedicate this thesis to my husband, Khairul Ridzwan Mohd Ibrahim who has been a great source of motivation and inspiration and to my 3 months old daughter, Ayesha Inshirah for always being cute.

I also want to dedicate this thesis to my parents and grandmother; Kamaruddin Mat Noor, Zaiton Md. Lazim and Safiah Abdullah Ali and to my family and family in laws, who have supported me all the way.

Finally, I dedicate this piece of work to those who believe in the richness of learning.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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Chairman: Professor Mohd Ghazali Mohayidin, PhD

Faculty: Agriculture

The modernisation of Malaysian agricultural sector has accelerate due to deliberate improvements in the delivery of critical agricultural support services, such as Research and Development (R&D), education and training, as well as technical and financial support. A number of government and private agencies have produced a significant number of research outputs, such as new technologies and processes, and agricultural knowledge as documented in research and academic journals, academic papers, and research reports. At the same time, rapid development in information and communication technology (ICT), which acts as an enabler in the development of the economy, has gained tremendous acceptance by the society in turning Malaysians into the so-called knowledge workers. Unfortunately, in the agricultural sector, in spite of all these development, the general users of agricultural knowledge, especially

farmers, have difficulty in accessing knowledge through the use of technologies, which have been generated by various agricultural organisations.

Therefore, the objectives of this study are (1) to evaluate the usability and usefulness of agriculture portals, (2) to determine the frequency of accessing agricultural knowledge through portals or websites and (3) to identify factors affecting the access to agricultural knowledge through these agriculture portals or websites. For the first objective, a panel of experts evaluate the relevant agriculture portals and websites. Whereas, for the second objective, the respondent were participants of the Agriculture Entrepreneurs Scheme for Graduates under Agriculture Bank of Malaysia. Primary data were collected using a mail survey and about 40% of the scheme participants responded. Factor Analysis and Multiple Regression Analysis (MRA) were used to achieve the second specific objective.

The most frequently visited agriculture portals or websites are those of the *Ministry of Agriculture, Agriculture Bank of Malaysia, and Department of Veterinary Services*. The Factor Analysis identifies five important factors affecting the access to agricultural knowledge by the graduate agricultural entrepreneurs. The factors are; levels of *agriculture knowledge, ICT skills, computer usability, complimentary sources of knowledge, and business knowledge*. Based on the MRA the variables that significantly affect the frequency level of accessing agricultural knowledge includes *ICT skills,*

business knowledge and the number of time succeeded in getting the information needed.

Based on the findings, there is a need for R&D agencies to work closely with the farmers to produce relevant and useful research outputs. Subsequently, these new knowledge and technologies should be easily accessible through user-friendly portals; and at the same time, the agricultural entrepreneurs must equip themselves with ICT and other agriculture knowledge in order to reap the benefits of accessing and applying new knowledge and technologies generated by the agricultural organisations.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Master Sains

PERSEPSI SISWAZAH TANI TERHADAP KEBOLEHCAPAIAN MAKLUMAT *ONLINE* YANG DISEDIAKAN OLEH AGENSI-AGENSI PERTANIAN

Oleh
NORFARYANTI KAMARUDDIN

Jun 2007

Pengerusi: Professor Mohd Ghazali Mohayidin, PhD

Fakulti: Pertanian

Permodenan sektor pertanian adalah selari dengan perkembangan yang baik terhadap sistem penyampaian dalam perkhidmatan sokongan seperti, penyelidikan dan pembangunan (R&D), latihan dan bantuan kewangan. Beberapa agensi kerajaan dan agensi swasta telah menghasilkan banyak hasil penyelidikan dan ilmu, contohnya teknologi baru serta ilmu yang di dokumenkan dalam bentuk jurnal, kertas akademik, dan laporan penyelidikan. Sementara itu, pertumbuhan yang pesat dalam ICT adalah satu petanda baik bagi pertumbuhan ekonomi, serta telah mendapat penerimaan yang positif dari pengguna di Malaysia untuk menjadikan mereka pekerja yang berilmu. Walaubagaimanapun, ilmu dan hasil penyelidikan dalam bidang pertanian yang dihasilkan oleh beberapa agensi pertanian tidak mudah dicapai oleh para pengguna terutamanya para petani.

Oleh itu, objektif kajian ini adalah; pertamanya, untuk menilai kepenggunaan dan kegunaan portal atau laman web berasaskan pertanian dan yang keduanya, untuk mengenalpasti faktor yang mempengaruhi capaian ilmu dan hasil penyelidikan pertanian melalui portal atau laman web berasaskan pertanian. Bagi mencapai objektif pertama, beberapa portal dan laman web yang berasaskan pertanian dinilai oleh beberapa panel pakar. Selain itu, bagi objektif kedua, responden kajian ini adalah peserta Skim Usahawan Tani Siswazah di bawah seliaan Bank Pertanian Malaysia. Satu soal selidik telah dijalankan dengan status maklum balas 40%. Data yang diperolehi di analisa menggunakan *Factor Analysis* dan *Multiple Regression Analysis (MRA).*

Keputusan mendapati, tiga portal atau laman web yang sering dikunjungi oleh responden adalah; **Kementerian Pertanian dan Asas Tani, Bank Pertanian Malaysia dan Jabatan Perkhidmatan Haiwan**. Keputusan dari *Factor Analysis* mendapati bahawa faktor yang mempengaruhi capaian ilmu pertanian oleh siswazah tani adalah; **ilmu pertanian, kemahiran informasi dan teknologi komunikasi, kepenggunaan komputer, sumber lain untuk mendapatkan ilmu dan ilmu perniagaan** adalah lima faktor yang mempengaruhi capaian ilmu pertanian. Manakala, keputusan *MRA* menunjukkan pemboleh ubah yang signifikan terhadap frekuensi capaian ilmu adalah **kemahiran informasi dan teknologi komunikasi, ilmu perniagaan dan bilangan capaian yang berjaya**

mencapai ilmu yang diperlukan adalah pembolehubah yang signifikan kepada tahap capaian ilmu pertanian melalui laman web atau portal.

Berdasarkan keputusan yang diperolehi, agensi penyelidikan dan pembangunan perlu bekerja seiring dengan para petani bagi memastikan hasil penyelidikan selari dengan keperluan petani. Selain itu, ilmu pertanian dan teknologi yang baru haruslah senang dicapai melalui laman web atau portal yang mesra pengguna. Para petani juga harus mempersiapkan diri dengan menimba segala ilmu yang relevan bagi memastikan mereka mendapat manfaat dari hasil penyelidikan yang dilakukan oleh agensi-agensi pertanian.

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It is difficult not to overstate my gratitude to; my Chairman of Supervisory Committee, Prof. Dr. Mohd Ghazali Mohayidin, members of Supervisory Committee; Assoc. Prof. Dr. Zainal Abidin Mohamed and Assoc. Prof. Dr. Mohd Hasan Selamat. With their enthusiasm, their inspiration, and their great efforts to explain things clearly and simply, they have helped to make the study enjoyable. Throughout my thesis-writing, they provide encouragement, sound advice, good teaching, good company, exchange of knowledge and experience and lots of good ideas. I would have been lost without their constant guidance.

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To my beloved husband, Khairul Ridzwan Mohd Ibrahim, this is the result of your great patience and continuous support.

Lastly, and most importantly, I wish to thank my parents and grandmother; Kamaruddin Mat Noor, Zaiton Md. Lazim and Safiah Abdullah Ali. They raised me, supported me, taught me, and loved me. To them I dedicate this thesis.

With all my heart, thank you.

I certify that an Examination Committee has met on **11ᵗʰ June 2007** to conduct the final examination of **Norfaryanti Kamaruddin** on her **Master's** thesis entitled "**Graduate Farmers' Perception Towards Accessibility of Online Agriculture Knowledge Provided by Agricultural Agencies**" in accordance with Universiti Putra Malaysia (Higher Degree) Act 1980 and Universiti Putra Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

Amin Mahir Abdullah, PhD
Department of Agribusiness and Information System
Faculty of Agriculture
Universiti Putra Malaysia
(Chairman)

Rosli Salleh, PhD
Graduate School of Management
Universiti Putra Malaysia
(Internal Examiner)

Mohd Mansor Ismail, PhD
Associate Professor
Department of Agribusiness and Information System
Faculty of Agriculture
Universiti Putra Malaysia
(Internal Examiner)

Laili Hj. Hashim, PhD
Associate Professor / Dean
Faculty of Information Management
UiTM Kampus Puncak Perdana
(External Examiner)

_____
Hasanah Mohd Ghazali, PhD
Professor/Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

Mohd. Ghazali Mohayidin, PhD
Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Chairman)

Zainal Abidin Mohamed, PhD
Associate Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

Mohd. Hasan Selamat, PhD
Associate Professor
Faculty of Computer Science and Information Technology
Universiti Putra Malaysia
(Member)

_____
AINI IDERIS, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 13 September 2007

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

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NORFARYANTI BT KAMARUDDIN

Date: 8 August 2007

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8MP	Eight Malaysian Plan
9MP	Ninth Malaysian Plan
ABM	Agriculture Bank of Malaysia
ATS	Agriculture Technology Systems
B2B	Business to Business
B2C	Business to Consumer
BPM	Bank Pertanian Malaysia
CPs	Corporate Portals
DVS	Department of Veterinary Services
EFITA	European Federation of Information Technology in Agriculture
EIP	Enterprise Information Portal
ERP	Enterprise Resource Planning
FA	Factor Analysis
FAMA	Federal Agricultural Marketing Agency
GOs	Government Organisations
ICT	Information, Communication and Technology
IPM	Integrated Pest Management
IRPA	Intensification of Research Priorities Areas
IT	Information Technology
KADA	Kemubu Agricultural Development Authority

KM	Knowledge Management
KMS	Knowledge Management Systems
LKIM	Lembaga Kemajuan Ikan Malaysia
LPP	Lembaga Pertubuhan Peladang
MADA	Muda Agricultural Development Authority
MARDI	Malaysian Agriculture Research and Development Institute
MASTIC	Malaysian Science and Technology Information Centre
MPOB	Malaysian Palm Oil Board
MRA	Multiple Regression Analysis
NGOs	Non government Organisations
PORIM	Palm Oil Research Institute of Malaysia
PORLA	Palm Oil Registration and Licensing Authority
R&D	Research and Development
S&T	Science and Technology
SMSs	Subject-matter Specialists
SUTKS	Skim Usahawan Tani Komersial Siswazah
UPM	Universiti Putra Malaysia

CHAPTER 1

INTRODUCTION

Agricultural industry has contributed significantly to the growth and development of Malaysian economy, although the economy has undergone major structural changes over the last four decades. The rapid industrialisation led to a decline in the industry's relative contribution to national income, export earnings, employments and investments. The economy faces a major shift from agriculture era to industrialisation era. After a tremendous increase in food import bill, the Government has decided to revitalize the agricultural sector with new agricultural strategy. The new agricultural strategy needs to reduce the food import bill by year 2010 as well as increasing food export bill. The strategy is not a public sector driven which divide the producer and buyer, but the consumer and market driven that integrate the value chain.

Table 1.1 shows exports and import of food, 2000 – 2010. The total of imported food increasing from RM 10 billion in year 2000 to RM 15 billion in 2005. The food commodities sub sector is expected to grow at an average rate of 7.6 per cent per annum through improvements in efficiency and productivity. The Green Book Programme that aimed to make Malaysia self-sufficient in food production by encouraging farmers to grow vegetables and rear livestock will be reactivated. In this programme, agriculture agencies going as far as to distribute cattle, whereas fertilisers, seedlings, insecticides and herbicides were

subsidized. Double cropping of rice also was encouraged, so farmers could harvest twice in one year and effectively double their output. This programme will help to promote cultivation of food crops at the community level.

The industrialisation of agricultural sector needs a high level of collaboration between agricultural agencies and farmers. It also needs an intervention from the Government in order to monitor the farmers' activities and facilitate them in ensuring their agricultural practices are relevant. Private sector plays a major role in order to materialize the new agriculture through support programmes and trainings. The farmers need to be equipped with adequate and relevant knowledge, skills and industriousness.

The agricultural sector has to shift from traditional approach to modern approach, which perhaps will increase the productivity and efficiency in producing agricultural goods and services. There are many things to be changed and improved, as well as farmers' way of thinking.