

ANALYTICAL STUDY ON ADOPTION OF GREEN COMPUTING BY
MALAYSIAN ORGANIZATIONS

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ABSTRAK

Fokus terhadap perkomputeran hijau atau *green computing* telah meningkat dengan mendadak pada waktu ini. *Green computing* bermaksud sokongan bisnes yang menggunakan komputer terhadap pengurangan kuasa atau pelestarian penggunaan komputer. Ini akan memberi perubahan kejutan dalam industri teknologi maklumat. Perubahan ini disebabkan oleh keperluan bisnes komputer yang semakin meningkat, kenaikan kos tenaga, timbulnya kesedaran terhadap isu kepanasan global dan kenaikan terhadap sekuriti tenaga nasional. Dispacehadapan isu kepanasan global dan kenaikan sekuriti tenaga nasional, terdapat pelbagai undang-undang dan peraturan yang tidak lama lagi akan dikuatkuasakan yang akan membuatkan kegunaan barangan teknologi maklumat mestilah memenuhi sesetengah keperluan keberkesanan tenaga. Syarikat dan pertubuhan di Malaysia juga tidak terkecuali. Pertubuhan-pertubuhan ini manghadapi cabaran yang hebat kerana mereka perlu mengurangkan kadar pengeluaran mereka dan mengikuti langkah pembaharuan teknologi. Projek ini akan membuat penyiasatan tentang tahap persediaan syarikat dan pertubuhan di Malaysia terhadap penggunaan *green computing*. Dalam fasa pengutipan data, kaedah kualitatif dan kuantitatif pengutipan digunakan untuk mempelajari kecenderungan teknologi umum dalam industri teknologi maklumat dan teknologi yang sesuai untuk menemui kesesuaian *green computing* dalam keperluan syarikat di Malaysia. Melalui data analisis dan pembelajaran dari kes-kes yang sedia ada, ia dapat menghasilkan tahap persediaan syarikat dan pertubuhan di Malaysia dalam penggunaan *green computing* dan menyediakan kesesuaian cadangan untuk penyelesaian pengguna.

ABSTRACT

Focus on green computing has been growing very fast. Green computing refers to supporting business critical computing needs with least possible amount of power or sustainable computing. This represents a dramatic change particularly in IT industry. The driving force behind this change comes from the ever growing business computing needs, fast growing burden of energy cost, growing awareness of global warming issues, and increasing sense of national energy security. On the fronts of global warming issues and energy security, various regulations and laws will soon be in place that will force the use of IT equipment that meet certain energy efficiency requirements. Malaysian companies and organizations are even no exception. These organizations face greater challenge as they must sustain their rapidly developing rate and should keep pace with new flow of technologies as well. This project will provide an investigating of readiness level of Malaysian companies and organizations in applying Green computing. In the data collection phase, qualitative and quantitative data collection methods are used to study the general technological trends in the IT industry and what technologies are available in the race to meet green computing requirements by Malaysian companies. Through the analysis of the data and existing case studies, this study came up with a determined level of readiness of Malaysian companies in adopting Green computing and with probable suggestions for comfortable adoption. Especially for ICT solution, project will cover some technological aspects which are related to current theme.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGMENT	iv
	ABSTRAK	v
	ABSTRACT	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xiii
	LIST OF ABBREVIATIONS	xv
	LIST OF APPENDICES	xvii
1	PROJECT OVERVIEW	1
	1.1 Introduction	1
	1.2 Background of the Problem	2
	1.3 Statement of the Problem	4
	1.4 Research Objectives	4
	1.5 Scope	5
	1.6 Importance of Research Study	6
	1.7 Chapter Summary	6
2	LITERATURE REVIEW	7
	2.1 Introduction	7

2.2	Global Environmental Issue in Nowadays	9
2.2.1	Our Climate is Becoming Warm	9
2.2.2	Impact of ICT Industry to the Greenhouse Effect	13
2.2.3	Situation in Malaysia	16
2.2.4	World Practices of Decreasing Greenhouse Gas Emissions Through ICT	18
2.2.4.1	Japan	18
2.2.4.2	Australia	20
2.2.4.3	Europe Union	21
2.2.5	Activities for Reducing Greenhouse Gas Emissions in Malaysia	21
2.3	Green Computing	23
2.3.1	Defining Green Computing	23
2.3.2	Green Computing Initiators	23
2.3.2.1	U.S. Environmental Protection Agency and Energy star	23
2.3.2.2	The Swedish Organization TCO (Tjänstemännens Centralorganisation) Development and TCO Certification	25
2.3.2.3	Climate Savers Computing Initiative (CSCI)	26
2.3.2.4	Green Computing Impact Organization, Inc. (GCIO)	26
2.3.2.5	Green Electronics Council (GEC)	27
2.3.2.6	The Green Grid	28
2.3.3	Approaches for Moving Towards Green Computing	28
2.3.3.1	Virtualization	28
2.3.3.2	Managing Energy Consumption	29
2.3.3.3	E-waste and Recycling	31
2.3.3.4	Telecommuting	33
2.3.4	Best Green Computing Adoption Practices	33
2.3.4.1	Fujitsu is a Leader in Green Computing Approach	33

2.3.4.1.1	Electronic Administrative Service	35
2.3.4.1.2	Implementing Green Strategies Internally	36
2.3.4.1.3	Components	37
2.3.4.1.4	Benefits	37
2.3.4.2	Hewlett – Packard and Telecommuting	39
2.3.4.2.1	Employee Commuting	40
2.3.4.3	World Wildlife Fund in Way to Reduce Electricity Cost	41
2.3.5	GCA Model and Justification of the Choice	42
2.3.5.1	Green Computing Context	43
2.3.5.2	Green Computing Readiness	45
2.3.5.3	Drivers of Green Computing	47
2.3.5.4	Green Computing Adoption and Adoption Intention	50
2.3.6	Surveys Related to Green computing	51
2.3.6.1	Computerworld Survey	51
2.3.6.2	CDW IT Monitor Survey	54
2.4	Chapter Summary	54
3	RESEARCH METHODOLOGY	57
3.1	Introduction	57
3.2	Research Design	58
3.2.1	Instrumentation	58
3.2.1.1	Quantitative Research Methodology	58
3.2.1.2	Qualitative Research Methodology	63
3.2.2	Respondents	64
3.2.3	Adapting Research Instruments to Green Computing Adoption Model	64
3.3	Operational Framework	66
3.4	Data Analysis	69
3.5	Project Schedule	70
3.6	Chapter Summary	70

4	FINDINGS AND ANALYSIS	71
4.1	Introduction	71
4.2	Questionnaire Set A	72
4.3	Questionnaire Set B	86
4.4	Analysis of Green Computing Best Adoption Practices	94
4.5	Benefits of Online Questionnaires	96
4.6	Chapter Summary	97
5	RECOMENDATIONS FOR MALAYSIAN ORGANIZATIONS IN ADOPTING GREEN COMPUTING BASED ON GCA MODEL	99
5.1	Introduction	99
5.2	Concept of GCA Model Adaptation	102
5.3	Green Computing Context	103
5.4	Green Computing Readiness	105
5.5	Drivers of Green Computing	107
5.6	Intention to Adopt Green Computing	108
5.7	Green Computing Adoption	110
5.8	Chapter Summary	114
6	DISCUSSION AND CONCLUSION	116
6.1	Achievements	116
6.2	Constraints and Challenges	117
6.3	Recommendations	118
6.4	Chapter summary	119
	REFERENCES	120

CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

Now in the century of highest technologies people did not think about environment any more, because they became independent from the nature. Computers, mobiles, WiFi, artificial intelligence and etc. replaced the habitual environment of the human. But Nature is big force and human can not manage it. People were blind before they have seen the evidences of huge global issue like climate changing. Amazon rain forests going fired, ice glaciers are melting, and most of fields are beginning to dry.

A host of meanings conflicted around the world. However the climate change in progress. Countries like Japan, UK, and Australia are beginning to act. It forced to sign Kyoto Protocol. This legislative enactment will help for all countries to act together for reduce human activities impact to global warming.

In scope of global action to reduce emissions from industries all organizations are becoming to be “cleaner”. Under of this purpose united organizations like U.S. Environmental Protection Agency and Swedish organization TCO (Tjänstemännens Centralorganisation) Development are laid basis of meaning “green computing”.

All companies around world are accepted new way for going green. And now successfully use it. This theory of using computers efficiently is one of the best solutions of reducing hazardous emissions.

Undoubtedly green computers will be new generation of technology in future. For that purpose all organizations have to change their mind for being green.

1.2 Background of the Problem

Malaysia stated to be leaders in Information Technology growth. For achieving this goal Malaysian government initiated Multimedia Super Corridor in 1996. Multimedia Super Corridor (MSC) Malaysia aimed for breakthrough of Malaysia’s status of a knowledge – based economy. "We will continue to develop sectors in the creative multimedia industry, create more young entrepreneurs through our technopreneur development programs and prepare our MSC Malaysia-companies to be ready to compete globally," said Malaysia's Multimedia Development Corporation (MDeC) CEO Badlisham Ghazali in his interview to ZDNet Asia.

Moving towards their targets will face Malaysia with environmental problems. For example, electricity to power computer servers and related

infrastructure worldwide reached 123 billion kWh in 2005, which is equivalent to fourteen 1,000-megawatt power plants, or 14 typical nuclear responsibilities to protect and sustain the environment (R.Clarkson, 2008). What started as a realization that going green was the easiest way to save money and cutting CO2 emissions. It means that going green is absolutely necessary. While this innovation is intended to enhance future environment, the potential hazard from its usage is something that could not be ignored by Malaysian ICT Industry.

The problem mentioned above may look like green computing will be useful only for solve environmental issues. In fact, it also forced to reduce IT operational cost. Office equipment is the fastest growing electrical load in the business sector. With the widespread use of desktop computers, printers, and especially servers and air conditioning devices, an office can have hundreds of units and the energy costs can add up. Energy use from office equipment has surpassed lighting in many buildings where office equipment and miscellaneous loads can account for up to 2.5 Watts per square foot of floor space while lighting only makes up 1.5 Watts. In a recent study by Arizona Public Service (APS) (1999), office equipment and other miscellaneous uses accounted for over 40 percent of electricity consumption in large office buildings with most of that by office equipment. Since office equipment accounts for an increasingly large share of the electricity bill, it is important to consider energy use characteristics. Adding the applications with “Green” label could also save cost by increasing efficiency of computers. Unfortunately, Malaysia in his high growth phase and Malaysia is not feeling the problem very “painful”. Otherwise, problem is in level of readiness of Malaysian organizations to face the problem and to adapt the green computing.

1.3 Statement of the Problem

This research is conducted as an attempt to find the answers to some problems, relating to:

- i. Are the well-known organizations and companies using computing resources (especially, datacenters and servers) efficiently nowadays?
- ii. What are the current situation of standards and practices applied by Malaysian companies on green computing?
- iii. What are the readiness level of Malaysian companies and organizations in applying green computing?
- iv. What are the appropriate approaches in green computing which could be adopted by Malaysian companies?

Apart from the studies conducted on using of Green computing technologies for reducing effect of greenhouse gases emissions to global warming, there is a growing need to determine the level of readiness among Malaysian companies and organizations to embrace Green Computing in order to meet global demands, reduce infrastructure costs, associate energy and save space. The researcher intends to use a relevant research methodology to analyze the data that will be gathered and come up with suggestions for the improvement that can benefit the organizations, which will adapt green computing technology.

1.4 Research Objectives

This research is done with the following objectives:

- i. To determine the current situation of using computing resources (datacenters, servers, etc.) efficiently in well-known organizations and companies.
- ii. To investigate the current standards and practices applied by Malaysian companies on green computing.
- iii. To find out the readiness level of Malaysian companies and organizations in applying green computing.
- iv. To suggest probable approaches for Malaysian companies in adopting green computing.

1.5 Scope

The scope of the Project involves Malaysian companies which are located in Johor Bahru and also big IT companies in Malaysia.

This project will cover two main scopes as highlighted below:

- i. The companies which located in Johor state as an indexes to present all companies in Malaysia.
- ii. A few selected renown and big Information Technology companies in Malaysia for understanding of readiness level for adapting green computing.

1.6 Importance of Research Study

Although currently there is no concrete evidence that shows the readiness level of organizations in Malaysia in adopting green computing, the findings of this study are important to help local authorities to find out the importance of environmental issues and using green computing for solving. With the information at hand, IT developing measures could be analyzed and more extensive studies could be planned for the future.

1.7 Chapter Summary

The first chapter has identified the introduction of the research project, background of the problem, statement of the problem, project objective, scope of the project, significance of the project and also the structure of the thesis. The expectation is that, by conducting the project successfully, the objectives of the project can be achieved.

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