

MASTER OF BUSINESS ADMINISTRATION

MANAGEMENT CENTER

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**An Investigation Into the Level of Investment in
Information Technology Training and Factors
Influencing the Investment in
Information Technology Training**

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Saiful Bahri Saifina Amin
Date Received : 31/3/1999

**A Masters Thesis
Submitted in partial fulfilment of the
Requirement for the award of**

**The Degree of Master of Business Administration
of the
International Islamic University**

31st March 1999

Approval Page

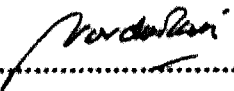
TITLE OF PROJECT PAPER

**An Investigation Into the Level of Investment in
Information Technology Training and Factors
Influencing the Investment in
Information Technology Training**

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Date : 31st March 1999

To

**My Dearest Parents and My Wife
and My Children**

ACKNOWLEDGEMENT

It is a pleasure to acknowledge the cooperation of many people who have helped during the course of this research.

Foremost, is my supervisor and mentor Dr Nordin Mohd Zain. His continual guidance, advice and moral support has been invaluable in completing this research paper.

My thanks also goes to all my lecturers at the IIUM MBA program for their dedication and contribution in increasing my knowledge throughout the program.

My deepest appreciation and gratitude goes to my parents Haji Saidina Amin Husin and Hajah Siti Rahmah Yunus, my wife, Norizan Oyob and all my children for their emotional support.

Lastly I would also like to thank my colleagues at Henkel, Suraidah Dahlan and Sarimah Mohd Luddin for helping type this thesis.

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ABSTRACT

Malaysia has embarked on developing high technology industries on a massive scale in an attempt to become an industrialized nation by the year 2020. The Information Technology sector will be the engine to achieve that goal; judging from the growing importance the nation has placed on IT in the last decade.

Realizing the importance of IT, companies have quickly embraced IT and spent huge sums of money investing in it. However there were indications that a parallel investment in IT training was not made although companies knew that training was very important in developing IT skills.

This research attempts to determine the level of investment in IT training by companies in Malaysia and the factors that influence these companies to invest in IT training. Data was collected by mail questionnaire sent to two hundred companies across industries.

The findings from the survey showed that while companies do acknowledge the importance of IT and the benefits of having educated, properly trained IT staff in their organization, the approach adopted by these companies towards IT training does not reflect this understanding. They seem reluctant to make the investment in

IT training despite making big investments in IT hardware and software. The reasons for this attitude are explored and identified in the research.

The shortage of IT workers has become a major issue in the IT industry. This phenomenon was deemed to have caused companies to face major difficulties in employing as well as retaining IT employees. This research however, provided little support to the above hypothesis revealing that companies believe that they face only a slight difficulty in employing and retaining these staff. This is perhaps due to the present economic difficulties faced in Malaysia.

Finally the study also identifies the popular methods of training and the type of support used to encourage IT training amongst IT workers. The results seem to show a preference for on the job type training as opposed to off the job skill development.

CHAPTER 1

INTRODUCTION

1.1 Background research problem

The Information Technology industry has evolved so fast that it has affected almost all sectors of the economy. The constant and relentless new product offerings are so widespread that by and large nobody has been spared. IT related products and services that were unimaginable just a few years ago have now become a reality. Information technology has caused a human revolution. It has changed the way people work and manage their lives.

At present, big investments in IT were made all over world. In the U.S where there is currently an unprecedented period of growth and prosperity, huge capital inflows were made into IT related industries. Statistically the figures were overwhelming- 42% of the investment capital base in the U.S goes into IT annually, 35% of growth in the US GDP had been associated with IT and nearly 50% of US capital investment had been spent on enhancing IT (Papows, 1998).

Meanwhile in Malaysia, spearheaded by the government - with the Prime Minister Dr Mahathir Mohamed at its helm, a similar trend is apparent. Vision 2020 (which is

Malaysia's master program to achieve industrialized nation status) and the Multimedia Super Corridor (MSC) project will emphasize IT related developments. Currently, IT is being touted as the new growth sector and the second engine of growth after manufacturing. IT has been identified by the government as the foundation for the economic recovery. The industry is expected to generate economic growth, create employment opportunities and manufacture products with export potential for the country.

The private sector, realizing its strategic importance, has also followed suit in embracing IT. Huge capital investments in information technology have been made.

Unfortunately, there is still a big question mark over Malaysia's ability to produce enough skillful IT personnel to meet the nation's needs. The shortage of labor and skill in IT related industries has been acute mainly because Malaysia's phenomenal growth over the last 10 years has created a huge demand for such skills.

The nation's future progress will very much depend on its ability to utilize IT for productivity gains. Huge amounts of capital have already been and will continue to be channeled into IT. It is therefore critical to ensure that sufficient investments in human resources complement the level of investment in IT.

1.2 Objectives of the study

The main purpose of this research paper is twofold. Firstly it attempts to ascertain the level of private sector investment in information technology training (compared to their overall IT expenditure and training budget) and explore factors that limit the level of investment in IT training. Secondly it attempts to find out the extent of the shortage of (and consequently the difficulties in employing and retaining) IT workers and to explore the factors causing the difficulties in employing and retaining IT workers.

Besides the above objective, the secondary goals of this research are to find answers to the following questions:

1. Do companies understand the benefit that IT would give to their organizations?
How effective is the use of IT in achieving company goals.
2. Do companies realize the importance of IT knowledge to their organization? To what extent do companies view having knowledgeable IT workers as important in their quest to achieve the companies' objectives?
3. To determine the types of methods used and supports utilized to encourage training amongst IT personnel?

4. To understand and establish the “link” between the shortage of IT workers and IT training.

1.3 Organization of the study

The content of this research paper is organized into six chapters. Chapter One gives an overview of the thesis, the significance of the study and the research objectives. Chapter Two reviews literature on IT and education- specifically the benefit of IT, the importance of education and training in general and the importance of IT training. Chapter Three continued the literature review but more specifically in the light of the main objectives of the research. It focussed on obtaining information on IT expenditure and training budgets of companies, the extent of the diminishing supply of IT personnel and the causes of the shortage, the factors that caused companies to invest less in IT training, and finally the methods and support used in IT training. Chapter Four outlines the research method used in collecting data for analysis with emphasis on questionnaire development. Chapter Five presents the analysis of the results and findings of the survey. Finally Chapter Six gives the conclusion of the research paper.

1.4 Significance of the study

It is hoped that this study will be able to bridge the vacuum in understanding the extent of IT training investment as well as to unearth factors that discourage investment in IT training. In fact one of the major concerns as reflected in an article in “IT Malaysia” is that:

“...companies make the fatal mistake of spending millions on a new software system but allocating little or no funds to train employees in its optimal use. No one can quite pinpoint the real reasons for the indifference towards IT training, but the lack of time and the rampant job-hopping by IT workers are often quoted as reasons why companies do not pay as much attention to training.” (Training, 1998).

The level of IT training and the reasons for the indifference towards IT training-focus of this research should be a contribution to the study in this area.

1.5 Limitations of the study

In appraising the findings of this research, it is important to interpret the results obtained with the following limitations in mind.

Firstly, the nature of data gathered through mail survey should be considered. These data are cross-sectional in nature and capture a situation at a point in time. More

detailed information could be obtained through the use of qualitative methods such as interview survey which was not done in this research due to time constraint.

Secondly, there is a limitation due to the use of only a single respondent from each company. Multiple informants would provide more accurate data regarding organizational properties.

Thirdly, the generalization of the findings may be questioned given the limitations of the sampling and the poor response from respondents. Further, the findings should be interpreted with care because biases in the sampling distributions may impact the results of the study.

CHAPTER 2

BENEFITS OF IT AND IT TRAINING

2.1 Introduction

The introductory chapter presents the problem statement, the objective and the structure of this research paper. This chapter attempts to direct attention to the many benefits of IT and also aims to highlight the critical need for IT training so that the potential benefits obtained from purchasing IT are realized.

This chapter starts off by defining the terms: “IT” and “IT worker”. This is then followed by explaining why IT is so important now that the whole world seems to revolve around it. These issues are discussed from the nation’s viewpoint and also from the organizational perspective. Finally this chapter ends by explaining the many virtues of implementing IT training in an organization.

2.2 Definition

There are many different definitions for Information Technology (IT) given by different sources. Bachler (1998) defines IT as the study, design, development,

implementation, support or management of computer-based information systems- particularly software applications and computer hardware. O'Brien (1995) defines IT as hardware, software telecommunication, database management and other information processing technologies used in computer based information systems. Some other definitions downloaded from the Internet are presented here just to show the many differences (and also similarities) used when interpreting the meaning of the term: "IT".

The Australian National University on its home page defined IT as a field, which deals with information in an integrated manner. IT employs computing, communication devices and technologies as appropriate. It includes information systems, computer science, software engineering, telecommunication, robotics and artificial intelligence. The Uppsala University on Sweden on its homepage defines IT simply as computer based handling of information. Another definition of IT is that it is a term that encompasses all forms of technology used to create, store, exchange and use information in its various forms (business data, voice, conversations, still images, motion pictures, multimedia presentations and others).

From the many definitions gathered another definition for IT was formulated for the purpose of this research. IT is defined as a technology that uses computer based and/or

telecommunication devices to process information which comes in various forms (i.e. data, text, voice, graphics, image or video).

Similarly there are also many definitions of what constitutes IT workers. However only 2 are quoted here. Bachler (1998) termed IT workers to be those personnel that help ensure computers work well for people. Using this definition, IT workers are classified specifically into four broad categories namely: computer scientists, computer engineers, systems analysts and computer programmers. Meanwhile, The Information Technology Association of America used a broader categorization to define “IT worker”, including hotel-reservation clerks, tool-and-die workers and computer operators as IT personnel (Arthur, 1998). Bachler’s definition is deemed appropriate for this research.

2.3 Importance of IT

Accepting the importance of technology in national development, Malaysia is vigorously using advances in technology, especially IT, to help attain the objective of becoming a fully developed, industrialized nation as visualized by Vision 2020. The National IT Agenda (NITA) and The Multimedia Super Corridor (MSC) are among various programs that illustrate Malaysia’s awareness of, and also the nation’s full

hearted commitment to Information Technology as a vehicle of national advancement for the future.

To help make Malaysia more IT conscious, the importance of IT is repeatedly mentioned in many speeches made by the Prime Minister Datuk Seri Dr Mahathir Mohamed. His acknowledgement of the benefit of IT to the nation is therefore best presented by extract from one of his speeches. According to Dr Mahathir, “The reality that IT will be the future trend has to be accepted. Developments in the field of information technology cannot be ignored because if we do so, not only will the nation not develop further but also the people will be left behind in all fields and their incomes will not rise. And there is no doubt that the Information Age will have an impact on Malaysians. Taking part actively in Information Age activities has to be considered mandatory. For those who do not, they will be left behind in their way of life, their livelihood and even their intellectual growth. There is also a need to be flexible and responsive to changes in technology so as not to be bypassed by others. Therefore with the future at stake, Malaysia cannot afford to be a mere spectator of the information revolution, they need to be a part of it and if necessary they need to even lead it.” (Mahathir, 1998).

Besides the MSC, the government, again the Prime Minister leading the way, is pushing for more IT initiatives. One of the bigger projects is to make the day to day

running of the government more effective and efficient. This is being done through the electronic government project in the new administrative center in Putra Jaya. The Cyber Jaya project is an attempt to showcase Malaysia's experiment with an "intelligent city" project to the world. The success of both ventures will go a long way towards confidence building not only for the citizens of Malaysia (to embark on IT) but also for the potential and existing foreign investors (to invest further in Malaysia).

To make the attempt to leapfrog into the Digital or Information Age successful, a Cultural Revolution of some sort has to take place in our society. Malaysian society needs to appreciate the critical importance of information. In a knowledge based economy, information has become a crucial asset. Information has become the determinant of the performance of industries (and nations) of the future (Mahathir, 1998).

To exploit the potential of IT one has to understand its power. One of the main powers of IT is its ability to leverage information. For example, with IT, numerous data about potential customers could be obtained and processed to obtain knowledge about market potentials. The knowledge gained this way through IT can be used to create marketing strategy for competitive advantage. Gaining market share by knowing how to exploit the powers of IT is just as important as offering the right product to customers (Chiara & Galal, 1998).

Many importance achievements of IT are made possible with the creation of the Internet for commercial applications. For example, in this digital era there will not be anymore physical boundaries in doing business. The Internet has make this possible. With the mushrooming of Internet applications appearing in the market catering for businesses, only those companies that are capable of utilizing this power of technology will be able to survive. Doing business electronically through the Internet using electronic commerce (e-commerce), electronic business (e- business) and electronic service (e-service) ventures have gained momentum to become important strategic tools. Together with supply chain management (SCM) and enterprise resource planning (ERP) solutions, these Internet tools will help manufacturers increase revenue, reduce product cycle time and reduce costs therefore improving their overall business. These methods of doing business have now become very crucial to businesses. Andrew Grove, one of the Intel company's founders has even seen fit to give a chilling reminder to businesses that they will go out of business within 5 years if they are not on the Internet by then (Teoh, 1999).

According to Tan Sri Dr Othman Yeop Abdullah, the Multimedia Development Corporation (MDC) chairman who oversees the MSC, doing business through the web creates another advantage in that users such as suppliers, service providers, and contractors of IT can network together. Value will be obtained from the synergy derived out of this collaboration (Sani, 1999).