



**INFORMATION SYSTEMS SUCCESS FACTORS
IN THE SMALL-MEDIUM ENTERPRISES
IN THE NORTHERN REGION OF
PENINSULAR MALAYSIA**

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The Honourable Prime Minister of Malaysia in his working paper entitled "Malaysia: The Way Forward" proposed that Malaysia should become a fully developed nation by the year 2020. This endeavour is to be attained base on our own model, that strives for an economy that is diversified, balanced, sensitive to changes, technologically proficient, and driven by knowledge of what to and how to do it. The population then is to be inculcated with the exemplary work ethics, quality consciousness and the quest for excellence. The set of proposal better known as "Vision 2020" has become the crux of the ensuing national development policies.

The National Development Plan (NDP) was launched in 1991 with the aspiration to alleviate the weaknesses of the New Economic Policy, as well as to direct the nation towards the target set by Vision 2020. The NDP focuses development through human resource development to ensure more productive contribution of people to the organization, and science and technology, and research and development through the invention and absorption of new technologies, as well as to improve and develop existing technologies.

Another major feature of a developed nation is that the two major sectors, manufacturing and services each contributes at least 30 percent of the gross national product. A matured manufacturing sector involves the utilization of high and modern technology that yearns for continuous innovation through research and development activities. A progressive service sector is based on a society rich in information with the ability to exploit the information to become and remain competitive.

Mahathir has also identified two major factors necessary to be nurtured and developed in order to enhance the existing efforts. The first is the need for an information rich society through the application of information technology that makes possible for vast achievements in the field of knowledge, sciences and technologies. The second is the requirement to develop the small and medium scale enterprises through which manufacturing and services, as well as other minor sectors can flourish.

1.2 INFORMATION TECHNOLOGY INDUSTRY

The IT industry has been among the fastest growing industry worldwide with total sales of US\$ 250 billion per annum and is expected to reach US\$ 900 billion by the year 2000. Shahrum et al. (1995) reiterated that the growth of IT is positively correlated to the economic, social and political condition of a country. A favourable economic condition, coupled with political stability creates a conducive environment for IT to flourish, as IT is merely a tool to perform a business function.

Computer was initially used in scientific and engineering applications. In 1954, the first computer was sold for commercial purposes. During the next 20 years, computers were widely used for data processing. The initial phase of the development in the computer industry was confined to the improvement of its performance and capabilities through continuous improvement in the hardware technology, from tubes, drums, transistors to microelectronics.

Worldwide recession in the developed countries during the early 1990s have adversely changed the computer industry. Since then, sales of computer hardware and peripherals had stagnated. Major computer manufacturing companies, like IBM, ICL, Digital and Apple were in the red and involved in the redeployment of their workers. The situation was further aggravated by the sudden surge in the production and distribution of computer and its peripherals from the emerging nations, like Taiwan, Hong Kong and Korea. The hardware market has become a very competitive industry and is not expected to pick up again in the developed countries.

The future of IT has been anticipated to confine to the production of value-added products, telecommunication and the software industry. Telecommunication is a fast growing industry as countries have devoted intensive efforts and money to develop their own information highway using cables, microwaves and satellite communication.

Software is another industry that offers bright future. It has been foreseen that the needs for more varieties and sophisticated software to assist the industries in the implementation of IT would become the major force towards the next phase of IT development. Countries have to excel in the software and systems development for the IT industry to flourish.

Countries are in different stages of IT applications. The developed nations, particularly the United States, Western Europe and Japan are in the forefront where IT applications have reached the highest level of IT development. The brightest prospect for IT, however, lies in the Asian-Pacific region. The demand for software engineers and systems analysts in this region are enormous. Japan, alone reported a shortage of almost 1 million software engineers, Taiwan anticipates a shortage of 37,000 IT professionals while Malaysia reported a shortfall of 3,700 IT professionals and semi-professionals in 1995.

The state of IT adoption in Malaysia is still far behind some Asian countries. The computer expenditure per head is only US\$24 compared to US\$193 for Singapore, US\$155 for Hong Kong, US\$66 for Korea and US\$64 for Taiwan. Malaysia is also behind Japan, Hong Kong, Singapore, Korea and Taiwan in terms of telephone density. Similarly, Japan, Singapore, Korea, and Taiwan possess more established and firm policies and strategies on IT implementation than those of Malaysia .

The unfavourable state has been attributed to the late adoption and the lack of IT infrastructure. Malaysia has recognized this situation and intensified her efforts to enhance the stage of IT development. Telekom Malaysia, for example, via its "Telecommunication Vision 2005", has allocated an amount of RM2.9 billion to enhance productivity and efficiency through the state-of-the-art IT facilities, offering more value-added services, and erecting a fibre optic cable network covering the entire Peninsular Malaysia. In 1995, Malaysia will be launching her own satellite, MEASAT 1 at a cost of RM1 billion to transmit signals to the entire ASEAN countries.

Malaysian organizations have also shown their commitment and confidence to the development of IT in the country. Since 1990, organizations in Malaysia have spent more than RM1 billion annually to purchase computer hardware and software, as well as to network their systems. By 1995, computer expenditure has reached RM2.4 billion and is expected to increase further to RM4.05 billion by the year 1998.

According to *PIKOM*, there are about 1,000 mainframes, 2,500 minicomputers, 225,00 microcomputers throughout Malaysia. In addition there are about 585 computer companies and more than 6,000 shops involved in the sales of computers and computer services.

1.3 SMALL AND MEDIUM SCALE ENTERPRISES

According to a survey undertaken by the Department of Statistics in 1985, there were more than 5,000 Small and Medium Enterprises (SMEs), representing more than 90 percent of the total number of manufacturing establishments in the country. Collectively, the SMEs accounted for almost 50 percent of the total employment in the manufacturing sector, which if based on the 1991 figure contributed approximately 10 percent of the nation's total employment.

The government recognizes the significant contribution of the SMEs to the nation development. Mahathir made the following suggestion:

"Small and Medium Scale industries have an important role to play in generating employment opportunities, in strengthening industrial linkages, in penetrating markets and generating export earnings. They have a crucial role as a spawning ground for the birth of tomorrow's entrepreneurs. The Government will devise appropriate assistance schemes and will seek to raise the level of management expertise, technological know-how and skills of the employees in this very important and in many ways neglected sector of our economy. The SMIs will be one of the primary foundations for our future industrial thrust. The Government is fully committed to its healthiest development". (Mahathir Mohamad : 1991)

The above statements reveal the importance of SMEs as an agent to the national development. Through SMEs the nation's wealth can be equitably distributed as more individuals are involved in varied activities. This will contribute towards raising the skill level of the population. In fact it has been found that SMEs are the major beneficiary of technology transfer. SMEs are also required by large corporations to supplement their businesses in the upstream and downstream activities. SMEs have proven to be more resilient compared even to the large corporations. This phenomenon was observed during the previous recession when a few of the large organizations incurred continuous loss and resorted to retrenchment of the workers while the number of SMEs continued to increase despite the unfavourable economic situation.

As the process of industrialization is accelerating with the nation's quest to become a fully developed country, the development of the SMEs parallel to the growth of the nation's economy in particular the manufacturing sector should be a major prerequisite. However, there are a number of problems that have hindered the development of SMEs despite the rapid growth of the manufacturing sector (Abdul Ghani Othman, 1991).

In order to fulfill the intended goals, SMEs involved in the manufacturing activities in this country have to increase their level of maturity through the utilization of modern and high technologies. SMEs are also expected to diversify their activities in the service sector. Through these means the SMEs would play a more significant role towards the national development, as portrayed by their counterparts in Japan, Germany and other developed countries.

1.4 INFORMATION TECHNOLOGY IN SMEs

With the intensive efforts by the government and the private sector to promote the growth of SMEs and IT, it is inevitable that the development of both have to complement each other. If SMEs are the agents of growth, IT has to consider the needs of SMEs. Otherwise, the growth of IT would be impeded. Similarly, SMEs should take the opportunities from the availability of IT to increase their productivity and efficiency in order to maintain their competitive edge.

SMEs can participate directly or indirectly in the development of IT. The former implies that the SMEs are involved in the manufacturing, sales and maintenance of IT products, and offering of IT Services, including consultancies and training. The latter means that the SMEs are active users of IT.

While many possibilities are opened for the SMEs to venture into the IT industry, a more significant role would be to adopt IT in their operations and management decisions. IT, initially could be a cost incurred endeavour. However, with proper guidance and planning it would contribute toward increasing the productivity of the organization, particularly to the SMEs in the country.

1.5 SIGNIFICANCE OF THE STUDY

Numerous literatures have addressed the problems of finance and marketing for the SMEs. However, problems related to the technology and technological know-

how have not been sufficiently attended. This is further aggravated by the lack of funds to support the use of technology in the SMEs, with most of the support grants going to financial facilities, training and apprenticeship, consultancy and advisory services. Out of the total project cost of RM234.2 million co-financed by the World Bank for the Special Loan Scheme Project for the SMEs, less than 10 percent of the allocation went to the technical assistance component.

Closely related to the lack of technological , technical and managerial know-how is the utilization of IT in the daily business operations. IT adoption was confined mainly to large corporations, while the applications of IT in SMEs are only in limited activities. The major argument given is that SMEs are operating using traditional technology and unskilled labour.

Chan (1990) in his study on the computer application by SMEs in Hong Kong suggested that the difficulty in using computers as one of the major problems faced by SMEs. The study also revealed that among the objectives of using computers by SMEs are to improve efficiency, ensure better product or service quality, and cost reduction. His study confirmed the finding by Messey (1986) that suggested increase operating efficiency and sales revenue generation as the main objectives of using computers.

Yet, among the technology utilization problems faced by SMEs today, issues related to usage of IT are of less concern to the SMEs (Soon: 1990). This could be due to the unfamiliarity of IT by the SMEs. Hence, IT has not been identified

as one of the technologies that could have a major impact on the operation of the SMEs. Introducing IT effectively into the small business could be very challenging and difficult due to the lack of the technological know-how, thus discouraging entrepreneurs from investing in IT. Lack of technological know-how constitutes the main factor that has hindered the development of IT among SMEs.

One of the key concerns in the utilization of IT seems to be the inability of the SMEs to successfully implement Information System (IS). Yap, et al. (1992) suggested that successful Computer-Based Information Systems (CBIS) implementation in small business requires the combination of both CBIS expertise and knowledge about the business.

Generally, most SMEs are well-versed with their business but they tend to lack in-house CBIS expertise. This lack of in-house CBIS expertise may be compensated by engaging external CBIS experts. However, more often than not, these experts may have very little or no understanding about the business. Yap (1992) proposed a concerted effort to increase the cooperation between the SMEs and the external CBIS experts to provide the opportunity for SMEs to acquire the transfer of technology.

The role of external CBIS expertise in Malaysia has not been significant to support IS implementation among SMEs. No form of incentive, subsidy or assistance, formal or informal, from supporting agencies or individual consulting

companies have been set up to support IT utilization among SMEs. It is left to the individual SMEs entirely to embark on their own computerised projects.

In contrast, the Government of Singapore established the Small Enterprise Computerization Board (SECP) in 1986 to encourage and assist small business to become more competitive through the application of IT in their operations (Gable et al. : 1992). Among the incentives offered are education and awareness seminars, hand-holding and technical advice on computerization projects, technical expertise and support from a consultancy company to conduct detailed feasibility and systems studies, and financial assistance in the form of a 70 percent subsidy for services of a consulting company and a second subsidy of up to 50 percent of the cost of retaining the consultant to supervise systems development and installation.

These incentives have significantly contributed towards the development of SMEs in Singapore. Similar programmes to that of the SECP have been implemented in other countries.

The critical challenge, therefore, is to accept the desire of the vision 2020. An industrial policy is required to integrate SMEs as an important channel in the national economic development. The higher priority is a call to SMEs to adopt modern technology which among others is to exploit the availability of IT to gain competitive advantage and to create new avenues and opportunities for the entrepreneurs to further enhance their activities.

The challenge is not an impossible one, as study by Cortes, Berry and Ishaq (1987), and Pavitt, Robson and Townsend (1987) have shown that the rate of innovation among SMEs is the highest compared to other categories. In fact, the SMEs can be dynamic to respond to changes in the environment. The experience of the Japanese SMEs has shown that efficiency through the application of IT can be achieved.

1.6 OBJECTIVES OF THE STUDY

The study attempts to enhance the series of research conducted by the counterparts at the National University Of Singapore. The specific objectives of the study can be summarized as follows:

1. To determine the factors that contribute towards successful applications of IT.
2. To measure user satisfaction and information systems effectiveness.
3. To recommend the action plan to stimulate or enhance IT Adoption among SMEs in the region.