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MAKING A SUCCESSFUL TRANSITION
TOWARDS AN EFFECTIVE ISLAMIC SYSTEM

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MAKING A SUCCESSFUL TRANSITION TOWARDS AN EFFECTIVE I.T. SYSTEM

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ABSTRACT

The aim of this paper is to conduct a research into how a business can smoothen its transition towards a new IT system and to serve as a guide to enhance the decision making process especially with regards to managing the planning and transition process. In particular, it focuses on the identification of the information requirement needs of a business, assessing the current status of information technology infrastructure of an organisation, examine the trends in IT technologies that impacts upon businesses and more importantly, on managing the transition and change journey towards implementation of a new IT system. Businesses are applying IT technologies into the various strategic and functional areas of their business and therefore, a well-coordinated business plan to deploy IT would enable them to optimize their investment into such technologies and leverage on it to support their business strategies to remain competitive. A survey to gather viewpoints on topics covered in this paper was carried out among relevant IT and related professionals and a sample of 36 responded to this survey. Findings from the survey indicates concurrence by respondents with most of the points advocated in this paper.

APPROVAL PAGE

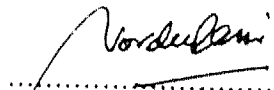
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The undersigned certify that the above candidate has fulfilled the conditions of the project paper prepared in partial fulfillment for the degree of Master of Business Administration.

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CHAPTER 1: INTRODUCTION

In business, there is always a relentless push towards achieving more efficient, productive, and profitable operations and Information Technology or IT is to play an increasingly important role as an enabler towards meeting those objectives. With the advent of more advance telecommunication infrastructure and Internet, the information Age and the network era is exploding and bringing about change more impactful than the advent of minicomputers or personal computers of 1980s. And this is just the beginning.

Within Malaysia itself, the fast track move towards better and higher utilisation of IT have been manifested in the form of Multi Media Super Corridor or MSC and intelligent buildings and cities. These revolutionary changes will transform not only the information technology (IT) industry, but also the business landscape as well. No business is immune from the onslaught of new trends in IT such as Internet and MSC and the company that has a good understanding of these new trends and a well co-ordinated plan in harnessing the power of IT would benefit from using it.

The positive outcome in implementing an IT project or system requires a good plan, a plan that takes into account new IT trends and the transition and change journey when migrating to the new IT system. A well co-ordinated plan to deploy Information Technology or I.T. into the functional and strategic areas of business would enable Malaysian firms to optimise their investment into such technologies

and leverage on it to support their business strategies and to remain competitive. While the level of I.T. spendings varies from company to company, the expectations of returns is always there, even though returns from I.T. investment are not always 100% tangible.

This paper will serve as a guide to enhance the decision making process when planning for a new and effective I.T. system particularly with regards to having (i) an understanding of the impact from new IT trends and (ii) with regards to the planning process on managing the transition process and change journey towards an effective IT system. The coverage of this paper emphasizes more on the implementation of new IT system by business organisations.

Primary and secondary research was utilised to establish the different methods and theories that are advocated by all I.T. concerned parties, be it researchers, authors, and/or vendors. To supplement theoretical concepts, a survey via questionnaire was drawn up and circulated to relevant I.T. and related professionals in the Malaysian Industry to obtain their view points on topics that are covered under this project paper .

CHAPTER 2: DETERMINING THE INFORMATION NEEDS OF A BUSINESS

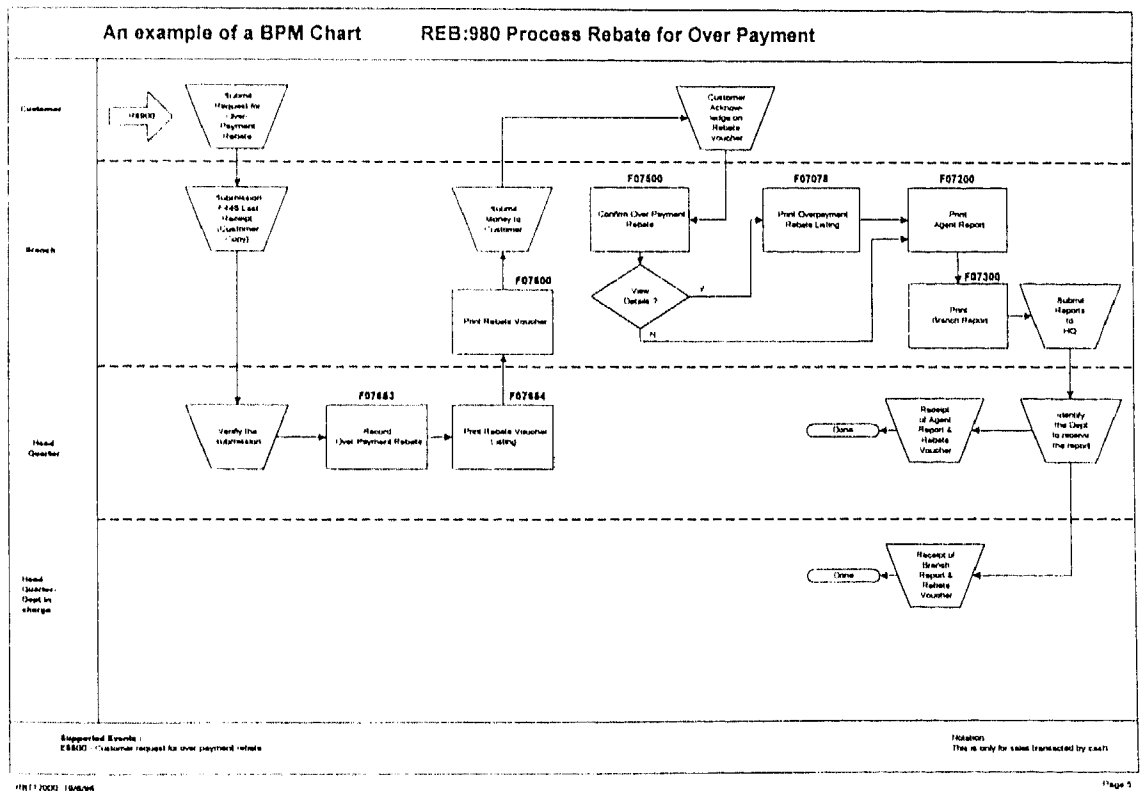
It is usually business problems, not technical problems that give rise to computerisation needs. Directly or indirectly, most businesses are in a position to and often does leverage on IT to support their business activities and to assist in resolving their business problems. Identification of IT and related needs involve deciding what types of information needs to be computerised. It is no longer a function solely for the IT department alone. It is also the role and responsibility of senior management and user managers in determining what types of IT projects support the business goals and in working with a company's IT department to accomplish these projects; bearing in mind that IT personnel are not necessarily specialists in every functional areas of the business. It is a business solution rather than merely information technology that one is sourcing for and therefore, determining the information needs as a prelude to an investment on an IT system solution is very much a business decision.

2.1 Reviewing the current business process

Apart from interpreting correctly the business background, visions, goals and directions for an organisation and each business unit within that organisation, it is also important that existing business processes in place be revisited to confirm its validity and relevance for the present and the future. It is often the case that most business processes in place are already entrenched and management and users are reluctant to subject themselves to major changes in the status quo. If the business process in place have been successful in the past, presently and will continue to be

so in future, then it is fine. If it is not suited for future, one must be prepare to adapt; for then only will one be able to harness more from IT. “Most business.. are not ‘process oriented’; they are focused on tasks, on jobs, on people, on structures, but not on processes”¹. One method of reviewing business processes is by way of using Business Process Model or BPM². In a BPM, processes that flows through a business are recorded and related together and the functions driving each business process are then recorded and links between all functions that made up each process are established. Using BPM will assist to ensure that the expected data input and output can be easily identified for any IT system and any installed IT system will harmonise well with each business function.

An example of a BPM Chart²



¹ Michael Hammer et.al., 1994, Chapter 2, Reengineering the Corporation: A manifesto for business revolution. Harper Collins Publishers.
² Used in a new IT Project. 1996. * Xanter (M) Sdn Bhd * Name of company have been disguised to mantain confidentiality

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2.2 Relating information requirements to the business

An effective information system, in its most basic purpose, provides tools to managers to assist them in making decisions. However, today with the advent of computerised information or IT systems, fast and readily available information often is the key for a business to gain competitive advantage or just simply to remain in business. As computer technology is readily available, affordable and more and more user friendly (ease of use is facilitated), almost all businesses uses computer technology in one form or another.

The common tasks of an IT system are information retrieval, data reconfiguration (i.e. reformat data into forms other than the way they are logically represented), computational activities (eg. calculations performed by a calculator or predetermined by formulas) and analysis (enabling users to review facts and draw conclusions based on those facts).

Users must interact with a IT system via computer hardware/software interface. Commands are issued by users, either by typing computer commands, selecting based on pre-programmed options or today, via medium such as mouse or light pens.

Most IT systems are designed specifically to meet the special needs of the organisation and represent a major business tool for senior executives in making operational to strategic decision making and in minimising, if not eliminating the tedious and voluminous nature of having to manually record all types of business

transactions that are transacted. “If implemented successfully to fit the functional and strategic requirements of the business, a computerised solution will result in an effective Information (Decision Support) System”³.

The information output from any IT system is useful to a company if it can be used meaningfully to support its business. Therefore, planning the right information output from an IT system is crucial. “An information system is a set of procedures organized to generate information that enable managers to review operational, tactical and strategic planning activities”⁴. Reviewing the information requirements needs of a business necessitates the need to relate these needs to the basic levels of management structure i.e. operational, tactical or strategic levels. Each of these 3 levels of management requires different outputs from an IT system.

Information needs at operational level usually involves transactions that records the lowest level activities of a business. Among its key characteristics are repetitiveness, predictability, past emphasis, detailed in nature, data sources are internal, structured format and accuracy of great precision. Information required are to support the execution of day to day running of operations tasks of the business and usually intended for lower management or supervisory levels.

For middle management, information needs are more of a tactical nature and intended to assist managers with information to monitor and control business

³ Charles S. Parker. 1994. Chapter 11, Management Information Systems: Strategy and Action. McGraw Hill.

⁴ Robert Schultheis and Mary Sumner. 1995. Chapter 9, Management Information Systems: The Manager's View. Irwin

operations and to more effectively and efficiently manage and utilise resources. At this level, data captured at transaction level are summarised up and analysis are made on data. Reports generated serve the purpose of enabling better control by middle level managers and usually in the form of summary, exception or even ad hoc reports. Typical characteristics of tactical information are periodic nature of its generation, comparative nature, summary format, certain level of unpredictability, and input data can come from both internal and external sources.

Top management requires information that assists them in making strategic and long-term decisions that will greatly impact on the future direction of a company. While information generated at tactical level may be of use to top management, more often than not, information for strategic level must not only be in a summarised form but predictive in nature. Input data to generate information for this level are not only from internal source but to a larger extent, from external sources that may lack accuracy and highly subjective in nature. Nevertheless, information derived from an IT system must be useful as an aid to drive any strategic decisions.

2.3 Information requirements study

Before evaluating to obtain a suitable IT system, it would be beneficial for a company to invest in an Information requirements study. Such a study, if carried out objectively, can serve to ensure that the information output of an IT system will be able to serve all levels of management; whether to run the daily operations, to manage and control the operations of the business, and/or to make strategic decisions pertaining to the business. Also, decision on selecting the right IT system would be better enhanced as the expected information output from the IT system would be

main driving factor in selecting the new system.

Apart from addressing information priorities and needs of the business, the other objectives of an Information Requirement Study or IR study are:

- (i) to allow the top management of a company to review the current reporting needs within the company, with the aim of cutting down the number of report types and also, number of report copies printed for each report type. Too many reports do not necessarily facilitate effective communication for eg. for middle and senior management, exception reports would be more useful.
- (ii) to allow an opportunity for various divisions and departments within a company to understand each other better by cross checking each other needs and by so doing, potentially agree on common information requirements including format for report layout and representation of information.
- (iii) to allow a company to relook at all pre-printed and manually/computer-generated forms that have been defined and in use over the years.

Steps (i), (ii) and (iii) will prove useful in avoiding a situation of oversizing or undersizing of a new IT system for any company. But more importantly, these efforts will help to facilitate better understanding of each other (managers) and the commonality and uniqueness of each departments and potentially, in the end, it will contribute to better communication and understanding, both horizontally and

vertically within the organisation structure. Such a study was conducted in Asia Pacific Breweries Limited, Singapore and Singer (M) Sdn Bhd, Malaysia in 1992 and 1996 respectively and the outcome was correct rightsizing of a IT system that fits the needs of the companies concerned.

CHAPTER 3: REVIEWING THE I.T. INFRASTRUCTURE OF A BUSINESS

The rapid changes in IT technologies and business environment meant that too often, the computing needs of a business has already superseded the IT system that is currently in place. As IT investment are often costly, most businesses will review its IT infrastructure, with a view of either enhancing it to cater for its new needs or replacing the entire system altogether.

Elaborate studies will allow an organisation to study and review its IT infrastructure. Such studies can be costly, in terms of time and other resources. A simple rule of thumb can often be the guiding point on deciding whether the current system can be adapted to serve the current and future needs. If the current software fit to the business is less than 70%, further customisation on existing software could be a real nightmare, in terms of customisation work and subsequent maintenance support. Coupled this with a hardware system that is already 4 or more years old, and chances are that there is a high probability that the existing system in place are already technologically obsolete by the time a business implement changes to its existing system.

The critical components of an IT system are in the area of hardware, software and network. For all components, (i) serviceability of each component by the vendor must be available and efficient enough to support the organisation that uses it, and (ii) costs factors i.e. costs of acquiring each component, would be important.

More specifically, in terms of hardware (server), the following are major elements that one must consider when sourcing for a new hardware:

- Scalability i.e. the capability of the hardware especially its CPU must be capable of being upgraded as your need grows.
- Performance i.e. the rightsizing of the hardware like memory, disk capacity etc to fit the intended software that will run on it will ensure that performance degradation will not impact the business operations.
- Reliability and Availability i.e. the hardware must be robust enough to allow as little downtime as possible and if possible, uninterrupted operations

In terms of software (application), the following are major elements that one must consider when sourcing for a new software:

- Functional fit to business requirements: this will ensure that the functional areas of the software can be enhanced by the use of software
- Open architecture i.e. the software can run on as many hardware and database platforms as possible
- Visual features i.e. software provide as many visual, graphical user interface (GUI) to improve its user friendliness and makes it conducive for users to use the system
- Development language i.e. the language used in developing the software should allow ease of maintenance and reuse of programming codes
- Report writers and query features i.e. ease of users to generate new reports or perform new queries without need to put up with a lot of technical complexities

In terms of network, the key area to note is that all new computer solutions should leverage on it to enhance the effectiveness of the complete IT system as

advancements in telecommunications have meant that networking capabilities are already available to allow an organisation to even reorganize its workforce as physical, geographic and time constraints and barriers diminishes. The right network configuration, equipments and data communication channel setup will further enhance all the other components of an IT system.

CHAPTER 4: TRENDS IN I.T. TECHNOLOGIES THAT IMPACTS UPON MALAYSIAN BUSINESSES: INTERNET, EDI and MSC

“The wildfire spread of the computer in recent decades has been called the single most important change in the knowledge system since the invention of movable type in the 15th century or even the invention of writing. Paralleling this extraordinary change has come the equally astonishing spread of new networks and media for moving knowledge and its precursors, data and information”⁵

Information technology is playing an increasingly important role in the formulation of competitive strategy in business. Integrating information technology into corporate strategy would facilitate an organization to improve its relationship with customer, supplier, enhance product quality and surpass its competitors. Information technology is capable of contributing to the prosperity of the organization in terms of (i) efficiency measured by productivity (doing thing better), (ii) effectiveness accomplished by broadening the scope of individual tasks, jobs or processes within an organization (do better thing including what an organization could not have done before), and (iii) competitive advantage gained by the enterprise (doing better and new things for the customer).

In recent years, the world has been subject to new onslaught of IT technological developments that has drastically altered the environment in which businesses is conducted and will be subject to now and in the coming years. While continued enhancements in hardware and software have always been the trend since the dawn of the computing era, the world is now witnessing new trends of more sophisticated

⁵ Alvin Toffler. 1991. Chapter 32, Power Shift. Bantam Books.

and advance telecommunications technologies and the advent of by far the most notable and profoundly impactful IT tool i.e. the Internet. The Malaysian government has also seize upon these opportunities and launch Multimedia Super Corridor (MSC) Project and embark upon a nationwide campaign to encourage all Malaysians to think and use IT.

On 12 October 1997 edition of Malaysian News Straits Times newspaper, under caption "Our future lies in IT", it was reported that on 11 October 1997, the Malaysian Prime Minister Datuk Sri Dr Mahathir Mohamad launched the National IT Awareness Campaign with a theme "IT as a Culture", and stated "Today, as I launch the National IT Awareness Campaign...with our future at stake we cannot afford to be a mere spectator of the information revolution. We need to be a part of it; we need to even lead it," and added that this was why the Malaysian government had spent so much time and effort to turn the local IT industry into a world class one. He also emphasized that IT was in the forefront of the national socio-economic planning and development, Dr Mahathir said only a knowledge-rich and value-creating society could boost Malaysia's productivity to higher levels and ensure its economic survival. The Prime Minister also reminded the people of future uncertainties and the impact of the information revolution on the social and cultural norms. He added that Malaysia's strength in tackling future challenges lay not only in its experience in initiating and managing change in the past, but also its willingness to do even more in the future.

All Malaysian companies, big or small, will not be immune to these new

breakthroughs and trends that are fast shaping the new commercial realm. Organisations that do not take advantage of new technological advances will limit their ability to keep up with their competitors who do leverage technology. To get the most out of change, it needs to be fast, at least as fast as competitors, and such changes to be much more profound than mere cosmetic adjustments. It must be a fundamental transformation in the way a business utilises IT to find new ways of delivering value.

The Internet is a medium that links thousands of computers and computer networks all over the world and offers a medium for users worldwide to communicate with one another via tools like electronic mail, search for information, transfer of data and offering such facilities to users at a minimal set up and running costs. The Internet is like the world's largest computer network and recognizes no boundaries. The most significant spinoff from Internet has been the emergence of it as a medium for electronic commerce. Apart from its commercial use for simple transactions like buying pizzas via the Internet, the Internet have laid the groundwork for a surge of business transformation transcending industry, geography or size. More and more companies are finding, that they can use it to enable, enhance and extend effective communications between teams, project groups and departments.

The key to achieving any of these goals is getting the right information to the people who can use it most effectively. Although businesses find, generate and maintain a lot of data, many times access to these data is not convenient. By using Internet technologies, companies can communicate and link information in ways that often

were not possible before. The Internet has definitely changed the world, including how business will be done. More than 40 million users already have access to the Internet by 1995 and that number is expected to grow to more than 200 million by end of 1997. This new networked computing model, Internet, would made possible, for the first time in history, a level playing field for big corporations and small businesses. To compete in the global economy, even small retailers no longer need the resources for a multimillion dollar marketing campaign to do so. The Internet enables both large and small companies to link their core business systems to a global customer base, a link that would have been very costly without the Internet.

Virtual companies is fast becoming a reality i.e. companies that operates without a real physical office. Now, people all over the world can communicate with one another, even though they use different IT system platforms. The Internet is a virtual extension of the home PC, or a company's network, into the worldwide marketplace. Internet-based electronic commerce will enable companies to accomplish what they had hoped their own privately owned or proprietary networks would have done before; namely, efficient interactions among customers, suppliers, and business partners that will speed up the time to market and reduce the cost of doing business. The Internet provides access to an online global marketplace with millions of customers and thousands of products and services. It also provides companies with more cost- and time-efficient means for working with customers, suppliers and development partners. It gives users the ability to shorten procurement cycles through online catalogs, ordering, and payment. It helps cut costs on both stock and manufactured parts by facilitating competitive bidding. It can shrink development

cycles and accelerate time-to-market for one's products through its capability to support joint efforts on eg. engineering and product implementation. In addition, customers or visitors to Internet sites (for example, web sites set up by organisations) leave statistics about themselves that marketers can apply to not only increase response but to further tailor and develop customized products. Response on Internet is instant and the reach is worldwide. The cost of using the Internet to distribute electronic mass mailing leaflets to customers and prospects is low compared to direct mail for eg. a personal electronic mail message can be delivered to over 1,000 customers within minutes at minimal costs (There is no need for faxing, mail, or telephone calls). The main constraint on Internet had been the limited bandwidth or size of data communication infrastructure that it rides on but this constraint will soon be overcome with rapid development and installation of much more sophisticated data communication infrastructure that offers much larger bandwidth and higher-speed connections. The future of business is fast shaping to be one of Electronic Commerce in a Digital Economy whereby commerce will be performed digitally beyond physical barriers or timezones, with business transaction in a paperless environment and in essence, commerce or business will be transacted digitally or electronically. According to a January 1996 report by International Data Corporation (IDC), Internet commerce estimates/forecasts was US\$100 Million in 1995 and expected to reach US\$186 Billion by year 2000. According to recent estimates by Datapro Information Services Group, published in 1996, online commerce will reach \$1 trillion by 2010.

If growth trends on the Internet and other online services continue at their current