

**STRATEGIC INFORMATION SYSTEMS PLANNING :
A CASE STUDY FOR MALAYSIAN MUSLIM
ORGANISATIONS**

by

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ABSTRACT

Malaysia is undergoing tremendous development towards modernisation. An important factor is the application of Information Technology and the setting up of the Multimedia Super Corridor (MSC) around Kuala Lumpur area. Malaysia has also become an experimental country wishing to implement the Islamic way of life in the economy, communications and education.

This thesis is concerned with the emerging role of Strategic Information Systems Planning (SISP) in the Malaysian Muslim organisations and the implementation of Islamic Information Systems (IIS) concept in their organisations. Interviews were conducted with the top management and with the Information Systems or IT managers in each organisation in order to find out the implementation of SISP and the problems they face in implementing it. The questionnaire was first sent to both types of managers before interviews took place. These managers were asked what caused their organisations to implement SISP and which factors influenced the success of their SISP.

This research consisted of four distinct yet interactive phases. Firstly, the understanding of the concept of IIS and SISP from the Islamic perspective; including the study of the relevant literature which provided the knowledge base on which to commence this investigation. This was followed by a pilot study in Malaysia to develop understandings gained from the literature of those researches conducted in USA, UK, Canada and Australia. These two phases served as a means of developing an informed perception about the factors which potentially enable the use of information systems links to organisations for their competitive edge. The third phase is a case study on 14 senior management people and 14 information systems departments. The final phase of this research was an analysis and synthesis of the interviews to draw general conclusions regarding the recognition and exploitation of these Strategic Information Systems Planning opportunities in particular and, our understanding of Information Technology in general. The implementation of SISP in Malaysian Muslim Organisations is still new and

not exposed very much to the new tools and softwares that are available in the present market.

Since 1982 the author of this research has been involved in the training and development of students in IT subjects. His first experience in this field between 1982 till 1993 was with a large educational institution, MARA Institute of Technology (ITM), Shah Alam, Malaysia that conducts courses for 50,000 students and employs more than 3,800 lecturers. Therefore, this research draws on experience whilst participating in a number of projects, such as, since 1984, when he was involved in a project in the Department of Islamic Development of Malaysia or in Malay known as JAKIM of the Prime Minister's Department; and conducting of the training courses in IT for leading Muslim Managers; as a strategic information systems planner in the Islamic Economic Development Committee (1990), Prime Minister's Department; involved in the National Computing Policy Committees in Malaysian Administrative Modernisation and Manpower Planning Unit (MAMPU) for preparing 1990 national policy report on computing for higher institutions. In addition, 10 relevant conference papers presented at the national and international level (Malaysia, Indonesia, Turkey, Morocco, USA and People Republic of China) have contributed to this research.

Through IT training and experience, the researcher found that there is a great need to understand the concept of Islamic Information Systems and to implement the Strategic Information Systems Planning (SISP) into Islamic organisations in Malaysia. In addition, there is a great need to understand the Muslim IT managers perspective towards SISP and Islamic perspectives.

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ABBREVIATIONS

ADPC	Automatic Data Processing Committee
ASB	Amanah Saham Bumiputera
ASN	Amanah Saham Nasional
ATM	Automatic Teller Machines
DSS	Decision Support Systems
EIS	Executive Information Systems
EPU	Economic Planning Unit
ESS	Executive Support Systems
GNP	Gross National Product
HICOM	Heavy Industries Corp. of Malaysia
IIS	Islamic Information Systems
IM	Information Management
INTAN	National Institute of Public Administration in Malaysia
IR	Information Resources
IS	Information Systems
ISA	Information Systems Architecture
ISDN	Integrated Service Digital Network
ISP	Information Systems Planning
IT	Information Technology
JARING	Joint Academic and Research Networking Group
LAN	Local Area Networks
LUTH	<i>Hajj</i> Management and Fund Board
LUZAM	<i>Zakat</i> Management Board of Malaysia
MABIMS	Islamic Council of Brunei, Malaysia, Indonesia and Singapore
MAMPU	Malaysian Administrative Modernisation and Manpower Planning Unit
MAYPAC	Malaysian Packed Switched Public Data Network
MIMOS	Malaysian Institute of Micro Electronics System

MIS	Management Information Systems
MSC	Multimedia Super Corridor
MSS	Management Support Systems
MW	Muslim World
MYNIC	Malaysian Network Information Center
NCI	National Computer Institute
NDPC	National Data Processing Committee
NIE	Newly Industrialised Economy
OIC	Organisation of Islamic Countries
PNB	Permodalan Nasional Berhad
POS	Post Office System
PROTON	Perusahaan Otomobil Nasional Berhad
PSD	Public Services Department
RTD	Road Transport Department
S&T	Science and Technology
SETIA	System Economic Planning Unit Treasury Implementation Co-ordination Unit Accountant General's Department
SISMI	Sistem Maklumat Islam (Islamic Information Systems)
SMPKE	Chief Executives' Management Information System
SP	Strategic Planning
STAIRS	Storage and Information Retrieval Systems
STM	Syarikat Telekom Malaysia
UKM	National University of Malaysia
UM	University of Malaya
UNIMAS	University of Malaysia, Sarawak
UPM	University Putra of Malaysia
UTM	University of Technology, Malaysia
UUM	Northern University of Malaysia
WAN	Wide Area Networks

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CHAPTER 1

INTRODUCTION

1.1 FRAMEWORK OF THE RESEARCH

The following presents the conceptual framework of this research, its thesis, background, aims of the study, research parameters and literature review. In addition, it presents Islamic Information Systems (IIS) and Strategic Information Systems Planning (SISP) definitions.

1.1.1 Background

Malaysia has joined the industrialised nations of the world. Companies in Malaysia must struggle to maintain their advantage in a global market that has become increasingly competitive. Adoption of the computer as an efficient tool for business operations is a world-wide phenomenon. It is not surprising therefore that business organisations in Malaysia demonstrate the same strong need for using Information Technology (IT) and Information Systems (IS). Increasing international and domestic competition has forced Malaysian business organisations to computerise various information processing activities in the hope of sustaining competitiveness through productivity gains brought by this computerisation. The perceived importance is reflected in the increasing number of installation rates and computer usage in Malaysia. Furthermore, the service sector of the economy in Malaysia is growing at a

faster rate than in the industrial sector. Many services, such as stock investment, law, governmental departments and medicine involve the transfer of large amounts of information. It is likely that greater applications of IT will increase significantly in a number of other professional or service industries.

Although there are strong needs for IS development, some factors exist which increase the difficulty for implementation, such as:

1.1.1.1 National infrastructure.

In Malaysia, specific infrastructure components such as communication and transportation networks are not well developed. Although some firms use Personal Computer (PC), Local Area Networks (LAN), or Wide Area Networks (WAN) for communication, the smaller availability and higher cost of Malaysian developed software makes facsimile transition the main communication tool. Electrical power output is also a problem in Malaysia, and it is reported that the power supply is getting worse. That is why the Malaysian government is now building Bakun Water project in East Malaysia where the reservoir itself is as big as the Singapore Island. An unreliable power supply, coupled with environmental problems, may also create serious problems for IS development and subsequent operations.

1.1.1.2 Educational factors.

One of the most visible pressures for IT development is the scarcity of IT professionals. A shortage of IT professionals, such as analyst programmers and system analysts, exists. To further complicate this situation, the training of application-oriented systems analysts and business-oriented application programmers is disproportional relative to needs. Several universities like University of Multimedia, University of Telecom, University of Tomorrow, and International Islamic University of Technology are being established rapidly in Malaysia to overcome this problem.¹

1.1.2 Aims of this study

- a) The emphasis of this study is to investigate the concept of IIS and the implementation of this concept in the SISP utilised in the Malaysian Muslim organisations either servicing Islamic services like *hajj*, *zakat*, Islamic banking or conventional services like transportation, telecommunication, and oil.
- b) To identify the stages of information systems growth in Malaysian Muslim organisations.
- c) To compare the implementation of SISP between Malaysian Muslim organisations and the UK organisations.

¹ (1997) Available at <http://www.mdc.com.my>

1.1.3 Literature review

SISP has been reported to be the critical concern of IS Executives in large organisations. Several authors have suggested what SISP should comprise, how it should be done and what problems are typical. Researchers have begun to investigate the practice of SISP², and examine how firms can gain strategic advantage from IT³. SISP is the process of deciding the objectives for organisational computing and identifying the potential computer applications which the organisation should be implementing.⁴ The effectiveness of SISP has recently been under investigation all over the world like United Kingdom,⁵ USA,⁶ Canada,⁷ China⁸ and Australia.⁹

A synthesis of these works would suggest that SISP is concerned with at least the following:

- aligning investment in IS with business goals
- exploiting IT for competitive advantage
- efficiently and effectively managing IS resources
- developing technology policies and architectures.

This research will draw upon their studies and will be mentioned through the thesis.

² Sullivan, C.H(1985)pp.3-12. & Galliers, R.D.(1987) University of London, PhD Thesis.pp. 123-155

³ Runge, D. A.(1985) University of Oxford, D.Phil Thesis

⁴ Lederer, A.L and Sethi, V(1988), pp. 445-461

⁵ Earl, M.J(1990), pp. 271-277; Gallier, R.D(1987), pp. 223-255; Fidler, C(1993), pp. 13-20

⁶ Lederer, A.L & Mendelo, A.L(1986), pp. 245-254; Pyburn(1981), p. 2, Doll & Ahmed(1984), p. 4, Sullivan, C.H(1985), p. 12

⁷ Conrart, D.W(1992), pp.364-378

⁸ Harrison, W.L(1990), pp. 177-188

⁹ Gallier, R.D(1988) pp. 223-255

1.2 RESEARCH PARAMETERS METHODOLOGY

In this research, a survey on the SISP implementation in Muslim organisations in Malaysia was based on the comparison of what has been done in the UK or Australian companies. All the elements during data gathering were based on the questionnaire prepared in UK, so that a fair comparison could be made between UK and Malaysian organisations, except in some cases questions were introduced on elements of Islamic perspective to identify whether they influenced the top management and the senior information managers in Malaysia.

Two copies of the questionnaires were sent to each organisation; one to the top management employees, typically the general managers or corporate managers, and the other one to the head of the information systems area normally known as Computer Manager or MIS Manager.

The field survey in Malaysia, the stage reported here, comprised in-depth interviews with two "stake-holders" in each organisation, 28 interviews in total. The IS Director or IS Strategic Planner was interviewed first, followed by the CEO or a general manager. Interviews were conducted from questionnaires to ensure completeness and replicability, but a mix of unstructured, semi-structured and structured interrogation was employed.

1.2.1 Scope of the study

This research concentrates on the concept of IIS and its relevancy use in SISP techniques implemented in Malaysian Muslim organisations in the area of Kuala Lumpur and Selangor. The result findings are explained later in chapter 6. The criteria of the organisations that were chosen was based on: the majority share owned in the organisations must be more than 70 percent Muslim; and the staff of the organisations have to be more than 90 percent Muslims; the next condition is either the organisation is implementing SISP or not so that the questionnaire and interview done will be of relevance.

1.2.2 Outline of the Thesis

The concept concerning information, information systems, information systems planning, strategic planning and IIS will be discussed in Chapter 1. The concept of Islamic Information Systems is dealt with in Chapter 2. Material concerning IIS in Malaysia is covered in Chapter 3. Chapter 4 describes the concept of SISP and its implementation in the developed countries. Concept and implementation of SISP in Islam and Malaysia is contained in Chapter 5. Chapter 6 describes the empirical investigation that was done in Malaysia toward these organisations to investigate how far they are implementing this concept in their systems planning. To supplement the empirical investigation, Chapter 7 describes the stages of information systems growth in Muslim organisation in Malaysia. Chapter 8 will explain the values and attitudes that are required for these organisations to successfully implement SISP. Proposal for

frameworks concerning methodology and the relationship between all the values toward SIP is explained in Chapter 9. The last chapter, Chapter 10 will explain the hypothesis and conclusion that arises from this study.

1.2.3 Hypothesis

The approach of this study is comparative, not with the intention of systematically comparing two countries, but to bring under consideration the corresponding SISP situation in Malaysia. This study's major comparison is between Malaysia and Western countries. The formulation of SISP assumptions and hypotheses for this research was divided into seven major sections. Each section includes one statement or more. Those hypotheses are:

1. Muslim organisations follow western perspectives in regarding to SISP.
2. SISP is not fully implemented among the Islamic services organisations; such as those dealing with services on *hajj*, *takaful*, *zakat* and banking.
3. Islamic Information Systems (IIS) is not fully implemented in Malaysia
4. IIS design in Malaysia is similar to that followed in the west
5. Concept of IIS in Malaysia is still of limited scope.
6. SISP is fully implemented among the large organisations
7. Senior Managers in Malaysia do not always involve the ISP team in supporting SISP process.

1.2.4 Development of the Questionnaire and Data Gathering

In order to examine both the efficiency and effectiveness of the questionnaires the researcher conducted a pilot test. This test showed that it was not practical to survey the areas of this research with large open ended questions. Most of the participants (14) in the pilot test said they did not have time to answer so many open-ended questions. They preferred a rating scale or tick whichever was relevant to their organisation.

The questionnaires were therefore redeveloped and some are based on the questionnaires designed by Fidler, C (1993), and proposed by Prof. Galliers in United Kingdom (See Appendix A). Along with an introductory page and supporting letter from the supervisor, questionnaires were used and followed by an interview. All the appointments for interviews were arranged by my relatives in Malaysia. All the interviews were through direct meeting with the participants.

Data were naturally treated confidentially and participants were promised that their names or titles would not be mentioned

1.2.5 Data Collection and Limitations

In addition to the questionnaires and interviews, data were also obtained from: Department of Islamic Development (JAKIM) Library, Chief Executives'

Management Information Systems (SMPKE) library, Prime Minister's Office and home-page facilities available through internet. However, publications and reports related specifically to the concept of IIS and SISP that are implemented in the Muslim organisations in Malaysia were very limited and are not available in practice.

1. Although there were a few publications and reports concerning IS in Malaysia but they do not explain much concerning IIS concepts and how SISP has a role in that information systems.
2. The sample taken in the present research was not large (14 organisations and 28 participants) because it dealt very much with the senior managerial level, either the General Manager or the Vice President of the company, or IT managers only.
3. To identify whether an organisation is a Muslim organisation or not is quite difficult since even though most of the staff employed are Muslims, to make sure the share owners of the organisation are more than 70% own by the Muslims is quite difficult to identify.
4. This study is limited to the Muslim organisations in Malaysia. Yet, the findings presented here may well be applicable to other Muslim organisations in this world.

1.3 Informations Systems/Strategic Planning and related terms

1.3.1 Information Systems Planning (ISP)

Although there is indeed a wealth of literature on the topic of ISP, there are few recent survey articles in the field and those which are available fail to define explicitly what level of ISP they are dealing with and, when considering what constitutes successful ISP, fail to consider the issue of 'success' as distinct from success guidelines or key success factors. This paper aims to focus on this issue specifically in relation to what approach of SISP for the Muslim Malaysian organisations to achieve competitive advantage.

ISP is a hierarchical process which is generally considered to consist of three phases: strategic, tactical, and operational.¹⁰ The strategic level of ISP focuses on linking organisational requirements with information resources (IR). The tactical level of ISP seeks to establish an IS master plan with a planning horizon of, say, five years. The operational level of ISP is the lowest level in the planning model and is concerned with developing a detailed annual IS plan. In this thesis, the emphasis is on the strategic level of ISP. Therefore, whenever 'ISP' is used, it means SISP.

¹⁰ McLean E.R,(1983),Working Paper 4-83, Graduate School of Management, UCLA

1.3.2 Islamic Information Systems (IIS)

Information systems with the help of IT concerning anything about Muslims or Islam and based on the source of Quran, Hadith and Seerah. The scope is so wide and related to any Muslim or Islamic systems that have been computerised.¹¹

1.3.3 Strategy

The concept of a strategy is defined by Porter¹²:" Strategy is a combination of the ends (goals) for which the firm is striving and the means (policies) by which it is seeking to get there. Of particular interest to most organisations is how the investment in IT will support and improve the productivity of professionals. The rapid influx of microcomputers into organisations is one means to better support the individuals. Similarly, the concepts of decision support systems (DSS) and executive support systems (ESS) have also been widely accepted as types of systems that can provide support to high level professionals. Trends clearly suggest that many of these systems, while initially viewed as stand-alone, will ultimately increase request for access to corporate database and communications. The investment in these support systems will directly impact on the investment in large transaction systems that make up the technological structure of the firm. Given the magnitude of this potential impact, there is a need for a planning methodology that can achieve the following goals:

¹¹ Samat, I(1985) Seminar Sistem Maklumat Islam, Petaling Jaya, 23-25 May 1985.

¹² Porter, M. E(1980).pp. 3-14

- (1) provide a linkage between the strategic business plan and the strategic information systems plan;
- (2) provide a means to co-ordinate the investment in a range of management support systems that are responsive to management needs; and
- (3) provide a common foundation for integrating management support systems into the technological infrastructure of the firm.

It is widely agreed that IT is becoming a strategic resource. The convergence of data processing, communications and automatic technologies, the reducing of cost of trends in computing and the advances in software and hardware, provide business with new strategic options in a political and economical context which both need technological innovation.

In this study, strategy is defined as follows: a long-term principle for directing, implementing and supervising information management (IM). IM Strategy consists of the elements of the competitive utilisation of IT; the focuses of application development and an outline schedule; architecture of IM; organising the IM function; the planning of IM investment; and setting benefit targets for IM.¹³

Formulating a strategy implies making plans for all these elements. Such plans direct practical decision making in the problem areas of IM. Formulating a strategy is, by

¹³ Earl, M.E(1989).pp. 10-45

nature, an evolutionary process. A strategy evolves and takes shape gradually, so that sudden, extensive changes are usually impossible.

Competitive utilisation of IT forms an element of strategy. However, it is only one part of the IM strategy; the other elements are equally important. The gaining of competitive advantage has irritated much debate over recent years. Other elements have been received more calmly. The possibilities for gaining competitive advantage will be returned to in reporting the case example. A strategy can be innovative, imitative, co-operative or drifting in nature, depending on how firm a grip management takes on its implementation. It is difficult to verify one of these as being positively better than the others; however, the choice between strategies should be a conscious one.

An innovative strategy implies the company aspires to use IT as a means for competition. It implements its IM projects in a clearly prioritised and scheduled fashion. The company's information processing architecture is suited to the nature of its business, and there is a desire to invest in utilisation of this resource and set utility goals for that investment.

1.3.4 Strategic Planning (SP)

The term "strategic planning" is gaining popularity among systems managers as they become increasingly concerned with more formalised and disciplined approaches to

identifying requirements beyond the immediate future. The complexity of today's IS in Malaysia, and the increasingly large share of organisational resources ear-marked to support them, underscores the need for a more carefully prepared "road map" to the future. This is especially so because so many Malaysian organisations having the long lead times that typify today's large IS projects like *Hajj* Management and Fund Board (LUTH) and Perbadanan Nasional Berhad (PNB).

As borrowed from military language, SP has to do with the overall conduct of large scale operations as contrasted to tactical planning having to do with the immediate problems of manoeuvring military units in the field. In a business organisation, broad-based strategic planning can be contrasted with planning for the conduct of day-to-day operations such as getting this week's, or for this month's, or for this year's workload processed in the form of payroll cheques produced, demand deposit accounts updated or for the airline reservations booked.¹⁴

1.3.5 Strategic Information Planning (SIP)

When SP arrived on the scene in the middle of 1960s, corporate leaders embraced it as the one best ways to devise and implement strategies that would enhance the competitiveness of each business unit. Planning systems were expected to produce the best strategies as well as step-by step instructions for carrying out those strategies so that the doers, the managers of businesses, could not get them wrong. But even now,

¹⁴ Head, R.V(1978)pp. 46-54

few people fully understand the reason: SP is not strategic thinking. Indeed, SP often plunders strategic thinking, causing managers to confuse real vision with the orchestration of numbers. And this confusion lies at the heart of the issue: the most successful strategies are visions, not plans.

Managers as human beings seem predisposed to formalise their behaviour. But managers must be careful not to go over the normalisation edge. No doubt managers must be formalised to do many of the things they wish to in modern society. That is why managers have organisations. But the experiences of what has been labelled strategic planning teaches them that there are limits. These limits must be understood, especially for complex and creative activities like strategy making.

Strategy making is not an isolated process. It does not happen just because a meeting is held with that label. On the contrary, strategy making is a process interwoven with all that it takes to manage an organisation. Systems do not think, and when they are used for more than the facilitation of human thinking, they can prevent thinking. Three decades of experience with SP have taught managers about the need to loosen up the process of strategy making rather than trying to seal it off by arbitrary normalisation. Through all the false starts and excessive rhetoric, they have learned what planning is not and what it cannot do. But managers have also learned what planning is and what it can do, and perhaps of greater use, what planners themselves can do beyond planning. Managers have also learned how the literature of

management can get carried away and, more important, about the appropriate place for analysis in organisations.

The story of strategic planning, in other words, has taught managers not only about formal technique itself but also about how organisations function and how managers do and don't cope with that functioning. Most significant, it has told them something about how managers think as human beings, and that managers sometimes stop thinking.

1.3.6 Strategic Information Systems Planning (SISP)

By definition, strategic information systems planning is 'the process of identifying a portfolio of computer-based applications that will assist an organisation in executing its business plans and realising its business goals'¹⁵ The portfolio might include accounting, human resources, manufacturing, research and development, marketing systems as well as electronic mail systems, expert systems, desktop publishing, CAD/CAM, and many others.

ISP can take place at three levels known as the strategic, the tactical and the operational. SISP is the process of ensuring alignment between business plans and objectives and IS plans and objectives and/or the process of identifying IS which will provide the organisation with a competitive edge. It typically addresses a longer time

¹⁵ Lederer, A.L and Sethi, V(1988)pp. 446

horizon than either tactical or operational planning although the exact time-frame is dependent upon the volatility (example frequency of change) of the organisation and its environment. SISP has, as its focus, effectiveness and efficiency, aiming at establishing the direction of development rather than identifying a specific development project.¹⁶ At the SP level the involvement of IS personnel bring analytical, informational and technical skills to the planning process while corporate management bring business knowledge. This mix is also good for political reasons since you need to promote dialogue, mutual respect and cordiality between DP personnel and the rest of the organisation.¹⁷

¹⁶ Galliers, R.D(1988)pp. 179-201

¹⁷ Page-Jones (1985) p. 30

CHAPTER 2

ISLAMIC INFORMATION SYSTEMS: CONCEPT AND INTEGRATION IN COMMUNICATION

2.1 Introduction

Islam is not at all a dogmatic religion confined to the four walls of the mosque, but rather it is a scientific way of living which aims at the full efflorescence of all the spiritual, mental and other inherent faculties, with which God, the Creator, has endowed man, giving him the status of being the noblest creature in the universe. It challenged the past based on superstitions and false notions. This is undoubtedly an unparalleled revolution brought about on earth in a most peaceful manner.

From 7th to 12th Centuries, even up to 16th century, the Muslims were the only torchbearers of learning, culture, education and of a most enlightened civilisation. They were on the front of world progress and were the origin and source from which the light of progress and enlightenment and scientific knowledge spread to Europe and other countries. During the period of Abbasid Khalifs, Baghdad became a competitor of the Roman capital, Constantinople, in its material prosperity and also as a centre of knowledge and learning. During this period a second centre of agricultural development and urban civilisation was promoted by the Muslims in Transoxania with its great cities of Bukhara, Samarkand and Khurasan.¹ This marvellous agricultural

¹ Ahmed, N(1956), pp. 37-40

development and progress greatly benefited the peasants and land owners and led to the agricultural development of the world in the future.

Besides, many of the early verses of the Quran were revealed to raise the banner of knowledge. They heralded the ushering in of the age of knowledge providing human with an incentive to cultivate it. The very first five verses which were revealed to the Prophet commanded him to read and learn.

Professor Syed Naquib Al-Attas had suggested, there should be research on what exactly is the Islamic concept of knowledge.² In order to have knowledge, there must be information. It is the objective of this research to examine the concept of IIS before proceeding to the study of Islamic knowledge. From this, we will see what is the philosophical basis for IIS. Having formulated the philosophical basis for IIS, only then can IS be restructured. From the Islamic point of view there are types of knowledge which are not necessarily open to everyone. Now, under the guise of freedom, the door of the university is open to all, regardless of whether the person has completed the *fard-ul-ain* aspect of acquiring knowledge of Islam. He did not believe that everybody has the freedom to seek the same kind of knowledge. Otherwise Muslims would never have divided knowledge into two groups known as *fard-ul-ain* and *fard-ul-kifaya*. The reason for this is that one must first complete one step before moving to the other or walking first before running. Not everybody needs to seek *fard-ul-kifaya*. In the *fard-ul-kifaya* also we need a list of priorities. Obviously, a

² Al-Attas, S.N (1975) pp. 126-129

subject like psychology may not be a priority for Muslims in comparison to a subject like history.

2.2 Definition of information, knowledge and power

There is a relationship between information, knowledge and power, then later comes wisdom from God. People have to understand firstly what is actually the concept of information, knowledge and power in this research context.

2.2.1 Definition of information

According to the Concise Oxford Dictionary, information means informing, telling; thing told, knowledge, items of knowledge and news.³ Information usually implies data that is organised and meaningful to the person receiving it. Data is therefore raw material that is transformed into information by data processing. Information can be defined in terms of its surprise value. It tells the recipient something he did not know.⁴ Laudon defined information as data that have been shaped into a form that is meaningful and useful to human beings.⁵

³ The Concise Oxford Dictionary (1976), Oxford University Press, p. 554

⁴ Davis & Olsen (1985) p. 30

⁵ Laudon & Laudon (1996) p. 9

There are IS relating to belief and consciousness of God, knowledge and oneness of God in Islam. These are all interrelated and located phase after phase depending on the degree of achievement by the information gathered. There are two types of knowledge; absolute knowledge and relative knowledge. Sources of knowledge come from natural phenomena, human psychology and history. When knowledge is accompanied by action there will be wisdom.

What does 'revelation' actually mean according to Islam? 'The meaning of revelation is a message of guidance conveyed to a prophet of God usually via the Archangel Gabriel, (Gibril), and which is then conveyed by the prophet to the whole of humanity. Because it proceeds from God, revelation is accurate, and encompasses that knowledge which scientific studies could never reveal. Whereas the claim to mystical experiences is open to deception revelation as a medium of guidance, is not open to such abuse. It is Allah who chooses or appoints the Prophet-often inspired of the person himself. Further, unlike mystical experiences which are satisfying in themselves, the revelation which is received by the prophet of God is merely a stepping-stone or stage from which social action takes place as the prophet seeks to guide the people and fight the forces of evil. According to the Quran there are three basic channels of communicating revelation, they are:

- a) Inspiration
For example in a dream (37:102); 6:50
- b) Speaking to the prophet directly in a specific manner or speech hidden away.
It is mentioned in the Quran (27:8)

- c) Revelation of word and meaning through the medium of the Archangel Gabriel.

For example in the Quran (2:97)

2.2.2 Definitions of knowledge

Knowledge consists of truths deduced from facts by reasoning, using the tools of logic. Knowledge strives to discover universal truths. With these truths, knowledge can attempt to explain certain aspects of reality, by explaining why.⁶

In Islam, knowledge is the process of knowing and identical with the knower and the known, or it is an attribute enabling the knower to know; cognition (*ma'rifah*); a process of obtaining (*d-r-k, h-s-l*) or finding through mental perception; a process of clarification, assertion, and decision (*bayyana, mayyaza, athbata, qata'a*); a form (*surah*), a concept or meaning (*ma'na*), a process of mental formation and imagination (*tasawwur* "perception") and of mental verification (*tasdiq* "apperception"); belief; remembrance, imagination, an image, a vision, an opinion; a relative term; conceived as the negation of ignorance; the result of an intuition coming from outside or as the result of introspection.

The purpose of knowledge is but the decision (*qat*) concerning the object known that it is as people know it, without any suspicion (*rayb*) or doubt.⁷ With knowledge, people can use it as a power for decision making. In early tribal societies the priestly

⁶ Introna, L.D (1997) p. 76

⁷ Halepota, A.J (1975), pp.1-8

elite emerged as dominant because they had information. They were the literate class who could tell people when to sow crops and when to reap them. This is because they held the knowledge of the season.

2.2.3 Definition of power

One should hardly have to tell academicians that information is a valuable resource: knowledge for power.⁸ And yet it occupies a slum dwelling in the town of economics. Mostly it is ignored: the best technology is assumed to be known; the relationship of information as commodities to consumer preferences is a datum. And one of the information producing industries, advertising, is treated with a hostility that economists normally reserve for tariffs or monopolists. Many definition concerning power was made by Hobbes (1962), Machiavelli (1958), Dahl's (1961) and Lukes in 1974.⁹

2.2.4 Definition of Wisdom

Allah will be able to give wisdom through the *ruh* to whom He wishes but with the assistance of knowledge possessed by the individual. Only Allah will give his wisdom to whom He likes.¹⁰ The wisdom is divided into 4 categories known as *taufiq*:

a) *Taufiq Hidayah* (Divine guidance)

God has taught in the Quran all kinds of knowledge for the benefit of humankind so that people believe in the Quran and use it as a source of guidance (*hidayah*).

⁸ Stigler, G.J(1961) pp. 213-225

⁹ Introna, L.D (1997) pp. 118- 121

¹⁰ Al Edrus, M.D (1993) pp. 64-65

*(God) Most Gracious It is He Who has Taught the Quran
He has created man: He has taught him speech (And Intelligence)"
(55:1-4)*

- b) *Taufiq Rushd* (Divine Direction)
- c) *Taufiq Tasdid* (Divine Leadership)
- d) *Taufiq Ta'id* (Divine Strengthening)

2.3 Relationship between Information, Knowledge and Power

Knowledge as Foucault (1977) conceives it, is intimately related to the notion of disciplinary power. Knowledge “ cannot exist except through relations or power, and power makes possible and produces ‘ regimes of truth’. Power structures a domain of knowledge at the same time that inquiry isolates areas as objects of knowledge, making them targets for the deployment of strategies of power”. This does not mean that power is knowledge or that knowledge is power; they imply one another, they are co-constitutive. ¹¹

Islam inspired humans to unravel the secrets of nature more than any other religion or school of thought could do with the purpose of making them believe in the existence of Almighty God, because the more they know about the universe, provided they have a sound reasoning power. This is exactly what God Himself has said in Quran:

*It is the scholars among His servants who fear God alone. Lo:
God is Mighty, Forgiving(35:28).*

¹¹ Introna, L. D (1997), p. 129

The above verse makes it quite clear that if humans want to become a faithful servant of God, they must first of all become one of the scholars. In other words, they must apply their intellect and power of observation, instead of superstitions and false notions, in their comprehension and appreciation of the manifestations of nature in order to feel in their heart the immensity and greatness of the Wisdom, Might, Knowledge and Creative Power of God. Since God has chosen to be worshipped by humans by keeping Himself veiled from their sight, there can hardly be any other way of feeling.

It is with the explicit purpose of instilling in humans the spirit of worshipping God with full awareness of His existence that Islam has put the greatest possible emphasis on the pursuit of knowledge and learning. It is the only religion in the world which has made the acquisition of knowledge and learning one of the unavoidable ordinances of God incumbent upon His followers. And therefore the cultivation of knowledge is considered in Islam as a sacred act of worship to Almighty God.

Both the Holy Quran and the traditions of the prophet (pbuh), the two main sources of Islamic thought, are full of such expressions that emphasise the importance of knowledge in the life of humans on the one hand and stimulate them to cultivate it on the other. A brief account of such Quranic verses and the apostolic traditions is given here in support of this point. ¹²

¹² Ramadan, S (1992) pp. 41-43

First of all, it is important to note in this connection that the word *'ilm* (knowledge) and its derivative have occurred 805 times; the word *albab* (minds) has occurred 16 times; and the word *'aql* (reason) and its derivatives have occurred 49 times in the Quran, according to a survey made by Prof. Darwish Mustafa, Director of the National Museum at Qatar in his work entitled "History of Sciences in Islamic Civilisation".¹³ Then according to Prof. Syed Naquib Al-Attas, the Quran makes more than 800 references to *ilm* and there is no other religion or culture which seems to emphasise the importance of knowledge in human life and perception of the truth to the same extent. It is fundamental for Muslims to distinguish and understand the Islamic concept of knowledge.¹⁴ Every culture has a "view of the world" which they infuse into knowledge. Knowledge is not something neutral. It is possible for a culture to imprint its own concepts and values into the body of knowledge.

A few of such Quranic injunctions and precepts and sayings of the Prophet Mohammed are reproduced below:

Knowledge has priority over word and action because of word of Allah, the mighty, the glorious, so know that there is no god but Allah.(47:19)

From the Quran mention is also made about the status of those with knowledge. So he has begun with knowledge and because the people of knowledge are the

¹³ Mustafa, D(1977) p. 87

¹⁴ Al-Attas, S.N(1975), pp. 126-129

successors of the Prophet who have left the heritage of knowledge; whoever takes it, takes a full share and whoever walks on a certain path seeking knowledge thereby, Allah makes the path to heaven easy for him and Allah says'

(Those for His servants only who are possessed of knowledge fear Allah)(35:28)

The basic understanding of Allah 'God' and religion is gained through the seeking of knowledge. The Quran advised mankind to pray:

My Lord; advance me in knowledge. (20:114)

Again, it is equally important to note that God made Adam superior to the angels by giving him more than He gave to the latter, as is clear from the following verses: -

(And He taught Adam all the names, then, showed them the angels, saying Inform Me of the names of these if you are truthful. They said: Be glorified: We have no knowledge saving that you have taught us. Lo! Thou only Thou art the knower, the Wise. He said: O Adam! Inform them of their names, and when he had inform them of their names, He said: Did I not tell you that I know the secrets of the heaven and the earth? And I know which of you disclose and which of you hide. And when said unto the angels: Prostrate yourself before Adam, They fell prostrate except Iblis, who refused, boasted and became of the disbelievers)(2: 31-34)

Two important conclusions can be drawn from the above verse. First by ordering the angels to prostrate themselves before Adam, God has clearly demonstrated the dignity of the high office of knowledge. Here it is worth mentioning that they were ordered

to do so only after it was proved that they possessed less knowledge than that granted to Adam. Secondly, it is also made quite clear that true wisdom consists in complete surrender to the Will of God. Therefore the action of the angels in prostrating themselves before Adam on the order of God was based on wisdom. But, on the other hand, *Iblis*, who refused to abide by the order of God, considering himself to be superior to Adam, was discarded and condemned as a proud infidel. In other words, it can be said that in these verses God has demonstrated the triumph of knowledge over ignorance and warned against the evil consequences of not practising wisdom in life which consists in complete surrender to the Will of God.

*(Read in Thy name of God who created; Created man from a clot.
Read: And thy Lord is the most Bounteous who tough by the pen.
Taught the man which he knew not.)(96:1-5)*

And another places God has again highlighted the value and the dignity of the pen by swearing by it while upholding the character of Prophet Mohammed:

*(Nun. By the pen and which they write, Thou art not, for thy
Lord's favour unto thee, a madman).(68:1-2)*

God's swearing by the pen in those days and particularly among the Arabs who always boasted their swords and attached little importance to the pen being ignorant of it, might have sounded very strange and insignificant. But now history has proved beyond any shadow of doubt that the pen is mightier than the sword. Today nobody denies it.

When knowledge is done via action there will be wisdom. Wisdom was the good administration of knowledge. Every wisdom is at the same time knowledge, but not every knowledge is at the same time wisdom.¹⁵ (See Figure 1).

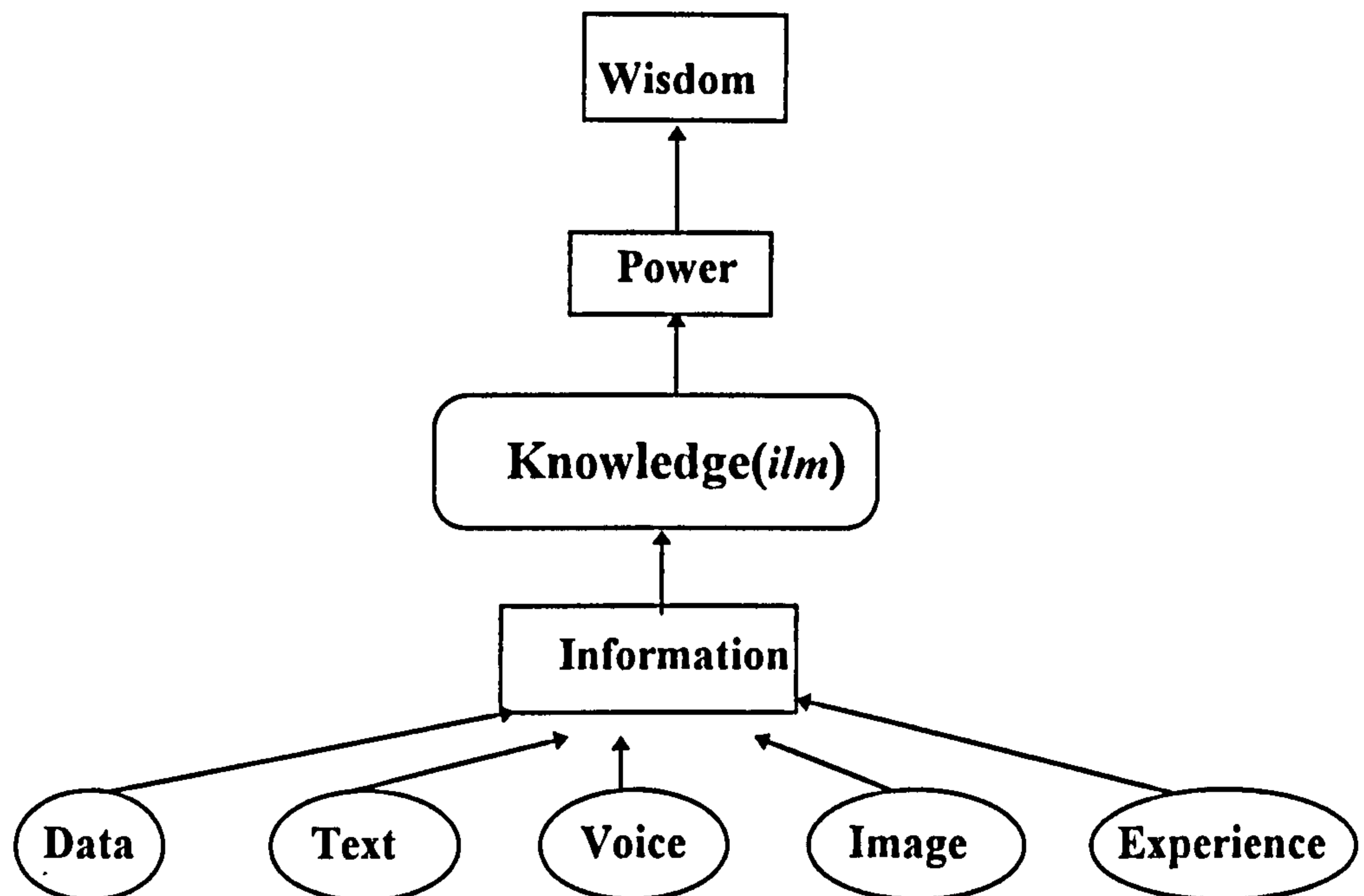


Figure 1: Relationship between Information, Knowledge, Power and Wisdom

Ilm (knowledge) is one of the many attributes of God. *Al alim* (the knowing) is also one of the 99 most beautiful names of God (*al Asma' al Husna*).¹⁶ *Ilm* (knowledge), like other *sifat* (attributes), is one which the essence (*dhat*) of God. In other words, for God, to be is to Know. God is the possessor of all kinds of *ilm* (knowledge), therefore He is the only source of *ilm* (knowledge) as expressed in the Quran.

¹⁵ Rosenthal, F(1970), pp. 36-37

¹⁶ Quran 7:180; 17:110; 20:8

"He said:" The Knowledge(of the time of its coming) is with Allah only, (46:23; 67:26)

Thus in the Quran, the verses repeatedly stress that only Allah has absolute knowledge of everything whereas human knows but little. This shows that the capability of humans to know and understand is limited. The verse below gives clarification on this:

" And Allah knows and you know not"(2:216; 3:66; 24:19).

Moreover, humans are totally incapable of understanding and knowing Allah's knowledge except with Allah's will and permission. Only with His guidance will humans be given insight into the knowledge of Allah. Allah affirms this:

"And they will never compass anything of His knowledge except that which He wills"(2:255).

In the story of Prophet 'Adam whereby God wanted to create him as his vicegerent on earth, God with His will taught 'Adam all the nature and qualities of things.

They said: " Glory to Thee: of knowledge We have none, save what Thou. Hast taught us: in truth it is Thou Who art perfect in knowledge and wisdom"(2:32).

Al Quran was sent down totally for the benefit of mankind so that they might gain true victory and success in their lives. Hence it is a healing and a mercy from God for the believers. Those who ignore the Quran will be at a great loss in respect of their deeds, as expressed by Al Quran:

"We send down (stage by Stage) In the Quran that which Is a healing and a mercy To those who believe: To the unjust it causes Nothing but loss after loss". (17: 82)

In other words, through Quran, humans are taught new knowledge every moment: knowledge that they did not possess. Hence, Quran gives the guidelines which differentiate between a man of knowledge and a man without it.

"Say: "Are those equal, those who know and those who do not know?"".(39: 9)

For those who are knowledgeable, they are more attracted to the Quran since they are among the staunch believers.

"But those among them who are well-grounded in knowledge, And the Believers, Believe in what has been Revealed to you"(4:162).

However, humans are given the ability to possess knowledge, but above them, there will definitely be another power which is the source of the knowledge itself.

"We please: but over all those endowed with knowledge is the All-Knowing"(12:76).

The meaning and derivation of knowledge from the Quran depends upon the correct approach, that of purity. ¹⁷ Thus, humans' intention for the attainment of knowledge must be pure. The assumptions that they have concerning the knowledge that they

¹⁷ Shaykh Fadhlalla Haeri(1986) pp. 234

seek can be both useful and a hindrance. To approach the Quran they must be brave. They must recognise their poverty, ignorance, weakness, and continuous forgetfulness. These elements together result in their disobedience to both the outer natural laws and the inner laws. To approach the Quran the seeker must possess correct courtesy which will serve as a key to awaken the knowledge of the Quran already contained within the heart of a believer. The seeker thus nourishes the seedling of knowledge which already exists in their heart.

Familiarity with the historical and cultural environment in which the *surahs* were revealed is important so that humans have a more comprehensive base to build their understanding of the Quran. Knowledge of the historical and cultural setting of the Quran contributes to understanding the purpose for each *ayah* as well as acquainting us with those *ayats* which abrogate others. Allah says that there is no sign or experience or situation in this creation, including the Quran; which has been changed or taken away that has not been replaced by something greater. Sunset is not the loss of a day, for with sunrise the next day is gained. Their attachments are rooted in the fear of loss, and when loss occurs they blame it and the pain they feel on something outside themselves. The fault, however, lies within them. They do not see that Allah is the all-Merciful, that His laws of existence are perfect, and that the imperfection which they see lies only within themselves. It is their forgetfulness and lack of gratitude which prevents them from seeing this perfection.

According to the Quran, humankind in general does not possess any kind of true knowledge: they only follow conjecture (*zann*), and *zann* is the cause for their confusion and leads them to go astray (*dalal*). *Zann* also closes all doors to truthfulness or reality (*haqq*) for them.

But they have no knowledge. Therein, they follow nothing but conjecture: and conjecture avails nothing against Truth.(53: 28)

All the foregoing examples rest on five postulations:

- a) knowledge is an attribute of God;
- b) Humans know to the extent God allows them to know;
- c) Humans are given the capacity of 'knowing';
- d) without revelation (*wahy*), human's knowledge is nothing more than conjecture (*zann*); and
- e) Revelation (*wahy*) transforms *zann* (conjecture) into *ilm* (knowledge).

This *ilm* (knowledge) is now an attribute of humans which is called *yaqin* (certainty).

One should therefore note that there are two conception of *ilm* (knowledge) in the Quran:

- a) *ilm* (knowledge) which is belongs to God wherein there is no question of *zann* (conjecture) or *yaqin* (certainty); and
- b) *ilm* (knowledge) of humans which progresses from *zann* (conjecture) to *yaqin* (certainty). This latter can be best called *ma'rifah* (cognition). Only God is *alim* (knower) and only humans can be *arif* (gnostic).¹⁸

¹⁸ Rosenthal, F(1970), pp. 28-32

2.4 Relationship between human and information.

Humans need information in order to communicate and to understand each others need. This effective communication is mentioned in the Quran:

And argue with them in ways that are best and most gracious. (16:25)

It is addressed to Prophet Mohammed (pbuh) and Muslims that when they try to convince the disbeliever, they have to do it in a gracious way. Similarly, the far reaching impact of microelectronics chips required the combination and synergistic blending of knowledge and specific scientific and technical solutions from physics, chemistry, electronics, mathematics, logic engineering, systems programming and applications of management sciences. The impact of the interaction of the individual elements of knowledge is enormously greater than that of each element by itself.¹⁹

The expansion of Islamic systems of culture and other systems of knowledge will have to fulfil the requirements of space-time dimensions and have to form the ever new spirit of the age at the turn of each century. The Quran, for the first time has invited the attention on these facts realistically. It is inevitable that humans should concentrate on the Quranic sociology and culturology, because in the present situation these two sciences are inevitable for the unfolding of Islamic culture and for the reconstruction of humans and society today.²⁰

¹⁹ Dixon, P(1989), pp. 247-256

²⁰ Basharat, A(1969) pp. 163-174

The nature of humans as Prof. Syed Naquib²¹ says has a dual nature; they are both soul and body; they are at once a physical being and spirit.²²

God taught him the names (al-asma) of everything (2:31).

By 'the names' they infer that it means the information and knowledge (*al-ilm*) of everything (*al-ashya*). This knowledge does not refer to knowledge of the essence (*dhat*) or inmost ground (*sirr*) of a thing (*shay*) such as, for example, the spirit (*al-ruh*), of which only a little knowledge is vouchsafed to humans by God (17:85); it refers to knowledge of accidents (*arad*) and attributes (*sifah*) pertaining to things sensible and intelligible (*mahsusat* and *ma'qulat*) so as to make known the relations and distinctions existing between them and to clarify their natures within these contexts in order to describe and understand their causes, uses, and specific individual purpose.

Humans are also given knowledge about God (*ma'rifah*), His Absolute Oneness; that God is his true Lord (*rabb*) and true Object of Worship (*ilah*).²³ The seat of this knowledge in humans, both *al-ilm* and *ma'rifah*, is his spirit or soul (*al-nafs*) and his heart (*al-qalb*) and his intellect (*al-'aql*). In virtue of the fact that humans know (*'arafa*) God in His Absolute Oneness as their Lord, such knowledge, and the necessary reality of the situation that follows from it, has bound humans in an

²¹ Al-Attas(1985). p. 132

²² Al Quran 15:29 and 23:12-14

²³ Al Qur'an 7:172 and 3:18

Agreement (*mithaq*, *'ahd*) determining their purpose and attitude and action with respect to themselves and to God.²⁴ This 'binding' and 'determining' of human to a Covenant with God and to a precise nature in regard to his purpose and attitude and action is the binding and determining in religion (*din*) and in real submission (*aslama*) respectively. Thus both *din* and *aslama* are mutual correlates in the nature of human (*fitrah*). Human's purpose is to do *'ibadah* to God,²⁵ and his duty is obedience (*ta'ah*) to God, which conforms with his essential nature (*fitrah*) created for him by God.²⁶ But humans are also composed of forgetfulness (*nisyan*); and they are called *insan* basically precisely because, having testified to themselves the truth of the Covenant, which enjoins obedience to God's Commands and Prohibitions, they forget (*nasiya*) to fulfil their duty and purpose.²⁷ Forgetfulness is the cause of human's disobedience, and this guilty nature inclines them towards injustice (*zulm*) and ignorance (*jahl*).²⁸ But God has equipped them with the faculties of right vision and apprehension, of real savouring of truth and right speech and communication; and has indicated to them the right and the wrong with respect to the course of action they should take so that they might strive to attain their bright destiny.²⁹

²⁴ Al Qur'an 7:172

²⁵ Al Qur'an 51:56

²⁶ Al Qur'an 30:30

²⁷ Al Qur'an 20:115

²⁸ Al Qur'an 33:72

²⁹ Al Qur'an 90:8-10

2.5 Sources of knowledge leading to faith

The Muslims made valuable contributions, especially in historical, geographical, philosophical, mathematical and medical sciences. Although here it is not possible to enter into details of their achievements in these fields, a passing reference to a few Arab scholars may be made in this connection. For example, Ibn Khaldun, the greatest historical thinker of Islam, is admired in the West as founder of the modern sciences of sociology and historiography. R. A. Nicholson has observed, 'his intellectual descendants are the great medieval and modern historians of Europe-Machiavelli and Vico and Gibbon'³⁰. In the realm of geography the names of Al Idrisi (d. 1166)³¹ Ibn Khurdadhbih (b. 820)³² and Ibn Hawqal (b. 943)³³ are very famous. The great mathematician, Al Khwarizmi (d. 846), wrote the oldest work on algebra with over 800 examples known as *Hisab-ul-Jabr wal-Muqabalah* (the calculation of integration and equation)³⁴. It is remarkable to note that the Latin version of this book was used until the 16th century as the main mathematical text-book by western scholars.³⁵

Of the original writers on medicine Ibn Zakaria Al Razi, the author of *Al-Hawi* an encyclopaedia of medicine, and Ibn Sina (d. 1037), the author of the Canon of Medicine, are very famous. Up to the 16th century, the works of these authors constituted the basis of the lectures on medicine in European universities. Similarly,

³⁰ Abdul Ali (1979), pp. 184-185

³¹ Sardar, Z (1987), p. 267

³² The Encyclopaedia of Islam (1971), Vol III, Leiden, p. 839

³³ *ibid*, p. 787

³⁴ Bosworth, C.E (1979) pp. 466-467

³⁵ Hitti, P.K (1960), p. 379

the Muslim contribution to the development of philosophical studies can be judged from the fact that Islamic philosophy continued to be taught in the universities of Europe up to the middle of the 17th century and that Aristotle was understood in Europe only through the commentaries of Ibn Rushd (d. 1198) for a long time. Besides, the Muslims achieved considerable distinction in Chemistry, Mineralogy, Botany, Fine Arts.³⁶

In the light of the glorious past history of the Muslims as well as the inspiration which Islam gave and continues to give in the cultivation of knowledge, it is quite clear that Islamic teachings are not averse to modern sciences. They only encourage their cultivation for the welfare of humanity at large. It is, therefore, absolutely baseless to blame Islamic teachings for the current intellectual and cultural decay of Muslims all over the world, while, on the contrary, the fact remains that whatever scientific progress has been achieved so far, it is only because there has been the domination of Islam in the world for a considerably long time which made humans thoughtful and reflective and filled them with the spirit of scientific enquiry, which is the very life and soul of modern sciences.

In this connection it may further be mentioned that if there is any reason for the lagging behind of contemporary Muslims in science and technology, this can be nothing other than the difference between the true religion and the mere formal religion, as has been admirably pointed out by Dr Ahmad Amin in the following words:-

³⁶ Hell, J(1977) p. 91

‘The scholars and historians tire themselves in turning over the pages of books on history in order to find out the reason as to how the Muslims in their early days could perform miracles in making conquests and establishing their sovereignty as vicegerents of God on earth and how in their later days also they performed miracles in bringing about their downfall in such a manner that they soon became weak, humiliated and lowly, while the Quran and the teaching of Islam continue to be the same“. The scholars arrive at different conclusions in their analyses of it, but in Dr Ahmad Amin’s opinion there is only one reason for this and that is the difference between the true religion and the mere formal religion.³⁷

The Islamic conception of knowledge can be properly defined only when they look at its significance from the point of view of the hundreds of *Ayat* of the Holy *Quran* in which knowledge has been referred to in various contexts and from the point of view of the Hadith of the Prophet (pbuh).

Please refer to Figure 2, for the sources of knowledge (*ilm*) leading to faith. Absolute knowledge come from Allah and Sunnah from the characters of the Prophets in terms of style of life, utterances and actions. These two types of knowledge will eventually contribute to the knowledge of the mysteries (*ilm asrar*) or knowledge of the unseen for example believing in paradise and lastly knowledge of rules (*ilm akham*). *Ilm asrar* is a transcendent form of intellectually knowing; the form of knowing by

³⁷ Khan, M. S(1979), pp. 179-186

emanation from the holy spirit into the mind.³⁸ Prophets and saintly mystics are privileged with this knowledge. A combination of both forms of knowledge will contribute toward knowledge about God (*ilm ma'rifa*), knowledge of truth, knowledge of science of theory and knowledge of practical science (*ilm amali*)³⁹. Most of the information systems available nowadays in the world are under the knowledge of practical science which concentrated on the application systems or information services for customers. For example information systems on libraries, accounting, banking, ticketing and hotel reservation. Knowledge of truth, knowledge about God, theory of science and practical science will produce wisdom. Above the knowledge is power and by practising power people will achieve wisdom. When somebody achieves wisdom, with the knowledge of God, His attributes and His acts (*ilm mukashafa*) then combine with knowledge of man's relation to God or knowledge of man's relation to man (*ilm mu'amala*)⁴⁰, it will lead to the sciences of the path of the hereafter. With this knowledge, people will reach faith.

The absolute knowledge of God has its dominion which is unlimited. His knowledge covers all reality and knows all the visible and the invisible, the open and the unseen.

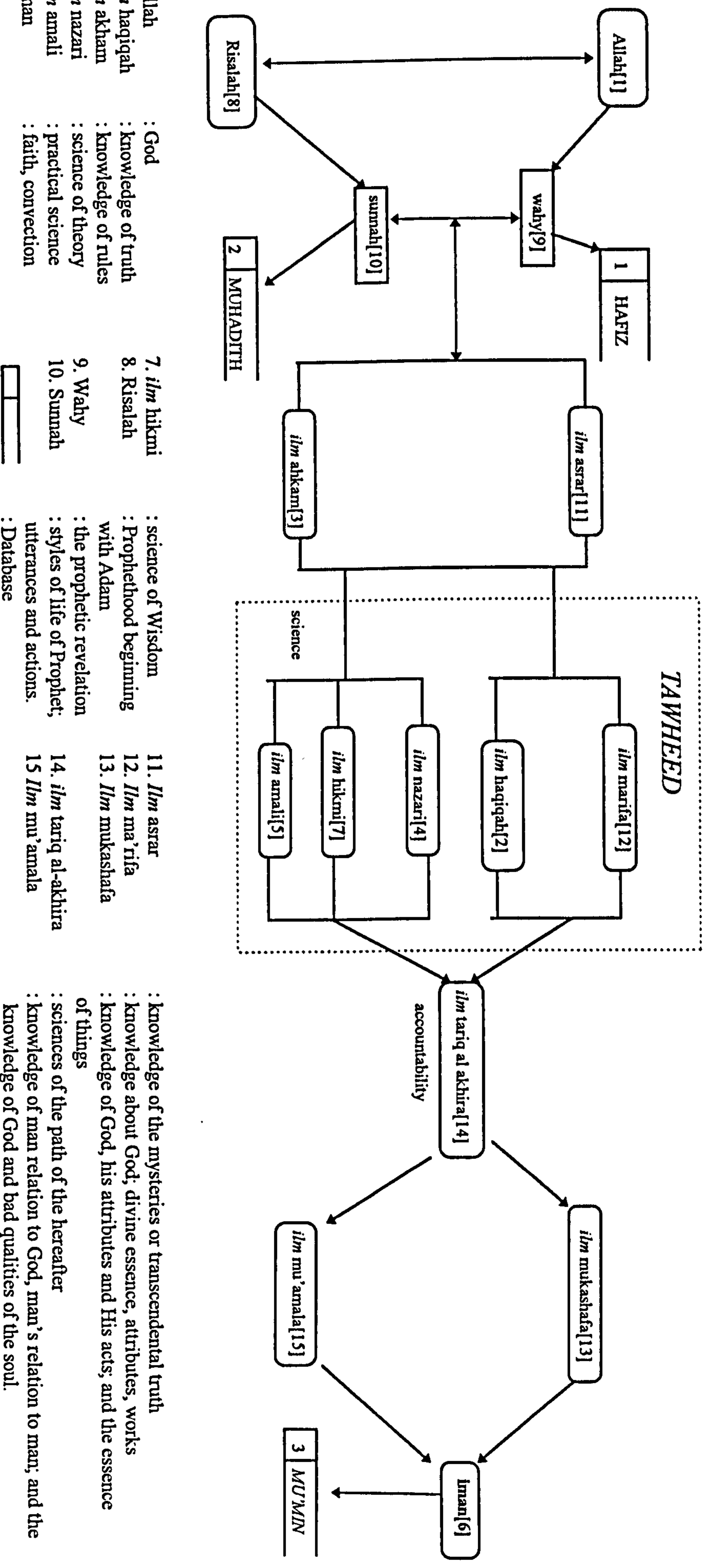
"He knoweth the Unseen As well as that which is Open. For He Is the Wise, well acquainted (With all things)"(6:73).

³⁸ Yazdi, M.H (1992) pp. 172-174

³⁹ Ally, M. M and Samat, I(1994) Conference ITA 94, Leicester.

⁴⁰ Osman Bakar(1991), p. 56

Figure 2: Sources of Knowledge(*ilm*) leading to Faith(*iman*[6])



Adapted from Ally, M.M(1986b) St David's University College, Lampeter

Islam is a universal and all comprehensive *din*, the teachings of which create an outlook which encompasses all the aspects of phenomenal life and its relation to the Ultimate Reality. Hence knowledge of phenomena cannot be complete unless it manifests the integrated, harmonised and synthesised vision of the wholeness of the human problems co-related with the universal phenomena in its various aspects, physical and material as well as spiritual and mental. A partial achievement of knowledge is like an arc cut out from a circle. It does not fit into the universal and all comprehensive outlook of a believer in *tawheed*, who looks at the whole of humanity as one or in Shah Wali Ullah's terminology as big man (*insan kabir*) and the whole universe as one person as denoted by the term *insan akhbar*.⁴¹

Knowledge is one of the fundamental basic qualities of humans around which the building of their essence and personality evolves. The level and the rank or the position of an individual goes up in proportion to the extent of the individual's actual attainment of knowledge and awareness and consciousness about the realities of life. According to the Quran those who have been given knowledge, Allah guides them to elevated positions.⁴²

Acquisition of knowledge and its advancement is the foundation stone of the Islamic teachings on which Islamic civilisation and the character of the Muslim communities and individuals are built. Acquisition of knowledge is the distinctive mark of the Islamic Era. The period before the advent of the Quran is therefore, known as the period of *jahilliyya* which signifies a state of ignorance and ruthlessness. Reading and writing which are the main source of knowledge are also the main keys of the Islamic civilisation. This fact is substantiated by the very first

command in the Quran. The command of read (*iqra*) and from among the earliest *suras* of the Quran there is one *sura* known as *Al-Qalam*. In these verses reading and writing have been commanded and the rest of the Quran is a further explanation of this command making it clear what to read and how to read.⁴³

In the very first revealed verse of the Quran, there are indications in the words *rabb*, *khalaq* and *allama* that acquisition of knowledge is to be made in such a way that its objective of educating (*tarbiyyat*) and development of human mind could be attained in a proper and appropriate form. Knowledge and learning must lead to the establishment of a relationship with the *rabb* who is all the time the source of *tarbiyyat* and the source of creation and the bestower of consciousness.

It is a great affliction for a teacher to find that the people around him are not growing and learning, just as it is an affliction for a father to find that his children are not acknowledging his knowledge. Knowledge is power but it cannot be imposed on others. Every heart, every person, must want it, for if not desired, it can never be obtained. Once desired, however, its acquisition takes time.⁴⁴

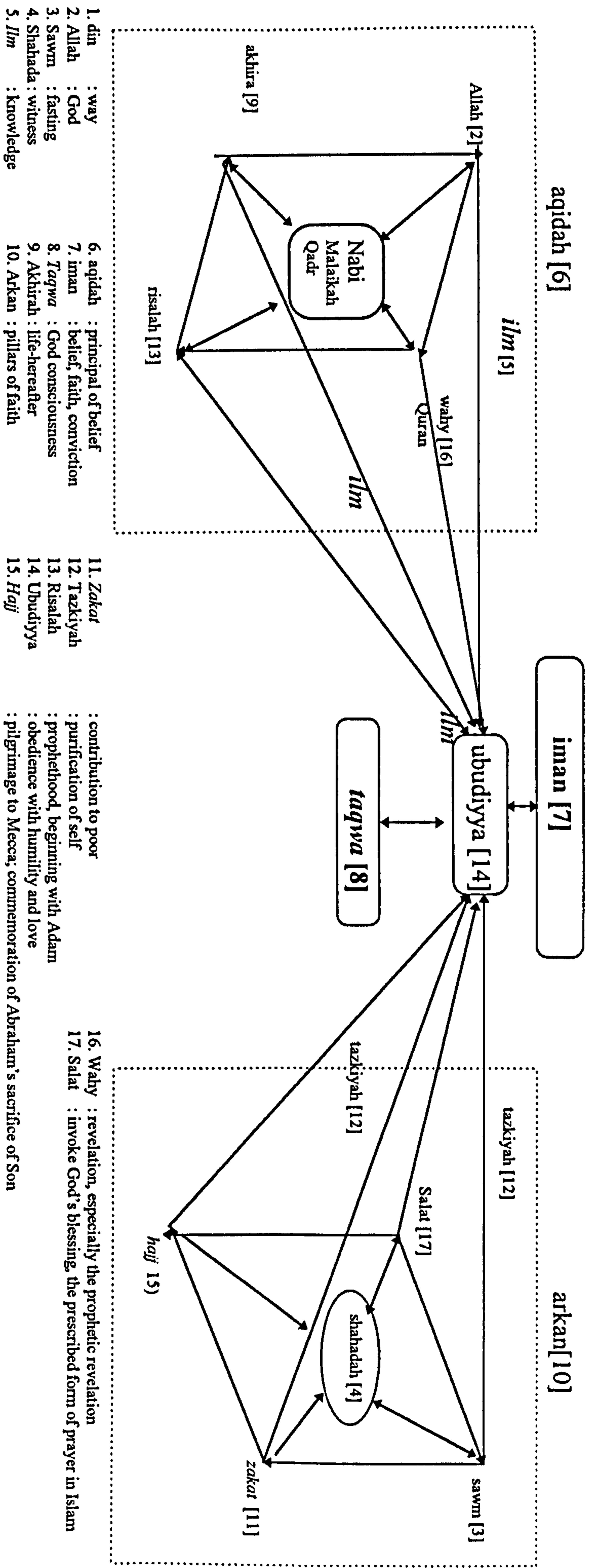
2.6 Framework of Din in Islam

What is Belief (*iman*)? What is Islam? What does it mean in the specifically Islamic context, to believe? This was one of the most important theoretical problems that was faced by the newly born Muslim community. The situation is quite understandable. *Din* of Islam will be based on principles of belief (*aqidah*)

⁴³ Alwani, T.J (1993), p. 4

⁴⁴ Quran 3:83

Figure 3: FRAMEWORK OF THE DIN [1] OF ISLAM



Adapted from Ally. M.M(1986a), St David's University College, Lampeter .

and pillars (*arkan*) of faith. Principles of belief comprise believing in God, life-hereafter (*akhirah*), revelation (*wahy*) especially the prophetic revelation brought by Angel and lastly prophethood (*risalah*) beginning with Adam. All these principles of belief (*aqidah*) are knowledge which lead to belief and God-consciousness, (refer to Figure 3). Pillars of faith will also lead to belief and God-consciousness (*taqwa*) via purification (*tazkiyah*) of self. Purification of self through worship to God can be done based on Islamic pillars for example fasting (*sawm*), invoking God's blessing (*salat*), the prescribed form of prayer, pilgrimage (*hajj*) and paying for welfare (*zakat*).

2.7 Principles of knowledge leading to *taqwa* and Islam

Oneness of God, consciousness of God, belief, ethics and Islamic Law are the principles of knowledge. They are not exactly one and the same thing but they are not completely different from each other. The combination of these four constitutes religion. Verily the religion in the sight of God is Islam, (See figure 4).

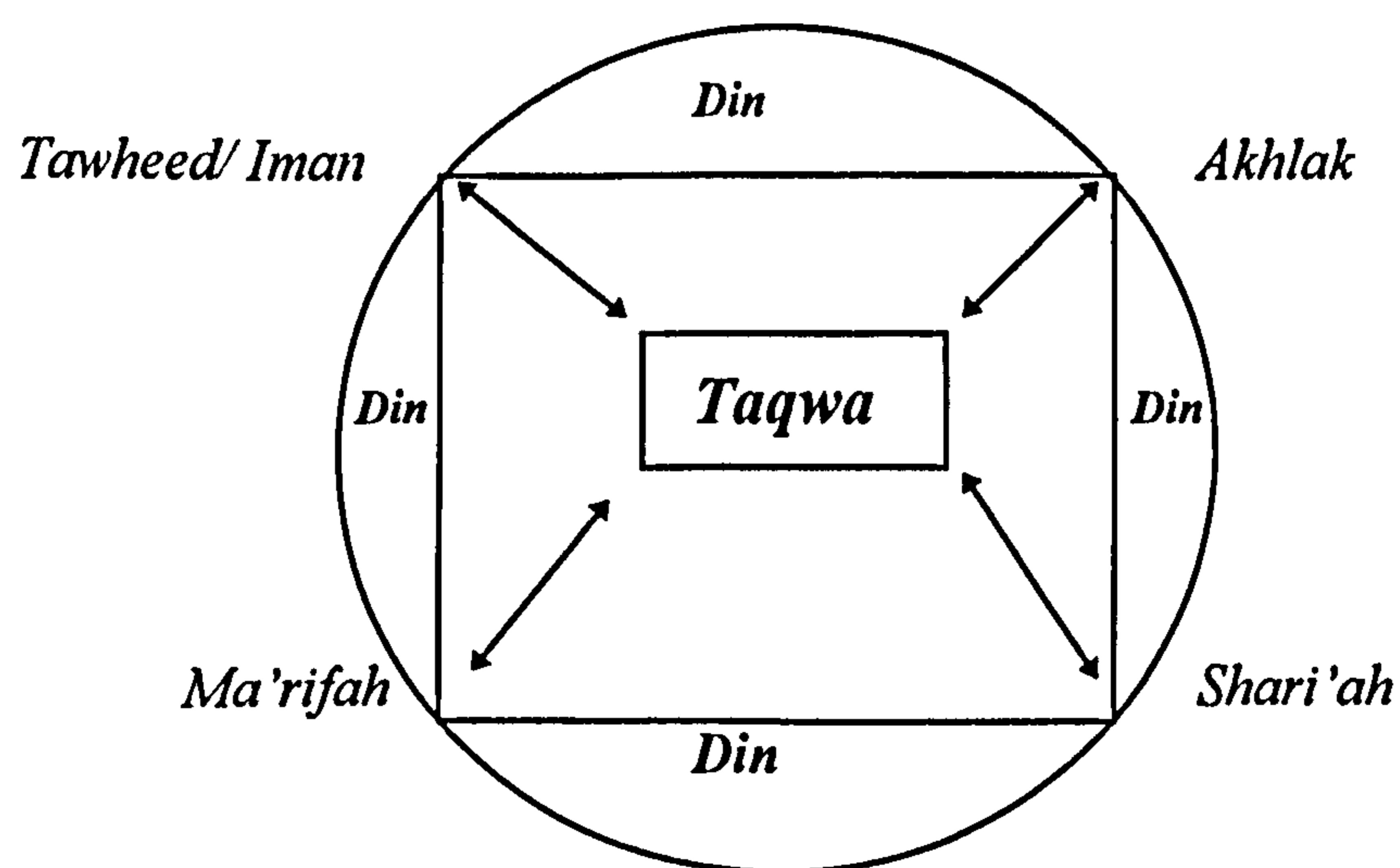


Figure 4: Principles of knowledge

The sociology of the Quran is not concerned with the unique in human events, but with the structure and patterns of social interactions. There is a difference between the generalising focus of the sociology of the Quran and the more specialised focus in the fields of economics, education and politics. Religion is to be well stated when all of the representing different phenomena of life attain the status of sociological specialities and disciplines. They are all absorbed into one totality, for example culture, and represent the one meaning system, for example *Tawheed*. Thus the Quranic sociology, in this totality or oneness, explains the likeness among human groups, whether these groups are political, religious, professional, communal or educational in orientation. Sociology and culturology (the science of culture) of the Quran, in short, is the body of knowledge or wisdom (*hikmah*): about the similarities to be found among various human groups, the patterns of interaction common to different human endeavours. When these endeavours are integrated, they become a way of life. The way of life is culture, called by the Quran as *Din-nul qayyam*, commonly known as Islam.

So set you your face towards the religion of pure Islamic Monotheism Hanifan Allah's Fitrah with which He has created mankind. There is no altering (the laws of) Allah creation. That is the right religion, but most men know not. (30:30)

2.8 Concept of Islamic Information Systems and Empirical Investigation

Many of the empirical studies in SISP were done in the United States, United Kingdom, Australia, and Canada and will be explained later in chapter 4. By contrast, this survey analyses the current state of ISP practice within Muslim Organisations in

Malaysia. It is believed that while this survey is in line with other work, no survey of this specific type has been undertaken before. This survey evaluates the extent of IT usage within the Muslim Organisations in Malaysia at a general level, as well as focusing on specific areas such as Management Support Systems (MSS); IS strategic planning; Stages of IS growth; Islamic perspectives of their managers toward decision making; applications of IIS in their daily operations and strategic alignment of business and IS. Where possible, the results of this survey are compared to surveys that were done and forecasts in those above countries, and differences analysed. The finding of a relationship between the concept of IIS and empirical investigation on the Muslim organisations in Malaysia is explained later in chapter 6.

2.9 Importance of Islamic Information Systems Planning (ISP)

In recent years an increasing amount of attention has been paid to effective strategic planning for IS in many organisations in Malaysia. With the growth of many Muslim organisations such as *Hajj* Management and Fund Board (LUTH), *Zakat* Collection Centre (PPZ), Islamic Bank and *Takaful* which definitely required certain SISP with the help of IT. In fact, improved ISP has been viewed as one of the top three issues facing information systems executives throughout the 1980s. This was a consequence of ISP having been identified as vital to continuing organisational success and effective information systems performance. In fact, more specifically, the importance of ISP is enhanced by a variety of driving forces based on:⁴⁵

⁴⁵ Niederman(1991)pp. 475-500

- Turbulent Business Environment
- Rapid Progress of Information Technology and Management
- Impact on Business Goals
- Need to Integrate Systems
- Planning as a Drain on resources

2.9.1 Turbulent Business in Islamic Environment

The main purpose of setting up business organisations in an Islamic environment is not only to gain higher profit but to obtain wisdom from Allah for the benefit of the *ummah*. So that these organisations could pay bigger amount of *zakat* properties which will then be distributed to the *asnaf*. Many Muslim organisations in Malaysia like Islamic bank, *Hajj* Management and Fund Board (LUTH) and Tenaga Nasional Berhad (Electricity company) have started to pay annually their *zakat* after deducting profit.

As one of the findings in the Management in the 1990s Research Program revealed, there is no reason to believe that there will be a reduction in the rate of change in technology, economic systems, and business methods, or in the growth of competition. In fact, the rate of change in many of these factors is likely to increase. As a result, organisations have begun to look to innovation as a way of coping with it. Since the establishments of new Islamic organisations growth are so fast in Malaysia,

the use of IS in many organisations has been seen as a strategic necessity for survival in the increasingly turbulent toward business environment.

2.9.2 Rapid Progress of IT in Islamic Management

There have been tremendous improvements to computer hardware and software in Muslim organisations in Malaysia and require a proper Islamic Management Information Systems in the 1990s. These organisations include for example the *Takaful* and *Zakat* Collection Centre that involves installing at least the minicomputer range. These organisations have found it necessary to use the opportunities derived from the rapid progress in computer and telecommunications facilities provided by the Syarikat Telekom Malaysia (STM) and MIMOS and the increasing application of these facilities to maintain their competitive edge. However, as a wide range of new opportunities becomes apparent, it becomes more difficult to match the operational, managerial, and strategic needs of the business with appropriate systems activities.

2.9.3 Impact of Muslim Organisations on Business Goals

Information systems are an integral element of organisations. This is because they play two fundamental roles in organisations. They provide internal support to almost all organisations and may also provide strategic advantages to firms as they meet competition in the marketplace. In other words, many Muslim organisations in

Malaysia have applied information systems to achieve basic corporate goals in addition to providing efficiency improvements in day to day operations.

2.9.4 Need to Integrate Islamic Information Systems.

With the increase in the size and complexity of IS applications, it becomes important to avoid the proliferation of incompatible systems, and to design databases to support a wide variety of applications. There is a need to integrate IIS through out the whole country in Malaysia. For example in the application of Islamic banking systems, Islamic insurance, collection of *zakat* and management of *hajj*'s fund. Given the long developmental lead time of many IS applications a long-term view of the evolution of applications is vital. However, within the ever-changing environment, ISP must also be flexible and responsive to change.

2.9.5 Planning as a Drain on *Ummah*

Planning is often considered to be a drain on resources, since it is costly and time-consuming, and requires the attention and commitment of managers at all levels. However, failure to use resources effectively and efficiently may be even more costly if poor planning and not only wastes resources but also significantly impairs confidence in the use of IS. Effective and efficient planning is therefore essential.

Furthermore, a wide variety of factors have served to change the role of IS and the IS function in organisations in recent years, including the use of IS for competitive

advantage, the pervasiveness of IT in organisations, the critical dependence of organisations on IS for their daily operations, the growth in inter-organisational systems, and the integration of telecommunications within IS operations. These changes mean that the SP of IS is increasingly necessary to the effective management of IS and other resources in this complex and dynamic environment.

2.10 Evolution of Information Systems Planning (ISP)

Ward (1987) suggests that the evolution of ISP can be seen as consisting of three eras: the data processing (DP) era, the management information systems (MIS) era, and the strategic information systems (SIS) era.⁴⁶

2.10.1 The Data Processing (DP) Era

During the DP era, from the 1960s onwards, ISP was primarily concerned with gaining computer processing efficiency, handling the most data in the least amount of time. Data processing budgets were usually part of several business overheads. Most application systems were developed in a piecemeal way in this era and information systems were seen as being a matter isolated from the continuing business of the organisation.⁴⁷ There was no direct link between the business strategy and the IS strategy. From the strategy point of view, ISP in this era may be labelled as 'pre-planning'.

⁴⁶ Ward, J.M(1987), pp. 19-29

⁴⁷ Galliers(1991) pp.55-64

2.10.2 The Management Information Systems (MIS) Era

From the 1970s onwards, computer applications moved from a transaction-based batch processing environment to an interactive environment in which emphasis was placed on day-to-day business operations and short-term tactical needs. During the MIS era, there was growing concern on the part of management to have business-driven IS, capable of dealing with the business problems or issues they faced. Systems planning was directed toward the integration of systems and compatibility of hardware and software.⁴⁸ Systems planning aimed at defining the information architecture for the whole organisation. Typical ISP approaches applied in this era include BSP⁴⁹ and CSF.⁵⁰ From the strategic point of view, ISP in this era may be labelled as 'linked planning' in the sense that the linkage is unidirectional and this kind of ISP approach as reactive to strategies and derived from them.

2.10.3 The Strategic Information Systems (SIS) Era

The increasing use of databases and distributed systems and the advancement of telecommunications technology led to the emergence of the SIS era in the 1980s. IR and IT became an increasingly important component of corporate strategy, The use of IS began to influence organisations' competitive positions and become a strategic weapon.⁵¹ The focus of ISP is on the ways in which the firm's strategic objectives can

⁴⁸ King, W.R(1983) pp. 263-277

⁴⁹ IBM(1975) GE20-0527-4

⁵⁰ Rokart(1979)pp. 81-93

⁵¹ Wiseman(1988)pp. 9-16, King, W.R(1988)pp. 103-112, Ward, J.M(1987)pp.19-29

make use of the technology. For the effective exploitation of IT, several planning methodologies were proposed, such as Value Chain Analysis by Porter and Millar in 1985, and the Strategic Thrusts Model by Rackoff in 1985. Since in this era IS strategy is not just derived from corporate strategy but becomes a part of the business strategy, ISP may be labelled as 'integrated planning' in the sense that the linkage is bi-directional (Earl 1989, Galliers 1991 and King 1991).

2.11 Conclusion

There is an information system in Islam between information or knowledge with belief; oneness of God; consciousness of God, divine essence and religion. The concept was derived from Al Quran, Hadith and Muslim scholars such as Al Farabi (d. 950), and Imam Ghazali (d. 1111). The scope of this concept mainly covers the relationship between those attributes and connection to the human body within the aspect of the heart and doing good deeds. The four principles in information or knowledge are oneness of God, divine essence, ethics and *shariah*. They are not exactly one and the same thing and yet they are not completely different from each other. The combination of the four principles is known as religion.

The formal religion, according to Abdul Ali consists in performing the formal acts of the religion without abiding by its reaching in the practical life and therefore it does not produce any big results in the life of Muslims.⁵² The true religion of Islam, if

⁵² Abdul Ali(1979), p. 185

implemented in both letter and spirit, enables Muslims to make all possible sacrifices in the path of God and ensures full efflorescence of all the creative faculties the human has been endowed with.

When people obtain information and knowledge, they can utilise it as power which will bring wisdom to humankind. This will only be successful if people could get the right knowledge, and supply it to the right people at the right time. With the right knowledge, it will lead to the increase of faith, consciousness and oneness of God. Misuse of power will be avoided when people realise the accountability and responsibility they have to perform to humankind and God with the proper knowledge they have received. Humans would not come across white collar criminals, cheating in the IT application if the IS available nowadays is correct since IIS should lead people to feel *taqwa*, obtain faith and realise their accountability to God in the hereafter.

With the emergence of SISP, the definition of ISP in IIS is moving away from a narrow compass towards a broader one where the objective is not only to gain power and knowledge but also wisdom for the benefits of the organisations. The scope of ISP is not limited to dealing with technical problems. Rather, it needs to address the IS related problems from a socio-technical point of view. The focus of ISP is no longer on the methodology only, but in fact the multi-dimensional nature of ISP which comprises context; method; process; inputs; outputs; implementation and outcomes

must now be considered as a global issue. In short, ISP is becoming an integrated planning process.

As ISP has evolved, the style of ISP has changed from **'pre-planning'** through **'linked planning'** then towards **'integrated planning'**. Viewing ISP as something which needs to be linked to business plans may not be enough for pursuing IS strategic advantages. Organisations need to view ISP as a key dimension of business plans.⁵³ In this way, ISP becomes an integral part of business plans and a sense of partnership between top management, user managers, and IS professionals is established. More importantly, ISP becomes more creative and outward-looking if integrated IS planning is achieved.

The value of information is dependent upon the way in which managers perceive and use it. The strategic use of information systems cannot be achieved unless a process of organisational change is incorporated effectively into ISP activities. The linkage between ISP and business plans can be improved through the enhancement of communication between the senior management and the IS management. This finding is stated in the survey done in chapter 6. The success of the integration of independent transactions processing systems is built upon integrating successfully different departments with different objectives and perspectives. The capabilities required to match the requirements of IS projects need to be identified effectively within the socio-technical context. The IS department must be in a position to gauge

⁵³ Galliers(1988)pp. 179-206

the organisational direction to assist the organisation in searching for strategic IS opportunities. An effective ISP approach is the one that is adaptable and reflects the incremental view of strategic planning.

The truth is: humans cannot separate IT from Islam. The Muslim *ummah* are the *ummah* to handle and engineer the complexities of IT for it is they who possess the knowledge and truth which is Al Quran. Al Quran has the qualities of accuracy, completeness, relevance as well as being up to date. Al Quran also provides them with the latest information, which will never become outdated; this is because from time to time various new interpretations can be delivered from its contents. It is knowledge-based with an all encompassing knowledge foundation.⁵⁴

⁵⁴ Nordin, F(1994), p. 2

CHAPTER 3

Islamic Information Systems in Malaysia

3.1 Introduction

Malaysia is a multi-ethnic and multi-religious society. This chapter will offer an overview of Malaysia from the aspect of geography, history, government, population, religion, economy, education, history of computing and politics, followed by an explanation of the concept of Islamic Information Systems (IIS), how it was developed, designed, implemented, and the subsystems that were available in the systems.

3.1.1 Location

Located in the tropical countries, Malaysia straddles across the South China Sea. Peninsular Malaysia is at the tip of mainland Southeast Asia while the states of Sabah and Sarawak are on the island of Borneo. Together, these two regions cover an area of about 330,434 square kilometres.¹

3.1.2 History

Because of its strategic position between the Indian Ocean and the South China Sea, Malaysia has long been the meeting place for traders and travellers from the West and East. Hence its history is one of continual interaction with foreign powers and influences. Hindu-Buddhist influence was strong in the centuries

¹ Ministry of Culture, Arts and Tourism(1994) Brochure by Malaysia Tourism Promotional Board.

before the coming of Islam.² By 1400, when the Malacca Sultanate was at the height of its power, Islam had become a major influence. By 1511, however, Malacca had fallen to the Portuguese.³ Meanwhile the Dutch had been establishing their influence and presence in Java. By 1641, the Dutch had also taken over Malacca but they in turn lost it to the British who had slowly been consolidating their hold on the Malay states following Francis Light's arrival in Penang in 1786⁴. In 1815 Malacca was in British hands and in 1819, Stamford Raffles founded Singapore which was formerly known as Singapura or in the Malay language known as Singa meaning Lion⁵. Thereafter, through treaties, relentless political pressure and diplomacy, the British slowly extended their control over all the states of the Malay Peninsula.

Sarawak, once part of the Sultan of Brunei's Empire, was ruled by a British adventurer named James Brooke and his descendants from 1841. In 1888, Sarawak and North Borneo (Sabah) became British protectorates. By the 1920's, all the states that eventually comprised Malaysia were under British control. The first stirrings of Malaysian nationalism were felt in the 1930s and following the end of World War II, the momentum of nationalism picked up again, culminating in independence for the Federation of Malaya in 1957 and the formation of Malaysia in 1963.

3.1.3 Government

Parliamentary democracy based on universal suffrage. Malaysia comprises 13 states (nine of which have hereditary Rulers) and the two Federal territories of

² Roald, A.S(1994) p 218

³ Nakahara (1984) p.6

⁴ Mutalib, H (1990) p. 14

⁵ Roald, A.S(1994) p. 219

Kuala Lumpur and Labuan. The Supreme Head of State is the Yang di-Pertuan Agong (King) who is elected every five years from among the nine Rulers⁶. The Head of Government is the Prime Minister, who must be a member of the Dewan Rakyat (House of Representatives) of Parliament. Parliament itself comprises two Houses: The Dewan Rakyat, which is fully elective, and the Dewan Negara (Senate) to which members are nominated by His Majesty the King.⁷ As Head of Government, The Prime Minister heads the Cabinet, which is made up of the various Ministers of Government. Each of the 13 states of Malaysia also has its own Chief Minister or Menteri Besar, who is also elected to office, and its own State Assembly.

3.1.4 Population

The society of Malaysia is a plural society comprising a multi-lingual, multi-ethnic and multi-religious people. These people have created a new society in which different ethnic groups have blended together to become one people; yet each group has retained its own special uniqueness and individuality which add to the special charm and exotic flavour to this country.⁸

The population of the country in 1992 was 18.6 million comprising Malays, Chinese, Indians, Ibans, Kadazans and other races ⁹. Malay is the national language and English is widely spoken. The Prime Minister pushes his Malaysian Incorporated policy, privatisation, an ethnic of administration through BERSIH,

⁶ Roald, A.S(1994) p.221

⁷ Negata (1984) p. 13

⁸ Craig, J(1979) p. xi

⁹ Malaysia Airlines (1994), p. 18

language and English is widely spoken. The Prime Minister pushes his Malaysian Incorporated policy, privatisation, an ethnic of administration through BERSIH, CEKAP dan AMANAH "clean, efficient and trustworthy", and an increase in the country's population from approximately 15 million in the 1980s to 70 million by the year 2100, the purpose of which is to provide a local market large enough to ensure the success of the heavy industries planned.¹⁰

3.1.5 Religion

Islam is the state religion but there is complete freedom of worship. Other accepted religions practised include Buddhism, Taoism, Hinduism and Christianity. Islam in Malaysia as in other Muslim countries is a complex matter, ranging from syncretistic practices found in some rural areas, to the Islamic concerns of the urban political elite.¹¹

3.1.6 Economy

The Malaysian economy has expanded tremendously with all sectors recording a strong output growth. Since 1987 the manufacturing sector has emerged as the leading economic sector followed by the agricultural and mining sectors. Malaysia is the world's largest exporter of palm oil, natural rubber, tropical timber, and a leading world exporter of cocoa beans and pepper.¹²

¹⁰ Jomo, K.S.(1989), pp. 5-25

¹¹ Roald, A.S(1994), p. 217

¹² Malaysia Airlines (1994), p. 19

In October 1983, the government and the private sector acknowledged a new working relationship as the Prime Minister's concept of 'Malaysia Incorporate' was initiated ¹³. Malaysia Incorporated is defined as 'the country as a corporate entity with the government providing a policy framework and necessary back-up services, while the private sector provides the commercial expertise in what is hoped will be a profitable partnership.'¹⁴ Privatisation is thus an integral part of Malaysia's plan to become a newly industrialised economy (NIE) by the year 2020. To reach this goal, the Malaysian government in 1991 implemented a 6-year plan which outlines 'Vision 2020'. Vision 2020 spells out concrete steps by which to realise full industrialisation by 2020.¹⁵

3.1.7 Education

All schools in Malaysia follow a common curriculum and syllabus in order to develop a common identity and outlook among students of different backgrounds and to promote national integration. The medium of instruction in all schools is Bahasa Malaysia with English as the compulsory second language. The Malaysian education system comprises a comprehensive range of institutions including secondary and vocational schools, three polytechnics, teacher training colleges, institutes of technology and universities. Some institutions of higher learning are private and some are semi-government. There are seven universities in Malaysia known as University of Malaya (UM), National University of Malaysia (UKM) and Putra, University of Malaysia (UPM) which are located at the middle Peninsula of Malaya. In the south near Singapore, there is a University

¹³ Newsweek(1993) Special Advertising Section, pp 1-21

¹⁴ Quek Peck, L(1985) pp. 58-59

of Technology, Malaysia (UTM). In the northern region, there are two universities known as Northern University of Malaysia (UUM) near the border of Thailand and University Science of Malaysia (USM) located in the Prince of Wales Island or famous as Penang Island. There are two universities in East Malaysia, one in Sarawak known as University Malaysia Sarawak (UNIMAS) and the other in Sabah (University of Sabah). Institute Technology MARA (ITM) is the biggest institute of higher learning in Malaysia and having 6,234 staff with 50,000 students in 9 branch campuses located all over Malaysia.

3.2 History of computing

Though the first computer made its appearance in Malaysia just after the Second World War, it was not until 1966 that the first machine was installed. The National Electrical Board (NEB), a government agency, was the pioneer in this field. This was closely followed by the Statistics Department which computerised its data processing work in the following year¹⁶

Since the first installation in 1966, the growth of computers in the public sector has been very rapid. According to the first computer survey carried out in 1980 by the Malaysian Administrative Modernisation and Manpower Planning Unit (MAMPU), the total number of computers in the public sector was 96. Another survey carried out in 1982 showed that the number had increased to 153. The private sector figures were 199 for 1980 and 472 for 1982. It was also noted in the 1982 survey that there were 2,166 units of microcomputers in the country.

¹⁵ Barricella, E(1993) pp. 25-34

The survey and other studies indicated that many computers in the public sector were not fully utilised, although they may have effectively served the needs of user departments. It is for this reason that acquisition of computers for government agencies has always been subjected to co-ordination and review by a high level committee. In 1970, an inter-agency sub-committee was set up for this purpose. The sub-committee was succeeded by the National Automatic Data Processing Council in 1973. In 1978, the work was handed over to the Automatic Data Processing Committee. In 1985, the co-ordinating and reviewing functions were taken over by National Data Processing Committee (NDPC) headed by a Minister in the Prime Minister's Department. The main function of the various committees, except NDPC, was to evaluate proposals for acquisition of computers by government agencies. The circulars which established these committees stipulated the powers of these committees in addition to providing principles and guidelines to be followed in the acquisition of computing equipment.

3.2.1 Hardware and software

Almost all the main computer manufacturers are represented in Malaysia. IBM, ICL, Digital, Data General, NCR, Sperry, HP, NEC, Fujitsu and Hitachi are available in the Malaysian market. Among the Japanese computer manufacturers, NEC seems to be more active in producing minis, micros and personal computers.

3.2.2 Data Communications

The rapid increase in computerisation activities during the 1980s coincided with the high rate of growth in demand for basic telecommunications services such as telephones, telegraph, telex, teletext, auto-teller machine, handset and facsimile. Telecommunications Department was compelled to assign a lower priority to the development of data communication services. Hence during this period, the Department was only able to provide point-to point voice-grade circuit on a lease basis for transmission of computer data at speeds of 1200, 1400, 4800 and 9600 bits per second (bps). The service was first made available in 1973. The quality and speed of data transmission was below the user desired level. Having no other alternatives, leased circuit users grew in number over the years. In 1973 only two data circuits were leased by users. This number increased to 162 in 1980. In 1985, 1,150 data circuits were taken up by users. These circuits were not only between points within the country but also extended overseas.

Data communications such as packet switching known as Malaysian Packed Switched Public Data Network (MAYPAC) were introduced in January 1985. The network was designed for data communication between computers and data terminals within Malaysia and to other countries. It is based on packed switching technology and conforms to the CCITT in particular to the X.25, X.3, X.28, X.29 and X.75 recommendations. MAYPAC is the most reliable of the three data communication services made available by the Malaysian Telecom Company. In late 1985, the network consisted of a network control centre, four concentrators

and three packed switching exchanges. By October 1985, there were seventy subscribers to this network¹⁷.

Malaysian Telecom Company has also launched circuit switching known as MAYCIS and leased lines at the speed of 9600 bps and normally used by companies, governmental departments and higher institutions. The application of e-mail throughout the whole world via Joint Academic and Research Networking Group (JARING) has become popular since 1993 but it is limited to subscribers only.

3.2.3 Telecommunications.

Peninsular Malaysia, Sabah and Sarawak have efficient modern telephone, telefax, Telita Services, telex communications and air mail communications, both internally and with the rest of the world. Telefax service is for transmission of information through facsimile machines. Telita is the Malaysian Interactive Videotex Service for retrieval of information from a host computer or database which is intended to be displayed using current television standards.

Additional expansion occurred in 1989 with Syarikat Telekom Malaysia (STM)'s Telemail, an electronic mail service that allowed subscribers to MAYPAC to send messages via computers throughout Malaysia and to the United States.¹⁸ Projections for the 1990s included the country's third mobile phone service; Digitaline, a high speed lease line for teleconferencing and other services; and the

¹⁷ *ibid*, p 58

¹⁸ *Asiaweek*(1989) pp.57-59

commercialised expansion by 1993 of the Integrated Service Digital Network (ISDN), providing a host of services (telephone, telex, facsimile, etc.) integrated into a single line. By the end of 1991, the number of new telephone lines was expected to increase by 50 percent.¹⁹

3.2.4 Major Information Systems in Malaysia

In Malaysia, it could be said that there are sufficient data to set up an integrated national information systems that would be useful for managers and planners at the national level. In a number of areas, relevant data were collected by the administrators way before the 19th century. The main problem now is to convert these data into computer readable form and at the same time to ensure that the newly generated data are captured automatically. The conversion process is time consuming. For at least one department, it meant fifteen years of work.

It is perhaps worthwhile to describe some of the existing information systems. Some of these could be said to be national information systems because of the functions they are performing. For the others, data that had been collected in one agency, form part of a type of information system at national level. Together with other agencies that collect similar data, they could become a national level information system in due course. Examples of information systems available in Malaysia are from the Statistics Department; Integrated Development Project Information System known as SETIA initiated in 1976 by the Economic Planning Unit (EPU) of the Prime Minister's Department; Chief Executives' Management

¹⁹ Lent, J.A(1991), pp 17-50

Information System (SMPKE); Land Data Base System launched in 1984 to record land ownership's, taxes and land use; Company Information Systems under the Ministry of Trade and Industry which maintains records of all companies registered with the Ministry; Income Tax System, Government Accounting System, Central Record System for the record of governments staff, Agriculture Information System, National Registration System that maintains basic personal information of all persons born in the country and applications for identity cards; Immigration Department Systems and lastly I will explain in detail the Islamic Information Systems (SISMI) in the Department of Islamic Development of Malaysia (JAKIM), Prime Minister's Department where the researcher was involved as a member of the technical committee and also of the working committee from 1985 till 1993.²⁰

3.2.5 National Policy on Computing

With the ever increasing number of manual tasks being taken over by the computers, issues pertaining to the national policy for the application of computer technology have become important. Three main issues have to be resolved to ensure the smooth flow of data and information within the government agencies. These are:-

1. Management of electronic data processing
2. Compatibility between systems
3. Guidelines for setting up Computer units

²⁰ Samat, I (1989) SISMI Conference , Malaysia, Oct 89

Information technologies peripherals represent substantial investment and commitment by the government. The extent and effectiveness of their use is therefore of prime concern to the government. The necessity to exercise co-ordination and control over computerisation activities through a central committee was realised in 1970. This was done through a directive issued by the Chief Secretary-General, on acquisition of computers for government agencies. The directive stipulated that acquisition of computers for government agencies would have to be co-ordinated by an inter-agency Sub-Committee on Automatic Data Processing and Development Administration. With the setting up of a National Automatic Data Processing Advisory Council, all statutory bodies were placed under central control. However, the Council was subsequently replaced by the Automatic Data Processing Committee (ADPC) which was put into effect by the Chief Secretary General's directive through General Circular No. 1 of 1976. Together with this circular is the Treasury Circular No 8 of 1976, which prescribes procedures and guidelines for making applications for electronic data processing systems.

The terms of reference for the Automatic Data Processing Committee were to:-

1. Serve the government as a source of advice on issues pertaining to automatic data processing.
2. Review, formulate and recommend national goals, priorities, policies and plans in the fields of automatic data processing having government-wide impact.

3. Serve as the review authority for all proposals to introduce or enhance general purpose automatic data processing systems and make recommendations to the Treasury and Public Services Department(PSD).
4. Assist in inter-agency co-operation on automatic data processing matters; including time-sharing of computer facilities, co-ordinating efforts to avoid overlaps and duplication and to promote maximum progress and standardisation.

In January, 1985 the National Automatic Data Processing Committee(NADPC) was established to take over the work of the Automatic Data Processing Committee. This was done through the Chief Secretary-General (SG)'s directive in General Circular No 1 of 1985. Unlike its predecessors, NADPC chaired by the Minister in the Prime Minister's Department. Its members are among others, the Chief SG, Director-General of Public Services Department (PSD), SG of the Treasury, SG of the Ministry of Education, Directors-General of Telecommunications, Economy Planning Unit (EPU), Implementation and Co-ordination Unit (ICU) and the SG of the Ministry of Science and Technology. The secretariat of the committee is at MAMPU. The terms of reference of the NADPC were to:-

1. Formulate a national computer policy that enables the advancement, co-ordination and control of the usage of computer technology in the most effective way for modernisation of management and national development.
2. Determine guidelines for acquisition and usage of computers in the public sector.

3. Encourage, advance and simplify the establishment and growth of an indigenous computer industry.
4. Promote professionalism in the field of training and usage of computers in the country.
5. Encourage research and organise activities in the fields related to information technology and information services.

With this directive, all matters related to electronic data processing in the government require the approval of NADPC. These include:-

1. Acquisition of Electronic Data Processing (EDP) equipment.
2. Upgrading of existing EDP equipment.
3. Replacement of existing EDP peripherals.
4. Acquisition of software.
5. Procurement of consultancy services for studies, development, design and implementation of computerised systems.
6. Acquiring data processing services from EDP service bureau or using facilities that are available in other government agencies.
7. Other aspects in the advancement of computer technology and IT usage that arise from time to time.

NADPC is assisted by three technical committees looking after three different areas of interest; namely computer acquisition, technical operations, training and education. Under the existing regulations, acquisition of computer systems by federal, state or even local government agencies, higher institutions, is subject to

relevant financial procedures issued by the government from time to time. Tenders have to be called after the tender document has been vetted by MAMPU or the respective department's steering committee. After tender proposals have been received, two technical committees have to be set up, one to evaluate the technical aspects and the other committee to evaluate the financial aspects of the proposal. Recommendations of the two committees then have to be tabled before the Tender Board for the final decision. The above procedure apply both to acquisition of hardware and software.

Choice of applications is determined by the respective agencies concerned. In the absence of formal guidelines, certain priorities are already made known to the various agencies wanting to use computers. Agencies that are given priority include those that collect revenue for the government such as the Department of Inland Revenue and the Customs and Excise Department. Educational institutions are also high on the priority list.

3.2.6 Technology Transfer

The use of new technology for the collection, storage and dissemination of information is profoundly affecting all aspects of information transfer in the industrialised world. This new technology is essentially based on advances in two interrelated fields. On the other hand, developments in microprocessor technology have brought about large scale reductions in the physical size of computers, whilst at the same time they have also increased their reliability and speed by several orders of magnitude. Mass production of chips in South East

Asia caused dramatic reductions in cost, resulting in a marked improvement in the processing capacity available for unit cost²¹

The use of computers has expanded rapidly in the last few years in Malaysia. Advances in IT, coupled with the increasing demand for computerisation, have created a need for more computer and information technologies. The need for more technical expertise can be met through transfer of technology to Malaysia.

As a developing country, however, Malaysia is finding it difficult to acquire the state of the art in IT. Not only is the knowledge 'expensive' due to the high level of technology and competition among multinational electronic giants, but also because of extensive requirements. Nonetheless, Malaysia has made a start with the establishment of MIMOS (The Malaysian Institute of Micro Electronics System). Research and training in the field of computer and electronic have been carried out by MIMOS with the collaboration of four local universities. UTM, UKM, USM, and UPM have signed notes of understanding relating to research and training with MIMOS. At this stage, it is still too early to evaluate the success of this effort. Progress is slow due to difficulties in acquiring 'tools' required for research and training. There is no problem in acquiring computer equipment for this purpose, but the software and special equipment/peripherals needed require clearance from the higher authorities in the exporting countries. For at least one country, the clearance is required from the Prime Minister's Office. The process of acquisition of tools takes time and effort.

²¹ Thorpe, P(1984)pp. 213-220

The government policy for modern IT in management has been strongly supported by international agencies. UNDP, UNESCO, ESCAP and The World Bank are a few of these agencies, providing Malaysia with financial support for such projects. The World Bank has approved projects involving purchase of computing equipment for administration and education. UNESCO, ESCAP and UNDP have provided consultants to the Ministry of Education, INTAN, EPU, SOCSO and ICU of the Prime Minister's Department. Malaysia has in fact made substantial use of resources available through this channel to ensure proper growth in the usage of IT in government agencies.

The Governments of Japan and Malaysia signed a memorandum in November 1985 for implementation of the National Computer Institute (NCI) Project for training skilled technical, professional, and managerial manpower in IT. This technical co-operation program consists of three basic components:-

1. Provide technical training in Japan
2. Provision of Japanese experts
3. Provision of peripherals and materials.

These three components of technical co-operation can be implemented independently. For better co-ordination and effectiveness, they are combined into a project type technical co-operation. The objective of this project is to facilitate transfer of IT to Malaysia. The recipient country provides land, building, other facilities, etc., which will serve as the project base as well as local personnel, who

will work as a counterpart personnel with Japanese experts. Operational expenses are also borne by the recipient country.

With the 'look east policy' introduced by Dr Mahathir Mohamad, the Malaysian Prime Minister, under the NCI project the Government of Japan through Japanese International Co-operating Agency (JICA) had,

1. Dispatched experts in the fields of Computer Languages and Operating Systems, Data Base, Data Communication System, System Analysis and Design and Management who have provided training of trainers, advice on usage of computers, advice on NCI management policy, such as course scheduling and evaluation.
2. Provide equipment and materials necessary for implementation of the project on computer and peripheral equipment and also software.
3. Receive Malaysian personnel connected with the NCI project for technical training in Japan.

Many Muslim organisations have started using IT facilities, such as computers, networking, e-mail, office automation and also robotics. How much money has been invested, and do they fully utilise the services that should be obtained from the IT applications? Will it help them in their strategic planning to achieve their organisation's objectives or goals in order to satisfy customer needs and to increase their profit? A few Muslim Malaysian organisations, for example the *Hajj* Management and Fund Board (LUTH), Permodalan Nasional Berhad

(PNB), Bank Islam, *Takaful* and *Zakat* Collection Centre(PPZ) are currently using mainframe computers having networks all over the country, and to some extent, with Jeddah in Saudi Arabia.

3.3 Concept of Islamic Information Systems (IIS) in Malaysia

The concept of Islamic Information Systems (IIS) as a monitoring and control system for the management of Islamic information in this country was first mooted in 1984 following the conference held in the Institute Technology MARA under the title "Islamic Information Systems" and recommended by one of the speakers to establish IIS Centre in Malaysia ²².

Information services provided by the IIS Division are through the leased line. IIS is the Information System concerned with Muslim activities involved in any Islamic affairs for the purpose of management and administration. For example, in collection and distribution of tithes, marriage registration systems, registration on *waqf* land, directory and activities on mosques, list of *fatwa*, calculation on *faraid* and *hajj* management systems. There is a unit called 'Sistem Maklumat Islam' (SISMI) or IIS Division in JAKIM, engaged in the process of Islamic information for strategic purposes. Information on Muslims is collected from each state and centrally processed²³ This is updated and validated in JAKIM, Kuala Lumpur.

²² Samat, I (1984), Seminar Sistem Maklumat Islam, ITM, Malaysia.

²³ Samat, I (1992), pp.23-27

Throughout Malaysia, Islamic Information Services are operating via the national network. Information concerning all the Muslim activities involved in Islam for the purpose of management and administration are stored in the PC computer server. The information is monitored by the IIS Division (SISMI) in JAKIM, Kuala Lumpur. Accessing to the database at the host is via the leased line. The services that are provided by this division include information concerning Quran, Hadith, tithes, marriage and divorce registration, *waqf*, mosques activities, *fatwa*, welfare and educational activities. There are many more subsystems at the developmental stage which are to be implemented soon. Retrieval as far as 500 km from Kuala Lumpur can be done on line. Data input is done by decentralisation down to the 14 states, but the processing of data takes place in Kuala Lumpur centrally. Information is being used by the Islamic Religious Departments (IRD) to provide better counter services, future strategic planning and for statistical analysis. A Local Area Network in the IIS Division (SISMI) is now being upgraded to a better service with the new installation of a minicomputer which will link to the other States Local Area Network in the IRD. Problems that have arisen during the implementation of this information services are:

- 1) the process of computing the up-to-date data from each state;
- 2) inconsistency of format in designing the form for data capturing, because every state has different requirements,
- 3) networking will be slow because of many to one structure and
- 4) requiring a big storage to store all of the Muslim database (around 12 million in population) into a master file.

Hajj Information Systems was established by the mid of the nineteen seventies and was running on HP mainframe computers. Networking among the branches started in the late eighties. By the end of 1990, not only was the local area network implemented, networking up to Jeddah was implemented to support customers during *Hajj* season, and for management purposes. It is now possible for the Muslims who have invested their money into LUTH to withdraw money from the *Hajj* Management Fund Board (LUTH) in Jeddah while doing Umrah or *Hajj*, since the availability of networking from Jeddah to Kuala Lumpur was installed in 1994.

IIS at JAKIM started in 1985, after a Minister in the Prime Minister's Department suggested a steering committee should be formed to gather all the information concerning Muslim activities in Malaysia. A working committee comprised of Information System personnel from the Prime Minister's Department and MARA Institute of Technology (ITM) was invited to launch the information systems, whilst the officer from the Islamic Research Division acted as secretary.

With the establishment of the IIS Division in JAKIM, Kuala Lumpur, decision making on whether to build, to extend, or to renovate a mosque in a *qariah* could be made more quickly because a database on all mosque activities is available in the Mosque Information Systems in SISMI.

3.4 Methodology

Information is gathered by the officers from each state who fill in specific forms which have to be keyed in directly into the computer and sent to the IIS Division in JAKIM for processing. Validation is done at each individual state on a decentralised concept and sent to the IIS Division in JAKIM for processing, before it is allowed to be retrieved by the users. The forms were designed after having a small workshop according to certain types of application and attended by the subject specialists on that application. Normally a workshop will last about three days between the users and the systems people and users from all the States will propose the fields that are required for system development and also the output design on the screen and paper.

3.5 Development of Islamic Information Systems (IIS)

3.5.1 Introduction

The IIS software is a combination of programmes that compile, arrange and process all data concerning Muslim affairs in Malaysia. The data that has been keyed in into the computer to produce various types of information in a desired format or report will be used for Islamic administrative matters. The data on Muslim affairs pertaining to Muslim individuals or groups dealing with the State Islamic Council or the State Islamic Department or related agencies will be collected and processed by the computer. The information can either be seen on the screen or in printed form.

3.5.2 Overview of systems development

With the help of students from ITM, who did their practical training for six months at JAKIM, Kuala Lumpur, some application systems were developed by using Dbase 3+ and Clipper; STAIRS and EPRDB4 as a pilot test. These applications are related to mosques, *fatwa*, *baitulmal* (welfare), *zakat*, converts and *da'wah* groups running on microcomputer. Al Quran and Hadith translations in Malay are using STAIRS and EPRBD4 on the IBM mainframe. The purpose of doing this is to run a pilot test first on a PC base in the aspect of logic, design and the output product. A ready software package will be evaluated by technical experts from other organisations. After getting approval for the enhancement of the application software, the software is circulated to each state and data entry can start as soon as possible. For the time being, a new version based on the PC designed above is tested. When completed, the data from the PC will be uploaded into ASCII form to the new software in the mainframe. The objective of this new version is as a back-up to a PC base.

Some of the information was only needed by the States and not by JAKIM. JAKIM in Kuala Lumpur only needed specific information to retain certain fields for strategic purposes but States normally require information in detail for operating and management. Some States because their stable economy demanded high-speed retrieval systems preferred therefore to use their own sophisticated PC based version. For example the sub-system of the mosque on the PC version will gather all the information concerning history, activities, mosque's committees

and fund collection while the IIS Division in JAKIM, Kuala Lumpur required only data on the statistical form.

The applications were available by 1990 through LAN in JAKIM, and leased lines to the Ministers office in Kuala Lumpur. In December 1991, a pilot project for a Wide Area Network (WAN) was held in Malacca and Shah Alam by using leased lines. By the end of 1993, all the states had direct access to the databases available from the Islamic Centre, Kuala Lumpur.

3.5.3 Planning

Having created the SISMI database, the next step was to make better facilities available to 14 religious departments in Malaysia. These facilities are accessible to SISMI data base, which will enable the agencies to obtain and update the information by themselves. Consistent with the objective of SISMI to provide information to the agencies, the Working Committee provides a query program for access to the data base. With these facilities, all the agencies involved in Islamic Affairs will be able to obtain information on their own information systems and prepare their own reports as necessary for decision-making.

3.5.4 Hardware requirements

The hardware, IBM 3090 on which the SISMI data base is being implemented was already available in the SMPKE. There was an agreement between JAKIM and SMPKE to share the hardware at the initial stage until JAKIM could manage on its own staff.

3.5.5 Systems design

The concept of database management and the operating system was based on a client server. All the terminals or PCs and printers from all over the states in Malaysia have been connected directly through JARING to JAKIM. Data Base Management Systems is using RDBMS on INGRESS 6.4 VisionPro that comprises INGRES Base, INGRES Development Tools, INGRES VisionPro Development Tools and INGRES Runtime. The operating systems runs on UNIX version 4.1.3 for multi users environment.

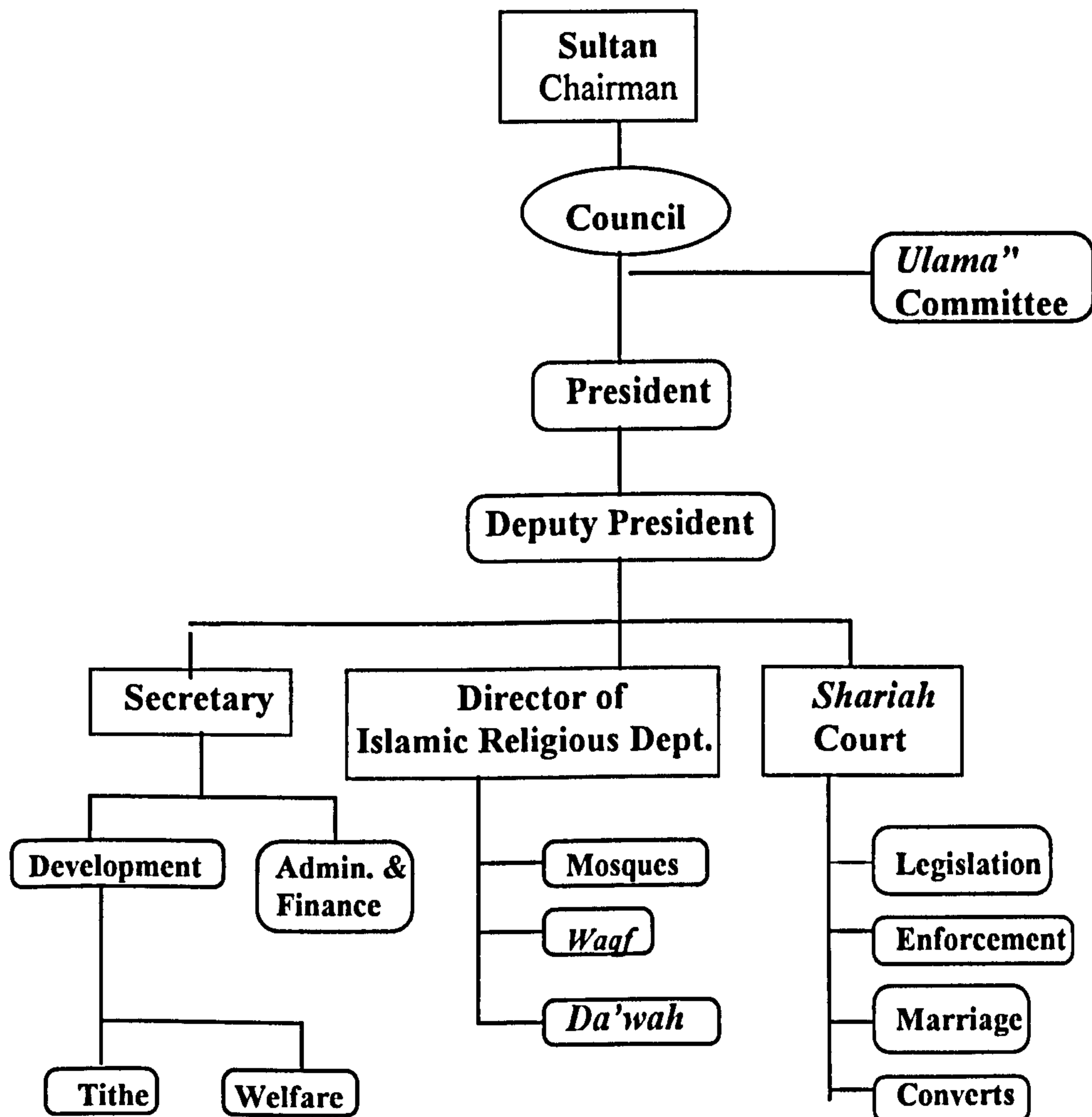
3.6 Islamic Information Systems Management

3.6.1 Introduction

Implementation of IIS by the Malaysian government at JAKIM, was an operational system and was a product of complicated communication systems in relation to Islam; management and administration at the State's Religious Departments; and any activities which are related to Muslims in Malaysia.

In this section, the discussion will be based on the management of IIS at the present situation and for the future. The administration of IRD is done separately by each individual State and normally chaired by the King known also as the Sultan. Every State has its own *mufti* and administrative staff that are managed by a director of IRD. See Figure 5 for the organisational chart as an example of one state in Malaysia known as Kelantan.

Figure 5: Organisation Chart for Islamic Centre in Kelantan



Sources: Islamic Economy and Resources Development Committee Report, Prime Minister's Department, Kuala Lumpur, 1991, Table 44

Every State might have a different *fatwa* on certain cases but normally all have to be based on the Quran and the Sunnah. Recently, with the establishment of IIS at JAKIM, Kuala Lumpur, all states have started having a close co-operation when it comes to the exchange of information, and they have started to appreciate the importance of information. There are some difficulties in computerising the sub-

systems from each state, because of different field requirements. For example, the Islamic Religious Department in Penang (Prince Of Wales Island) wanted the result of all the *fatwas* to be in the form of the whole text, but another state only wanted to know the result produced by the *Fatwa* committee and a list of the members in that committee. The inconsistency of this field requirements from different states has to be amended first, before the design of the systems can start.

3.6.2 Concept of Islamic Information Systems (IIS) Management

Information is based on data, text, image and voice. There are problems in the utilisation of information such as irrelevant, unselected, low precision and recall, no information gathered, unable to access and so on. All these can be overcome if management on the information is done correctly. The problems related to the management information systems are :

- a) No integration between systems which will create duplication.
- b) Ineffective and unsatisfied in the procedure of data collection or data gathering which will produce error or out of date output.
- c) inefficient storage and retrieval of information.
- d) No standardised procedures on data management, (See figure 6).

Lack of procedures will produce poor quality output to the users like JAKIM, Islamic Councils and the Universities researchers.

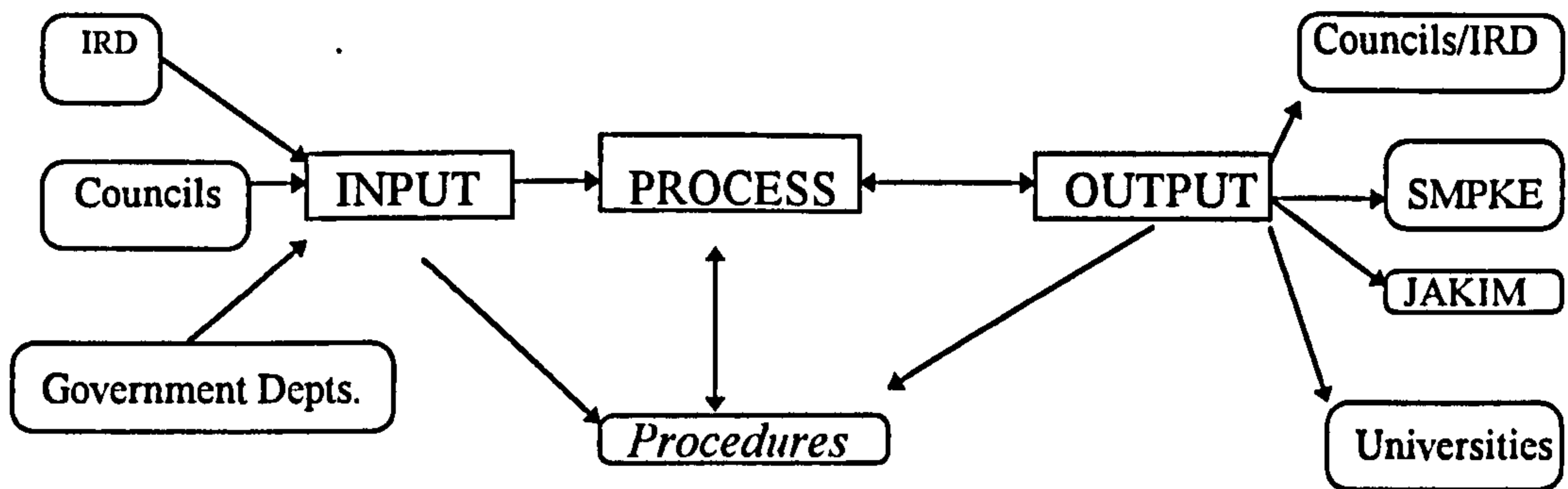


Figure 6: Procedures requirement for Information Systems

The main users of the information are the Directors in JAKIM, or Directors from the IRD in every state, government staff, researchers and the general public. In order to supply information services, there are few steps needed to be followed as in figure: 7

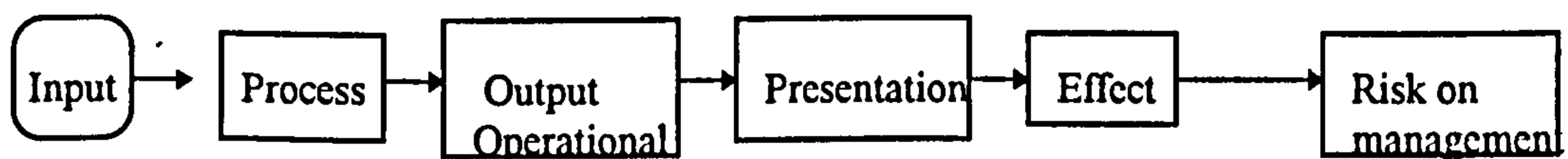


Figure 7: Steps taken for producing information management planning

Source: Lederer, A and Gardiner, V(1992)' The process of Strategic Information Planning' *Journal of Strategic Information Systems*, Vol 1(2), March 1992, p. 77

3.6.3 Implementation of IIS Management in Malaysia

Islamic Information Systems Management in Malaysia which is being implemented in JAKIM can easily be explained under 2 subsystems known as decision and action, (See Figure 8).

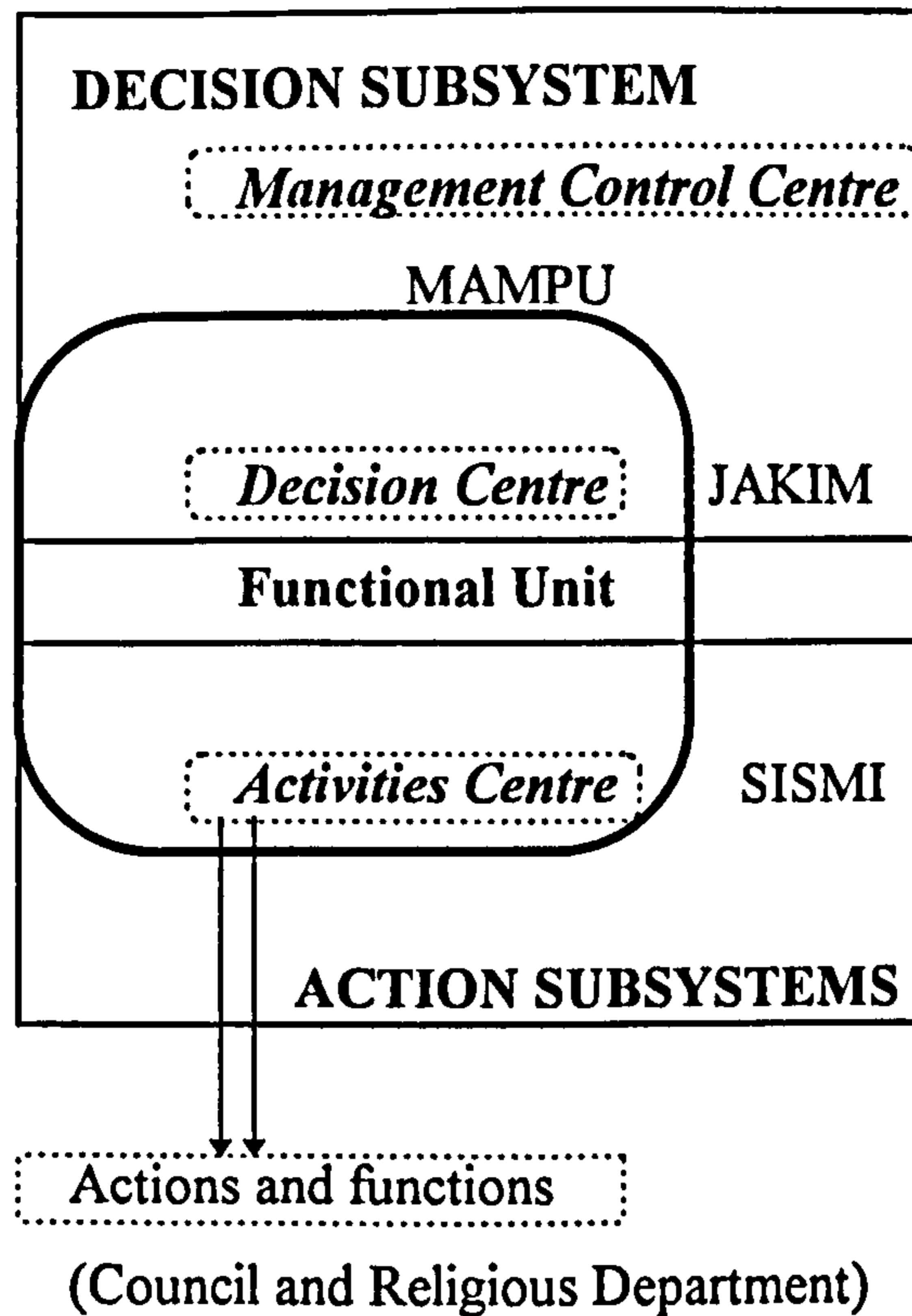


Figure 8 : Islamic Information Systems Management

Source: Modification from Subramaniam, M(1980)' National Health Information Systems' Regional Workshops on National Health Information Systems, Kuala Lumpur, 16-25 June 1980.

Decision Subsystem comprises of the JAKIM that normally decides on the IT facilities that are supposed to be available in JAKIM and MAMPU acting as Management Control Centre. This controls the hardware and software application in government departments and also national computer policy making on behalf of the Malaysian government. The SISMI is under an action subsystem that carry out the information services activities. SISMI not only gives services to JAKIM but also networks to all 14 States which access to the Islamic Councils and Islamic Religious Departments that are operating all over the country.

3.7 Management Information Systems in IIS.

All the subsystems are explained in the list of modules in 2.7.1. This data will first be processed at the State level and only certain information will be sent to JAKIM for decision purposes. For example, States require details of who have paid their *zakat* or the registration's of marriages, but at the National level what they collect is only the statistical data for future projections for decision making or policy making. At the Low Management Level, they produce results from the data collected and also make sure the systems are running properly. This means that IRD in each State has to plan properly to reach their activities performance. At the National level, JAKIM and MAMPU require information for decision and strategic planning, (See Figure 9).

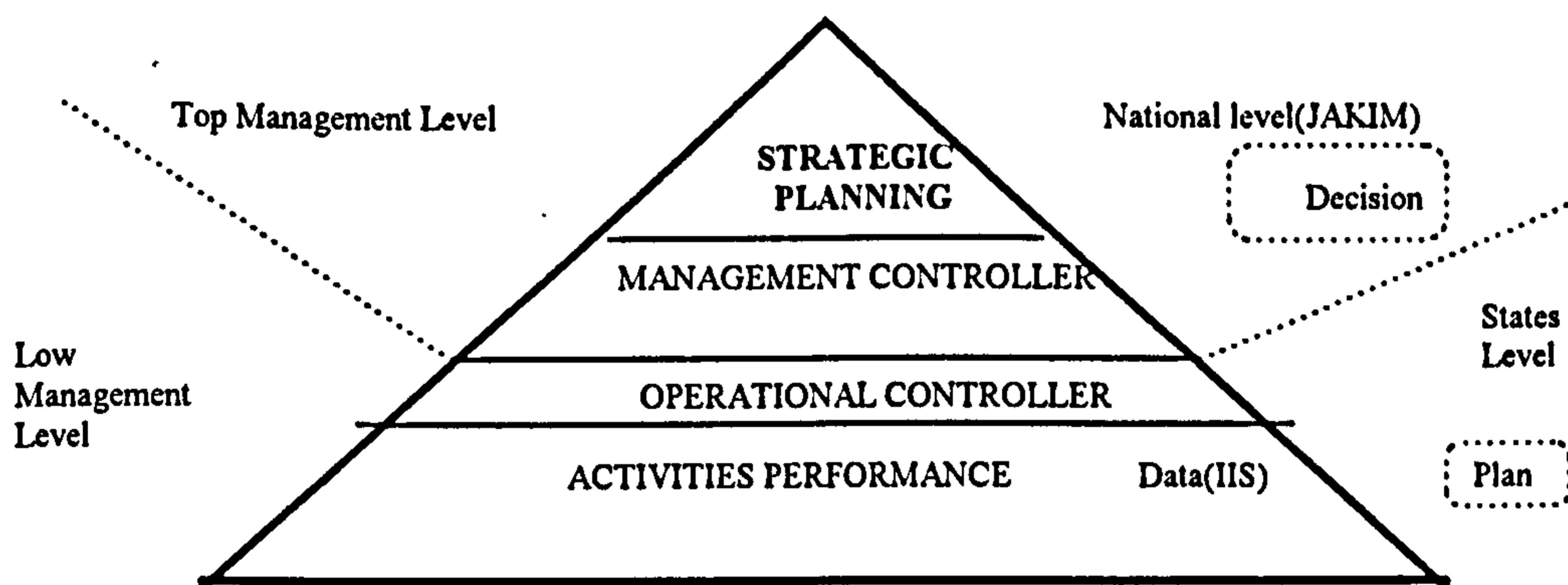


Figure 9 : Management Information Systems in SISMI

Source: Samat, I(1989)' **Pengurusan Sistem Maklumat Islam' Bengkel SISMI IV(Workshop on SISMI IV), Terengganu, Malaysia, 23-24 Sept., 1989**

3.7.1 List of modules

Application systems were developed module by module at the Islamic Information Division in JAKIM. Later, the system designed was based on user requirements after going through several workshops, the software on each module being tested and evaluated by the evaluation committee comprising of computer experts, system analysts and users.

Types of Information Services Available

3.7.1.1 Economy

Information Services provided are based on the information of the *waqf*; welfare; tithe; manufacturing and industry owned by Muslims; and the level of poverty of Muslims in Malaysia between 1987-1993. This information is available to researchers, administrators, entrepreneurs, managers, politicians, bankers and Islamic organisations.

3.7.1.2 Social

Databases available are those recording the registration of new converts, *faraid*, and mosques from 1987 to 1993. Approximate recorded data are about 100,000. This data is being used by IRD, researchers, Welfare Departments and institutes of higher learning. The benefits to the users are to identify the awareness required by converts and to try to solve the problems faced by Muslims in the building property areas. Some of these applications are run on PC's by using Dbase, but some are run on mainframe using EPRDB4.

3.7.1.3 Law (*Shariah*)

Fatwa and Court cases are the two sub-systems provided by the Islamic Information Services. The databases are being used by the IRD, State of *Fatwa* Committees, researchers and the *Shariah* Court. In Malaysia the court that is dealing with Islamic law for the Muslims only is known as the *Shariah* Court, while the court that is handling public cases for both non Muslims and Muslims is known as the Civil Court.

3.7.1.4 *Aqidah*

The database on those who have been charged with misconduct of Islamic religion is available for the years between 1987-1993. Information is available in relation to the types of groups, members, locations and misleading activities or belief. This information is being used by the IRD, Law Committee, Royal Council, Ministry of Internal Affairs, National Civic Bureau, Police, and enquiries from the public. This information, hopefully will help to remedy the problems that could be misleading the *aqidah* of Muslims in Malaysia.

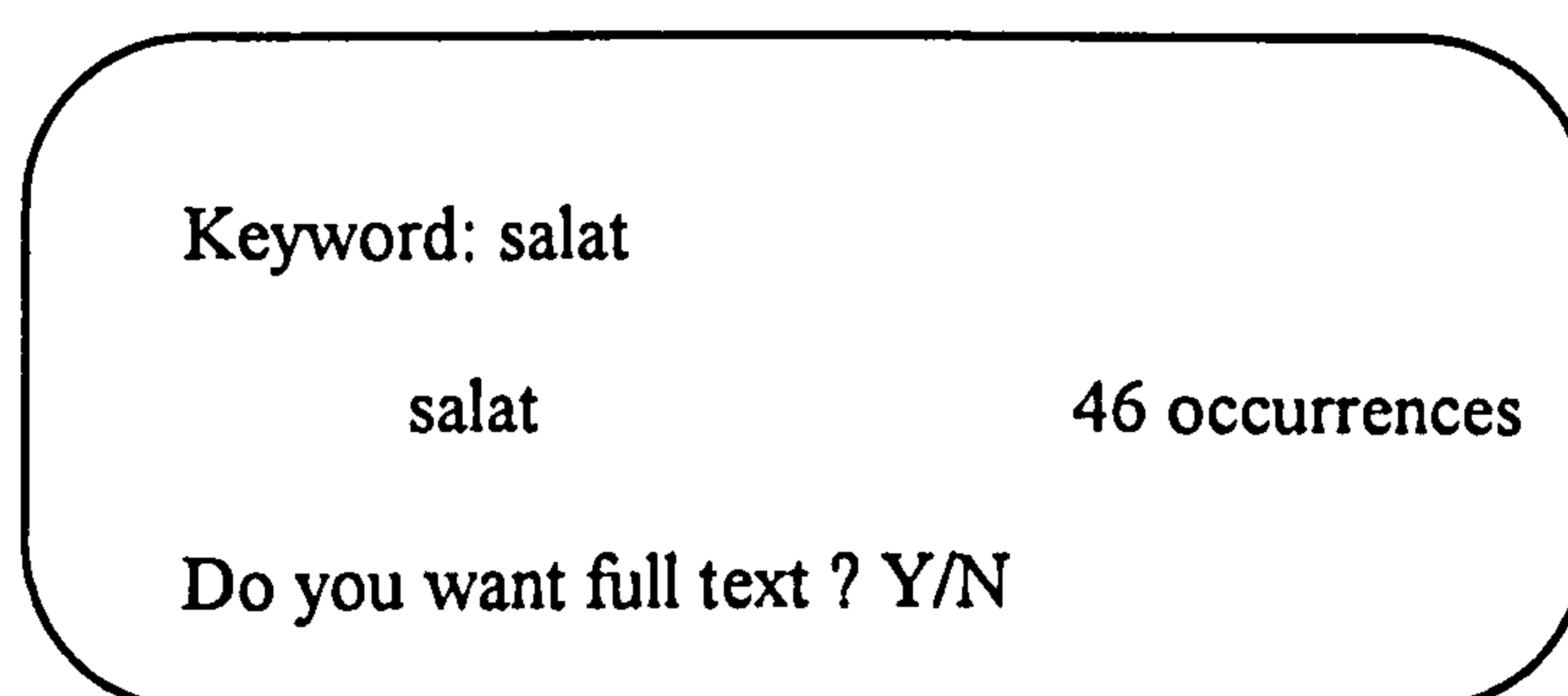
3.7.1.5 Al Quran

All the records from the Al Quran in the Malay language version were keyed into the IBM mainframe by using Storage and Information Retrieval Systems (STAIRS). Users are able to retrieve the number of occurrences on any word from any *surah* in the Al Quran and also to have access to the full text of *ayat* or record from the Quran. The target users are normally the Ministers and all the executive government officers who are holding director posts.

3.7.1.6 Hadith

Hadith Sahih from Buhari & Muslim were keyed in into the IBM mainframe by using STAIRS. Till now only data from volume I to III have been keyed in. The output is similar to the Al Quran version above and used by the same users.

The output of the hadith is either in full text of the Malay Language or just to retrieve the number of the narration available from the system. The output will look like this:



```

Keyword: salat
          salat                46 occurrences
Do you want full text ? Y/N
  
```

Figure 10 :Screen design on the Hadith output

3.7.1.7 Hajj Information Systems

Hajj Information Systems is the system comprising of the database on pilgrimages, lists of members, members account, personal information system and finance. The system is run by the *Hajj* Management and Fund Board(LUTH) that takes care of pilgrims before they go on *Hajj* or *Umra* in Mecca, Saudi Arabia. *Hajj* Information Systems was established by the mid nineteen sixties and was up and running on HP mainframe computers. Networking among the branches

started in the late eighties. By the end of 1990, not only was the local area network implemented, but networking up to Jeddah was implemented to support customers during *Hajj* season, and for management purposes.

3.7.1.8 Marriage Information Services

This refers to the registration of marriages, divorce, *rujuk* and polygamy for Muslims. For the time being it is implemented only in the Kuala Lumpur area as a pilot test before being implemented phase by phase throughout all States. Database records the registration of marriages, history, employment, witness and date of marriage. For example, the divorce system, statistics on the type of divorce and ethnic groups; number of cases involved and reasons to apply for a divorce. The purpose of this information service is for the ease of use by the *Shariah* Court for handling court cases and trying to solve the problems faced by Muslim families.

3.7.1.9 Education

Information Services related to co-ordination of Islamic Educational Schools, either private or government sponsored, School for Memorising Al Quran (*Mahad Tahfiz*), student activities, curriculum development and performance of students. Data were collected from the year 1983 till 1993. The information services are provided for the Ministry of Education, Religious Departments, researchers, higher learning institutions, Welfare Department and *Da'wah* organisations. The purpose of this information service is to co-ordinate and

upgrade Islamic Educational Systems in Malaysia and to identify which specific area might help them by up grading syllabus and activities on Islamic education.

3.7.1.10 *Da'wah*

Databases concerned with *da'wah* organisations, profile of *Ulama'* (saint) and activities of *da'wah* courses. There are around 300 *da'wah* organisations in Malaysia doing several activities. JAKIM is now collecting about 3,000 profiles of *ulama'* (saint) in terms of their history, activities, publications, photos and list of teachers and students involved. The purpose of this is for co-ordinating and up grading the activities of *da'wah* groups and to make sure that the programme of *da'wah* activities is properly planned, arranged and integrated. Another purpose is for the organisers of *da'wah* courses to identify and to solve the problems of up grading teaching or co-ordinating courses among the organisers in between States.

3.7.1.11 Publications

Publications on books, audio visual material and journals which have been published or in the process of being published. This also includes all the translation materials and biodata on the author/translator. The target users are either children, adults or youths. Roughly, there are about 50,000 records which are supposed to be entered into the computer so as to increase the level of quality of reading materials among Muslims. The target period of publications is from the year 1983 to 1993. This information is going to be used by researchers, IRD, Institutes of Higher Learning and Public Libraries. This software is slightly

different from the normal information retrieval packages available in the market because of the different field area, difference in user requirements and in producing the statistics about in which areas or subjects the books or topics should be published. When the biodata on the authors and information concerning the source of publication, IRD can check whether this publication is suitable for reading by the public or to be banned from sale in the market.

3.7.1.12 Working papers on conferences, seminars and workshops

Collections of titles, abstracts, locations and authors of conferences, seminars or workshops related to Muslims from 1973 to 1993. Most of these working papers were not documented properly and duplication of topics occurred several times by different authors. Problems normally happened when a small group of *da'wah* organisation set up a workshop. With this information available, it will make sure that all the materials are properly collected and easily available for future retrieval.

3.7.1.13 Administration and Management

Information on officers, parliamentary questions, inventory of stocks and CV's on *Amil* (person who collected tithes), which mean around 10,000 of them in the whole country. The information is used by the JAKIM and the IRD. With this information, co-ordination and quality of Management and Administration in Islamic Affairs will be improved.

3.7.1.14 Mosque Information Systems

Perhaps the central institutions in any Muslim community regardless of time, location or circumstance are the mosque and the family. The multi-functional nature of the mosque in the early Muslim community in particular is well-known. The first thing that Prophet Mohammed (pbuh) did, on arriving at Madina was to start the building of a mosque.²⁴ The collection of data concerning mosques in Malaysia took nearly two years. There are around 5,500 mosques that are legally registered under the Islamic Religious Department. Fields on the name of mosques, activities, financial account and mosque committees are required by each state for administrative purposes.

All the above sub-systems are implemented on a PC base except for Information systems related on Al Quran, Hadith, Tithe (*Zakat*), *Hajj*, Mosque and Marriage which are processed on mainframe either IBM, HP or ICL.

3.8 Networking

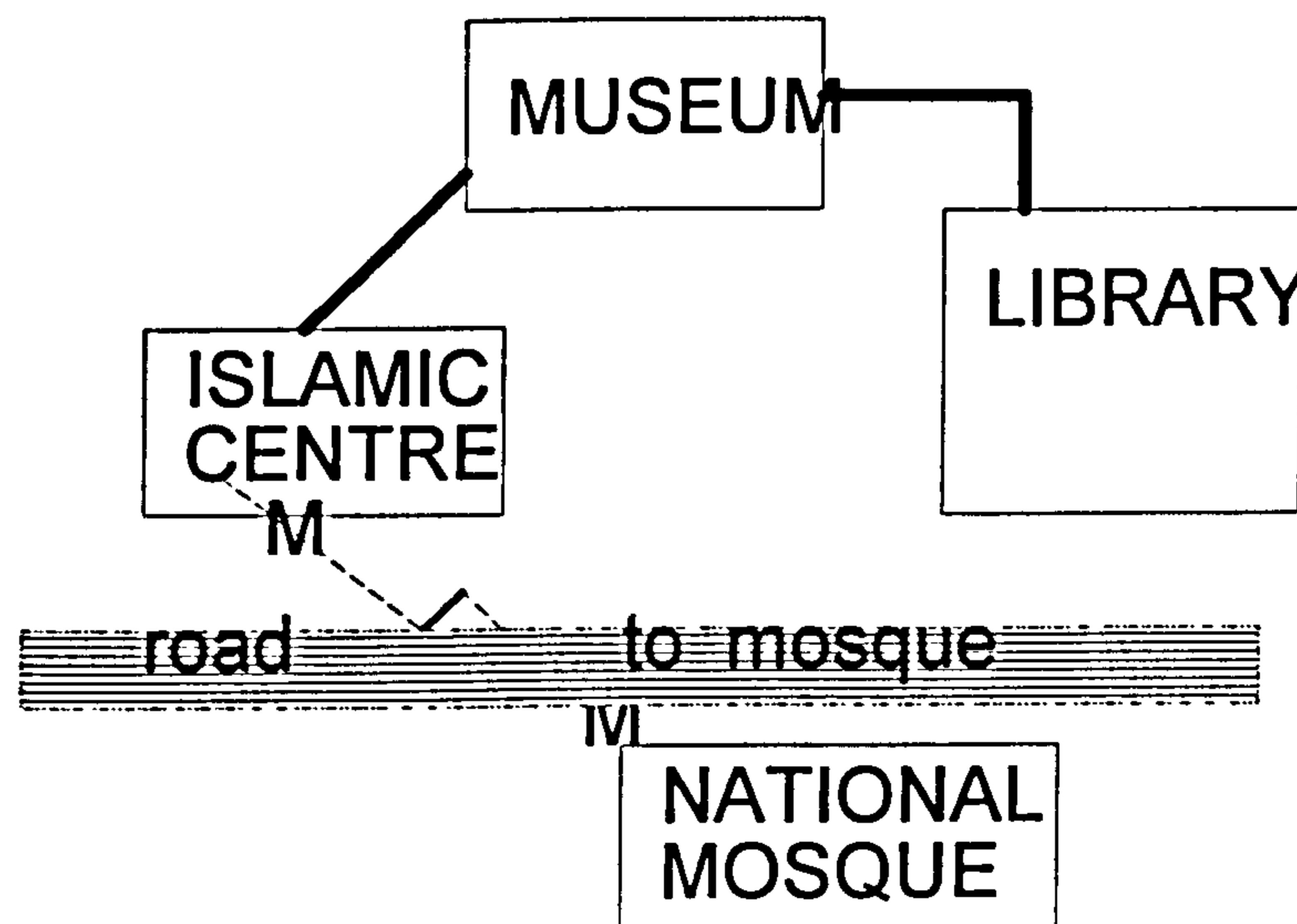
The applications above were applicable by the year 1990 through LAN in the JAKIM and leased lines to the Ministers office in Kuala Lumpur. In December 1991, a pilot project for WAN was implemented in Malacca and Shah Alam by using leased lines. By the end of 1995, all the states will have direct access to the database available from JAKIM, Kuala Lumpur.

²⁴ Wahid, A(1975)' pp. 29-31, 40

3.8.1 Local Area Network (LAN)

Most of the information systems illustrated above are available in the JAKIM, Kuala Lumpur and accessing can be done through LAN. A server on level 6 can supply all the information to an office block of 12 storeys' including the library, the museum and the national mosque. Currently 24 terminals are linked to the server via Ethernet using a NOVELL. This LAN can be accessed to different States too. The distance from the museum to the tower building (Islamic Centre) is about 20 metres. The distance from the national mosque to the server is about 200 metres but because of the busy road in front of the mosque and Islamic complex, modems are used for network communication.

Figure 11: Islamic Centre Complex in Kuala Lumpur



— Co-axial line
 - - - Telephone line

3.8.2 Wide Area Network (WAN)

A server in the Islamic Information Division is linked to the Prime Ministers Office which is about 4 miles in distance. Currently there are about 7 terminals linked directly to the mainframe in the Prime Minister's Office for retrieving information on Al Quran, Hadith, Mosques and registration on marriage. From the Prime Minister's Office there is a network to the ICU which has access to all 14 States in Malaysia, (See figure 12).

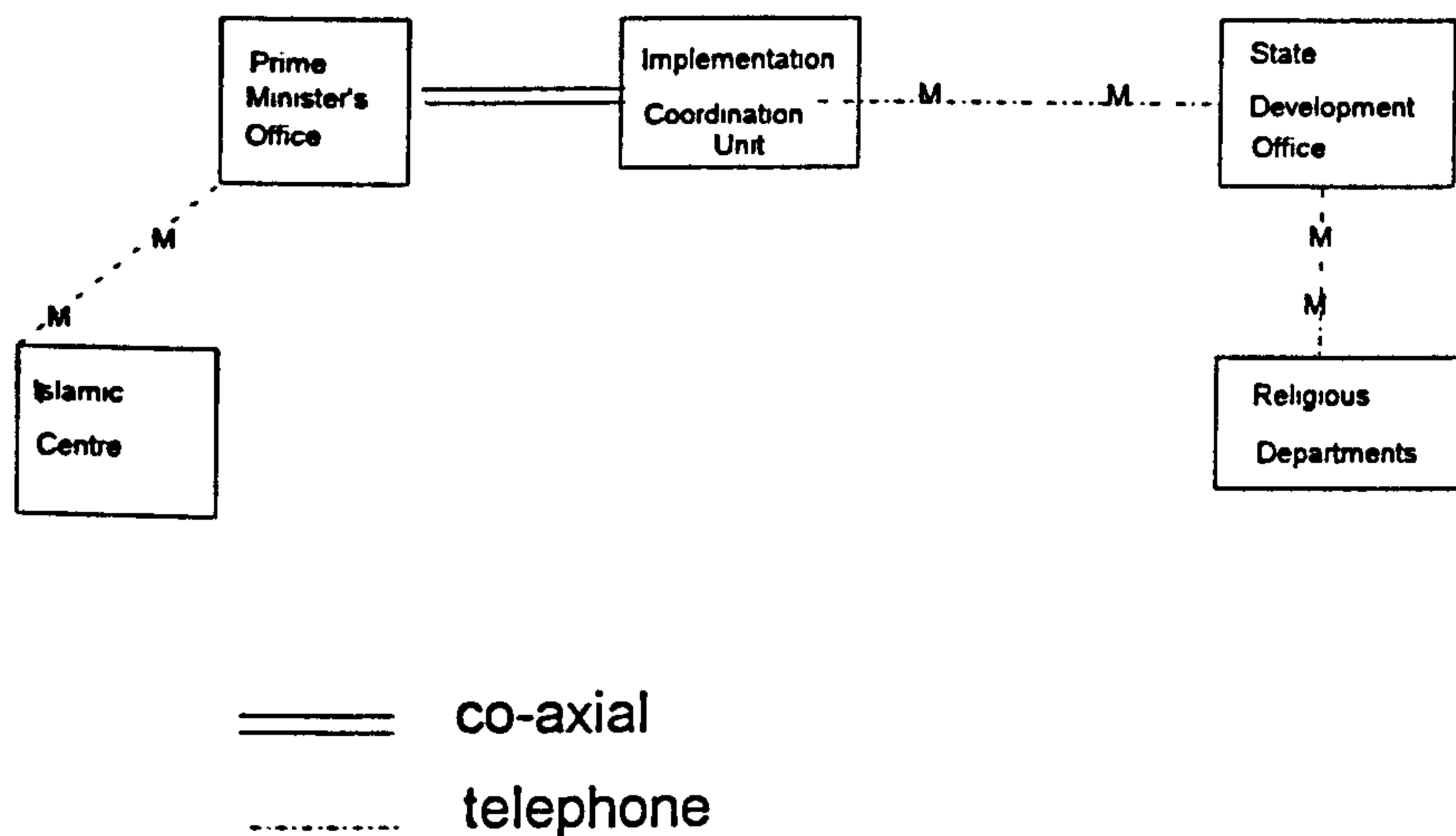


Figure 12: Wide Area Network between JAKIM to IRD of each State.

3.9 Problems

Since Malaysia comprises 14 states and some of the applications are slightly different from one state to another, information requirements from each state are also different. This affects a lot of the design of the input form and also the logic of the programming. Each state has been given the duty to update their own

records and validate what they have captured, but because the systems are so big, one of the states might be able to concentrate on a limited application. For example; one state might have finished updating the conversion of its records, but another state still keyed in only a few records because of the difficulty in data capturing and the lack of staff for the services required. Security on the aspect of data retrieval has got to be done seriously because inaccurate data can have a great impact on the users especially on the registration of marriages, converts, and anything related to economic issues. The Muslim population of around 12 million people requires a large quantity of disks storage and also requires a high memory for fast retrieval. The scope that has to be covered is also quite large. For example, at the village level where the information concerning a particular mosque is required, this will need a good quality of network and very substantial capital to be invested at the beginning. With this topology from many to one, it will affect the efficiency of the network services. A good network design should be implemented to remedy this problem, either to look at the most advanced networking facilities or to design the retrieval into particular network zones.

At least five states out of fourteen have different working days since their weekend holidays fall either on a Friday or on a Sunday. While Thursday or Saturday is a half day for either of the States depending on when they have started their working day. Thus the information services provided by JAKIM for utilising the network are available full-time only for four days - Monday, Tuesday and Wednesday and a half day each on Thursday and Saturday. This problem

could be solved if the systems were available 24 hours a week, but this would require high maintenance and extra staff.

An inherent danger of the new IT is that the information gap between the industrialised North and Malaysia may become even greater. The new technology has been developed in response to the demands of large organisations in the North. How can such technology be adapted for use in Malaysia, where cultures and religions are so different, where even basic economic infrastructures are often lacking, and where the workforce usually lacks the educational advantages of workers in the North?

A real policy problem for Malaysia will be the need to strike a balance between self reliance and strategic imports. Thus local industry, in order to remain competitive, may require the importation of advanced technology such as microelectronics. The assessment process, however, must be guided by the principle of autonomous development. Furthermore, assessment must be based on a nuance view of technology; that is, one must differentiate between the various kinds of communications technologies (technologies used in production, consumption, and distribution), and the impact that these technologies are likely to have. One must ask who will benefit most from the importation of these technologies.²⁵ Another major policy problem for Malaysia will be the probability of a mismatch between what the technology assessment body thinks is a good or effective choice of technology and what the intended user or beneficiary needs or

²⁵ Shields, P and Servaes, J(1989), pp. 47-57

wants. As has been mentioned by Clippinger, ²⁶ “ the participation of the intended users in the choice-making process can reduce the probability of serious mismatches”. As Clippinger points out, when complex technological and investment decisions have to be made, it may be unreasonable to assume that these decisions can be made by rural farmers, urban workers, and middle-level bureaucrats. At the same time, it is crucial that these decisions incorporate the cultural, economic, and social needs of these individuals and interest groups. Thus, decisions over investments in information technologies must include the high-level experts and the low-level users and project organisers. As Montgomery ²⁷ argues, different interest groups should be intimately involved in the initial planning process, and the authority for the implementation of development decisions should be distributed between central, regional, and local governmental levels.

In order to follow the self-reliant development outlined in this topic, it will be necessary for the leadership of Malaysian organisations to change their existing philosophy. That is, political will is a prerequisite for the success of an alternative development path. As long as this is not the case, one may say that technologies in general and IT particularly will rather reinforce existing social structures than transform them. National leaders use their power according to their perception of development, their own interests, their degree of altruism, and their conception of

²⁶ Clippinger, J.H(1977), pp. 298-304

²⁷ Montgomery, J(1976), pp. 29 -30

such constraints as financial crises and conflicting multinational and Western interests.²⁸

3.10 Proposals

Whilst new IT faces many difficulties in the developing countries including Malaysia, there is no real technical reason why it cannot be implemented in an appropriate way in Malaysia, provided it receives the support it deserves from all concerned.

3.11 Conclusion

With the implementation of IIS, there will be benefits obtained such as increased productivity and efficiency; improved quality of services to the public; timely processing and availability of information either for public use or for decision making by administrators; and the creation of an Islamic database that can be built up over the years to store more and more information on Muslims and Muslim society. Generally, computerisation on Islamic administration will enhance the image of Malaysia as a leading Islamic community or country.

The Information Services have contributed greatly to future planning for decision making and also for long range planning. The services provided by JAKIM are divided into two groups of users. Firstly, the people who own the organisations or departments and, secondly, the information in the form of statistical data,

²⁸ Downs, E(1987), p. 127

graphic and textual retrieval such as Al Quran and Hadith for strategic planning purposes. Even though the implementation of the information services is still in the form of phase after phase from one subsystem to another and from one state to another state, there needs to be a lot of enhancement before the system is really good and reliable.

CHAPTER 4

STRATEGIC INFORMATION SYSTEMS PLANNING (SISP)

4.1 Introduction

This paper aims to focus on the issue specifically in relation to ISP at the strategic level-SISP. The remainder of the paper then provides an overview of the objectives of SISP, benefits, approach, growth and recommendation to successfully implement SISP. Then in the next chapter, an explanation is offered concerning the strategic information planning in Islam in comparison to the western perspective.

In recent years, the impact of IT on organisations has been extensive. Driving forces include the rapidly improving price/performance ratio of technology and a general increase in computer literacy. In the early eighties, Peter Druker has estimated, 52 percent of the United States (US) Gross National Product (GNP) was related to information.¹ There is a similar situation in Malaysia since the application of IT has tremendously increased by the end of eighties. This figure is increasing rapidly and many economists and planners in Malaysia are now beginning to consider information as the key commodity of developed economies. Perhaps most significantly, the role of technology in establishing competitive advantage is emerging as a new and powerful driving force. Rockart and Scott Morton², Parsons³ and others have stressed several alternative strategies by which competitive advantage can be achieved through technology. A common theme

¹ Druker, P(1981)p. 48

² Rockard, J. F, and Scot Morton, M.S(1984),pp. 84-95

³ Parson, G. L(1983), pp. 3-10

among all advocating this concept is the importance of linking the strategic information systems planning (SISP) to the strategic business planning.

4.1.1 Objective of SISP.

Data were collected on the stimuli, aims, benefits, success factors, problems, procedures and methods of SISP by Earl, M.J(1993) from 21 different UK companies in the area of banking, insurance, transport, retailing, electronics, IT, automobile, aerospace, oil, chemical, services, food and drink industries.⁴ These data have been statistically examined and suggest that companies have more than one objective; narrative responses usually identified two or three objectives simultaneously. The ranking order on the objectives of SISP are aligning IS with business needs; seeking competitive advantage from IT; gaining top management commitment, forecasting IS resource requirement and lastly establishing the technology path and policies.

4.2 IT and strategy

The recognition that IT can be used as a competitive weapon to support an organisation's competitive strategy has emerged over the past years, driven largely by a handful of very successful, highly touted cases in companies such as American Airlines, and American Hospital Supply. The early business literature concerning competitive systems was entirely anecdotal, much of it overblown, suggesting

⁴ Earl, M.J(1990)pp. 271-277

generalisations from the experiences of one or two firms. Careful empirical studies using larger sample of size were lacking.⁵

Senior executives, strategic planners, and IS managers are increasingly turning their attention to opportunities for achieving competitive advantage through IT⁶. The unstable economic conditions of the last few years have helped to create a challenging business environment and an economic imperative for IT⁷. The technology is also offering a greater array of capabilities at lower cost than ever before. Finally, firm's abilities to utilise the technology are also improving. The transaction processing and decision support systems already in place in most firms provide a base on which systems for competitive advantage can be built. Without this base, many of these systems would not be possible.

Several authors have identified the under utilisation of IT as a serious problem facing both information systems and business managers. Technology based competitive opportunities are over-looked because of:-

- 1) senior management's ignorance of IT and its potential uses,
- 2) poor communications between the IS group and the rest of the business,
- 3) resistance to change, among both information systems and business personnel,
- 4) a lack of focus on opportunities for competitive advantage, and
- 5) a lack of instruments to measure benefits.

⁵ Huff, S. L(1988), p. 37

⁶ Business Week(1981), pp. 115-122

⁷ Benjamin, R.I and Rockart, J. F(1984), pp. 3-14

Suggestions to draw attention to the capabilities of IT range from the development of better measures for the efficiency and effectiveness of organisational functions, to major changes in the structure of the organisation itself. For example, Gerstein and Reisman (1982) identify a need for the development of measures of the impacts of IS on specific functions. There is an important need to change the fundamental nature of work and the structure of organisations, so that better use of IT can be made⁸. McFarlan and McKenney⁹ point out the importance of proper management for the successful deployment of IT. The mission and the management of the IS group should be consistent with the firm's dependency on technology and the opportunity for competitive advantage that the technology represents. Similar suggestions have been made about the need to reposition and expand the IS function and the need for senior management education in IT¹⁰. These recommendations for increasing the utilisation of IT focus on correcting organisation deficiencies that have restrained its effective use. Other researchers have focused on the potential for IT to improve strategic performance. They have developed tools and methodologies to help the manager find valuable opportunities for IT within his or her organisation. This is the perspective taken in the present paper.

Opportunities arising from IT can be viewed from three perspectives:

- 1) that of an organisational designer trying to improve the efficiency and effectiveness of the current organisation,

⁸Gerstein, M. and Reisman, H (1982),pp. 53-60

⁹McFarlan, F. W. and McKenney, J.L (1983) HBR, Vol 161(4), pp.91-99

¹⁰Kantrow, A. M (1980), pp. 6-21

- 2) that of an industry insider trying to out-manoeuvre other participants in a competitive game, and
- 3) That of an outsider investigating whether to enter an industry.

These perspectives represent three major strategic views: internal, competitive and business portfolio. Internal strategy is concerned with the development of efficient and effective organisational structures and processes for achieving goals and objectives. Competitive strategy focuses on competitive moves within the industry in which the organisation does business. Business portfolio strategy is concerned with the choice of which industries to compete in and how to position the organisation in those industries.

These components of corporate strategy are closely related, and IT can affect all three simultaneously. For example, a firm in the distribution business may build an on-line order entry system, and place terminals in customer's purchasing departments. This system can improve the efficiency of the firm's operations, which is an element of internal strategy. The terminal can supply the customer with useful information, and by speeding up orders can help customers to reduce inventories. This increases switching costs for the customer and makes it more difficult for other distribution firms to compete, thus contributing to the competitive strategy of the firm. The order entry system may also be an important asset in other industries, such as mail order retailing. Thus, the firm might enter this industry on the strength of its technology, which could impact on the business portfolio strategy.

4.3 Modes of Information Systems Planning in Western Perspective

4.3.1 Information Engineering (IE)

The term "Information Engineering (IE)" was coined by John Martin, who describes it as "data that is stored and maintained by computers and the information distilled from data".¹¹ IE is directed specifically at translating a corporate focus into an information systems architecture (ISA), which can be directly translated into data, application and geographic architectures. The idea of engineering is used because, with data recognised as a corporate resource, an analyst must work hard to exploit its value. To engineer information, the analyst needs to know and understand the organisation, or more specifically the functional activities associated with the organisation's business system.¹²

IE is defined as an interlocking set of formal techniques in which enterprise models, data models, and process models are built up in a comprehensive knowledge base and are used to create and maintain data processing systems or stated more simply, a set of disciplines for getting the right information to the right people at the right time. There are four stages involved in IE methodology. Those Stages are Information Strategy Planning; Business Area Analysis; System Design and lastly construction stage.¹³ The need for IE systems development activity has been a bottom-up activity in which various functions and data areas are automated on an application by application basis without great consideration for integration and optimisation at the organisational level.

¹¹ Martin, J(1982) p. 15

¹² Jackson, I.F(1986) p. 90

¹³ Dale, W(1987),p. 29

In particular, the IE methods compared are currently limited in their ability to improve productivity of planning and implementation efforts. Several levels of productivity can occur for an organisation through the use of IE methods:

4.3.2 Business Systems Planning (BSP)

Perhaps the most known strategic systems planning tool known to the world is IBM's Business Systems Planning methodology. It is widely used in Malaysia's organisations nowadays. This methodology was developed in response to the large-scale systems development projects that IBM undertook for its clients. Though this methodology is a proprietary product, it is well-known and documented. Thus it is easily accessible to many companies.¹⁴

4.3.3 Critical Success Factors (CSF)

Rockart developed the CSF approach as a means to understand directly the requirement of the Chief Executive Officer (CEO). He defined CSF as "those few critical areas where things must go right for the business to flourish"¹⁵. Its intellectual basic is founded on a common management principle of the need to focus, for example, the 80-20 rule in inventory control. The specific methodology was developed over several years of research sponsored by the Centre for Information Systems at MIT. Boynton and Zmud¹⁶ provided a detailed analysis of the use of CSFs as an information planning methodology. They concluded that the

¹⁴ Lederer, A.L and Putnam, A.G(1987), pp. 40-46

¹⁵ Lee, M.C.S and Adams, D.A(1990)pp.169-182

¹⁶ Boynton, C.A and Zmud, R.W(1987), pp.59-71

CSF approach is effective. The use of CSF and similar focusing techniques as part of SISP appears to be widely accepted.

4.3.4 Customer Resources Life Cycle (CRLC)

Ives and Learmonth's model is intended as a guide in finding new opportunities for the successful applications of information systems technologies (IST). By using this model, new application can be identified throughout a resource's life cycle, or existing applications can be used in new settings. Thus by determining the point at which it wishes to focus its competitive energies, a firm can use information technology strategically to gain competitive advantage.¹⁷

4.3.5 Strategic Trust-Strategic Target(STST)

Wiseman and MacMillan's(1984) strategic thrust-strategic target model is designed to identify the opportunities available in gaining a competitive advantage via the innovative use of information technology, thus adding value to the products and services offered to clients. Its focus depends on the specific target, which can be either the supplier, customer or competitor.¹⁸

The primary instrument for this framework is the option generator as in Figure 13 which contrasts the different categories of strategic targets (i.e. supplier, customer and competitor) against strategic thrust (i.e. cost, innovation and differentiation).

¹⁷ Ives, B and Learmonth, G.P(1984) pp.1193-1201

¹⁸ Wiseman, C & MacMillan, I.C(1984), pp 42-50

	Supplier	Customer	Competitor
Differentiation			
Cost			
Innovation			

Figure 13 : Strategic Thrust-Strategic Target Matrix

4.3.6 Corporate Data Modelling (CDM)

In this modelling, the basic data elements, activities and entities are described along with the relationships between them. This is recorded in data dictionaries, data flow diagrams, data models and activity/entity matrices leading to a conceptual data architecture.¹⁹

4.3.7 METHOD/1

The Method/1 information planning methodology has five distinct objectives:²⁰

1. To identify the organisation's information needs
2. To find new opportunities for using information to achieve a competitive advantage.
3. To define an overall IT strategy for satisfying the organisation's IT objectives.
4. To define data, application, technology, and organisational requirements for supporting the overall information technology strategy.
5. To define the activities needed to meet the data, application, technology and organisational requirements and thereby implement the overall IT strategy.

¹⁹ Whitmore, P(1987), pp. 25-26

²⁰ Lederer, A.L and Gardiner, V(1992), pp. 13-20

According to Method/1 documentation, by treating SISP process as any other corporate SP, its effectiveness is enhanced.²¹ This means it should cover the same planning horizon between three to five years and management should update and revise it along with other corporate strategic plans. To achieve its objectives, the methodology uses a layered approach. The top layer is the methodology itself. A middle layer of techniques supports the methodology and a bottom layer of tools supports the techniques. Examples of the many techniques are data flow diagram, matrix analysis, functional decomposition, focus groups, and Delphi studies.

One rationale for this layered approach is that it can permit different tools and techniques to serve different organisations in their own unique situations. Also, the approach can isolate less frequently changing tasks at the methodology level. Thus, new tools and techniques may become available while the top layer, the methodology itself, evolved more slowly in response to management's critical , new questions.

The methodology consists of ten activities referred to as work segments that an organisation completes as it develops its strategic information plan. Table 1 identifies each work segment. The first five formulate information strategy. The final five further formulate the information strategy but also develop action plans. A break between the first and final five provides a top management checkpoint and an opportunity to adjust and revise.

²¹ Andersen Consulting (1987), pp. 7-9

Table 1 : The work segments

1.	Scope definition and organisation
2.	Business and competitive assessment
3.	Present status assessment
4.	Information technology opportunities
5.	Information technology strategies
6.	Organisation plan
7.	Data and application plan
8.	Technology plan
9.	Information action plan
10	Project definition and planning

4.3.8 Customer Oriented Strategic Systems (COSS).

This methodology was introduced by Reich Blaize who examined 11 competitive IS in Canadian organisations in depth, using site visits and multiple in-person interviews. Her study was concerned only with systems developed to connect a firm to its customers -systems which she referred to as COSS. She focused on two sets of issues: the innovation issue, that is, what factors help explain why one firm would develop an innovative strategic system while others might not and the adoption issue, on what factors explain the successful adoption of a COSS by the developing firm's customer companies.²²

²² Blaize.R and Huff, S.L(1988), Working Paper 88-MIS-009

4.3.9 Value Added Chain (VAC)

This global electronic banking system is an example of an information system which is at the interface of the value-added chains for the bank and its customers. The benefits to both the bank and its customers may be discussed in terms of Porter's value chain concept..

The value chain of a firm comprises both primary activities directly creating products or services and transferring them to the customer and support activities which aid the operations of the primary ones²³.

Hong Kong Bank is using HEXAGON to leverage its dominance in the developing economies of Asia and its geographical diversity and key structural resources to become a truly global bank. Many of the system's benefits to the bank may be considered in terms of Porter's competitive forces²⁴: suppliers, existing competitors and new entrants, substitute products and buyers, as described below

The HEXAGON system was initiated to help the bank combat soaring operating costs and to give it flexibility in meeting the needs of multi-national customers. It was also viewed as a major innovation in HKB's transformation from a traditional money bank to a modern information bank in the early 1980s. Interestingly, the corporate board supported the proposed electronic banking initiative despite the fact that those individuals were relatively unfamiliar with let alone users of

²³ Porter ,M.E (1980), pp. 3-14

²⁴ Porter , M.E.(1979) p.141.

computers or telecommunications. IT innovations such as the treasury management system were pursued because they were both possible and advisable and implementation has been carefully planned to meet strategic objectives while ensuring that both staff and customers successfully adapt to the technological change.

In terms of improving infrastructure support. HEXAGON compresses time and distance for inter-organisational activities thereby increasing the likely-hood of such communications while lowering the overall co-ordination costs. At the strategic level it is a good decision support system providing extensive market information (external) and accounts information (internal) for managers. This comprehensive output can assist in making investment and loan decisions (external) as well as financial control and planning (internal). The quality of the decision is improved through more timely and comprehensive information.

4.4 Benefit of SISP

Today's executives are slowly beginning to recognise that IT is not just DP technology. It will be important to cast aside obsolete ideas about DP as corporations proceed into the information age. Now, ready to come of age in the 1990's is the application of this technology to aid strategic information management planning.²⁵

²⁵ Vacca, J.R.(1983),pp. 9-18

Tightly linking strategy formulation with the development of IT is of growing importance in many industries. One major aspect of this link is the need for a firm's strategy to provide direction for its technological base building. An alternative course is to translate the technological superiority of the firm into opportunities for successful ventures in new industries. In both cases the link between technology and strategy is strengthened, and this can be achieved by strategy literate information systems planners and technology literate strategic planners. We see three likely sources of specific theories and models for the creation and exploitation of technology advantage in the context of business portfolio strategy by firstly organisational theories of technology assimilation, such as stage theories; industrial economic theories, such as those related to economies of scope and lastly game theory, such as those approaches analysing the importance of timing in exploitation of technology advantage.²⁶

This was the case with *Zakat* Collection Centre(PPZ) in Kuala Lumpur, where, after implementing IT facilities, revenue has increased from \$14 million per year in 1991 to \$20 million in 1992.²⁷ A database on the *zakat* payer was set up and maintained regularly, and this brought confidence to the *zakat* payer to pay their *zakat* in the future. A proposal was made to the Malaysian Government to install computers in every State for the IRD in order to increase collection of *zakat*.²⁸ When the revenue increased, distribution towards the *asnaf* also increased.

²⁶ Bakos, J.Y and Treacy, M. E(1986) p.116

²⁷ Mustafa Abdul Rahman(1993) p. 21

²⁸ Samat, I(1991)IRPA Seminar, Kcdah, 25-26 Nov 1991.

4.5 Strategic Planning (SP) Framework

There are at least two key requirements for a SP. Theoretically, SISP can be seen within the framework of an input, process, output function.²⁹ Figure 14 shows that this is to include feedback loops. **Input** here includes the organisations current business plans, IT, structure, and technology trends. **Output** is the strategic information plan of proposed applications. The **Process** is the vital planning methodology that uses the Input to create the Output. Virtual in SISP is the anticipated favourable impact of the Output on the success of the Organisation. Moreover, as an ongoing process, strategic information planning evaluates the success of previous plans as Input to future planning activities, and hence produces the feedback loops as in Figure 14.

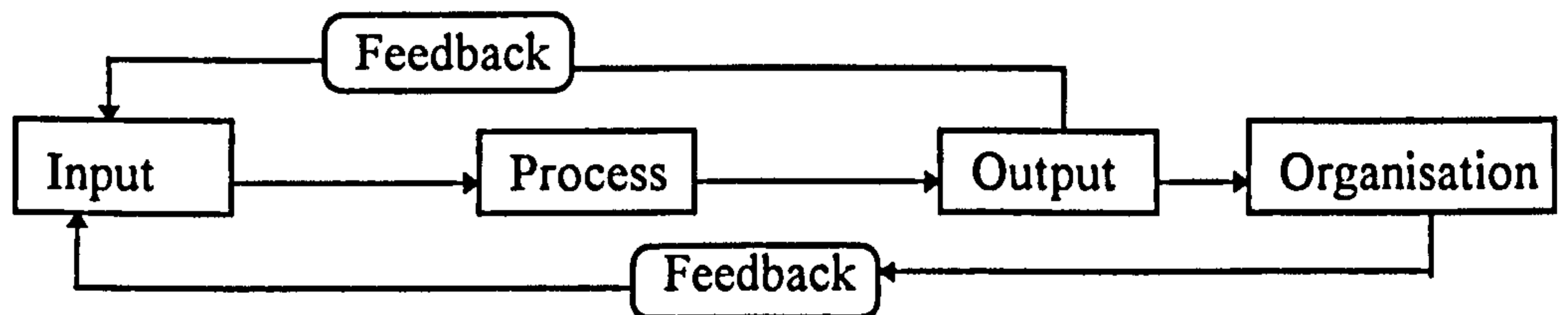


Figure 14 :Strategic information systems planning: framework³⁰

A better understanding of SISP would be valuable to information managers who have not yet carried it out. One way to better understand it would be to inspect it within the context of a specific methodology. This would enable organisations who had used a different methodology to contrast it to the one described here. It would also be helpful because detailed information about a particular methodology is

²⁹ King, W.R(1988),pp.103-112

³⁰ Lederer, A. L and Gardiner, V(1992), pp. 76-83

generally restrictive, and thus often difficult to obtain without acquiring the methodology or contracting for consulting services.

One important objective of strategic information planning is to capitalise on the rapid changes in IT that continually open new opportunities. The key activities to identify such opportunities are to analyse IT trends; to determine information needs; to define major IT objectives; and to identify opportunities for improvement. MIS department team members begin the search for opportunities by investigating trends in technology. They study the use of technology within the organisation's own industry and related industries. For example, an insurance company examined the use of IT not only in the insurance field but also throughout the broader financial services industry.³¹

Simultaneously, functional area team members investigate applications trends. They also research the use of technology in those applications. The team then combines these two trend analyses with findings from the two previous work segments to determine each functional area's information needs and those of any cross-function business process. Having established these needs, the team summarises overall organisation needs based on overall organisational objectives, process, and functions.

Finally, the team targets areas where the organisation might best use information systems. The business and competitive assessment, present status assessment and IT

³¹ O'Connor, A. D(1993),pp.71-72

opportunities help the team assess how critical each area is to the organisation and how well it currently uses IT. Critical areas currently not using IT well are targeted most heavily. Unimportant areas are targeted least heavily.

The team prioritises the areas and take special notes of short-term opportunities which should be pursued immediately or at the end of the next work segment. Initiatives with the greatest opportunities to affect the organisation favourably receive the highest priority. Both quantifiable benefits (such as cost reductions) and non-quantifiable benefits (such as the support of business strategies) play a role. Top management assesses the relative important of quantifiable and non-quantifiable benefits based on its customary business values.

SIP seeks to identify specific IT strategies to help the organisation to use existing technologies more effectively and take advantage of new technological opportunities. Activities for building these strategies are to develop high level information strategies; to define the architecture of required systems; to identify high priority projects; and to confirm direction with management.

To develop IT strategies, the team first considers crucial planning issues and options in the light of the objectives raised in the previous work segment. Possible examples include EIS, DSS, potential mergers and acquisitions, distributed and co-operative processing, and security and control. Some offer great opportunities while ignoring others may portend disaster.

The team prepares broad, top management-level IT strategies dealing with these issues and options. Examples of such strategies might include the exclusive use of custom development or of application packages. Other strategies might include the efforts to be a technology leader or a quick follower or simply to lag behind other organisations. Some firms may choose a strategy of adhering to conventional industry IT standards while other firms may not.

Next, the team develops the conceptual design of an architecture of information systems, data, technology, procedures, policies, and personnel to execute the strategy. This effort represents a first stab at envisioning the organisation's future information environment, and thus represents a major accomplishment.

To develop the conceptual design, the team begins with its definition of objectives, overall strategy, and particular policies. Existing well-developed policies in an organisation will pre-determine many aspects of an architecture. Examples of such policies include procedures for the handling of modifications to application packages or for the granting of deviations from industry standards. Where such policies do not exist, models and guidelines are useful: for example, the seven layer Open System Interconnection (OSI) Reference Model offers recommendations about data communications interfaces. For a small, simple organisation, the development of the architecture may be easy; for a large, complex multi-national with various headquarters around the world, each with its own unique needs, the process can be extremely complex.

Conceptual design uses such popular techniques as matrix analysis. Porter's five force analysis functional decomposition, data flow diagrams, organisation design frameworks, business process flow diagrams, etc. The decision to use each depends on the work segment and the specific needs of the organisation. Moreover this initial design will be extended and elaborated upon later, probably using many of the same tools.

The team assesses the required changes in management policies, personnel, information requirements, hardware, software, and competitive position that it expects the proposed information architecture to bring about. It also assesses the architecture's economic impact so that it can rank the individual projects within the architecture.

The team presents its strategies to management for approval. This major checkpoint allows the team to learn management's impressions of the planning project so far, and thus set the direction for the next three work segments. High-priority projects can begin now, provided they are independent of other projects. For example, a bank began a project at this time because the introduction of a new product clearly required it.

4.6 Strategic Planning Approach

To develop a portfolio, an organisation must accomplish an impressive array of related tasks. It first forms a project team of business and systems managers with a team leader. The team then carries out an extended study during which it defines

new applications, specifies databases, describes a network of hardware and software, estimates resource requirements, sets priorities, and develops a migration plan.

4.7 Stages of information systems growth model

Initially, planning addressed the key issues involved in managing an unfamiliar business function developing in a mainframe environment. Planning for the complexity of building a data centre, creating the first applications, and increasing user awareness all borrowed the organisational development notion that all companies will and should move along a similar trajectory in their adoption of technology, resulting in a predictable series of problems and characteristic solutions. These patterns of change are referred to as stages of growth.

Stages of growth management predominated when many organisations limited their investment in IT to one computer with accounting applications and centralised DP. During the late 1960s, the issues changed as the number of systems, applications, transactions, and the backlog of development and enhancement projects all increased dramatically. In response, a new planning approach developed that changed the emphasis from applications and the computer centre to data itself as the key resource, focusing management attention on the importance of data in increasing flexibility and productivity. IBM's BSP methodology is considered the most popular of these data-oriented planning processes.³² This stages of IS growth in Malaysian organisations will be explained later in Chapter 7.

³² Sullivan, C. H(1988)pp. 8-13

4.8 Impact of Information Technology (IT) on SISP

The industry setting not only determines the average profitability for a firm, but it also forms the competitive environment within which a firm's strategy must operate. Successful firms in an industry position themselves relative to industry forces by effectively implementing one or more generic strategies: overall cost leadership on an industry-wide basis; differentiation of products and services on an industry-wide basis; Concentration on a particular market or product niche.

Each of these strategies provides a general framework within which a firm sets functional policies and procedures, and performs activities that implement that strategy. If the firm executes one of these strategies successfully, it will enjoy an advantage to industry forces that will yield higher than average returns.

IT can impact the ability of firms to execute a particular generic strategy. For example, a large financial service company holds its cost leadership position in the industry because of a sophisticated application of IT that substantially reduces the cost of transmitting and processing transactions. A manufacturing firm has distinguished its products by achieving levels of quality control and precision that competitors cannot match. The key to its advantage is a quality control information system and the heavy use of computerised machine tools, which provide much greater accuracy while tripling productivity.

IT can contribute to a generic strategy in a variety of ways, because the successful execution of such a strategy requires the broad support of all functional areas in a

firm. This is a unique characteristic of IT and distinguishes IT from other technologies that may impact on manufacturing processes or product characteristics, but not on other functional areas in a firm. IT is utilised for experimentation support in research laboratories, for computer-aided design and in engineering departments, and for production control in factories. IT is also used for market analysis and distribution support in marketing departments, as a sales tool in the field, for office record keeping, and for planning in executive offices. In the long term, nearly all functions of all firms can be computer enhanced to some degree. The strategic issue is: Given scarce resources of time, money, and staff, which applications are most important to automate?

Even though SISP has been applied by some of the Malaysian organisations, there is no formal announcement as yet, since this field is still new. There are no specific measurement methods to analyse their success. Since the introduction of the utilisation of IT to Perbadanan Nasional Berhad (PNB), many of the Bumiputera have shown an interest to join as shareholders because of the ease of opening accounts and withdrawal of money from the banks and post offices available throughout the country.

Today, however, there is a small but rapidly growing number of senior line and staff executives taking responsibility for significant strategic projects centred on computer and communication technology in their companies, divisions, or departments. A pattern of emerging line responsibility for such projects is now becoming clearer. For the first three decades of the computer era, the key figures in

IT use were the IS professionals. Today, for a number of reasons noted below, the shaping of information systems' direction is passing to line managers. No longer willing to delegate the strategic or tactical uses of this technology to the IS department, these managers are taking the lead in applying IT to the most important areas of their businesses. Many are using the technology as a core element in aggressive new approaches to the marketplace or to enhance control of internal operations.

Including IT as a significant component in business planning and, thus, in the process of conception of new business strategies and tactics, is only one part of an emerging senior executive role. The other, and equally important, element of this role is the active direction of the implementation of new systems.

Managers have explicitly or implicitly realised that, in the past few years, IT has gone through a radical change: both the applications and the effective management of IT look very different than they did just a few years ago. In fact, this is the fourth major wave of IT; each new type of technology has, in turn, led to a different period of application and managerial processes. These periods can be called, the accounting period, the operational period, the information period, and lastly the wired society period.³³

In recent years, the IS function has gained greater prominence in many organisations. IS expenditures continue to increase as a percentage of total budgets,

³³ Rockard, J.F(1988), p. 59

and the technological options available to IS organisations are rapidly expanding. The importance of utilising IS resources to provide competitive advantage has received considerable attention; success stories are abundant. In short, knowing where to concentrate IS resources is challenging, difficult, and critical to most organisations.

As the IS environment has evolved, the role of the IS professional has been changing. Senior management teams have begun to view IT as a key to gaining strategic advantage and making things happen. In recent years, some corporate presidents have elevated the IS manager to the level of vice president. The skill set needed to be successful as a Chief Information Office (CIO) in the 1990s involves a combination of sizing up to business needs and knowing how technology can facilitate solutions. Lately though, the CIO skill set has been questioned after examining the purported role as unifier of IT within the business³⁴.

4.8.1 Industry level

At the global level, IT changes the fundamental nature of the industry in which the firm competes. When IT changes an industry, it may impact the nature of the industry's products and services, the industry's market, and/or the industry's economics of production.

In some industries, IT may change the very nature of the industry's products and services: IT may substantially alter the product life cycle and significantly increase

³⁴ Carlyle, R(1988),pp 50-56.

the speed of distribution. For example, because of advances in IT, the products and services of the publishing industry are undergoing significant changes. As the industry moves from a paper product to an electronically based one, the time and space constraints for product development and distribution are shortened. Authors and news sources are preparing electronic manuscripts and text, which are sent to publishers on floppy discs or directly from computer to computer. Electronic manuscripts are edited on word processors, typesetting is computerised, and graphics are generated by computers. Promotional materials are distributed by telecommunications, and readers can buy the product from the publisher's electronic data base. The time lag between an idea for a new product and its mass distribution could be virtually eliminated. Small publishers who can adopt the technology have substantially reduced the product development cycle, gaining a significant advantage over larger competitors.

IT can significantly change the markets of some industries. For example, financial companies will face a market of computer-literate consumers and businesses that will demand electronically based products and services. IT has already created a new product line called cash management systems, which are offered by large banks. As IT erases traditional geographic market limitations, financial services companies must now compete in a global market. The emerging technology for automatic teller machines (ATMs), home banking, and electronic funds transfer is making more sophisticated financial products and services possible and increasing the overall demand.

IT developments may change the basic economics of production in some industries. In the distribution industry, IT is dividing businesses into two categories: those that have computerised warehousing and inventory control and those that have manual operations. Businesses with computerised capabilities have the ability to serve a national market and are breaking the industry pattern of regional distribution. Such national distributors also enjoy other advantages, such as economies of scale in marketing, software, and hardware. Because of control problems and high costs, businesses with manual operation are limited to local markets by their technological position. IT will also affect the production economics in some industries by changing the industry's historical trade-off between standardisation and flexibility. Some equipment manufacturing plants have already used IT to achieve unit costs that remain essentially constant, whether one unit or one million units are produced. This new potential will effectively remove many of the traditional competitive advantages in these industries. IT will reduce historical economies of scale in some areas while extending them in others. Because of monitoring, controlling, and co-ordinating potential of IT, larger and more efficient facilities can be build which will capture new economies of scale by utilising machinery, space, energy, and specialised labour more efficiently.

There are critical implications for firms that compete in industries in which IT is changing the nature of the business. Traditional rules of competition will change, new economies of scale will evolve and entry barriers will erode in one area and spring up in others. There will be new competitors, new products and services, new distribution channels, and different levels of demand and elasticity. Product life

cycles will be shortened, and the value-added stream of the industry will be redistributed.

Before management can consider the long-run impact IT will have within their firm, they must understand how IT is changing the industry. This is entirely consistent with most views of corporate strategy, which begin with an understanding of the external environment of the firm. At the industry level the impact of IT ranges from major (e.g., in the banking industry) to minor (e.g., in the aluminium industry). To effectively link IT to the strategic needs of the firm, management must anticipate the impact of IT at the industry level before it occurs, so that strategic policy can be developed to position the firm appropriately in the new industry setting. For example, given the current rate of development in telecommunications and office technology, video conferencing may become a major substitute for some business air travel in less than ten years; this would significantly affect the airline industry's business travel market. Today's CEO and strategist must address a crucial question: What impact will IT have on our industry over the next five to ten years in terms of products and services, market, and production economies?

4.8.2 Firm level

At the firm level, the impact of IT is determined by the specific competitive forces facing the firm. Porter describes five competitive forces that form the industry structure and the competitive "arena" for each firm in the industry³⁵. These five forces are the buyers, the suppliers, the substitutes, the new entrants, and the rivals

³⁵ Porter, M.E(1980)pp. 3-14

within a particular industry. Each firm in every industry faces these five generic forces; the specific manifestations of these forces determine a firm's profitability and range of potentially successful strategies. This framework for competition provides a useful vocabulary for defining the key issues facing a firm today and in the future. By using this framework, management can learn how IT changes an industry structure through the competitive forces than shape that industry.

4.9 Problems

To perform SISP, an organisation would generally embark on a major, intensive study. It would apply one of several existing methodologies³⁶ or it would create its own. The organisation would form committees of users and IS specialists and would likely rely on the SISP vendor to train the committee members, to guide the study, and to audit its results. It would carry out a procedure of several steps over the ensuing weeks or months. During the study, the organisation would define a portfolio of applications, their priorities, their databases, their data elements, and a network of computers and communications equipment to support the applications.

Despite this methodological approach, SISP has long been recognised as an intricate and complex activity replete with problems that can prevent its success and may continue to plague IS planners.³⁷ Several authors and researchers have described these problems. Their work has been based on field surveys, cases, and

³⁶ Arthur Andersen and Co.(1982), Item 57 and Carlson, W.M(1979), pp 3-6

³⁷ McFarlan, F.W.(1984), pp 98-103

conceptual studies. The following is a review of the most significant of their articles which chronologically traces their publication.

There was study made by Moynihan, T (1990)³⁸ regarding the problems that senior managers in Ireland currently encounter when introducing and managing IT. Three management viewpoints were chosen for the study comprising the chief executive officer (CEO), the senior functional manager (SFM) and the IT manager. The CEO needs IT developments to give them a much better understanding of the strategic threats and opportunities facing the organisation. SFM wants to see more energy going into using IT to improve customer service. While IT Managers want to see more recognition by top management of the strategic dimension of IT. They want to see more energy going into exploration of new business opportunities and of new ways to use IT to improve customer service.

The attempt to successfully implement SISP in Malaysian organisations is still discouraging. There is still a big gap between IS personnel and the Top Management Managers. Some institutions are still doing the task of data processing for their computer centres. Some of the information centres are still producing reports for MIS purposes. Only by the beginning of the nineties were a few top management people able to use IT facilities for their strategic planning for competitive advantage. Business managers were still thinking of ways in which EDP staff could bring profits to the organisation, other than processing data. It is not easy to convince the top managers to work together with the IS staff to think on

³⁸ Moynihan,,T(1990), pg 15-27

how to use IT facilities for strategic planning. There is a similar situation with the report made by Lederer (1988)³⁹ in the USA. Implementation of SETIA by EPU in the Prime Minister's department for the SISP was not fully successful, since the data capture and data entry were not up to date.⁴⁰

4.10 Information Systems Planning(ISP) evaluation

A number of authors have identified opportunities for the application of IT to create competitive advantage. Two general approaches can be distinguished: a value-added chain analysis of the firm's operations and Porter's framework for competitive analysis. Rockart and Scott Morton ⁴¹ have introduced the use of the value-added chain to describe the potential opportunities arising from IT. They identify three types of opportunities that can create competitive advantage:

1. improve each value adding function,
2. link with customers and suppliers to increase their switching costs, and
3. create new businesses through services or products.

Ives and Learmonth ⁴² further this effort by using a generic, thirteen function resource life cycle model to identify competitive opportunities. It should be noted that these value-added chain analyses, geared toward operational efficiency and functional effectiveness, are closely related to an internal strategy.

³⁹ Lederer, A. L(1988) pp. 445-460

⁴⁰ Kaul, M and Shams, K(1989) pp. 1-10

⁴¹ Rockart, J.F and Scott Morton, M.S.(1984),pp.84-95

⁴² Ives, B. and Learmonth, G.P(1984),pp. 1193-1201

Parson uses Porter's competitive forces framework to identify six generic categories of opportunities for competitive advantage:

- 1) increase customer's switching costs through value-adding IT based information or service,
- 2) decrease one's own switching costs against suppliers,
- 3) use IT to support product innovation for the purposes of maintaining one's position or deterring potential substitutes,
- 4) co-operate with selected rivals through shared IT resources,
- 5) substitute IT for labour, and
- 6) use of information for better segment and to satisfy one's customer base.

4.11 Recommendations

IS professionals will have to develop a set of skills in order to solve future IT problems and take strategic advantage of IT within their organisations. Empirical testing of the IS issues provides much stronger evidence of positive or negative trends than does "eyeballing" the data. Several questions will be addressed by this research: How have the most critical issues in IS changed over time; Are there distinct categories of issues as suggested by Hartog and Herbert⁴³ and Brancheau and Wetherbe⁴⁴?; To focus on the duality problem of IS manager: are managerial issues increasing in importance and, conversely, are technical issues declining over time?

⁴³ Hartog, H. and M. Herbert(1986), pp.351-361.

⁴⁴ Brancheau, J. and J. Wetherbe(1987), pp.23-45.

When a firm pursues a cost leadership strategy, IT must create or support opportunities in these same areas. IT applications can substantially reduce costs in the functional areas of engineering, design, and manufacturing. IT can also be used to reduce waste significantly, to improve productivity, and to identify marginal customers. The firm that vigorously pursues a cost leadership strategy should identify and execute IT projects that support and advance such a strategy.

Conversely, a strategy to achieve a differentiated position in an industry has a very different set of requirements. The differentiation strategy requires a perceived uniqueness in design, brand image, technology, product features, customer service, dealer networks, or some other categories. A distribution company specialising in periodicals differentiated itself in service reliability, responsiveness to customer needs, and additional product features primarily through its computer systems. Among nation-wide periodical distributors, this firm is perceived as the most sophisticated and the highest quality firm in the industry.

IT can support a differentiation strategy in a variety of ways. IT can contribute to superior customer service by providing historical customer profiles and by increasing the availability of spare parts with a dealer inventory system. IT can contribute to high quality through the use of quality control systems and through the use of computer-aided manufacturing systems, which provide flexibility and improved responsiveness to customer needs. IT can create better product designs, satisfying both manufacturing and marketplace requirements. In some instances, IT can also provide access to markets that would otherwise be too remote to service.

From these managers could distil four areas of opportunity for IT to support competitive strategy, which are the following:-

- 1) improvement of operational efficiency and functional effectiveness,
- 2) exploitation of inter organisational synergies,
- 3) product innovation with IT, and
- 4) acquisition of bargaining advantage over one's customers and suppliers.

4.11.1 Aligning Information System Goals with Business Goals

This reflects a general change in focus, recognising the need for IS to support the organisation in a changing competitive environment. It also reflects the more generalist orientation of today's IS executives, who are able to view technological and related issues within the broader perspective of the corporations' well being. Respondents felt that this issue also encompassed the more specific topic of using information systems for competitive advantage, which has gained increasing visibility. Competitive advantage results from the recognition of opportunities through creativity and innovation, followed by rapid and effective implementation of information technologies to take advantage of these opportunities.

4.11.2 Matching the IS Organisation with that of the Company

The effectiveness with which IS can support the company's information needs is dependent on its position within the enterprise. In discussions with IS managers, there appear to be two primary considerations when attempting to establish appropriate reporting relationships. One involves whether to have IS report to a

traditional functional area with a potential bias in systems development and maintenance priorities, reporting in a staff relationship which may isolate IS from the mainstream of the company versus establishing a separate functional area for IS with a path to the president. The second consideration is whether to centralise the important IS functions and to what extent this should reflect the remaining organisation of the firm.

4.11.3 Effective Use of Organisation's Data

With the trend toward the use of database management systems having easier retrieval languages plus the end-user computing resolution in general, the need for effective data management and administration becomes more apparent. Most IS managers reported being changed with the responsibility of balancing priorities between ready access to data and an increasing need for data security and integrity. This situation is aggravated by a failure of top-level managers to view data as an important corporate asset.

4.11.4 The Role and Contribution of IS within the Firm

This issue has increased substantially in importance over the past few years and is consistent with the perceived importance of the first two issues. Despite its potential contribution, many respondents stated that IS is still viewed as a necessary but not too desirable expense in many organisations. The relatively high ranking of this issue reflects the desire of senior IS managers to gain a better understanding of the

role of IS. They also perceive a need for an increased understanding of the current and potential role of IS by other senior executives within the firm.

Defining the EDP function's is a critical step. Achievement of the corporation's goal in EDP operation is impossible without a clear definition of EDP activities that are necessary to meet these goals and the related activities that are the responsibility of other functions. Yet many companies have never taken this step, and EDP's responsibilities often are defined by evolution or by function itself.⁴⁵ As a result, in many cases EDP activities are incompatible with corporate goals, management acquires inaccurate perceptions of EDP operations.

In Malaysia organisations with successful EDP operations, top management takes an active interest in the function and, as determined by top management, EDP responsibilities may include some or all of the following activities:

- (a) Application of system analysis techniques, possibly including mathematical methods, to problems of the corporation.
- (b) Design and programming of computerised systems and development of operating procedures for users of the systems.
- (c) Development of forms, methods, and procedures for systems that do not involve a computer.

⁴⁵ Miller, W.B(1977), pp. 18-27

4.11.5 Measuring IS Effectiveness and Productivity

This issue has been important to IS executives for many years and there is no indication it will decrease in importance in the near future. Measuring performance is critical for sound management, but measuring the benefit side of the cost/benefit equation continues to be a major problem. In many cases the senior managers of an organisation have been forced to accept perceptual measures as though for quantifiable benefits. The performance of many of the surveys done was evaluated upon very indistinct criteria. This reflects the underlying difficulty IS practitioners have experienced in their attempt to quantify the value of information. Nevertheless, measurements will continue to be a critical issue as organisations invest increasing resources in IS.

4.11.6 Facilitating Organisational Learning

IS's need systematic planning in order to achieve competitive effectiveness. Often, managers do not have a suitable IS language to work with, and they need to acquire a wider knowledge and understanding of IS issues. Change agents can be valuable at the beginning of the change process, for they can transform opinions and preferences into a practicable form. Interactive and participation education therefore plays a vital role in this total process.

4.11.7 Planning and Implementing Telecommunications

In general, firms pursuing an overall cost leadership strategy should use IT to reduce costs either by improving the productivity of labour or by improving the utilisation of other resources, such as machinery and inventory. Firms following a differentiation strategy should use IT either to directly add unique features to the product or service or to contribute to quality, service, or image through the functional areas. Although a firm may benefit from an IT application that is not consistent with its competitive strategy, it will enjoy much greater strategic benefits from an IT application that is consistent with and supportive of its competitive strategy. Understanding a firm's strategy is critical to the selection of an appropriate automation projects, because applications that contribute to a cost leadership strategy are very different from applications that contribute to a differentiation strategy. Cost leadership requires aggressive construction of efficient-scale facilities, vigorous pursuit of cost reduction from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimisation in areas like research and development, services, sales force, and advertising.⁴⁶

4.11.8 Organisational Change

Consequently, there has been a major shift in thinking among the minds of leading IS managers. It is true that IS executives are becoming strategists who play a major role in using IT as a tool to shape the future. Ives and Olson⁴⁷ asked whether the typical IS manager was a "manager" or a "technician". This question has been

⁴⁶ Porter, M.E (1980), p 35

⁴⁷ Ives, B and Olson, M (1981)pp.49-62

prevalent in much of the recent practitioner literature but it had not been addressed empirically. Can this duality be more clearly defined? Evidence in favour of one position or the other can be derived from several existing opinion surveys of critical IS issues; these provide needed information on the perspective of IS managers. Synnott pointed out the importance of issue surveys in that they find out a path to effective IT management.⁴⁸ Information systems professionals will have to develop a set of skills in order to solve future IT problems and take strategic advantage of IT within their organisations.

The case study reported by McGrath⁴⁹ clearly shows the need to extend efforts at understanding and managing the structural and political/power dimensions of organisations during periods of technological change. As with all change strategies, commitment of senior personnel is vital. Furthermore, this commitment must encompass the provision of vital resources and not be restricted merely to rhetoric. Clearly, a traditional technology or finance dominated perspective is inadequate for functional outcomes in strategic information systems change management in the 1990s.

Before 1993 the organisation chart in ITM was as in figure 15. But the organisational structure has been changed after implementing SISP by creating a new post, the Assistant Rector-Integrated Information Centre which reports directly to the Rector, (see Figure 16).

⁴⁸ Synnott, W (1987),pp. 19-40.

⁴⁹ McGrath, G.M; Dampney,and More, E(1994)", pp.149-160

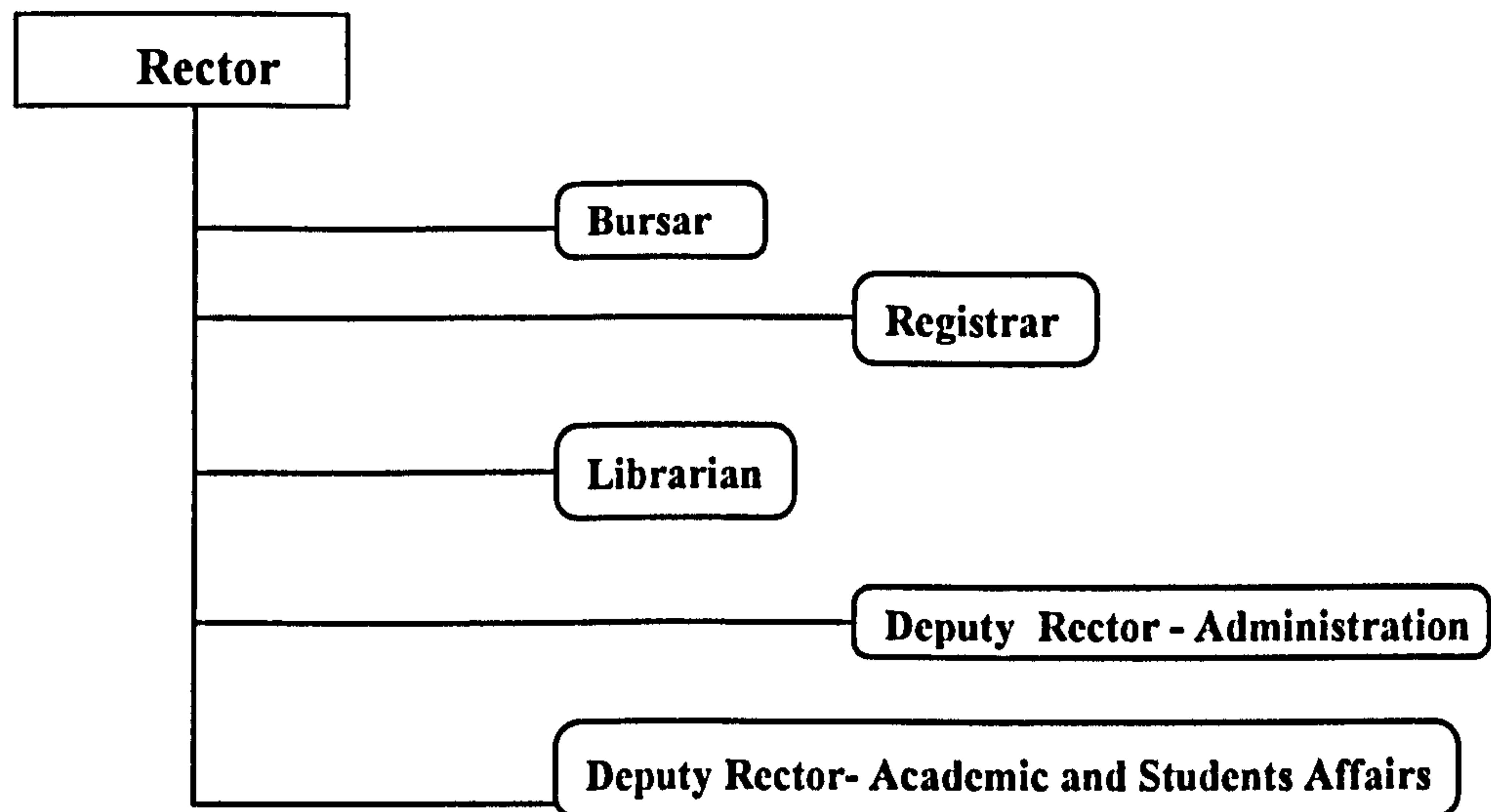


Figure 15 :Organisation chart of ITM in 1992 before implementing SISP

In the latter part of the 70's, many organisations in Malaysia, especially government departments, have placed computer centres in their finance divisions or administration where it was difficult to implement SISP, previously they were functioning as a data processing centre rather than information systems centre.

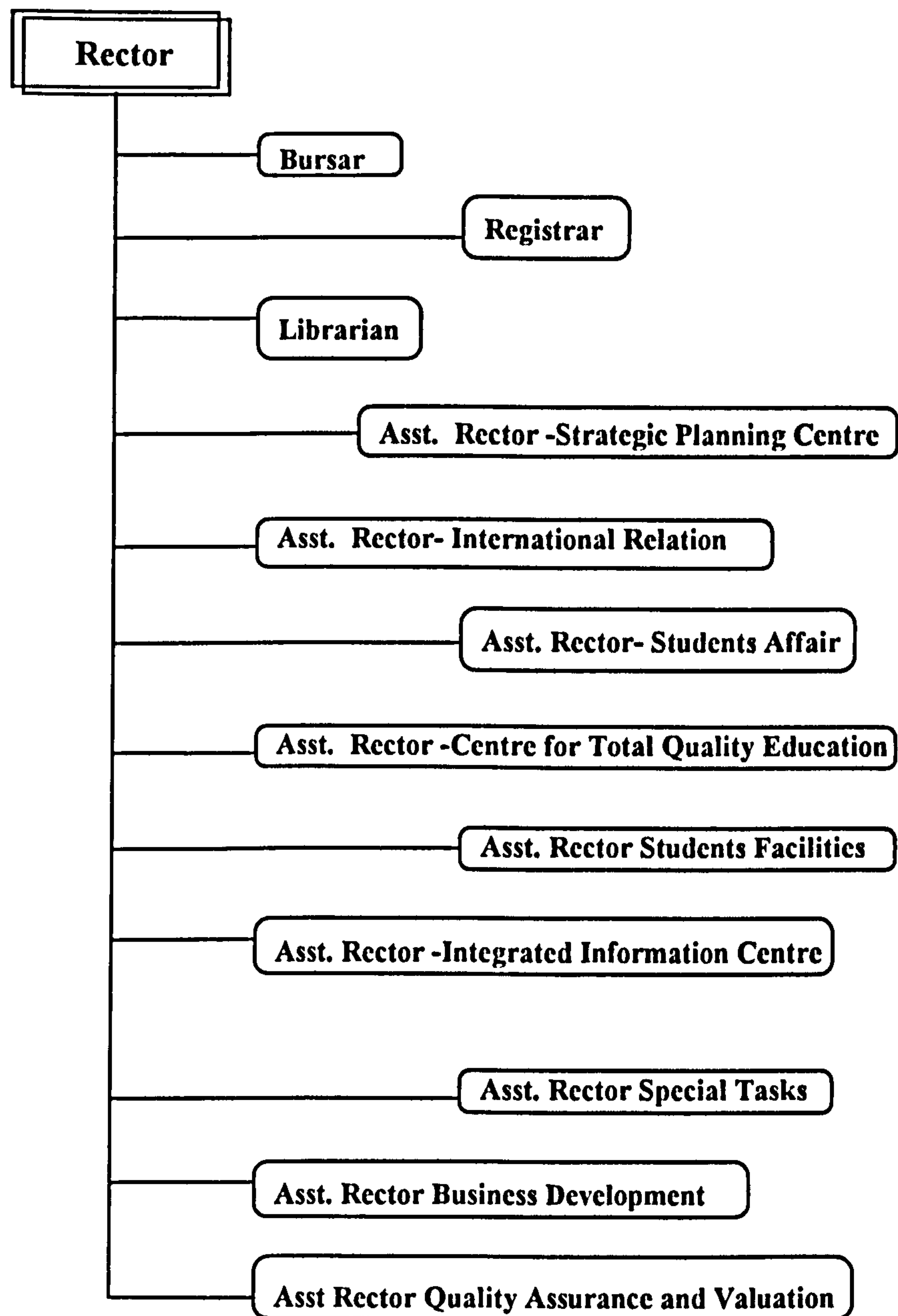


Figure 16 : Organisational Chart Change when Implementing SISP in ITM

Source: ITM(1997)' Admin' Available at <http://www.ksmk.itm.edu.my/itm/admin.html>

4.12 Conclusion

It is still difficult for the majority of Malaysian organisations to implement SISP; because of the lack of exposure to the methodologies and because of less support

from the top management people. The application of IT is still under-utilised since not many organisations implement the facilities available from IT such as e-mail and office automation. The existing government policies and strategies such as tax exemption for computers and related peripherals; the availability of sufficient infrastructure facilities such as MAYPAC, JARING and LUTH subsidiary company; tax incentives and expertise;⁵⁰ indicate a more favourable and supportive environment towards greater enhancement and factor growth of computerisation, and the use of information technologies in the nation.

SIP is a critical issue for today's systems managers. The description above of Method/1 has been applied in a few organisations in Malaysia depicts the activities of an organisation as it prepares its strategic information plan. It also illustrates many of the challenges that it faces.

The description portrays SIP as an extensive and meticulous process. If the process were merely to identify high impact applications, then a simpler one would suffice. However, the complexity of the integration of business processes and IT is probably the reason that SIP is much more comprehensive. It is also perhaps the reason that SIP may be more appropriate in large organisations concerned about their competitors (such as banks, manufacturers, and insurance companies) or interested merely in cost controls (such as government agencies who also increasingly use these methodologies).

⁵⁰ Samat, I and Ally.M(1994) Conference Paper, P.R.China,20-24 Oct 1994.

The description also depicts top management as playing a critical role in the process. Not only is top management an active participant in some of the work segments, it also acts almost continuously as an approver of the process. This is done to increase the chances of successful implementation of the plan, and suggests that implementation may be valued more than the planning process itself⁵¹.

Thus, the description demonstrates how SIP can help an organisation identify its information needs and find new opportunities for using information to achieve a competitive advantage. It also shows how SIP can help define an overall IT strategy along with data, application, technology, and organisational requirements for supporting that strategy.

Moreover, it displays how SIP can help define the activities needed to meet those requirements and thus implement the strategy. As a result, organisations successful at SIP, such as the pharmaceutical company, utility, insurance company, consumer products manufacturer, and investment bank described above, may make better use of their databases, hardware, and software.

Nevertheless, strategic information planners sometimes say that they have not sufficiently achieved those objectives. When doing so, they most often complain that their organisation failed to implement the results of the planning study to the extent they had expected⁵². Their complaints suggest that when this has happened, they should diligently assess the reason why.

⁵¹ Raghunathan, T S and King, W R.(1988)pp. 85-93.

⁵² Lederer, A L and Sethi, V.(1988), pp.444-461.

Even when the plan is not fully implemented, planners have still educated top and user management about the current role of IT in their organisation and about its potential to do more. Communication with management may be improved and it may be easier to obtain its support for new projects. Hence, even a planning study without full implementation can have substantial benefits. Thus it is not surprising that organisations in increasing numbers are performing SIP.

CHAPTER 5

STRATEGIC INFORMATION PLANNING IN ISLAM.

5.1 Introduction.

The role of IT in establishing competitive advantage is emerging as a new weapon and powerful driving force especially in achieving 2020 Vision. SISIP with an Islamic perspective will enhance the competitive advantage and increase the success of the organisational objectives and goals. The organisation will not only gain in the value of money but also in the aspect of social justice and wisdom that could be produced for the benefits of the community. SISIP will avoid the under-utilisation of IT facilities and contribute to the prevention of white collar crime.

SISIP in IIS Management perspective is based upon public interest, trusteeship, freedom of opinion and method in decision making. While decision making is based on consensus with explicit vision, upholding justice in the community, giving priority to public interest is achieved through consultation and faith.

Do they then wait for anything other than that Allah should come to them in the shadows of the clouds and the angels? Then the case would be already judged. And to Allah return all matters for decision. (2:210)

And to Allah belongs all that is in the heavens and all that is in the earth. And all matters go back for decision to Allah. 3:109,

The lesson from this *ayah* shows that human beings must purify themselves of hypocrisy, for by doing so their knowledge will increase. This is the meaning of *haqqa tuqatihi*: coming to obedience of the laws. It is first to enter a state of

awareness and then one of gratitude for knowledge, through which more knowledge will be assimilated: gratitude and contentment and signs of neutrality. Being content is the beginning of growth, because people can absorb more in this state. To observe the forces at work within the creation and to consciously interact with them in a state of awareness is to begin the process of obtaining real knowledge.

And by the Mercy of Allah, you dealt with them gently. And had you been severe and harsh-hearted, they would have broken away from you; so pass over their faults, and ask Allah's Forgiveness for them; and consult them in the affair. Then when you have taken a decision, put your trust in Allah, certainly, Allah loves those who put their trust in Him. (3:159)

The Quran said that when people have decided to take any action, that is when they are clear in their intention and have collected all the information by consulting and by observing, then they can make decisions. The problem nowadays is that some Muslims either leaders or managers have made their decision for the sake of their own personal interest or for long lasting of holding power.

IT has contributed tremendously to making a success of establishing companies like the *Hajj Management Board (LUTH)* and *Pusat Pungutan Zakat (PPZ)*. LUTH implemented SISP with the support of 3 mainframes, the wide area network (WAN) provided networking throughout Malaysia and to Jeddah in Saudi Arabia, managing 6 subsidiary companies and 8 holding companies. PPZ in Kuala Lumpur, after implementing IT facilities, has increased revenue from \$US 14

million in 1991 to \$US 20 million in 1992.¹ While ITM, one of the higher institutions in Malaysia, in 1991 used SISP based from the Critical Success Factors (CSF) for a better and successful future planning for its 6,320 staff and 50,000 students with 9 branch campuses. IT has enabled the students finance office and registry to speed up their services. With the existing facilities on the mainframe, 3 minicomputers and 4,000 PC's, campus networking was implemented and linked to the branch campuses as far as 500 kilometers away for administration, students record and library purposes. Future developments will be in the application of FDDI throughout the main campus in Shah Alam; a special 4 storey building known as the IT building with the latest technology; with adequate IT facilities in the class room; and in the rooms of 100,000 students. SISP tools like CSF, Method/1, Information Engineering (IE), Business Systems Planning (BSP) and Customer Oriented Strategic Systems (COSS) can be injected with Islamic perspectives for better outcome to the organisations and to the community.

From an Islamic perspective, information has significance only within a framework of societal knowledge; only when its objective component is in harmony with absolute, substitutional, cultural and subjective aspects of a society does information make a positive contribution to that society. Such harmony can evolve only when Muslim states generate their own information with the relevant infrastructure for meeting the needs of their decision-makers and communities. An information strategy for the Muslim world has to be based on this realisation.

¹ Samat, I (1995) Ohio Conf, USA

Muslim scholars of the classical period knew well that when information is divorced from its cultural and value context, it becomes meaningless. Indeed, much of my understanding of the connection between information, knowledge, power and wisdom derives from the classification schemes of such scholars as al-Farabi (d. 950), Ibn Sina (d. 1037) and al-Ghazali (d. 1111). These scholars knew that discrete facts, or 'bits' of information, are not gathered in isolation; they have meaning only within a framework of societal knowledge, and when the two are synthesised in an enlightened manner, the outcome is wisdom.

Familiar market forces of globalisation, privatisation, deregulation and diversification have affected many industries. In Malaysia, these include manufacturing, banking, utilities and others like airlines, hospitality, which have changed in order to survive or simply to perform better following the recession in the 1980s. Companies have resorted to diverse means to do so, and IT is one of these means.

Organisations invest significantly in IT, hopefully to gain competitive advantage and control of their businesses, but often overlook the human aspects of the IT infrastructure. As a result, the payoff from current IT expenditure is not as expected. There are many articles written on this subject, both in Malaysia and throughout the world.

Malaysia needs appropriate IT to support indigenous scientific and technical activities. The importance of information to scientific and technical achievements

has already been recognised. Still lacking is a systematic approach to IT transfer which considers the specific socio-economic conditions of the recipient country.

Research in the social and historical dimensions of science and technology has shown that "new science and technology rest firmly on the base of information generated in the past; thus the effectiveness of future work depends on the efficiency of present information transfer"². Inadequate information capabilities threaten Malaysia's ability to develop her own scientific and technological capabilities. Not only must the Malaysian government create indigenous information systems to support scientific and technological growth, but it must also seriously consider methods of effectively interacting with the information networks of the more advanced nations. The question then arises of how the Malaysian can both access and use appropriate IT and how it can acquire the capability of connecting with international networks.

Experts in technology transfer and technology assessment have become aware of the importance of analysing the socio-economic conditions contributing to technological change. Svennilson³, in a discussion of the strategy of technology transfer states that:

To establish modern technology in an underdeveloped country, we need to change: social systems and human attitudes; knowledge and human skill; the physical implements in which technology is embodied. Situations should be assessed individually and not viewed primarily as statistical data. The

² National Academy of Sciences. (1974), pp. 411-420.

³ Svennilson, I. (1967). pp. 60-62

development. The observance of proper planning will result in the creation of a fully integrated IS for the organisation. The system will service the information needs of the entire organisation, as opposed to the planned and ad hoc needs of the individuals or selected departments.⁴

The concept of SISP is one of several methodologies which can be used to meet the above planning objectives. SISP is a process which identifies the information needs of the organisation based upon the official strategic goals and functions of the organisation. These identified information needs will form the basis of the total design structure of the MIS.

Although many organisations have invested substantial money in IT, SISP is still not very popular in Malaysia. Mostly SISP is being applied to the private sector rather than to the public organisations. For example, a government body such as the Economic Planning Unit (EPU) in the Prime Minister's Department using BSP for the System Economic Planning Unit Treasury Implementation Co-ordination Unit Accountant General's Department (SETIA) System in order to monitor the government project. While in the private sector, Hajj Management and Fund Board (LUTH) and Permodalan Nasional Berhad (PNB) are also two of the largest Muslim organisations, installing mainframes and networking throughout the country for implementing SISP.

⁴ Anuar, M and Wardah, Z.A (1988), SEARCC 92, pp. 16.01-16.15

5.2 History

Strategic Information Planning was practised by the Prophet Mohammed SAW especially during the war with Quraish (*Uhud*) and the treaty of *Hudeibiyah*. In the treaty of *Hudeibiyah*, the terms of agreement were strongly biased toward the Quraish but since it is the revelation by Allah, Prophet Mohammed saw just followed it without questioning, although most of the Prophet's companions, especially Saidina Omar, totally disagreed. In the end, the result of the treaty had given much benefits towards Muslims, not only in business improvement, but more people were interested in joining Islam. The information revealed by Allah is perfect and knows what will happen in the future.

Another example of SIP in Islamic history was the formation of the Islamic State in Madinah. The outcome of two *Bay'ah* and subsequently the *Hijrah* of the *Sahaba* from Makkah to Madinah led to the emergence of the Islamic society and formation of the Constitution of Madinah (*Al Dustur al-Madinah*).⁵ It must be noted here that this document in its wording and political features clearly and distinctly reflected the genius of the Prophet(saw) in implementing SIP.

Prophet Mohammed saw made defence from attack by the enemy through asking a few Muslims to collect earlier information about the enemy, particularly concerning the enemy's location, strength and activities. His organisation of patrols for obtaining various types of information about the enemy and the terrain, for the security of his town and people is a unique example of his ingenuity and wisdom.

⁵ El Awa, M.S (1980) p. 15

He was able to gather information about the enemy but himself rarely let any useful information leak to the enemy before time. Before and during every major expedition, Prophet Mohammed *saw* sent spies into the enemy camp or enemy territory to gather more information about their military plans and strength. He gave strict instructions to these men and to the people in general that if they found out any information about the enemy they must not spread it around but bring it to the authorities for proper investigation. The Quran cautions the Muslims in this case.

When there comes to them some matter touching public safety or fear, they make it known (among the people), if only they had referred it to the Messenger or to those charged with authority among them, the proper investigators would have understood it from them (directly). Had it not been for the Grace and Mercy of Allah upon you, you would have followed Satan, save a few of you. (4:83)

An explanation by Afzalur Rahman⁶ mentions the critical weather factor as strategic information planning used by Prophet Mohammed *saw* in order to win the war.

5.3 Concept of Strategic Planning in Islamic Information Systems

As Muslims know, they must plan before they pray. They must have *niat* (purpose) on what type of *salat* they want to perform. Then they must make sure of the right *qiblat* to face *ka'bah* or the direction where to go. This all concerns what is known as planning. Muslims have got to know when they can start to pray. All information on the number of *rak'at*; the latitude and longitude have to be gathered first before they face the right direction and this information becomes information planning for performing *salat*.

⁶ Rahman, F (1985), p. 523

Before looking at the concept of SISP in IIS, it is better to glance through the concept of SISP as has been described in Chapter 4 and which is being implemented currently in the western world. There are differences of interpretation about this concept although the methodology in it is similar. For the last two decades, it has been observed that Computer Centres need strategic planning to support the basic purposes, aims and goals of the organisation.⁷

Lederer and Sethi define SISP as a two-sided dichotomy. On one side of the dichotomy, SISP refers to the "process of identifying a portfolio of computer based applications that will assist an organisation in executing its business plans and organisational goals". This is also called an align mode of SISP. It represents a form of SISP that is based on the internal factors of an organisation. However, on the other side of the dichotomy, SISP can entail searching for applications with a high impact, and the ability to create an advantage over competitors. This notion is familiar from the use of IT as a competitive weapon,⁸ and can be called an impact mode of SISP. While the notion in Islamic Information Strategic Planning will be offered not only as a competitive weapons but for the spiritual value which is based mostly on *faith, taqwa, adl* and *tawakal/amanah*.

5.4 Product of SISP in Islam

Strategic thinking, in contrast, is about synthesis. It involves prescience and creativity. The outcome of strategic thinking is an integrated viewpoint of the

⁷ King, W.R (1978),pg. 27-37

⁸ Benjamin, R. I, Rockart, J. F, Scott-Morton, M. S and Wyman, J (1984), pg. 3-10 ;Cash, J. I and Konsynsky, B. R (1985), pg. 134-142; Clemons, E. K and McFarlan, F. W (1986), pg. 91-97; Hammer, M and Mangurian, G. E (1987), pg 65-71; Ives, B and Learmonth; G. P (1984), pg.1193-1201; King, W. R (1988), pg. 103-112.; McFarlan, F. W (1984), pg. 98-103; Parsons, G. L (1983), pg. 3-14; Rockart, J. F and Scott-Morton, M. S (1984)pg. 84-95; Rockart, J. F and Treacy, M. E (1982), pg. 82-88; Runge, D. A and Earl, M. J (1988), pg. 125-146; Wisemann, C and MacMillan (1984), pg. 42-49

enterprise, a not too precisely articulated vision of direction. Such strategies often cannot be developed on schedule and immaculately achieved. They must be free to appear at any time and at any place in the organisation, typically, through set up processes of informal learning that must necessarily be carried out by people at various levels who are deeply involved with the specific issues at hand.

5.5 Implementation of SISP in Malaysia

There are three basic approaches available to the Malaysian organisations seeking to get started in the preparation of a SISP by the establishment of a working committee or task force; or through employment of an outside consultant; application of internal staff or lastly co-operation between the outside consultant and the internal staff as ITM did. Any of these can produce results, and the preferred approach is largely a function of the organisational environment in which planning must take place. Frequently, a combination of methods can prove effective as, for example, using consulting assistance in preparing an initial plan which can then be taken over and maintained by organisation planners.

A task force comprised of members of staff drawn from the line organisations that are the principal users of IS products can be a good vehicle for gaining support from users for planning goals. A task force may be especially desirable in a decentralised organisational situation where each operating division controls its own data processing resources and the corporate systems staff are trying to introduce more control over the management of divisional resources.

Another benefit of the working committee or task force approach is that it can concentrate the efforts of talented people in their own organisation for the preparation of a plan by applying sustained effort over a limited period. A working committee can be called upon to meet for anywhere from a week to a month or two to put together the initial structure of a SISP. If the working committee is chosen, care should be given to secure certain people to serve who have a broad outlook and can contribute to what is essentially a creative attempt. Major components of the organisation should, of course, be represented but it is preferable to keep the group fairly small. A few talented specialists should be invited to participate to keep the group attuned to trends in IT.

While ITM used SISP based on the CSF for a better and successful future planning for its 6,320 staff and 50,000 students with 9 branch campuses, statutory bodies like ITM in Shah Alam, co-ordinated by the Integrated Information Centre, implemented CSF in 1991 with the co-operation of staff from Hewlett Packard Company in Kuala Lumpur and from Hong Kong.⁹ The process of identifying the user requirements by interviewing the top management officers and studying the ultimate aims of the Institute took nearly a year to analyse. This involved nearly 30 lecturers and seven sub-committees with two workshops for brain storming held outside the Institute just to identify the information requirements and where to go.

At the initial stage of planning in ITM, the following issues:

- (I) finding a team leader and team members with required SISP skills;
- (ii) finding an appropriate methodology;
- (iii) computerised support for the SISP methodology; and

⁹ Samat, I (1994), pg 159-163

- (iv) strategy development taking too long, were all identified as major problems by respondents

Difficulties with the methodology employed, were experienced during the ITM's SISP study, but did not rank as major problems since there was assistance given by Hewlett Packard from Kuala Lumpur and Hong Kong. No difficulties in finding a suitable team leader to implement SISP were encountered since ITM created a new higher post known as Head of Integrated Information Centre to monitor both the academic and administration computer centre.

Some of the organisations in Malaysia do not realise the type of SISP that they are using because most of these methods were introduced by consultants. A few consultant companies have introduced SISP when they have been engaged in their project works, for example, Arthur and Anderson with Method/1; and IBM with Business Systems Planning (BSP)¹⁰. IT applications in Malaysia are still at the level of MIS stage because there is a wider relation gap occurring between co-operate planners and the EDP people. Top management personnel are still considering what IS personnel could do to bring business or profit to the organisation.

Sullivan mentions an incident in the US environment. "Are we moving forward or not?" asked the bewildered vice president in charge of strategic planning for IS at a large financial services institution.¹¹ "Clearly, we are spending a lot of money on systems. More employees and customers than ever rely on our technology. My boss reports three levels higher in the management hierarchy than he did ten years

¹⁰Personal discussion with organisations interviewed.

¹¹ Sullivan, C.H (1985), pg. 3-11

ago". He then admits "my manager now has only one-fifth the number of people working for him that he had four years ago". Today he controls about 30% of the systems budget, down from 80% as recently as 1978.

Unfortunately, many organisational problems can hinder the adoption of new technology. An organisation plan deals primarily with the assignment of personnel to tasks and is intended to avoid such problems. Key activities for creating such a plan are to develop a changed management approach and to develop a human resources plan.¹²

Since the researcher was involved in the SISP committee in ITM, he would like to explain how the implementation process took place. In developing the organisation plan, the team in ITM focuses not only on the issues that can prevent adoption but also on those that can facilitate it. It considers these issues both within the MIS department and throughout the rest of the organisation. It first identifies the MIS departments and key functional areas' management practices necessary to expedite adoption. The MIS department's practices include the planning and control of information systems. Functional area practices include the roles and responsibilities of individual faculties and their personnel plus the hiring and training of new personnel.

The team in ITM converts the "IT strategies" into more specific plans for data and applications. Key activities for accomplishing this are defining data and

¹² Ledcrer, A.L and Gardiner, V (1992)pp 76-83

applications; defining development and maintenance approaches; and developing a data and applications plan.

The team comprised of lecturers in ITM designs initial data entities and high-level specifications for applications. It also further defines the future business processes and identifies requirements for data management, security, and training. The team specifies actions needed to implement the proposed architecture.

The team also evaluates tools to employ during project development and maintenance to improve their efficiency and effectiveness. Examples include application packages, CASE techniques, prototyping, and end-user computing. In addition, the team identifies activities required to put the tools and techniques into practice.

Finally, the team carefully assesses the costs, benefits, and risks of the various IT strategies. For evaluating capital projects, each faculty typically has its own rules. The team uses those techniques to remain consistent with the organisation's practice.

The team identifies the resources and actions needed to put the applications development and maintenance tools into practice. It prioritises the actions. It then assembles a data and application plan and presents it to the top management for approval.

To support "the data and application plan", strategic information planning (SIP) produces a technical architecture of specific computer and communications hardware along with supporting database and systems software, and a plan for implementing it. The activities of this work segment are to develop a technical architecture; and to develop a technology plan.

The technical committee first identifies the hardware and software required to support the data and application plan. It then defines an overall technical architecture to meet the requirements while being flexible enough to accommodate future requirements and changes. It may also adjust the data and application plan if the anticipated expenditures are excessive.

SIP requires a means for guiding the ITM towards implementing its organisation plan, data and application plan, and the technology plan. Activities of developing a plan to accomplish this are by developing a migration plan; by preparing an information action plan; and by approving and initiating the information action plan.

The project monitoring committee in ITM first develops alternative migration plans. Each migration plan includes an overall approach, key projects, and their order of implementation. The priorities set in the "data and application plan" determine the order. The team selects one migration plan based on its costs, benefits, and risks.

With the approval of the information action plan, ITM can start implementing new projects. This work segment is a model for beginning the implementation process with an individual project. It illustrates the connection between the overall SIP activities and the implementation of specific projects. For small, simple projects, this work segment is quite brief. For large, complex projects, it is prolonged. The key activities here are the initiation of the project definition; the definition of requirements and development of a conceptual design; and the obtaining of management approval.

5.5.1 Background on Muslim organisations

5.5.1.1 Hajj Management and Fund Board (LUTH)

LUTH was established in November 1962 to deal with pilgrims wanting to go to Mecca. It has made several investments in buildings, lands and plantations. Strictly speaking, it is not a bank but a fund management. It invests its funds in the areas approved by the *Shariah* and instead of paying interest it gives bonuses to its investors. LUTH key investment decisions are taken by an Investment Advisory Board whose members are appointed by the Prime Minister of Malaysia. By the end of November 1990, LUTH was operating with 83 branches all over Malaysia including Jeddah, Saudi Arabia. ¹³

5.5.1.2 Keretapi Tanah Melayu (KTM) "Malayan Railway"

Malayan Railway known as Keretapi Tanah Melayu (KTM) Bhd was established in 1996. Before it became a company, it was known as KTM and owned by the

¹³ Lembaga Urusan Tabung Haji (1990) p. 29

Malaysian Government. The computer centre is operating on the IBM mainframe headed by Senior Manager of MIS/EDP and reporting directly to the Director of Corporate Services.

5.5.1.3 Perusahaan Otomobil Nasional Berhad (PROTON)

Perusahaan Otomobil Nasional Berhad, or PROTON, was founded in May 1983 as a 70-30 venture between state-owned Heavy Industries Corp. of Malaysia (HICOM) and Mitsubishi Motors. In 1986, the Saga became Malaysia's best-selling car, with 47% of the market. It was exported for the first time: 25 units to Bangladesh. The first 100,000 Protons drove off the assembly line in September, 1988. The car began selling in Britain in 1988. By July, 1993, half a million Protons have been made.¹⁴ Proton has 64% of the country's automobile market and the backing of Prime Minister Dr Mahathir Mohamad who envisions a thriving national car industry for the 21st century. At present, Proton sells some 34,000 cars to 39 countries.

5.5.1.4 CELCOM

CELCOM is Malaysia's largest mobilephone service provider where over 70% of Malaysian mobilephone subscribers use CELCOM products with the brand name of CELCOM ART 900 and CELCOM GSM. Technology Resources Industry owns CELCOM, the country's largest cellular operator.¹⁵ With 8 cellular service providers for a population of 20 million, Malaysia's cellular industry is among the world's most competitive. As a result, Malaysians enjoy a wide variety of choices

¹⁴ Fletcher, M and Steven, K (1997) <http://pathfinder.com/@@eZs6nwcADqXjri2W/Asiaweek/>

¹⁵ Newman, M (1996) p. 25

and competitive prices. CELCOM ART 900 is CELCOM's first service offering, launched back in 1989. In a few short years, it has become Malaysia's most popular cellular system, with nearly 800,000 customers. ¹⁶

5.5.1.5 Permodalan Nasional Berhad (PNB)

PNB views IT as a strategic weapon to attain competitive advantage. IT is definitely a vital link in PNB's daily operations today especially since it is actively involved in a diverse range of business activities with accumulated investments totalling more than 3.5 billion pounds. PNB, was established in March 17, 1978 and is a conglomerate established specially to mobilise Bumiputera savings.

The organisation uses IT extensively in managing the unit trust schemes, Amanah Saham Nasional (ASN) and Amanah Saham Bumiputera (ASB), to ensure a unit trust with the largest and most convenient trading outlets. Realising that the IT industry promises a bright future, PNB has also in recent years offered its services and expertise for the computerisation of two major Government organisations. It started with the computerisation of Post Office System (POS) Malaysia where all post offices around the country are now able to conduct PNB's unit trust transactions on-line.¹⁷

The Road Transport Department (RTD) also utilises PNB's IT services to attain its computerisation objectives. The objectives include improving the facilitation and

¹⁶ CELCOM: (1997). Available at: <http://www.celcom.com.my/>

¹⁷ Taib, Hilmey (1994) (ICIT 94) pp. D1-D16

control of the country's land transport sector; improving road safety and improving RTD's policy making exercise.¹⁸

The organisation claimed to have the necessary "integrity" to offer IT services to three million people who entrusted their hard-earned money to ASN/ASB. One of the factors which helped PNB to become a good systems integrator is its experience and track record from previous engagements. In addition the organisation is able to get on with computerisation projects without having to wait for initial funding, as well as effectively integrating local IT suppliers. Since the introduction on the utilisation of IT to PNB, many of the Bumiputera have shown an interest to join as shareholders because of the ease of opening accounts and withdrawal of money from the banks and post offices available throughout the country.

5.5.1.6 PETRONAS

Founded in 1974, PETRONAS has grown into one of the world's leading oil companies and is an integral part of the ongoing Malaysian success story. Listed among the prestigious Fortune International 500, PETRONAS is today a fully integrated oil and natural gas company involved in both upstream and downstream activities including sizeable petrochemical and fertiliser plants.¹⁹

The company's exploration and production projects are undertaken by its subsidiary, PETRONAS Carigali, and many of the facilities are operated in

¹⁸ New Strait Times (1994) p. 19

¹⁹ Newsweek (1993), Oct 18, 1993

partnership with other well-known international oil companies. Malaysia is ranked 22nd world-wide in terms of oil reserves and 14th in terms of gas reserves which are situated in the heart of the world's most dynamic economic region, the Asia Pacific.

The company's downstream activities have developed alongside the upstream. PETRONAS operates a refinery in Kertih, Terengganu producing a whole range of oil products such as liquefied petroleum gas, naphtha, motor gasoline, diesel and kerosene. In order to keep up with the Malaysian economy, PETRONAS has had to expand its refining capacity with a vast plant in Malacca which will be able to process both Malaysian 'sweet' crude as well as imported sour crude. PETRONAS has also developed a marketing and distribution network within Malaysia and was the first oil company in the region to market unleaded gasoline under the brand name PRIMAS.

5.5.1.7 ZAKAT COLLECTION CENTRE (PPZ)

PPZ was established by Majlis Agama Islam Wilayah Persekutuan (Federal Territory Islamic Religious Council) after a survey and proper planning was undertaken for about one and half years. PPZ started operationally by the beginning of 1991, and is responsible only for collecting and distributing of *zakat*. PPZ is now using computerised *zakat* collection systems and manages as a corporate part of modernising management of *zakat* collection.

PPZ, Kuala Lumpur undertakes the assessment of collecting *zakat* and its distribution to the *asnafs*. All the activities for registration are done through computers. Receipts of *zakat* paid by the customers are also produced by the computer. At the end of a *haul* (period), the computers produce notices to the customers to pay their *zakat*.

PPZ has been tremendously successful in collecting *zakat* compared to other *zakat* centres in Malaysia after it was established. Collection has increased to about 73% within period of 2 years (1991 and 1992).²⁰ The total number of EDP staff is 5, total IT investment RM700,00, and the annual IT investment is RM50,000. ²¹ In 1994 the total collection of *zakat* reached 7.5 million pounds compared to 1993 where it was only 6 million pounds. See Figure 17 for total of collections since 1991.²²

Year	Million #
1991	3.5
1992	5
1993	6
1994	7.5

Figure 17 :Total no of *zakat* collection

5.5.1.8 Bank Islam Malaysia Berhad (BIMB)

BIMB was incorporated on March 1, 1983 and the actual operations started in July 1983.²³ At present the bank offers the following facilities:-

²⁰ Pusat Pungutan *Zakat* (1993) p. 36

²¹ New Straits Times (1994) p. 15

²² Berita Minggu (1994) p.6

²³ Encyclopaedia of Islamic Banking an Insurance (1995), London, p. 338

- a) Current Accounts deposits under the principles of Al-Wadiah with no distribution of profits.
- b) Savings Account deposits also under the principles of Al-Wadiah with distribution of profits at the discretion of the bank; and
- c) Investment account deposits for periods ranging from one month to five years and over.

5.5.1.9 Syarikat *Takaful* Malaysia Sdn Bhd

Syarikat *Takaful* Malaysia Sdn Bhd, the first Islamic insurance operator established in Malaysia, as well as in the region, was incorporated on 29th November 1984. It officially commenced business operations on 1st August 1985. Syarikat *Takaful* is a subsidiary of BIMB with 87.15% of its equity held by the Bank. Other shareholders are State Islamic Councils and *Baitulmals* of various states in Malaysia. There are two *Takaful* funds administered by Syarikat *Takaful* Malaysia. The funds are: Family *Takaful* Fund under the Family Business and General *Takaful* Fund under the General Business.²⁴ In 1996, Syarikat *Takaful* Malaysia Bhd achieved a profit before *zakat* and tax of £ 4 million , a 27.7 per cent improvement.²⁵

5.5.1.10 Department of Islamic Development of Malaysia (JAKIM)

JAKIM was established in 1968 as the Secretariat of the National Council of Islamic Affairs, Malaysia. In 1977, the Secretariat changed to become the Islamic Affairs Division, Prime Minister's Department and headed by a Director-General.

²⁴ Yusof, M. F (1996), pp 12-14

²⁵ Bank Islam Malaysia Bhd (1997) p. 13

In 1996, it was upgraded to be JAKIM. The vision of JAKIM is to assist in the creation of a progressive and morally upright *ummah* based on Islamic principles in line with the national vision through an efficient and effective Islamic Affairs Management organisation. The objectives of setting up JAKIM are to ensure the sanctity of Islam by adhering to the teachings of *Ahli Sunnah Waljammah* and to create peace and harmony among the *ummah* through effective planning and implementation.

JAKIM, will function as the central agency in the planning and management of Islamic affairs and the development of the *ummah* with the following functions:²⁶

1. Responsible for the planning which determines the development and progress of Islamic affairs in the country.
2. To formulate policies for the development of Islamic affairs in the country and to safeguard the sanctity of the *aqidah* and the teachings of Islam.
3. To help draft and streamline laws and regulations that are necessary as well as to evaluate and co-ordinate the implementation of the existing laws and administration from time to time in efforts to resolve problems faced by the *ummah*.
4. To implement programmes for the development of the *ummah* and the inculcation of Islamic values in the administration of the country.
5. To streamline the enforcement mechanisms of laws and administrative procedures pertaining to Islamic affairs in the country.
6. To evaluate Islamic affairs programmes that are carried out in the country.

²⁶JAKIM (1997). Available at: <http://www.islam.gov.my/profail/BI/profile.html>

7. To act as a compiler, disseminator and centre of information on Islamic affairs
8. To implement programmes for the development of the *ummah* through regional and international co-operation.

One of the organisations in JAKIM is the Islamic Information Division (SISMI) that was described earlier in Chapter 3.

5.5.1.11 MARA INSTITUTE OF TECHNOLOGY (ITM)

In 1967, Maktab MARA was renamed Institut Teknologi MARA (ITM). The year also saw a move to a new campus at Shah Alam, in anticipation of its growth. It was an autonomous body until 1976 when the ITM Act of 1976 was introduced. With the passing of the act, ITM became a statutory body within the Ministry of Education and under the supervision of a council.

Today, ITM has far outstripped the aspirations of those who initiated and planned it. It provides education and training in a wide range of sciences, technology, business management and professional courses to 32,968 full-time and 14,958 part-time students.

The main campus stands on a 150-hectare piece of land on a picturesque hilly area in Shah Alam, the state capital of Selangor Darul Ehsan about 24 kilometres from Kuala Lumpur. Branch campuses were established in Sabah (1973), Sarawak (1973), Perlis (1974), Terengganu (1975), Johor (1984), Melaka (1984), Pahang (1985), Perak (1985) and Kelantan (1985).

5.5.1.12 Syarikat Telekom Malaysia (STM)

The vision of STM is to be a world class telecommunications company providing total customer care. STM's mission is to provide total customer satisfaction as they strive to become a world class telecommunications company. They will achieve this through developing people, products and services of the highest quality and meeting the needs of their nation, employees and shareholders.²⁷

5.5.1.13 MALAYSIA AIRLINE SYSTEM (MAS)

MAS, as Malaysia's national carrier, took to the skies on 1 October, 1972, with a network comprising 34 domestic and 6 International destinations. MAS was computerised in 1976. That same year, it took delivery of its first wide-body aircraft, a DC10-30. Frankfurt, Seoul, Amsterdam and Paris were added to its destinations. Under the government's privatisation plan, MAS became the first government agency to go public. In 1994, under the leadership of Tajuddin Ramli who also owned CELCOM as explained earlier, Osaka became Malaysia Airline's 95th global destination. MAS became the first foreign airline to fly to Macao on 9 November 1995. By the end of 1995, Beirut, Lebanon and Davao in the Philippines came on-line.

MAS was rated 'Best In First Class Service' and 'Top Five For Business Class On Long-haul Flights' in 1994 by Inflight Research Services of UK.²⁸

²⁷ Telekom Malaysia (1997). Available at: <http://www.telekom.com.my/>

²⁸ Malaysia Airlines (1997) MAS history. Available at: <http://www.malaysiaairlines.com.my/>

From now until year 2001, MAS will take delivery of 14 more Boeing 777s and 10 more 747-400s, with an option to buy more. The company has already signed up as the first customer for Boeing's ultra-long-range 777-200X, ordering 15 aircraft for \$2.1 billion. With Kuala Lumpur and Washington negotiating an open-skies agreement, MAS wants planes that can fly non-stop from Kuala Lumpur to Chicago and New York.²⁹

5.5.1.14 TENAGA NATIONAL BERHAD (TNB)

TNB, formerly known as the National Electricity Board of the State of Malaya is a leading Malaysian corporation involved in the electricity energy business. The majority shareholders are Khazanah Holding Berhad (Malaysian Government owns the company) with a stakeholding at 40% and Minister of Finance Incorporated with a stakeholding at 22 %. Shareholding among the Bumiputeras where almost 98% of them are Muslims stood at 34.45%.³⁰ TNB is the second largest company in terms of market capitalisation on the Kuala Lumpur Stock Exchange. Its outstanding shares had an aggregate market value of approximately £ 7 billion at the end of the financial year. The Group of Companies is involved in the manufacture of transformers, consultancy services, research and development, higher education, property management and development.³¹

²⁹ Shameen A (1997) 'Asiaweek 25/4/97. Available at: <http://www.asiaweek.com/Asiaweek/>

³⁰ TNB Annual Report (1994). p. 42

³¹ Corporate Profile of TNB (1997). <http://www.tnb.com.my/htdocs/html-dir/profile.htm>

5.6 Future Applications

5.6.1 Internet

Most of the big organisations in Malaysia have implemented internet as part and parcel of their business strategy. With the help of JARING, the government supporting body, most of the government departments and higher institutions have started introducing their activities in the internet especially by the year 1995.

5.6.2 File transfer protocol (FTP)

FTP is a means of accessing files that are stored on remote computer systems. Many organisations are using these facilities as part of their networking activities. This is supported by the findings in Chapter 6.

5.6.3 World-Wide Web (WWW)

The World-Wide Web is touted as the most popular of Internet navigational tools nowadays. It is a hypertext and multimedia system that lets you hop around the Net, read documents, and access images and sounds linked to a source.

The list of some WWW which are related to Muslim activities in Malaysia are as follows:

a) <http://www.jaring.my>

Describes the Islamic organisations in Malaysia involved in the area of research, education, library, news and business.

b) <http://www.islam.gov.my>

This home page was prepared by the JAKIM concerning the historical background, vision, mission, message from the Minister and profile of the organisation.

5.6.4 Mailing Lists

There are literally hundreds of discussion groups that stay in touch using e-mail based systems known as "mailing lists". People interested in a topic "subscribe" to a "list" and then send and receive postings by e-mail. For a good introduction about Malaysia in relation to this topic, send e-mail to for example:

LISTSERV MISG (Malaysian Islamic Study Group)

5.7 Problems

5.7.1 Problems in concept

At the present time, Muslims problems are not *Ijtihad* per se, *Ijtihad* has never ceased in their history. What they need is a proper mechanism for the formulation of public opinion. This needs to be done in a systematic way. First, they need a proper understanding of the principles (*Usul*) that provide them with a framework of thought. Secondly, they need to look for the relationship between these principles and their legal, socio-political and economic problems. Third, they need to reach a consensus of opinion on certain methodological and practical problems. Fourth, they need to develop a mechanism for a free interplay of individual opinions in an atmosphere of mutual respect and trust. This would be the re-enactment of the principle of '*Ijma*' in their intellectual transactions.

5.7.2 Problems in Malaysia

The attempt to successfully implement SISP in Muslim organisations in Malaysia is still discouraging. There is still a big gap between IS personnel and the Top Management Managers. Some institutions are still doing the task of data processing for their computer centres. Some of the information centres are still producing reports for MIS purposes. By the beginning of the nineties only a few top management people were able to use IT facilities for their strategic planning for competitive advantage.

The following problems were recorded during and at the end of the study made by University of Technology Malaysia groups on the Ministry of Land and Co-operative Development of Malaysia:-

1. Top management presence, support and participation are crucial during all phases of the project. Their commitment ensures success. Steering and Technical Committees comprising senior officers and top management were set up to oversee and guide all the activities of the project through a liaison officer. These committees provided valuable feedback and administrative support for the successful implementation of the various phases and training programmes undertaken. The committees were especially valuable in the building of the EIS for top management and senior officers.

2. Training and manpower development in computer usage during the study enhance receptiveness and acceptance of all employees in the ministry. At the onset, the degree of computer literacy was slow, but this factor soon changed with continuous and programmed exposure and training at all levels of personnel. Again, top management participation exemplifies commitment. At the end of the study, the knowledge level has risen to total acceptance and a high degree of sophistication.

Business managers were still thinking of ways in which EDP staff could bring profits to the organisation, other than processing data. It is not easy to convince the top managers to work together with the IS staff and to think on how to use IT facilities for strategic planning. There is a similar situation with the report made by Lederer (1988)³² in the USA. The implementation of SETIA by EPU in the Prime Minister's department for SISP was not fully successful, since the data capture and data entry were not up to date.

It is always more difficult to initiate change in the public sector because of its size, complexity and variety of corporate cultures. Dr Raja Malik, (Head of the National Computer Training Centre, INTAN, Kuala Lumpur) observes "You get some who go by the book, following procedures closely; and some innovative ones, who bulldoze their way through. A large portion fall in between".³³

³² Lederer, (1988), pp. 445-460

³³ Mohamcd, R.M (1995), p. 13

Moreover, unlike the profit-focused private company, the public sector is influenced by various political and social forces. Each department has its priority. Restructuring is difficult, even co-ordinating between departments is a huge task in itself, not to mention the task of retraining huge numbers of staff. In the end, undergoing process re-engineering requires a change of mindset, and getting priorities right.

5.8 Proposal

5.8.1 Steering Committee

An information systems steering committee, by definition, is a group of management personnel within an organisation who are charged with the responsibility of providing the overall direction and follow-up of the activities of the EDP department. It is not charged to manage the day-to-day functions, nor to resolve all problems of a minor nature. More probably, it should assist in the establishment and review of short and long range objectives and resolve major problems that may occur which would deter accomplishment of these objectives.

The structure of a steering committee can have many variations. It may include the Vice President and the Information Systems manager, or it may involve all of the executives and department heads. The latter would be preferable to the former, but a mix of both would probably be the best.³⁴

³⁴ Carlin, J. W (1978)", pp.32-33.

Miller in 1979 has suggested that there are many ways in which the EDP department; user departments; an executive management group consisting of most or all of the top functional executives; senior management, such as the Chief Executive Officer (CEO) and executive vice presidents can interact to develop a strategic plan.³⁵ An approach that has worked for many organisations is as follows:

- a. The Steering Committee, and senior management define the role of the systems department and the basic EDP approach of the organisation.
- b. User groups and the Steering Committee, working in the systems department, identify and prioritise future systems development and maintenance requirements.
- c. The Steering Committee reviews alternatives for long-range goals and stages and selects one of the alternatives for in-depth planning.
- d. The Steering Committee reviews the total plan, including long-range goals and intermediate stages, implementation plans (specific projects, etc), and control procedures.
- e. The Steering Committee approves the plan or requests modifications to the plan.

³⁵ Miller, W. B (1979), pp.36-39

The recent advocating of the use of steering committees to select MIS projects is of particular interest. Eighty-five percent (85%) of the companies surveyed by Nolan had functioning executive steering committees, up from 50 percent as reported in the mid 1970's.³⁶ In a survey of 144 Canadian organisations to discover the structure, composition, and operating processes of these corporate steering committees, Drury ³⁷ found that these committees had significant authority over establishing priorities for data processing; reviewing requests for resources, people, and equipment; and resolving conflicts concerning user needs. In addition, they had minor authority over monitoring the progress of data processing projects; deciding the allocation of DP expenditures; approving software package purchases; and evaluating interfunctional applications.

The use of steering committees to select SISP projects differs from the other selection mechanisms. In essence, steering committee deliberations represent a group decision making process because of the broad representation from various user departments. This often ensures a degree of credibility and acceptability for decisions reached. According to Zmud ³⁸, a steering committee provides a "means of contending with the political manoeuvrings of organisational units". In contrast, the other selection mechanisms represent an individual decision-making process since final authority over project selection resides within an individual department. To the extent that this analogy holds, it can be expected that steering committees will display group decision making behaviour and the other selection mechanisms will display individual decision making traits³⁹.

³⁶ Nolan, R. L (1982), pp.72-79.

³⁷ Drury, D. H (1984), pp.257-266.

³⁸ Zmud, R. W (1983), p. 361.

³⁹ Bouchard, T (1969) pp. 1-29

5.8.2 Management's role in Information Management Strategy Planning.

The basis of this research is that senior management should participate in the planning of SISP if good results are to be achieved. Participation implies both working in and the supervision of the process.⁴⁰ The initial assumption is that senior management in Malaysian organisations should perform the following tasks in connection with the developing of information management by making decisions regarding to information management investments; making decisions regarding to the organisation of information management; define the focuses of developing plans; set benefit targets for information management; be prepared to offer its views concerning the overall planning; and top management people should be involved in the information processing architecture.

Senior managers play an important role in the initial stages of planning, when the needs and objectives of the business are examined. Their role diminishes during content formulation, but grows again when preparing for an implementation decision making. Thus, senior managers should be deeply involved in the initial and latter stages of the process, but less so during its detailed design.⁴¹ Successful SISP requires management's unreserved support for the process. This has been discussed for decades, but at present, it is an absolute necessity. It is of great value if the strategy formulation initiative is taken by management, in which case interest in the process will be high.

⁴⁰ Kanter, J (1984) pp. 322-348

⁴¹ Reponen, T (1990) pp. 310-331

Management is responsible for directing the organisation to consider IT as a realistic possibility. Also, it must be aware of the links between business operations and IT. Senior management is also responsible for providing information regarding strategy formulation and its effects. This is what happened during the earlier stage of SISP in ITM, where all the top management staff gathered and did brain stormed for two days in Morib, Selangor.

IT has many effects on organisation operation, both internal and external, about which the dissemination of information should occur in the appropriate fashion. In the area of information management, rumour and supposition spreads very quickly and operation may thus become exacerbated.

It is management's task to create a good atmosphere in the organisation, leading to the examination of IT as a realistic possibility. This requires management acquainting itself sufficiently with the potential of IT. Reaching these goals requires that management further acquaints itself with information management issues. They should be able to take part in planning, using their own terminology and language. Management is neither willing nor able to participate in labour intensive planning projects; instead, it should be permitted to make a soft input.

Couger, J.D (1988) made a survey through a separate Delphi study of IS executives and Human Resources Management (HRM) in Fortune 500 firms, and found that some of the issues identified by HRM executives need more attention by IS management.⁴² For example, among the top 5 issues were the preparation of a

⁴² Couger, J.D (1988), pp. 161-174

strategy to transfer certain Information Systems tasks to users; Retrain personnel; define skill requirements and encourage Information Managers to be businessmen rather than technologists.

5.8.3 Information Management Education (IME).

One of the ways to make Muslim managers able to compete with the advanced innovation in IT is by educating them. IME has become increasingly important for executive education, due to the competitive effects of IS. The most effective ways to teach ISP knowledge and skill, however, still needs to be determined. In many cases information management problems are in fact due to inappropriate communication and planning. Managers may be too busy to formulate and explain their preferences explicitly, and there can also be serious misunderstandings about IS. Managers are a very difficult group to teach, due to their other responsibilities and their lack of time. There is a similar situation in Malaysian organisations where top management are always busy in making decisions or attending too many meetings. The Action Learning approach in SISP has been used in one Finnish company.⁴³ Action learning was found to be effective in ISP. The project comprised interactive planning, backed up by educational sessions.

The content of IME is important for managers involved in the co-ordination planning of organisational information processing. Managers preferably should be aware of why their organisation is using IT, but not necessarily of how they are using it. IME also contributes to lowering unrealistically high expectations.

⁴³ Ruohonen, M (1990), pp. 137-146

Participation in ISP can diminish negative attitudes and fears. With education, people can contribute to the management of IT phenomena and also to the practical skills in the managerial use of the IT.⁴⁴ The management of strategic change is an important theme in IME. The SISP also demands insight into the business effect of IT. A holistic view of IT requires constant monitoring of the environment. Top managers may find it difficult to get this information from their IS staff, since IS people may be too busy with applications backlog or technical problems. The links with business operations may be forgotten, due to time pressure or insufficient insight. Managers therefore need IME to realise the full range of opportunities and alternatives for the strategic use of IT.

Educational support for SISP are categorised into three distinctive categories and are defined for IS education and training:

- (1) the designing view (designing and developing computer-based IS);
- (2) the exploiting view (using information systems); and
- (3) the planning view (setting the goals, guidelines, and standards for IS development)

The exploiting view is a necessary prerequisite for all of us confronted with the pressure of the "information society"; the designing view is necessary for the systems designer, who needs to know the limit of IT; but planning is crucial for managers. Education for information systems is one of the most important educational issues in IME. One needs the planning view when the use of IT, strategy and organisational activities are transformed into one unified entity. The

⁴⁴ Harris, P. R and Harris, D. L (1983)pp. 22-31

problem of the gap between management education and practice has been a serious consideration.⁴⁵ "Closing the gap" requires knowledge of the nature of learning, i.e., how to integrate practice and theories. Theoretical pre- understanding is also necessary for effective operationalisation. Therefore, what managers need is not restrictive and normative "packets of knowledge"; they deserve "thinking models and tools" for problem solving.

The method of Action Learning is among the most promising perspective for managerial learning. Self-reflection and the evaluation of learning are essential when unfamiliar concepts and ISP procedures are being tackled, and it is also important to identify the characteristics of the managers, organisation and task in question. Furthermore, the degree of change and turbulence experienced in the organisation's environment tends to be reflected inside the organisation, in terms of opportunities for managers to develop.⁴⁶ Stability does not create innovations, so the characteristics of the environment and organisation impose limitations on management development. The following development effects have been recognised:

- (1) Development occurred in each case where the job included a significant element that was completely new to the manager (for example, when a financial analyst was made a general manager).
- 2) Development of greater awareness and perception is not enough; it is necessary to learn from taking action. Success under such circumstances led to

⁴⁵ Smith, M.E and Davies, J (1983)pp. 39-48

⁴⁶ Davies, J and Smith, M.E (1984), pp. 169-183

increased confidence, and thus to willingness to launch out into the unknown again.

(3) Procedures to be concerned with management development policies.

Most of the managers felt that they had initiated their developmental processes themselves, and that these had not resulted from the application of planned progression systems.

In other words, development takes place when managers are moved to new circumstances, where they confront novel situations and problems (a new task, a new job), and where they have to develop new ways of dealing with these situations. In order to achieve effective learning, basic knowledge and skills are needed to operate with; the learned knowledge must then be applied and evaluated in the context of experience, since otherwise the outcomes of education may remain superficial. Ongoing learning must also be supervised, in order to fill any possible gaps.

To better facilitate the introduction of technology, training is only one aspect to be addressed. Work flow analysis, work flow design, human computer interface, job redesign, job regrading, user acceptance and systems delivery are other aspects of the people issues which need also to be addressed, and these are often outside the capabilities of either IT and Human Resource (HR) functions. A new profession needs to be invented combining the knowledge of HR and IT to deal with this issue. One proposal is to set up a department for technology assimilation.

In the simplest terms, an organisation consists of the input, processes and output. The function of IT is not only to speed up processes. It also acts as a feedback monitoring and steering tool to control the quality of the output. It is still difficult for the majority of Malaysian organisations to implement SISP; because of lack of exposure on the methodologies and less support from the top management. The application of IT is still under-utilised since not many organisations implement the facilities available from the IT such as e-mail and office automation. Existing government policies and strategies such as tax exemption for computers and related peripherals; the availability of sufficient infrastructure facilities such as MAYPAC, JARING and LUTH subsidiary company; tax incentives and expertise;⁴⁷ indicate a more favourable and supportive environment towards greater enhancement and factor growth of computerisation and the use of information technologies in the nation.

5.9 Conclusion

The conditions under which *ijtihad* was formerly practised by the *ulama*' of the early periods are no longer what they were. For one thing, the dominance of statutory legislation as the main instrument of government in modern times has led to the unjust demand of further restrictions on *ijtihad*. The fact that the law of the land in the majority of Islamic countries has been restricted to the enactment book, and the parallel development whereby the role of interpreting the enactment has also been assigned to the courts of law, has had, all in all, a discouraging effect on *ijtihad*.

⁴⁷ Samat, I and Ally, M (1994), Conference in Shanghai, PRC, 20-24 Oct 1994.

Essentially the same view has been put forward by *al-Tamawi*, who points out that *ijtihad* by individuals in the manner that was practised by the *fuqaha'* of the past is no longer suitable to modern conditions. The revival of *ijtihad* in our times would necessitate effort which the organisations must undertake for an *adl* on judgement or decision making to be made. Since education is the business and responsibility of modern governments, it should be possible to provide the necessary education and training that a *mujtahid* would need to possess, and to make attainment to this rank dependent on special qualifications. Al-Tamawi further recommends the setting up of a *Majlis* of qualified *mujtahids* to advise on the preparation and approval of statutory law so as to ensure its harmony with *shari'ah* principles.⁴⁸

Any information strategy for the Muslim world (MW) must take into account the need for Muslims to protect themselves from too many external stimuli; too much information is just as manipulative as dependency on external information sources. At present, there seems to be at once too much information and too little information; there is abundance, indeed super-abundance, of worthless, obnoxious, even manipulative information, and a scarcity of relevant, high-quality information. The abundance of manipulative information is the result of information transfer from the industrialised countries which research has shown to be largely irrelevant to the needs and requirements of MW. The lack of quality information is due to suffocation of indigenous scientific talent and authorship and the absence of a local publication industry, as well as any means for MW to share their resources on a *ummah* wide basis. There is a need, on the one hand, to fight the degradation of

⁴⁸ Al-Tamawi, *Al-Sulutat*, (1973), p. 307

their moral and social environment, and, on the other, to develop local and international avenues and channels of indigenous self-expression.

The challenges that the information age has cast before the MW can be successfully met only by giving a practical shape to the central concepts and values of Islam. Information technologies present them with some very tricky and complex choices: only by taking charge of the situation, and guiding themselves by the conceptual operators and value parameters of Islam can they avoid waking up one day, some time in the distant future, to discover that they have lost the independence and integrity that they fought for decades to achieve. It is indeed ironic that an historical epoch noted for its lack of concern for eternal values now confronts them with formidably interlinked problems which can be solved only by going forward to the pragmatic values of the world-view of Islam.

Some of the values of the age of enlightenment began to creep into the interpretation of the Modernists on Islam. What they mean by *ijtihad* is what some humanists consider the individualistic spirit-that every human decides for themselves. This is not what *ijtihad* means. Not everyone can decide what should be done. Certainly not every human should decide for themselves on matters they do not know about. They should decide on the authority of those who know, because part of knowledge is based on authority.

On top of this is the raising of false problems which continues to this day, problems which are in fact insignificant. They do not discuss the nature of Islam, or the question of education, or economics but whether transplants are allowed or

not, or is it permitted to use the water of a certain coconut for ablution. None of these things are real problems, nor can verdicts of *ijtihad* or *taqlid* be passed on them. It is an insult to the great *ulama* of the past to consult their books on such things. Unfortunately these things are still happening in the Muslim world today.

To develop the appropriate information activities, the conditions of the Malaysian environment must be considered in all phases of design and transfer. Specifically, the new technologies must:

Use abundant resources and elements of production; use the existing information infrastructure; consider implications of output; take into account local attitudes, practices, traditions; stimulate indigenous activities; be both useful and feasible to the recipient nation; consider the specific characteristics, attitudes, and needs of the different levels of users.

Thus, it does not seem reasonable to install computers linked to a central facility in a nation where telephone lines are hard to come by and unreliable at best⁴⁹. Furthermore, "in a country in which political events, economic requirements, demands on the quality and standards of life, etc., are dynamic and undergo frequent change, IS must be equally dynamic and amenable to change"⁵⁰.

Analysts from both the more advanced and the less developed countries must also be concerned with the types of cost to be incurred in information activities. Will they be one-time costs with immediate/future benefits? Will they be recurring costs

⁴⁹ Robredo, J. (1976), pp. 251-254

⁵⁰ Keren, C. (1977), pp. 44-57.

to be constantly absorbed by the developing nation? Furthermore, will the costs be internal or external? That is, since each foreign monetary unit is precious and subject to diverse and competing priorities, must the nation be concerned with foreign money transfer?

Strategic planning, as it has been practised, has really been strategic programming, the articulation and elaboration of strategies, or visions, that already exist. When companies understand the difference between planning and strategic thinking, they can get back to what the strategy-making process should be: capturing what the manager learns from all sources and then synthesising that learning in to a vision of the direction that the business should pursue.

CHAPTER 6

EMPIRICAL INVESTIGATION ON MALAYSIAN MUSLIM ORGANISATIONS

6.1 Introduction

Topics within the information systems (IS) fields have become popular areas of study over the past 30 years. These include the areas of management support systems (MSS), SISP for IS development and the relationships between business and IS strategy to ensure effective deploying of IT resources. Corporate management in Malaysia is becoming increasingly aware of the potential contribution of knowledge. Information is not only a basis for operational decision making, but also a valuable strategic resource in its own right. Indeed, IS are fast becoming indispensable allies in marketing, customer service, product development, human resource management, strategic planning, and many other jobs.¹ For integration to happen successfully, IT managers must be aware of top management's objectives. This will enable managers to ensure that the contribution of the information resource (IR) is maximised in the organisation.

This chapter reports empirical investigation of Malaysian Muslim IT managers' attitudes towards their Islamic perspective in SISP and the background in their IS departments which supports the implementation of this concept. The actual study was designed firstly to identify the problems encountered by senior IT managers.

¹Harris, C. L(1985), pp 108 - 114

Secondly, to assess the objectives of their top management and the decisions they make from an Islamic perspective. The study also sought to identify techniques or rituals used by the senior IT managers to overcome difficulties.

In 1984, Dickson² reported that to improve ISP was the key issues facing information professionals. In a more recent investigation into the challenges of IR planning, Lederer and Mendelow³ found that a group of senior IS managers almost unanimously identified the ability to know top management's objective as the greatest difficulty they faced in developing IS plans.

6.2 Background

There is evidence that many organisations experience difficulty in realising the full potential of the IR. There are reports of systems implemented late and over budget with the anticipated saving being unrealised. This state of affair qualifies for the deployment of IRs as a general management issue rather than a technical problem to be addressed exclusively by IS managers.

Information must be considered in the same manner as other resources of the organisation's management to fulfil the overall needs of the organisation. To do so, there are three prerequisites. Firstly, general managers must define the role of information in their organisations and ensure that this role is formally reflected in their strategies and plans; secondly, IS professionals must develop a functional plans

² Dickson, G. E., Leithesre, R. I., Wetherbe, J. C. and Nechis, M(1984), pp. 135 - 159.

³ Lederer, A. L. and Mendelow, A. L.(1986), pp. 245 - 254.

for the development of the IR; thirdly, that plan must be integrated into the organisation's plan.

The need to integrate and link IS plans with those of the organisations as a whole has been recognised by several authors. King ⁴ explicitly noted that linkage by pointing out the need for the IS strategy to reflect alterations in the organisation's strategy. More recent work on competitive advantage not only emphasises the need for this linkage, but suggests that the IS plan be part of the organisation's strategic plan⁵. However, this integration has not often been accomplished ⁶.

McFarlan ⁷ pointed to the overall objectives of the company as a useful starting point for achieving at least some of this integration. He found that some of the IS plan was most useful when its developers, the IS professionals, were made explicitly aware of the overall objectives of the company. In order to stress this link, he suggested that the IS plan include a statement of the consistency of IS goals with corporate goals. Alexander⁸ found strategic decisions were implemented more successfully when employees understood the goals behind them. Thus, it would seem imperative that the goals of the organisation be known by management throughout the organisation.

⁴ King, W. R.(1978), pp. 27 - 37.

⁵ Benjamin, R. I., Rockart, J. F. Scott Morton, M. S.and Wyman, J (1984), pp 3 -10; King, W. R (1978), pp. 27 - 37; Parsons, G. L.(1983), pp 4 - 14; Wiseman, C. and MacMilan, I. C (1984), pp. 42 - 50.

⁶ Ball, L. and Harris, R (1982), pp 19 - 38.

⁷ McFarlan, F. W (1971), pp 75 -89.

⁸ Alexander, L. D (1985), pp. 91 - 97.

6.3 Findings

The transcripts of the interviews were studied to identify the roadblocks confronting the IS managers as they attempt to learn top management's objectives. Interviewees from different levels of top management in the same organisation, gave more than one response or suggestion other than that listed in the questionnaire. Because the aim of this research was to record the manager's views, even reasons and techniques mentioned by only one manager are reported. Examination of interview transcripts suggested that being part of the planning process was a common thread to those who did not experience any problems.

A range of sources was used to select a mix of small/medium (less than 1,000 employees) and large (greater than 1,000 employees) organisations from a range of sectors. In total, 26 questionnaires were returned during the interview and 2 more questionnaires after the interview, representing 100% response rate. The resultant sample size is considered to be comparable with other studies undertaken in the area. For example, in other countries, as explained by Fidler, C and Rogerson, S (1993)⁹, Watson [1991] used a sample of 50 organisations, Hogue [1987] used a sample of 18 organisations, Grover [1988] used a sample of 18 MIS practitioners, McLeod and Jones [1987] used only 5 senior executive while Ernst and Young [1990] used 81 organisations in the United States, while as a random sample, it is considered that the findings represent a snapshot view of IS practices across a heterogeneous group of Malaysian organisations. In the light of the responses to the

⁹ Fidler, C & Rogerson, S(1993), pp 13-20

survey, it was decided to group organisations on the basis of the primary activity. A broad comparison was drawn between those organisations providing a service and those organisations involved in manufacturing products. Product-based organisations accounted for 14.28% of the total sample and service organisations accounted for 100%.

Two copies of the questionnaires were sent to each organisation; one to the top management employees, typically the general managers or corporate managers, and the other one to the head of the information systems (IS) area normally known in Malaysia as Computer Manager or MIS Manager.

The questionnaire was predominantly multiple choice. The first two sections related to organisation and personal profiles. This provided data against which responses to other sections could be evaluated. The other sections included detailed questions on

:

1. Hardware (micros, mini, mainframes) and communications network (LAN, WAN);
2. the use of communications network;
3. systems development methodologies;
4. software package (spreadsheets, databases, project management tools);
5. the frequency of techniques used within, and the levels of satisfaction with, strategic IS planning.
6. the CSF of the organisations and department; and
7. the use of MSS within the organisation.

Of the total 40 questionnaires sent by post, only 6 organisations rejected an interview and did not want to participate because of moving to new premises or because it was not yet involved in SISP. This meant that the planned investigations of organisation responses across different management levels was able to proceed because the organisations that are owned by Muslims in Malaysia are a very small sample. The more complete of two questionnaires, from each organisation, was chosen to remain in the sample used for analysis. Thus, 28 questionnaires from 14 Malaysian Muslims based organisations were used as the basis for evaluation. Of the 28 respondents, 14 were directors of their respective organisations and the remaining 14 respondents were at the top information management level. The majority were familiar with IS, with 20 respondents (71%) professing "in depth" knowledge of IS. A profile of the organisations surveyed is presented in Tables 2 to 5. It must be noted that the 14 organisations which responded were self selected, and may tend to be more involved in and positive towards IS than the general population.

6.4 Objective

Many of the empirical studies in SISP have been done in the United States, United Kingdom, Australia, Hong Kong and Canada. By contrast, this survey analyses the current state of ISP practice within Muslim Organisations in Malaysia. It is believed that while this survey is in line with other work, no survey of this specific type has been undertaken before. This survey evaluates the extent of IT usage within Muslim Organisations in Malaysia at a general level, as well as focusing on specific areas such as Management Support Systems (MSS); IS strategic planning; Stages of IS

growth; Islamic perspectives of their managers toward decision making; applications of Islamic Information Systems in their daily operations and strategic alignment of business and IS. Where possible, the results of this survey are compared to surveys that have been done and forecasts in those above countries, and differences analysed.

This research will review the growing importance of information in Islamic organisations and the need to integrate the objective and the strategy of the organisation with those of the information function. The research methodology section will then discuss sample considerations and the structured interview process which was used to gather data. Following this, the results will be presented.

6.5 Research Methodology

In this research, the questionnaires were used for an interview with the General Manager or Corporate Planning Manager and to the MIS Manager or Head of the Computer Unit in each organisation. The rationale for targeting these two managers in the same organisation was to enable comparisons to be drawn with regard to differences in IT/IS awareness at different levels of management, and to counter check the accuracy of the information provided. The content of the interview for both managers are on similar topics except for the MIS managers, the topics are related to hardware, software, networking, the use of communication networks and the use of systems development methodologies within the organisations.

The nature of the research question is such that the difficulties which IS managers experience in identifying top management objectives could be related to both the IS function and to general management. Thus it was inappropriate to draw up a questionnaire based solely on general management literature related to identifying objectives. Furthermore, given the absence of prior empirical work on this research problem, a "direct" research approach involving a structured interview seemed the most appropriate precursor to a more conventional study relying on a larger sample and a survey methodology.¹⁰ The results of the interviews are reported in this paper.

6.5.1 Sample Selection.

Since the focus of the research is primarily on the IS function, seniors managers with the ultimate responsibility for planning and managing their IRs were sought for interviews. They were selected from medium to large organisations and from a wide variety of industries. Interview appointments were set up by sending the questionnaires from the United Kingdom two months in advance then followed up by telephone conversation. In the letter with the questionnaire the companies were requested to mention whether they had implemented SISP and were willing to participate in the interview. Six organisations replied that they did not have any experience in SISP and were reluctant to take part in the interview. All managers contacted agreed to participate, indicating a great interest in the problem. Table 2 to 5 contain profiles of the 14 participating organisations.

¹⁰ Mintzberg, H(1979) pp. 88 - 103.

6.5.2 Interview details.

The interviews with the IS executives lasted about 3 hours. Subjects were promised anonymity. In one case the General Manager of EDP Planning, Control and Telecommunications participated, due to his detailed operational knowledge of the IS planning process. In two instances, the Head of the IS Unit brought one or two members of his staff to participate in the interview. Their additional viewpoints were included in the study because they did not affect research results.

6.6 Fact gathering

All the facts were gathered from the interviews done on those organisations that participated are analysed in table form for easier comparison. The tables comprise data concerning the background of the organisations, experience in SISP, perspectives towards Islamic planning; the objectives and focus of ISP; participation by various groups of managers, consultants and users in the SISP process; linkage between IS and corporate planning; content of the SISP documentation; importance and attainment arising from the planning purposes; success of SISP; IS department; the make-up and size of ISP teams involved in SISP; problems and barriers preventing the SISP from being successful and lastly the wisdom they gained from setting up the ISP unit in their organisation.

6.6.1 Organisations

There are 14 organisations that have taken place in this interview. All of these organisations are located at Klang Valley, either in Kuala Lumpur, Petaling Jaya or in the Shah Alam area that is at the middle side of the Malay Peninsula. These organisations were selected on the basis of Muslim share owners having more than 70% of shares, 90% of staff employed being Muslims and those targeted managers for the interview being Muslims.

6.6.2 Organisational annual revenue.

The classification of the organisations are based upon the annual revenue gathered. Table 2 shows that those with annual revenues less than 10 million pounds per annum are considered small organisations, revenue from 10 to 40 millions pounds are considered medium, and those with more than 40 million pounds revenue per annum are grouped as large organisations. During data collection, one of the organisations was obtaining revenues exceeding one billion pounds a year. It shows that more than 64.29% of the organisations interviewed are large organisations and shows that only those big organisations are capable and interested to implement SISP as part of their organisational objective. This is because large organisations have enough staff, computer hardware and software facilities, and clear vision to compete with their competitors in the IT market area.

Table 2 : Organisational annual revenue in (million Pounds).

Annual revenue in million pounds	%	Size
Less than 10	14.28	small
between 10 to 40 million	21.43	medium
more than 40 million	64.29	large
TOTAL	100	

6.6.3 Employees

The Malaysian annual economic growth has been 8-9% for the past 8 years,¹¹ and the unemployment rate is lower than 3% or almost 0% by United Nations standards. Even small organisations employ 50 staff or less. The situation of staffing in Malaysia is very much different compared to the United Kingdom since more people are required in Malaysia to run a unit or department. For example, in a department in Malaysia, it is normal to employ a typist, an office boy, a clerk and a stenographer, whereas in the United Kingdom only a secretary is required. Small size organisations normally employ less than 50 staff members.

Table 3 : Total number of employees in the organisations

STAFF	Organisational Size	%
< 50	small	7.14%
51- 1000	small and medium	14.28%
> 1000	medium and large	78.58%

¹¹ Mahathir (1993), Penang 21 December 1993, 10.00 a.m.

Table 3 shows that 7.14% of the surveyed organisations have staff less than 50. There is only one organisation in this survey that is considered as a small organisation since it was established in 1991. Some of the small or medium in size organisations have between 51 to 1,000 staff and are distributed among the 14 states in Malaysia. About 14.28% of the organisations as illustrated from Table 3 are categorised into small and medium size since they are newly established, and secondly are only operating in the Kuala Lumpur area. Medium and large organisations employed more than 1,000 staff, employing more than 10 staff at least in each state. Most of the organisations in this interview were large organisations (more than 78%) with branches in every state. One of the organisations has more than 200,000 employees.

6.6.4 Types of organisational activities

Table 4 shows that only two Muslim organisations were established between 1961 to 1969 since during that period Muslims were not interested in business. After the 1969 riots, the Malaysian government has launched the New Economic Policy that gave more opportunities for the Bumiputera who are normally Muslims to be involved in business in order to develop their economy. Most of the Islamic organisations dealing with the services of *zakat*, *takaful*, Islamic Bank and Islamic Centres were established between the period of 1980-1990 when there was a need and an awareness among the Muslims.

Table 4 : Type of organisations

Type of Organisations	Year of Establishment					
	Total	before 1960	1961-1969	1970-1979	1980-1989	1990-1993
Islamic services	3		2			1
Transportation	2	2				
Telecommunications	2	1			1	
Petroleum and Gas	1			1		
Banking	1				1	
Automobile	1				1	
Utility (Power)	1	1				
Education	1	1				
Investment	1			1		
Insurance	1				1	
TOTAL	14	5	2	2	4	1

Organisations established before the 1960's are those basic utilities serving the national interest, such as the electricity board, national airlines, railway, higher institutions, institutions for handling *hajj* and telecommunication. Islamic services here are comprises of *Hajj* Management, *Zakat* Collection and Centre for Islamic Affairs. The insurance organisation normally known as *Takaful* is the only one taking part in this interview.

6.6.5 Products or service-based organisations.

All of the organisations in this survey are service-based and only 14.28% are product-based. Product based organisations are defined as any organisation involving manufacturing, construction, mining, energy, petrochemical, electronics and telecommunications. ¹² The definition of service-based organisations are those

¹² Fidler. C, (1993), pp. 13-20

involving utilities, transportation, communications, government agencies, insurance, banking, education, management of *hajj*, management of *zakat*, investment and unit trusts. There are only 14.28% organisations doing both activities either as product-based or service-based, particularly in the oil industry, and other activities concerning the manufacturing of Proton cars.

6.6.6 Number of branches in Malaysia.

There are 14 states in Malaysia. Table 5 shows that 85.71 % of the organisations have their branches in all the states in Malaysia. All of these organisations are large in size and having activities all over the country and also overseas. Some of these organisations have more than 14 branches because they also cover districts, especially in the fields of telecommunications, automobile, transportation and banking sectors. There are only 7.14 % having between 6 to 14 branches and these organisations are normally medium in size. For a new establishment, it is still difficult for the organisation to expand their branches through out the whole country. From this survey, there are only 7.14 % having less than 6 sites since it is a new establishment and doing very specific types of services to the public. Most of these organisations (64.29%) are located in Malaysia only. 35.71% of the organisations are multinational companies having branches in the Cambodia, South Africa, United Kingdom and Vietnam.

Table 5 : Number of sites

Number of sites	%
< 6	7.14
6-14	7.14
>14	85.71

6.7 Experience in IS Planning

Managers were asked about the length of time given to SISP in order to plan for projects or any organisational objectives. Before that, explanation was given on what is actually meant by SISP. The organisational experience considered here is confined to Malaysia. The information required concerns the frequency of planning; distribution of planning horizons; the make-up of ISP teams; satisfaction of planning horizons and suggestions made to improve the planning period.

6.7.1 Organisational experience in IS planning

Table 6 shows that the majority of the organisations (64.29%) have more than 5 years experience in SISP. Whereas in UK and the Australia it is 44%.¹³ The higher percentage in Malaysia is because the findings were done in 1995 but the data in the UK and the Australia were compiled in 1986 and 1987 by Prof. Galliers. These organisations are large and have more than 1,000 staff. This is similar to the UK situation, where normally those organisations implementing SISP are the old establishments and having large Information Systems Departments. There are only 7.14% of the organisations, which were recently established, and had less than 2 years experience and these are small organisations in size.

¹³ Galliers, R.D(1987) pp. 223-255.

Table 6 : Organisational ISP experience in Malaysia.

Experience in IS Planning	Size of organisations	%
< 2 years	small	7.14
2-4 years	small and medium	28.57
> 5 years	large	64.29

6.7.2 Frequency of Information Systems Planning (ISP).

The managers were asked, what is the frequency of implementing ISP for their organisations. Most of the organisations (71.43%) implemented their ISP annually or continually. They prepare a plan for 5 years, and in each year, they have to plan their ISP in detail for implementation and reviewing. This is in accordance with the Malaysian government plan that all departments should have a five year plan and within each year there should be detailed explanations reviewed annually by the Board of Directors. This is a similar finding as in Australia (71%) but in the UK it was 80%. Only 7.14% of the organisations use ISP occasionally or irregularly since they were established less than 2 year ago, while in the UK it was 8% and in Australia was 9%.

Table 7 : Distribution of frequency in IS undertaken in Malaysia

Frequency of IS	%
Occasionally/ Irregularly	7.14
Annually/ continually	71.43
Every 2 or more years	21.43

6.7.3 Planning horizons for IS planning.

Periods of the planning horizon for most of the organisations are 5 years. This is because the Malaysian government also implements 5 year budget plans. Only one organisation has a 7 year plan in their corporate planning section since its activities are for long term planning. This section has to plan for the future or more than the normal 5 year plan to make sure the other organisations will get their services regularly within their 5 year plan.

Table 8 : Distribution of planning horizons for IS planning.

No of years	Size of Organisations	%
< 2 years	small	14.28
2 - 4 years	medium and large	42.85
5 years	large	28.57
> 5 but < 7	large	7.14
7 years	large	7.14

About 92.85% of the organisations said they have planning horizons. Most of the organisations prefer to implement 5 year plans in their strategic management. Distribution of planning horizons for organisational planning between 2-4 years is 71.42%. In the UK it was 79% and in Australia it was 66%. Most of the organisations mention that if they were given 7 year plans as the horizon, the time would be considered too long, since IT research is changing very rapidly. Only 7.17% of the organisations mentioned prefer the 7 year horizon, since it will help them to prepare in advance for their information strategic planning. While in Australia it was 9% and in the UK it was 8%. If they implement 5 year plans, their chance of success in achieving their target will be limited. The purpose of asking for

this information is to check whether, there are any Muslim organisations in Malaysia which follow the method used by Nabi Yusuf in the Quran for planning strategically the problem faced by the Egyptian King in his dream.¹⁴

6.7.4 The make-up and size of information systems planning teams.

In planning to achieve the objective successfully, there should be a team or a steering committee in the organisation to advise or monitor the task. The committee will include the involvement of the IS consultant, user or middle management staff, corporate manager and senior manager. The purpose of this survey is to look at who are the most involved in the ISP team and why some of the organisations always engage with certain groups of people in their decision making team.

Table 9: The make up of ISP teams

% INVOLVEMENT OF	ALWAYS	OCCASIONALLY	NEVER	TOTAL
User/Middle management	77%	15%	8%	100%
Corporate planner	30%	70%	0%	100%
Senior management	30%	55%	15%	100%
IS consultant	7%	70%	23%	100%

Table 9 shows that 77% of the organisations will involve the user and middle management staff. This is because the operation in order to achieve the organisational goal will depend heavily on the tactical and operational group. Senior

¹⁴ Quran 12:47-48

management people are occasionally involved in the team since they are normally engaged in the policy making and not in the implementation aspects. The involvement of consultants is very irregular since the organisation has to pay for their services, the need for full time staff who know the organisations in detail is more beneficial in the team. In fact, the majority of the organisations (23%) have never engaged any consultant as part of their ISP team. Corporate planners are occasionally (70%) involved in the team because as Table 13 shows that Corporate Planning unit in Malaysia is only 7.14% as a basic unit in ISP and for majority 50% it is part and parcel of one department. This encourages each unit to perform its own tasks individually. Table 9 shows that all the Corporate Planners are in the structure of ISP teams either always or occasionally.

6.7.5 Participation by various groups in SISP process

The degree of participation of selected groups in supporting the SISP process is categorised under high, medium, low and no participation at all. Table 10 shows that the degree was very high (100%) in the MIS/EDP planners since they were directly responsible and involved in supporting the success of SISP. Mostly half of the users and senior managers (50%) were participating highly in the SISP process. This is because they were in the operational group. Most of the consultants were not involved in participating in the success of SISP process (35.71%). The degree of participation by System Development Group in supporting this process was medium (42.85%).

Table 10 : Degree of participation of selected groups in supporting SISP process.

Percentage Degree of participation					
Organisational Grouping	HIGH	MEDIUM	LOW	NONE	TOTAL
MIS/EDP Planning	100 %	0	0	0	100
MIS/EDP Executives	64.29	35.71	0	0	100
Users	50 %	35.71	14.28	0	100
Senior management	50%	42.85	7.16	0	100
Corporate (Non MIS/EDP) Planner	42.85	35.71	14.28	7.14	100
System Development Group	28.57	42.85	21.43	7.14	100
Computer Operation Group	21.43	14.28	57.14	7.14	100
Consultant	21.43	21.43	21.43	35.71	100

6.7.6 Information Systems Strategic Planning Content.

All of the organisations have to submit a report concerning their strategic planning annually to the Board of Directors. In this survey, the information about the content of the documents was analysed and what percentage of the documents contain certain aspects of subject. The questions that were asked were: are there any objectives in their document?. If so, should they be included even though in real practice they have not been achieved. Another opinion suggested that the objectives should not be included at all in their report. Table 11 shows that all the organisations (100%) have included a statement of objectives in their SISP report. However, in many cases, these objectives become just a list of targets that are posted on the wall of the corporate board room. Similar to the organisations in Singapore, where few firms take that next step to re-align their activities to assist them in achieving those targets.¹⁵ The SISP report here means the organisations that are using IT facilities like the application of word processing, database or spread sheet for preparing their report.

¹⁵ Ang, J and Shaw, N(1995) pp. 463-474

In the area of planning their hardware requirement, 92.85% of the organisations have included it in their report. Small and new established organisations (7.15%) have not included hardware plans in their planning report. This is similar to the finding in Chapter 6, which mentions the stages of IS growth in these organisations, where at stage 1 the organisations are uncontrolled, an hoc approach to the use of IT is usually exhibited by these organisations. Most of these organisations (92.85%) have included a systems development plan in their long range planning report but only 7.15% of the organisations believe this topic should not be included. The reasons given are because their systems have already been well established and need no further development.. In general, Table 11 shows that most organisations have included more than 50% of their long range plan in relation to implementation, projection of the future MIS environment, financial plan and facilities plan. Planning on personnel was the only part of the document where half of the organisations, have included it in their report and 50% of them mentioned they have not included it in their report but it should be included in the future. This shows that all the organisations have agreed that personnel should be included in the planning report.

Table 11 : Percentage on the content of planning document

PERCENTAGE OF PLANNING DOCUMENT CONTENT	INCLUDED IN LRP %	NOT INCLUDED BUT SHOULD BE INCLUDED %	DON'T BELIEVE SHOULD BE INCLUDED %	TOTAL %
Statement of objectives	100	0	0	100
Hardware plan	92.85	7.15	0	100
Systems Development Plan	92.85	0	7.15	100
Recommended Implementation plan	85.71	7.14	7.14	100
Projection of future MIS environment	64.29	28.57	7.14	100
Financial plan	64.29	35.71	0	100
Facilities plan	64.29	28.57	7.14	100
Personnel plan	50.00	50.00	0	100

6.7.7 Approaches in implementing SISP

Accordingly, this research shifted to an examination of SISP *approach*, that is of the interaction of **method, process and implementation**.

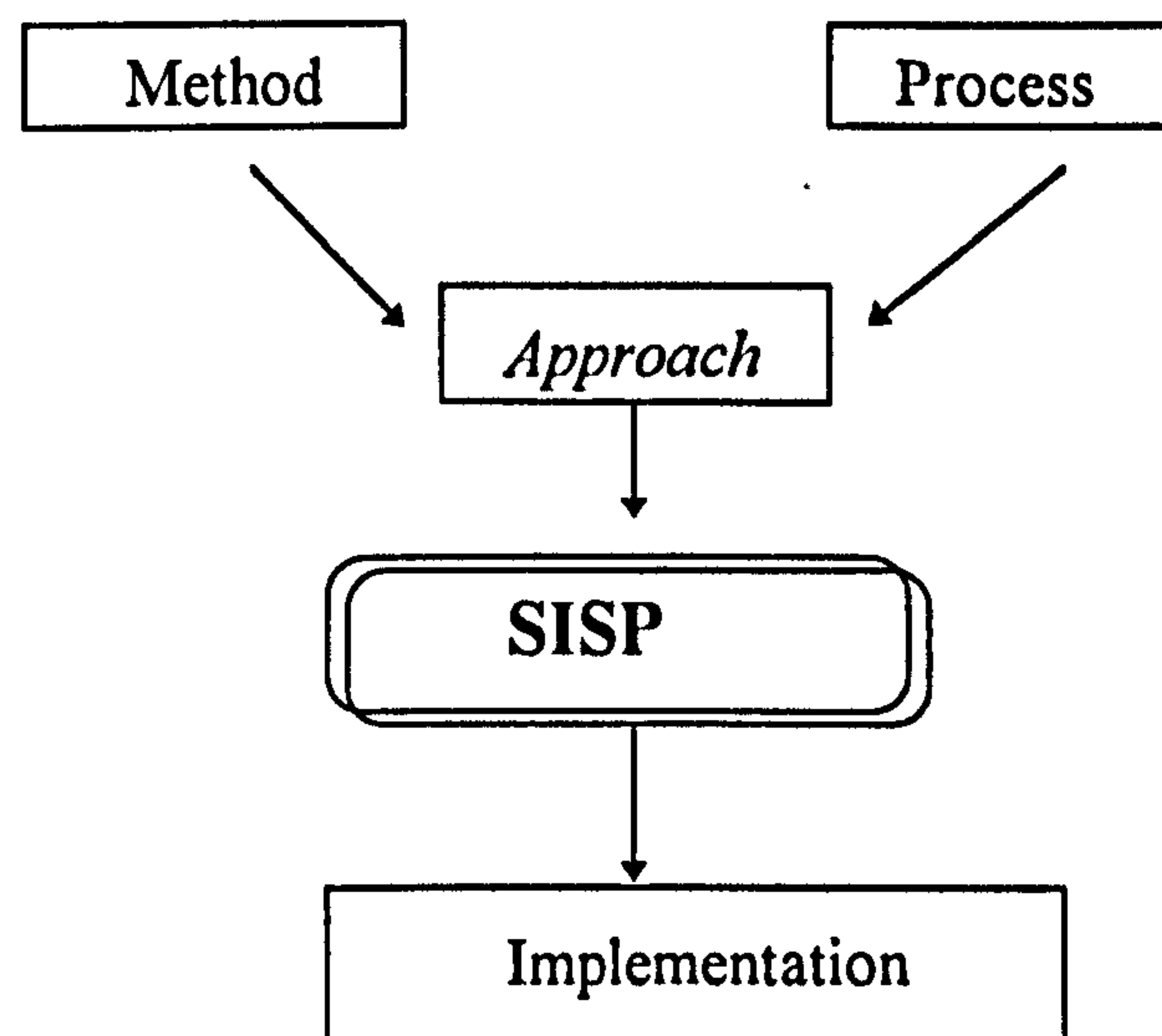


Figure 18 : Necessary Conditions for Successful SISP

Once the salient features of SISP were compared across the 14 companies, six distinct approaches were identified. These could be used retrospectively to classify the experiences of these organisations. Most of these organisations (57.14%) implemented the top down approach in their SISP. This was followed by a bottom/up (28.57%) approach. It shows that nearly a quarter of the organisations in Malaysia (21.43%) implementing SISP adopted the approach based on resources and budget which were given or allocated to them. Approaches based on technology and competitiveness is not very popular in Malaysia (14.28%). This is

because Malaysia does not invest much money in R&D.¹⁶ Not even one organisation has implemented the data analysis approach since it will require special manpower requirements like statisticians and operational researchers where this kind of professional is not so popular and unattractive in Malaysia.

Table 12 : Approaches of organisations in implementing SISP

NO	APPROACHES ADOPTED IN MALAYSIA	%
1	Top down (business driven)	57.14
2	Bottom/up	28.57
3	Resources/budget based	21.43
4	Technology based	14.28
5	Competitiveness	14.28
6	Data analysis	0

6.7.8 Linkage between IS and corporate planning

Most of these organisations have Corporate Planning (CP) Units or units with similar functions even though in different names. The purpose of this survey is to find out whether a CP unit is in the same department as the ISD or in a separate section. This will reflect the vision and different kind of methodology being used by each organisation for their organisational strategic planning. Table 13 shows that more than 92.85% of the organisations are part and parcel of a CP Unit, and also in response to the objective of CP. In some situations, the CP unit and the ISD has to report their activities to the Vice President of Information Resources. This shows that they are at the same level and pointing towards the same organisational objectives. There was no organisation that ISD isolated from CP.

¹⁶ Amirudin, M A(1996), p.58

Table 13: ISD linkage with corporate planning (CP)

ISD linkage with CP	%
ISD part and parcel of CP	50.00
ISD in response to CP	42.85
ISD a basis for CP	7.14
ISD isolated from CP	0

6.7.9 Focus of Information Systems Planning (ISP)

IT/IS architecture is ranked first as the most important focus of ISP in Malaysian organisations. This is similar to findings in the USA in which developing an information architecture is ranked as the number one key issue in IS management.¹⁷

An IS architecture is a high level map of the information requirements of an organisation. It shows how major classes of information are related to major functions of the organisation. In its pure form, the information mapping is independent of personnel staffing, organisational structures, and technology platforms. It is similar to what has been found by Brancheau in 1989.¹⁸ It is used to guide applications development and facilitate the integration and sharing of data. Sometimes referred to as an enterprise model, many experts now agree that an information architecture offers the potential to serve as a basis for building a co-ordinated, responsive, long-lasting set of business applications. While the potential benefits of such an architecture have been articulated, the information architecture is difficult to capture, use, and maintain, due to both the breadth of information required and the changing nature of the business environment.¹⁹ Second rank in the focus of ISP is the current issues: for example, the current issues resulting in

¹⁷ Niederman, F(1991) pp. 475-500

¹⁸ Brancheau, J.C (1989). pp. 9-17

¹⁹ Hull, R and King, R (1987). pp. 201-260

Malaysian Vision 2020 and the new development of the Multimedia Super Corridor (MSC) project to be implemented in the Putrajaya Government Complex. Putrajaya, the new seat of national government under construction in the MSC, will use multimedia technologies to become a paperless administration ²⁰.

Table 14 : The Focus of Information Systems Planning

Rank	MEAN	FOCUS
1	3.35	IT/Information Systems architecture
2	3.58	Current issues
3	4.11	Applications portfolio
4	4.17	Future scenarios
5	4.52	Competitive edge
6	5.05	Database design
7	6.11	Package software
8	6.23	Centralised verses end user development
9	7.70	Rahmahtullah/ barakah

None of the organisations have focused their ISP on barakah or rahmatullah This is because it is cannot be quantified in term of money and can not so easily be measured. As far as the managers are concerned, all the success of their information planning will bring them barakah.

6.7.10 Perspective of the western idea on Information Systems Planning (ISP)

From the survey that was done in 1995 in 14 Muslim organisations in Malaysia, with their top management and their Information Management managers, with regard to their organisational objectives in ISP, they were asked to rank the order of their ISP objectives in their organisations from number 1 as the most important, and

²⁰ Available at <http://www.mdc.com.my>

down to number 8 as the least important. All respondents reported organisational objectives from SISP and were able to select confidently from a structured list. Alignment of IS with business objectives stood out as the primary benefit (rank 1), and this is similar to the findings made by M. J. Earl, in the United Kingdom.²¹ This is because the structure of the IS departments in those organisations was similar to the UK based ones. Since most of the MIS managers and Top Management were trained in the UK, they all have similar perspectives and visions to provide a framework or direction, and increased efficiency/decrease costs are ranked second and third after the organisation's objective.

Even though the purpose and scope of this research is to investigate the objectives of ISP in Muslim organisations, the results (obtained from table 15) show that the organisational objectives on a Muslim perspective were all in the last three rankings (6, 7 and 8) level. Those objectives should be in the top ranks. This shows that even though Islamic Banking, the *Zakat* Collection Centre, *Takaful* and the *Hajj* Management Board are Islamic based organisations, their objectives and focus on ISP are similar to those organisations in western countries. This is because most of the managers were educated in western countries, and have western perspectives in their decision making. So far, only one organisation did mention 'to help the Muslim *ummah*, economy, and reduce the poverty' as their objectives on ISP. If their organisational objectives are based on the third last ranking (which suppose to be the Muslim perspective), surely those last 3 objectives will also cover the other 5 top rankings. For example, in order to help the Muslim *ummah*, the organisation

²¹ Earl, M.J (1990) pp. 271-277

must increase efficiency, improve co-ordination, provide direction and alignment of IS with business objectives.

Table 15 suggests that organisations have more than one objective for SISP, narrative responses usually identified two or three objectives spontaneously. Not surprisingly, the interviewers' views on *hikmah* (see table 16) were similar and also indicated a multidimensional picture.

Table 15 : The objectives of SISP in Malaysian Muslim Organisations

RANK	MEAN	OBJECTIVES
1	1.58	Align Information Systems with business objective
2	2.82	Provide a framework or direction
3	3.64	Increase efficiency/ decrease costs
4	4.29	Improve co-ordination
5	4.82	Clarify budget/ resource availability
6	5.52	To help the Muslim <i>ummah</i>
7	5.94	To raise the Muslim economy
8	6.93	To reduce/ eradicate poverty

6.7.11 Wisdom (*hikmah*) attained from the information systems planning

The managers were asked, 'what types of wisdom do they think could be achieved by implementing SISP?'. Then they were asked to rank those wisdoms in the order of the most important wisdom as no. 1 and the least important wisdom as number 10. All respondents were able to select confidently from a structured list. Increased co-ordination between IS plans and business plans again stood out, and ranking it first. This finding is similar to the survey made by Earl, M in 27 companies in UK.²² The co-ordination of IS plans with business plans is necessary to ensure that IS support

²² Earl, M.J (1993) pp. 1-20

organisational goals and activities at every level. Authors have recognised this need for many years.²³ As we can see, these managers faced problems in how to measure wisdom. Table 16 shows that to increase the Muslim economy is not part of wisdom, and ranks last in the sequence. It also shows that most of the Islamic ethical factors were ranked from no 5 to the end. Even though, in Islam, to seek knowledge is compulsory, from this interview it is not seen as part of their wisdom.

Table 16 : Wisdom the organisation attained from ISP

WISDOM	RANK	MEAN
Increase co-ordination between IS plans and business plans	1	3.60
Increase profit/revenue	2	4.00
Gaining confidence from customers	3	4.13
Tighten relationship between IS staff and managers	4	4.46
Increase your knowledge	5	5.46
Increase customers or members	6	5.60
Teach your staff to be competitive	7	5.80
Increase your staff ethics	8	6.80
Increase relationship between branches or between states	9	7.93
Increase the Muslim economy	10	8.33

6.7.12 *Salat Istikhara*

The interviewees were asked whether they performed *salat istikhara* in their house or in the office, and how they performed their prayers. Most of the managers, or nearly half of them, never perform *salat istikhara* for decision making. A few of them in fact did not even know there was an available method of *salat* for decision making in Islam. Those individuals, or 31 per cent of the managers, always did *salat istikhara* for their own individual decision making and normally they were from strong Islamic backgrounds, involved in either Islamic organisations or in Islamic

²³ Lederer, A.L and Mendelow, A.L (1989) pp. 5-19

societies. None of the managers did any *salat istikhara* for the decision making of their organisation. This shows that *salat istikhara* is not being implemented as part of the tools of decision making in Islamic organisations.

Table 17 : Implementation of *Salat Istikhara*

<i>SALAT ISTIKHARA</i>	MORNING OR NIGHT	HOUSE	GROUP	INDIVIDUALLY
Always	31%	23%	0 %	31%
Occasionally	23%	15%	15%	15%
Never	46%	62%	85%	54%

6.7.13 Methodology in Strategic Planning

The methods traditionally considered part of SISP (see Table 18) were all used to some degree, with the CSF approach being the most popular (50%), followed by BSP approach introduced by IBM's (42.85%), and then SWOT (35.71%) analysis. The higher level of CSF and BSP is possibly due to the approach being a ready made solution rather than a loosely coupled set of methods of which VCA is one, and that the market leader in Malaysia in hardware provision was found either to be IBM or HP. Table 18 shows that organisations using SISP tend to use more than one method. The greater the number of IS employees, which relates to the size of the organisation, the greater the tendency to use more methods. Compared to Fidler's findings in the UK, the percentage ranking of popularity is similar to the organisations in Malaysia except that the percentages are quite high in Malaysia.²⁴ Methodology percentage of organisations in the UK using CSF are 29%, BSP (18%), SWOT (18%) and VCA (12%).

²⁴Fidler, C and Rogerson, S(1993) pp. 13-20

Table 18 : Strategic Planning Methods and their popularity

METHODOLOGY IN SISP	%
Critical Success Factor (CSF)	50.00
Business Strategic Planning (BSP)	42.85
Strength Weaknesses Opportunity Threats (SWOT)	35.71
Value Chain Analysis (VCA)	21.43
Strategic Systems Planning (SSP)	21.43
Information Engineering (IE)	14.28
Method/1	14.28
In-house	14.28
Other (Navigator by Earls and Young)	7.14

Interviewees were asked to gauge their use of SISP methods and the particular techniques employed in the organisation. Since SISP techniques are still new in Malaysia, only large organisations are implementing it. Of the 14 organisations interviewed in the usage of SISP, only four were unaware of any SISP process being performed. Surprisingly, these four organisations are all Islamic organisations which are servicing *zakat* collection, Islamic Centres, banking and insurance. The reasons behind this are that because these organisations are still new establishments, some are even less than 5 years old in operation, and their staff are lacking exposure in strategic planning methods either in management, or in the area of administration.

6.7.14 CSF categories in ranking order

Interviewees were asked to rank, in order of increasing priority, up to 15 categories of CFSs. Table 19 shows the ranking order of priority in the critical success factor categories. Management and customers were the most commonly considered of importance and critical in CSF. The evidence clearly indicates the orientation

toward competitive advantages and effectiveness rather than efficiency concerns of the past. Priorities on issues such as customer services, quality and strategy are particularly important within this orientation.

Table 19 : The importance of critical success factors categories

CSF CATEGORIES	RANKING	MEAN
Management	1	4.4
Customers	2	4.8
Strategy	3	5.7
Quality	4	6.3
People motivation/development	5	7.6
Information	6	7.7
Professionalism	7	7.9
Efficiency/productivity	8	8.2
Information Technology / Inf Systems	9	8.4
Resources	10	8.6
Organisation	11	8.7
Communication	12	9.5
Profit	13	9.9
Financial control	14	10.1
Market share	15	13.1

6.8 Islamic Planning Perspectives.

IT managers were asked to give their organisational perspective regarding Islamic planning for the future. This will be based on their background of education, from where they obtained their degrees, and their subject specialisations.

6.8.1 Background on education.

The interviewees were asked from where they have obtained their degrees since their background will reflect their perspectives and decision making influences. All

of them were university educated either locally or overseas. From Table 20, it shows that 85% of the respondents were educated overseas mainly in the United Kingdom (42.84%). The data obtained here was based on the last higher degree that the interviewee had, since one of them had a doctoral degree. In the case of large organisations, most of the managers interviewed obtained integrated degrees, such as engineering and finance or science and management. One of the managers obtained his Masters in Management from Harvard University, USA even though his first degree was in Physics.

Table 20 : Highest Academic qualifications of the IT managers

AREA	LOCATION	%	FROM WHICH UNIVERSITY
Local	MALAYSIA	14.28	UKM, ITM, UTM
Overseas	UNITED KINGDOM	42.84	AIS, England
	USA	35.71	WMU, Harvard
	OTHERS	7.14	Auckland, N. Z

6.8.2 Subject specialisation

More than 75% of the managers hold a Masters degree. Since the subject area of this career is IT, all of the managers have a science and engineering background, particularly in IT subjects where there are 71.43% of them. None of the managers hold any degrees in social or human sciences. A few organisations still employ non IT background personnel as their IT managers, for example, in the field of statistics and mathematics.

Table 21 : Subject specialisation of respondents

Subject specialisation	Overseas	Local	%
Information Technology	64.29	7.14	71.43
Science	0	7.14	7.14
Engineering	7.14	0	7.14
Mathematics	7.14	0	7.14
Statistics	7.14	0	7.14
TOTAL	85.72	14.28	100%

6.8.3 Participation of interviewees in Islamic activities.

Table 22 shows that more than half or 64.27 % of the respondents were active in Islamic organisations either in Malaysia or overseas. Out of this, 42.85% of the respondents were active in the Islamic organisations located overseas when they were still studying during that time as a student. Some of them continue to be active but only as a member up even today.

Table 22 : Participation in Islamic organisation

Organisations	Percentage	Location
MISG	21.43%	USA
ABIM	14.28%	U.K
TABLIQ	14.28%	U.K and Malaysia
PAS	7.14%	Malaysia
MSM/JIM	7.14%	U.K
AL ARQAM	0	Malaysia
TOTAL	64.27%	

Most of the IT managers (21.43%) were active in the Malaysian Islamic Study Group (MISG) in the United States. None of them were active in Malaysia's ABIM after holding their post even though they were active before in the U.K.

6.8.4 Involving in Islamic activities

Table 23 shows that 50% of the IT managers were active in Islamic organisations/societies. One of them was even a President of one organisation while he was in the US. Their involvement in Islamic organisations will also affect their decision making in their place of work in trying to inject Islamic values in their decision making.

Table 23 : Active in Islamic society/organisation post

POST	Percentage	WHERE
President/ Vice	7.14%	USA and Canada
Secretary	0	-
Treasurer	0	-
Member	42.84%	UK, USA and Malaysia

6.8.5 Awareness on Islamic education

It is interesting to note that most of these managers learned Islamic education either through madrasah or personal study. Only 7.14% of them obtain Islamic education via formal channels or university. This is because these organisations really provide services in Islamic fields and require managers who can understand Islamic principles and who can speak in Arabic. Secondly not all of these organisations wish to employ people with Islamic qualifications as managers since they may lack the necessary technical background and experience in management. Others (28.57%) either increase their awareness through attending *usrah* from their Islamic movement group, by listening through the mass-media such as television,

newspapers or cassettes; others (14.28%) through personal contact; and 7.14% obtained their awareness through working experience. Most of them either acquired it from overseas or locally especially after their first employment. Half of the managers were educated in Islam through *madrasah* or primary school where it is Malaysia to be taught in the morning. All children go to their formal school in the morning and in the afternoon they all go to the religious school or *madrasah*. The period of time they spend learning in the *madrasah* is between 5 to 7 years. This is because, it is normal for the students in Malaysia to learn in the *madrasah* for 6 years while they are in the primary school and their attendance decreases when they join the secondary school. Some still continue to increase their Islamic educational awareness even nowadays.

Table 24: Awareness on Islamic education

Islamic education	%	local (L) or overseas (O)	Period of time in no of years
<i>Madrasah</i>	50.00	L	6,7,5,5
personal study	42.86	L,O	C
personal contact	35.71	L,O	C
mass media	28.57	L,O	C
<i>Usrah</i>	28.57	L,O	15,15,4
Working experience	14.28	L	12
University	7.14	O	5

C = continue their awareness till now

6.9 Successful in Information Systems Planning

In a survey of the 28 top management people carried out in 1995, respondents were asked to rate, on a sequence of 1 (important key success factor) to 12 (unimportant key to SISP success). They were given explanations of the scoring scale sequence

to assist them and to limit any tendency to self-report around the mean. The factors that form their experience contributed toward successful SISP. The survey results are given in Table 25.

From table 25 the following can be discerned. First, implementation was a cause of concern: IS strategic was not always implemented or fully achieved. They could be inadequately resourced or subject to organisational constraints. Whereas Lederer and Sethi found that most actual developments were not to be found in the IS strategies plan, there was evidence that much of what was proposed by SISP was not developed or implemented.²⁵

Table 25 : Success factors for ISP

RANK	MEAN	SUCCESS FACTORS
1	2.41	Senior management commitment
2	5.13	Middle management involvement
3	5.35	Business plans a basis for SISP
4	5.64	CIO-member of senior management team
5	5.83	Information Systems married to corporate plan
6	6.14	Senior management involvement
7	6.14	Senior and middle management involvement
8	6.92	SISP supported by IS management function
9	7.35	Assessment/evaluation of Inf Systems Plan
10	7.55	Increased management understanding of IS/IT
11	8.92	SISP outcomes/process debated by management
12	9.21	SISP outcome: prioritised applications portfolio

The data suggest that method, process and implementation are all necessary conditions for success in SISP. Indeed, when respondents volunteered success factors, based on their organisations's SISP experience, they conveyed a

²⁵ Lederer, (1988, pp.444-461

multidimensional perspective. The highest ranked factors of senior management commitment and middle management involvement can be seen as process factors. This is similar to the finding by Earl, M.J in 21 UK companies where Top Management Involvement and Top Management Support became the highest ranking success factor in SISP.²⁶ In a 1986 survey of UK SISP practice (Galliers, 1987) also found a similar important rank (top ranking) for senior management commitment as a success factor to SISP.²⁷

Business plans as a basis for SISP are more to do with method, and evaluation of IS plans (at least in relation to implementation). Thus consultants, practitioners and researchers would seem well advised not to regard SISP as a matter of method alone. It may also be misleading because when asked to relate their organisations' experiences of SISP, respondents usually recounted a history of initiatives, events, crises, techniques, successes and failures all interwoven in a context of how IS resources had been managed.

6.9.1 Important factors for successful of SISP

Respondents were asked to rank the *importance* and *attainment* (See Table 26) of planning purposes they believe to be successful in ISP for their organisations, from number 1 as the essential, number 2 as important, number 3 as reasonable and down to number 4 as the least important. The responses obtained are recorded in Table

²⁶ Earl, M.J(1993), pp. 1-24

²⁷ Galliers R D(1987) National Conference. Perth, Western Australia, 23 October

26. In terms of importance, the finding is similar to Conrath and Ang(1992)²⁸ in the 138 organisations in Canada.

Table 26: Success of Information Systems Planning.

PURPOSE	IMPORTANCE (%)				ATTAINMENT (%)			
	1	2	3	4	1	2	3	4
Improving communications with top management	75	8.3	8.3	8.3	16.6	50	25	8.3
Improving communications with users	75	25	0	0	41.6	33.3	8.3	16.6
Increasing employee productivity	66.6	25	8.3	0	25	66.6	8.3	0
Increasing top management support	58.3	25	16.6	0	8.3	58.3	25	8.3
Increasing user co-operation	50	25	25	0	41.6	25	33.3	0
Identify new applications	25	58.3	8.3	8.3	8.3	66.6	25	0
Improving morale and sense of purpose	8.33	58.3	33.3	0	25	25	50	0

Improving communications with top management and users are the most important (75%) factors for a successful SISP. This case is similar to Taiwan's organisations where the IS managers may have difficulty communicating with top management in order to obtain management support. As far as the environmental conditions are concerned, the lack of involvement of top management is an obstacle to IS plan implementation.²⁹ This support Steiner's³⁰ finding that top management frequently fail to review the organisation's plan with departmental heads. This may be related to the fact that top management simply do not have a plan. Lack of effective communications among the Saudi managers (60%) in Saudi Arabia are also a great problem found by Malaika, A (1993)³¹. This lack of effective communication is not only because the objectives and plans are not well defined or clearly stated. But it is also because of the high formality those organisations use, the low involvement of

²⁸Conrath, D W , Ang, J K and Mattay, S(1992)pp. 364-378

²⁹ Tang, J.E and Tang, M.T(1996) pp. 429-436

³⁰ Steiner, G. A.(1979) p. 297

³¹ Malaika, A(1993), pp. 326-327

middle management in planning and decision making, and the decision made on an individualistic basis, without feedback and consultation.

During an investigation of planning difficulties confronting IS managers, Lederer and Mendelow³² found the lack of information about the top management's objectives to be one of the most difficult issues confronting senior IS managers. In the ranking process of the Normal Group Technique, eight out of nine managers identified this issue among the 26 possible choices which the group generated. The ninth manager identified it as the most important problem. This almost unanimous vote instigated the current research. The investigation reported here sought to answer the research question: Why is it difficult for IS managers to determine top management's objectives and what techniques are employed to alleviate this difficulty?

The probability of successfully exploiting IT for competitive advantage can be enhanced through the use of plans which explicitly address the factors that facilitate the use of strategic IS. Business factors are usually addressed in business plans while IT factors can best be addressed in IS plans.

6.9.2 Problems or Barriers to Successful SISP

Respondents were also asked to rank the problems or barriers they had experienced to make SISP successful for their organisation from number 1 as the most important problem, and down to number 11 as the least important.

³² Lederer, A. L and Mendelow, A. L(1986), pp. 245 - 254.

Table 27 : Barriers to successful of SISP

BARRIER	RANK	MEAN
Difficulty in measuring benefits	1	4.14
Inflexibility of existing IT investment	2	4.42
Senior management attitudes	3	5.07
Volatile nature of business	4	5.07
Doubts about benefits	5	5.35
Middle management attitudes	6	5.78
Inadequate user education resource	7	7.00
Political conflicts	8	7.21
IT lagging behind business needs	9	7.64
Telecommunications issues	10	7.71
Difficulty in recruiting IS staff	11	7.85

Difficulty in measuring benefits obtained from the SISP is ranked first as the barrier for successful SP in their organisations. This is similar to the finding by Wilson (1989) in the UK companies.³³ This is because the benefits are intangible and could not be valued in money forms. While investment on IT becomes the second barrier and doubts about benefits become the fifth barrier towards SISP success. All these factors are difficult to justify to the top management as reasons why the organisation will have to implement SISP.

Since all of the senior managers are Muslims, their attitudes became the third rank in this barrier. Many of them believe that the future belongs to the will of Allah and not to the human being. Secondly, they are less willing to take risks in future planning. This attitude is similar to the survey founded by Abdul Gader among the Arab managers in the Arab Gulf Countries.³⁴

³³ Wilson, T D(1989) pp. 245-258

³⁴ Abdul Gader, A.H(1997) pp. 3-12

The unsuccessful features found by Earl³⁵ in the UK are summarised into five most common concerns.

Rank	Unsuccessful Features
1	Resources constraints
2	Not fully implemented
3	Lack of Top Management Acceptance
4	Length of time involved
5	Poor user- IS relationships

Planning and implementing telecommunications (see table 27) is ranked tenth in relations to the barriers to successful implementation of SISP. Human communication remains the lifeblood of organisations. Electronic communication paths can be used to reduce limits on organisational relationships created by time and distance.³⁶ Implementing an effective telecommunications system can be difficult because it requires a large financial investment in the face of changing technologies and limited industry standards. Building a responsive IT infrastructure and architecture and using Information Systems for competitive advantage also depend heavily on telecommunications.³⁷

6.10 Information Systems (IS) Department

6.10.1 Annual budget of IS department.

Table 28 shows that 14.28% of the organisations have annual budgets for their ISD which are less than 0.8 million pounds. These organisations are considered small in size and their IS departments are still employing less than 3 IS staff. Both organisations only use mini range hardware and were established in the late of 1990.

³⁵ Earl, M.J(1993) p. 4

³⁶ Mammer, M and Mangurian, G.E. (1987) pp. 65-71

³⁷ Clemons, E.K. and McFarlan, F.W. (1987), pp. 91-97

From table 28, 35.71% of the organisations spending between 0.8 to 2.5 million pounds and these organisations are normally medium in size. Most of these organisations were quite well established and have branches all over the country. Half of these organisations are considered as large organisations in size having annual budgets of more than 2.5 million pounds. These organisations were established for the last 20 years and having branches not only at the state level but also at the district level. Compared to the survey made by Earl, M.J into 21 companies in the UK, annual IS expenditure for more than half of the organisations was more than 50 million pounds.³⁸

Table 28 : Information systems budget (in million Pounds)

BUDGET (MILLION) £	%
< 0.25-0.79	14.28
0.8 - 2.5	35.71
MORE THAN 2.5	50

6.10.2 Employees in IS department

Table 29 shows that 50% of the organisations are employing more than 50 staff in their IS department. More than 78% of the total organisations have staff more than 26 people. These organisations are large and medium in size. The staff are employed normally as System Analysts, Analyst Programmers and Programmers. They are based in the Operational department, Systems Development department, Networking, Training and Maintenance of Data Base department. These departments require more staff to operate the system. About 21.43% of the organisations are employing less than 15 people since these organisations are still newly established, less than 5 years old, and sub contract their IS activities to

³⁸ Earl, M.J(1993) pp. 1-24

outside vendors. All these organisations have their head of IS Departments as IR Manager. This is at stage 6 in the Elements of Staff to be explained later in Chapter 6 concerning the stages of IS growth in ISP. Surprisingly, there is no organisation whose number of employees is between 16 to 25.

Table 29 : Number of employees in Information Systems Department

NUMBER OF EMPLOYEES	(%)
UNDER 15	21.43
16 - 25	0
26 - 50	28.57
> 50	50

6.10.3 Hardware and software used in the organisations

Interviewees were asked to indicate the number of mainframe, mini and micro computers that were used within their organisation. As shown in Table 30, 78.57% of companies were found to be using one mainframe which is quite close to the survey founded by Fidler, C where in the UK it was 76%.

Table 30 : Numbers of different computers owned by the organisation

No of computers owned	Mainframe (%)	Mini (%)	Microcomputer (%)
1 to 4	42.85	42.85	0
5 TO 100	35.72	42.85	28.58
101 to 500	0	7.14	35.71
501 to 1000	0	0	0
More than 1000	0	0	35.71
TOTAL	78.57%	92.84%	100%

This shows that the application of mainframe is identical between organisations in Malaysia and UK. This was found to be more likely within larger organisations than smaller ones. This may be due to the large initial IT investment involved which only larger organisations can afford. Another factor may be that larger companies, due to maturity, invested in IT in the mainframe era. Smaller companies may be younger, or may not have entered the IT usage area until the mini or micro eras.

Table 31 : Types of computers used by the organisations

BRAND	Mainframe (%)	Minicomputer (%)	Microcomputer (%)
IBM	72.7	0	57.16
VAX	9.1	29.41	7.14
ICL	9.1	0	0
FUJITSU	9.1	0	0
HP	0	23.53	0
SUN	0	17.65	0
AS400	0	17.65	0
NCR	0	5.88	0
ERICSON	0	5.88	0
COMPAQ	0	0	14.28
ACER	0	0	7.14
AST	0	0	7.14
ALT	0	0	7.14
TOTAL	100%	100%	100%

Table 31 shows that IBM was clearly the market leader in the mainframe and in the microcomputer section, particularly in the product industries. Secondly, in the mainframe area were ICL, VAX and Fujitsu with 9.1%. The majority (92.84%) of the organisations used at least one mini computer, as shown in Table 30. The minicomputer VAX was found to be dominant (29.41%), which is not surprising given the penetration of the VAX equipment with VMS and UNIX operating systems.

Microcomputers were very common (100%) regardless of the size and type of organisations. Again, IBM was predominant (57.14%), then secondly followed by COMPAQ (14.28%). There was a strong association between the number of IS employees and the type of hardware used. A greater number of IS employees were found where mainframes were being used. A similar, but weaker relationship was established between IS employees and microcomputers. Such relationships are likely, as the use of multi-user systems requires greater manpower for systems development and subsequently systems in operation, both of which are often undertaken via a Data Centre framework, comprising development, data communications, technical support, database administrations and operations functions.

6.10.3.1 Memory size used by the organisations

Interviewees were asked about the memory size used by their systems in the organisation. Table 32 shows that most of the mainframes had memory size either in between 16MB-29MB (36.36%) or bigger than 312MB (36.36%). In the minicomputer range 35.29% are using memory size between 64-127MB. There were only 5.88% of the minicomputers using less than 1MB and this minicomputer is a very old type, and it was installed during the same time when the organisation was first established. Second highest memory size used in the minicomputer range (29.42%) was more than 312MB.

The majority of the microcomputers (57.14%) were using memory between 16 - 29 MB. Very few organisations (7.14%) were using memory size between 64MB-127MB. Those organisations which were using memory size between 64MB to 127MB are the large organisations and having branches over all the states in Malaysia and some even at international level.

Table 32 : Memory size used by the organisations

MEMORY SIZE (MB)	Mainframe (%)	Minicomputer (%)	Microcomputer (%)
< 1 MB	0	5.88	0
1 -15 MB	0	0	35.72
16 - 29 MB	36.36	0	57.14
30 - 63 MB	0	17.65	0
64 - 127 MB	18.2	35.29	7.14
128 - 256 MB	9.1	11.76	0
257 - 312 MB	0	0	0
> 312 MB	36.36	29.42	0
TOTAL %	100	100	100

6.10.3.2 Storage sizes used by the organisations

Storage sizes used by the organisations were an important indication of either the organisations ability to utilise a high volume of data for SISP or just dependent on their microcomputer storage capacity. Interviewees were asked to inform about the storage sizes used by their systems in the organisation. Table 33 shows that most of the mainframes had storage sizes between 30GB to less than 1TB (36.35%), while in the minicomputer range, 52.95% use storage sizes between 1GB to less than 10GB. Only 5.88% minicomputers were using less than 5MB, and they were of a very old type. There were no mainframes and microcomputers using less than 5MB, and this shows that with new technological innovation, every organisation has

started to use a higher size of storage. Second highest storage size used in the minicomputer range (17.65%) was between 10GB to less than 20GB.

Table 33 : Storage sizes used by the organisations

STORAGE SIZES	Mainframe	Minicomputer	Microcomputer
< 5 MB	0	5.88	0
5 - 360 MB	0	11.76	21.43
>360 -640MB	0	0	64.29
>640 till < 1 GB	0	11.76	7.14
1 till < 10 GB	9.1	52.95	7.14
10 till < 20 GB	18.18	17.65	0
20 till < 30 GB	27.27	0	0
30 till < 1 TB	36.35	0	0
1 TB and above	9.1	0	0
TOTAL	100 %	100 %	100 %

More than 85% of the microcomputers were using storage sizes between 5MB to 640MB. The majority of microcomputers (64.29%) were using storage sizes between 360MB to 640MB. Very few organisations (7.14%) were using storage sizes between 640MB to 10GB. Those organisations which were using microcomputers with storage sizes between 640MB to 10GB are the large organisations and have branches in all states in Malaysia.

6.10.3.3 Operating systems used by the organisations

Since most of the organisations were using different kinds of computers and operating systems, respondents were asked to inform about the operating systems used by their computers. Table 34 shows that most of the mainframes (63.7%) were using MVS since 72.7% of the mainframes were on IBM, (See Table 31).

Table 34 : Operating systems used by the organisations

OPERATING SYSTEMS	Mainframe (%)	Minicomputer (%)	Microcomputer (%)
MVS	63.7	0	0
VM	18.1	0	0
VMS	9.1	0	0
VME	9.1	0	0
UNIX	0	70.57	6.67
HP-UX	0	11.77	0
MPE	0	11.77	0
OS400	0	5.89	0
DOS/WINDOWS	0	0	93.33
TOTAL	100	100	100

While in the minicomputer range, 70.57% were using UNIX. UNIX is forcing the idea of open systems into general acceptance with Malaysian UNIX sales outstripping sales of proprietary systems and UNIX experience being the most sought-after skill in the recruitment market place. Furthermore, MAMPU) has recommended that organisations in Malaysia should go for an open system configuration where UNIX has the capabilities. More than 93.33% of the microcomputers were using DOS/Windows. Few organisations (6.67%) use UNIX only in their microcomputers.

6.10.4 Proprietary of Software Products Used

In this research, the organisations were asked to list the proprietary of software products used in their organisations, for example Dbase, Oracle or Access in the database group. The purpose is to find out which kinds of software are normally used to support in their IT strategic planning.

6.10.4.1 Software products used in general.

The interviewees were asked to indicate their use of software products under the headings of databases; spreadsheets; statistical packages; integrated packages; project management software; report generators; executive information systems (EIS), expert systems shells; and graphics packages. The aim was to identify the level of software support for the management and decision-making processes within organisations. None of the organisations in Malaysia has ever used any SIP software yet. Some of them were even surprised that such software is available in the market. This is because there are no companies that have tried to introduce such software since the application is so specific and not well known to customers. Most of the organisations use databases, spread sheets and graphics software on their systems. The application of Word Processing was not included in the table since most of the organisations were anyway using Word Processing packages when they bought computers to replace the utilisation of the typewriter.

Table 35 : Software products used by the organisations

SOFTWARE PRODUCTS	%
databases	100
spreadsheets	100
graphics packages	100
project management S/W	64.29
integrated packages	57.14
statistical packages	50.00
Executive information system	42.85
report generators	28.57
Islamic software (<i>Hajj, zakat</i> etc.)	28.57
expert system shells	21.43
Strategic Information Systems Planning (SISP)	0

6.10.4.2 Database product

Database packages were in widespread use within the vast majority of organisations participating in this study. On average, three different database packages were used by each organisation. Dbase was the most popular used in the PC base environment, and with Oracle as a second higher percentage since a new Oracle office was opened in Kuala Lumpur in 1990 to give backup support on training and maintenance. Other database software used by the organisations are Ingress, Informix, DB2, Foxpro and Sybase.

Table 36 : Database products used in the organisations

DATABASES	%
Dbase	100
Oracle	42.85
Ingress	21.43
Informix	21.43
DB2	21.43
Foxpro	14.28
Sybase	14.28

6.10.4.3 Spreadsheet products

Spreadsheet packages were in widespread use. On average, an organisation had two different spreadsheet packages in use. LOTUS 123 was the clear market leader (71.43%) with Excel and Quatro in second and third place. This is because Lotus 123 was introduced widely in the early 1980's either in the higher institutions, private sectors or government institutions in Malaysia. There was some evidence that larger organisations have a greater number of different spreadsheets in place

and that there is greater diversity in choice of packages among smaller and service based organisations.

Table 37 : Spreadsheet products used in the organisations

SPREADSHEET	%
Lotus 123	71.43
Excel	42.85
Quatro	14.28
Microsoft Office	7.14

6.10.4.4 Statistical Products

Nearly half of the organisations were using statistical packages; SAS (28.57%) was the most frequent. This may be due to the successful marketing strategies adopted by the owners and the generic nature of SAS. However care must be taken to distinguish between possession of the package and its application in the organisations. Christ, F (1993) found that in the UK, 26% of the organisations were using statistical packages and 80% of them were using SAS. This shows that the application of SAS packages is not well-known in Malaysia.

Table 38 : Statistical products used in the organisations

Statistical Packages	%
SAS	28.57
SPSS	14.28
Minitab	7.14

6.10.4.5 Integrated Packages

The use of integrated packages was quite low (46%). Organisations using these packages tend to adopt only one product. Microsoft Office was the preferred

package. Taking into account the sophistication of integration and the multi-faceted nature of business problems, the use of integrated packages might have been expected to be far higher. However, in support of the findings, integrated packages often comprise less powerful versions of stand-alone software facilities. Organisations in Malaysia, therefore prefer to combine stand-alone facilities, rather than purchase an integrated package since it is expensive to buy the network version compared to the stand alone.

Table 39 : Integrated Package products used in the organisations

Integrated packages	%
Microsoft Office	28.57
Lotus Suite	14.28
SAP	7.14
System- W	7.14

6.10.4.6 Project Management products

A larger proportion of companies (67%) are using project management software. The market leader, among the sample, was found to be Microsoft project (28.57%). There was no significant difference in usage between the smaller and larger organisations or between product and service industries. However there was some evidence that larger organisations use more than one type of package. This may be because the larger an organisation, the more multi-faceted it is. This in turn leads to a greater diversity of project types, which requires differing types of project management and different types of associated, project-management software products.

Table 40 : Project management products used in the organisations

PROJECT MANAGEMENT	%
Microsoft project	28.57
Arthimcs	21.43
Timeliness	7.14
Project Workbench	7.14

6.10.4.7 Report Generators products

Report generators were only available in a few organisations (30%). Table 41 shows that these organisations were using Power house, Ingress, SQL and In-Evaluation. The applications were quite small because those using embedded report generating facilities such as SQL are likely to have included this under their database usage entry. There is evidence that report generators are in greater use in product industries. This is expected, given the nature of the operations within this sector and the level of IBM hardware in this sector.

Table 41 : Report Generators products used in the organisations

Report Generators	%
Power house	7.14
Ingress	7.14
SQL	7.14
In- Evaluation	7.14

6.10.4.8 Executives Information Systems (EIS)

There were 37 % of the organisations found to be using EIS. Most organisations use only one type of EIS, which is to be expected, given the organisations-wide

service which EIS provides, and the relatively small user population. Larger companies are more likely to have an EIS. This is not surprising, given the initial investment required and that smaller organisations have less difficulty of tracking key performance indicators and critical success factors.

Table 42 : EIS products used in the organisations

EIS	%
Lightship	14.28
Commander	14.28
Express	7.14
Nexpert	7.14

Table 42 shows that there is no clear EIS market leader although Commander and Lightship are the most popular software. Commander was one of the first EIS generators available commercially and is still considered to be one of the market leaders within the available literature. The wide variety of EIS implementations may be due to the relative newness of this type of MSS in Malaysia. EIS development is still at the experimentation stage of Nolan's model.

6.10.4.9 Expert System

Very few organisations (21.43 %) have expert system shells and slightly higher than the survey conducted by Dr Fidler, C in the UK based organisations which was 15.3 %. The statistics gathered were too sparse to pursue other relationships. Perhaps the low penetration of this market due to organisations not appreciating the role expert systems can play and that their application is therefore very much in specialist areas.

Table 43 : Expert System Shells products used in the organisations

EXPERT SYSTEM SHELLS	%
Knowledgebase	7.14
HP-UX shell	7.14
IEW	7.14

The issues of the very small return on investment, and the responsibility of ownership and its legal implications, cause continuing reluctance of organisations to utilise expert systems. Problems with inadequate interfaces and acceptability of the 'expert' concept have been reported elsewhere. Another reason for the low uptake could be that building expert systems requires different skills and, therefore, requires its development to be undertaken by independent specialists. The client organisation would acquire the application systems and not application development tools, that is the expert system shells. That is the reason why very few organisations in Malaysia, 7.14% are using either Knowledgebase or HP-UX shells. There are only 21.43% of the organisations in Malaysia found in this survey to be using expert system shells.

6.10.4.10 Graphic Packages

Graphics packages are very popular (100%) within the organisations surveyed. Most of the organisations were using only one package. Harvard Graphics was by far the most popular, being used by 50% of the respondents. The popularity of graphic packages is not surprising, given their ability to enhance the professionalism of reports and presentations.

Table 44 : Graphic packages products used in the organisations

GRAPHIC PACKAGES	%
Harvard Graphics	50
Freelance	28.57
Power point	14.28
Story Board	7.14
CAD/CAM	7.14

6.10.4.11 Islamic products

There were 28.57% of the organisations using Islamic software for Islamic Informations services mostly as a resources for retrieving Quran and Hadith (14.28%). The Prime Minister's Office and *Zakat* Collection Centre were using SISMI package as a database on the registration of Muslim population and the registration of Mosques as has had been explained in Chapter 2.

Table 45 : Islamic products used in the organisations

Islamic Software	%
Al-Khatib	14.28
SISMI	14.28
<i>Hajj</i>	7.14
Computerised Financing System	7.14
<i>Zakat</i>	7.14

6.10.5 Systems development used in the organisations

71.43% of the organisations had systems development methodologies in place compared to 58% in UK. There were several instances of organisations using more than one methodology. Table 46 shows the use of SSADM, compared with using

other methodologies. SSADM does not appear to be popular in Malaysia yet, particularly in the service sector, although the survey suggests a wide variety of methodologies are in commercial use. As shown in Table 46, there is some evidence that the smaller organisations are less likely to adopt a methodology than the larger ones. The use of methodologies might explain the fact that larger organisations may need to control their systems development more rigidly than smaller ones, because projects tend to be larger and more complex, involving more people working at several geographically dispersed locations. A counter argument is that smaller organisations need methodology to support the most effective use of small teams, small budgets and less slack in their resources. There is some indication that service-based organisations are more likely to adopt SSADM than the other methodologies. This group of organisations include those in the public sector which are obliged by the Malaysian government to use SSADM.

Table 46 : Types of systems development used in the organisations.

SYSTEMS DEVELOPMENT	Total %	Small Organisation	Medium Organisation	Large Organisation
Other (Method/1)	57.14	0	14.29%	42.85%
SSADM	14.29	0	0	14.29%
None/ not known	28.57	21.43%	7.14%	0

The majority of organisations (92.3%) develop their systems centrally to avoid duplication of work and saving expense on manpower. The other reasons are related to lack or inadequate experience of IT staff in Malaysia nowadays to handle this difficult job.

Table 47 : Functionality of system development

FUNCTIONALITY	%
Centralised	92.3
Decentralised	7.7

6.10.6 Networking

Regarding networking, a high number of organisations indicated their use of either LANs or WAN. Table 48 shows that 7.7% of the organisations only used LAN and others or 92.3% are using either both LAN and WAN. More implementation exists on both types because the organisations have branches in every state and LAN was very popular in Malaysia after 1992. This is likely, given the trend towards PC-LAN based solutions to organisational problems, down sizing and increases in organisational mergers and acquisitions, globalisations and political impact.

Table 48 : Type of networking

TYPE OF NETWORK	%
LAN	7.7
WAN	100
BOTH	92.3

6.10.6.1 Network Application

Table 49 shows that 92% of the network were applied in FTP. It is an astonishing data since in the UK as Christ Fidler surveyed, the application of FTP was not the first ranking in their network application. Accounting (77 %), ranking second and similar to the finding by Fidler in the UK,³⁹ office automation (70%), word

³⁹ Fidler, C and Rogerson, S(1993), pp. 13-21

processing and database (62%) seem to be the most frequent applications of network within the organisations surveyed. Conferencing capabilities were the least used. While some respondents might have included conferencing within office automation, only three organisations used conferencing facilities, which is surprising given the number of large organisations surveyed.

The application of the automatic teller machine (ATM) is smaller (7.77%) since it is only implemented by the bank. In general, the application of internet (less than 46%) like e-mail, IRC, mosaic, netscape and gopher is not very popular yet in Malaysia since it requires subscription through MIMOS. The application of Islamic software through network is still small (15%) since not all the Islamic departments have networking facilities and connected to the internet.

Table 49 : Network applications

NETWORK APPLICATION	%
File Transfer Protocol (FTP)	92
Accounting	77
Office Automation	70
Word processing	62
Data base	62
E- mail	46
Project Management	38
Spreadsheet modelling	37
Internet Remote Chart (IRC)	23
Mosaic or Netscape	23
Statistical packages	15
Gopher	15
Islamic software	15
Automatic Teller Machine	7.7

6.10.7 Use of IT products to support management work

A very high percentage of the organisations (92.85%) was found to use IT products directly in their work. This finding is similar to what has been found by the survey conducted by Fidler, C and Rogerson, S from De Montfort University, Leicester, where 93% of the organisations in the United Kingdom did use IT to support their management work. Table 50 shows that the most popular areas that support management work are in document creation and personal administration (77%). This is mostly in the application of word processing, database and spreadsheet. Managers are using IT for the preparation of reports, presentation, annual budget, database on organisations and future forecasting on budgeting. Second most important areas are document administration and information exchange (70%). This is normally used in the aspects of database and e-mail. There are only 54% of the organisations using IT in the area of analysis especially in the decision sciences area and statistics.

Table 50 : Area of IT products to support management work

AREA	%
Document creation/ presentation	77
Personal administration	77
Document administration	70
Information exchange	70
Analysis	54

Since the questionnaire was targeted towards IT and corporate management, it seems highly appropriate to consider respondents' individual use of IT products to

support their work. The categories of work undertaken were based on a modification of the categories used by Fidler, C and Rogerson, S.⁴⁰

A very high proportion (93%) was found to use IT products directly in their work. The predominant activities supported were document preparation, analysis for example, financial analysis through the use of spreadsheets; and information exchange, for example, via E - mail.

6.11 Conclusion

In summary, organisations are adopting a wide range of software products to support their office-based functions. In general, the results are as expected. It is interesting to note several points.

- 1) The use within an organisation of more than one product of a particular type raised the question of compatibility and information dissemination problems occurring. Many organisations appear to be vulnerable to this potential problem.
- 2) The low use of expert systems shells suggests a possible restricted application field or difficulties in conceptual understanding or problems of complexity in the development and user interfaces.
- 3) The penetration of EIS suggests high levels of interest and experimentation.

This survey has taken a broad view of the IS practice within Malaysian Muslim organisations. As such, it was intended to provide impetus for future empirical research, as much as to highlight any relationships and trends within the IS field. On

⁴⁰ Fidler, C and Rogerson, S(1993), pp. 13-20

a general level, analysis shows the high level of IS deployment in terms of hardware, software and communications facilities within organisations and in the case of EIS, use to which they are being put in management and professional activities. The survey also indicates a positive awareness of SISP, although perhaps not as controlled as it could be, and the service orientation of the corporate objective are reflected in departmental ones is not as might be expected, and links with the findings related to SISP.

Table 51 :Relationship of organisations toward revenue, no of staff, and SISP experiencce.

Annual revenue million £ [%]	No of staff [%]	No of sites [%]	No of staff in IS[%]	SISP experiece year[%]
<10 [14.28]	< 50 [7.14]	<6 [7.14]	<15 [21.43]	<2 [7.14]
10-40 [21.43]	51-1000 [14.28]	6-14 [7.14]	26-50 [28.57]	2-5 [28.57]
> 40 [64.29]	>1000[78.57]	>14 [85.72]	>50 [50.00]	>5 [64.29]

Table 51 shows that at least 50% of the organisations that were taking part in this research have :

- a) an annual revenue more than £40 million;
- b) employ more than 1,000 staff
- c) more than one branch in every state of Malaysia;
- d) more than 50 staff are in the IS department
- e) SISP experiece more than 5 years.

With all the above factors, it shows that SISP are very popular for the large organisations that are already well established. In summary, the questionnaire has

shown that organisations are purchasing and using a variety of computer technologies to support and enhance business operations. However, care must be taken not to confuse the solution provision with application use and satisfaction.

CHAPTER 7

STAGES OF INFORMATION SYSTEMS GROWTH IN MALAYSIA'S MUSLIM ORGANISATIONS

7.1 Introduction

The framework of this model was taken from Galliers,¹ which was tested by numerous participants at conferences and short courses, and by clients both in the United Kingdom and Australia. The purpose of this research is to find out what stage the Malaysian Muslims IT organisations are, and at what significance it has in relation to the decision making process.

7.2 Galliers Information Systems Growth Model

Stage 1 of the model describes the uncontrolled, ad hoc approach to the use of IT usually exhibited by organisations initially. All organisations must begin in Stage 1. This is not to say that all organisations remain in Stage 1 for any length of time. Some even move very quickly to later stages. This may occur through pressure being exerted by computer vendors, users and top management people. This will actively attempt to push the client organisation into a later stage of maturity.

Stage 2 of the model marks the beginning of the ascendancy of an IT 'priesthood' in the organisation. At Stage 3, the organisation attempts to right the imbalances caused by the ad hoc nature of developments in Stage 1 and the 'blind' rush into

¹ Galliers, R.D (1987) pp. 7-14.

systems of Stage 2. The need for comprehensive planning is being recognised and embraced whole-heartedly by some members of the management team (including some IT staff). IT is under central control up to this stage, but it is actually out of the control of those who are supposedly 'controlling' it. The answer is perceived to be in planning, typically top-down planning. There is an awareness that many of the systems developed thus far do not actually meet real business needs. There is general recognition that IT should support the organisation and as such, all IT development must somehow be linked to corporate/business plans in a fundamentally linear manner. Thus, the over-riding strategy is to ensure that a top-down, well-documented IT plan is put into place, from which future IT developments will emanate, and against which further development initiatives will be gauged.

At Stage 4, the conflicting forces concerned with gaining centralised control and with the move towards end-user computing of the previous stage, which has left IT in a state of disarray. With little co-ordination, the DP Department becomes defensive about adverse comments regarding how well it is performing, and often expresses how difficult it is to perform well, given the complexities and competing demands.

At Stage 5, the IT function is at the stage of coming out from under the burden of simply providing supporting services to other parts of the organisation and can begin to provide a strategic benefit in its own right. The major operational systems are now in place, running relatively smoothly, and providing the opportunity to

build strategic systems based on the foundations provided by these operational systems.

When an organisation is reaching Stage 6, the initial is a new age of sophistication in the use of IT. At this stage, one notices harmonic working relationships between IT personnel and other staff in the organisation. IT is being deeply embedded throughout every aspect of the organisation.

The interviewees in Malaysia were asked to choose not more than 2 stages for each section. The organisations should normally be in only one stage unless it is at the transition period where it will move from one stage to another. Only a few organisations were not sure at what definite stage their organisation was. Since some of them have chosen for example stage 2 and stage 5 at the strategy stage, they have not chosen a normal practice. Normally the organisation will be at either stage 2 or stage 3 at one time.

7.3 Strategy Element

All the results obtained under this element are illustrated in Table 52. In stage 1, the major strategy in this stage is to acquire hardware and software. There are 8.70% of the organisations still in this stage. Most of these organisations are new establishments or founded after 1990, therefore they are not depending much on the IT sectors yet. Acquisition of IT staff and the development of IT skills throughout the organisation are for the most part disregarded by management in this initial

start-up phase. One of the organisations has only a programmer to run the whole systems in the organisation. This is because the previous staff have left the organisation for better income and there are great opportunities available in Malaysia for IT people. Besides that the existing systems are running on a package developed by the outsiders. The IT staff is only required to operate the systems and provide training to the new users in the organisation. There is a desire for simple applications to be installed, typically those related to controlling the financial aspects of the business. The strategy employed normally at this stage is concerned with the acquisition of standard packages and, in many instances, external suppliers may be contracted to develop specific applications, rather than in-house applications being attempted.

Table 52 : Stages of Strategy in the Information Systems Growth

STAGE	STRATEGY ELEMENT	(%)
1	Acquisition of hardware/software etc.	8.70
2	IT audit, Find out and meet user needs	8.70
3	Top down Information Systems planning	13.04
4	Integration, co-ordination and control	30.43
5	Environmental scanning and opportunity seeking	8.70
6	Maintain comparative strategic advantage /interactive planning, monitor futures, interactive planning	30.43

In stage 2 of the strategy element, the IT staff attempt to find out about user needs and then meet them. This is the era of the IT Audit, for example, simply by checking what has been done, with the future seen simply as being a linear extension of the past. As indicated above, some systems have been installed in Stage 1, typically packages, and these relate mostly to basic financial processes. Table 52 shows that organisations in Stage 2 or about 8.70% from the whole survey now concentrate on

developing applications associated with other areas of the business. Although the emphasis is still on financial systems, they are now not so narrowly constrained. They are, however, still very much operational systems. No effective planning is performed, even though the IT staff may claim that they do at least plan their own work. What planning is undertaken is usually part of an annual budgetary process. The 'bottom-up' nature of ascertaining computing needs and the lack of adequate planning leads to the perception of a large backlog of systems still to be built, and demands for major increases in DP spending.

While in the strategy level of Stage 3, 13.04% of the organisations attempt to right the imbalances caused by the ad hoc nature of developments in Stage 1 and the 'blind' rush into systems of Stage 2. The need for comprehensive planning is recognised and embraces whole-heartedly some of the powerful members of the management team. IT is under central control up to this stage, but it is actually out of the control of those who are supposedly 'controlling' it. The answer is perceived to be in planning, and typically top-down planning. There is an awareness that many of the systems developed thus far do not actually meet real business needs. There is general recognition that IT should support the organisation and as such, all IT development must be somehow linked to corporate or business plans in a fundamentally linear manner. Thus, the over-riding strategy is to ensure that a top-down, well-documented IT plan is put into place, from which future IT developments will emanate, and against which further development initiatives will be gauged.

The conflicting forces concerned with gaining centralised control and with the move towards end-user computing of the previous stage, has left IT in a state of disarray, with little co-ordination between the Data Processing (DP) department and those using the technology. Thus, the emphasis of Stage 4 is towards integration and co-ordination. Most of the Muslim organisations are at this stage(30.43%). DP thus moves out of its defensive 'ivory tower' posture, into the real world turmoil of the business organisation.

The predominant strategy in Stage 5 is to actively seek opportunities for the strategic use of IT, to provide a competitive advantage for the organisation. Very few organisations are in this stage (8.70%). This strategy involves substantial environmental scanning. The forces driving IT are predominantly outward looking, with internal operations successfully delegated to other managers.

Most of the organisations are in stage 6 (30.43%). These organisations were established a long time ago and come into categories under large organisation. During strategy Stage 6, management is concerned with maintaining the comparative strategic advantage that has been hard won in the previous stages. This involves a constant reassessment of all uses of IT, both within the organisation and in its market place. Co-operative strategies among the top managers and IT staff are also in place. Interactive planning, involving monitoring future as well as present circumstances, is the focus of strategy formulation.

7.4 Structure

From Table 53 there is no real organisational structure associated with IT in stage 1 (5.27%). IT is simply purchased and installed wherever someone requires it to be used. As expenditure on IT represents a relatively large capital outlay for the typically small organisations currently at this stage of development the Chief Executive Officer (CEO) is usually actively involved in purchasing. Little thought is given to the organisational impact of IT, nor to the infra-structure necessary to manage its acquisition and use.

At Stage 2, this is the first stage when a separate IT section within the organisation is recognised (5.27%). This section is given various names, but it is typically located under the Finance or Accounting function, because it is the main emphasis of IT applications within the organisation. The IT section is still quite small, and provides limited services to the broad range of functions in the organisation. The growth of internal IT staff usually heralds an era of reducing reliance on outside assistance. The internal IT staff now attempt to gain control of IT matters within the organisation and do not usually welcome 'outside' interference.

A comprehensive DP department is incorporated into the organisation in this stage (26.32%). It is centralised, with all 'official' IT power invested in the department and its head (still the DP Manager). The latter may still report to the Financial Controller (Vice President of Finance), but their standing in the management team will have grown slightly, although they are still treated as a technical person, and are not usually asked to participate in making 'business' decisions. Senior management

has tended to be nonconformist in their responsibility to manage and control IT. This may be due to a number of factors, not the least being their almost total lack of understanding of IT, and in many instances, their unwillingness to begin to attempt to understand it. This attitude has excluded DP staff from the organisation's 'business' decision-making process, even though they may have wanted to participate, or may have been capable of making a positive contribution. The attitudes of Stage 2 are further developed in Stage 3, leaving a legacy which causes the DP Manager some discomfort. The DP Manager and the DP department become out of touch with the ordinary user in the organisation, and problems in implementation and acceptance of systems developed centrally continue to manifest themselves.

The emphasis in Stage 4 moves towards bringing all users back into the fold. In practice this means that the previously centralised DP department becomes a little more decentralised, with the addition of Information Centres, integration of Records Management, Office Automation and Library Services into a group now known as the IS or Information Services Department. The IS Manager (previously the DP Manager) often moves up a rung in the organisational structure (at the Vice President level or just below), and this often involves a change in title. The new title may be known as Information Resources (IR) Manager as in one of the organisations in Malaysia. In many instances, a new manager is appointed as IS Manager. The incumbents DP manager is overlooked, and is sometimes replaced.² The New IS Manager typically has more widespread business management

² Hirschheim, R.(1968), IFIP TC-8 Open Conference, Singapore,

experience, and may well not hail from the IT area. This new manager may come from another part of the organisation, or may be recruited from external sources. 21.05% of the organisations are at this stage.

Table 53 : Stages of Structure in the Information Systems Growth

STAGE	STRUCTURE ELEMENT	%
1	None	5.27
2	Label of Information Systems; often subordinate to accounting or finance	5.27
3	Data processing department; centralised DP shop; End users running free at stage 1	26.32
4	Information centres; Library records; OA etc. in the same unit; Information services	21.05
5	Strategic Business Unit coalition(s)(many but separate)	10.53
6	Centrally co-ordinated coalitions	31.56

Stage 5, rather than comprising a relatively fixed structure, be it centralised or decentralised, coalitions are now formed between IT and business units in the organisation (10.53%). The 'federal' organisation has come of age. Many coalitions are formed, each of them separate, but fitting within the overall plans of the organisation, and driven by strategic, corporate plans. These strategic coalitions flow relatively freely in and out of existence, allowing the organisation to respond to changing environmental pressures more readily. The necessary infrastructure has been put into place in the previous stages to ensure that these fluid coalitions do in fact operate as required, and produce results, both in the short term and the long term. The strategic coalitions between IT and business units were somewhat separate and relatively uncontrolled in the previous stage.

At Stage 6, however, 31.58% of them are now centrally co-ordinated. An overall corporate view is integrated with the individual business unit view.

7.5 Systems

Any systems development that takes place during this stage tends to be ad hoc. Systems are most often unconnected. Development and operation of systems is uncoordinated, whether this is across the organisation as a whole or within the area requiring the application. Systems tend to be operational in nature, concentrating on the financial aspects of the organisation, rather than its core business. The ad hoc approach to development and use of information systems results in many being located within, and supporting, just one functional business area. Most of these systems will overlap and are inconsistent in operation and output. Manual systems are typically retained to 'backup' the computerised systems. Systems tend to cover only a limited aspect of the range of work required of the individuals within the area concerned. 5% of the organisations fall into this stage.

Many more applications are developed or purchased and installed in the organisation during this Stage 2 (10%). Whereas Stage 1 may usually be quite short lived, Stage 2 may continue for quite sometime. Early on, managers and staff in the organisation begin to see computerised applications being installed after what may have been quite a lengthy period of waiting. This early delivery of applications provides an initial boost to the credibility of the IT function, thus rulling them and the rest of the organisation, into a false sense of security. The self-image of an important and powerful 'priesthood' is reinforced. Even though applications are

being installed at a greater rate than previously, there are still substantial gaps in computerisation in Stage 2 organisations. At the same time, many of the applications tend to overlap in purpose, function and data storage. Development and operation of applications is invariably centralised, spawning the development of the 'computer centre', and its attendants. Applications remain operational in nature, once again with the concentration being in the financial area, but with some other core business-oriented applications being attempted. The ad hoc and unprepared nature of going about building the first system (in Stage 1 and early in Stage 2) also leads to a large maintenance load being placed on the IT section. This large maintenance load invariably leads to a growth in the number of IT staff. Usually this occurs in an uncontrolled manner, and leads, as this stage progresses, to a slowing of the pace in which new systems are developed.

At Stage 3, 30% of the organisations in the survey show that most systems are centrally developed, installed, operated and controlled by the DP department. By this stage, DP staff have implemented systems to cover most major operational activities in some form or another. At the same time, there are a number of systems which have been put together by end users in an uncontrolled, uncoordinated manner. These systems exhibit all the problems associated with Stage 1 developments, with the further difficulty that they have not been developed with technical expertise, and do not include all the elements that ensure a well maintained on-going success for the system in the future. For example, system security is a major problem here. When these systems fail, the end users typically lay the blame at the feet of the DP Department and demand that they fix and maintain the system.

Table 54 : Stages of Systems in the Information Systems Growth

STAGE	SYSTEMS ELEMENT	%
1	Ad hoc, unconnected, operational, multiple manual and IS, uncoordinated, concentration on financial systems and little maintenance	5
2	Many applications, many gaps, overlapping systems, centralised, operational, mainly financial systems, many areas unsatisfied, large backlog, heavy maintenance load	10
3	Still mostly centralised, uncontrolled end user computing, most major business activities covered	30
4	Decentralised approach with some control, but mostly lack of co-ordination; Some DSS (ad hoc); Integrated office technology systems	20
5	Decentralised systems but central control and co-ordination; added value systems(more marketing oriented); More DSS(internal, less ad hoc); Some strategic systems (using external data); Lack of external and internal data integration; Integration of communications technologies with computing	20
6	Inter-organisational systems; new IS based products; External/internal data integration	15

At Stage 4, the organisations (20%) now adopt a 'federal' approach to information systems management and development. Line departments may gain control over the deployment of IT within their department. This results in miniature DP Departments spread throughout the organisation. These exhibit characteristics of Stage 2 maturity. In Stage 4, Systems Analysts are now called Marketing Executives.³ They know more about the business of the line department, but they perform much the same role as the Systems Analyst previously did.

The Information Services Department now co-ordinates the use of IT throughout the organisation and suggests methods which the separate DP departments should follow. Office Systems are now installed in an integrated and co-ordinated manner throughout the organisation. Previously, they were implemented on a stand-alone basis, with no regard to integration considerations. Some DSS are attempted, but more often than not in an ad hoc manner. The organisation is just coming to grips

³ Samat, I(1996), pp. 322-325

with working together with IT, but a co-ordinated approach to DSS development through the organisation is not as yet a reality.

Systems at Stage 5 where 20% of the organisations find themselves are now more market-oriented than before. IT is used in an attempt to add value to organisational products and services. This factor, combined with the coalition aspect of the organisational structure in this phase, means most new systems are basically decentralised but with proper central co-ordination and control. Systems intended to provide a strategic advantage to the organisation or to a business unit are developed in this stage. Most of these systems rely heavily on gathering and processing external data in addition to internal data. But in most instances, there is still a distinct lack of real integration between external and internal data. Decision Support Systems (DSS) for senior staff are developed and implemented at this stage. These DSS are possible only because necessary operational systems are in place and integrated appropriately. Most staff have had enough experience associated with IT to be able to specify effectively and use DSS and other Executive Information Systems (EIS).

At the last stage, 15% of the organisations building on the outward-looking strategic systems of the previous stage, IT now embarks on implementing inter-organisational systems: for example with vendors, customers and government agencies. New products and services may now be developed which are IT-based rather than the technology being first a supporting element.

7.6 Staff

From the survey, refer to Table 55, there are 9.53% of the organisations that are at Stage 1 where their IT staff typically consist of a small number of programmers. A number of programming staff were employed, but often external contractors are used. Purchase of packaged software or implementing turn key projects means that very few internal IT staff are deemed to be required. These organisations were normally new and were only established within the last 5 year. Other problems faced by these organisations are difficulties in employing Systems Analysts, therefore the work was left to the programmers for continuing the operation.

Table 55 : Stages of Staff in the Information Systems Growth

STAGE	STAFF ELEMENT	(%)
1	Programmers/ external contractors	9.53
2	Systems analysts/ DP manager/ Systems Engineer	28.58
3	Information Systems (IS) planner; IS manager	23.8
4	Marketing Executives; Information Resource Manager (CIO)	4.76
5	Corporate/business/IS planners (one role) responsible for SISP	14.30
6	IS director becomes a member of the board of directors	19.03

Nearly half of the Malaysian Muslim organisations implementing SISP are at Stage 2 (28.58%) and Stage 3 (23.8%). Stage 2 heralds the appearance of a DP Manager, who usually reports to the Financial Controller or equivalent. Apart from the programmers inherited from Stage 1, the DP Manager will be joined by Systems Analysts: people in charge with the responsibility of ensuring that they have adequately understood the requirements of the user, and of designing appropriate systems. Some of the Systems Analysts were also required to provide computer training for the users.

At Stage 3, not only does the DP Department retain the previous complement of staff, but it grows further, with the addition of the IS Planner, and Database and Data Administration staff. Towards the end of this stage, the DP Manager may have a change in the designation to that of IS or IT Manager. Similarly, the DP Department may be renamed as the IS or IT Department. The majority of the organisations are at Stage 2 and 3 (52%).

As mentioned above, at Stage 4 the traditional Systems Analysts, Analyst Programmers and programmers are joined by Marketing Executives. These staff are actually employed by the line departments they serve, but must closely interact with the rest of DP department personnel. A higher level manager for the Information Services area is installed in the organisation, usually at the Vice President level or just below, as indicated above. 4.76% of the organisations fall into this stage.

The new role at Stage 5 is that of a combined Business and IS Planner in the organisation (14.30%). These people are responsible for recognising and planning SIP, for the organisation as a whole and for individual business units. They have had some years experience, both in the business, and in the IT area. They may have come from either area, but are definitely cross-disciplinary.

At Stage 6, the IT Head becomes a member of the Board of Directors. Table 55 shows that there are only 19.03% of these organisations at this stage. All of these organisations are large organisations and having staff of more than 2,000 people. This is not a token measure for providing the occasional piece of advice when asked, but rather, as a full member of the Board, the IT Head will play an active

part in setting strategic directions. Strategic decisions will then have the required IT element when appropriate from the very beginning, rather than as an afterthought.

7.7 Style of the organisation.

Table 56 shows that 5.27% of the organisations in Malaysia are either at stage 1 or stage 2. The predominant style associated with the utilisation of IT in Stage 1 is that of being unaware and, more significantly, unconcerned with being unaware. IT operates in a virtual vacuum, with almost total disregard as to how it will affect the organisation, its processes and human resources. From the IT personnel perspective, the only issues that appear to be of any relevance are technical ones: nothing else is of significance so far as they are concerned. Much of this style in Malaysia can be attributed to the use of external contractors as IT staff. These external contractors will typically show little interest in the organisation they are contracted to.

The predominant style of the IT staff in this Stage 2 is one of “don’t bother me” scenario since the staff are too busy getting this system up and running at the moment. The pressure is really on these staff, and they show it. Their orientation is still technical. they assume that whatever they are doing is what they should be doing to assist the organisation. Their job is to go about building the system as quickly as possible, and as technically competently as possible. Involvement with other staff in Malaysian organisations, especially when these others attempt to be involved in building systems, is not welcome, since users ‘keep changing their minds about what they want’. In other words, it is similar to the experience found by Land

(1982) that the IT staff do not appreciate the changing nature of information needs at this stage.⁴

The predominant style at Stage 3 is one of abrogation of responsibility, from the DP Department to other people in the organisation, usually the end user (10.53%). The view taken is that the latter can do whatever they like as regards IT acquisition and IS development, so long as they pay for it. The DP personnel see it as the user's problem if one of their systems malfunctions or fails. Similarly, the DP Manager will look to senior management for direction, requiring management commitment and guidance for new developments. Also, senior management of the organisation in Malaysia have abrogated their ultimate responsibility for IT within the organisation to the DP Manager and personnel, despite the fact that they are becoming concerned about control and performance problems with IT.

The mood of the previous stage (defensiveness) has now changed to one of co-operation and collaboration in the organisation (15.79%). The Head of IT is deliberately chosen as being a person who can ensure that IT works in conjunction with, and to the benefit of, the rest of the organisation. One of the major tasks allocated to this manager is to instil this sense of co-operation throughout the IT organisation. This task is characterised by skills associated with a democracy. A dialectic is initiated and established throughout the organisation for all IT related issues. The dialectic ensures that proper understanding and co-operation is developed and maintained between IT staff and the rest of the organisation. The

⁴ Land, F. F.(1982) pp. 203-229

dialectic can result in some constructive confrontation. Many IT personnel employed during the previous stages may be equipped to handle this type of situation, and thus may be replaced or retrained.

The predominant style at Stage 5 is that of the Product Champion, the rugged individual who conceives of a good idea and pushes it through the necessary approval procedures in order to get it off the ground and working. In this case the idea is for information systems that will lead to a strategic advantage for the organisation. About 10.53% of the organisations fall into this category. Such systems are typically very hard to justify on a standard cost-benefit analysis basis. They require the whole-hearted support of powerful members of the organisation to ensure that they are implemented.

At Stage 6, the style is now one of interdependence, with IT being but one part of the business team, working together towards making and keeping the organisation successful. The Majority of the organisations in Malaysia fall into this stage (52.63%).

Table 56 :: Stages of Styles in the Information Systems Growth

STAGE	STYLE ELEMENT	%
1	Unaware	5.27
2	Don't bother me(I'm too busy)	5.27
3	Abrogation; Delegation	10.53
4	Democratic; Dialectic	15.79
5	Individualistic(product champion)	10.53
6	IT being separate but as one part of business team	52.63

7.8 Skills of the IT staff

At the first stage, the skills associated with IT tend to be of a technical nature and rather low level at that. The emphasis is well and truly on technology, as opposed to organisational, business or informational issues. Skills are individually based: while certain staff have or develop particular skills, these are jealously guarded from others. The only IT skills gained by user personnel relate very specifically to particular applications, whether this is a package or a development. Computers and computer applications tend to be so restricted that non-IT personnel find it extremely difficult to gain the requisite skills to be able to use the few systems that do exist. IT training provided by organisations in Stage 1 is virtually non-existent. Table 57 shows that only 10% of the organisations in Malaysia are under this category.

Table 57 shows that 15% of the organisations are at this stage. Those projects that are centrally instigated are normally well controlled, following strict project management guidelines. The major emphasis is to ensure that the systems that are to be built, are built on time and within budget.

The skills required of IT personnel in moving from Stage 3 to Stage 4 change dramatically. The majority of the organisations in Malaysia are at this stage (35%). Although technical capabilities are still required, they are de-emphasised in relation to business skills, and to the over-riding need for them to fit in with the rest of the organisation. Organisational integration is a major theme, with improved understandings between IT and other organisational staff being the result. The IT

function gradually gains an understanding of how the business works, and users finally gain a proper insight into IT related issues. The IT function also gains some business-oriented management for its area, as opposed to the techno-professional attitude taken in the previous stages.

Table 57 : Stages of Skills in the Information Systems Growth

STAGE	SKILLS ELEMENT	%
1	Technical (very low level) (individual expertise)	10
2	Systems development methodology	10
3	IS believes it knows what the business needs; Project management	15
4	Organisational integration; IS knows how the business works; Users know how IS works; Business management (for IS staff)	35
5	IS manager-member of senior executive team; Knowledgeable users in some IS areas; Entrepreneurial marketing skills	20
6	All senior management understand IS and its potentialities	10

At Stage 5, IT moves out of the era of being a second string service and support unit, into being an integral part of the successful operation of the organisation. The skills required to manage this transition are those of a senior executive. Entrepreneurial and marketing skills within selected IT personnel are also the basic requirements for ensuring success in this stage. Very knowledgeable IT users become quite commonplace. Successful organisations, about 20% in Malaysia, use these people to their full potential, as there is no longer any defensiveness about users acquiring in-depth knowledge about IT use.

At Stage 6, all the skills required of a member of a Board, together with being a senior manager who understands IT and its potentialities, as well as the business,

are necessary at this stage. And in keeping with the team approach, IT personnel are very much in tune with the needs and aspiration of the strategic business units with which they work. Unfortunately only 10% of the organisations of the survey fall into this stage.

7.9 Superordinate goals.

Given that very few people are working in Stage 1 organisations have a clear conception of what is happening in the IT area, so it is difficult to ascribe a set of superordinate goals to this stage of the model. At best, one might describe these as being concerned with obfuscation. IT personnel typically keep whatever they may know and do hidden from those they are supposed to serve, either by design or through ignorance or misguided elitism. A more unkind evaluation would suggest that the practitioners in this stage are not capable of formulating well constructed superordinate goals. None of the organisations falls into this stage.

At Stage 2 a cohesive set of superordinate goals are shared within the IT function, concerned with the primacy and the inherent appropriateness of technological developments. The predominant situation elsewhere in the organisation would be one of confusion, however. Many people are doing many things, but nobody quite knows exactly what is going on, and the whole picture of IT use in the organisation is only dimly perceived. Not even one of the organisations surveyed in Malaysia at this stage of implementation of SISP is a well established company.

Table 58 : Stages of Superordinate Goals in the Information Systems Growth

STAGE	SUPERORDINATE GOALS ELEMENT	(%)
1	Obfuscation	0
2	Confusion	0
3	Senior management concern; DP defence	12.5
4	Co-operation	56.25
5	Opportunistic; Entrepreneurial; Intrapreneurial	25
6	Interactive planning, interdependent team	6.25

At Stage 3, the principal over-riding values are those of senior management concerned with the IT function. Senior management have seen substantial money invested in IT over the period of the first two stages and are now justifiably concerned about whether they will see an adequate return on their investment. The DP Department becomes defensive about adverse comments regarding how well it is performing, and often saying how difficult it is to perform well, given the complexities and competing demands. From table 58, it appears that 12.5% of the organisations are at this stage.

Co-operation is the prevailing attitude throughout Stage 4. All areas in the organisation now attempt to gain an understanding of other areas, and to work together for the common good, and towards a common goal or set of related goals. The majority of the organisations fall into this stage (56.25%). This is possible only because of the intensive top-down planning work performed in Stage 3 and carried through into Stage 4.

Opportunity is pre-eminent during Stage 5. An entrepreneurial as well as intrapreneurial attitude is positively encouraged toward those organisations. Twenty

five (25%) per cent of the organisations in Malaysia surveyed in this study are at this stage. Everyone is willing to identify and act on opportunities for strategic advantage.

At Stage 6, interactive planning, harmonious relationships, and interdependent team work are the predominant values associated with this stage. Very few organisations are at this stage in Malaysia (6.25%). The internal focus is on collaborative IT initiatives between groups, brought together to develop strategic information systems products. The external focus is on strategic alliances utilising shared information systems, and the value chain is extended to include vendors and customers.

7.10 Summary

In the element of staff, most of the Muslim organisations in Malaysia are still at stage number 2 (28.53%) and 3 (23.80%). The highest in percentage is at stage 2 (28.53%) which shows that the Malaysian organisations are mostly at the level of employing only Systems Analysts and having DP managers to look after their IS unit. There are 19.03% of the organisations that are at the highest stage (stage 6) where the Information Systems Director becomes a member of the Board of Directors. These organisations were established more than 10 years ago and have been implementing SISP for the past 7 years.

Table 59 : Percentage of elements in the Malaysian organisations

ELEMENTS	STAGES						TOTAL
	1	2	3	4	5	6	
Strategy	9	9	13	30%	9	30%	100
Structure	5	5	27	21	10	32%	100
Systems	5	10	30%	20	20	15	100
Staff	10	28%	23%	5	15	19	100
Styles	5	5	11	15	10	54%	100
Skills	10	10	15	35%	20	10	100
Superordinate	0	0	13	56%	25	6	100

There are 9.53% of the organisations still at the early stage (stage 1) employing only programmers or employing contractors to operate their information unit. Most of the organisations jump direct from stage 3 (23.80%) to stage 5 (14.30%) since only 4.76 percent of the organisations have posts for IR Managers. At stage 5, they are either known as the Corporate Planning Manager, the Business Planning Manager or the IS Planner responsible for SISP.

Table 59 shows that in the area of strategy, 30% of the organisations in Malaysia are at either stage 4 or 6. But 9% of the newly established are still at stage 1 and 2. At the structure's element, 32% of the organisations are at the highest stage and 27% of them are at stage 3. Table 59 also shows that in the elements of system, the majority of organisations in Malaysia (30%) are still at stage 3. Surprisingly, only 15% of the organisations under this system element are at stage 6, and these organisations are larger in size and employing more than 2,000 staff giving services all over the world. But 5% of the newly established are still at stage 1. At the staff's

element, 28% of the organisations are at stage 2 and 23% of them are at stage 3. This indicates that organisations in Malaysia are still not promoting or upgrading the posts for IT people when compared to the advanced countries. Most of the organisations (54%) are at the highest stage in the element of styles and only 5% of them are either at stage 1 or 2. At the skill's element, the majority of organisations (35%) are at stage 4, and 20% of them are at stage 5. This shows that more than 50% of the organisations are now going towards stage 6 (integrated harmonious relationships) following Malaysia's Government encouragement for more companies to be involved in the Multimedia Super Corridor (MSC). The majority of organisations or 56% are at stage 4 in the elements of culture or superordinate goal.

CHAPTER 8

VALUES AND ATTITUDES IN SISP

8.1 Introduction

The new source of power is not the money that is in the hands of the few, but the knowledge that is in the hands of the many. Information that becomes knowledge has been recognised as the new source of power. These new sources include IT which is considered to be one of the most significant developments in science such as the latest cutting-edge technologies. For example, computers, networking, internet, office automation and also robotics.

According to Sardar, Western science is only a science of theoretical implications and not an absolute divine science. It is a science of making certain assumptions about reality, such as, human beings, the human made relationship, the universe, time, space and so on.¹

What the author of this research mean by SISP here, is the use of computerised information systems, and IT facilities, that are designed for strategic long range planning. Designing SISP usually takes more than 3 years to plan in the Islamic methodology. Many organisations in the Muslim World (MW) have started using IT facilities, such as computers, networking, internet, office automation and also robotics.

¹ Sardar, Z (1989) p. 6

One has to question the significant point here, of how much money has been invested in IT applications. Does MW fully utilise the services that should be obtainable from these IT applications?. The impact of IT on Muslim organisations has been extensive. The driving force includes the rapidly improving price and performance ratio of technology, tax exemption, and the tremendous increase in computer training. Will IT help them to achieve their organisations' objectives or goals, in order to satisfy customer needs and to increase the welfare of the *ummah*?

Most Muslim organisations do not fully utilise their IT facilities; seemingly they only use them as word processing facilities. These organisations should use IT tools, together with the implementation of Islamic values, to forecast and obtain more benefits for the *ummah*, by applying SISP techniques available today. For example, the following tools, CSF, BSP and VCA. These tools, when configured in an Islamic manner, perform the task known to the Muslims as *muhaasabah*.² When conceptualising this priority in an Islamic organisational structure, Muslims recognise the need for IT in the Islamic reality. In fact, some of the Muslim organisations try to argue that the management systems they have are sufficient, but people can see that this is a delusion that is not firmly based in Islamic thought. Objectively, the means show their ends: the roles of management and customers are placed before matters of religion. One of the reasons why Muslims are lagging behind in scientific and technological development is because they are submitting their intellectual desires to

² Muhammad, M.Z (1971) pp. 134-137

the wrapping up of a secular theory in an Islamic mould. The sublime nature of Islamic information and knowledge is sacred and profound to such an extent that Muslims can become decision makers with real practical principles. For example, the implementation of *Salats* such as the *Salat of Istikharah*, seeking the blessing from Allah (swt) in the processes of decision making.

8.2 Problems in the Muslim World

It was a surprise to the researcher that when doing research for SISP in Islam, there was only one or two Islamic books per thousand, that actually discuss or mention any planning in their index. Is there no planning in Islam or was it left out because it was not part of Islamic culture?

If Muslims are not concerned with studying or planning their own future, there are others who are willing to shape their future for them. This is the western strategy; to delay the growth of Islamic civilisation. Around 1882, an orientalist Wilfrid Scawen Blunt, found it necessary to give some serious thought to the future of Islam and so wrote a book entitled '*The Future of Islam*'. He translated his analysis into policies for the English government. Fifty years later, many of Blunt's predictions became reality and his recommendations became part and parcel of British foreign policy.³

³ Blunt, W.S (1882. pp. Preface and p.204.

Several factors that are considered to be affecting the slow development of S&T transfer to the MW are aspects of acquisition of knowledge or skill, economic, manpower, cultural and demographic, political situation, vision and information infrastructure.⁴

8.2.1 Acquisition of knowledge and skill

There is a lack of skilled labour in the MW, but in spite of this the number of polytechnic and vocational institutions is pitifully small. Information and informatics education are still below the level required in school and university education. The MW has less than 1 per cent of world scientists and engineers, although the Muslim population is 22 per cent of the world. In the MW, the number of universities awarding higher degrees in S&T is about 100, out of which only 20 award graduate and doctorate degrees.⁵ To obtain a degree in the MW, it will take longer when compared to the industrial countries; where to do a first degree, it normally takes 3 years, but in some Muslim countries it takes 4 years or more.

Muslim scientists and technologists should Islamise the knowledge they acquire by :-

- (a) resting it against the backcloth of Islam, and thus widening its scope, discovering new facts and seeing the old ideas in the light of the new world-view; and
- (b) abiding by Islamic values in their search for it, in their choice of fields of research, in their priorities, and in the use they make of it.⁶

⁴ Salem, S (1986) p. 230

⁵ Qadir, C. A (1988) p. 190

⁶ Idris, J.S (1987) p. 201

According to Dr Abdul Hamid Abu Sulayman (Rector, International Islamic University of Malaysia), the MW lack neither resources nor values; what it lacking is the correct methodology of thinking in order to tackle the pressing problems of today. The problem, therefore, is primarily a problem of thought. It is incumbent upon the *ummah* today to reform its methodology of thinking and of solving its problems.⁷

8.2.2 Economy

There are some common features with regard to the IT situation in the MW.⁸ The MW is still lacking in skilled manpower in the information field. There is tight control by major vendors over the MW's information and informatics market. The average Gross National Product (GNP) per capita in the MW, in spite of oil and other mineral resources, is no more than the average of other developing countries as a whole. Twenty-two MW countries have an annual income of less than £500 per capita. Hence, despite the fact that the MW has a large economic potential, it grovels in poverty and belongs to the backward group of developing countries. The MW, which constitutes about 18 per cent of the world population, contributes only 5 per cent of the world Gross National Product (GNP) in S&T.

The inadequacy of the current expenditure on research and development (R&D) in international research activities, and the lack of local competition on innovation, will create a passive attitude towards development in S&T. The percentage of all national

⁷ The International Institute of Islamic Thought (1987)' p. 325

⁸ Salem, S (1980) p. 255

budgets spent on R&D in the MW is too low. The investment in R&D expenditure in Malaysia in 1992 was only 0.4% of the GNP.⁹ There are no adequate facilities for research work, no monetary inducement to scientists to stay in their countries, and no incentives of any kind to researchers to devote themselves whole-heartedly to scientific enquiry. Very few of the MW countries have plans for science and technological development, and if there is any interest in S&T, the plans for its development are generally tagged to economic or military development projects.

8.2.3 Human Resources

The MW's failure to transform their communities and become productive is due to the lack of knowledge, skill and capabilities in most areas of intellectual endeavour, especially in the scientific and technical fields. More specifically, the inability to use the tools, techniques, strategic thinking and procedures of modern science for developmental changes in the MW is the result of deficiencies in human resources.¹⁰

8.2.3.1 Lack of skilled manpower

Some of the MW countries are self-reliant in the provision of their particular requirements for specialist personnel, and actually export a surplus of such personnel (e.g. Egypt, Jordan and Pakistan). Others, for example the Arab Gulf States and Malaysia, are short of indigenous manpower. They have to import specialists or experts

⁹ Amiruddin, M. A (1996) p. 58

¹⁰ Haniff, G.M (1992) pp. 515-532

in all fields of IT from foreign countries. This leads to the instability of information systems, because of the movement of non-national manpower. This is worse because of a lack of uniformity due to the existence of a combination Muslim and foreign staff. There is a genuine threat of shut down of imported systems where MW countries are very much dependent upon foreigners for operation of their technology, especially if they have designed sophisticated systems.¹¹

8.2.3.2 Ignorance of the role of information specialists in organisations

In the last two decades, around 500,000 Muslims with good qualifications have left their own countries and migrated to the West, which can offer better salaries, job satisfaction and better facilities for research. It is estimated that from Pakistan, 60 per cent of its medical graduates, and from Syria 30 per cent, migrate every year, which is not only a brain drain or transfer of knowledge, but also a huge financial loss to the countries concerned.¹²

The MW is so much dependant upon manpower based on certificates or degrees or a title of doctor achieved, but not so on the experience that somebody has. As we know, experience is also a kind of knowledge that provides power to the *ummah*. Al Ghazali (d 1111), Ibn Rushd (d. 1198) and other previous Muslim scholars did not have such degrees, yet so many Muslims and non-Muslims refer to their works. A modern farmer, who has several times experimented on his fields, surely has more experience on which

¹¹ Lu, M.T and Farrell, C (1990) pp. 288-296

¹² Qadir, C. A (1988), p. 180

crops could produce a better yield, compared to a newly graduated PhD student in agriculture. Unfortunately, since they did not have any degrees, scientists could not trace their results or make proper documentation. The problem becomes worst when there is a lack of comprehensive collections of publications in the MW.

While the number of Muslim scientists and engineers is quite low, the number of scientists and engineers engaged in R&D is important for scientific breakthroughs, and technological innovations. There are only 45,136 scientists and engineers working in R&D in all the Muslims countries combined together, while this is compared to the 34,800 in Israel alone, or the 400,000 in Japan.¹³ This will create a difficulty in employing good professionals in Muslim organisations.

8.2.3.3 The roles of Muslim Information Systems Planner

Information Systems' personnel have a special role to play in meeting the challenges of the information age. They must see themselves as an integral part of a living civilisation based on a dynamic world view, with its own specific way of being, doing and knowing. They must fulfil the role of civilisations gatekeepers, controlling the flood of irrelevant information coming from the industrialised countries. And as purveyors of ideas, they must become the counterpart of the classical polymath, synthesising ideas and examining the developments of knowledge from a broad general perspective. Moreover, they have to convey and present modern knowledge and contemporary

¹³ Reeves, R (1984) p. 88

innovations from research they have done to the MW, in a manner that does not undermine the existing cultural establishment. This role, of the information personnel, is derived from the Islamic notions of trusteeship (the institutions in their care are a trust, where they must look after them and put them at the service of the users, in the most creative and beneficial way) and the *ummah* of which they are the appropriate guardians.

8.2.3.4 Lack of continuous education

Despite the fact that the size of MW populations are huge, Muslims have not produced a proportional number of graduates in S&T. This is due to the neglect of education, even though the Quran tells Muslims to seek knowledge. Much of the data obtained, however, indicates that learning is not a priority for Muslims. The major vehicle for achieving human development is the teacher. The MW on average has one teacher per 88 pupils, an incredibly high ratio that is almost three times higher than that for the industrial nations. Compared to Israel with one teacher per 18 pupils and Pakistan, as an example has one teacher per 112 students. The literacy rate in the Muslim countries like Iran, Saudi Arabia, Nigeria, Egypt, Bangladesh and Pakistan is less than 65 per cent.¹⁴

¹⁴ CIA (1995), Asiaweek (1996),

8.2.3.5 *Lack of team-work*

The concept of *shura*, like a steering committee, is not fully implemented in the MW. This creates a lot of problems in making any developments and innovations in S&T. But in the developed countries, it is applied in their strategic planning. For example, Miller in 1979 has suggested that there are many ways in which the Electronic Data Processing (EDP) department; user departments; an executive management group consisting of most or all of the top functional executives; senior management, such as the chief executive officer and executive vice presidents, can interact to develop a strategic plan.¹⁵ The recent advocacy of the use of steering committees to select MIS projects is of particular interest.¹⁶ Eighty-five per cent of the companies surveyed by Nolan, had functioning executive steering committees, up from 50 per cent as reported in the mid 1970's.¹⁷ In a survey of 144 Canadian organisations to discover the structure, composition, and operating processes of these corporate steering committees, Drury¹⁸ found that these committees had significant authority over establishing priorities for data processing; reviewing requests for resources, people, and equipment; and resolving conflicts concerning user needs. In addition, they had some authority over monitoring the progress of data processing projects; deciding the allocation of data processing expenditures; approving software package purchases; and evaluating interfunctional applications. Sadly, these procedures do not happen in the

¹⁵ Miller, W. B (1979) pp.36-39

¹⁶ Carlin, J.W (1978), pp. 32-33

¹⁷ Nolan, R.L (1982) pp. 72-79

¹⁸ Drury, D.H (1984) pp.257-266.

MW, where decisions are made normally by the top management people without consulting the operational staff.

The aims of *Shari'ah* are the preservation of life, of religion, of property and of honour. Those aims are to be fulfilled by an Islamic State according to certain principles, or preferably certain constitutional principles such as sovereignty, justice and equality. One of these principles is also that of consultation (*shura*). *Shura* is an obligatory action, in the sense that it is a must on a Muslim *Imam* (ruler) to consult his subjects.¹⁹ The Quran considers *shura* a distinctive feature of a Believer, in a similar manner as *salat* and *sadaqah*.

So pardon them and ask forgiveness for them and consult with them upon the conduct of affairs and when thou art resolved, then put thy trust in Allah. (3:159)

8.2.4 Culture and Demography

8.2.4.1 High percentage of nonskilled manpower

Since most pupils in the MW reach only the secondary school education level, less skilled manpower is available in the market. Only a few Muslims are able to obtain university qualifications. Most Muslims prefer to do easy subjects to overcome their economic problems. Very few want to take engineering or medical subjects that require them to take a longer period of study, while those taking social science subjects ensure

¹⁹ Abedin, T (1970) pp. 159-161

that they obtain their degree and hold a post as quickly as possible. Another attitude is the habit of looking for salary income rather than productivity.

8.2.4.2 Language barriers

Most of the MW have their own mother tongue languages (Arabic, Malay, Indonesia, Urdu and Turkish) and some of the research results are also written in languages other than English. In the Middle East, for example, most of the research documents are available in Arabic, while in South East Asia, some documents are in Malay or the Indonesian language. This will of course create language barriers among the scientists and technologists in the MW, for them to obtain and to understand the documents. Most of these documents, even though they have been published, or any research results that have been presented during the conferences in the MW, are not in the bibliographic database tools available in the western countries. The researcher came across a lot of difficulties in using inter-library loans, while doing his research in U.K, to obtain papers that were published in the MW like Turkey, Malaysia and Indonesia. Other problems faced by Muslims is fear of the new developments in technology.

8.2.4.3 Lack of information and tools

It is not easy to obtain or check information from the MW since there are no proper documentation centres. There is also a lack of information centres or tools to retrieve information. Some of the works done are duplicated from one country to the other. The statistics available are only in general form or are not accurate. Muslims do not

know exactly how many in the population of a country are poor, or needy, in a particular area for them to distribute *zakat*. There is no tool to check on who has given what type of *waqf* and when it was given, since most of *waqf lafaz* was done orally. Without this information, the MW can not develop their *waqf* land for future investment.

8.2.5 Political

8.2.5.1 Unstable governments

Most of the MW is politically unstable and always facing power struggles, war with neighbouring countries, thus creating refugee problems. The priorities of their annual budgets are mostly allocated towards buying weapons rather than investing in research and development.

8.2.5.2 Stress on security procedures

Everything produced by government is confidential particularly survey maps. Population censuses are not easily available in book shops, and this leads to difficulties in doing research. Normally, from researcher experience, there is also a lot of red tape to go through, before one is able to obtain any publications.

8.2.5.3 Continuous change in the priority of programs

Some decisions recommended by technical committees are turned down because of political reasons or personal conflict. Decisions in the MW are normally on an ad hoc

basis rather than long term planning, which usually affects a lot of other factors. This is because of the centralisation of decision making.

Centralised administration, prevailing in most institutions and organisations of the MW, can lead to a complete absence of co-ordination between all parties in the information fields. As a result, planning in the MW will be a more difficult job than at an individual country level.

8.2.5.4 Ignorance of scientific methods by top level management

For ISP in Muslim organisations to be established as strategic planning, the top management and IS personnel must fully utilise IT facilities. According to Dr Raja Malik Mohammed (Head of the IT Training Unit, INTAN),” Managers should look at IT as a tool for managing information effectively, inside and outside an organisation. Managing is essentially about balancing the internal stability in an organisation with the external adaptability to grow,” he adds. “In the past, managing IT meant developing computer systems. Today, that is no longer sufficient”.²⁰

8.3 Vision

Planning is essentially a decision making process. Deciding in advance what to do, how to do it, when and where to do it, and who is to do it, constitute the basic functions of planning. Evidence shows that most organisations in the MW engage in short-term

²⁰ Mohamed, R.M (1995) p.13

planning, but that the extent, and type of systematic and scientific means of planning, are far from being utilised in these countries. Objectives are stated in very broad terms rather than in specific and operational forms. Also, long-range planning (beyond five years) is not currently undertaken by most organisations in Less Developed Countries (LDC).²¹

These critical elements of the planning function are influenced by certain environmental constraints. Political uncertainty, economic instability and a lack of reliable data, impede long-range planning. Afraid of sharp economic fluctuations, political changes and changes in government regulations, managers hesitate to commit themselves to long-term planning.

8.4 Information infrastructure

A sensible IS strategic planning, for Muslim organisations to meet the demands of scientific and technological developments, should thus have the following features.

8.4.1 Lack of basic necessities for machine utilisation

A western writer, known as East, summarised the problems of setting up an information unit to assist Less Developed Countries, to which most MW belongs. He observed that many of these countries lacked the very basic prerequisites of a modern information society, such as electricity, ample room to accommodate hardware and

²¹ Yavas, U (1985) pp. 29-40

information centres for searching information.²² Other factors are also: lacking telecommunication tools for all scientists and technologists; inconsistency or inefficiency of postal communications to deliver mail, where often the mail is lost on the way to the recipient; complexity of customs procedures, which require too many forms to be filled in, and take a long time to clear; and the inability of joining a communications network available all around the world.

8.4.2 Lack of standard and comprehensive collections of publications for information activities

S, Bell in his research found that users do not normally know precisely what they want and that system analysts and manufacturers' documentation does not always provide simple answers, even where the needs can be clearly defined."²³

Other problems are the lack of comprehensive surveys, basic sources and necessary directories that could help in outlining the situation of IT in the MW, especially for the support of proper plans and studies. For example like the *waqf* cases, since many Muslims mention *waqf* in the verbal form only; where there is no legal documentation to be filled in, it is very difficult for a new generation to trace and locate which part of the land was distributed as *waqf*.

²² East, H (1983) pp.53-65

²³ Bell, S (1986) p. 28

8.4.3 Lack of standardised forms to support information flow

There is a need for the MW to develop an appropriate information structure to implement SISP. Since MW countries are scattered all over, the concept of centralisation and decentralisation of information structure is necessary for better information flow.

8.4.3.1 Centralisation

The role of the centralised component of this infrastructure is to synthesise and make relevant information for strategic planning to national users. The centralised components of this structure should consist of any organisation related to information retrieval, storage, and dissemination. For example, computer centres, libraries and documentation centres, specialised information centres on medicine, agriculture, business and finance, S&T, legal information, and other areas of specific concern to the Malaysia. There is a need for a centre for information transfer to act as an information exchange linking users with sources of information. This is derived from the Islamic notion of *istislah* (public interest) and *ijma* (consensus).

8.4.3.2 Decentralisation.

The decentralised components of an infrastructure must focus on: services by which the Malaysian organisations can develop their ability to participate in national decision making processes; mechanisms by which any organisation should be able to consult freely without measure and co-operate on common concerns. To speed up the SISP,

there should be co-operation among the organisations and services that provide free and easy access to information for these organisations on matters that affect them, such as population census, statistics on Muslims affairs (*hajj, waqf, zakat*), legal rights, environmental issues, national and public policy concerns and matters which would help organisations face their daily problems. This is dictated by the Islamic notions of '*adl*' (social justice) and *istislah* (public interest).

8.5 Science and Technology (S&T) acquisition in Malaysia.

8.5.1 Set up our own environment

Malaysia should make her own path for science and technological developments and not just simply be dependant on the industrial countries. Since much of the information that is generated and utilised in S&T in the modern world has little relevance to Malaysian organisations, Malaysia should have a focus on generating her own databases and databanks. This becomes even more urgent, given that information is rapidly becoming a major source of power for strategic planning. What is required for Malaysia is to develop her own long range planning simulation model using Islamic concepts. ²⁴And access to information would shape the destiny of the Malaysian in the future. As such, it is necessary for Malaysia to generate her own information; that is, Malaysia must develop self-sufficiency in local, relevant and significant R&D capabilities, as well as domestic technological self reliance particularly in the heavy industries like car manufacturing and aerospace. The experience of three and a half

²⁴ Inayatullah, S (1996) pp. 36-50

decades of conventional information strategies and developments, after independence of Malaysia, has shown that reliance on external sources leads to a particularly ugly form of dependency, or bias towards western environments, and ushers in a new form of colonialism. It is thus necessary for the Malaysian to established indigenous R&D institutions, and promote original and relevant pure and applied research in all areas of human endeavour. To overcome the need for scarcity of resources and trained manpower, the Malaysian organisations should co-operate in joint scientific and technological strategies with neighbouring countries, pool their resources and attract back the Malaysian scientists from abroad with better incentives and working environments. This is dictated by the Islamic notions of *hikmah* (wisdom), and *shura* (consultation).

8.5.2 Networking among the States in Malaysia.

To meet the growing information needs of the Malaysians and individual researches and scholars, it is necessary to fully utilise the existing networks available in the national regions such as Joint Advanced Research Integrated Networking (JARING), and Malaysian Network Information Centre (MYNIC) in Malaysia, and a specialised international referral service. It is necessary to establish an international Muslim information network and a specialised international referral service to meet the growing information needs of Muslim states and individual researchers and scholars. The latter would provide a medium for access to, and exchange of information, generated within Malaysia, as well as relevant information produced in industrialised countries, relating to science, technology, medicine, agriculture, industry, business and finance. It would

link various national libraries, computer centres, government and semi-government bodies and specialised information centres, and would involve co-operation between the Malaysian States. The referral service would focus on the specific needs of Muslim scholars, and would function on the level of an international organisation. It would bring together the rapidly increasing literature on 'Islamisation of Knowledge', and the traditional areas of Islamic studies; it would link Muslim scholars working in isolated enclaves, to build the intellectual foundation of the future Muslim civilisation. The establishment of such national networks is based on the Islamic notions of the *ummah* (Muslim community), which should behave as an integrated and holistic organism, and *shura* (consultation, co-operating for the good).

In setting up national information structures, centralised and distributive, as well as for public networks, the most effective and economically viable information and communication technologies should be used. The Malaysian should co-operate to develop appropriate technologies, and where this is not possible, adopt and modify the existing technologies to fit their specific needs and requirements. Almost all the developments in IT have been instrumental in the fragmentation of science and equalisation of human beings. It is therefore necessary that Malaysia takes a more synthetic and holistic approach to knowledge, and become aware of the philosophical, cultural and subjective dimension of information. The decision makers and planners in Malaysia have a great role to play in clothing information with knowledge and wisdom.

This is encouraged by the Islamic notion of *hikmah* (wisdom), *shura* (co-operation for the good) and *ijma* (consensus and synthesis).

8.6 Successful transfer of knowledge

The needs of Malaysian scientists, technologists and scholars require special attention, as they carry the responsibility and accountability for laying the foundations for the Muslim civilisation of the future. Here the emphasis must shift for the transfer of information, from the industrialised countries, to communication of science within the Malaysian organisations; this is the only viable cure for the isolation and suffocation of Malaysian scientists and thinkers. Only genuine communication with their peers can make the work of Malaysian scientists and technologists more relevant to the needs and requirements of the Malaysian societies and cultures. The need to meet the information needs of the scientists and technologists is a requisite of the notion of distributive knowledge or *ilm*, and the respect that the world-view of Islam gives to its *ulama* (seekers after knowledge).

8.7 National policies on promoting the development of S&T

IT has been recognised by many countries, as vital and strategic, to ensure the competitiveness of their economies. Many have established national plans to exploit IT. Malaysia is likely to lag behind the developed nations, if her knowledge and awareness of the fast changing IT age cannot support the flourishing adaptability needed by the

changing management styles.²⁵ This is because of the unavailability of clear and well-defined policies of information and informatics in Malaysia; unavailability of scientific societies and unions which could help to promote and develop the information professions.

The following recommendations for the development of information structures are presented at national and international levels, for the development of S&T in Malaysia.

8.7.1 The national level

The co-ordination between IR and channels eliminates duplication of effort and cost and reduces the overall budget. It is necessary to have clear identification of objectives and information policies regarding available IS, their capacity, types and services and performance. It is also important to design a comprehensive plan for information, covering the available systems and connecting information plans with educational and economic plans. Advanced telecommunications and networking infrastructures, relating to the development of S&T should be developed. IT should be introduced into organisations and institutes in Malaysia, still operating at the stage of traditional IS. Planning is required, for enough technical manpower to work effectively and efficiently in these fields, and implementation of the education plan, introducing information and computer sciences into secondary schools and at the university level.

²⁵ Rahman, M.A (1990), Seminar in ICIT 90, Kuala Lumpur, pp. D42-D68

Malaysian organisations should promote the utilisation or establishment of steering committees before proceeding to implement SISP. A systematic approach to opinion will ultimately provide them with an agreed set of principles, or laws for intellectual activities. This would reduce the chaos and confusion among the educated. Lastly, it will also provide a program for progress for the Malaysian communities in particular, and mankind in general.

8.7.2 The regional level

Regional plans should be introduced after the rebuilding of national plans. For example Islamic Council of Brunei, Malaysia, Indonesia and Singapore (MABIMS), should co-operate on any of the aspects of current development in S&T, their channels of transfer to the Muslim world, and the role of information in the development of the MW; co-ordination in plans for information services, and the seeking of help from international organisations or agencies. MABIMS should have better relations with each other and with developed countries, concentrating on joint programmes and studies to develop the MW's information infrastructures. This can be done through joint training programmes, seminars and conferences, and through co-operation between information centres in the MW, and others in more developing countries.

8.7.3 International integration

The next level of integration to be achieved by Malaysia is with other national, regional and international networks operating, or planned, within the scope of the Muslim

interest. Examples of such networks are the Arab Information System Network (ARISNET), the Trade Information Centre for Islamic Countries (TANIC), Casablanca in Morocco and the Information Network for Islamic S&T, for which a feasibility report has been prepared by the Islamic Educational Scientific and Cultural Organisation (ISESCO), Rabat, Morocco.²⁶

It is still difficult for the majority of Malaysian organisations to implement SISP, because of the lack of exposure to the methodologies, and lack of support from the top management people. The application of IT is still under-utilised, since few organisations implement the facilities available from IT such as e-mail and office automation. The existing governmental policies and strategies, such as tax exemption for computers and related peripherals; sufficient infrastructure such as JARING; tax incentives and expertise;²⁷ indicate a more favourable and supportive environment towards greater enhancement, and factor growth of computerisation, and the use of information technologies within the nations.

8.8 Values and attitudes in Islamic Information Systems (IIS) Planning

The reconstruction and development of Islamic S&T can only be achieved in a systematic manner. Muslims need to work on three different fronts simultaneously: first, the philosophical and sociological bases of Islamic science needs to be delineated;

²⁶ Kamaruddin. A. R (1988) p. 154

²⁷ Samat, I and Ally, M (1994), Shanghai, PRC, 20-24 Oct 1994.

secondly, policies on science which are an embodiment of Islamic goals. All these different factors explained above, and other important factors such as on values and ideals, need to be shaped. Thirdly, alternative modes of R&D work have to be discovered. While working on these fronts, it ought to be remembered that western learning is not being thrown overboard, but simply drawn from that which is good and promotes their ideals, and synthesising it with Islamic values and norms. What is meant by values here are the social principles and standards held by an individual and a society. The values and attitudes Muslims should practise are based on ethics.

In SISP, there are Islamic values which should be implemented in order to make it valuable for the Muslim *ummah*, like ethics, industriousness, innovation, teamwork and excellence. There were ten Islamic values identified during the Stockholm seminar of which the Muslim scientist and technologist should have an understanding, and implement the concepts of *tawheed* (unity); *khilafah* (trusteeship), worship, *ilm* (knowledge), *halal* (praiseworthy) and *haram* (blameworthy), *adl* (social justice), *zulm* (tyranny), *istislah* (public interest) and *dhiya* (waste) for general development of the *ummah*.²⁸

8.8.1 Ethics

In order for Malaysian scientists and technologists to achieve successful results in SISP for the benefit of the *ummah*, they should have Islamic values and attitudes based on

²⁸ Sadar, Z (1982) pp. 25-28

tawheed (unity), *khilafah* (vicegerency), *'adl* (justice), truthfulness, honesty, kindness, charity, sincerity, accountability and patience (*sabr*).

8.8.1.1 Intention (*niah*) and trustworthiness (*amanah*)²⁹

Anything done either in normal life, or in any R&D done by the scientists and technologists, should be accomplished by a clear intention, or objective. Even before the start of prayer, it is necessary to know the direction of *qibla*, and the intention for performing *salat*. This has been the fundamental principle in Islam, whereby, the intention inherent in any action determines whether such an action is good or blameworthy. Anyone who is holding a post as a scientist or technologist, is holding a public trust, therefore, they are responsible and accountable for their duties.

8.8.1.2 Truthfulness, keeping promises and gratefulness³⁰

Truthfulness is present in speech, intention, resolution of any result, in actions and in all activities related between man and man. An excellent research product cannot result from half-hearted researchers. Keeping promises all the time will enhance the trust that people have in each other. This is an important value in doing research. Scientists and technologists will not produce results whole-heartedly, unless they are satisfied with the research. In the Quran, these are principles of gratefulness.³¹

²⁹ Quran, 4:58; 4:93; 5:94; 7:89 and 23:8

³⁰ Quran, 3:17; 5:119; 39:7 and 49:15,17

³¹ Quran, 2:172; 14:7; 16:121; 27:40,73; 36:35,73; 39:7 and 42:33

8.8.1.3 Kindness³²

Muslims should be kind within any actions they are doing. Any result of their research or planning should be based on reality not on assumption (*dzan*). There should not be any manipulation of data from the research results, or misjudgements from the original planning.

8.8.1.4 Excessive love of the world, wealth and influence³³

The excessive love of this world, includes the excessive love of power, influence, status, privilege, position, title, etc. The first love is sought for the pleasure and enjoyment of the carnal desires only, and which will cause misery in the next life. The second love is that, which gives enjoyment in this world, but is not helpful in the hereafter. Excessive love of wealth will draw one away from doing good, or being virtuous, and thus encourage one to do the vices instead. This is again a disease of the soul. There are many verses in the Quran which praise wealth and some others which condemn it.³⁴ For, if wealth is spent in the acquisition of sciences and excellent manners, it is praiseworthy, and if it is spent for sensuous pleasures which have already been known as condemnable, it is condemnable. Miserliness lies in making full effort to keep wealth when it is available. Love of wealth is, thus, obtained in both cases. The only difference lies in the fact that the love of collecting and obtaining wealth is greed but

³² Quran, 6:152

³³ Quran, 2:261; 3:186; 102:1

³⁴ Quran, 2:215; 2:254; 63:9; 8:28; 102:1

the love of keeping wealth is miserliness.³⁵ Miserliness is a very negative trait which proceeds from excessive love of wealth. Excessive love of influence here means the establishment of a person's status in the minds of others, so that they magnify him, and is an even greater vice than excessive love of wealth, for it can cause more evil than good.

8.8.1.5 Respect, piety and discipline.

Muslims should have basic self values like respect for both Muslims and Non Muslims. Integrity; piety; cleanliness is part of faith and discipline. The success of any system is very much dependant upon the ability of every person who is involved in implementing a system to sustain discipline and order.³⁶

8.8.1.6 Charity

All the results of the research should be made known to the *ummah* and not kept secretly as happens in the industrial countries. They have a monopoly on all the knowledge just for the sake of their own profit and personal interest. In Islam, this attitude is prohibited, since all knowledge comes from Allah. What we have is little compared to what Allah knows.

³⁵ Al-Razi, F (1969) pp. 202-203

³⁶ Quran, 5: 2, 8, 100; 22:32; 16:4

8.8.1.7 Moderation and pride

Islam is against extremism and calls for moderation in all fields, including research and development. Moderation is between the extremes of excess and deficiency.³⁷ Pride comes to mind when an individual believes that he has greater worth than another person who also has worth. Pride can arise from qualities such as strength, wealth and noble birth.

8.8.1.8 Forever mindful of the Almighty and passion for excellence

Islam continuously reminds its *ummah* to be forever mindful of Allah, in order that they may always enjoin what is good and forbid what is evil. When one is always mindful of Allah, it is most unlikely that they will displease Allah. The most important ingredient for excellent performance is the existence of inherent passion within the individuals. Islam not only admits excellence as a virtue, but also encourages its adherents to excel in everything that they do.

8.8.1.9 Continuous self evaluation (*muhaasabah*)

The word *muhaasabah* does not occur as such in the Noble Quran, but the meaning is present in the phrase *yamul hisaab*, in relation to the Day of Judgement. So any definition of *muhaasabah* would have to state that it embraces criticism and self-criticism, and the things leading off from these: trial, giving account, correction of

³⁷ Quran, 2:143 and 25:67

errors, being prepared to accept correction, taking disciplinary measures or actions.³⁸ Islam strongly encourages continuous self evaluation in order for Muslims to improve themselves all the time. If at any moment, they realise that they have done more bad than good, they are expected to take immediate corrective and remedial action. They have to correct the wrong doings and improve on the good actions.

8.8.1.10 Proficiency, efficiency (*ihsan*), conscientiousness and knowledge

Ihsan is commonly understood as doing marginally more than the minimal requirements. Scientists should produce more results and this also extends to their knowledge. *Ihsan* also means proficiency and efficiency. Islam unambiguously encourages all its adherents to acquire the necessary knowledge (*ilm*) of the things they want to do before they attempt to do them. After acquiring such *ilm*, they must be conscientious in their undertaking.

8.8.1.11 Sincerity (*ikhlas*); Accountability and Patience³⁹

IS specialists must be accountable and responsible for their R&D whenever it is entrusted upon them. They will have to report to Allah if any destruction happens to the *ummah*.⁴⁰ This concept is relevant to the scientific R&D they are doing, either it is praiseworthy (*halal*) or blameworthy (*haram*). Without these values, researchers will do anything they think is right but in reality it is *haram*. Everything begins with

³⁸ Muhammad, M.Z (1971) pp. 134-137

³⁹ Quran, 42:33; 11:11

⁴⁰ Quran, 6:164; 35:18; 53:39-41 and 99:7-8

patience (*sabr*). Patience is the starting point of Islam, of faith and of good work. In guarding scientists and technologists from evil, the first requirement is patience to resist temptation in the struggle during their R&D with the lower self. One who lacks patience can maintain neither faith, nor good works nor a good name.

8.8.1.12 Justice ('*adl*)⁴¹

Some philosophers say that it is ridiculous to define knowledge. But it is necessary to show at least some of the factors involved. One of them is the close connection between knowledge and justice. Briefly, justice can be defined as the state when things are in their correct places, where there is harmony. This is also connected with *fitra* and faith.⁴² Without knowledge how are people to know whether things are in their right places or not? When people say "how are we to know" they are already using the concept of information which leads to knowledge that they have in their mind and how to decide correctly so that their decision making will produce justice. Hence knowledge becomes an integral part of the meaning of justice. Muslims must strain themselves to find out what should be where, who should be what, and so on. This is the duty of *Ummah*, which they have failed to do, and have left it to only a few to whom they have entrusted much.⁴³ Justice is closely connected with *fitra*, a state of nature, though not the type of Rousseau. In Western philosophy they mean *jasmania* nature.⁴⁴ But what Muslims mean is the state in which they have made a contract with Allah. Allah asked

⁴¹ Quran, 60:8

⁴² El Awa, M. S (1980) p. 97

⁴³ Quran 6:152; 57:25

⁴⁴ Al-Attas, S.N (1975) p. 128

the souls" Am I not your Lord? "And Muslims all answered "Yes"; Thus they made an agreement. In this world, those who have faith have continued to abide by the contract, while those who do not are denying themselves their rightful state.

Therefore the Quran uses the expression *dhulm*. According to the Quran you can be *dhalim* to yourself.

The likeness of what they spend in the life of this world is as the likeness of wind in which is intense cold that smites the seed produce of a people who have done injustice to their souls and destroys it. Allah is not unjust to them, but they are unjust to themselves⁴⁵

Therefore, in order for justice to occur, knowledge is necessary.⁴⁶ Outer justice is meaningless without knowledge of the entire situation. How can a dispute between two people be properly judged unless every aspect of the case is taken into consideration, or again, how can the justice of the result of an action be realised without knowing the motives that prompted it? When all factors are made known, people can clearly see that there is always justice, for Allah's justice is over everything. Humans can be just only according to the extent of their knowledge.⁴⁷

⁴⁵ Quran 3:117

⁴⁶ Nasr, S.H (1981) , pp. 53-72

⁴⁷ Al Habshi, S.O (1994). p. 15

8.8.1.13 *Yakin (Confidence)*

Malaysia's problems should not be solved by depending too much upon foreign consultants. The problem is like the *hajj* situation where the non Muslim consultants do not understand the real concept of the *hajj* which is totally different to their concept of pilgrimage. Muslims have to be confident that what they are doing is correct and will have blessing and *hikmah* from Allah.⁴⁸ This attitude is the result of physical and intellectual slavery that Malaysia has experienced in the past three hundred years. It is the result of the lack of confidence they have in themselves and in their culture. It is a manifestation of their inferiority complex.

8.9 Islamic notions

8.9.1 *Ulama*

The explanation of this (divine preference) is in the substance as follows; in this connection Muslims have to consider two paths (leading to Eternal Life):

1. the path which has been conveyed to mankind by the Prophet. It is supplied with various means (*wasa'it*); by means of ritual acts of devotion the limbs are put into the correct state, while psychic faculties are sublimated by means of *dhikr*, purification (of the heart) and love of God and the Prophet; people are set right by distribution of true knowledge, by enjoining what is known to be good and censuring what is evil and by advocating the public interest.

⁴⁸ Al-Faruqi I.R (1986) p 40

2. the path which establishes a direct link between God and His worshipper, in such a way that, wherever he may have been born, he will find it; and with whatever he may be blessed, he will be blessed with it. It is without any medium. For him who travels on it, the only concern is to be conscious of the reality of his ego and, in consequence of this, to become conscious of the Divine (*al-haqq*). On the way there are experiences like *fana*, *baqa*, *jadh* and *tawheed*.

8.9.2 *Shura* (decision making through consultations)

The methodology used for this interaction is known as *Shura*. Individual opinion whether coming from the ruler or a common citizen is deliberated till it is approved or rejected.⁴⁹ Again while Counselling (*Mushawarah*) is the norm, rational justification and not personal like or dislike is the judge. The principle of *Shura* and *Amr bi al-Ma'ruf* makes it a responsibility on every citizen to speak his honest opinion on crucial matters. In this way a natural interaction between individual opinion and public opinion takes place. The proofs of the importance of *Shura* are to be found in the Quran known as *Surat al-Shura*, Surat 43.

8.9.3 *Tawheed*

Any discussion of ethics in Islam must start with the performance of the concept of *tawheed*, the foundation stone of Islam. *Tawheed* exemplifies the unity of God; the

⁴⁹ El-Awa, M.S(1980). P. 87

recognition that there is one, absolute, transcendent Creator of the universe and all that it contains. Humans are ultimately responsible for all their action to Him. As an ethical rule, *tawheed* dictates the acceptance of God as the only source of all values: not to do this will lead to *shirk*, the opposite of *tawheed*, which is the cardinal sin in Islam.⁵⁰

According to Dr Osman Bakar, “the science of *tawheed* has always been regarded as the highest science in the hierarchy of knowledge, since it is the origin and the end of all other sciences. It is the science that gives meaning, direction and purpose to the other sciences. It is also the source of their unity. Every science that claims to be Islamic, must be organically related in one way or another to the principle of *tawheed*”.⁵¹ Thus conceived, *tawheed* becomes all-pervasive, penetrating all aspects of the human thought and behaviour. It is a principle for religion and ethics, politics and social behaviour, epistemology and science. From *tawheed* emerges the concept of *khilafah* and *amanah*.

8.9.4 *Ijtihad*

There is a prerequisite that must be met before the process of rediscovering the methods and principles of Islamic S&T can begin. The institution of *ijtihad* must be invoked, for only then can the Muslims develop the kind of Islamic perception that can relate the teachings of Islam to the problems of today, and meet the challenges of

⁵⁰ Al-Faruqi I.R (1986),.pp 17-18

⁵¹ Osman Bakar (1991) p. 232

tomorrow.⁵² What is meant by *ijtihad* is the exercise of independent judgement to ascertain the appropriate Shariah ruling. The *Ulama* are in agreement that *ijtihad* is the collective obligation of all qualified jurists in the event where an issue arises but no urgency is encountered over its ruling. But *ijtihad* becomes a personal obligation (*wajib*) of the qualified *mujtahid* in urgent cases, that is, when there is a fear that the cause of justice or truth may be lost if *ijtihad* is not immediately implemented. This is particularly the case when no other qualified person can be found to attempt *ijtihad*.

There are a lot of meanings on *ijtihad*. *Ijtihad* is the most important source of Islamic law next to the Quran and the Hadith. The main difference between *ijtihad* and the revealed sources of the *shari'ah* lies in the fact that *ijtihad* is a continues process of development whereas divine revelation and Prophetic legislation discontinued upon the death of the Prophet. In this sense, *ijtihad* continues to be the main instrument of interpreting the devine message and relating it to the changing conditions of the Muslim community in its aspirations to attain justice, salvation and truth.⁵³

8.9.5 *Ijma*

Ijma', according to Ash-shafi' means "a complete consensus of all learned on a certain point of law".⁵⁴ It is one of the four basic principles of Muslim law and an essential prerequisite for long-range planning for the Muslim civilisation. Muslim thinkers have

⁵² Serageldin, I (1996) pp. 1-2

⁵³ Al Wani, T.J (1993) pp. 6-7

⁵⁴ Sardar, Z (1987) pp. 163-164

different opinions about the minimum number required for *Ijma'*. It varies between three persons, a city, a country, or the whole of the *Ummah*. In any case, an *Ijtihad* not followed by *Ijma'* remains an individual opinion and is not effective in decision-making and policy formulation.

The one *ayah* that is most frequently quoted in support of *ijma* is:-

And anyone who splits off from the Messenger after the guidance has become clear to him and follows a way other than that of the believers. We shall leave him in the path he has chosen, and land him in Hell. What an evil refuge! (4: 115)

Since opposition to the *ijma* is a form of *tafarruq*, it is therefore prohibited.

"And in whatever you differ, the judgement remains with God", "which implicitly approves that in which the community is in agreement. (42:10)

"Then if you dispute over something, refer it to God and the Messenger". (4:59)

8.9.6 Istislah

There is no use for IS specialists having knowledge unless it can be applied, or it brings about *islah*. This means restoration that serves to put right what is wrong. People can only question each IT manager on their actions, not on their intentions, knowing that in time their actions and intentions will be unified. Eventually their intentions will be made known. People must be steadfast and do *islah*.

8.9.7 *Iman* (faith)

Faith in Allah as Lord of the Universe and Lord of all Dominions is an affair of the heart: a concept in which one believer imbibes in the core of oneself.⁵⁵ But faith (*Iman*) in Allah as the One and only Lord is not confined to the act of faith alone. It indeed extends to the realms of behaviour and conduct. It demands performance of worship to Allah and to Allah alone. If a person refrains from such worship or sets up partners with Allah in worship, he shall not be deemed a believer, though he may profess true belief in Allah as the Lord of all Creations and Lord of all Dominions.⁵⁶

8.9.8 *Taqwa*

Islam places a spiritual bond around individuals and society. This cordon organises the spiritual and moral life in such a way, that it provides all the necessary spiritual nourishment a human may need. This could be achieved by having *taqwa*. Equality is one of the basic social concepts of Islam. Here the social status of man is not determined by his inherited power or self-acquired wealth, but by his *taqwa*, his piety, his personal qualities, and his contribution to others and to the society. Equality, however, does not mean equality of opportunity.⁵⁷

⁵⁵ Al - Edrus, S.M (1993). pp. 65-66

⁵⁶ Al-Faruqi I.R (1986) p. 42

⁵⁷ Sardar, Z (1987) p. 31

8.9.9 Umma

The Quran is expressive of the dignified status that God has bestowed on the Muslim community.

"You are the best community that has been raised for mankind. You enjoin right and forbid evil and you believe in God". (3: 109)

This *ayat* attests to the some of the outstanding merits of the Muslim community. It is thus argued that had the community been capable of agreeing on error, the Quran would not have praised it in such terms. It is further noted that the context of this *ayah* give some indication as to the meaning of the phrase 'the believers' way'.

Thus We have made you a middle nation [ummatah wasatah], that you may be witnesses over the mankind". (2:143):

Literally, *wasat* means 'middle', implying justice and balance, qualities which merit recognition of the agreed decision of the community and rectitude of its way. Furthermore, it is by virtue of uprightness that God has bestowed upon the Muslim community the merit of being a 'witness over humankind'.⁵⁸

"And of those We created are a nation who direct others with truth and dispense justice on its basis". (7:181)

"Cling firmly together to God's rope and do not separate". (3:102)

The inter-relationship between all those Islamic values and attitudes toward strategic information planning will be explained further in Chapter 9.

⁵⁸ El- Awa, M.S (1980), p. 28

8.10 Conclusion

A syllabus for science and engineering courses should include Islamic ethical issues. Ethics with Islamic values should be introduced in the aims and objectives of research; concept and criteria of priority in research; the ethics of research funding; concept of secrecy in research; and characteristics of healthy research for istislah. Research into artificial intelligence is largely funded by private corporations who are largely interested in obtaining a competitive advantage in the commercial world from the application of this technology. It would be unreasonable to expect them to place the broader interests of society ahead of their own commercial advantage. It is the duty of the MW to make sure the money they are spending on this research goes to the benefit of the *ummah*. It would be better if more public money was involved which would tend to make the results of the research less private and more open to public scrutiny and debate.⁵⁹

To reduce dependence on advanced industrialised countries for their developmental and technological needs, Malaysia urgently requires original and creative research in pure science, so that an indigenous base can be provided for the manufacture of goods and technology that are needed locally. Unfortunately, in most MW countries, the attention of local scientists at this moment is only on the area of applied S&T.

Producing a new technology is extremely expensive, and trying to reproduce what is already known is a waste of present limited resources. For this reason, technology

⁵⁹ Remenyi, B and Williams, B (1996) pp. 401-411

transfer has become extremely important to Malaysia. Technology transfer in fact is neither information transfer nor know-how, but requires another skill that is acquired by scientific research. Research provides experience that leads to the storing of useful information, which should be offered to the Malaysians when needed. Malaysia which is trying to establish IS, believes that technological dependence on other countries is a factor that hinders development. Therefore, Malaysia should do her utmost to establish her own IS based on wisely planned national information policies.

The Organisation of Islamic Countries (OIC) should be more active in implementing its plans, rather than waiting for so long. Computerisation or informatics is radically changing the concepts and practices of the current management styles in many organisations. For the growth of Muslim society, changing the management style is a basic requirement to manage the other three required needs in the MW. Poverty management, population management and security management are among the requirements. The MW should implement SISP concepts, commensurate with the impact of IT on economic growth. The role of Muslim countries is to co-operate with other Muslim countries and not to wage war over small issues.

CHAPTER 9

FRAMEWORK PROPOSAL FOR ISLAMIC ORGANISATIONS IN MALAYSIA

9.1 Introduction

SISP with Islamic perspectives is based upon public interest, trusteeship, freedom of opinion and method in decision making. Islamic notions in strategic information planning for the community could be explained as in Figure: 20. In the process of moving people to faith, social justice and to a concern for public interest, requires power. Power could be achieved if decision-making goes through analysis, simulation, consensus and action. In Islam the objective of achieving knowledge is not merely for power, but more than that. It is important for developing good deeds on the earth. All these activities need knowledge and information either in the form of voice, data, text or image. Information or knowledge is normally channelled nowadays through education systems, from nursery to university.

If the education system is not established in a way which is acceptable to Islam, then the result will be *zulm* (injustice). The conception of knowledge is very closely connected with the concept of justice, responsibility and duty.

In order to avoid white collar crimes which keep increasing in Malaysia, the people who are controlling the IS should be trustful and have God consciousness. Since the objective of strategic planning with the help of IS available in Malaysian

organisations is to gain wisdom, therefore Islamic notions could be applied not only to achieve a developed country but a country which is also peaceful and harmonious. Decision making is then based on consensus or synthesis with explicit vision, making justice to the community, priority to the public interest which is done via consultation and faith. With the principle of freedom of individual opinion as *ijtihad*, decision making for strategic planning will gather more wisdom. Freedom of individual opinions which could be applied in Malaysian organisations is the application of reason and concern for the study of organisations or social conditions and problems, and exertion on points of law.¹

9.2 Background

Information must be considered in the same manner as other resources of the organisation managed to fulfil the overall needs of the organisation. To do so, there are three prerequisites. First, general managers must define the role of information in their organisations and ensure that this role is formally reflected in their strategies and plans. Second, IS professionals must develop a functional plan for the development of the information resource. And third, that plan must be integrated into the organisation's plan.

9.3 Concern on method, process and implementation of SISP in IIS.

In order to succeed in SISP for IIS, the managers should have depth knowledge or *ilm* regarding the method and process that they are going to implement, (See Figure

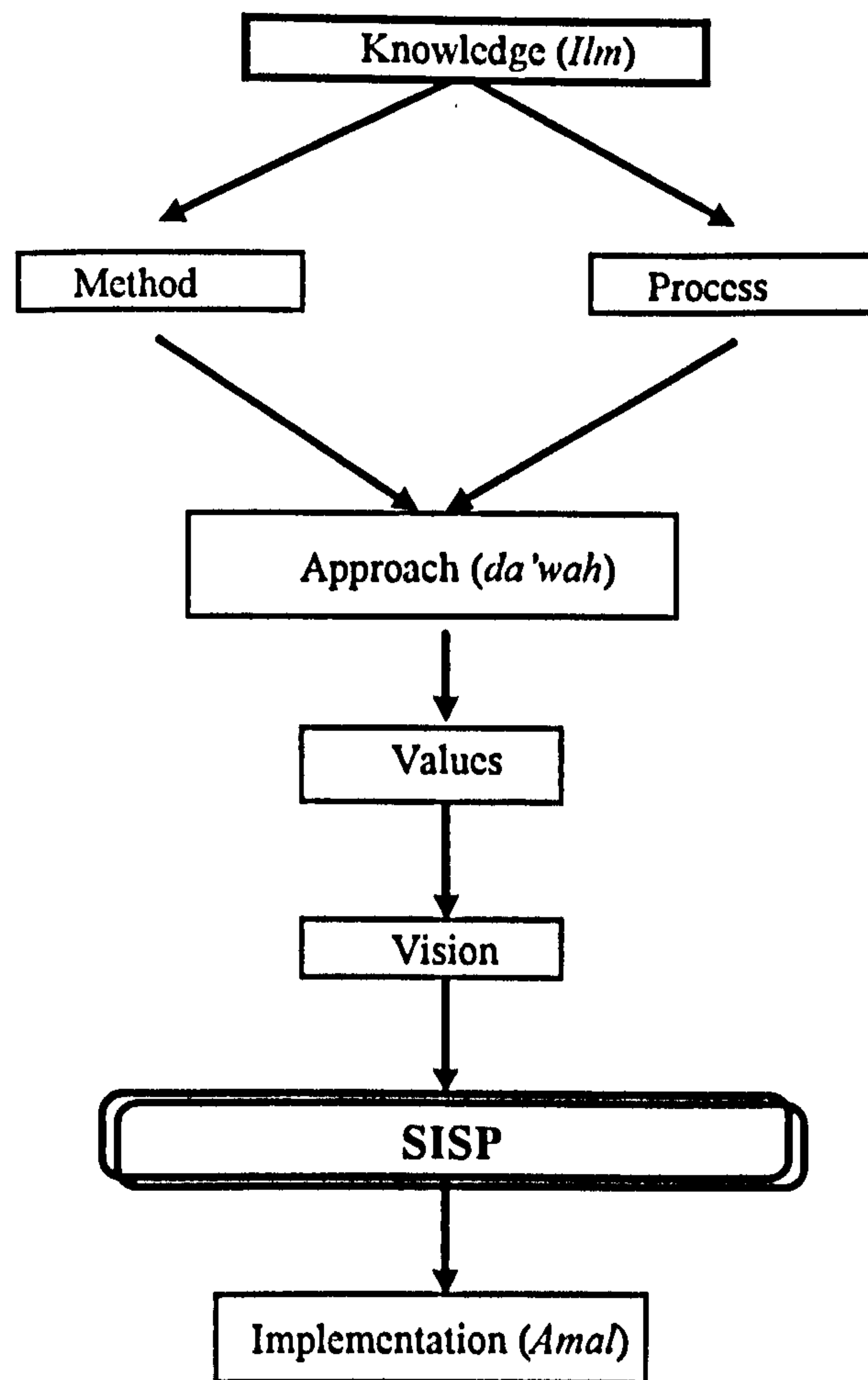
¹ Zaman, H (1994)pg. 47

19). This will involve their intention or *niyyah* in their heart. With the knowledge on method and process to be used, the other step is to think carefully about how to apply the approach or *d'awah* on how to let the SP succeed. Factors of Islamic and universal values, as has been explained in the previous chapter will influence very much the managers' decision making. With clear vision in their mind and knowing the right objectives of the organisation, SISP can be implemented successfully.

It is apparent that concerns extend beyond the method of SISP in IIS. First, implementation or doing *amal* was a cause of concern: IS strategy in Muslim organisations were not always implemented or fully achieved. Another set of doubts concerned process. Issues such as management acceptance or 'buy in', poor user-IS relationships, user awareness, and line management non-participation are examples. There were also concerns over method: such doubts included lack of strategic thinking, excessive internal focus, too much or too little attention to architecture, amount of time and resource allocation mechanisms.

The data suggest that method, process, approach, values, vision and implementation are all necessary conditions for success in SISP. See Figure 19. Indeed, when respondents volunteered success factors, based on their organisations's experience in Malaysia, for SISP they conveyed such a multidimensional perspective, (Refer Table 25). The highest ranked factors of " Middle management involvement" and "Senior management commitment" can be seen as process factors, "business plans as a basis for SISP" as more to do with method, and "good IS management" than related to implementation.

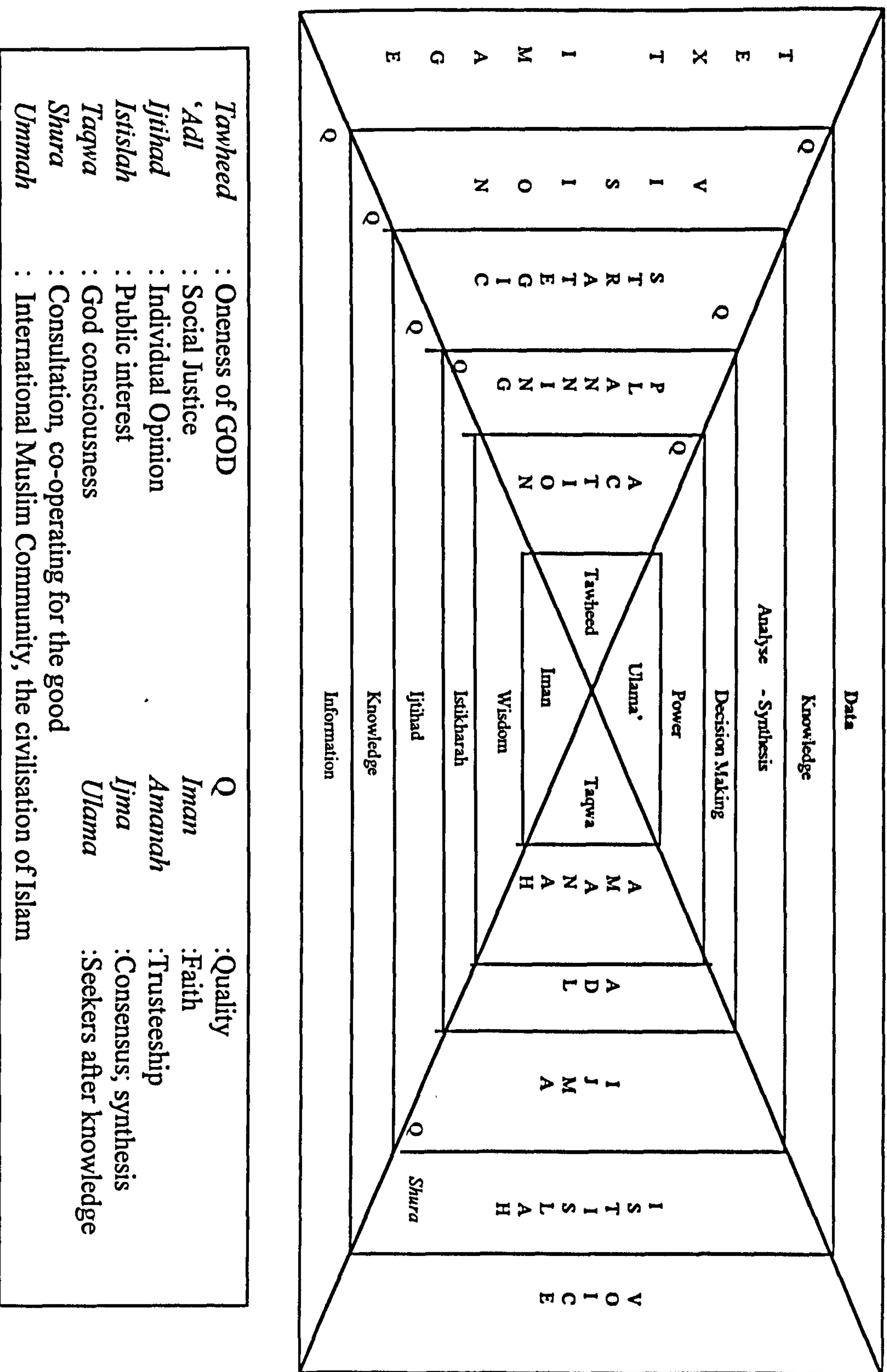
Figure 19 : Propose model for Successful SISP



9.4 Recommendation

A sensible IS strategy for the Malaysian organisations to meet the demands of the **2020 Vision** would thus have the following model, (See Figure 20).

Figure 20: Islamic Values in Strategic Information Planning



Malaysian IS personnel have a special role to play in meeting the challenges of the information age. They must see themselves as an integral part of a living civilisation based on a dynamic world view, with its own specific way of being, doing and knowing. They must fulfil the role of civilisational gatekeepers, controlling the flood of irrelevant information coming from the industrialised countries, and as purveyors of ideas they must become the counterpart of the classical polymath, synthesising ideas and examining the developments of knowledge from abroad. Moreover, the IS planners have to convey and present modern knowledge from research they have done and contemporary innovations to the Malaysians in a manner that does not undermine the existing cultural establishment. This role of information personnel is derived from the Islamic notions of trusteeship (the institutions in their care are a trust, which they must look after and put at the service of the users in the most creative and beneficial way) and *ummah* of which they are the appropriate guardians.

If the IT department has not been too successful in handling projects and there is a huge backlog of users requests not being met, it might make sense to chunk large projects into sizes that can be handled. The image of the IT department will impact on the leadership of the department and power of the department in overall support for IT plans. Successes must be communicated as this will reinforce the integrity and respect for the IT department.

LEADERSHIP	WORKFORCE
Vision	Values
Image	Skills
Power	Knowledge (ilm)
Innovation	Motivation
Style	Deed (Commitment)
Risking (Jihad)	

Figure 21 :Relationship between leadership and workforce in SISP

Model recommended by Andersen Consulting Sdn Bhd, ²Malaysia for ensuring effective changes on introducing IT breaks these Organisation Dimensions into 11 influences systems. See at Figure: 21

9.4.1 Leadership (*Khalifah*)

Very few IT Professionals are given leadership of their IT Organisation, and are often left out in the strategic and management assessment and decisions in their company. Fortunately, as CEOs realise that IT is a strategic weapon, this is changing. Leaders are expected to be knowledgeable and well informed. They are not to be functioning members of their communities alone, but to acquire the necessary specialised knowledge and insight in the areas in which they exercise leadership. A leader of an organisation or department of IT, for example, should have a general knowledge about his/her social political environments, but they also must have mastery over the specifics of his/her trade.

² Heng. C.T (1992) SEARCC'92, Kuala Lumpur, , pp. 1.01-1.10

The leader should play an important role for the benefit of the *ummah*. As Dr Mahathir, the Malaysian Prime's Minister said, "There is much to be done and accomplished in the 312 months to 2020. To achieve what must be achieved will require the mobilisation of the entire Malaysian people. All have a role to play, a contribution to make. But there will also be the need for an especial contribution from enlightened and dedicated leaders, from leaders who share the dream at the ambition of those who preceded them".³

The Prophet Mohammed (*saw*) gave many good examples of effective leadership. He used to consult his people in all matters, for instance during war, peace, trade, and many other actions that affect life. He also used to seek opinions from both men and women. He gave instruction regarding travelling, trade and so on. The people, where they could be two or more, must chose a leader for consultation. But leadership must not be followed blindly. If a leader does not follow the Islamic teachings and tries to lead his people in the wrong direction, they must discuss it with him, re-direct him, not simply obey him.⁴

9.4.2 Vision

The first, and probably most important, role leaders have to play is providing direction to their organisation. At the conclusion of the first International Malaysian Students' Conference in Vision 2020, the ISIS Conference Room, Kuala Lumpur, Dr Mahathir Mohammad as a Malaysian Prime Minister said,

³ Mahathir, M (1993) The ISIS CONFERENCE ROOM, KUALA LUMPUR, 3.00 P.M.

⁴ Al Faruqi, I.R (1995) p. 142

“The eighth challenge of Vision 2020 is the challenge of ensuring an economically just society, which we have defined in terms of four objectives. One, eradicate absolute poverty absolutely. Two, ensure the non-identification of race with economic functions. Three, reduce the ethnic income gap so that after 2020 no-one will ever again be able to say that this ethnic group is poor and that ethnic group is rich. Four, ensure a full partnership in economic progress. We must therefore consciously guard and nurture high moral values in order to sustain our achievements”.

Islamic Vision mentions that Islam is the religion of Muslims. They believe in God, Prophet Mohammed (pbuh), and in other scriptures too, such as the books found in Jewish and Christian religions.

Say (O' Mohammed) we believe in God, and in the revelation given to us, and to Abraham, Ismael, Isaac, Jacob and the Tribes. We believe in the revelation that was sent to Moses, Jesus and all other Prophets from their Lord. We made no distinction between them, and to Him we surrender. (3:83)

Islam is an Arabic word and denotes submission, surrender and obedience. A complete obedience and submission to Allah, 'God'.⁵ 'Peace', is the other significant literal meaning of the word Islam, peace of everything through submission and obedience to Allah.

Those who believe and whose hearts find rest in remembrance of God alone that the heart of man finds rest-those who believe and act righteously, joy is for them and a blissful home to return to. (12: 28-29)

⁵ Jamil, M (1978) pp. 8-10

9.4.3 Style

Prophet Mohammed (pbuh) said:

*God prefers team work*⁶

The meaning here is that God assists team work for He likes people to work together as one, effective team.

9.4.4 Risk- *jihad*

For those less fortunate CIOs, the IT values, IT culture and IT vision for enabling businesses gain competitive edge, face even less opportunities in being considered, communicated, understood and therefore implemented. It is not uncommon to find that CIOs intentions have been misunderstood by senior management. There must be continuous communications of IT values, cultures, vision and intentions to support business plans.

9.4.5 Knowledge or *Ilm*

No truly Islamic life can be established unless there is a community, and no community can be established unless the people who comprise it have a certain level of knowledge. This knowledge in turn cannot come about unless the people really gather around the best and most knowledgeable man among them. Their loyalty can only be as good as the strength of their *iman*, which in turn is dependent upon the condition of their hearts. There is no escape from these conditions, the first being the general direction in which people are heading. Are they *mu'minin*, are they men

⁶ Al-Bokhari, Sahih (1967) Vol 3, p. 280

who live this life fearlessly and joyfully, preparing for the next? If they are, then they have an overall direction and are under the umbrella of Islam, *iman*, and *ihsan*.

9.4.6 Quality

At the next stage comes the question of the quality of the knowledge and leadership among them. The quality of every *ummah* has been as good as the height and glory of its prophet. The quality of the early *ummah* of Islam was as good as the quality and maturity of the Prophet Mohammed (saw). The quality of any community in any society is as good as the quality of their leader, after considering the overall direction that unites them. The third factor which determines the quality of Islamic life is the people's trust in Allah. *Iman* has degrees which can vary through time, as people know by observing that when they are in trouble their *iman* is usually stronger than when everything going is very easy. To illustrate, several translations of Quran mention attribute on quality.⁷ Prophet Mohammed (saw) preferred an excellent quality of job when people were given any task.

God likes that when you do a job you do it thoroughly⁸

9.4.7 Commitment- amal ma'aruf

The knowledge, skills, motivation and commitment of the IT workforce are important for successful IT planned implementation. Currently, any IT workforce will face tremendous internal and market pressures as long as their remuneration structure does not remain in line with market and world rates for IT professionals. CIOs in Malaysia have to grasp with problems of acute shortages of qualified and

⁷ Hussain, M. Y (1989) pp. 125-140

⁸Al- Bokhari, Sahih (1967), vol 3, p. 230

experienced IT workforce, high turnover of better skilled personnel, motivation of the IT workforce. These issues have become major challenges for the CIOs, who will need support from the rest of the organisation. It is not easy to motivate the IT workforce if their job grades and salaries have to reflect company-side grades, while the rest of the industry is paying top wages to recruit them. Organisations may have to reconsider creating a special scale to retain these IT professionals.

1. The proposed development plan must be made known, understood and appreciated by all levels of employees. The activities laid out in every phase and module warrants attention. Decisions on priority must take into consideration comments and feedback from all users, management and system developers. A consensus can entail commitment.
2. In implementing system development, the number of officers should be relatively small, to ensure effectiveness. This will also ensure focus and constant interaction between them and the users. The responsibilities entrusted to these officers must be accompanied by accountabilities and some degree of freedom for creativity. They should report directly to the steering and technical committees. These officers will be the core for all future developments in the organisation.
3. The top management must show sincere and continuous commitment to the computerisation process. This is done by consistently guiding and motivating the officers involved. This process will create confidence and commitment from all levels of employees.

4. Continuous training is vital to support changes to the culture and working environment. Preferably, the developers should conduct all training covering the job processes as the system is being developed and at a later stage, the computerised system after it has been fully developed and tested. Although this may sound repetitious, doing it in this manner ensures thoroughness by both the users and the developers. Furthermore, all problems will be apparent during both phases of the training and can be dissolved quickly.

CHAPTER 10

CONCLUSION

10.1 Overview

This paper has attempted to review the major conclusions that can be drawn from the survey concerning implementation of SISP in the IIS in Malaysia. In Malaysia, this topic is considered to be the most important issue facing IT managers in the 1990s. The paper has attempted to rectify the lack of empirical evidence concerning current SISP practice between the organisations providing Islamic services and Muslim organisations offering conventional products or services. Besides that, it is also a comparison between organisations in Malaysia and organisations practising SISP in the UK and Australia.

The concept of IIS should be introduced to all the Muslim organisations in Malaysia. They will have clear ideas on what is actually meant by the concept of IIS for the benefit of mankind. This will speed up the achievement of Vision 2020 as to what has been proposed by the Prime Minister for the application of IT with spiritual development. To achieve this vision, Malaysia will definitely need a strategic plan and systematic ISP. There should be no other concept being invented so that it will not consume time and money. IIS concept as highlighted in this research will inevitably cover many aspects of knowledge in the Islamic dimensions.

10.2 Research Contribution

Hopefully with the outcome of this research, the Malaysian Government having introduced the Multimedia Super Corridor (MSC) will give more opportunities for Muslim organisations to implement SISP successfully not only in overcoming the competitive edge, but also in developing spiritual values among the people. This will bring people to achieve the level of *taqwa* and later will also lead to a *taqwa* nation. To implement SISP in IIS concept will bring back the Muslims to the era of Islamic civilisation. Most of the scholars will not only be equipped with the knowledge on the practical sciences but also on the theory of science, theory of wisdom as explained earlier in Chapter 2. There will be more scholars graduated like Ibn Rush (d. 1198), Ibn Sina (d. 1037), or al Ghazali (d. 1111) if the Malaysian Government implements IIS and uses SISP in order to achieve the objective. It is not easy to educate all staff or all people of Malaysia to be *taqwa* and *mu'min* unless a lot of activities concerning education on Islamisation of Knowledge are being enforced in the educational systems.

10.3 Recommendation

Malaysian organisations should implement SISP with the help of existing IT facilities for them to compete in the international market. Educating the managers to become *taqwa*, *mu'min* will lead to the goal of achieving an organisation that is not only successful in IT era but also in making the population rich in spiritual development and will assist Malaysia as a *taqwa* nation. This is in line with the Vision 2020. How to educate all these managers to be *taqwa* and *mu'min*? This will

need all the elements of *tawheed*, *akhlak*, *shariah* and *ma'rifah* as has been explained in Chapter 2.

According to Dr Raja Malik (Head of the IT Training Unit, INTAN), to get an organisation in Malaysia to use IT, it is important to get the top level managers committed first.¹ It is the management that provides the impact and bring changes in an organisation. Tackle this group and half the battle is won. With this in mind, the training arm of the public sector targets three groups for its IT courses, namely the technical people, the end users, and increasingly, the senior executives of government departments, right up to the secretary general level.

If you ask conventional planners on the pitfalls of planning and what went wrong, they will inevitably point to a series of pitfalls for which they, of course, are not responsible. Planners would have people believe that planning fails when it does not receive the support it deserves from top management or when it encounters resistance to change in the organisation. But surely no technique ever received more top management support than strategic planning did in its heyday. Strategic planning itself has discouraged the commitment of top managers and has tended to create the very climates its proponents have found so uncongenial to its practice.²

¹ Mohammed, R. M(1995), p. 13

² Mintzberg, H(1994), p. 109

10.4 Hypothesis

10.4.1 Muslims organisations follow western perspectives in regarding to SISP.

IS planners in the USA, UK, Australia and Malaysia find it difficult to secure top management commitment for implementing SISP as ranking number 1, (see chapter 6). This situation is not applicable to Singapore³ where the most important problem facing the Singapore IS planners is the outputs which require substantial analysis. This shows that Malaysia's IS planners follow the same perspective as has happened in developed countries. This is because from the findings, most of the managers were educated in western countries and they did not have a clear plan and objective of the organisation. This is similar to the findings by Lederer in USA. ⁴Three quarter of the respondents in Malaysia mentioned that it is essential to improve communications with top level managers in order to make ISP successful.

The findings of this research suggest that Muslim organisation should not follow the western perspective blindly but since Malaysia is also small compared to Singapore, the same problem that happened in the West should not occur there. From the above finding in Singapore, it shows that their Information Systems Planners are more matured in SISP.

The focus of ISP toward *rahmahtullah* or *barakah* came from the lowest ranking from the findings, while IT/IS architecture is in the top ranking as a focus for ISP.

³Yap, C.S(1991) pp. 350-364

⁴ Lederer, A.L and Mendelow, A.L (1986), pp. 245-254

The finding is similar to the survey that was done in the USA, UK and Australia. The objective of ISP among the Islamic service organisations is also following the same Western perspective. From this finding, the Islamic perspective should be at the top ranking but what actually happened, was that the Western perspective was at the top ranking.

10.4.2 SISP is not fully implemented among the Islamic services organisation

Management practices in most of the Muslim organisations in Malaysia that are provide services within an Islamic scope like *Hajj*, Banking, *zakat* and insurance are still lacking in vision. In terms of planning horizons, their period is still at the medium or short range. This is because they were established after the 1980's. Their policy making is still on an ad hoc basis and the number of departments are small either two or three compared to eight or nine in other Muslim organisations. Leadership style is autocratic or paternalistic and involves a lot of politicking affairs. The degree of decentralisation is low since any decision making has to go thorough the top level managers for approval. This situation is similar to the finding by Negandhi (1971).⁵

Certain differences have been noted between ISP practice and opinion in the Islamic service organisations as compared with normal companies. It is argued that this is a likely contributing factor with regard to the greater incidence in the former ad hoc planning and the slightly lower success rating given their efforts by that organisation's information systems planners. There is no organisational change

⁵ Negandhi, A.R(1971) p.100

within 5 years in the Islamic service organisations toward their IS department. Islamic service organisations are always in the lowest group of the table. From the findings, it appears that in all aspects like annual revenue; total number of employees in the organisation; number of sites giving services; organisational experience in SISP; planning horizons for IS planning; annual budgets for IS Department, their organisations are always either at the lowest percentage or at the lowest rank. Another reason is that, their organisation is still not facing much competition from other organisations. These organisations have a monopoly on the market situation. Recently, the Malaysian Government has allowed other firms to venture into the *hajj* or insurance business so that it can become competitive and give more benefits to the customers.

10.4.3 Senior Managers in Malaysia do not always involve the ISP team in supporting SISP process.

The make up of ISP team in Malaysia for the Senior Management (30%) is lower than in the UK (64%) or in Australia (58.7%). Senior management involvement and commitment in the UK and Australia is ranking first as one of the factors critical to successful information systems planning. That is the reason why from the finding in Table 22, Chapter 6, it shows that the important factors for the success of SISP, 70% of the respondents in Malaysia mentioned that improving communications with top management is important.

It was also pointed out in Chapter 6 that 70% of the senior management is not involved in the ISP teams or ISP activities. Without commitment and involvement

in the ISP teams, it showed that many Malaysian Muslim organisations lack of clear mission and objectives. Without having clear and well-communicated objectives, planning will be incomplete and may take the organisation in the wrong direction.

10.4.4 Islamic Information Systems (IIS) is not fully implemented in Malaysia

To introduce the concept of IIS to the Islamic Religious Department (IRD), it took nearly 12 years for researchers to let them understand and to appreciate the idea on the information systems about collection of *zakat*, information systems on mosques, and registrations on Muslims Information Systems for the whole of Malaysia.

The concept of IIS as has been described in Chapter 2 is not popular in Malaysia. Even the IRD on every state lack support and do not value very much the importance of information. The priority given to IT is very low. Till now there is still no database on the registration of Muslims in Malaysia that could be used by other agencies for future strategic planning. Government departments like the Welfare Department, Islamic Council, Economic Planning Unit are finding it difficult for making decision planning in the future since there is no standard database to follow. For example, in the case of reducing the poverty line problems, distribution of *zakat* to the right people and whether to build a new mosque or to expand the existing mosque will all require up to date information on Muslims population.

10.4.5 IIS design in Malaysia is similar to that followed in the West

Islamic Information Systems (IIS) that is being implemented by the Department of Islamic Development of Malaysia (JAKIM) is following a similar concept as in the West. The applications systems are concentrating mostly on certain subjects and not on the aspect of spiritual development or on any information concerning God. Islamic values should be introduced in the IIS, so that the incidence of white collar crimes in the computer era will not happen again.

10.4.6 Concept of IIS in Malaysia is still of limited scope.

Quran, hadith, mosque IS are more on the ritual scope compared to the economy, law, education and development on Human Resource subject. The application of IIS in Malaysia is still limited to the area covered by Islamic *arkan* such as *hajj*, *zakat*, *Quran* and mosque. Malaysia should be able to achieve all the *ilm* of science like *nazari* and *hikmi* and not only on *ilm amali* so that it will develop better information systems. Persons going through deeply in the *ilm* of *tariq al akhira*, then *ilm mukashafa* and *mu'amala* will lead them to becoming a good *mu'min*.

The application systems toward hadith are still in the process of testing. Many of the modules that were developed in 1993, still have not been tested or implemented throughout the whole country. Similar cases happened to the *zakat* information systems, where there are only 4 states that have implemented them in full operation. There is a suggestion by the Islamic Economic Development Committee in the Prime Minister's Department to establish a *Zakat* Management Board of Malaysia

(LUZAM) for administrating *zakat* activities for the whole country. This could be done if all the organisations are prepared to work together and have computer networking among the Islamic Religious Departments.

10.4.7 SISP is fully implemented among the large organisations

Since large organisations manage to invest more money in IT and they were established in the early 1970's, they could implement SISP successfully compared to those Islamic service organisations that were established by the late 1980s. Large organisations in Malaysia have to compete with either national or international companies. So that, it is in a very competitive environment and really needed SISP to compete among those organisations. SISP is not popular in Islamic service organisations that are mostly small in size because they are a monopoly in the market and secondly lack clear vision on how to implement SISP.

10.5 Further work

IIS strategy emerges powerfully in Malaysia.. The increasing applications of databases on Muslims activities like *Hajj*, and distributed systems on Islamic banking and the advancement of telecommunications technology introduced by Syarikat Telekom Malaysia (STM) will lead to the emergence of the IIS Strategy era in the year 2000. Information resources and IT have become an increasingly important component of corporate strategy and the Government of Malaysia. Malaysian Government has recently introduced Multimedia Super Corridor (MSC)

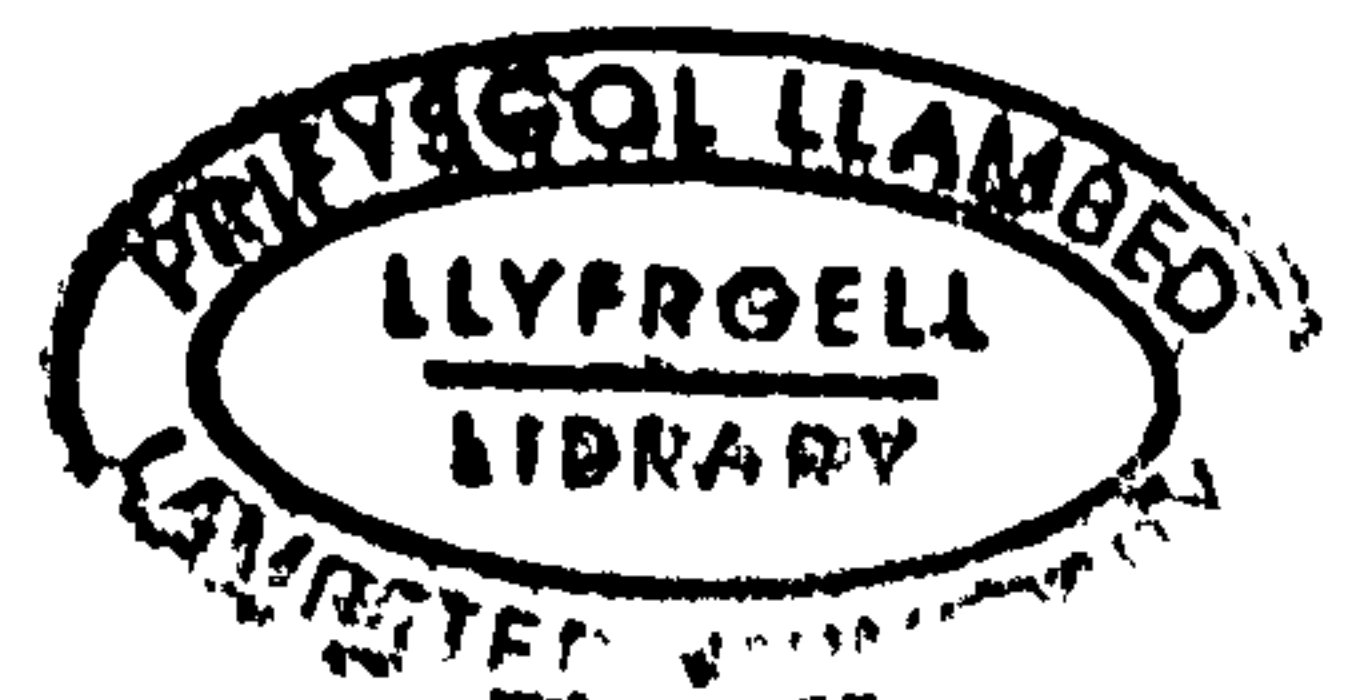
concept and most government departments also follow the same steps.⁶ This is the opportunity for the Muslim organisations in Malaysia especially for those Islamic service organisations to be able to show their ability and contribution toward MSC. The IT facilities owned by those organisations should be fully utilised.

This is inline with the Vision 2020: where out of nine aspects that have been emphasised, two aspects did mention that strategic planning should be implemented in order to create an advanced and scientific society and lastly to create a dynamic and lasting society which is able to compete with other societies.⁷ Dr Mahathir Mohamad, Malaysian Prime Minister said at the Malaysian Business Council in Kuala Lumpur in 1993 concerning future planning on Vision 2020: "Malaysia should not be developed only in the economic sense. It must be a nation that is fully developed along the dimensions: economically, politically, socially, spiritually, psychologically and culturally."⁸

⁶ Moore, N(1997) pp. 139-147

⁷ Billah, M. M(1993) pp. 20-22

⁸ Mahathir Mohamad(1993)' Speech at Malaysian Business Council, Kuala Lumpur.



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Appendix A

QUESTIONNAIRE FOR SISP IN MALAYSIAN MUSLIM ORGANISATIONS

This questionnaire is for the General Manager or President of the organisation.

1. ORGANISATION

1.1 Please describe your organisation annual revenue in (M\$ million).

Annual revenue in M\$ million	Tick one only
Less than 40	
between 40 to 160 million	
more than 160 million	

1.2 Total number of employees

NUMBER OF EMPLOYEES	TICK ONE ONLY
<50	
51- 1000	
> 1000	

1.3 Information systems budget (in M\$ million)

BUDGET(M\$ MILLION)	TICK ONE ONLY
UNDER 1	
1.1 - 2.9	
3 - 4.9	
5 TO 10	
MORE THAN 10	

1.4 Number of employees in Information Systems Department

NUMBER OF EMPLOYEES	TICK ONE ONLY
UNDER 15	
16 - 25	
26 - 50	
> 50	

1.5 Type of organisations

Organisation type	Tick
Automobile	
Banking	
Insurance	
Telecommunications	
Utility	
Investment	
Education	
Petroleum and Gas	
Transportation	
Islamic services	
Miscellaneous	

1.6 Functionally of organisations

Functionally	Tick
centralised	
decentralised	

1.7 Describe your organisational activity

ACTIVITY	Tick one
Product based	
Service based	

1.8 Number of sites

Number of sites	Tick one
< 6	
6-14	
>14	

1.9 Location

Location	Tick one
Malaysia only	
Multinational	

2. EXPERIENCE

2.1 Organisational Information systems planning experience in Malaysia.

Experience in IS Planning	Tick one
< 2 years	
2-4 years	
5 years and above	

2.2 Distribution of frequency of IS undertaken in Malaysia

Frequency of IS	Tick one
Occasionally/ Irregularly	
Annually/ continually	
Every 2 or more years	

2.3 Distribution of planning horizons for IS.

No of years	Tick one
< 2 years	
2 - 4 years	
5 years	
> 5 but < 7	
7 years	

2.4 Do you think your period of planning horizon is satisfied?

YES		NO	
-----	--	----	--

If NOT, which period do you prefer

PERIOD IN YEAR	TICK
3	
5	
7	

2.5 If you are given 7 year plan, do you think the time is adequate or too long.

ADEQUATE		TOO LONG	
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3. PERSPECTIVE TOWARDS ISLAMIC PLANNING

Your organisational perspective toward Islamic planning for the future.

3.1 Where did you get your degree

AREA	LOCATION	Tick	FROM WHICH UNIVERSITY
Local	MALAYSIA		
Overseas	UK		
	USA & CANADA		
	MIDDLE EAST		
	SEA		
	OTHERS		

3.2 On what subject specialisation your degree/s was?

Subject specialisation	Ticks which is relevant
Engineering	
Science	
Management	
Social Science	
Islamic Studies	
Information Technology	
Others	

3.3 Did you involved in Islamic organisation either now or before?

If yes, please fill table underneath

Organisations	Where
PAS	
ABIM	
MSM/JIM	
MISG	
TABLIQ	
AL ARQAM	
OTHER	

3.4 Did you involve in any Islamic society/organisation post before/now

If yes, please describe your post

POST	TICK	WHERE
President/ Vice		
Secretary		
Treasurer		
Member		

3.5 Where did you get your Islamic education?

Islamic education	If yes, tick	Where local(L) or overseas(O)	Period of time in no of years
Usrah			
Madrasah			
University			
personal study			
mass media			
Working experience			
personal contact			

4. THE OBJECTIVE AND FOCUS OF INFORMATION SYSTEMS PLANNING

4.1 Please rank-order of the objectives of ISP in your organisation from the most important for number 1 and less important for number 8

RANK	OBJECTIVES
	To help the Muslim ummah
	Align Information System with business objective
	Provide a framework or direction
	Clarify budget/ resource availability
	Increase efficiency/ decrease costs
	Improve co-ordination
	To reduce/ eradicate poverty
	To raise the Muslim economy

4.2 Please give ranking between 1 with the most important and 9 with the less important for the focus of Information Systems Planning in your organisation.

No	Rank	FOCUS
1		Applications portfolio
2		Current issues
3		Future scenarios
4		Package software
5		Database design
6		Centralised verses end user development
7		Rahmahtullah/ barakah
8		IT/Information Systems architecture
9		Competitive edge

5. PARTICIPATION BY VARIOUS GROUPS IN SISF PROCESS

Please tick degree of participation of selected groups in supporting SISF process.

Degree of participation				
Organisational Grouping	HIGH	MEDIUM	LOW	NONE
Top Management				
MIS / EDP Executives				
MIS/ EDP Planning				
Corporate(Non MIS/EDP) Planner				
System Development Group				
Users				
Computer Operation Group				
Consultant				

6. LINKAGE BETWEEN INFORMATION SYSTEMS AND CORPORATE PLANNING

ISP linkage with corporate planning (CP)

ISP LINKAGE with CP	TICK ONE
ISP in response to CP	
ISP isolated from CP	
ISP a basis for CP	
ISP part and parcel of CP	

7. INFORMATION SYSTEMS STRATEGIC PLANNING CONTENT

PLANNING DOCUMENT CONTENT	PLEASE TICK ONE ONLY ON EACH CASE		
	INCLUDED IN LRP	NOT INCLUDED BUT SHOULD BE INCLUDED	DON'T BELIEVE SHOULD BE INCLUDED
Statement of objectives			
Hardware plan			
Projection of possible future MIS environment			
Recommended Implementation plan			
Systems Development Plan			
Financial plan			
Personnel plan			
Facilities plan			

8. IMPORTANCE AND ATTAINMENT OF PLANNING PURPOSES

Objectives or purposes that one might wish to accomplish by means of a sound Information Systems Long Range Strategic Planning.

How important and attainment you believe the following factors are to successful of ISP (1- essential; 2- important; 3- reasonable; 4 - unimportant)

PURPOSE	IMPORTANCE(1-4)	ATTAINMENT(1-4)
Improving communications with top management		
Improving communications with users		
Increasing top management support		
Identify new applications		
Improving morale and sense of purpose		
Increasing user co-operation		
Increasing employee productivity		

9. APPROACHES IN IMPLEMENTING SISP

APPROACHES ADOPTED IN MALAYSIA	PLEASE TICK ONE
Top down(business driven)	
Common(proprietary)	
Bottom/up	
Resources/budget based	
Data analysis	
Technology based	
Competitiveness	
Other	

10. SUCCESSFUL OF INFORMATION SYSTEMS PLANNING

Please indicate by ranking from 1 the most important factors to 12 with the less important factors

SUCCESS FACTORS	RANKING
Senior management commitment	
Senior management involvement	
Middle management involvement	
Assessment/evaluation of Inf Systems Plan	
Senior and middle management involvement	
ISP supported by IS management function	
Information Systems married to corporate plan	
CIO - member of senior management team	
Increased management understanding of IS/IT	
Business plans a basis for ISP	
ISP outcomes/process debated by management	
ISP outcome: prioritised applications portfolio	

11. STAGES OF INFORMATION SYSTEMS GROWTH

Please describe your organisation stage of strategic information planning from the following elements:-
PLEASE TICK NOT MORE THAN 2 STAGES FOR EACH SECTION.

11.1 STRATEGY

STAGE	STRATEGY ELEMENT	TICK
1	Acquisition of hardware/software etc	
2	IT audit, Find out and meet user needs	
3	Top down Information Systems planning	
4	Integration, co-ordination and control	
5	Environmental scanning and opportunity seeking	
6	Maintain comparative strategic advantage /interactive planning, monitor futures, interactive planning	

11.2 STRUCTURE

STAGE	STRUCTURE ELEMENT	TICK
1	None	
2	Label of Information Systems; often subordinate to accounting or finance	
3	Data processing department; centralised DP shop; End users running free at stage 1	
4	Information centres; Library records; OA etc in the same unit; Information services	
5	SBU coalition(s)(many but separate)	
6	Centrally co-ordinated coalitions	

11.3 SYSTEMS

STAGE	SYSTEMS ELEMENT	TICK
1	Ad hoc, unconnected, operational, multiple manual and IS, uncoordinated, concentration on financial systems and little maintenance	
2	Many applications, many gaps, overlapping systems, centralised, operational, mainly financial systems, many areas unsatisfied, large backlog, heavy maintenance load	
3	Still mostly centralised, uncontrolled end user computing, most major business activities covered	
4	Decentralised approach with some control, but mostly lack of co-ordination; Some DSS (ad hoc); Integrated office technology systems	
5	Decentralised systems but central control and co-ordination; added value systems(more marketing oriented); More DSS(internal, less ad hoc); Some strategic systems (using external data); Lack of external and internal data integration; Integration of communications technologies with computing	
6	Inter-organisational systems; new IS based products; External/internal data integration	

11.4 STAFF

STAGE	STAFF ELEMENT	TICK
1	Programmers/contractors	
2	System analysts/ DP manager	
3	IS planner; IS manager	
4	Business analysts; Information resource manager(Chief information officer)	
5	Corporate/business/IS planners(one role)	
6	IS director member of board of directors	

11.5 STYLE

STAGE	STYLE ELEMENT	TICK
1	Unaware	
2	Don't bother me(I'm too busy)	
3	Abrogation; Delegation	
4	Democratic; Dialectic	
5	Individualistic(product champion)	
6	Business team	

11.6 SKILLS

STAGE	SKILLS ELEMENT	TICK
1	Technical(very low level)(individual expertise)	
2	Systems development methodology	
3	IS believes it knows what the business needs; Project management	
4	Organisational integration; IS knows how the business works; Users know how IS works for their area); Business management(for IS staff)	
5	IS manager-member of senior executive team; Knowledgeable users in some IS areas; Entrepreneurial/ marketing skills	
6	All senior management understand IS and its potentialities	

11.7 CULTURE

STAGE	CULTURE ELEMENT	TICK
1	Obfuscation	
2	Confusion	
3	Senior management concern; DP defence	
4	Co-operation	
5	Opportunistic; Entrepreneurial; Intrapreneurial	
6	Interactive planning	

12. THE MAKE-UP and SIZE of INFORMATION SYSTEMS PLANNING TEAMS

INVOLVEMENT OF	ALWAYS	OCCASIONALLY	NEVER
IS consultant			
User/Middle management			
Corporate planner			
Senior management			

13 PROBLEMS or BARRIER to SUCCESSFUL SISP

Please indicate by ranking 1 the most important problem till 11 for the less problem

BARRIER	RANK
Difficulty in measuring benefits	
Volatile nature of business	
Difficulty in recruiting IS staff	
Political conflicts	
Existing IT investment	
User education resources	
Doubts about benefits	
Telecommunications issues	
Middle management attitudes	
Senior management attitudes	
Technology lagging behind needs	

14. HIKMAH(WISDOM) FROM INFORMATION SYSTEMS

Please indicate by ranking from 1 the most important WISDOM do you obtain till 10 for the less wisdom

WISDOM	RANK
Increase profit/revenue	
Gaining confidence from customers	
Increase customers or members	
Tighten relationship between information system staff and managers	
Increase co-ordination between information systems plans and business plans	
Increase your knowledge	
Increase your staff ethic	
Teach your staff to be competitive	
Increase relationship between branches or between states	
Increase the Muslim economy	
Other(please list)	

15 SOLAT ISTIHARAH

IMPLEMENTATION OF SALAT ISTIHARAH	WHEN	WHERE	HOW
Always			
Occasionally			
Never			

Appendix B

QUESTIONNAIRE FOR SISP IN MALAYSIAN MUSLIM ORGANISATIONS

This questionnaire is for the MIS Manager or Head of Computer Unit.

1. ORGANISATION

1.1 Please describe your organisation annual revenue in (M\$ million).

Annual revenue in M\$ million	Tick one only
Less than 40	
between 40 to 160 million	
more than 160 million	

1.2 Total number of employees

NUMBER OF EMPLOYEES	TICK ONE ONLY
<50	
51- 1000	
> 1000	

1.3 Information systems budget (in M\$ million)

BUDGET(M\$ MILLION)	TICK ONE ONLY
UNDER 1	
1.1 - 2.9	
3 - 4.9	
5 TO 10	
MORE THAN 10	

1.4 Number of employees in Information Systems Department

NUMBER OF EMPLOYEES	TICK ONE ONLY
UNDER 15	
16 - 25	
26 - 50	
> 50	

1.5 Type of organisations

Organisation type	Tick
Automobile	
Banking	
Insurance	
Telecommunications	
Utility	
Investment	
Education	
Petroleum and Gas	
Transportation	
Islamic services	
Miscellaneous	

1.6 Functionally of organisations

Functionally	Tick
centralised	
decentralised	

1.7 Describe your organisational activity

ACTIVITY	Tick one
Product based	
Service based	

1.8 Number of sites

Number of sites	Tick one
< 6	
6-14	
>14	

1.9 Location

Location	Tick one
Malaysia only	
Multinational	

2. EXPERIENCE

2.1 Organisational Information systems planning experience in Malaysia.

Experience in IS Planning	Tick one
< 2 years	
2-4 years	
5 years and above	

2.2 Distribution of frequency of IS undertaken in Malaysia

Frequency of IS	Tick one
Occasionally/ Irregularly	
Annually/ continually	
Every 2 or more years	

2.3 Distribution of planning horizons for IS.

No of years	Tick one
< 2 years	
2 - 4 years	
5 years	
> 5 but < 7	
7 years	

2.4 Do you think your period of planning horizon is satisfied?

YES		NO	
-----	--	----	--

If NOT, which period do you prefer

PERIOD IN YEAR	TICK
3	
5	
7	

2.5 If you are given 7 year plan, do you think the time is adequate or too long.

ADEQUATE		TOO LONG	
----------	--	----------	--

3. PERSPECTIVE TOWARDS ISLAMIC PLANNING

Your organisational perspective toward Islamic planning for the future.

3.1 Where did you get your degree

AREA	LOCATION	Tick	FROM WHICH UNIVERSITY
Local	MALAYSIA		
Overseas	UK		
	USA & CANADA		
	MIDDLE EAST		
	SEA		
	OTHERS		

3.2 On what subject specialisation your degree/s was?

Subject specialisation	Ticks which is relevant
Engineering	
Science	
Management	
Social Science	
Islamic Studies	
Information Technology	
Others	

3.3 Did you involved in Islamic organisation either now or before?

If yes, please fill table underneath

Organisations	Where
PAS	
ABIM	
MSM/JIM	
MISG	
TABLIQ	
AL ARQAM	
OTHER	

3.4 Did you involve in any Islamic society/organisation post before/now

If yes, please describe your post

POST	TICK	WHERE
President/ Vice		
Secretary		
Treasurer		
Member		

3.5 Where did you get your Islamic education?

Islamic education	If yes, tick	Where local(L) or overseas(O)	Period of time in no of years
Usrah			
Madrasah			
University			
personal study			
mass media			
Working experience			
personal contact			

4. THE OBJECTIVE AND FOCUS OF INFORMATION SYSTEMS PLANNING

4.1 Please rank-order of the objectives of ISP in your organisation from the most important for number 1 and less important for number 8

RANK	OBJECTIVES
	To help the Muslim ummah
	Align Information System with business objective
	Provide a framework or direction
	Clarify budget/ resource availability
	Increase efficiency/ decrease costs
	Improve co-ordination
	To reduce/ eradicate poverty
	To raise the Muslim economy

4.2 Please give ranking between 1 with the most important and 9 with the less important for the focus of Information Systems Planning in your organisation.

No	Rank	FOCUS
1		Applications portfolio
2		Current issues
3		Future scenarios
4		Package software
5		Database design
6		Centralised verses end user development
7		Rahmahtullah/ barakah
8		IT/Information Systems architecture
9		Competitive edge

5. PARTICIPATION BY VARIOUS GROUPS IN SISP PROCESS

Please tick degree of participation of selected groups in supporting SISP process.

Degree of participation				
Organisational Grouping	HIGH	MEDIUM	LOW	NONE
Top Management				
MIS / EDP Executives				
MIS/ EDP Planning				
Corporate(Non MIS/EDP) Planner				
System Development Group				
Users				
Computer Operation Group				
Consultant				

6. LINKAGE BETWEEN INFORMATION SYSTEMS AND CORPORATE PLANNING

ISP linkage with corporate planning (CP)

ISP LINKAGE with CP	TICK ONE
ISP in response to CP	
ISP isolated from CP	
ISP a basis for CP	
ISP part and parcel of CP	

7. INFORMATION SYSTEMS STRATEGIC PLANNING CONTENT

PLANNING DOCUMENT CONTENT	PLEASE TICK ONE ONLY ON EACH CASE		
	INCLUDED IN LRP	NOT INCLUDED BUT SHOULD BE INCLUDED	DON'T BELIEVE SHOULD BE INCLUDED
Statement of objectives			
Hardware plan			
Projection of possible future MIS environment			
Recommended Implementation plan			
Systems Development Plan			
Financial plan			
Personnel plan			
Facilities plan			

8. IMPORTANCE AND ATTAINMENT OF PLANNING PURPOSES

Objectives or purposes that one might wish to accomplish by means of a sound Information Systems Long Range Strategic Planning.

How important and attainment you believe the following factors are to successful of ISP (1- essential; 2- important; 3- reasonable; 4 - unimportant)

PURPOSE	IMPORTANCE(1-4)	ATTAINMENT(1-4)
Improving communications with top management		
Improving communications with users		
Increasing top management support		
Identify new applications		
Improving morale and sense of purpose		
Increasing user co-operation		
Increasing employee productivity		

9. APPROACHES IN IMPLEMENTING SISP

APPROACHES ADOPTED IN MALAYSIA	PLEASE TICK ONE
Top down(business driven)	
Common(proprietary)	
Bottom/up	
Resources/budget based	
Data analysis	
Technology based	
Competitiveness	
Other	

10. SUCCESSFUL OF INFORMATION SYSTEMS PLANNING

Please indicate by ranking from 1 the most important factors to 12 with the less important factors

SUCCESS FACTORS	RANKING
Senior management commitment	
Senior management involvement	
Middle management involvement	
Assessment/evaluation of Inf Systems Plan	
Senior and middle management involvement	
ISP supported by IS management function	
Information Systems married to corporate plan	
CIO - member of senior management team	
Increased management understanding of IS/IT	
Business plans a basis for ISP	
ISP outcomes/process debated by management	
ISP outcome: prioritised applications portfolio	

11. STAGES OF INFORMATION SYSTEMS GROWTH

Please describe your organisation stage of strategic information planning from the following elements:-
PLEASE TICK NOT MORE THAN 2 STAGES FOR EACH SECTION.

11.1 STRATEGY

STAGE	STRATEGY ELEMENT	TICK
1	Acquisition of hardware/software etc	
2	IT audit, Find out and meet user needs	
3	Top down Information Systems planning	
4	Integration, co-ordination and control	
5	Environmental scanning and opportunity seeking	
6	Maintain comparative strategic advantage /interactive planning, monitor futures	

11.2 STRUCTURE

STAGE	STRUCTURE ELEMENT	TICK
1	None	
2	Label of Information Systems; often subordinate to accounting or finance	
3	Data processing department; centralised DP shop; End users running free at stage 1	
4	Information centres; Library records; OA etc in the same unit; Information services	
5	SBU coalition(s)(many but separate)	
6	Centrally co-ordinated coalitions	

11.3 SYSTEMS

STAGE	SYSTEMS ELEMENT	TICK
1	Ad hoc, unconnected, operational, multiple manual and IS, uncoordinated, concentration on financial systems and little maintenance	
2	Many applications, many gaps, overlapping systems, centralised, operational, mainly financial systems, many areas unsatisfied, large backlog, heavy maintenance load	
3	Still mostly centralised, uncontrolled end user computing, most major business activities covered	
4	Decentralised approach with some control, but mostly lack of co-ordination; Some DSS (ad hoc); Integrated office technology systems	
5	Decentralised systems but central control and co-ordination; added value systems(more marketing oriented); More DSS(internal, less ad hoc); Some strategic systems (using external data); Lack of external and internal data integration; Integration of communications technologies with computing	
6	Inter-organisational systems; new IS based products; External/Internal data integration	

11.4 STAFF

STAGE	STAFF ELEMENT	TICK
1	Programmers/contractors	
2	System analysts/ DP manager	
3	IS planner; IS manager	
4	Business analysts; Information resource manager(Chief information officer)	
5	Corporate/business/IS planners(one role)	
6	IS director member of board of directors	

11.5 STYLE

STAGE	STYLE ELEMENT	TICK
1	Unaware	
2	Don't bother me(I'm too busy)	
3	Abrogation; Delegation	
4	Democratic; Dialectic	
5	Individualistic(product champion)	
6	Business team	

11.6 SKILLS

STAGE	SKILLS ELEMENT	TICK
1	Technical(very low level)(individual expertise)	
2	Systems development methodology	
3	IS believes it knows what the business needs; Project management	
4	Organisational integration; IS knows how the business works; Users know how IS works for their area); Business management(for IS staff)	
5	IS manager-member of senior executive team; Knowledgeable users in some IS areas; Entrepreneurial/ marketing skills	
6	All senior management understand IS and its potentialities	

11.7 CULTURE

STAGE	CULTURE ELEMENT	TICK
1	Obfuscation	
2	Confusion	
3	Senior management concern; DP defence	
4	Co-operation	
5	Opportunistic; Entrepreneurial; Intrapreneurial	
6	Interactive planning	

12. INFORMATION SYSTEMS DEPARTMENT

12.1 Do your organisation has mainframes/mini/microcomputers

YES		NO	
-----	--	----	--

If YES, what is the :

	Mainframe	Minicomputer	Microcomputer
memory size	MB	MB	MB
storage size	MB	MB	MB
OS			
Brand name			

12.2 Please indicate numbers of different computers owned by organisation

NO OF COMPUTERS OWNED	Microcomputer	Mini	Mainframe
None			
5 TO 100			
101 to 500			
501 to 1000			
More than 1000			

12.3 What type of systems development do your organisation use?

SYSTEMS DEVELOPMENT	TICK
SSADM	
Other	
None/ not known	

12.4 System development is functionally

FUNCTIONALLY	TICK
Centralised	
Decentralised	

12.5 Proprietary Software Products Used

Please list the proprietary software products used in your organisations for example Dbase or Oracle for the databases.

PROPRIETARY SOFTWARE PRODUCTS	EXAMPLE	EXAMPLE	EXAMPLE
databases			
spreadsheets			
statistical packages			
Integrated packages			
project management S/W			
report generators			
graphics packages			
expert system shells			
Executive inf system(EIS)			
Strategic Information Systems Planning(SISP)			
Islamic software(Hajj, zakat, mosque)			

12.6 Strategic Planning Methods and the popularity

What methodology does your organisation used in Strategic Information Systems Planning?

METHODOLOGY IN SIP	PLEASE TICK OR LIST
Critical Success Factor(CSF)	
Business Strategic Planning(BSP)	
Strength Weaknesses Opportunity Threats (SWOT)	
Value Chain Analysis (VCA)	
Information Engineering(IE)	
Strategic Systems Planning(SSP)	
Method/1	
In-house (Please list)	
Other (Please list)	

12.7 CSF categories in ranking order

Please give in ranking order the critical success factors in your organisation between 1 with the most important and 16 with the less important factor.

CSF CATEGORIES	RANKING
Quality	
Profit	
Financial control	
Strategy	
Management	
Information	
Information Technology / Inf Systems	
People motivation/ development	
Professionalism	
Resources	
Organisation	
Communication	
Customers	
Efficiency/productivity	
Market share	
Other	

12.8 Networking

Do your organisation use either of this network

TYPE OF NETWORK	TICK
LAN	
WAN	
BOTH	

if YES, please tick the application of the network

NETWORK APPLICATION	TICK
Accounting	
E- mail	
File Transfer Protocol	
Gopher	
Mosaic	
IRC	
Spreadsheet modelling	
Data base	
Statistical packages	
Project Management	
Word processing	
Office Automation	
Islamic	
Other (Please list)	

12.9 Support Management Work

Do your organisation use IT products to support management work ?

YES		NO	
-----	--	----	--

If YES , please tick in what area

AREA	TICK
Document creation/ presentation	
Document administration	
Analysis	
Information exchange	
Personal administration	
Other(Please list)	

13. THE MAKE-UP and SIZE of INFORMATION SYSTEMS PLANNING TEAMS

INVOLVEMENT OF	ALWAYS	OCCASIONALLY	NEVER
IS consultant			
User/Middle management			
Corporate planner			
Senior management			

14. PROBLEMS or BARRIER to SUCCESSFUL SISP

Please indicate by ranking 1 the most important problem till 11 for the less problem

BARRIER	RANK
Difficulty in measuring benefits	
Volatile nature of business	
Difficulty in recruiting IS staff	
Political conflicts	
Existing IT investment	
User education resources	
Doubts about benefits	
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Middle management attitudes	
Senior management attitudes	
Technology lagging behind needs	

15. HIKMAH(WISDOM) FROM INFORMATION SYSTEMS

Please indicate by ranking from 1 the most important WISDOM do you obtain till 10 for the less wisdom

WISDOM	RANK
Increase profit/revenue	
Gaining confidence from customers	
Increase customers or members	
Tighten relationship between information system staff and managers	
Increase co-ordination between information systems plans and business plans	
Increase your knowledge	
Increase your staff ethic	
Teach your staff to be competitive	
Increase relationship between branches or between states	
Increase the Muslim economy	
Other(please list)	

16. SOLAT ISTIHARAH

IMPLEMENTATION OF SALAT ISTIHARAH	WHEN	WHERE	HOW
Always			
Occasionally			
Never			