

**TRADABLE INFORMATION FUNCTION IN
GOVERNMENT ORGANISATIONS :
A CROSS CULTURAL STUDY**

By

ZAKARIA ABD HADI

Department of Information Systems
School of Computing Sciences
DE MONTFORT UNIVERSITY

**THESIS SUBMITTED IN PARTIAL FULLFILLMENT
OF THE REQUIEMENT FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY
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ABSTRACT

This study concerned of the role of intangibles elements like information management culture, IT diffusion value, marketing practices and organisational regulations and policies that affect the tradable information function in government organisations. This was achieved through the identification of the culture differences in managing tradable information concept between the Malaysian and the UK government organisations. The national cultural dimensions were used to examine the social, organisational and institutional arrangement and their relationship with the extent of maturity of information management and information trading in the public sector.

The research used interviews and case study methods conducted in government departments in both governments. A research framework consisted of resource management, business resource components and organisational infrastructure was developed and this provided a descriptive approach for the research. The research findings are framed with the context of cultural characteristics and their influences on the information management, IT utilisation, information trading practices and organisational behaviours.

The research has showed that there is a significant differences in the nature resource management, information business practices across these varying cultures between the UK and Malaysian public organisations; specifically in information management practices, IT diffusions and the degree of implementation of information trading functions. Consistent with their cultural profile the UK organisations and Malaysians there is distinct different in handling the information and organisational issues such as unsystematic information management, lack of awareness, readiness of changes, under-utilisation of IT and issue of information secrecy. The issue of politicised information and government initiatives in promoting commercialisation of government information are practised differently in both government.

The different phenomena observed between two governments were explained by the existence of different influences of culture dimension within the organisations. The level of aggressiveness, positive attitude and high awareness of the importance of information

was explained by several cultural dimension such as project oriented dimensions, uncertainty avoidance and high masculinity. The nature and attitude of information is related to the culture of bureaucratic inefficiency and the culture of roles and status. The issue of secrecy was explained by the cultural dimension of individualism and power distance supported by the power oriented dimensions.

The outcome of the research is the identification of the cultural factors that need to be considered in order to initiate the successful information trading function in Malaysian government organisations. A theoretical model of implementation of tradable information trading in government was proposed. This indicates the interaction of the cultural dimension with the information, IT management and marketing aspect of the organisation. The significant contribution to the body of knowledge from this research concerns an explanatory and the empirical analysis of the culture differences in information management and information trading in public sector between a developed and developing country.

DEDICATION

*In memory to my beloved Mother and Father
who have not the opportunity to share
My success*

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ABBREVIATIONS

APDC	- Automatic Data Processing Committee
BERNAMA	- National News Agency, Malaysia.
BTI	- British Trade Information
CCTA	- Central Computer and Telecommunications Agency, UK
CHIEF	- Custom Handling of Import and Export Freight.
CSO	- Central of Statistic Office, UK
DOS	- Department of Statistic, Malaysia.
DTI	- Department of Trade and Industry , UK
DVLA	- Driver and Vehicle Licensing Agency , UK
EIC	- European Information Centre, UK
EIS	- Executive Information Systems.
EU	- European Union
FAMA	- Federal Agricultural Marketing Authority of Malaysia.
FOI	- Freedom of Information.
GDP	- Gross Domestic Product
GDSS	- Group Decision Support Systems
GIS	- Geographical Information Systems
HMSO	- Her Majesty's Stationery Office
ICT	- Information Communication Technology
ICU	- Implementation Co-ordination Unit of Malaysia
IS	- Information Systems
IT	- Information Technology
MAID	- Market Analysis Information Database.
MAMPU	- Malaysian Administrative and Manpower Planning Unit
MARDI	- Malaysian Agricultural Research and Development Institute.
MAs	- Marketing Agents.
MIDA	- Malaysian Industrial Development Authority.
MIMOS	- Malaysian Institute of Microelectronic System.
MSC	- Multi-Media Super Corridor of Malaysia.
NITC	- National Information Technology Council
NPC	- National Productivity Corporation, Malaysia.
ONS	- Office of National Statistic, UK
OPCS	- Office of Population Censuses and Survey , UK
OS	- Ordnance Survey, UK
OSA	- Official Secrecy Act
SIRIM	- Standard and Industrial Research Institute of Malaysia.
SSM	- Soft System Methodology
TSO	- Tariff and Statistical Office, UK
UKAIS	- UK Academy of Information Systems

CHAPTER 1

INTRODUCTION TO THE RESEARCH

1.1 Introduction

The theme of this thesis is the implementation of the function that will change the management of the information in the Government organisations. Information has become an integral and critical resource for individual and organisational success (Naisbitt, 1990; Bodies, 1993). Globalisation, improvement in technology and shifting competitive advantage have all contributed to the pressure on the world economy to make progress towards the creation of an information-based society (Johnson and Turner, 2000). The economic significance of information is cogent during the present era as advanced societies shift from an industrial economy to an information society, where capital ceases to be the chief resource of economy while information emerges as the most strategic resource (Naisbitt and Aburdene, 1990). An important aspect related to this development is the way something as intangible as information can be transformed into a commodity. The concept of tradable information refers to the function of information as a valuable and a marketed commodity (Moore, 1990; Young, 1992).

The private sector is the main business activator in information industry and there are increasing trends towards the commercialisation of public sector information (Delpierre, 1993). In fact, government organisations are in a prime position to boost industry business activities as an information disseminator as well as information industry regulator (Cooper & Lybrand, 1996). Recognising the role of public sector in information industry, this thesis examines the issues concerning the management of information and technology resources and organisational and management structures that influence the government information trading function.

Additionally, the main part of the research work concerns the cross-cultural comparison of the implementation of tradable information functions in the UK and Malaysian Government Organizations. The main question is to what extent do cultural factors influence the success of the commercialisation of public information in different governments?

In this introduction, the discussion focuses on the topic of the research. The rationale and the objective of the research will be outlined followed by the discussion on the scope and approaches of the research. The next section is the illustration of findings and the significance of the research findings. The chapter ends with the outline of the structure of the report. The structure of this chapter is summarised in Table 1.1.

Table 1.1: Structure of the Chapter

-
- Introduction
 - Rationale of the Research
 - Statement of Research Questions
 - Objectives and Research's Scope
 - Outcomes and Significance of Studies
 - Structure of the Report
 - Conclusion
-

1.2 Rationale of the Research

The study concerned the various distinctive aspects of commercialisation of government information. This related to the question: To what extent do government organisations exploit information resources, IT facilities and organisational structures? An assumption upon which this thesis is based is that the government organisations are the organs of information acquisition, processing, storage and dissemination. Their main role is to cause an unimpeded, effective and beneficial information flows within and with the outside organisations. The intensive flow of government information directly enhances the growth of information industry. Nevertheless there are several substantial management and organisational factors that contribute to the role of government in this activity.

Governments are the large consumers and generators of information (Moore, 1990; EC, 1998). This large volume of information covers most aspects of the functioning of the society they serve. This wide variety of information has commercial value beyond its role in administration, control and policy making. Indeed there is an emergence of a new paradigm where intangible attributes like information demand recognition as fundamental economic resources. Organisations may be viewed as information channels and analysing organisational needs therefore require a focus on their information processing activities. They may act as creators that can develop and produce information products (Moore, 1996).

1.3 Commercial Value of Government Information

The commercial value of government information arises in part from its unique properties: it is comprehensive, much of the information results from statutory requirement such as business and commercial registration; it often covers long periods, having been collected for decades; and it is generally accurate because significant resources invest in its collection and analysis (Glazer, 1993). Realising the uniqueness of this information, there is potential for government information to be traded and governments have become aware of the commercial value of the public sector information (Allan, 1990).

The rate of growth of government information trading has accelerated and there has been a change in the nature of the information, which is being traded (Moore, 1990). There is more dramatic growth in government electronic information service principally the on-line information industry (Sabxy, 1997). In fact this information increasingly in this form facilitates its access and exploitation.

The release of government information has been recognised to be the significant factor for economic activities. In UK, it was argued that through the release of government-held information, it helps to stimulate the UK industry and this enhances the commercial value of information (Garnsworthy, 1990). Furthermore, it was

suggested that the efficient availability of UK government information, regulations, standards and so on is essential to the efficiency of British business. The simple access for government information has stimulated the creation of new innovative information products by commercial information companies. The availability of this information on electronic publishing enables the companies to use it for the strategic decision making and has competitive advantage over others. Therefore this becomes a critical competitive factor in economic sector. The economic consequences from the free provision of government information includes the significant benefits to economy, the new employment opportunity, improvement of IT skill and direct or indirect revenue that would result from increased economy activities (Anonymous, 2000).

1.4 Information Trading and Organisational factors

The growth of information trading activities in government organisation is influenced by external and internal factors. The external factors include the increasing commercial pressures for access to government information, increasing demand for information by many organisations and the expansion of information intensive industries and wide use of ICT in information industry. The internal factors consist of the nature and maturity of information management functions, attitude to and ownership of information (Young, 1992), Management style (Lu and Wang, 1977), legislative and power structure within the government (Moore, 1990; Saxby, 1997).

In order for information trading to occur the right environment of information management is needed. Management style is believed to be a determinant of system success and user participation (Robbins, 1994). Within the organisation it is important to create a favourable information environment and attitudes for IT effective operation. These determine competitive advantages, productivity and even personal competency (Doll and Torkzadeh, 1998). Although the efficiency and speed with which information is transferred is conditioned by quality and density of infrastructure but related actions and decisions are influenced by intangible elements like attitudes to secrecy, social value, personal relationship, cultural traditional and

structures of authority. (Hufnagl, 1993; Watson and Brancheau, 1993).

Since the commercialisation of public information dealt with information management and technology diffusion, it is necessary to address government policy because political intervention may have an impact on the early stages of the development of information infrastructure (Deans et. al, 1991). At the same time Government bureaucracies may determine the way information management is formulated and implemented. Government and its institutions regulate the expansion of computing technology development.

One of most important factors that determines the success of IS management is organisational culture (Pliskin et. al, 1991). Weber and Pliskin (1996) suggest that organisational culture is considered as a critical success factor in IS implementation and there is a positive relationship between IS effectiveness and organisational culture. This aspect may relate to power and organisational structure and IS development design (Madon, 1993). Within the organisation, lack of involvement in IS development, education in IS staff, lack of IS planning, organisational problems and integration of the systems are among the key issues in IS management (Dekleva and Zupancic, 1996). Realising this phenomena, the ability of the government to commercialise the information is dependent on the extent to which the organisation exploits resources such as information and IT and on a positive organisational culture exist and attitude to information.

From the above-mentioned point of views, government organisational processes to exploit information cannot be divorced from the cultural context. Within the research framework of information trading, this study includes a cross-cultural comparison, examining the role of national culture in resource management, business and organisational-related issues. The questions of culture and its associated impact on organisational practice has been discussed by several authors (Ein-Dor and Segev, 1992; Grover et.al 1994; Leidner et. al, 1995). Organisational culture plays a great role in an organisation and it may originate from national culture (Hofstede, 1985). From an information system perspective, managerial aspects play a special part in

the culture of a society (Trompenaars, 1993; Walsham, 1993a). Administration and information systems are the products of a culture. They reflect and record the fundamental culture presupposition and the relationship between IS and culture is extremely complex. The cultural context determines the end what the system will look like and in what form it will be used.

Hence this research focuses on the role of intangible elements like information processing culture, social values, organisational regulations, policies and structure of authority in the development of tradable information function in government organisations and the impact of national culture in organisational management and practices. The interaction between these two components is critically investigated within a cross-cultural study of different background of government. The national cultural dimensions were used to examine the social, organisational and institutional arrangement in Malaysian and UK government organisations.

1.5 Information Management and Information Trading

The main focus in this study is the concept of information management and information trading in government organisation. The efficient and systematic Information management are considered to be the prerequisite to the readiness of organisation to develop information trading. Information management is merely associated with the internal practices within the organisation. This involves the process of information collection, processing, cataloguing, indexing, storing and distributing. These processes are carried out with the help of Information technology and require well defined policies and procedures. The aim of information management activities is that the collected information can be utilised by the organisation for management purposes. On the other hand information trading is the process of dissemination of information to the external users with cost. This is as the result of efficient information management and realisation of economic value of information. There are a value added processes involved in information trading to ensure information products have commercial value. Information is traded in the market place and becomes a commodity. Information trading involves marketing

strategies, resource management, and customer relationship and production management. Within an organisation information trading is a revenue-generating activity. Undoubtedly, the nature of information management and trading practices within the organisation are influenced by background of the organisation, which includes the organisational culture.

1.6 Statement of Research Questions

Recognising the background and rationale of the research, this thesis will endeavour to answer these research questions:

- What are the organisational, managerial and institutional issues that influence the implementation of tradable information function in the public sectors?
- What are the similarities and differences in information trading practices between government organisations in the UK and Malaysia?
- What is the relationship between the cultural context and the involvement of the government organisations in information trading?
- To what extent do organisational cultural dimensions influence the information management and information trading in government organisations?

In answering these questions, the research will explore some effects of basic organisational culture on information management in the UK and the Malaysian governments.

1.7 Scope of the Research

The scope of the research was limited to the exploration of the implementation of information trading in government organisation and to identify several issues that directly influence the success of the process of commercial exploitation of government information. This research has investigated some of relevant scope

mainly: the theoretical concept of information management. Information business and tradable information in relation with the role of government organisations, the differences and similarities of the nature of information management and the commercialisation of information in the United Kingdom and Malaysian government organisations focusing on the cultural and management issues; and the influence of cultural factors on the information management and information trading in government organisations.

1.8 Research Approach

This section describes the major approach in the research. A critical review was undertaken into several important subject domains; in particular the existing literature on the implementation of information trading in government organisations is reviewed. These identified some of the key issues and factors concerning the utilisation of government information. Literature review was also carried out on aspects of organisational and national cultural and its relationship with organisational information and IT management. Understanding the role of national culture dimension in organisations has led in identification of relevant national cultural models or frameworks such as Trompenaars (1993), Hofstede (1991) and Madon (1992). From this basis, an initial research model was developed which provides the components for the success information-trading model with an interaction of cultural factors. This model was derived from some cross-cultural studies on information technology management (Grover et.al, 1994; Leider, et. al 1995; Harvey, 1997). The research model consisted of three main components: resource management, business management and organisational infrastructure. These components are considered as the important parameters contributing the structure of government information trading practices.

As this research concerns an interaction of culture and, the interpretive or qualitative research approaches were employed in this study (Alasuutri, 1995; Harvey, 1997). The qualitative interviews and case studies methods were employed in assessing the nature of the issues relating to information trading in

the UK and Malaysian government organisations. Using the research model, interview questions were developed and used in selected government departments and organisations in both countries. The respondent officers were involved in information management and IT management.

Based on the research model component, the qualitative analysis which is mainly contextual analysis was used to identify the dominant issues and relevant factors that influence organisational practices. A set of factors and issues derived from the research work suggested the similarities and differences of information management and trading practices between both the countries. The proposed national cultural dimensions by Trompenaars (1993), Hofstede (1991) and Madon (1992) were used to explain the role of cultural factors. The comparative analysis showed up the distinctive influence of national culture on the willingness of the different governments to commercialise public sector information. This provided a basis for discussing changes to management and organisational practices in Malaysian government organisations that needs to promote information-trading activities.

1.9 Limitation of Approach of the Study

This research was restricted on the analysis of the relationship between the cultural factors and information trading practises in government organisations. The approach used is limited within the basic qualitative concept of information economics in the context of information market. This related to the value added concept of information, information pricing and supplier and customer relationship.

The evaluative approach was merely on the qualitative analysis of the research findings. There was not specific economic analysis of the information value carried out whether to determine the actual information value or the cost benefit analysis measuring the cost and benefit of the dissemination of information by an organisation. Furthermore, there was no quantitative approach in determining the information cost, expected payoff and cost reduction due to the utilisation of information. These limitations were relevant since this study was perceived as

qualitative nature of research.

1.10 Result of the Research

The qualitative data collected in the form of case studies offered in-depth understanding of the organisational issues and managed to explain the influence of cultural factors on the government information trading practices. This section highlights the summary of main results and the contribution of the research. The issues and factors are illustrated in Table 1.2.

Components	Influencing issues and factors
Resource management	<ul style="list-style-type: none"> • Information management structure and efficiency • Budget and financial availability • IT utilisation ability
Business Management	<ul style="list-style-type: none"> • Government policy and procedures • Role of information as political item • Government responsibility for public information requirement • Trading and marketing strategy and emphasis • Government information dissemination objectives
Organisational Infrastructure	<ul style="list-style-type: none"> • Issue of Secrecy and Copyright law • Organisational awareness of information value • IT knowledge ability and acceptance • Nature of the Government services • Information sharing and distribution • Interdepartmental co-ordination ability

Table 1.2: The Issues and factors affecting the information management and Information trading in government organisations.

The differences and similarities in information management and trading were analysed and discussed within the concept of cultural dimensions. This resulted in the views that the different phenomena such as the culture of innovation and

progressiveness, presence of bureaucracy culture, information secrecy and politicised information influence the nature of information management and information trading practices between the UK and Malaysia. Specifically, the study shows how national culture, which represents in organisational culture accounted for differences the use of information resources, practices and institutional practices in relation to information management and trading in government organisations. Examination of these important issues aid the organisations in the formulation of strategies concerning management and deployment of information trading function.

1.11 Significance and Distribution of the Study

The research explored the organisational, managerial and institutional issues of government organisations, which are considered as the prerequisite for commercialisation of government information. The study described the different impacts on cultural information management, IT exploitation and organisation practices between two nations, which are culturally different. Such a study carries a theoretical understanding in identifying the right approaches that can be applied in public sector for information trading. This aids the government in formulating the policies and administrative procedures for department in attempting the information marketing services. Nevertheless, while applying these more advanced approaches it we need to take to consider political and cultural issues of the country.

1.12 Structure of the Report

This report has been divided into eleven chapters of which highlighting specific aspects of the research. This introductory chapter has explained the background of the research that will be undertaken in the study and briefly gives some indication of the research framework and significance. The contents of each chapter are as follows:

Chapter 2 - Introduces the significance of information in information society and discusses the concept of information value with information as a commodity. The discussion focuses on the determination of information value and organisational requirements for information. This can be considered as the basic of information trading function.

Chapter 3 - Discusses the development of information industry and the role of government and public sectors in this context. The tradable information function and its fundamental concept are discussed.

Chapter 4 - This chapter looks into the present trend in information management and trading in the UK and Malaysian governments. The discussion focuses on information management and Information Technology (IT) programs in the Malaysian government and the growth of information trading in the UK. The relevant issues in information management and information marketing are highlighted for both the governments.

Chapter 5 - Discusses the basic understanding of organisational culture. The chapter highlights the cross-cultural study and information system and formulates the theoretical research framework.

Chapter 6 - The matters regarding the research methodologies in Information Systems (IS) study are discussed particularly about the differences between the quantitative or positivist and interpretive/qualitative approaches. The suitability of qualitative approaches as the research approach of the study is discussed.

Chapter 7 - Focuses on the implementation of the research work. This includes the research design, research conceptual and operational frameworks and the execution of data collection method as well as the related matters.

Chapter 8 - The research findings from the study in Malaysian government organisations is discussed. The issues and findings are categorised according to the components of the formulated research model. Furthermore, some analysis on the interrelation of the essential issues and factors was made.

Chapter 9 - As part of comparative study, the implementation of information in the UK government is discussed together with the research findings from the case studies conducted in some of the departments. This is the basis for further research analysis.

Chapter 10 – Discusses the influence of cultural factors on information trading in government organisations. The similarities and differences of the issues gathered from the study for both governments were tabulated. The critical analysis of the impact on national cultural dimensions on the existing issues is highlighted.

Chapter 11 – Highlights the overall review on the research work, its significant findings, achievement and contribution to the research field were discussed. The

discussion also touched the recommendation for further research work, some research's limitations and the summary of the research.

1.13 CONCLUSION

The objective of this study is to identify the issues that influence the process of commercialisation of government information. Qualitative methods were employed to surface in-depth explanations of the cultural phenomena in government organisations relating to information management systems. A cultural model perspective is used to explain the differences and similarities in organisational practices in exploitation of government information between the UK and Malaysia. The study identified some of cultural factors that affect these phenomena, their relationships and the degree to which they influence the practices, procedures and the outcome of the information management and information trading functions. This study has considered the management issues raised within the context of organisational, technical and cultural factors and provided some meaningful idea to formulate a strategic framework for implementation tradable information function in a developing country such as Malaysia.

CHAPTER 2**INFORMATION AS A COMMODITY IN INFORMATION SOCIETY****2.1 Introduction**

In the world of economics, there has been a time of enormous structural economic change and an aspect of this change is the emergence of an information sector within the economy (Moore and Steel, 1991). This sector consists of organisations in the public and private sector, which are concerned with the production of information goods and service. Information plays tremendous role in organisations, from the government sector to the business and commercial sector in whatever field involved (Boddie, 1993). Indeed, information is already widely accepted as economic material.

The essence of this study is how the government information could be transformed into a valued commodity and marketed to the users. Within this scope, information is treated as an asset and economic commodity. This chapter discusses the recognition of the importance of information as a commodity and its valuation in an economic context. Information is a valued resource to users, be it the individual, organisation or even nation. We are now seeing the emergence of different kinds of information industries and this may change dramatically the way we think about information. The dramatic growth in information industry is evidenced by the on-line information industry for instance, in Britain. In terms of employment, there are already 2 million people working in this sector and it is estimated that one million new jobs will be created in the ten years time.

This chapter reviews the literature on several related issues concerning information, the importance of information in the social and economic within information society. This is then related to the concept of information value and its chain. Furthermore, how the information-intensive firms generate information, as a valued asset from the exploitation of information activity will be discussed. This provides a foundation to evaluate the role of information in present economic environment, and the extent to which information is viewed as a commodity. The structure of this chapter is summarised in Table 2.1

Table 2.1. Structure of the chapter

-
- Introduction
 - Information In Information Society
 - Data, Information and It's Evolution
 - Concept of Information Value
 - Value of Information and Information Intensive Organisation
 - Information Value Chain
 - Information as A Commodity
 - Conclusion
-

2.2 Information in the Information Society

The emergence of the information sector amounts to another basic restructuring of economy and society. Lyon (1991) suggested that as modern economies become more complex, information management is being transformed radically by the emergence of new technology. The advanced technologies in information management lead organisations to become more information-intensive organisations where information is treated as a saleable product and at the same time be a part of the organisational asset (Glazer, 1993).

In the information society, information is an important factor in the country's international strength (Drucker, 1968; Wersig, 1990). What distinguishes a nation as advanced versus less developed is precisely the ability to generate and use knowledge resources in the form of experts, scientists, libraries, information centres and new technologies. Most of the developed countries have utilised their

information resources and exploited their knowledge in all the sectors. This enables the invention of new technologies and become advanced countries. In contrast with underdeveloped countries, they have problems of utilising all sorts of the resources they have including information, a main ingredient in knowledge creation. In this aspect Sauzan (1987) urged that data resources are considered to be strategic information for those countries with sufficient resources and the development of national economy is seen to depend partly on the growth of their data resources. There is a trend in developed countries that the information sector is handled by information professionals who either librarian or information experts. The growth of information industry is in the hands of these professionals who control the information dissemination in terms of its technology and marketing aspects.

There is a growing proportion of the labour force is involved in the generation of processing and distribution of information. For instance, in UK the value of the combined information technology, electronic and communication industries is estimated to be excess of £30 billion a year and has been accounted for 10% of Gross Domestic Product (GDP) by 2005 (Duchy of Lancaster, 1997). It also estimated that 80% of new jobs in Europe over the last five years have been in information-related industries. Price (1998) quoted that the UK government receives around £200 million in annual income from information publishing activities.

By focusing on the change of economic structure in the society, information is increasingly being recognised as the primary economic resource in present society. Information has played an important role in social, organisational and business aspects of life. The recognition that information is a valued commodity has an effect on the organisational requirement and how to exploit its value. In order to verify the concept of information value, it is important, therefore to understand the distinguishing characteristics and features of data and information.

2.3 Data and Information as Management Tools

2.3.1 Definition of Data and Information

The word 'information' is widely used by people to identify different concepts, it is seen as more important than data but less significant than knowledge. It is extremely difficult to define it precisely. Data and information are frequently treated as equivalent although there is also a tendency to regard data as unevaluated facts or the raw material of information. It is accepted that information is data processed into form that is more useful (ACCA, 1995). In terms of management information systems, information is data that has been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective actions or decisions. This definition recognises both the value of information in a specific decision and the value of information in motivation and model building affecting future decisions and actions. The relation of data to information is that of raw material to finished product.

Mingers (1992) finds that traditionally information has been seen as processed data in some way to make it useful. Philosophically, this definition involves an implicit assumption that data and information are objective that is independent entities with their own structures. On the other hand there is a view that emphasises the subjective nature of information, the idea that different observers may generate different kinds of information from the same data given their differing values, beliefs and expectations (Lewis, 1994). The soft approaches have taken information to be 'data plus meaning' that is by attributing meaning to data, we create information. (Checkland and Scholes, 1990). Generally, information can be accepted as an intangible product as defined by Robertson (1996) as any piece of text of data, document, report, book, collection, knowledge, market intelligence, link, association, perception, rumour or simple idea which is held in any medium.

Understanding of its meaning is dependent on its content and its receivers. Information reduces uncertainty in the mind of the recipients (Mingers, 1994). The

use of information is always relative to a particular purpose or goal. Moreover, some information can also increase variance or uncertainty in different situations, which depends on the reliability, completeness and timeliness of information. The link between the use of information and the improvement of organisational resources is discussed in the following section.

2.3.2 Information and its Role in an Organisation

Within an organisation, information has been viewed as being uniquely important to the communication and decision making processes. In most organisations information management is discussed as an integrated, computer-based process that involves several functions within the organisation and enables them to make decisions in their activities and strategies (Lucey, 1991; Silva, et.al, 1992). The sole ingredient in this process is the data and information is the product that results from processing and manipulating of raw data (Silver et. al, 1989). Lewis (1991) argues that data are facts about those entities that the organisation recognises as being meaningful to its interests and concerns. Whilst information is data (which may have been processed) that is perceived as being useful within a particular decision making process (ACCA 1995). There is a significant relationship between data, information and decision making in an organisation. In most situations, the decisions are made from information based on agglomeration of data of different origins and forms (Silva, et. al, 1992; Skryme, 1994).

The recognition of information as an important resource has an impact on the competitive edge of organisations. The ultimate aim in using information is to act on problems or to achieve a targeted goal. In achieving this aim, the organisation not only uses the information within the organisation but also of all types of data from other sources.

In the organisational context, Silva et. al (1992) suggested a general scheme of information flow, which describes that mechanism in an organisation and shows the role of information in decision-making. This is shown in Figure 2.1. The process involves several stages and components.

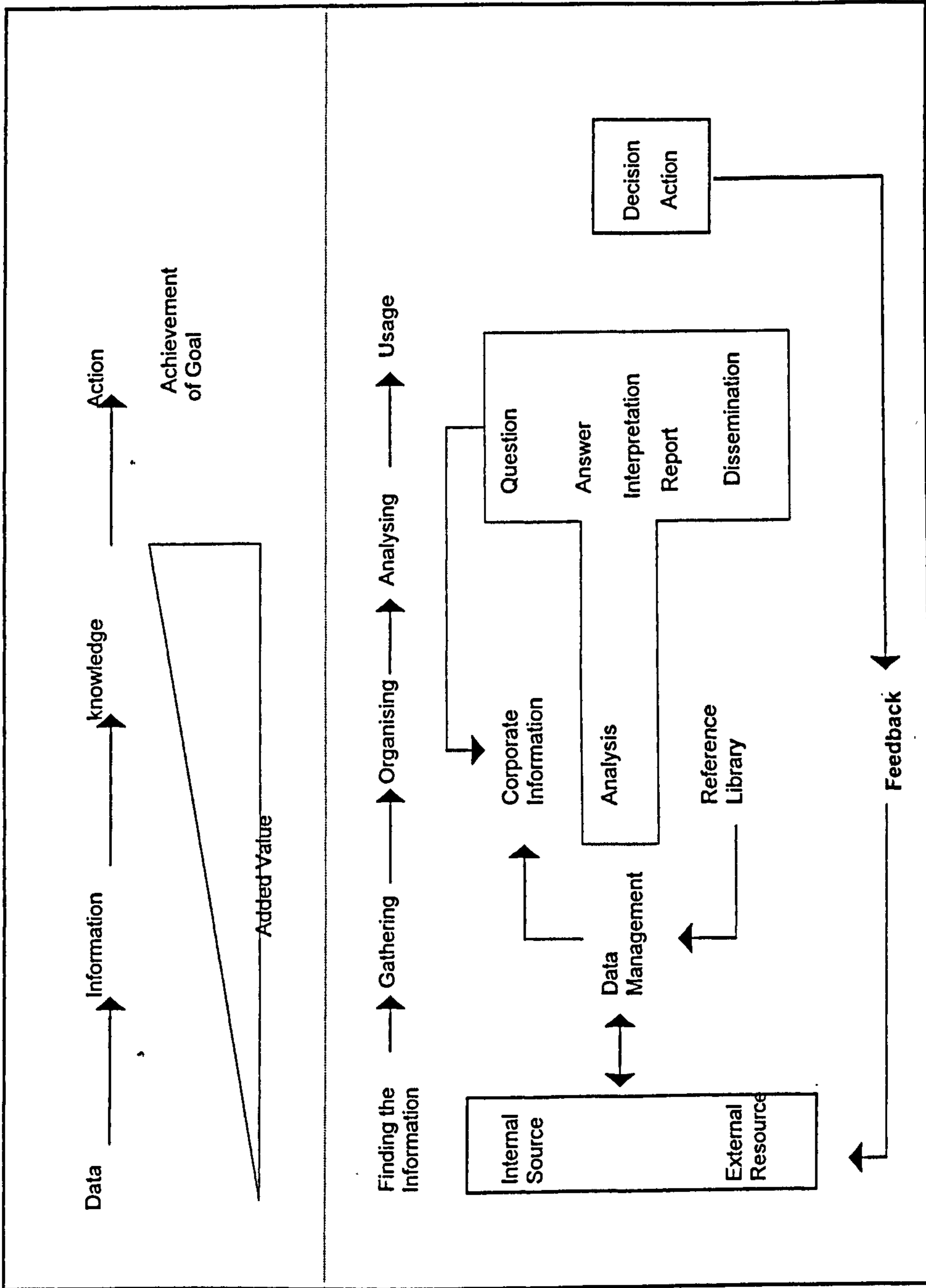


Figure 2.1: Information flow and processing in decision Action making
(From Silva et. al, 1992).

In order to create knowledge for decision action, the data has to undergo systematic processing and must be value added. It shows that user participation is proposed particularly in the feedback functions. The flow exhibits a very close relationship between the product and the service because the result of one part could be a source of information to be input to the other. Either by request or as part of a plan, users participation is proposed. The emphasis on the enhancement of result and databases by a process of dialogue with users and information specialists (in the users organisation).

From the point of view of product and service, there is a very close relationship between one and the other, because the final result of one part could be a source of information and input for the other. For instance, information about the financial status of company obtained by a consultant could be used to complete the profile of the same company.

2.3.3 Information as Knowledge Creation

In exploring the feasibility of development of the tradable information concept, it is important to review the concept of knowledge, derived from the utilisation of data as well as the information's transformation. In relation to this phenomenon, McHale (1976) suggested that information has far less structure than knowledge; much information in fact consists of isolated and unrelated facts in general. Unrelated information can be filled in a human memory only when it is associated with some prior structure of understanding and becomes part of a person's knowledge. As discussed by Silva et.al (1992), knowledge is created from information through value added processes (see Figure 2.1). Data is useless until repackaged as information and data is even more valuable when the information is converted to knowledge (Langefors, 1987; Anonymous, 1996). Knowledge must rather be understood as symbolically or otherwise coded representation of data in its context, i.e. information that provides only a part view of reality and only for a specific purpose (Stroetmann, 1988). The knowledge is also the systematic compilation and integration of individual data. As the is information utilised by people, it amends and extends the stock of knowledge. In this situation,

knowledge and information are generated by society and cannot be detached from the concept of knowledge creation (Willcocks, 1992)

We can see knowledge is a power; people having access to important information have an advantage over people who are denied access to that information. Wersig (1990) had discussed the phenomenon of the changing role of knowledge. Knowledge is what humans consider trustworthy, credible and relevant in order to organise their interaction with their environment. It not only explains the world, but interprets it as well. In reality, knowledge becomes a very complex phenomenon since it consists of different components: experience, expertise, generalisation, skills, self-estimations and evaluation. Knowledge is infinite in the sense that we can create, retain, disseminate and share it indefinitely by various technologies. These technologies can range from books in libraries to a global virtual knowledge centres. Knowledge is infinite because it is unlimited source and commodity (Stichler, 1993; Anonymous, 1997).

The importance of the knowledge within the organisation is unquestionable. As an organisation can be described as knowledge system (McBride, 1994), the knowledge that is possessed by the organisation will determine how the organisation will develop or behave and give it a competitive advantage. The organisation's knowledge base consists not only of facts but also of tacit knowledge, which is gained from the organisation system evaluation. Knowledge in the form of an informational commodity is indispensable to productive power and will continue to be a major-perhaps the major-factor in the worldwide competition for power (Anonymous, 1996).

The above evidence shows that information creates repository of knowledge for an organisation. Moreover, both knowledge and information are closely integrated and cannot be separated.

2.4 Concept of Information Value.

The study of information as a commodity is related to its value. It is appropriate for managers to know a conscious management process to identify what is the value of information (Harwood, 1995). As an intangible commodity, information has peculiar attributes. It is relatively difficult to determine the value of information. Information is usually hard to quantify as it is so often obscure, abstract, ephemeral, time sensitive, expensive or a combination of all or some of these (Smith, 1995, Du Toit, 1995). Although these parameters make difficult to quantify the value of information, the effect of exploitation and participation of information in any organisational activity can be measured and may represent the value of the information.

Because quantification of value of information is difficult, several perspectives have been used in discussing the concept of information value. The value of information may be viewed from production perspective, which relates to cost and revenue, a marketing perspective which involves demand and supply factors, a decision-making context and a perception perspective. Sheriff and Backhouse (1999) argued that the exchange value of information can be determined by means of economic and market model, it is extremely difficult to measure the value-in-use of information. This is because of the peculiar nature of information. Badenoch et. al (1994) suggests that unused information is not information or that information without a purpose is not information. This means that information value is dependent on its utilisation by the users and to what extent it is manipulated.

2.5 Information Value and Marketplace

The concept of information value is closely related to economics, the economics of information production (Hepworth, 1989). Here the value of information is influenced by the management or market force that aims to secure the information supply and demand (Smallman, 1999). However, in some circumstances, the information can find its value although markets do not exist. In the context of

government information, information is considered as a public information which has value i.e information that citizens need in order to pursue their daily lives, irrespective of the institutional means of provision. (Anonymous, 2000). This information relatively has value but should not be interfered with the citizen access to the information. The information may be related to government directives, policy documents, administrative reports, parliamentary handsard and Audit reports. These items of information would be purchased by specific interested groups and significantly valuable to them. Stewart (1998) argued that some information such as Research and Development (R&D) reports has high value but it may not follow the economy scale of market. The demand however, of the information may dismissing easily and quickly.

2.5.1 Information Value from Production Perspective

In business organisations, the value of information can be measured in terms of the cost benefits, which occur from utilising information in the business activities (Glazer, 1993). This is related to the transaction of information within an organisation's business environment pertaining to the suppliers and consumers. The value is judged as the amount of increased of revenues and the reduction of cost (Smallman, 1999). Information value is measured by its role of facilitating the process of exchange within the value-added chain. The exchange process involves the customer and supplier of goods or services for money. Thus, it is assumed that in every transaction there is an exchange of information between both the parties. Information about goods, processes and other different types of related matters involves transaction.

One of the components of information value is that it generates additional revenues for the firms and also may reduce the production costs (Due, 1996). The value of information is the value of increased performance of the decision-making. For instance, if the information is used strategically the firms can know what is the pattern of market of their product or the level of production. The company can identify the types of good that are most demanded by the customer or time during

which the products should be marketed. This information helps the firms in planning their production in order to capture the market. At the same time the company can identify the appropriate way of promoting the products and may reduce the costs. Orman (1994) examined the value of information from the production aspect, which involved the cost of processing and cost of maintaining the information. The total costs involved in managing the information is directly determined by the value of information which is either used by the organisations or sold as a product.

2.5.2 Information Value from Market Perspective

The value of information can be examined from the market perspective, which is related to the demand and supply viewpoint. The demand value of information is the maximum amount in dollars that buyers would be willing to pay for the information (Mowshowitz, 1992; Wegen et. al, 1996). The supply value on the other hand is the minimum amount the supplier is willing to accept to provide the information. In information marketplace, the supply may arise and cost of protection from various sources. The demand is determined by the benefit of the information to the users. In this case, the value of information is justified with its market price. If the value of information is based on its price, more appropriate and timely information, the higher is the price (Stewart, 1998; Magretta, 1998). Furthermore, more accurate the specification and greater the business advantage created by information result in higher price of the information. The information price is directly determined by the management quality, time and effort involved in the process.

2.5.3 Information Values and Decision-making

Davis and Olson (1985) argued that the value of information is described most meaningfully in the context of a decision-making. If there are no current or future choices and decisions, information would be unnecessary. Theoretically, information has value only as it affects the decision or action to be taken. In

assessing the value of information someone has to make a decision about paying for it, whether it is delivered in spoken, written, printed form or in digitally encoded format. Information value-in-use may be quantified in terms of the benefit gained by the organisation. The benefit maybe related to revenue or profit made by the organisations.

2.5.4 Information Values from the User Perspective

The nature of the situation in which information is used has a direct impact on the perceived value of that information. For individual or organisations, the perceived value maybe based on the actual use of the information or the intended use (Metcalfe and Powell (1995). So the users have to identify the information they need in order to improve the quality of their decision-making. In financial world some aspects of the value of information are very clear. For example, it would be virtually impossible for a stockbroker to avoid paying for information if he wants to survive in the competitive financial market place. This view that link between use of information and its value can be support by the context of use (Goodhue, 1995). The perception of use of value often is part of the dynamic context, which acts as conscious and subconscious frames of reference in evaluating information (Sheriff et. al, 1999).

2.6 Information Value Chain Function

Information is accepted as a valued product but characterised as an ordinary commodity, it can be produced by similar production processes to other products. From the information management perspective, an information system is an information factory (Orman, 1994). The assumption is that the information trading is the end activity within the information management system.

When information is produced and marketed within the organisation all the activities involved are chained together and this linkage can be interpreted as value chain since each of them will contribute to the overall process. Owen and

Helm (1989) relate this with the information value chain in trading information. They argued that the information chain is a path between the producers and users of information, i.e. a series of links, each performing a specific function with regard to the process of information transfer. The tradable information concept comprises four basic functions. Each of the functions requires resource management including planning, managing, monitoring and evaluating processes. These functions are the production distribution acquisition and usage. The ultimate aim within these functions will be the efficient use of resources such as raw information and manpower to produce information that can be marketed to the customers at the right time and right price.

Stern (1990) discusses the information transfer chain concerning scholarly information. Figure 2.2 shows this transfer is divided into editorial, printing, distribution and access activities. It distinguishes between the various electronic forms of distribution of the local storage via telecommunications either on line or via satellite.

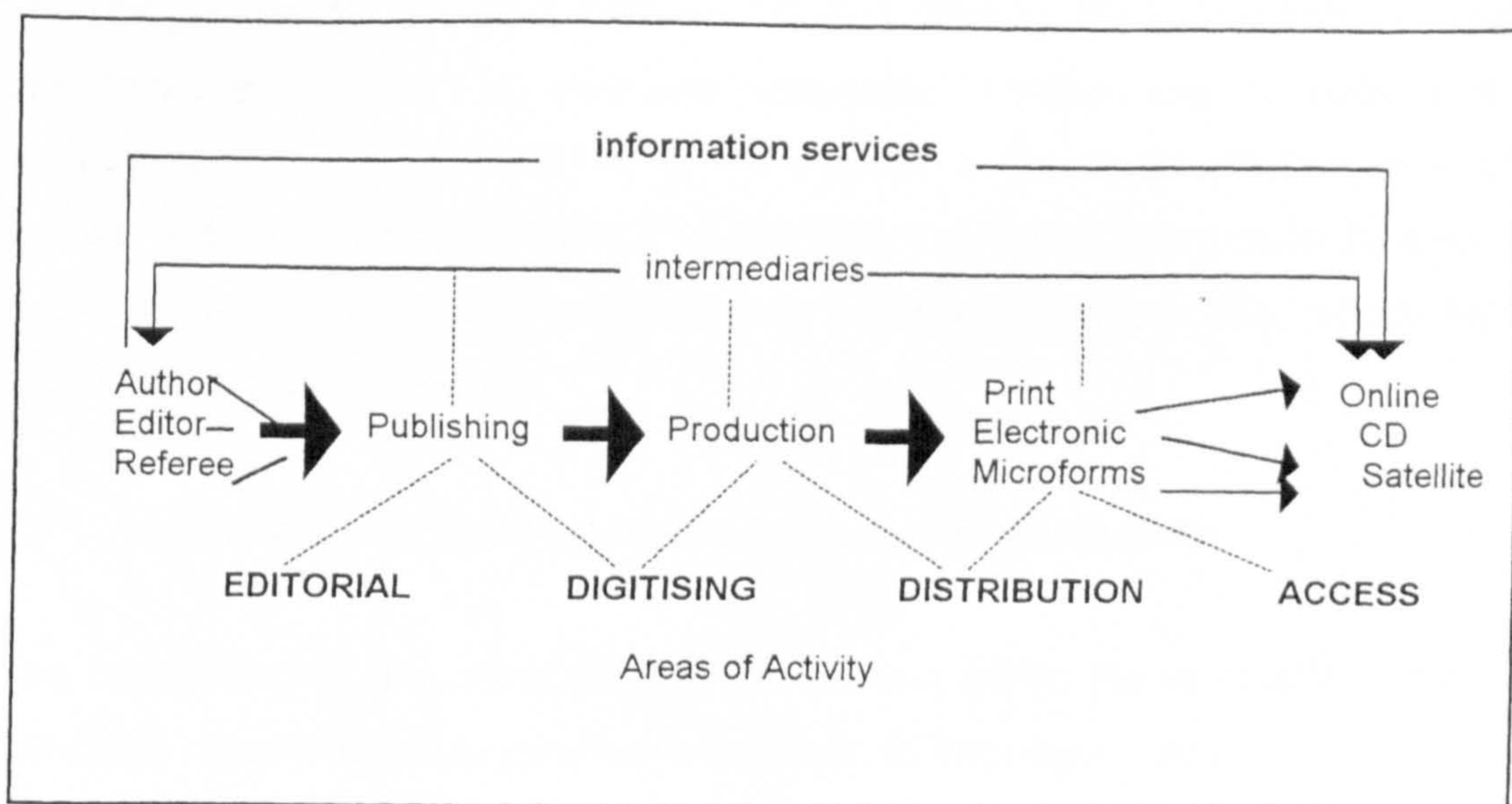


Figure 2.2 ; Information Transfer Chain (Stern, 1990)

The progression along the transfer chain provides added value to the information by virtue of its place as part of an increasingly large collection. The added value at the beginning of the transfer chain is more intellectual and more physical at the later stages. The greater the volume of the information in a collection, there will be more need for some identification and retrieval capability, in the form of an index.

The information products are the outcomes of several processing stages and involve a number of operational management steps. The important aspect in information production is that at any stage, value added processes take place. These activities may be linked to the concept of value chain (Zwass, 1992). An understanding of value-added chain in the system helps in seeking competitive advantage and in increasing the efficiency and effectiveness of resource utilisation.

Value chain analysis will allow the organisation to identify all the main activities involved in the business so that any managerial problems raised may be overcome. In information production primary activities are rearranging, sorting, analysing, indexing, merging, cataloguing, and printing. Marketing activity involves the identification of market, user and competitor. Furthermore, to make sure the organisation is more competitive in the market, a good and efficient after sales service is also important. Finally it can be concluded that information function is a cyclic processes like other production or manufacturing process, which have a start point and an end stage.

2.7 Information in An Information-Intensive Organisation

The recognition of the importance of information within the production chain has led some organisations to give more attention to information as their firm's primary asset. Within the organisation, information is considered as the real carrier of the value (Glazer, 1993). Information used in planning new technology in a firm may come from the marketing department, which has market information, and at the same time production, and other departments of the firm can use information.

The information-trading concept is related to the emergence of the information-intensive organisation. In information intensive firms, the focus is more on the information asset rather than the product asset (Glazer, 1993). In this respect information that is collected in any transactions of the product will be processed and used to generate new products. At the end of process, the information is converted to the saleable products that give an economic value to the firm.

There are different approaches between information-intensive firms and ordinary firms. Information-intensive firms focus on IT as an enabler of growth in the production and distribution of information. These firms also focus on the output of the technology, the information itself, as carrier of value and the variable to be analysed in any discussion of the benefit in performance resulting from IT investments. The information-intensive companies are focusing more on the information value chain, rather than cost-driven approach to the information in information management. The creation of information package has become the basis of competitive advantage for an organisation in which, the information that has been transformed into knowledge may help formulate competitive strategies. When a firm manages to implement an information-based strategies in their whole activities, they can be categorised as an information-intensive firm. Thus its products, services and operations are based on the information collected and processed as part of exchanges with the customer, suppliers and within the firm itself.

In information intensive organisation, information plays an important part in determining the value of the product. In most cases, the role of information starts with the production activities of the company (see Figure 2.3). The product is manufactured based on production or marketing information. The quantity and quality of the product will depend on the strategic plan of the company that was formulated from the information collected.

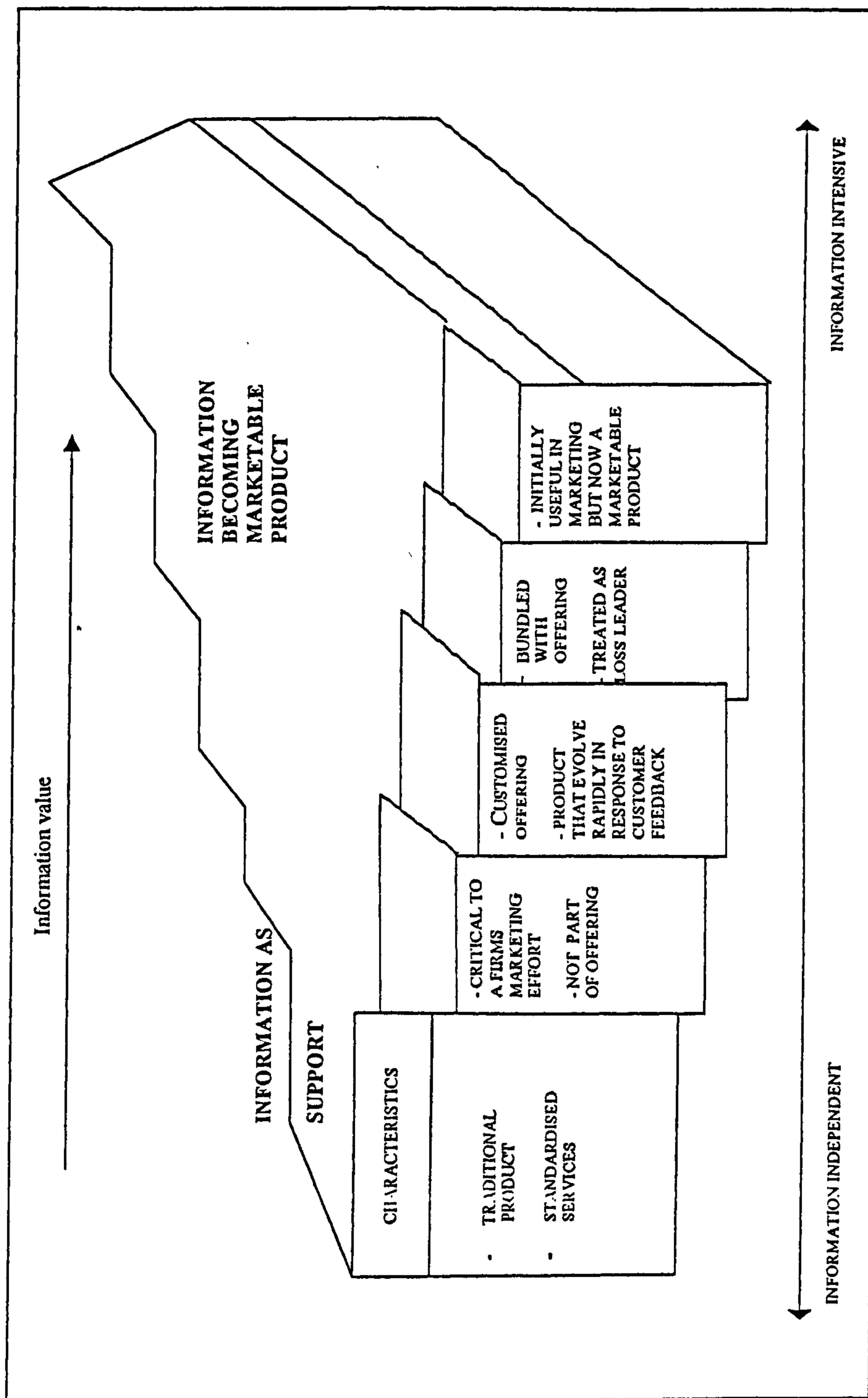


Figure 2.3 : The role of information in an information-intensive organisation (from ; Glazer, 1993)

In early part of the continuum, the products are mainly information-independent where their features are the same regardless of the information exchanged as part of the firm's transaction with its consumers and other economic agents. The information is not a supportive factor in marketing the products. As marketing expands, the information now becomes critical to the firm's marketing effort. The information has become a fundamental in providing a solution to a customer's problem and an established part of the sales process.

When a product is in the market, information related to it is collected and processed to allow for the provision of customised offerings. Information is collected and used in manufacturing different types of models of the same product. The product changes rapidly because of technological advancement. A higher level of the continuum, the information has become an important part of the product where both of them will be sold together. The product is not deemed to have an independent market value on its own and needs to be complemented by the information. At the end of the continuum, the information has become a marketable product itself. The company then keeps the information as their major asset and product offering is based on these assets. The company makes revenue from selling of the information rather than their original products.

Government organisations are information-intensive organisations, since their functions may depend on the information (Saxby, 1997). Government organisations act as data collector as well as information product provider. The Government also uses information for organisational purposes. Recently with e-Government approach, the government information is available electronically and accessible to the public. For example, there is increasing availability of information sources from government and government departments via Internet (Lampard, 1997). There is also an intention to the importance for business government information and consider implication of recent trends towards the electronic delivery of government service (Owen, 1997).

2.8 Information as a Commodity

The consequence of the information value concept and its association in information production activities within the information-intensive organisation is that information can be considered as a commodity. It can be produced and made available in the market for the information users. Recently, trends towards the recognition of the role which information can play within organisation either in social and economic sectors lead to some changes in attitude. It must be admitted that this has come about as a product of the increased use of information technology (Moore, 1990). At the same time, there has been an expanding demand for information by the organisation. Inevitably, Information has been treated as a valuable commodity which can be produced, stored and distributed and can be bought and sold. As a commodity, the information which is of such a value can be commanded a high price in the market (Choong, 1992). Robertson (1996) argued that information is a commodity when one organisation can acquire, create, collect and add value to information. At the same time another organisation is prepared to buy that information for its own purpose.

Within the marketplace, information plays a critical role in all modern economics in facilitating the smooth operation of market. Market cannot operate efficiently and competitively without good and reliable information (Coopers and Lybrand, 1996). Information has been accepted as an important economic resource in the production, hence it has market value and can be traded as other production input.

As a commodity, information should be treated equally as other resources such as land, labour, capital and technological skills because it has impact on an organisation's performance. Information has similar characteristics of material resources but, it has peculiar attributes as compare to other economic commodities. Glazer (1993) argued that the typical economic commodity displays such properties as divisibility, appropriability, scarcity and decreasing return in use. By contrast, information as commodity differs from the typical goods in that;

it is not easily divisible or appropriable. It is not inherently scarce although is often perishable and it may not exhibit decreasing returns. However, information increases in value the more it is used. Information unlike other commodities which are non-renewable, and with few exceptions, depletable is self-generative. Therefore, identification of a new piece of knowledge immediately creates both the demand and conditions for production of subsequent pieces.

Due to the unique feature of information as a commodity, an attempt to value information in the market is a problematic. Its value as a commodity may have two components. Firstly, value-in-use which means the benefits of a commodity to the user, and secondly the exchange value means the market price of the information. Although information may be obvious value-in-use, it may be difficult to establish its exchange value because information is not appropriable or scarce in a typical way. However, scarce information may have value. One of the unique and salient characteristics of information as a commodity is that it is inherently not scarce and its value-in-use often increases with use. The realisation of the need to incorporate these features of information into a valuation process is the basis of information as a commodity.

Furthermore, one of the essential economic characteristics of information is that it is often associated with relatively high collection costs and relatively low dissemination cost (Coopers and Lybrand, 1996). Consumption information by one user does not reduce the availability of the same information to others. Information can often be used for a variety of applications and may have very different values in its alternative uses. Hence, the structure of demand can be complex, as users' needs are similar but distinct. Moreover, the value of information to a user may depend on the skills of that user. The value of different types of information will change over time and, hence there is a need to invest in maintaining current database.

Judging from these statements, and strengthened by the argument that information has been recognised as a valuable saleable commodity (Casey, 1991;

Willard, 1993; Anonymous, 1997), information has been considered as one of important ingredients of the development of organisation and it acts as either as the product of the organisation or the demanded product by them. In many organisations information is no longer considered as a technical resource of an organisation but it is a business resource which influences the performance of the organisation (Larry, 1996).

A wide range of information is used in all the organisations is for the purpose of establishing effective competing edge in the business or in providing an efficient service. The effectiveness of information exploitation is dependant on its quality and accuracy, while the imperfect information may be pervasive in the economy and retard the organisational strategies (Stiglitz, 1991). It is clear that information is actively involved in business development and becomes a valuable commodity however, the accuracy and reliability of information is vital.

The importance of information as an economic and strategic resource is highlighted by its involvement ranging from manufacturing, marketing, to the commercial sector. Orminski (1992) determined a clear relationship between a company's approach to business and its attitude to and exploitation of information. The more developed the business strategy of the companies, the more formalised and systematic is the approach to information gathering and use. Innovation, decision-making, administration and social functioning have all become increasingly information-dependent. In terms of using information for decision making it is still uncertain how information is used to make decisions and to what degree it influences those decisions (Norton, 1992; Fairhead, 1995). The significance of information in the decision making process might be dependent on how an organisation treats the information and completes it.

Now-a-days, information as a commodity, most of the information supply in the information marketplace is from organised or formal suppliers. They may utilise the information value chain concept or become information-intensive firms. These types of information suppliers play a great role in information industry.

2.9 Conclusion

In the information society, information plays a tremendous role in government and business sectors. Information is accepted as a mediator of knowledge creation and exploited as an organisational management tool. The ever-growing demand for information is because it has a value, which is related to the business use. The value of information is very subjective and dependent significantly on context and perception. The chapter also focuses on the concept of information value chain, which can be observed in emerging information-intensive organisations. The essence of this chapter is how can information, which acts as a commodity plays its role in a business sector or information industry ? The importance of information in economic sector has led to the idea of tradable information function in government organisations. Consequently, governments are accepted as information providers and the rising demand of private sector in information market. This is an important issue in this study and will be further discussed in the following chapter.

CHAPTER 3

TRADABLE INFORMATION FUNCTION IN PUBLIC AND PRIVATE ORGANISATIONS

3.1 Introduction

As has been discussed in the previous chapter, information is recognised as an important element of the social and business organisations. The concept of the tradable information function in government organisations is related to the participation of the public sector in the information industry. The evolution of information industry has already become a significant element within the economic sector of developed countries such as United States, Japan and U.K (Moore, 1993). This industry plays a vital role in supplying the commercial, scientific and technical information that is required by the other economic systems and makes it possible to improve the quality of the activities of the sectors (Jian, 1995). In the commercial sector, this industry has developed wide range of business information databases and economic information banks.

Fundamentally, the growth of information in industry exhibits the mutual integration between public and private sectors. The increased demand for information from private sector means a greater role of the public sector in exploitation and dissemination of information in the marketplace.

This chapter discusses a number of aspects related to the development of tradable information in government organisations. It provides the theoretical background and key ideas in understanding the nature of information trading functions within government organisations. The discussion will detail out the

concept of information industry and introduce the basic definition of tradable information function. The role and implementation of the tradable information function in government and private organisations will be highlighted and some of the related issues. The structure of this chapter is presented in Table 3.1.

Table 3.1 Structure of the chapter

-
- Introduction
 - Establishment of Information Industry/ Marketing
 - Factors of the Emergence of Information Industry
 - Role of Public and Private Sectors in Information Industry
 - Government as Information Provider
 - Nature of Government's role in Information Industry
 - Tradable Information Function in Government Organisations
 - The Trend of Information Trading in Government and Public Sector.
 - Problems and Constraints of Information Marketing
 - Conclusion
-

3.2 Establishment of Information Market and Industry

3.2.1 The Emergence of Information Industry

Information industry was foreseen through the emerging demand for new services in relation to information and knowledge creating in organisations link changes the information seekers and the information providers. Jordon (1989) has defined information industry as when the companies which exploit computer and other new technology to generate and/or supply information to third parties. Based on this definition, we can see that information industry is composed of three basic elements that are information as raw product, technology and customer who will use the product. It is likely that in information industry, there is an information management and processing cycle that involves all the interested parties. The important activity in information industry is information marketing. Besides information industry comprises other concepts such as production, pricing, delivery, franchising and competition (Mayer, 1990).

3.2.2 Role of Library in Government Information Marketing

One of the important outcomes of information industry is the role of libraries as information service centres. In some government agencies, libraries are acting like information houses, which possess information assets and disseminate to the public (Martyn et. al, 1991). In discussing the information marketing in Government organisation, many authors have discussed the role of libraries in government information services (Bustion, 1995; Lupovici, 1996). Libraries hold unique sets of materials in which new information products and services might available for the public. With new automation technology for acquisition, collecting and disseminating of information, libraries are responsible for making certain information accessible to the users. In carrying out this task they may offer a valued-added service to the information. In this respect, Geethananda (1993) identified factors that led libraries to attempt to market their information. Budgetary constraint coupled with increased costs involved in the application of technology have required libraries and information centres to turn to information marketing. Since the main objective of marketing in libraries is not for profit; concepts of pure marketing have to be modified to ensure that the service is still a social service.

The government information trading constitutes a wider scope of economic activity. The role of government organisations in the information industry is more about the dissemination of government statistical data and economically valued information to the users. This information is may act as economic catalyst for the growth of business activities and as a promoter of the relevant economic activities. The information selling in government comprises the concept of value added processes matched with consideration of quality, timeliness that will complete the link between information and the marketplace. For this activity information will take the form of factual and numerical data, graphics or other segmented or pre-packaged information. These processes are already exhibited within some government organisations where information is pre-processed and delivered to meet perceived user's needs.

3.2.3 Nature of Information Market/Industry

At the earlier stage of the development, the information providers provided the information in simple type of information product such as the economic data, vehicle information, export statistics, property and housing data. All this data and information are the basic raw material for the company. Subsequently, the information industry consisted of the market-processed information mainly involving value added data, digitised data or electronic information. In the advanced information industry era, there is a change in dissemination processes. The data is available not only in printed form but also on-line' in CD-ROM format and computer diskettes. The availability of Information Communication Technology (ICT) tool facilitates the exploitation of this information to develop a value added service for the benefit of both business sectors in general and the information industry in particular. The future trend of the industry has moved forward bundling of services and products. Information companies or are producing different types of information data ranging from market research, customer profile and stock exchange forecast to digitised image data. These services will integrate with the other user services including user online forums or e-mail.

The key players of this industry are information professionals. The greatest challenge now faced by them is to provide information to the user accurately, systematically and in a timely fashion (Ghosh,1995). Organisations or public are utilising these information services to acquire services, products and information provided by these information suppliers (Young et.al, 1996). Since this service is dealing with market-led environment for a fee, the information professionals have to use skills in marketing, understanding of organisational behaviour and have a specialised knowledge.

Consequent upon there are a number of information companies which have consolidated their services such as Reuters, Knight-Ridder, and Reed. These companies provide an information service together with market and customer

research. Thomas (1996) argued that the presence of these companies ultimately dictated the shape of information industry. For example, Experian is one private company, which is providing a business information database containing consumer information, property information and business information including decision support system services and business support services (Hadi, 1997). This trend may dominant in the future information sector and the companies are likely to diversify their business activities.

3.3 Emergence of Information Industry

The emergence of information industry was related to a number of factors. Field et. al. (1988) argued that this era has emerged out from the vast modernisation of information technology and its application. The advanced technologies in computer and telecommunication have enabled the information companies to develop sophisticated information collecting processing as well as disseminating it to the customers.

Globalisation, improvement in technology and highly utilisation of information have all contributed to the creation of information industry (Johnson and Turner, 2000). Major advances in information technology have been made in hardware, software resulting in the efficient generation, transmission, storage, processing and retrieval of information. As most information has been turned into electronic based product, the telecommunication system in particular holds the key to successful development of the market for these types of information (Moore and Steele 1991; Martyn et. al, 1991). Metcalfe (1994) pointed out that the advances in computing and telecommunications influence access to information and the information industry is the place where information is easily disseminated. The electronic document now enables authors to become their own publishers and distributors. Taking libraries as an example, information marketing in governmental libraries is initiated due to two main factors, the economic reason and effect of technology (Barden 1995).

Besides the technology factor, the growth of information industry is also due to market pull from interested parties that depend on external sources of information. According to a survey conducted concerning information sources in organisation, it was found that only 4 of 515 respondents name their company libraries as a source of information and most of them depend on external sources for their information (Nelson, 1994). This suggests that there is a large demand of information. The information marketing services progress reflects increased demand of information by the public or the commercial sectors.

Within organisations, information systems directly act as information processing centres (Orna, 1995). They must process information in order to be used in organisational planning and decision-making. In this context, Thomas (1996) argued that information systems have been an important facilitator in both the development and use of information. Organisations must collect, process, use and communicate information both externally and internally. The highest demand for information comes from market and sales departments, closely followed by partners, board members and credit managers (Mitchinson, 1994). This information is used for marketing strategies and planning. Glazer (1993) also has pointed out that information is most demanded in marketing section of information-intensive firms.

The demand for information is related to organisational resource management. It is common that most organisations are facing resource constraints. Resource constraints are any forms of limitation on the quantities of given resources that are available for use in production. Information is one of the constrained resources beside skilled labour, capital and time (Monk, 1992). Information is vital to the organisation and sometimes it is difficult to acquire. Organisations may need a large budget to overcome the problem. Under some circumstances, organisations may need external service access to information in order to eliminate cost of information preparation and the wait time for information (Devaragas, 1989). Organisations depend on external information sources as much as their own sources.

3.4 Government Information and Private Sector Information

In order to discuss the role of government and private sector in information industry, it is important to understand the nature of information produced or possessed by them. Du Toit (1995) defines information products as the products, services, systems and systems that carry information. In this aspect both government and private sector information products have value, which can be used in order to perform organisational tasks.

The definition of government information is very wide; it may start from the government documents, government statistical data to government political propaganda. Yaacub and Seman (1995) defined government publications as any publication originating in or issued with the official permission, or at the expense and by any authority of, any office of a legally organised government. Government publications are sometimes referred to as 'official publications' or public documents that are produced in a variety of forms, especially with the advent of the electronic technology; the terminology used would include government information or official information. For instance, financial and business information is collected by a number of ministries and public sector organisations. Company registers, obligatory by law in many states are maintained by the public sector. Patent offices are usually public sector bodies; scientific, technical, cultural and medical information is extensively collected by public research institutions and public services.

On the other hand, private sector or company information is any information or statistical data produced, collected or processed by a company in order to operate or manage the institutions. The data or information is related specifically to the company's roles and business or regarding the product or services provided. The information is likely used in decision-making and for competitive intelligence of the company.

As a matter of fact both types of information become organisational asset. The dissemination of this information is controlled. Only some information which has benefits to the organisations is released while it maybe considered secret. The dissemination of government information may be due to social or political obligations while for the company this will be done for the business advantages.

Allan (1990) argued that government information disclosure is a political propaganda. The information of prime concern is what is supposedly publicly available. Private sector Information usually linked closely to the economic and business arguments. The economic arguments concern in the commercial activities and growth.

Both government and private information has an economic value and if it is disseminated it to the public particularly to the commercial group; the information-based business activities can be generated. This suggests that information is important for the social and economic benefits which will affect the nation's wealth (Choong, 1992). Government information is an important source of information to the policy-makers as well as researchers. It covers wide range of subjects on the policies and activities of a government including social welfare, education, industry and other aspects of information which only the government has the right to obtain. The government information has a central role in information market due to wide dissemination of the information. Information, that has economic value, includes economic, social and environmental statistics, geological and topographic surveys, business registration data and land registration data. At the same time governments also collect and provide information about the business of government itself, on policies and on the institutions.

3.5 Role of Government in Information Industry

3.5.1 Government organisations as an information source

The public sector is the biggest single collector and producer of information content in all the areas of public life, including government, administration, law, business and professional activities, employment, health, social welfare, scientific research, transport, education and culture” (Bonn Ministerial Declaration, July 1997). Principally government business is concerned with or dependent upon information and therefore it is a great collector and provider of information. Governments are also the biggest consumers of the information in the country (Moore et. al, 1991; Hochstrasser, 1992). It also aggregates, manipulates and upgrades the value of information. There is an important role of government information in information society either as a generator, user or provider of information (Coopers and Lybrand, 1996).

In analysing the role of government in information society (Feather, 1994) argues that:

The information collected and held by the state about its citizen and their activities, both social and economic is one of the most potent manifestations of the information society. The state itself has become a generator, user, and provider of information and at the same time has become dependent upon it.

The government has a duty to become an aggregator and analyst of the information collected. It should process the data into an output product according to stated specification, and quality control and value added processes. In this way the government can act as a catalyst for the new information product.

Furthermore, the government may become a publisher of information either for private or government sector. The information products should be available for public consumption. The government should involve in information industry

developments, identifying needs, bringing the users together and foster the partnership between government and private sectors.

Since government information comes from primary sources, it is more reliable and accurate compared to other types of information sources. The government information is normally accounted for the factual and accuracy of its information.

Hopkin (1992) analysed the source of European Community (EC) information and found that the government departments constitute another important source of information on EC affair. He identified several principal sources of information of relevance to the business community, such as the commercial publishers; the intermediary organisations and other financial institutions. Besides that, Her Majesty's Government (HMG) is an extremely important source of information of business information in Europe.

It can be suggested that as governments act as information source, they must have well organised information flows collecting and disseminating it. Information technology has to be harnessed to repackage and reorganise information for quick and easy assimilation by user. Information users are also frequent information sources or producers. Examples include a research organisation using data and information from elsewhere to further research which leads to new knowledge and information.

3.5.2 Government information collection and dissemination.

Government collects all sorts of information and this is done through the transactions with the public due to legislative or administrative factors. Government also collects and provides information for the business of government itself, on polices and on the institutions of government. The information collected may comprise political, economic, social, technological, legal and environmental type of information. According to the report from Ordnance Survey (Coopers and Lybrand, 1996), there are four primary reasons for

information collection by the government agencies:

- It is central to government's role in policy-making and resource allocation.
- It is essential for reasons of 'national interest' to support the activities of other public bodies.
- It is required for regulatory purpose to support the smooth running of a market economy or to impose standards.
- It helps to address 'market failures', hence to provide comprehensive datasheets for commercial users.

It is important that government collects information continuously for the sake of government policy formulation and planning. From the economic perspective, it is obligatory to the government to ensure that the information collected is used as an instrument to regulate the economic variations in the marketplace, which affect the nation's wealth. In government, information collected is often used for a variety of applications and may have very different values in its alternative uses. The rising issue now is that information that government collects must be disseminated to the public in order to enhance the value of information for the social and economic benefits (Moore and Steele, 1991).

The rapid growth of information industry should be taken by the government sector as an opportunity to turn the government information into a valued product to act as a catalyst for the industry. Peritt (1994) claimed that many governments now see their information holding as a commodity to be exploited for generation of revenue and reduction of taxes. The question is how government can play its role and take the advantage from this rolling business.

Although there is opportunity for the government to generate revenue from information dissemination, but the role of government information should be less concerned with economics. Copper and Lybrand, (1996) suggests that collection and provision of information by the government should consider these aspects:

- i. Promotion of Democracy and transparency – The greater the transparency about government, the better the relationship between government and governed. Efficient access to government under spins democracy.**
- ii. Business Efficiency – The efficient availability of government information, regulation, standard and so on are essential to the efficiency of business.**
- iii. The quality of the legal system – the better the access to legislative, quasi-legislative, consultative papers and other government information material, as well as court judgments, the better the quality and greater the transparency of the process of law.**
- iv. Protection of the rights of individuals or support for minority group in the population.**
- v. The growing concern about environmental issues which relate to monitoring and prosecution purposes.**
- vi. The basic need to meet the government functions and**
- vii. Social role in protecting life and limb as well as social equity.**

In relation to these issues, it is likely that Information concerned in the following areas should therefore be provided free of charge:

- Benefits, grants, rights and entitlements**
- Standards and availability of service**
- Reasons for administrative decisions**
- Regulatory requirement; and**
- ┘ Existing government policy and initiatives**

As the largest single producer of information, government sector faces a particular challenge in promoting the growth of information industry. The private sector depends more on the public sector for the information products. The above-mentioned function of the government information affects the information trading. The government is can exploit the commercial value of information and generate some revenue from this activity. This can cover the cost of information management. The government also can provide wide range of information products and give an opportunity for the public sector to promote commercial exploitation of the information. However, the government has to consider the social and public interest in the free dissemination of information. The interest of the taxpayer is beyond the economic benefits. The taxpayer has a vital interest in an improved democratic process, in better government, and in a modern, efficient and transparent administrative legal system. Other issue that should be taken into account is the legislative issues which involve the freedom of information Act, Data Protection Act and Copyright law. The issue needs to be addressed to ensure the public sector participation in the information industry is beneficial.

3.6 Participation of Private Information companies

The growth of information industry has created the demand for information by private organisations particularly the information companies and practitioners. The rapid increase in demand for government information by the private sector has made a distinct development in information management sector that it has become a consumer product. The development of the tradable information concept requires a mutual integration between public sector and private sector (Garnsworthy, 1991; Young, 1992). However if public and private sector offer the same information the competition can be economically fair.

Currently the information industry is dominated by large information providers including database producers. For example Reuters, Dialog, Experian and Market Analysis Information Database (MAID) are major database for corporate structure

and finance. They offer on-line information for marketing departments (O'Leary, 1993; Ojala, 1993). Reuters, for instance, sells its information to the users and makes it available through its own on-line products (Thomas, 1996). The role of database producer is multiple, acting as both a vendor of information directly to the users and supplier to the other marketing companies. There is wide range of information provided by these companies such as business information, company directory, product and services directory, economic and commercial statistics and business opportunities.

The participation of private information companies has a great impact on the information industry. The database producer is responsible for policing and screening information to ensure that the value of information is maintained by checking the quality of data and its source. Information brokers act as information stockholders; they will collect the information from different sources, process, repackage and sell to the users. They act as middlemen who can control the market and the price of the information. Many brokers may use the service provided by database producers or hosts and connect it to the information seekers. The introduction of Internet as the marketing channel has changed the information-marketing environment for information brokers (Nicholas et. al, 1997). They can provide on-line delivery service and carry out electronic transaction with their customers. The benefits of information brokers come from the additional value, they add to the information through their expertise and exploitation of the market.

3.7 Private Information Companies and Source of Information

There is already a future for the process of exploitation of information as tradable commodity by private information companies or brokers. While information brokers or companies exploit the information as their business activities, there is a relationship between these parties with the government organisations. This can be examined from their dependence on the government as information source. In this respect, a case study on one Information Company can illustrate the issues.

The case study was conducted in the Information Company (Hadi, 1998). For the purpose of this research the company is known as Company X.

Company X is one of the world's leading information Services Company, one of the marketing agents for DVLA. The company's business focus includes information services, decision support management, account processing, business support services and target marketing. For information services, the company provides wide range of information such as consumer information, business information, vehicle information and property information. The company uses data from DVLA mainly for the vehicle statistics and census data and ONS for census statistical data and population database. Besides that the company also buys and re sells geo-demographic data provided by Ordnance Survey (OS) which is also a major source for map, survey map, address mail data, electoral roll, and geographical maps. The company does not have its own source of data and does not use survey to collect their data input.

The company acts as information broker, the raw data is processed, cleaned and value added by the company. They make it in a form that has appropriate value and price before marketed to the users. Besides enhancing the quality and value of the information, the company makes it more useable by providing a good delivery mechanism medium such as in CD-ROM or on-line facilities which make it much easier to transfer the information. This facility cannot be provided by the DVLA and this is the main reason why the agency makes use of selling agents service such as Company X. In carrying out these functions, Company X has a contractual agreement with DVLA in relation to the kind of services provided, service charging and the contractual obligations.

The company gets great benefit from government data, for example DLVA data, which is considered as definitive data covering every vehicle in the country. DVLA data source is unique on vehicle information and has value in the market. Another factor is that the Company can get the data on regular basis and there are no other equivalent companies.

A second preliminary case study on the European Information Centre (EIC) in Leicester (Hadi, 1997) showed that the main information seekers from the centre are small traders or manufacturers who use the European trade information to find their business opportunities. This was a trade and commercial statistics or contract documents. The businesses information provided by EIC was contributing to the development of small-scale business and entrepreneurs. This case study supported the observation made by Hopkins (1992) who examined the nature of business demand for European Community information. He found that

the major group of EC information users are practitioners of which a majority are businessmen and small manufacturers.

The case studies suggest that the private information companies have a strong dependence on government information to establish their information business. Government not only provide the information but also determines the extent of the role of private companies in the information business. In discussing the role of private sector and government in the sphere of marketing information as saleable commodity, Delpierre (1993) pointed out that government's role is not only acting as information provider but also mainly in formulation of information policy. While the private sector is actively involved in information marketing, government organisations can make their information available for the development of information business. Consequently, they can promote the information-based economic activity.

3.8 Nature of the Government Roles in Information Industry

The majority of the governments have recognised that they have a duty to ensure that the public has as much as possible access to information collected by the government (Moore (1994). It is possible to provide unlimited access at no cost but by selling the information the government is able to cover some of the costs. Another view suggests that a government has a duty to recover the cost of collecting the information and to reduce the burden of the taxpayers (Birtles, 1991). This argument can be extended to suggest that the government can obtain the best possible return for the taxpayer and s therefore price the information accordingly, aiming to make a net profit on the transactions.

There are several roles that government organisation can play in the information industry. Importantly, a government can participate actively as the information source to the information sector. Government is responsible for collecting and disseminating the information and they need to ensure that more information is accessible to the private sector that supports the information industry

development. Every effort must be made by the government to ensure that the availability of government information to foster the exploitation of information by the private sector (DTI, 1990). The government must give an assurance of access to pertinent, up-to-date information, which is vital for the establishment of information production within the information companies.

A government organisation becomes one of the players in information field. As sole source of information, the political strategies are the main weapon in controlling the markets. Government may enforce laws or regulations to restrict the role of private information companies and increase the dependency of public on government. Young (1993) argued that there is possibility the government has partnership with other suppliers in this information marketing and some of the information trading responsibilities will be carried out by the other parties. The final step in changing the industry lies with government to explore new ventures in information sectors by pioneering new technologies, developing new information products or new distribution channels and new marketing approaches (Orna, 1996). It is important for governments to have a specific strategic plan in implementing information-marketing service.

The emergence of information industry requires the government to act as the regulator in form of policy formulation and enforcement. The government needs some measures to protect the stakeholders in the industry such as private sector, citizen and the users. There is a need for a policy to protect the individuals in term of protection of privacy (Moore (1990). The government are concerned with the policies and legislation aspect related to data protection, issue of privacy and the intellectual property rights. Saxby (1997) pointed the role of government in determining the right regulatory framework to respond to global information market changes that affect the UK government information market. The framework should aim to regulate the legislative requirements for exploitation of government information.

The fundamental issue here is that public sector is still being accepted as a mediator to the information industry. The role of government is vital in formulating and regulating the development of the information business (Delpierre, 1993). As a regulator, all the policies issued will determine the direction and progress of the sector. At the same time it should be realised that private companies will also have an important role in the sector. It suggests that government can play a greater role in promoting information industry.

3.9 Tradable Information in Government Organisations

3.9.1 The concept of Tradable Information

The concept of tradable information emerges when information is related to the economic and social growth in information industry (Wilson, 1987). It further develops when information is recognised as an ordinary economic commodity, which has a value and is considered a saleable (Moore, 1990; Casey, 1991; Orman, 1994). As a business commodity, certain value can be added to it at various stages of processing of this information (DTI, 1990; Garnsworthy, 1990).

Furthermore, tradable information has similar characteristics to ordinary goods, although can be sold and retained at the same time. Information can have different values for different types of customers and can be manipulated by the application of technology for many purposes. The concept was supported by Jose (1995) when he discussed the information as commodity and suggested that it can be treated like other products produced by a company and is capable of being marketed. The process of production of information is similar to the production of other products. There must be an input and output process, and the company has to make sure the information has value and meets the customer requirements. Linkage between the information provider, marketplace and the customer create a tradable information supply chain.

3.9.2 Value Added Process In the Tradable Information

As a commodity, the traded information must have an integrity and quality. One of important aspects in tradable information concept is the value-added process. The majority of the information providers add some value to the information in order to make it more marketable. Value added process is essential in tradable information concept and some of the processes in which value can be added to raw information (Garnsworthy, 1990; DTI, 1990) are :

- **Accessibility** - many users are likely to give ease and speed of access a high priority to information, which was previously inaccessible or only accessible with great difficulty, can be made available using technology.
- **Agglomeration** - the potential to use one set of data with other set of data can increase its value. For example, digitised maps by themselves might have a little value. However, their value increases when they are put to use with other data e.g. information from the census of population.
- **Structure** - by structuring and storing raw information in such a way that value can be added to that information.
- **Re-use** - information collected for one purpose can often be used subsequently for something rather different. For example, data of drivers in vehicle licensing centre. In the first instance, the information has been collected concerning the licensing of drivers and vehicles. Following this it might be used by those working in the market research by the designers of a new range of car model or by manufacturers distributing spare parts to the dealers.

As value added process enhances the quality of information, it needs a priority in information marketing. Skyrme (1994) delineated ten ways of adding value to generic information are shown in the Table 3.2.

The process of value added in tradable information is considered as an essential stage in the business so much so that successful information companies are dependent on the amount of value that has been added to their information products. In this context Orna, (1992) argued that now a days, this information business is being handled by information professionals. It is this responsibility to determine the amount of value added to the information product to meet their market and customer needs.

Characteristics	Interpretation Meaning
Timeliness	Currency, information is perishable, different information has different half lives (sold by date) some degrades rapidly
Accessibility	Easy to find and retrieve: no longwinded searches, good 'hits'
Usability	Ease of use: user can manipulate to suit application
Utility	Is suited and usable for multiple application
Quality	Accurate, reliable, credible, validated
Customised	Filtered, targeted, appropriate style and format needs minimum processing for specified application
Medium	Appropriate for portability and ongoing use
Repackaging	Reformatted to match onward use
Flexibility	Easy to process: can be used in different ways
Reusability	Can be reused: ideally extra use should refine its Quality; the more people that can access and use, the better

Table 3.2: Ways of Adding Value to Information
Adapted: (Skyrme, 1994)

3.9.3 Pricing in Tradable Information

Another element that characterised information as a commodity is the price. The price of the information is dependent on its value, quality and market availability. It is also influenced by market forces, for example, supply and demand in the market place (Coopers and Lybrand, 1996). Besides that price of information is dependent on its value in use which involves added value in use and benefit to the users (Glazer, 1993). The production cost such as collecting cost and maintaining

cost that are involved in production of information also influence the price of the marketed information. At the same time the companies consider their marginal profit which generally is their organisational objective. In government organisations, the pricing of information is subject to legislation and the policy (Young, 1992). Dissemination of information is generally done at cost. There is no charge for the provision of information that is necessary for the public to have as a part of the fair and accountable performance of the government function (Cooper and Lybrand, 1996).

3.10 Implementation of Tradable Information in Government Organisations

There are three aspects involved in implementing this concept by government organisations: the information as a commodity, government as a provider and the market (DTI, 1990; Coopers and Lybrand, 1996).

The nature of government's information has been discussed in Section 3.3.2 and usually the types of information collected and disseminated include:

- economic, social and environmental statistics
- geological and topographic surveys
- business registration data and accounting information
- land registration data
- trade and commercial information

These types of information are normally useful to the government organisations as well as required by the public either for social or economic purposes. The information is collected and kept by the government departments and kept within the departments. It also undergoes some value adding processes to enhance its quality and value. There are several ways in which government information can be converted into traded commodity. For instance, the UK Government has outlined three types of information trading activities (DTI, 1990). The activities are:

- i. Information processed and handled by one government department for one purpose and resold to the private sector for re-use in the same context;
- ii. Information collected by the government for one purpose but resold to the private sector for different purposes;
- iii. Information collected by the government and processed by a private sector company prior to re-use within government, This bureau-processing role is not seen as value-added trading in this context.

In the first two types of activities, the private sector organisations act as an information marketing concerns that can add value to information and sell it on to the end-users. While the type of relationship with bureau service envisaged in (iii) is not regarded by government as value added trading and lies outside this activity because the role of private sector is only to process the information. Tradable Information must have a market which involves some autonomy on part of information traders.

The third element in government tradable information concept is market. What is the market for this government information? There is a developing market place for government information. This market can be broadly divided into three main groups (Coopers and Lybrand, 1996):

- Government department and agencies;
- Agents, hosts, and resellers who distribute and package data commercially and provide products and value added services.
- End users including businesses as pressure groups, local government and individuals who use it for a wide range of commercial, statutory and non-commercial reasons?

The above account suggests that to implement the concept of tradable information, there is an element of private sector participation either as information processing agent or information marketer (DTI, 1990). As stated in DTI guidelines, the work of the tradable information function within a government department should focus on the developing of relationship with the private companies i.e. marketing agents. The government should encourage private sector participation to exploit the information business. In this case government organisation should act as information provider and should not compete with existing private sector services. In the UK, some government departments have appointed several marketing agents (MAs) as part of private participation of the information trading (Hadi, 1998).

3.11 The Trend of Information Trading in Government and Public Sector.

It seems that information industry will dominate the future economic activities. There is a relationship between private sector information requirement and the role of public sector information exploitation and dissemination. Information marketing services in government organisations will expand as the information business grows (Murphy, 1995). There is a tendency for government organisations to use the massive information resource that they have as product which might be made available, at a price agreeable or reasonable to the business sector (Nicholas and Fenton, 1997). For instance, UK government departments are being encouraged to sell information to the public. This was supported by a special guideline dealing in this business with the private sector (DTI, 1990). Although the government departments may sell the information with some charges, during limited budgets, the public sector might increasingly find difficult to provide the service for which they have a statutory responsibility and may therefore abandon non-statutory services such as information trading (Victor, 1995).

One of the good examples of a fee-based information service is Information In Business (Towlson, 1994). This service is a joint venture between De Montfort

University and Leicester Country Council, represented by the Leicestershire Libraries and Information services. The aim of Information In Business is defined as providing commercial, industrial and technical information to firms, organisations and individuals in Leicester and the region. This aim is achieved through provision and access of information as well as promotion of information. Another example is Business Trade Information (BTI) established at the University of Limerick to act as a corporate information service tailored to meet the specific information needs of Irish industry (Flynn, 1994). This information service integrates human expertise, printed information and the advanced online databases to enable corporations, small and medium-sized enterprises (SMEs) and professionals to get fast, accurate answers for their business.

There is evidence of increasing market orientation in the public sector as indicated by initiatives of public agencies. Some of the initiatives that should be provided by the government are in terms of reviewing the policy on finance, departmental co-ordination, enhancing the awareness on the information value and facilitating the market flow (Young, 1992). Information marketing has been implemented by some organisations such as Central Statistics Office, which has been selling National statistics information service for a number of years. Some local authorities have provided information services to help stimulate and support local businesses (Hepworth et. al; 1990, Steele, 1990). This has been supported by observation from the mini research conducted by the writer who shows that information marketing has become one of the local council's services to the public (Hadi, 1997). The information service provides a range of marketing databases, product directories and information about business sector.

One of the good examples of information marketing in U.K is the marketing of geo-spatial information by Ordnance Survey (OS). Map produced by OS may range from the simple town map to the national land maps. Before selling maps the OS may value add it by combining some other different data to the map and by doing this it improves the quality of the product. The digitised computer map service has been exploited by other private information companies and this

marketing of high quality map by OS is a good, how the government organisation can commercialise their information.

Information marketing has been implemented in government organisations in some other countries. For example in New Zealand, the National Statistics Office is providing and distributing statistical information for the commercial companies (Cook et.al, 1996). By doing this service, the government manages to fulfil some of the information requirements from the commercial sector. In Sweden, National Land Survey has become one of the main information providers and develops business activities separate from official duties (Olofsson, 1996).

In government organisation, the type of information supplied is dependent on the ministry concerned. In their study, 'or provision of information to industry in Saudi Arabia and the UK', Arif et.al (1994) found that the prime source of industrial information is the ministry concerned with industry in the government organisation. Besides that, it was shown that information consultants have used government organisation as their information source. The study showed that Saudi firms made more use of information from government but British firms preferred non-government sources. They concluded that there was a trend towards the private companies using government organisation as their information source provider that they received good services. It is found that more than half of European information supply originates from the public sector compared to one third of supply in United States (Casey. 1991).

3.12 Problems and Constraints of Information Marketing

The involvement of government organisations in information marketing raises a number of issues. There is a limited literature discussing the concept of marketing of information in government organisations although the problems may be similar to those in the private sector. The issues and problems faced by government organisations are mainly on management aspects. The management aspects include problems with administrative systems, human resource management,

financial management and legislative limitations. Treasury restriction on budget and cost, information pricing procedures and legislative issues are among the main constraints that need to overcome by the government (Young, 1992).

Adimorah (1978) argued that the development of an information service in the third world is currently hampered by a number of constraints. These include poor and inadequate postal and telecommunication systems, shortage of finances (bureaucratic difficulties), lack of trained staff and the lack of proper product management.

As been discussed in section 3.2.2, libraries play an important role in information trading. Taking the role of UK libraries as information marketing centres within the government as a reference, Hyde (1988) in examining the availability of business information from public organisations, found that there is an imbalance in the provision of business information from public sector libraries. There is a conflict between the need to provide community resources and at the same time the increasing burden of achieving revenue targets. Libraries depend very much on the local authority for the provision of a business information service.

Sharp (1988) claimed that there is generally low level of awareness on the quality of services available for the businesses from the public sector libraries. The public often has a negative view of the library services primarily when inquiries are likely to be a technical nature. There is also an awareness problem where governments are neglecting the information function together with inadequate indexing, poor administration on libraries and information overload (Bakewell, 1993). These managerial issues have markedly influenced the dependency of public on the government information centre for their information. The role of libraries as information centre can be sustained if they are prepared for the technology and information changes and to adapt the changes in information chain (Bustion, 1995). The policy makers can provide appropriate guidelines, which will develop the awareness of importance of information business and changing the management style. Adopting the commercial companies management system

could raise the efficiency of information centre. Although all the issues highlighted are concerning the libraries, it can be taken a consideration in discussing the issue pertaining to information trading in government organisations.

Generally, lack of technical facilities and expertise are main problems for the development of information industry in most developing countries such as Malaysia (Tengku Azman, 1994). The lack of facilities is related to the financial constraints that are normally faced by these governments. At the same time problems of co-ordination within the government or the public sector and reluctance to create new agencies for the service inhibit information industry development. Government policy, manpower constraints and budgetary problems are still the main issues affecting information-marketing services. The author's case study on the information marketing within U.K government department shows that these constraints are still predominant issues in the industry and have slowed the progress of the business (Hadi, 1997).

A variety of problems and issues including intellectual property of information, the issue of personal, corporate, data access, data value, and privacy are faced by the information providers (Reidenberg, 1988; Guynes et. al 1990). These legislative issues limit the scope of the information business but can be overcome by the use of clear policies. The government can ensure that any legislative measures must provide room for the growth of the information business.

In this study on the electronic information industry in Low developed Economics (LDEs) in European Countries, Casey (1991) outlined several issues, which prevent or hinder the progress towards information marketing. These include National information policy, information awareness, and role of public sector, private sector players, information personnel, education and training. In the majority of the countries, there is no clear national information policy, which can guide the development of the industry. It was observed that a common characteristic of all LDEs is a general lack of awareness of the value of information as an input to decision making. There is a low awareness of the

existence of information resources and limited knowledge among the potential user community.

Information trading is resource intensive. Organisations have to put more resources in terms of budget and manpower in carrying out collection of information as well processing. Since information is a specialised product, the market is limited to certain group of buyers, then the information providers have to make the greatest effort to ensure all the activities involved are cost effective. Guynes et. al (1990) suggested that cost and market factors would be the inhibitors in information service provision together with lack of awareness among the corporation. To overcome these issues, it is important that the information sector is concerned not only with the collection of information and repackaging and marketing aspects but who considers the effectiveness of marketing channel by introducing advanced technology facilities. These will reduce the operating cost and widen the market.

Another aspect that becomes an issue in information marketing is the service charge or the information price. Since the information price is determined by the organisational policy such as financial policy or political issue (it will definitely influence the willingness of the organisations to involve themselves in the market). The price and service charge also affect the market and demand of the information. Nevertheless in most of the corporate and commercial information centre, the main aim is to recover cost and make profit. This is a dilemma in government organisations, with the high management cost in information management. Is the government ready to subsidise the price of the information marketed just for the sake of the industries ?

As a new business sector, the information industry has only limited experience of devising the specification that it needs to manage customer's expectation and to control the level of defects in its product (Swindells. 1995). There maybe problems concerning the quality and reliability of the information marketed product which occurred due to lack of quality control. In the case study conducted

on the government information marketing service, it was found that the customers are dissatisfied with the quality of the information and the efficiency of delivery (Hadi, 1997). These phenomena show that the development of information marketing in any organisation also require the quality assurance of the product and the services.

3.13 Conclusion

Commercialisation of information has been related to two main factors: technological changes in the organisations and an increase of information demand from the users. The progress of information industry has shown the wide participation of private information companies in utilising the information as their business activity. At the same time, it is likely that the information industry will continue to require strong support from the public sector. As government organisations have unique information resource and they regularly collect information from the primary sources, the private sectors in particular the information companies may depend on the government department as their source of information. The role of government in this information marketing is likely at the right time since there is high demand of information by the private sectors. Within the government organisation, the tradable information emerges as a result of value add process in which information is treated as a commodity.

There are good prospects for the government organisations in information industry since government is a distinctive source of information and manages to provide highly valued and comprehensive information. At the same time, it is noticed that there are several factors that inhibit the information marketing activities in government agencies. Generally, these are related to the information management style, organisational structure and cultural aspect. The challenge to government organisations is how they can overcome these issues and strive for efficient information management so that marketing the information becomes an important government service. This aspect will be become the research issue in the following discussion of the study.

CHAPTER 4**INFORMATION TRADING IN MALAYSIA AND THE UK GOVERNMENT ORGANISATIONS****4.1 Introduction**

This study is concerned with the implementation of tradable information function in the Malaysia and the UK government organisations and the Information Technology (IT) and information management required for such a function. The aim of this chapter is to give the background and overview of the current information management and information trading practices in both the governments. The present issues and government policy in relation with the growth of information trading functions are discussed. Since this study focuses more on the Malaysian organisations, the main part of this chapter is concerning of this country. As a comparison, the UK Government experience in information business is discussed. This becomes the basis to understand the status and the prospect of practising information-trading activities. In Malaysia there is a positive impact of government information technology programmes on the civil service information management system (Sarji, 1995). While in UK Government, organisations have played a significant role in exploiting the government information industry. This was evidenced from the widespread information trading business in UK Government departments (Copper and Lybrand, 1996).

This chapter consists of two main sections. The first section discusses the existing information management functions in Malaysian government organisations. It includes the nature of Malaysian IT programmes and information management practices. Aspects of implementation of government information trading are also

discussed. The second section discusses the status of information trading implementation in the UK government. This includes the development of UK Government information trading. The structure of this chapter is summarised in Table 4.1. The discussion of these relevant aspects may give some idea of the context of management and cultural issue, which are the main focus of this research.

Table 4.1 Structure of the chapter

-
- Introduction
 - Background of Malaysia
 - Information Technology and Information Management In Malaysia – Trend and Issues
 - Tradable Information in Malaysia Government Organisation
 - Information Trading in the UK Government :
 - Factors Affecting the Information Industry
 - Trends and Future of the Government Information Trading
 - Issues and Constraints
 - Conclusion
-

4.2 Background of Malaysia

Malaysia is situated in Southeast Asia, in the square bordered by longitudes 100° and 120° east and latitudes from by the equator and 7° north. The landmass of Malaysia comprises Peninsular Malaysia, at the southern tip of the Asia mainland and east Malaysia, on the island of Borneo.

Peninsular Malaysia covers an area of 13,598 square kilometres (50,810 square miles) and extends 740 kilometres (400 miles) from the border with Thailand in the north to the causeway leading to the island of Singapore in the south. East Malaysia, which is 644 kilometres (440 miles) to the east across the South China Sea, covers an area of 198,160 square kilometres (76,510 square miles). About four-fifth of Malaysia (including Sabah and Sarawak) is covered by tropical rain forests. The entire country has a tropical climate, which is warm and sunny throughout the year.

The total population of Malaysia in 1999 was approximately 22.1 million. 16.3 million of whom live in Peninsula Malaysia (Malaysia, 1999). The estimated growth rate is 2.3 percent per annum. The population is multiracial, the largest ethnic group is the bumiputeras; other major groups are Chinese and Indians. Bahasa Malaysia, which is romanised Malay is the official language. It is the language of administration for the federal and states government. Correspondence of the government is in Malay, although certain government departments will accept correspondence in English.

4.2.1 Malaysian Government Structure

The Federation of Malaysia comprises 13 States and the federal territories of Kuala Lumpur and Labuan. The head of country is *Yang diPertuan Agong* (Paramount Ruler and King) and as constitutional monarch. Of these states, nine are headed by Sultans who serve as constitutional Heads of States. The remaining four states are headed by Yang diPertua Negeri (Governors) who are appointed for fixed terms of office to serve as constitutional Heads of States.

Malaysia is a parliamentary democracy under a constitutional monarchy. The Federal Parliament consists of the House of Representatives and the Senate. The Prime Minister is elected among the members of The House of representatives who command the confidence of the majority of the members. The Prime Minister may select cabinet ministers from among the members of the house of representatives from the ruling party. Malaysia practises a ministerial administrative in which one ministry is formed for a particular portfolio. The elected minister heads it as a policy maker while it is administratively led by the Government Officers. The administrative head of ministry is Chief Secretary of Ministry. Normally there are several departments or statutory bodies under a ministry, which are headed by Chief Director or Chief Administrator.

At the State level, each State has its own written constitution and an elected legislative assembly. A Chief Minister who is appointed from among the members of the legislative assembly leads each State Government. The division of power between the various states governments on the one hand and the Federal Government on the other is defined in the Federal Constitution. In terms of legislative matter, Federal government is responsible for education, defence, trade, culture and social services. While State Government is responsible for religion matters, land and Municipal Council. Federal law prevails if a conflict exists between federal and state Law. At the State level, the members of State cabinet will head the different types of portfolios, e.g. Agriculture, Industry or human resource portfolio.

The administration of Government of Malaysia is mainly divided into 2 bodies, Federal Ministries and State Government as shown in **Figure 4.1**. At state level, District offices and local councils are responsible for the state governments. State Offices may implement all the states projects as well as Federal projects. While local councils manage their own finance projects or States and Federal projects.

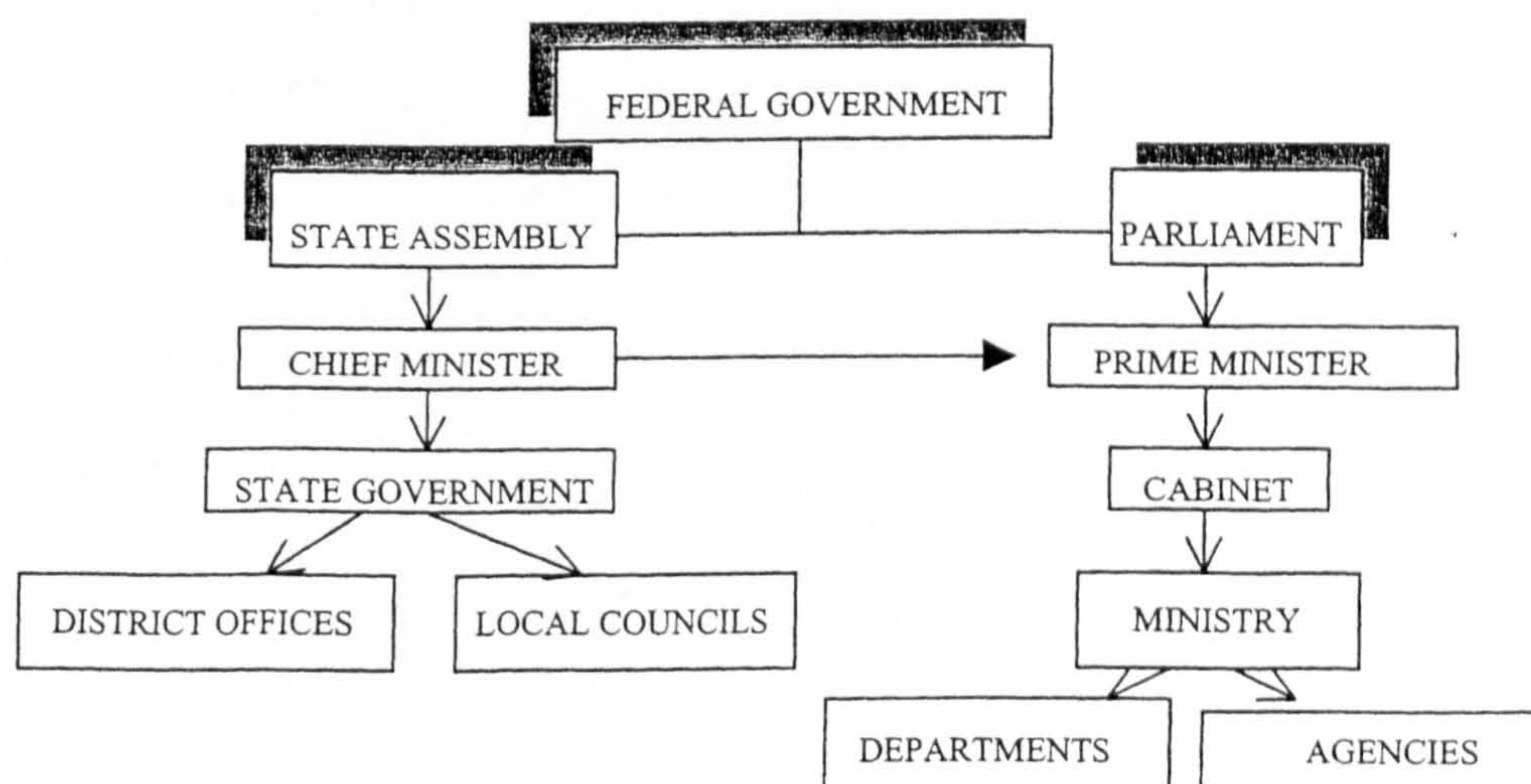


Figure 4.1: The Malaysian Government Administrative Structure

4.2.2 The Economy of Malaysia

Malaysia has a mixed economy with active participation in business by both the private and public sectors. Malaysia's vigorous economic growth since 1980 has allowed her to emerge as another 'newly industrialising country'. The country is less dependant on agricultural product but has shifted to the non-raw material based manufacturing sector, which is the most promising sector. In the service industries, tourism is the main sector that gives highest contribution to the national income while other sectors such as transportation and communication have undergone rapid growth with the privatisation policy launched by the Government. The Annual economic growth rate, at a constant price for the year of 1995 -2001 are shown in **Table 4.2** .

Year	Rate (%)
1995	8.0
1996	8.6
1997	7.7
1998	-6.7
1999	5.2
2000	4.7
2001	3.5

Table 4.2 : Malaysian Annual Growth Rate
(Source: National Bank (2002))

It is forecasted that the economic growth of the country will be around nine percent per annum. Manufacturing is the major contribution to Gross Domestic Product (GDP) and this sector continues to be the main income source of the country. As an example the estimated figure for the main components of GDP in 2001 is given below:

Components	%
Manufacturing	34.7
Agriculture, forestry and fishing	12.8
Government services	9.9
Trading, hotels, and restaurants	12.8
Financial and business services	13.6
Mining and quarrying (including petroleum)	7.0
Transport, communication, utilities other services	8.2
Construction	3.5

Table 4.3 : Malaysia Gross Domestic Product in 2001
(Source : Malaysia, Economic Report 2000/2001)

In the new national economic strategies, the role of public sector will diminish in the years ahead and there will be a substantial involvement of private sector to enhance the economic growth (Arthur Andersen, 1993). In this strategy, the government will continue to provide the economy and the capital market with one of its most important driving force in the form of privatisation. The industrial sector is still the main economic activity while the services sector is growing as second important activity in the coming years.

4.3 Malaysian Government Vision on Information Age

In an information age, government departments are faced with managing rapidly evolving technologies and applications which have a major impact on the day to day operations and the people within the organisations (Berry, 1994). This phenomenon is a pressure in most developing countries such as Malaysia. Add to this, in Malaysia, the present world pressures on competitiveness, high rate of growth and volatile changes of policy have influenced the government to develop different policies and approaches to the utilisation of Information technology as well as managing changes.

In order to face the future challenges, Malaysia has the vision to aim for a Malaysia that is will be developed country by the year 2020. Prime Minister of Malaysia, Dr Mahathir Mohamad called this in his paper " Malaysian: the Way Forward", He argued :

In that Vision 2020 he sees that 'by the year 2020, Malaysia can be a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically just an equitable, progressive and prosperous, and in full possession of an economy that is competitive, dynamic, robust and resilient.'

(Dr. Mahathir, 1991)

In terms of information technology, the vision presented nine central strategic challenges to respond , including, the challenge of establishing a scientific and progressive society, a society that is forward looking, one that is not only a consumer of technology but also a contributor (generator) to the scientific and technological civilisation of the future. Any discussion on strategies for development in Malaysia has to revolve around the core concept of Vision 2020: utilisation of information technology and telecommunication for national development being no exception.

One of the main challenges in the policy is that Malaysia has the vision of becoming "information-rich society' by the year 2020.

'In the information, age that we are living in the Malaysian society must be information rich. It can be no accident that there is today no wealthy, developed country that is information-poor and no information-rich country that is poor and underdeveloped''

(Dr. Mahathir, 1991)

In fulfilling this vision, the government has started programmes of developing an Information technology infrastructure encompassing databases and telecommunications needed to provide availability and accessibility of information. It is accepted in achieving the vision the country will have to enter an accelerated industrialisation drive because development of economies will be moving out of industrialisation into a post-industrial stage.

The Malaysian vision 2020 on the national development has emphasised the role of information technology and information management functions. One of the main issues in government IT programmes (in public service) is how these programmes can create a good and systematic data processing and management.

4.4 Information Technology (IT) and Information Management In Malaysia Government.

4.4.1 IT in Government Organisations

Lu & Ong (1994) argued that in information age developing countries like Malaysia are faced with the critical needs to improve its capability to process information. Malaysia has also undergone vast development in information technology. There has been rapid growth in information technology in the country but at the same time a number of difficulties have arisen such as the lack of expertise, IT knowledge and positive attitude toward technology (Tengku Mohd Azman, 1991).

In government sector, the computerisation programmes started in early 60's. The installation of first computer in the National Electricity Board in 1966 marked the beginning of the computer age in the public sector. In that year, also the Inland Revenue Department installed its first computer for the issuance of tax return forms accounting, tax collection and compilation of tax statistics. The following year, the Department of Statistics acquired data processing facilities for the analysis of data.

In the early 1970's, there was increase in the number of computers in the public sector. The mid-70s marked the emergence of management information systems in the areas of personnel administration, agriculture, land administration and finance.

In implementing the IT programmes the government faced problems concerning the proliferation of computers in the public sector, their lack of proper utilisation

and the substantial investment involved in their acquisition. In 1973 a National Automatic Data Processing Council and the Inter-agency Sub-committee on automatic data processing were set up to co-ordinate the development of automatic data processing information system.

The above bodies were replaced in 1976 by Automatic Data Processing Committee (APDC) with its Secretariat in the Implementation Co-ordination Unit (ICU) of Prime Minister Department. The Chairmanship and the Secretariat of the Committee was transferred to Malaysian Administrative and manpower Planning Unit (MAMPU) in 1978. The objective of this committee was to control the acquisition of computers and ensure their effective utilisation in the context of encouraging the adoption of computer technology in support of national goals.

The computer surveys in the public sector undertaken 1998 showed that the mainframe computer acquisition has increased from 266 in 1986 to 486 in 1998. The number of microcomputers has also proliferated rapidly over the years to about 12,600 unit in 1998 (MAMPU, 1998). Within last 10 years, the government has spent about \$300 million annually in computer acquisition. As an example in 1995, the total cost of IT projects in public sectors was amounted about \$597 million, an increase of nearly 100 percent compared with \$299 million approved in 1994 (Sarji, 1995). In 1997, the government spent about \$556.22 million for IT projects but due to economic problem the allocations was dropped to only \$404.74 million and \$402.38 million for the year 1998 and 1999 respectively (MAMPU, 2001).

Networking and distributed processing started around the mid 1980's by the Inland Revenue Department and Employee Provident Fund. The network at the Inland Revenue Department enabled state assessment offices to access the databases at the headquarters. The network at the Employee provident Fund provided facilities for such similar access to its State Offices as well as connections between the main computer to the computers in the Sabah and Sarawak State offices.

Beyond the 1990's more emphasis was given to the development of integrated databases in which data will be treated as a corporate resource to be used in different applications and by various levels of management. The provision of the 'state of art' telecommunication services which are more reliable and cost effective will promote a climate for more extensive networking and distribution of databases. The availability of such services would also serve as an impetus for various government agencies to move towards an era of resource sharing (i.e. sharing information, computer systems and computer networks).

The IT programmes will allow public sector to continue the effort to make Malaysia an information-rich nation as outlined in Vision 2020. Public domain information has been disseminated through the Government Service Link. This service allows the public to access government departments through on-line service. Further upgrading of IT standards in public sector will be made through the Internet.

In 1994, there was an introduction of electronic data interchange in government administration which has succeeded in automating data management (MAMPU, 1996). As an example, there is Public Service Network already implemented in Public Service Department which allows public to enquire through self computerised answering machines (Hilmey, 1994). There is also an on-line service in Road Transport Department in renewing the driving licence and road tax (MAMPU, 1996).

One of the most strategic programmes proposed by government is the Multi-Media Super Corridor (MSC), (Sundari, 1996). The MSC is a developed site with most of the IT business units and R&D facilities from foreign and local companies are located. Its strategic value lies in its anticipated value in jump-starting Malaysia's entry in information services as a target of vision 2020 (Yap, 1997). This project is considered as having maximum potential to assist Malaysia to develop its own indigenous and endogenous information industries. Danabalan (2002) argued that the rationale for the MSC project is diminishing. The

comparative advantage in the traditional economic sectors, harness the new opportunities in ICT technology convergence and raise productivity, build technology competence and create high value-added economic activities.

Malaysia's exploration of how best to build its knowledge society also extends to the Global Knowledge process. The Government of Malaysia represented by National Information Technology Council (NITC) became a member of the Global Knowledge Partnership (GKP) in 1998. This to create and promote the knowledge management for nation's development (NITC 2000).

4.4.2 Sources of Information

In Malaysia many bodies are involved in producing, processing and utilising the information (Rais, 2001). These include the departments in charge of administrative operation, libraries and documentation centres, statistical offices and planning and research agencies. While information availability has increased, the ability of organisations to absorb and use it still lags behind. The collection of information resources for Malaysia needs to be planned on the basis of systematically identified national information needs. A more practical and meaningful approach to information source collection is to delineate the priority sectors with information needs and assess the information needs of users engaged in research, development, and decision-making functions in government organisations.

In Malaysia, a diversity of information is being produced by various government and commercial organisations. Some of this relates to population trends, income levels, consumer price index, employment statistics, GNP and, supply of money. The information is not systematically collected, organised or documented.

Most of the government departments collect data and information related to their roles and responsibilities. Examples of government departments and the type of

information collected and distributed are shown in Table 4.4. There are basic sources of data in government organisation in Malaysia. These can be classified as National data sources and departmental data sources. The central agencies or departments obtain data from the censuses or surveys.

Statistics Department of Malaysia is the main national body for government information collection. The main function of the department is to gather, process, analyse and supply the statistical data. The data is collected mainly from census, survey and from other departments. Most of the data collected are social, economic, business information, trade statistics and other data. The data is disseminated to central government agencies such as Economic Planning Unit, Federal Treasury or Trade and Commerce Department and used for planning purpose. The department is responsible for conducting some main survey or census such as national census, national household income survey and national health index survey. For example the National census is conducted under National Census Act every 10 year. The important data from the census are race proportion, household income, educational status, family size and types of accommodation.

As main statistics and information collection body, Statistics Department has a power to get all the data from any departments. Data collected from the departments is disseminated in the form of report for respective field or classification of data. In order to add more value to the information, the Statistics Department may carry out data mining on the basic data, combining the data with other types of data, restructuring the data format or produce trend analysis of the data.

The National Consumer Survey is conducted by the Federal Agricultural Marketing Authority (FAMA), Ministry of Agriculture. The objective of the survey is to identify the consumption patterns of people with respect to food commodities.

Government Department	Role	Information Collected	Information distributed	Users
Statistics Department	Collects all Statistical Data for government	All types of data, social, economic and commercials data	All type of data Trade data, financial statistics and others	Government agencies, publics, companies
Register of Companies	Registration of companies	Companies information	Companies information	Public
Election Commission	Conducting election and Prepare electoral	Basic personal information	Personal statistic with address and election Locality	Political parties and Commercial companies
Surveying Department	Surveying works and preparation of map	Geo-spatial information	Maps	Publics and developers
District and Land Office	District administration includes land matters	District and village socio-economic data and district land data	Land information	Public
Ministry of international Trade	Manage the international trade and investment	Trade information, commercial and investment information,	Trade information Government trade policies and investment Opportunities	Local and foreign investors

Table 4.4 : Some of Malaysian Government Departments and Information distribution
(Source: Preliminary study by Hadi,A.Z (1998))

Data is related to the rate of family monthly expenditure, the type of preferred food items and consumer the index. National manpower survey is conducted by the Ministry of Labour and manpower to assess the availability of the national labour force at the specific time. The survey is carried out from time to time when there is a problem of labour force in the market. The data from the survey consists of the number of unemployed people, the availability of expertise or skilled worker, the types of work required by the people and the educational status of the available manpower.

The second source of data and information is mainly located in the departments of government organisation. In carrying out their duties, they may deal with primary data obtained from the public. Some of the departments or government agencies that act as data sources are: Road and Transport Department whose data relates to the vehicles' owner such as the type of car, colour, car manufacturer, engine capacity and year of registration and Registrar of Companies, which is responsible for registration of new companies. Export and import-trading data is collected by Customs and Excise department and Land Offices collect the data concerning land ownership, land classification and the land acreage.

4.4.3 Information Flow in Government Organisations

In Malaysian government organisations, each department may collect their own information or obtain it from other organisations for their own purposes and use. For planning and monitoring purposes at the national level, most information is delivered by departments or agencies at the State or District level through the ministries concerned. While implementing government policies or projects, the directive information comes from the Central Agencies to the implementing agencies at the State level.

In each ministry or department, the data may be collected at various levels depending on the nature of the function and source of information. Within the departments, the flow of information depends on the organisational structure or

allocation of power. It also depends on the IT deployment, whether it is centralised or decentralised. Under a decentralised approach, the individual unit collects, processes and keeps the information within their own department. While centralisation results in data management is handled by the central agency of the department. There is a restricted information flow between different departments or agencies. Information from different organisations can only be obtained by official request. The procedures of handling government information are stated in Official Secret Act 1972 which mainly safeguards the government information. This act also outlines the procedures on how the government information can be accessed by non-government organisations or public.

4.4.4 Issues in IT Programmes and Information Management in Malaysia

Although IT is important in the government sector, there is no specific policy on IT in Malaysia (Han, 1994). The lack of this policy has been attributed to various factors, ranging from insufficient data for planning purpose to lack of political support and the inertia of the Civil Service. The agencies direct their IT activities and programmes according to their piecemeal policies. IT policy needs to be placed at equal level with other public policies and needs to be related to National Development. Tengku Mohd Azman (1995) argued that the ad hoc planning approach in IT seems to have resulted from insufficient appreciation of and uncertainty about the impact of IT on social and economic development. The planning and implementation of IT in Malaysian public sector encountered a number of problems. There are :

- i. **Connectivity** - The diversity of the types of computer equipment in use in government today limits the ability to share information resources among government agencies. In order to share information, often conversion of work from one machine type to another is needed. This may not only be difficult and expensive but sometimes impracticable.

- ii. **Low utilisation rate** - Low utilisation rate of computers has always been of concern of the government. Several reasons can be given for the state of under utilisation. First there is shortage of trained computer personnel to develop and implement additional computerised applications. Second, there is also problem of reluctance of officers and other staff to use the computer facilities.
- iii. **Human resource development** -The need for adequate computer personnel in terms of number, expertise and experience has been identified as one of the main issues in IT programmes. There is also low computer knowledge among the government servants and lack of training programmes.
- iv. **Prioritisation** - Because of limited resources and budget, the government has decided to give priority to computerisation in selected areas only. In practice it is difficult to implement the priority concept because the initiative to prepare and submit computerisation proposals still lies with the departments concerned and the government has difficulty to decide. For this reason, although revenue collection is considered top priority, there are still many revenue collecting agencies with inadequate computer facilities.

These problems are considered as the crucial issues for the future success of the computerisation programmes. Realising these problem, at the organisational level, in 1998 the manual 'Guidelines for Computerisation' was issued by the government to the top management in the public sector (MAMPU, 1998). The purpose of this manual is to make top management aware of the importance of proper planning and development of information systems. Among the recommendations in this document was that all the ministries and departments should set up their own Steering Committee to guide in the planning, implementation and co-ordination of computerisation programmes in their organisation.

As the internet has become an important ICT tool in Malaysian public sector, Lah (2000) argued that the government should allocate funds specific to increase domestic participation of the Internet experiences. There should be increase the involvement of both its private and sectors in internet-defining issues and the Malaysians website must be designed to accommodate greater information sharing.

Tengku Mohd Azzman, (2000) advocated that in order to become an information society Malaysia needs transformation of organisation. The old world paradigm based upon power, command and control needs to be changed to the new paradigm which is founded on influence, network and partnership. From a view of organisational behaviour, the change should be from individuals to teams and individuals. Moreover the old hierarchical pyramids are being replaced by organic webs.

Abd Kadir (2001) found that one of the main aspects in IT for Malaysia is to invest in intangibles such as human capital and Research and Development (R&D) capacity in order to create and increase intellectual assets. The nature of work will undergo an overhaul requiring increasingly higher input of skills and knowledge. To develop a competitive edge in knowledge-based economy, Malaysia needs a highly skilled labour (Zainuddin, 2000). The government should have long and short-term strategies to produce knowledge workers. Such efforts will require massive investment and committed effort on the part of the government to make it happen.

The major challenge for Malaysia towards a knowledge-based economy is to convince different sectors and people of the country about the importance of moving towards this new economy sector. This needs change of mindset of people (Abdullai, 2001). Furthermore, there are two crucial issues with the quality of manpower, first labour productivity and second, competitiveness (Juhary, 2001).

Malek (2002) argued that one of the organisational challenges in developing knowledge based organisation is transformational management that means effective management of change process, requires new management knowledge, attitude and skills.

There are several issues In Information management context, there is still lack of systematic information management within the government organisations. The awareness of the importance of information for decision support has led heads of departments to emphasise a proper information management.

4.5 Tradable Information in Malaysia Government Organisation

Information marketing by government organisations in Malaysia can be considered as a new idea for management although the activities might already be carried out in small scale by some departments. There is little literature concerning the idea of converting the government-held information into commodity is relatively alien in the Malaysian public sectors.

The role of Malaysian libraries in information marketing has been discussed by several writers. Khoo (1991) explained that libraries are the largest information centres in the country. Apart from the serving the needs of students, many libraries do provide general information retrieval services. Except perhaps in the case of library in Science University of Malaysia which provides a special service at a modest charge to the business commodity, none of the others has as yet introduced such as scheme. Libraries have a significant impact on business through information dissemination (Raja Abdullah, 1994). The demand of information by professional and business people, decision making is enormous and growing and libraries can venture into the area of information providers.

Construction of information databases has become a commercial proposition, which offers the prospect of interfacing a range of databases on an on-line basis

for information retrieval. These developments are fast becoming an integral part of running an information service. It is within the economic and technological capabilities of Malaysia to take full advantage of this development in the planning of its national information system. (Oli, 1992)

Khoo (1992) has identified the broad classification of information needed by business agencies within the Malaysian context. This classification consists of general economic information, which is composed of international and domestic trade information, basic information on industrial development, activities of relevant organisation and information of office management. The source of this information is either direct purchase, receipt of free publication or loans from libraries and information centres. In most cases, the National library, libraries within government ministries and agencies, libraries in research institution and information centres maintained by foreign embassies in Malaysia are the most common information sources for business firms.

Presently, the concept of tradable information has been implemented by some of the government organisations on a small-scale. The main factor of this development is rapid request or demand from the user. There is no clear government policy on marketing of information, the departments might like to follow some guidelines. These guidelines are mostly in relation with the official, confidential and secret information.

The National Office of Statistics sells some statistical data and information such as commodities, exports and imports volume of commodities, and balances trade volume. These statistical data can be purchased in the form of annual or monthly reports published by the department (Office of Statistics, 1997). The Department of Survey also sells maps of specific areas and business firms can get the company information from the Registrar of Companies with a minimal charges. The Election Commission of Malaysia is selling the electoral roll to anybody for the political, economic or other purposes. In most government departments, the departmental annual report may contain many statistical data that have economic

value to the relevant user. These reports normally can be obtained from the department either with some charges or fee. In the financial sector, the information obtained from National Central Bank is utilised for economic and financial analysis (Mohd Taufik, 1992). It seems that the implementation of a tradable information concept in the Malaysian government requires a big change that the information is managed properly.

There is dire need for information of government organisation to be accessible to the users. The information policy of Malaysia take into consideration introducing more innovative and dynamic approaches to information service (Oli, 1992). The comprehensive documentation of all the published, unpublished and hard information need to be available to the users at right time. For instance, librarian and information specialists need to be made to introduce specialised information service to specific clientele like members of parliament, commerce and industry and social service organisations on an experimental basis to inculcate a better appreciation of information services. In achieving this objective, attempts should be made to exploit developments in the area of computer technology, micro graphics and telecommunications.

4.6. Information Trading Function in the UK Government.

This section focuses on the implementation of tradable information function in the UK Government organisations. The aim is to understand how the government information industry emerged. The dramatic growth in the information industry in UK, principally the on-line information was observed for the last ten years. This indicate that there is an impact of technological development in information management on the emergence of information as a tradable commodity ((Moore, 1990). A number of factors that relate to the accelerated rate of growth of the information industry in the UK government.

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In the context of Central Government, there is a good information management mainly in response to the development of information technology and emergence of electronic information service (Moore and Steele, 1990). Information has been treated as an essential part of the business of the government departments. They develop overall information management strategies to promote information dissemination.

Within Local Government, the publication and provision of information is the means by which Local Authorities are held accountable. Information is also used to manage service and to plan their development. Local Authorities are devoting more attention to the provision of information about their services to enable people to make use of it (Moore and Steele, 1990). With local information services, they aim to promote the growth of their local economies.

4.6.2 Government Information Management in the United Kingdom

The largest producer of information in the UK is the Government and there is a wide deployment of IT in the UK government. The UK is also extremely strong in the information sector. It has well-developed information service infrastructure with international-renowned institutions such as the British library as well as a range of reputable information consultancy and training organisations (British Council, 1997). The UK also is well ahead in the development and use of electronic information network and database.

Since 1997, UK Government has been looking into information technology to help improve the way government delivers services and information to the general public (Anonymous, 1999). In 1999, the total expenditure of public sector on IT will reach £7.5 billion. This means that 1% of GDP is spent on the public sector IT (Hudson, 1999). Baltimore (1999) quoted that The Prime Minister has pledged that by 2002, twenty five percent of all Government services will be delivered electronically. The Government's government-direct strategy aims gradually to make electronic delivery of services the preferred option for the majority of the

government customers. For example, an innovative new information system introduced by the UK Government in February 1998 provided a strategic media planning and co-ordination system to assist in the planning of Government policy and events (Fishenden, 1999). The system has proved so successful that it is soon to be offered as the basis for information management within Government Department rather than purely to co-ordinate information between them.

In terms of information management, there is a huge investment by the Government in exploiting IT in Government Departments. The Internet is the underlying technology, supplying and integrating Government Information and Service (CCTA, 1999). This provides gateways, managed services and consultancy support to ensure electronic government is consistent, informative and available. Crump (1991) argued that the use of internet in government is a key channel for providing information and service to citizens and businesses.

There is recognition that public sector government assets have potential, not only in supporting the business of government, but also in supporting the economy as a whole (HMSO, 1999). The Department of Trade and Industry (DTI) information initiatives have given recognition, and a significant boost to the importance of this sector in terms of UK strategies overseas (British Council, 1997). As a part of open Government policy, Government Departments are being encouraged to sell information (Victor, 1995). Charges are levied for providing basic information such as official maps, weather facts, or flood risk. Nevertheless, much of the information is protected by crown copyright and also the issue of freedom of information (Saxby, 1997). Hazell (1995) argued that under Mrs. Thatcher's premiership the British Government maintained that freedom of information was incompatible with Westminster system of accountability to the Parliament. Under John Major that line was softened a bit. In 1994, The British Government took an important step toward freedom of information with an introduction of a new code of practice for open government. Timmins (1996), examines how a freedom of information act would change the culture of official secrecy which denies the public vital information. Proceeding to this issue, the Freedom of Information Bill

was introduced to the House of Commons in November 1999 in reviewing the present status of Government information management (Open Government, 2000).

4.7 UK Government Information Industry History

In the UK the policies of government information trading were initially stimulated in 1983 with a report 'Making a Business of Information' produced by the Information Technology Advisory Panel. The report noted that Government was the country's largest information processor and as such was in a position to stimulate the development of the information service sector. It also suggested that private sector should work together with Government to develop commercial information services to provide access to the Government information. The report of the panel stressed that:

Government should recognise the current economic significance of the tradable information sector and the opportunities for future growth and take its interest in account in policy information.

They concluded that both private and public sectors in the UK need to pay more attention to information as a commercial commodity, to be concerned with the creation and maintenance of its value and to take steps to develop the delivery systems that best meet users' need. They advised the public sector to explore the possibility of exploiting the tradable quality of information.

The development of tradable information concept in UK Government started with the issue of guidance to Government Departments on how they might go about exploiting their information sources. In 1990, the revised guidelines were published for further initiative in developing the concept of tradable information (DTI, 1990). The Government objective was clearly stated in the guidelines:

To promote growth in the UK information service market on a commercial basis; to promote efficiency and this overall competitiveness in the economy at large through the use of commercial, electronic information services; and to make as much government-held information as possible available for the information sector to run into electronic information service.

The guidelines also provide the mechanism on how the Government information should be made available to private sector together with element of value-added process and making it available at commercial market rates. There is a well-defined policy on the dissemination of government information to the public and the guidelines on how the public can access the information from the departments (DTI, 1990).

According to the guidelines, the thrust of the UK government policy on information trading is focused on the supply of Government-held information to private sector that will make the information available to the public. This will stimulate the UK information industry. In carrying out information marketing it is found that many organisations or agencies supply data both directly to the end-users and to the resellers, which include:

- Agencies which sell original data without providing any value added product or service such as Ordnance Survey, which has many agents. Much population census information is supplied into the market place by this route.
- Publishers who will repack the data and add value to the product. Most commercial organisations generate this type of information products.
- Consultants who will purchase the data from the Government and provide products and value added services.

The guidelines also deal with public information that the private sector was considered likely to be incorporated within an electronic information service. Normally information should be distributed on a non-exclusive basis, subject to the expectation that there will be no competition from the public sector once the data is in private hands. However, not all information can be released (DTI, 1990). Commercially sensitive information about individual companies clearly must not be released and personal details must not be disclosed. All confidentiality restraints continue to apply to tradable information, including in particular those imposed by the Data Protection Act. Government departments and agencies were

given a negotiating structure within which to release the information. Recently there is recognition that the DTI guidelines contain useful elements but have been overtaken by later initiatives and weakened by lack of general regulations (HMSO, 1999).

4.8 Government Policy on Information Distribution and Trading

While the DTI guidelines were followed by some departments, they did not constitute policy and were not enforceable. Changes in the market and technology as well as role of public and private sector in information industry has demanded a reviewing of Government policy. The UK Government has realised that the departments can participate more in promoting the utilisation of information asset. Several policies were reviewed in order to anticipate the future development of information trading sector.

Guidelines from HM Treasury on selling government services into wider markets (HM Treasury, 1998) covered the selling of public information. The departments are allowed to conduct commercial projects and such projects should be financed from the existing cash limits. The departments can retain some of the revenue created from the projects. The guidelines also provide a procedure in determining the commercial potential of the asset and advice on developing a business case or establishing commercial structure. They recognised that the commercial activity may best take place in partnership with private organisation. Another aspect concerning these guidelines is the accounting procedure for the revenue of the project. HM Treasury guidelines give more explicit direction to the departments in the exploitation of information assets and encourage a greater role of private companies.

HM Treasury guidelines have recognised that the government information trading could be affected by evolving policy on Crown copyright and Freedom of Information. The Freedom of Information (FOI) white paper (HMSO, 1997b) recognises the need to protect the integrity and status of Government material

while providing the information industry with easier and quicker access. Importantly any person on making a request to public authority for information, will be entitled to the information if it satisfies certain conditions. The public authority will not be obliged to provide all or part of information requested if an exemption applies. In the majority of the cases, the public authority will have a duty to release the information where the public interest is paramount. The introduction of Freedom of Information (FOI) law may remove some barriers that affect the availability of Government information to customer and business sector.

The Government policy on Crown copyright also has a significant impact on the public information trading. The UK Government has a positive attitude in reviewing the law. The 1999 White paper on the Future Management of Crown Copyright (HMSO 1999) sees crown copyright acting as a brand or kite mark of quality. The white paper highlights a need to differentiate between public and commercial re-use of public sector information in setting charges. Charging levels and procedures must be a significant part of any tradable information guidelines. The departments are encouraged to provide electronic form of data on a transparent licensing and charging basis. The charge would involve elements for licensing and administration of data.

One of the outcomes of Crown copyright white paper is the implementation of an information asset register (HMSO, 2000). The aim of this white paper is to provide a gateway and central information point to guide and direct a route through the maze of official government information and material. The register may hold details of unpublished data and information concerning the department, the type and format of data, its subject and coverage and updating frequency is publicly available. Departments are encouraged to maintain their information asset register on their own web sites. The introduction of information asset register can be considered as the creation of departmental information warehouse within Government organisations. It may act as collection and disseminating centre.

The UK Government's policies on information trading such as the HM Treasury guidelines, Freedom of Information and Crown copyright law may indicate the growing concern to address the legislative requirements related to the growth of information industry. This may be influenced by the expansion of Internet in Government sector and the move toward the delivery of Government services by e-government concept. For example, the development of electronic government information service.

4.9 Factors for the Development of the UK Government Information Trading

The growth of the information industry in UK is also influenced by technology push (Martyn et.al, 1991; Thomas, 1996) and also the effect of economic globalisation (Moore, 1993; Yapp, 1999). The development of private communication links and networks has improved the communications aid in commerce and industry. This results in fast and efficient information transfer between organisations. The major advances in information and telecommunication technology have provided the organisation with the ability to employ good information infrastructure for information generation, storage, transmission, processing and retrieval (Saxby, 1997) Information has become a demanded product resulting in the emergence of information companies or information brokerages.

The progress of information industry in UK is also due to the influence of European Open Market, which has promoted the interchange of information between the nations (EC, 1998; Johnson and Truner, 2000). UK government has also accepted an EC directive that came into force in 1992 requiring environmental information held by public authorities to be made available to the public. There is a range of business opportunities created and these enhance the role of Government organisations to take part in information industry. The objective is to ensure freedom of access of information and in doing this the departments may make a charge for supplying the information (Britles, 1991). It was also observed that Overseas Trade Statistics collected Tariff and Statistics Office of UK was delivered to other European countries under EU policy on

information (Hadi, 1998).

Globalisation, improvement in technology and shifting competitive advantages have all contributed to the pressure on the UK Government to make progress towards the creation of information industry. The development of information industry will influence the environment of economic activity in the country.

4.10 The Trends of UK Government Information Marketing

There is rapid growth of information providing services in UK government organisations. For example Office of Population Censuses and Surveys (OPCS), Central Statistical Office (CSO) have played an important role in providing Government information to the public (Moore & Steele, 1991; Coopers and Lybrand, 1996). Information industry has a significant impact on the UK economy. The value of combined information services is estimated to be more than £30 billion a year and will account for 10% of Gross Domestic Product (GDP) by year 2005 (Duchy of Lancaster, 1997). It is also estimated that 80% of the new jobs in Europe over the last five years have been in information-related industries and UK will experience the same trend in future. The information service will become an important sector within the economic activity.

Price (1998) quoted that the UK Government receives around £200 million annual income from information publishing activities. The biggest contribution was made by the Ordnance Survey, which collected £59 million for the sale of maps and licensing. The Ministry of Defence Hydrographic Office has collected about £30 million from the sale of charts and other publications. These figures show the important role of government organisations in information marketing.

In some local council organisations, there is a service to provide information to help stimulate and support local business (Steele, 1990). From a survey, it was found that only a few local council offices provide this service which is limited to the certain types of information such as tourist information, map and departmental

reports (Hadi, 1997). There is also increased role of libraries in promoting the fee-based information service. Towlson (1994) found that there is a trend towards the establishment of this special service directed to the business community. A number of fee-based services have been established in both the public and private sectors. These include the British Library Business information service, Manchester Business Information services, Financial Times-Business information services and HERTIS' Information for industry. Recognising the business potential of public information, the UK Government has tried to make information more accessible to the public and paid more attention to the prospect of the nature of information as a commercial commodity.

4.11 Issues in UK Government Information Marketing

Preliminary literature review has highlighted several issues and this will become the reference for further study. The main issue relates to the implementation of information trading in the UK Government is whether the government should act as a wholesaler or as a retailer (Moore & Steele, 1990). It means whether it should make information resources available for the private sector to exploit, or whether government duty to disseminate information in the marketplace. If the private sector is in charge of this business, there may be efficient and quick service provided as compared to the public bodies. On the other hand, there will be a problem in controlling the information available in the market. Should the government information resources available for the private sector to be exploited or is it government's duty to disseminate information in the marketplace?. This relates to the issue of efficiency and control of the business.

There is an issue on pricing the information. Young (1992) found that the Treasury and Central Statistical Office rules require the departments to charge the data based on commercial value. As quoted by HM Treasury (1998), the pricing must be fair, in accordance with the requirement of the Fee and Charges Guide. It must also reflect a full and robust measurement of the departmental cost. The Government proposals place restrictions on department's pricing of certain

information. However, the type of information which departments are likely to wish to commercialise is largely in the category of Government Tradable information which is proposed specifically to be excluded from the limitation of charges

Cost recovery rules are not applicable to all the types of information generated by the Government. Young (1992) argued that there should be a 'balanced way' in disseminating government information. Information which is required to be available to the public must not be charged. For example most environmental information should be made available free of charge. Besides that information such as legislative documents, government directive reports and social related information should be widely accessed by the public. In this case, charging the information is not practised.

Rhind (1992) argued that charge should be taken into consideration in information dissemination although this charge may not cover the total cost of producing the information. The purpose of charging is to get some revenue to cover the costs incurred which rise out of the additional staffing and administrative function during the process of production and marketing. On the financial procedures, departments are required to return any income from information selling to the Treasury although the departments need some allocation to upgrade the service or to generate new product for customers.

One of the obstacles to releasing data by government departments is the Treasury rule which requires such activities to be contained within the ceilings of staff and gross running costs for each department. Departments are still required to return any income from information selling back to the Treasury even when the extra costs incurred in supplying the information could be covered by income generated. In this aspect, Rhind (1992) argued that the charges should be taken into consideration although it may result in less than full cost recovery. It is in conjunction with other hidden costs, which rise out to the additional, staffing and administrative. He also refers to United States where any information requests for commercial purposes are charged of the full cost of document. Perrit (1994)

argued that based on constitutional and technical grounds, the dissemination of Federal Government's information must be at the cost of copying. This should be extended to State and Local Governments.

Another issue concerns the ownership rights to the information (Moore and Steele, 1991). The question is whether the provider owns the information or the body which has collected it. Should the government give up its ownership right when it sells information to the private sector or it must be a licensing procedure in the business? There are also issues concerning the question of legal liability, copyright and data protection laws which are likely to have an implication for information trading in Government (Rhind, 1996). On the issue of copyright, The UK Government has produced a green paper on 'Crown Copyright in the Information Age'. (HMSO, 1998). There are many issues in the paper but the main fundamental aspects in relation to information marketing is effect of the law on the wide dissemination of government information and the charging policies. As far as the government is concerned, the copyright law is aimed to secure the integrity and authenticity of official material and protecting it from damaging misuse and commercial piracy. On the other hand, the copyright law seems to be the major obstacle to the wider dissemination of information particularly among the private information retailers. While full abolition of Crown Copyright is ruled out, liberalisation is recommended involving the adoption of class licensing in which the holder can publish any information covered by the class licence. This on going issue is likely to affect the growth of information trading in the UK.

The Government Freedom of Information (FOI) proposal constitutes a significant change in policy introducing the presumption that information will be available in most circumstances. Government information traders need to have regards of the effects of the proposed act. The FOI proposal seeks to promote access to information. Whilst the white paper recognises the role of commercial activity in securing revenue, this needs to be balanced and entail an entitlement to use the information further. So long as Crown Copyright is not waived or removed, the re-use of such information will be controlled.

In the present context, the UK government information industry is faced with some of the legislative practices which prevent private organisations from fully exploiting the information potential. Some of the legislative actions may be required at the government level to help create more harmonised access conditions and policies.

4.11 Conclusion

There are distinct differences in the nature of government information trading between the Malaysian and UK public sectors. Malaysia government has developed and planned good IT programmes in its National Vision 2020 which aims to have effective and efficient information management system. Nevertheless the Government IT programmes and information management are still subject to several management and organisational issues. Generally, information-trading activity by government organisations in Malaysia is still at the initial stage and has been carried out on a small scale by several agencies. As compared with the UK Government organisations, it is clear that the information trading idea has been diffused in the government organisations. Although the external factors such as the demand and the growth of information directly influence the growth but the government policy and initiative have been considered as the driving force for the department to actively involve in the information business. The use of advance IT technology in government has effective collection and dissemination of information. The understanding of management issues in information management in Malaysia and the UK organisations are the bases for development of research framework and will be discussed in the following chapters.

CHAPTER 5

ORGANISATIONAL CULTURE IN INFORMATION SYSTEMS AND RESEARCH STUDY FORMULATION

5.1 Introduction

This chapter highlights the concept of organisational culture and its relationship with information management and information trading in government organisations. Within the government organisation, the scope of information management is considered an internal activity comprising how information is collected, stored, analysed and utilised. While the concept of information trading is dealt how an organisation markets the information products. This involves the external parties such as the buyers and information distributors. The concept of information trading has been discussed in Chapter 3.

The concept of organisational culture, also referred to as corporate culture influences all kinds of management strategies (Baron and Walter, 1994). In the field of international business, an understanding of cross-cultural differences is critical to the management of multi-cultural organisation (Cox and Blake, 1995). In information systems study, attitudes towards the value of various types of information, information systems and communication technology are likely to vary across culture; culture differences need to be understood before such systems can be migrated between cultures (Leidner et. al 1995).

The content of this chapter is summarised in Table 5.1. The discussion begins with the understanding the concept of organisational culture and its role in the information systems (IS) field. Some of the cultural models will be discussed and

their application in cross-cultural studies will be reviewed. Following this, the research model for this study will be formulated with explanation of its interaction with cultural model dimensions. Furthermore, the rationale of this research model will be highlighted.

Table 5.1 Structure of the Chapter

-
- Introduction
 - Culture and its Role in Organisation
 - The concept of Organisational Culture
 - Organisational culture in the Information System Field
 - National Culture model
 - Formulation of Research Model
 - Conclusion
-

5.2. Culture and it's role in Organisations

Culture plays an increasingly important role in information system (IS) management (Baron and Walter, 1994). As the effect of globalisation, there are many IS applications implemented across national cultures and cultural boundaries (Shore and Venkatachalam, 1996). Culture can affect the implementation and success of IS and it is also true that the IS can result in culture changes (Hackney and McBride, 1993). This requires understanding of culture and its effects on managing IS within the organisations. There is a relationship between culture and organisational management, in particular the IS organisations and this will be discussed in this section.

5.2.1 Definition of Culture

There are many definitions of culture. Lundberg (1990) pointed out that the diversity of definition is due to culture being one of the most familiar things in our experience. Most definitions suggest that culture is largely the product of values,

customs, norms and objectives and relate to the human behaviours and attitudes towards organisations (Baron & Walter, 1994). Davis (1984) offers another definition of culture as 'the pattern of shared beliefs and values that give the members of an institution meaning and provides them with the rules for behaviour in their organisation'. Smircih (1985) argued that culture as a tangible entity an organisation 'has' and therefore something that can be manipulated by management to create change; and those that perceive culture as a process, something an organisation 'is' suggesting that culture is both product and process. This in consequence, means the values and attitudes that individuals bring into organisations must also be influential in shaping corporate culture.

Hofstede (1991a) defined culture as the collective programming of the mind, which distinguishes the members of one human group from another. An interactive aggregate of common characteristics influences a human group's response to its environment. As people's behaviour is determined by their beliefs, they react differently to what they experience in the society. In relation with society, culture is a collective phenomenon shared by people who live or lived in the same social environment.

William et. al (1993) embraced the working definition that culture is the 'commonly held and relatively stable beliefs, attitudes and values that exist within the organisation'. In other words, 'the way people think about things around them'. This definition explicates culture as something that can be subjected to empirical investigation, with the emphasis very much on thinking rather than doing. The definitions of culture show that individuals bring input into organisations in the form of attitudes and values developed by their beliefs and experiences and these input in turn influence outputs in terms of the shape and characteristics of the organisational culture.

5.3 The Concept Of Organisational Culture And Corporate Culture

By definition an organisation has a culture (Tibosh and Heng, 1994). The culture of an organisation is shaped by the meaning (the values, rules, conception and symbols) that refers to the work that is done within the organisation and the manner in which the work is organised. Nowadays there are two concept of culture have attracted considerable attention in management practice; organisational culture and corporate culture.

Ernste (1989) defined organisational culture as our cultural heritage furthered inside the organisation by the influence of internal problems and through interaction with others. Furthermore, Huber (2001) defined organisational culture as a set of values, beliefs, norms and expectations that are widely held in organisations. This organisational behavior is governed by the culture which explain the nature and contours of an organisation.

On the other hand, corporate culture is focused on the existence of behaviours with a company or corporate body. Thomspson and McHugh (1990) found that corporate culture is a core and the glue binding the diverse corporate activities together. Corporate culture that headquarter wants to present or create is an important factor that companies are considering for corporate environmental strategy (Marc and Roy, 1998). The idea of corporate culture is itself contentious it depends on things like the existence of labour market but has been represented as it can be waved into the existence through a chief executive's vision. As manageable phenomenon, there has been a lot of speculative treatment in the context of directive. Corporate culture is the assumption which lie behind the value and which determines the behavioural pattern and the visible artefacts such as artictum, office layout and dress code (Hendry, 1999).

Frederick et. al (1992) defined corporate culture is a blend of ideas, customs, traditional practices, company values and shared meanings, that help define normal behaviour of someone who works in the company. Thus, the different style of management enforced within the organisation can act as the primer movers of culture. In business practice, Holstius (1995) describe corporate culture as the way in which company treats its employees, customers, owners and interest groups. As national culture environments influence the business culture they have an impact on the corporate culture in the respective countries. Corporate culture is more related to the belief of the members of the corporate who share belief, expectation and may focus on customers, quality and individuals of the organisations.

Within the perspective of organisational culture research, organisational culture and corporate culture are similar and can be described together (Murdoch, 1992; Tibosh and Heng, 1994). Some management literature suggests that corporate culture is important for organisational process (Shein, 1987; Deal and Kennedy, 1988; Tennekes and Wels, 1990). Therefore, the search for methods to improve management of an organisation is directly concerned with corporate culture. (Heng and Koh , 1992).

From the organisational point of point, culture is based on the belief of people and is a vital element in organisation contributes to the organisation's success. This view is supported by Brown (1995) who is of the opinion that organisational culture may be developed by the behaviour of the employees. To understand the culture, a management has to build good relationship with the workers and can sustain a good working environment in the organisation. Finally. It can be concluded that culture plays a vital role in the management of an organisation.

5.4 Culture and IS Organisations

Information systems (IS) can never be separated from their social context, because of in the context of human action within the framework of cultural reality. Erik De Man (1988) proposed the basic environment of IS as shown in Figure 5.1. Three major and interrelated elements can be recognised as the environment of an information system: bureaucracy, culture and legislation. Bureaucracy can be regarded as a complex system of decision making and information processing and it influences the organisational setting of the information system. Culture provides a basis for giving meaning to information. Legislation not only regulates handling data and information, but also creates new authorities and consequently information needs. When exploring the environment of an information system, two views seem to be of particular interest. Either we can understand information systems as an integral part of a network of information utilisation or alternatively we may view an information system as the result of design process.

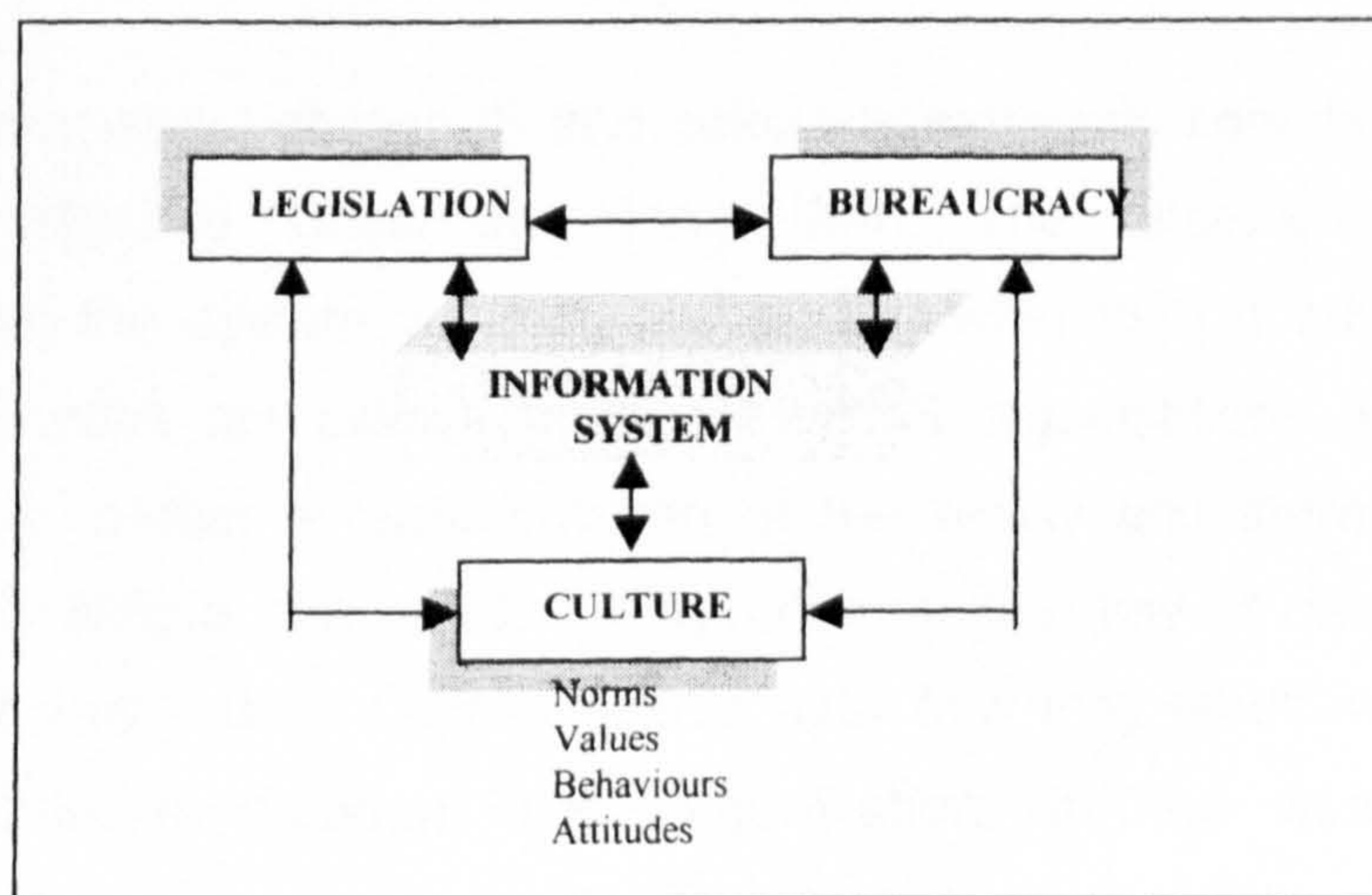


Figure 5.1 : The environment of Information systems (Erik De Man, 1988)

Information systems are viewed both as constructed and enacted by human agents having institutional properties, which constrain and enable human action

(Avgerou and Cornford, 1993). Importantly the current approach to IS is dominated by Systems thinking. This approach is based on the principle that human actions have a rational nature and the actual function of an Information system is to support human action. The complexity of these actions is related to the systems.

From the cultural perspective, the nature of Information systems organisations recognises the important interaction between the human actions that manipulate the systems and the internal and external elements of the Information Systems organisations. A carefully considered Information System is a basis for efficient and effective co-operation. Information systems helps us steer the behaviour of organisation members. There could be a direct or indirect relationship between them but in both cases, human actions are likely to be influenced. Information Systems as a powerful management tool and influences the behaviours of people and organisation.

5.4.1 Role of Culture in Information Systems (IS) Management

The relationship between IS and culture is extremely complex. It is a question of mutual influence (Tibosh and Heng 1994). The culture context determines the end what the system will look like and in what form it will be used. Cultural characteristics are always found in the IS organisations. Information systems ultimately remain a representation of the reality and therefore also a culture. Taking a simple role of IS, it may channel the flow of data and present it as valuable information. Control of this data flow may result in change of what is experienced as important in the organisation. In other words, a change in the pattern of norms and values will affect management of IS.

Information systems cannot be divorced from its cultural context. This context determines the manner of development, implementation and use of IS. Conversely IS manipulates the social context. Walsham (1990) correctly

observed that culture is an important factor in the development and use of IS.

The development, implementation and use of IS is determined by the organisational behaviour (Mastenbroek, 1991). It is difficult to see IS as unrelated to social power, which is used to attain personal goals. The struggle over who operates the computer and sources of information have become a visible conflict with almost every organisation in both the profit and non-profit sector (Turban, 1990).

Within the management aspect, Hofstede (1991) argues that administration plays a special part in the culture of a society. Administration and information systems are product of a culture. There is compelling relationship between IS and culture. The culture and attitude of the organisations determine the development, implementation and the use of IS but IS also influence the social context. Indirectly culture is influenced because IS shapes reality using the support of the communication process. As a model of reality and as a model for behaviours, culture therefore manipulates human actions. The above account suggests that culture is an integral part of IS.

5.5 National Culture Model

Since this study is a comparative study involved the interaction of national culture that is presented as organisational culture, it is important to discuss the basic concept of national culture and the relevant cultural model which lead to the formation of the this research framework.

In organisational culture studies, several national cultural models have been developed. These models have discussed the nature of the national culture dimension and have been used in the cross-culture comparison work including the information system field. Hofstede (1990) analysed national value systems and the kind of influence nationality is likely to have on organisational system. He

found five components that influence the national culture which are:

- **Power distance** - The extent to which members of a society accept that power in institutions and organisations is distributed unequally. In high power distance organisations, there is greater reliance by the less powerful employees on those who hold power.
- **Uncertainty avoidance** - the degree to which member of a society feel uncomfortable with uncertainty and ambiguity. Leading them to support beliefs promising certainty and to maintain institutions promising conformity. In a more uncertainty-avoiding environment. employees will have a greater need for the authority of rules.
- **Individualism/collectivism** - A preference either for a loosely knit social framework in which individual are supposed to take care of themselves and their immediate families only, or for a tightly knit social framework in which individual can expect their relatives, clan or other in-group members to look after them in exchange for unquestioning loyalty.
- **Masculinity/Femininity** - A preference either for achievement, heroism, assertiveness and material success, or for relationships, modesty, caring for the weak and the quality of life. In a masculine society even the women prefer assertiveness (at least in men) and in a feminine society even the men prefer modesty.

Further more he has suggested the fifth element of the culture component, Long-term orientation which concerns the time horizon on which the future is viewed. This has to do with the relative importance of the here-and-now versus future. In a long-term orientation setting, the societies emphasise thrift and perseverance while in a short-term orientation they stress on personal steadiness and stability.

Another theory on the differences in national culture is given by Trompenaars (1993). He argues that the explanation of national culture is based on two dimensions: Egalitarian/Hierarchical and Person/task. Figure 5.2 shows the different dimensions in this model.

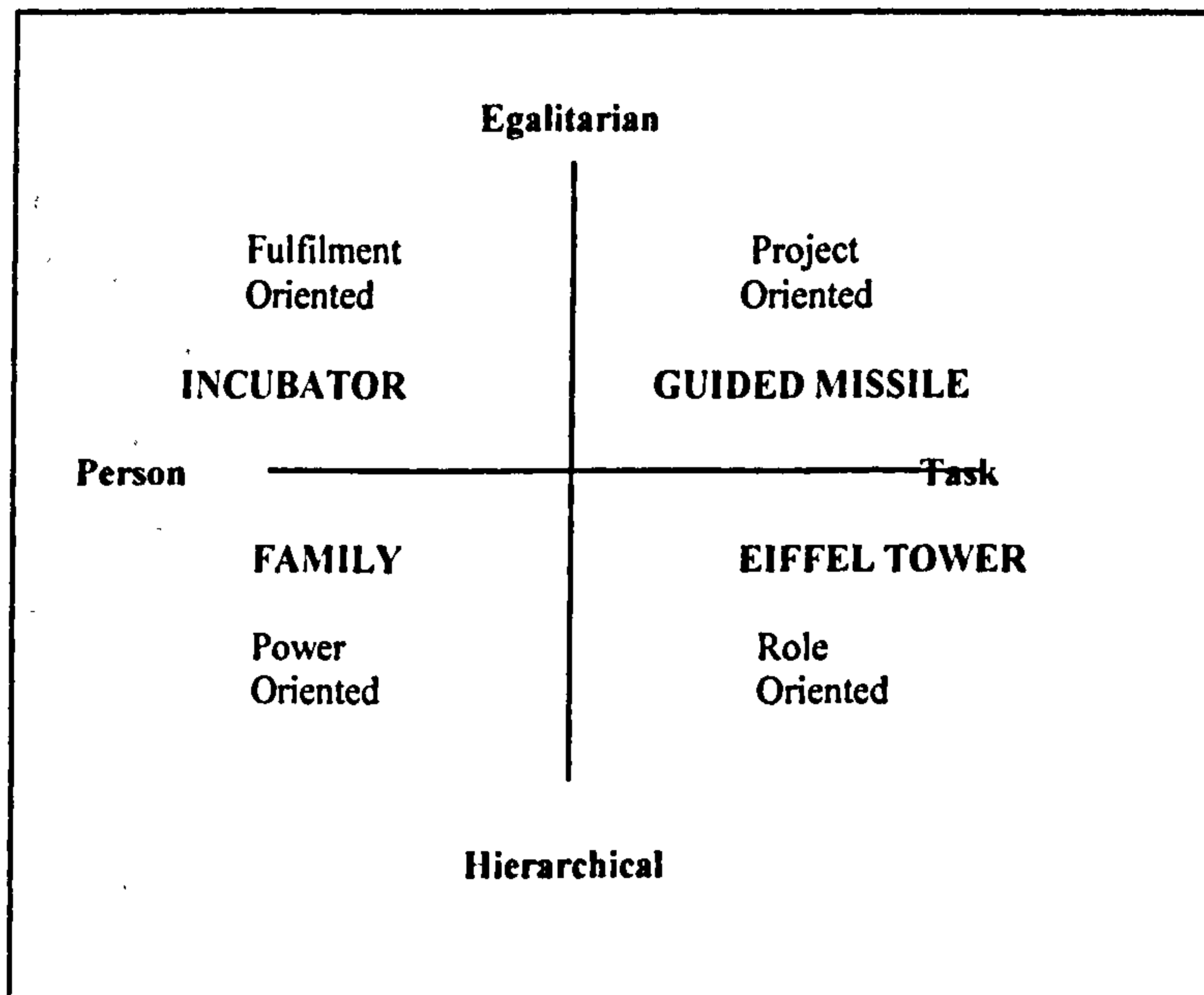


Figure 5.2 : Egalitarian/Hierarchical and Person/Task dimension of National Culture. (Trompenaars, 1993)

Using this dimension, the national culture can be categorised in terms of four types. These types are the family culture, which is characterised by a strong sense of hierarchy and is based on the power. The Eiffel tower culture which is highly structured with well defined roles; the guided missile culture, which is egalitarian and relies on intrinsic motivation; and the incubator culture, which has no formal structure and is characterised by values that stress fulfilment and self-expression. Under this model national culture explains preferences for types of organisation. For example, Eiffel tower culture, prefers bureaucratic organisations with a strict division of labour and specific jobs and tasks.

This model is used in this research in understanding the diversity of attitudes and values even between countries that are geographically close. Trompenaar's

model explicitly explained the nature of organisations related to the organisational motives or objectives and the organisational orientation. It also explains the organisational structure and role of people toward their task. Hofstede's model focuses more on the role of member of the organisations and their impact on the structure of the organisation. The Hofstede's cultural dimensions explain the effects of individual's beliefs and values on organisations.

This study takes the views that national culture has significant impact on the information system development. Madon (1992) discussed the relationship between the cultural factors and the process of technology adoption. Based on case studies of computer-based information system for development planning in India, it was found that information technology is a vehicle for cultural persistence in development administration and it was identified six major factors:

- The culture of bureaucratic inefficiency
- The culture of highly politicised decision-making
- The culture of leadership
- The culture of roles, status and hierarchy.
- The culture of secrecy built around information
- The culture of preference for informality.

It was suggested that information technology is a vehicle for cultural transformation in an organisation and that the cultural transforming in development administration occurs by modifying practices, attitudes and pattern of behaviours. The interaction of culture and the effect of adoption of information technology and IS organisational changes in cross-cultural setting remain elusive. Some of the elements of these models are used in this study to explain why particular structure of an organisations and management styles may differ in some national cultures.

5.6 Business Excellence Model and IT Management

In the previous section the concept of culture was highlighted. This study will focus on the utilisation of IT and information management. Another approach to explain IT management and its success is Business Excellence Model (BEM). This framework helps organisations in their drive towards being more competitive (Anomynous, 2001). Kanji (2001) argued that BEM approach is dependent on its competitive landscape, strategy, objectives and resources. The performance of an organisation is measured by its strengths, areas for improvement and efforts to face difficulties and problems.

The Business Excellence Model (BEM) is based on assessment of a number of inter-related components of quality and performance as shown in Figure 5.3. (EFQM, 2002). The inter-related components are as follows:

- **Results Orientation** – Excellence is dependent upon balancing and satisfying the needs of all the relevant stakeholders (this includes the people employed, customers, suppliers and society in general).
- **Customers Focus** – The customer is the final arbiter of product and service quality. This can be optimised through a clear focus on the needs of current and potential customers.
- **Leadership & Constancy of Purpose** – The behaviour of an organisation's leader creates a clarity and unity of purpose within the organisation and an environment in which organisation and its people can excel.
- **Management by Processes & Facts** – Organisations perform more effectively when all the inter-related activities are understood and systematically managed, decisions concerning current operations are

planned and improvements are made using reliable information.

- People Development & Involvement - The full potential of an organisation's people is best released through shared values and a culture of trust and empowerment, which encourages the involvement of everyone.
- Partnership Development – An organisation works more effectively when it has mutually beneficial relationships, built on trust, sharing of knowledge and integration, with its partners.

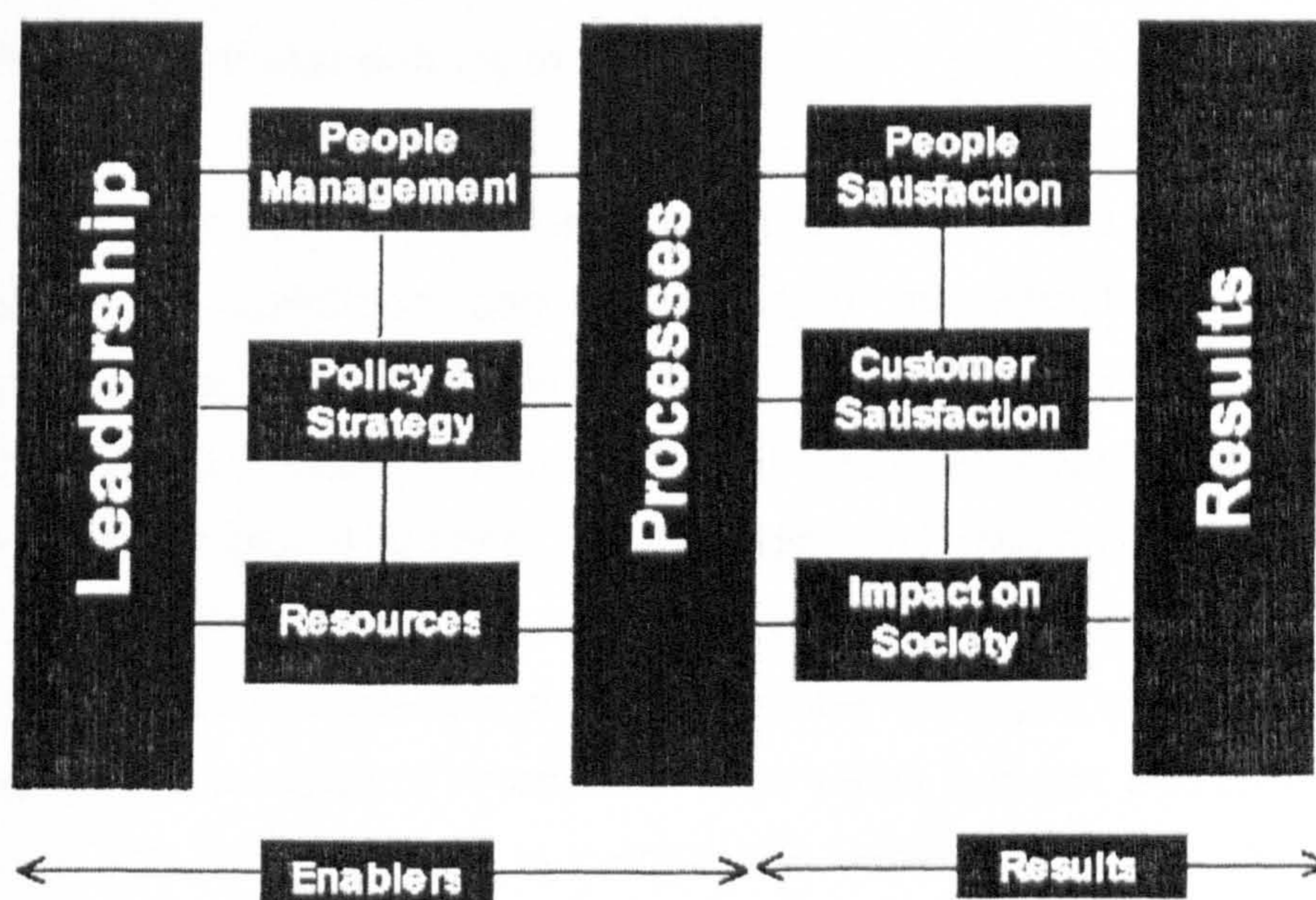


Fig 5.3 : The Business Excellence Model

(Source: British Quality Foundation, 1998)

The Model recognises there are many approaches to achieving sustainable excellence in all the aspects of performance and is based on the premise that excellent results with respect to performance, customers, people, and society are achieved through partnership development and processes (Beaumont et.al (1994). The model requires organisation's undertaking of self-assessment and promoting performance improvement. The framework helps to give the desired emphasis on strategic and Human resource issues involving process of strategic planning. This also focuses on result criteria namely: people results, customer results and society result (Macleod and Baxter, 2001). The issue of leadership, customer satisfaction, employee's contribution and people oriented culture determine the performance of the organisations. In the context of this research the elements of BEM can be considered as the relevant aspects of performing the information management and trading activities.

5.6.1 Role of National culture in IS

According to Triandis (1995), national culture reflects the core value and beliefs of individuals from childhood and is reinforced throughout life. Within the management practices, Hofstede (1980) contends that national culture is an important issue in management and indeed, it has been identified as an important variable in many global studies. In managing the multinational organisations, national culture has become an additional strategic dimension (Hodlen, 1992). This presents particular challenges for the people management. Attitudes toward the value of various types of information, information systems and communication technology are likely to vary systematically between cultures. Such cultural differences need to be understood before information technology can be effectively implemented in any other country.

A study by (Ho et al, 1989). found that Group Decision Support Systems (GDSS) did not work as well in Asian countries as in the US because of different attitudes towards the appropriateness of the expression of complex. Another study found

that the culture played a role in the selection of electronic communications media (Detmar, 1994). Shore and Venkatachalam (1996) argued that the process of IS transfer across cultures is influenced by the national culture along with the competitive environment and task congruency factors.

National culture has a different influences on the IS organisations between nations. National cultures influence information system design. The complexity of cultural influences eludes easy understanding (Emerson et. al, 1995). This study will emphasise the role of national culture in the information management and the exploitation of public information.

There are several research studies on national culture issues in IS field. Grover et. al (1994) analysed the differences and similarities in information technology resources, practices and perceived success across firms in USA, France and Korea. Results were framed within the context of cultural characteristic and their influences on the business practices. As shown in Figure 5.4 their research model consists of IT resources, organisational infrastructures, organisational practice, organisational characteristics and IS success. The study identified the impact of culture on the behavioural and technical aspects of the IT structure to understand the effect of cultural dynamics and its implications for organisational practices. The study suggested the potential presence of cultural influence on the role of information technology within organisation.

A research survey on the users of Executive Information Systems (EIS) in Sweden and the US (Leidner, et.al (1995) examined cultural differences and found that there were significant differences in the role of EIS between both countries. The variables used were related to the implementation of EIS, which consisted of reasons for EIS use. The findings confirm that uses IS to reinforce the decision-making behaviour valued in their culture. It can be concluded that culture does play a role in the interpretation of one's environment, that culture influences the types of use of advanced information systems for executives and

that culture differences are related to perceived differences in outcomes.

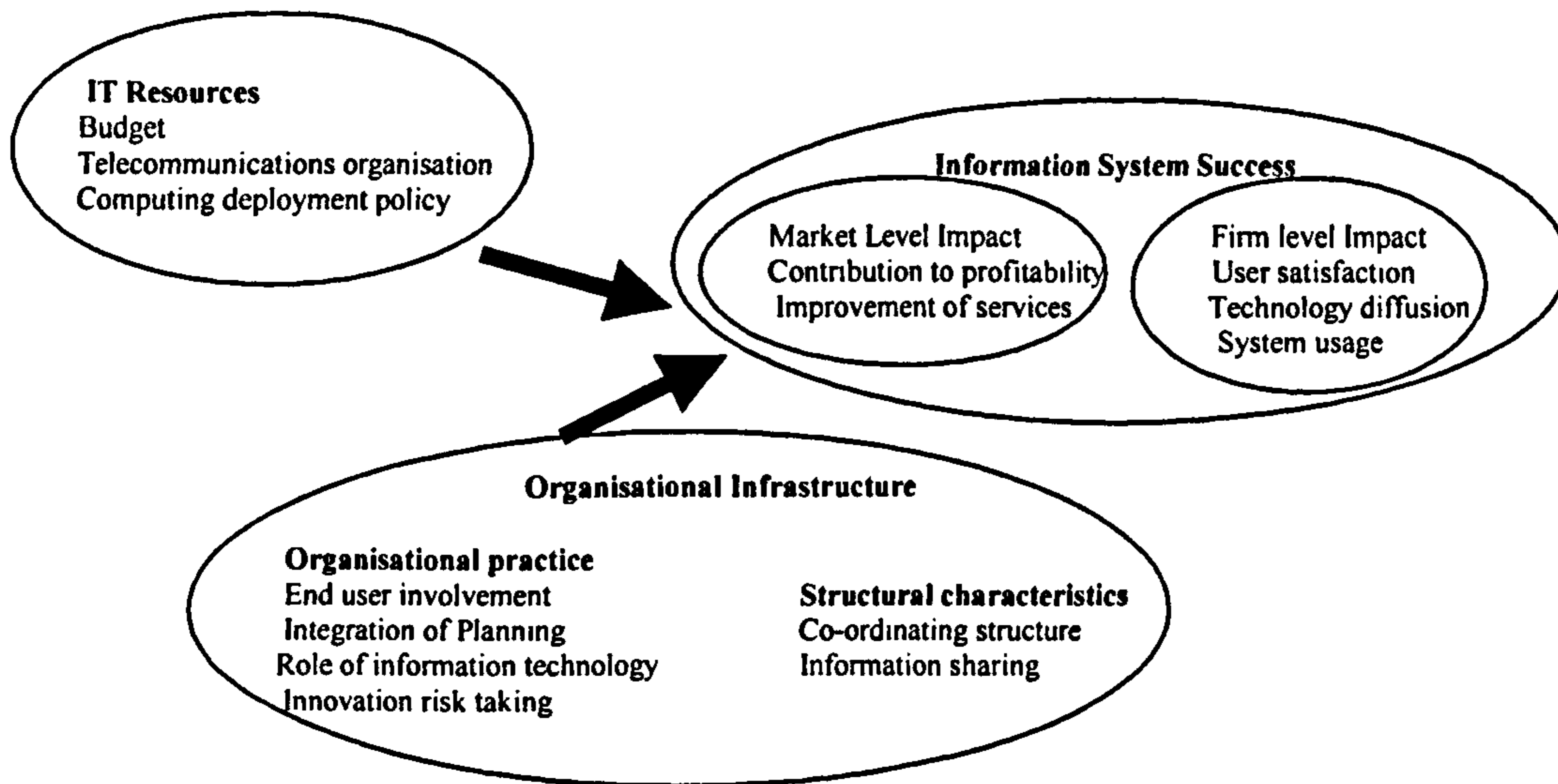


Figure 5.4 : Research model for cross-cultural study in information resource deployment and practice (Grover et. al. 1994)

The interaction of national culture and the IS organisational changes remains elusive. Much cross-cultural research in IS have shown that there are distinct differences in behavioural related characteristics toward information management and IT practice across cultures.

5.7 Cultural Dimensions and Information Trading

Many studies found that National Cultural dimensions influence the implementation and the use of information systems in organisations (Sampler, 1996) They also impact the elements in the use of IS such as organisational design, intelligence and decision making (Bensaou and Earl, 1998)). Due to the change of organisation's task and competition environment, the organisations have regarded information systems as a means of strategic application. As it has been discussed in chapter 3, the implementation of information trading is the result of strategic use of IS in managing the information. The information-

intensive organisations are those which have successfully utilised the IS and considered that the collected information has a value. The process of transforming the information into saleable products is likely to impact the organisational culture.

Information trading activity begin when organisations utilise the IS and valued the information. The ability of organisation toward the process is influenced by the culture (Hofstede, 1990). National cultural dimension such as uncertainty avoidance culturally measured the degree to which members in society feel uncomfortable with uncertainty and ambiguity which lead them to support beliefs promising certainty and to maintain institutions protecting conformity. This also implies on the short or long term focus and strategic planning. This may relate to the readiness of the organisation to implement the information trading activity. This related to the attitude of the organisation to value the information. Beside that the other cultural dimension such as masculinity determines the extent to which the organisation is achievement oriented, assertive and competitive in nature. These values could reflect the perception of the organisation toward information selling practices.

5.8 Formulation of Research Model and Integration of Culture Dimensions

5.8.1 Research Model for Cultural Studies in Information Trading

This study will examine how the cultural factors affect the differences and similarities in managing the information and information trading in the UK and Malaysian government organisations. The research model for this study is formulated on the premise of research model and approach by Grover et. al (1994) and with combination of research approach by Leidner et. al (1995). Grover et. al (1994) analysed the differences and similarities in information technology resources, practice and perceived success, while Leidner et. al (1995) analysed the cultural impact of the use of executive information system (EIS). In

order to make the model more relevant to information trading function, some modification to the model was made. Furthermore the elements of research model have some relationship with the concept of BEM in which some of them can be explained by the components of the model. The proposed research model used for this study is illustrated in Figure 5.5.

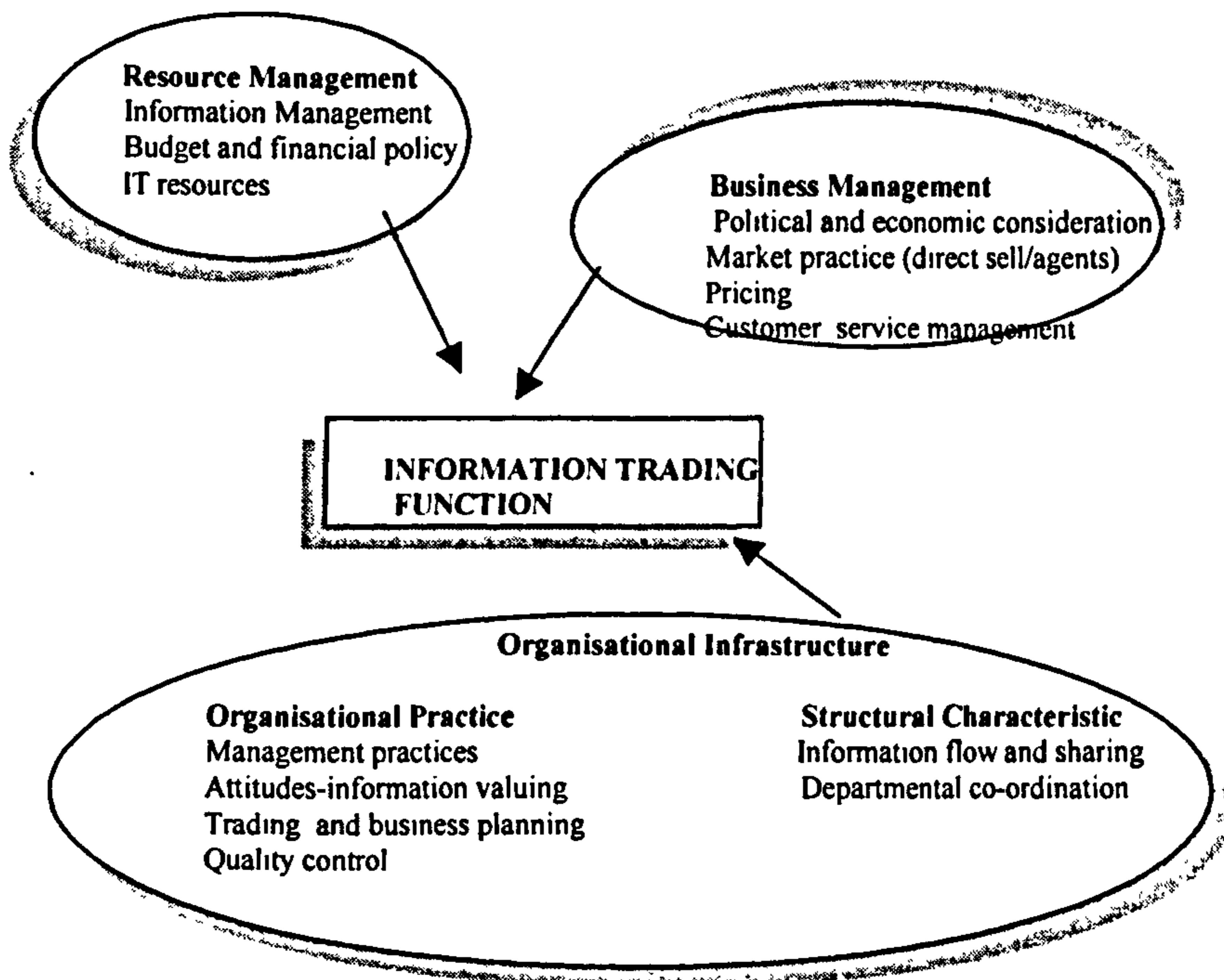


Figure 5.5 Research Model for cultural study in government information Trading Function.

5.8.2 The Rationale of the research Model and it's Components.

The adaptation of research model based on Grover et. al (1994) in this research is due to the fact that the model can be used to explore the influence of the organisational structure and resources and their relationship with the IS attributes and effectiveness in the context of cultural issues. Some components of the original model can be used in the scope of information trading functions. The proposed research model supports the exploration of the organisational structure and resources and their relationship with the IS attributes and effectiveness which has been analysed by Grover et. al. (1994).

Besides that the model also has been used to analyse the role of cultural factors in IS success. This can be deployed in this research. The strength of this model is it has combined elements that constitute within an IS-based organisation such as resource, business and organisational management. For instance, there is element of marketing strategies in the market environment, legislative aspect and national policy in the government organisations that provide some assurance so that the system remains feasible and under control by the organisations. Such a framework needs to consider the overall organisational goals, the operating strategies required to support the objectives.

The above research model addresses the information trading context. In business organisations, operational and management aspects are major elements which are determined by organisational strategies. These are in relation with the organisational policy, management and operational strategies which are carried out for business and government laws and regulations. The issues of financial and budgeting policy and market intervention are also part of information management and have a significant effect on the role of governments as information providers. From the legislative point of view, there are issues concerning intellectual property rights, legal restriction and the question of privacy which are widely considered as inhibiting factors in information business (Rhind, 1996). Another important research element is organisational structure involving human and organisational factors. These are of concern in government information marketing activity (Hadi and McBride 1997). In relation to the BEM, the components of the research model may address some of the elements such as the aspects of leadership, resource utilisation, partnership between the organisation and other parties, and the issue of policies and strategies. Thus the research model will hopefully

5.8.3 Components of Cultural Research Model

The research model consists of the main organisational aspects and management elements which commonly influence the success of IS in general

but are particularly related to how government organisations manage and utilise the information and information systems in order to implement the tradable information functions. The model also suggests that level of success of information trading differs among the organisations with varying resource commitment and exploitation, organisational practices and structural characteristics with regard to information management (Grover et. al, 1994).

The proposed research model identifies numerous managerial concerns of both resource and organisational structure dimensions and these are main elements in conducting the cultural study process. There are three main components in this research model. The components and the related elements are described:

- **Resource Management** - Information management culture, budget, financial management human resources'
- **Organisational Infrastructure** - Management practice, marketing, technology utilisation, system and policies, production and quality management and services management.
- **Business management** - Market availability, cost and pricing, customer management, product and services, economic and political environment.

Several variables affect information systems including environment, the physical structure of IS, the behaviour of the human components and procedural methods which includes IS processes. All the above have been represented in the research model.

Resource Management concerns how the organisation manages its IT and information resources, budget and financial policies. The effectiveness of the information trading can be linked to the quality of the technological and financial resources within the organisation (Keen, 1991). Organisations differ in their financial commitment to IT, their processing throughout the organisation, and the

integration of their systems with others through telecommunication technologies. For example, financial commitment and technological flexibility are necessary to facilitate the services. As the information resource evolves strategically, organisations may require either additional financial or technology support for competitive survival (Grover et. al, 1994). Importantly it has been argued that the appropriateness of resource commitment will be the large determinant for the level or type of success derived from IS (Nolan, 1979; Weil and Olson, 1989, Keen, 1991).

Information resource may be viewed in some organisation as an operational and production support mechanism. In these instances, budgetary policy on IT and distribution of resources may be more emphasised. It is plausible that the level of resource commitment and related perception of success flows directly from the managerial beliefs, value and attitude which are interwoven with cultural background (Ein-Dor and Segev, 1992).

Business Management component – As the organisations have developed unique disposition toward IT, information management and innovation seek ways to exploit information product in the marketplace. Within this scenario, it is reasonable to focus on the business management aspects. The strategic marketing plan development should be a main business foundation (Darling and Kash, 1998). The process of marketing management and systematic business actions established by the organisation also require organisational structure and personal motivation (Bijmolt and Zwart, 1994). This business management has interrelation with resource allocation which lead to reasonable commit to the marketing effort (Cateora, 1996).

The integration of strategic and IS planning and its impact on the business strategy are necessary (Steward,1994). The overall strategic vision of the organisation and corporate resources should be more emphasised in the quest of competitive advantages. In business management organisation must consider

the political and economic environments in formulating its trading policies, for example the government policy on privatisation. The level of competitive will determine the market share, investment and customer services.

In strategic planning, the organisation must also identify the marketing practices and business processes (Taylor, 1995). As an example, the introduction of Internet as marketing medium should be exploited by the organisations (McBride, 1997). The marketing team should take the opportunity to enact the organisational plans. Brown (1990) argued that in business strategic planning, the organisation must analyse the market opportunity, evaluate the technical issues, assess potential product and decide market mode. As information provider, these aspects are important. Furthermore the element of pricing may influence by the business policy and the customer service management. Organisations need provision of good service and management relationships with customers and maintaining of high level customer's satisfaction. Thus, cultural as well as competitive influence the ability of organisations in managing the business practices.

In information trading, the **organisational infrastructure** may evolve and change over time. Within this context, the infrastructure is divided into organisational practice which consists of management practices, attitudes towards information, trading and business planning and quality control: and structural characteristics which consists of information flow and sharing and departmental co-ordination (Grover et al, 1994). Within the organisational practice context, organisations have to develop good management practice and a good disposition toward the IS and seek for new innovative ways to exploit information value.

In terms of users participation in organisations systems and exploitation, Doll and Torkzadeh, (1991) argued that there are differences across cultures and complexities that influence the organisational success. Beside that the integration of IS strategy and corporate strategy is viewed as necessary to ensure

the technological infrastructure is fully utilised (Taylor, 1995). In the context of information trading function, this might be a part of management practice and vision.

Within the organisation, the exploitation of IS must address competitive challenges and explore greater effectiveness or market-level impact within the industry (Grover et. al, 1994). In this context, it may be important to have positive attitudes towards information as a valued asset and a high level of awareness of the commercialisation of information. There should be a strategic vision within the organisation in order to utilise the technological and business resources, which are necessary in a competitive trading environment.

In the structural characteristic context, it has been argued that organisational and IS success depends upon the fit between normal structure and supporting technology (Ahituv et. al (1989). Leifer (1988) notes that successful implementation of IS architectures requires that systems match the style and process by which tasks are performed within an organisation. Recognising this aspect, information trading may be dependent on the degree of dissemination of information throughout the organisation. Within the organisation, the degree of information sharing and the free flow of information support the capacity of the organisation to make information available in the market. This was supported by Lee and Leifer, (1992) who argued that organisational and IT structure influence the amount of information sharing or capacity of firm and, therefore impact effectiveness of the firm at market level. Environmental regulatory and background of the management also influence the organisational structure and the degree of information sharing (Grover et. al, 1994). This structural characteristic both organisationally and technically may influence by culture elements.

These components are needed in a cross cultural setting in order to better understand the cultural, political and organisational complexities underlying these

relationships. It is also reasonable to suspect that cultural impact would be most prevalent in behavioural versus technical aspect in IS structure and practise across countries.

5.9 The Relationship between the Components of the Research Model

The three main components of the research model have been identified as the relevant organisational variables affecting the success and failure of management information system (Ein-Dor and Segev, 1978; Lee and Leifer, 1992). These set of variables are typically associated with different types of organisational structures. They are based on their controllability with the respect of Management Information System (MIS) functions. The uncontrollable functions such as , external political and economic factors, market forces are the business management aspects and impact the controllable factors such as resource management, organisational practices and structure. Darling and Kash (1998) argued that the foundation-building strategies formulated from the analysis of the resource management, market places and organisational structure might be considered as critical elements in company's business success. Each area is interrelated and affects the others. Consideration should be given to the importance of analysis of market opportunity, assessing product potential, making a organisational commitment, allocating necessary resources, identifying technical aspects, developing a strategic marketing plan, organising the operational team and evaluating and controlling operation and innovations. These aspects are likely to be addressed within the three components of the research model.

The relationship between the elements of the research model can be looked into the effectiveness of the organisation to utilise quantity and quality of the technical, financial and organisational resources within the firm (Hall, 1993). He concluded that the essence of organisational success is the organisation's ability to manage the resources. The internal resources such as technological

expertise, budgetary and marketing strategies are the main factors. At the same time the organisational elements like firm's objectives, workers' attitudes, policies and management structure will influence the internal resources. Following the same perspective of these frameworks, the premise of this study is the level of information management and trading success differ among the organisations with varying resource commitment, business practices and organisational structural characteristics. Therefore, it is expected that cultural influences might cause these relationships.

5.10 Integration of Culture Factors with the Research Model

This research is to examine the impact of national culture on information trading in government organisations in two different countries. It compares the implementation of tradable information function in government organisations in the UK and Malaysia. The main questions might be examined in this research are:

- Do national cultural characteristics explain differences in nature of information management systems and relate to the government information trading activity?
- Do the existing phenomena of information trading activities replicate national cultural characteristics?
- Do the national culture characteristics explain the actual practice of the tradable information functions in the organisations?

The integration of cultural dimensions in the research model will accomplish the research objective to assess the role of cultural factors in government information trading functions. The research model identifies relevant organisational context elements affecting the success of implementation of tradable information function within government organisations. We would expect that cultural differences might cause variations between different organisations. By understanding the components in the model and their relationship with elements of culture, a

number of factors that can be highlighted in evaluating the cultural differences in the implementation of tradable information activity in government organisations.

The elements of importance to this study are:

- Management of organisational resources such as data and information, IT facilities and manpower.
- The organisational practices include the information management, information trading, and role of IT, integration of planning and co-ordination structure in the organisation.
- Interrelationship among the component of business activities in the organisation.
- The management culture of organisation and the effect of internal and external factors on the information management and trading in government organisations.
- The attitude of information collection, dissemination and ownership.
- The distribution of power and the extent of individual, group and organisational autonomy.
- The level and nature of involvement of private sector organisations
- The legislative and political framework within the information trading function operates.

These elements are used as the basic guidelines to define and formulate the research questions as well as the research framework of this study. At the heart of the factors to be examined by this study are those concerning national cultures, which are represented in the organisational cultures. In summary, cultural factors influence management and organisational infrastructure which in turn influence the extent and maturity of information trading within a Government departments. It is the aim of this study to identify some of these factors and explore the relationships between them. These objectives are further elucidated in the next sections.

5.11 Conclusion

The cross-cultural studies have dealt with the adaptation of different countries to new information technology. Organisational culture, which is originated from the national culture, may influence the management's style and consequently the success of the organisation. The influence of culture in IS exists in the development, implementation and the use of IS. Culture factors also have been closely related to the process technology transfer and the success of IS in different countries. In this study, a research model is formulated which consists of three main components namely resource management, business management and organisational infrastructure. These components relate to the implementation of tradable information function in government organisations. In order to use the model it is important to select the right research approach. The selection of appropriate research methodology for this study will be discussed in next chapter.

CHAPTER 6

RESEARCH METHODOLOGY

6.1 Introduction

In the previous chapter, the research model was framed based upon the interaction of cultural factors with information system (IS) management especially practising of tradable information function in government organisations. This study examines the interaction between technological elements and the management styles which include the human actions, organisation patterns and systems. This chapter discusses and identifies the research methodology that will be used in this research work.

The structure of this chapter is summarized in Table 6.1. Firstly the literature concerning the role of interpretivism and positivism approaches in IS research are reviewed. Furthermore, qualitative and quantitative methods and their characteristics will be discussed in view this research project. The research approach employed in this project is described along with its suitability. This chapter ends with a summary of the proposed research method.

Table 6.1: Structure of the Chapter

-
- Introduction
 - Research Question and Research Methodology
 - Positivism and Interpretivism in Information System Research
 - Interpretive approach in Information system research
 - Proposed Research methodology in cultural studies in IS
 - Conclusion
-

6.2 Research Question and Research Methodology

The research methodology in this research is determined by the nature of the research. As it has been highlighted in the previous chapters, the research will explore the role of management and cultural aspect within the government organisations in practising information trading. The methodology considers the research questions stated in Chapter 1, which are:

- What are the organisational, management and institutional issues that influence the implementation of tradable information function in the public sectors?
- What are the similarities and differences in information trading practices between government organisation in the UK and Malaysia?
- What is the relationship between the cultural context and the involvement of the government organisation in information trading?
- To what extent do organisational cultural dimensions influence the information management and information trading in government organisations?

These research questions are the combination of the aspects of information management and culture. In answering these questions, the research approaches used will explore and explain the relationship between organisational culture and the nature of information management practices in the UK and the Malaysian governments.

Research in information systems and culture requires IS researchers to be aware of the socio-political nature of their research effort. The concept of authenticity has been introduced as a means of interpreting these aspects of IS practices and research. Probert (1997) suggests that it is necessary to develop research method that is unique to IS, such method reflects the genuine ontological status of information systems in the world (both social and technical aspects: both subjective and objective features). Information system developments are

concerned with issues of how organisations are structured and operated, and where and how new forms of information handling is conceived or planned and implemented (Venkatraman, 1991; Hammer, 1990). Significant strands of research in the last decade have pursued a more general understanding of the environment within which information technologies are raised and deployed, both within the fabric of people's lives and in the organisation and social structures that they participated in (Scott Morton, 1991; Hammer and Champy, 1993). This suggests that study of people and environment is very important.

6.3 Positivism and Interpretivism in Information System Research

This research can be considered as an IS and cultural issue related research, two approaches are commonly adopted by researchers in dealing with information system issues; the positivism and interpretivism. The application of these two approaches in IS studies has been debated for a long time as to what extent these two approaches can apply to Information systems (Orlikowski and Baroudi 1991; Walsham, 1993a). Some researchers consider it possible to combine these two approaches (Lee, 1991; Gable, 1994).

There is basic distinction between these two approaches. Positivism is the form of research which most scholars of organizations and information systems are familiar with and that they are considered as traditional. Positivism is defined as the position that facts and values are distinct and scientific knowledge consists only of facts (Archer, 1988). In addition, the approach directly reflects the methods of natural science and a belief in their generality for all spheres of inquiry. Following this argument, positivism believes that all knowledge we may obtain is based on the observation or experience of real phenomena in an objective and real world (Cornford and Smithson, 1996). Accepting this, the positivist researcher aims to give rise to objective. The facts produced are seen to have no social value encoded in them. Lee (1991) suggests that the positivist approach mainly specifies independent variables, dependent variables and test the relationship between them.

The basic philosophy of interpretive methods is that the knowledge of reality, including the domain of human action is a social construction of human actors. There is no objective reality, which can be discovered by researchers and replicated by others. In interpretivism, theories concerning reality are perceived as ways of making sense of the world and shared meanings arise from subjectivity rather than objectivity. Interpretive research recognizes that both the researchers and the participants perceive social reality differently. The researchers can develop their interpretive understanding in a variety of ways including an anthropological ethnography, sociological participant-observation study and hermeneutic interpretation of the subject documentary artefacts. A relatively weak claim for interpretive studies is to argue that they are of an exploratory nature and their findings can be later subject of a more rigorous positivist approach (Lyytinen and Kendall, 1992).

6.4 Interpretive Approach in Information System Research

The development of the interpretive approach in information system studies has been discussed by several writers (Boland and Day, 1989; Orlikowski, 1991; Walsham, 1995). The essence of this approach is the interpretation of the understanding of subjective meaning of human behaviour in relation with theory of reality. Interpretivist approaches are based on an ontology in which reality is subjective, a social product constructed and interpreted by human being as social actors (according to their beliefs and value systems). Interpretive research attempts to 'understand phenomena through accessing the meaning that participants assign to them (Orlikowski and Boroundi, 1991) and focuses on their cultures and historical context.

There has been a growing interest in interpretive research method and its application to information systems in recent years (Myers, 1997). For an interpretivist, the preferred way of contributing to a realistic understanding of information system in organizations is to investigate how they affect social

interaction and the creation of shared meanings. Whereas hypothesis testing requires abstracting from the richness of real-life and experimental situation in order to achieve a measure of controllability and precision. Interpretive research focuses on the full complexity of human sense making. The goal of understanding a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost when textual data are quantified (Kaplan and Maxwell, 1994).

Gregory (1993) while discussing the use of soft system methodology (SSM) in IS noted that in information system circles the term interpretivist is now being used to denote methods that imply that a social system is open to more than one interpretation, while a term positivist is used to denote methods that imply there is only one valid account of social situation. In this sense SSM is interpretivist, as opposed to positivist, in its account of social events. In her study on computer-based information system for decentralised rural development administration, Madon (1992) describes her epistemological stance as follows: the interpretive nature of the object studied means that knowledge can only be acquired by understanding and interpreting the process of interaction between people in a particular social setting. Davies and Nielsen (1992) describe an ethnographic study of configuration management and documentation practices and justify their approach. They argue that the research method in the study is less inclined toward experimental approaches and more inclined towards contextually dependent observational approach. The context is the primary source of research data and from this data the research object of configuration management and documentation practices can be recorded and analysed.

Galliers (1993) advocated that interpretivism appears to have most utility in terms of understanding the management and utilisation of IT in particular with in the North American context. Positivist methods have limitation in understanding the social processes involved in design, development and use of information system in an organization. Walsham (1993b) argues that the positivism methodology which is based on the view that the world exhibits objective cause-effect

relationship can be discovered at least partially by structured observation is unlikely to work in the IS field. An interpretive approach aims at producing an understanding of the context of the information system and its processes whereby the information system influences and is influenced by its context.

The arguments from these writers show that interpretivist approach seems more suitable in IS studies mainly because of the key role of human and organisational context. Interpretation can be derived from the understanding of the process of interaction as well as the factors and process elements within the environment. Interpretivism is concerned about the questions of a particular case and the analysis done is merely on that specific case after exploring all the processes, factors and other relevant issues related to the problems.

6.5 Proposed Research Methodology in Cross-cultural study in Information System

In this study, the main objective is how the government organisations utilise IT and manage information and tradable information functions. This involves the exploitation of organisational resources, which include information and IT, and the impact of cultural factors on organizational, sociological and resource oriented processes. The research model as discussed in Chapter 5 shows that the elements of this research are mainly related to socio-organisational factors which are important in the IS field. The components of the research model directly present the content, context and process in government organizations in practising the information management and implementation of information trading activities.

The complexity of interaction of human behaviours and information systems and the influence of economic, political and culture factors in the processes require insightful exploration (Avison et al 1993). The aim is to understand how members of a social group, through their participation in social processes, enact their particular realities and endow them with meaning (Walsham, 1993b). Interpretive studies therefore view information systems as social constructions discussing

shared interpretations and able to explain the phenomenological processes that exist in the government organisations. Furthermore, the involvement of cultural aspects in this study needs research method that can better explain the underlying issues and demonstrate integration of the cultural factors and the organisational issues.

6.6 Cross-cultural Qualitative and Quantitative Methods

In carrying out cross-cultural studies, researchers tend to face several issues. There are a number of problems in methodology, which involve potential language barrier, difference of interpretation due to culture biases and questions about the transferability of measures (Riordan & Vanderberg, 1994). There is a debate of the concept of cross culture that focuses on the two different concepts, i.e. the concept of culture uniqueness and cultural comparability. The cultural uniqueness suggests that the concepts, theories and practices cannot be applied universally because of cultured differences. While the cultural comparability view contends that there are universal traits that affect people (Hofstede, 1980).

Hofstede (1991) argues that organisational culture study can be divided into two those who seek soft qualitative information versus those seeking hard quantitative. Qualitative data usually means case studies; many organisational cultured studies are about one single case. With all their appeal such studies inevitably raise questions about reliability, would another observer have perceived the same phenomena? In addition, the question of generalisation: how does this case help us to understand other cases?

In cross-cultural studies, the survey or quantitative approach has been used widely in the research related to information system (Leider et. al , 1995; Carlson, et al , 1997; Grover et. al , 1994). This approach is used mainly because it manages to test the stated hypotheses and quantitatively shows the differences. The statistical analysis may give a good generalised statement concerning any outcomes because the finding is based on the sample of population. Although this

approach gives some explanations of any relationship between examined variables, it does not provide deep explanations of the factors and influences. Sometimes the cultural factors cannot be quantified by respondent's opinion through statistical scaling therefore, it really cannot explain the actual factors contribute to the culture issue. Interviews and case studies are required to explain the statistics.

Alasuutri (1995) argues that qualitative analysis is needed to explain the effects of culture on action. Cultural forms are perhaps best grasped through participant observation. The essence of qualitative approaches is the interpretation of the understanding of subjective meaning of human behaviour. The qualitative approach is used in studies such as the study of role of national culture in the transfer of information technology (Shore and Venkatachalam, 1996). A case study method is involved in the observation of the historical development and changes/processes taking place within an organisations (Madon, 1992). These approaches manage to explain the underlying factors that influence computer-based project.

Although most of the research in the area of culture and information systems based on the quantitative approaches, there is a strong movement towards qualitative approaches in exploring organisational phenomenon (Walsham, 1993). The most relevant study which employed a qualitative approach in cross-cultural study used ethnographic research designs to evaluate Hofstede model in an IS field (Harvey, 1997). In this study the ethnographic research was used to compare Geographical Information Systems (GIS) design and implementation in US and German organisations. The ethnographic research design was chosen for the detailed insight it provided into the distinct cultural and institutional context of each GIS (Onsrud et al 1992). Furthermore, qualitative research can lead to valuable insights that illuminate the influence national culture has on information practices. Benefits from technology require broadening our cultural understanding at the theoretical and practical level (Kaye and Little, 1996).

In cross-cultural studies in Information System, the interpretive approaches have been gradually accepted as research methods by many researchers. This is due to the fact that the natural setting in the IS organizations which constituted organisational and cultural factors require more appropriate ways to reveal the organisational process and cultural interaction (King 1996).

6.7 Reasons of Using Interpretive Approach in Cross-cultural Study in Information System

The choice of research methods influences the way in which the researchers collect the data approaches and analysis. This research focuses on the association of technology factors and organisation factors such as human resources, financial and technological management and the cultural issues. The aim of this case study is to examine the impact of cultural factors on the organisational elements or information trading functions. The use of interpretive enables to examine and diagnose the process and context from the cultural perspective.

The proposed interpretive approach is case study interviews. In interpretive approach, interviews may be the primary data source. It is through this method that the researcher has accessed the interpretations. These interviews enabled the researcher to step back and examine the interpretation of the respondents in more detail.

The choice of interpretive method aims to produce an understanding of the context of the use of information and the process whereby the information system influences and is influenced by the context (Walsham, 1993). The interpretive approach does not define depend and independent variables, but focuses on the full complexity of human sense making as the situation emerges (Kaplan and Maxwell, 1994).

Within this research context, this nature of exploitation of information systems has a highly complex, and constantly changing, social context. It is in the exploration

of this social context that interpretive research comes into its own (Newnan and Robey, 1992; Walsham, 1993). Furthermore, in this type of IS field there is no well-developed theory and understanding. In this respect, the use of interpretive approach will improve the understanding of human thought and action through interpretation of human actions in their real-life context (Darke, et. al, 1998).

In interpretive approach, the preferred way of contributing to a realistic understanding of information systems is to investigate how they affect social interaction and the creation of shared meanings. In relation to this study, there will be exploration of the impact of information systems on government organisations and how the IT exploitation affects the ability of the organization to make their information available to the users. This can be achieved through analysis of qualitative evidence expressed by the participants. The goal of understanding a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost when textual data are quantified (Kaplan and Maxwell, 1994).

Interpretive field research offers a rigorous approach to the analysis of the institutional context of information systems practices. The implementation of information trading is considered as the socio-technical IS institution where the information systems practice have a great influence on the information trading activity. In this case both the interpretive in-depth case study is well suited to provide information systems researchers with rich insights into the human, social and organisational aspects of information system development and applications (Myers, 1997). Furthermore, interpretive information system research approaches may be used for critical interpretation of the human perception on the information systems. (Silverman, 1998).

This research work will follow an interpretive approach. The details of research framework and its implementation will be further discussed in Chapter 7. In using interpretive approach in this study, two aspects have been considered; the role of theory and the issue of generalisation of the research findings.

Furthermore, there has been a growing interest in interpretive research method and their application to information systems in recent years. In line with these calls for methodological pluralism, interpretive research methods have gained prominence and has been increasingly accepted by IS research community in last few years (Walsham, 1995b). Another reason for the growth of interpretive research includes a general shift in IS research way from technological to managerial and organisational issues.

An in-depth case study method used by Walsham and Weama (1994) who studied a building society for a period of years that mainly used in-depth interviews. Similarly, the interpretive method was used in the study of the use of information technology in organisation and firms (Hughes et. al 1992; Orlikowski and Robey 199; Yates and Orlikowski 1992; Suchman, 1995). Furthermore the approach has been used including the study of aspects of information technology management (Davies, 1991; Davies and Nielsen, 1992) which is indeed a large element of the present study. Myers (1994) used critical hermeneutics to interpret case study data and showed how the perspectives of the stakeholders change during the implementation of the systems.

There is a growing interest in using the qualitative research methods such as action research, case study research and ethnography in IS research. These methods enable researchers to describe and understand the organisational and social issues associated with the development, implementation and use of computer-based information system (Darke et. al 1998).

6.8 Main Elements of Interpretive Approach

Practically, qualitative approach has several important elements for researchers to understand. In this chapter some of the elements will be discussed in order to give an idea how qualitative approach can be employed.

6.8.1 Research Question

The function of the research question is to explain specifically what the study will attempt to learn or understand. Research questions serve two other vital functions, that are to help to focus the study (the questions' relationship to purpose and conceptual context) and to give the guidance on how to conduct it (their relationship to methods and validity) (Miles and Huberman, 1994). Research questions may be initiated from the arising problems or issues or based on the preliminary research work such as survey or pilot study. Analysing of data from this work, can result in identifying the questions and these questions will be further explored by using qualitative approach such as case studies.

The formulation of research question in qualitative research provides guide the study. Since there is no element of testing in the studies, the researcher will only make a conclusion according to findings in answering the issues and problems studied. The research question will also determine the research approach, identify what kind of data is required and the way of interpretation of findings.

6.8.2 Sampling

In any research, the sample taken will be assumed to represent the total population. Patton (1990) states that qualitative inquiry typically focuses in depth on relatively small samples. There is a form of purposeful sampling or criterion-based selection which can be used in qualitative approach where there are only a limited number of sites (Patton, 1990; LeCompte and Preissle 1993). This is a strategy in which particular settings, persons or events are selected deliberately in order to provide important information that cannot be obtained as well from other choices. However, Weiss (1994) argues that there are situations in which convenience sampling is the only feasible way to proceed. For example, in attempting to learn about a group that is difficult to gain access to or a category of people who are relatively rare in the population and for whom no data on membership exist. He also pointed out that many qualitative interview studies do

not use samples at all but panels, people who are uniquely able to be informative because they are expert in an area or were privileged witnesses to an event.

The sample design although preconceived, at least enough to answer the question, is flexible and evolves as the study progresses and at the same time it can be adjusted continuously or focused by the concurrent development of theory. The sample also may include a search for negative cases in order to give developing theory greater breath and strength.

6.8.3 Role of Theory in Interpretive Research of the Study

In this study theory will be the final product of the research derived from the data analysis. In the context of organisational research, three distinct uses of theory have been identified: as initial guide to design and data collection; as a part of an iterative process of data collections and analysis and as a final product of the research (Eisenhardt, 1989; Walsham, 1995). In this study, the design of data collection and data processing and analysis is based on the framework of the research model. This is related to the research question that is formulated as the motivation of the research objectives. With respect theory as the final product of this research, it will be in the form of a conceptual framework. For example, Orlikowski and Robey (1991) in their empirical work on IS constructed a final product in the form of theory in which the organisational consequences of information technology are viewed as the product of both material and social dimensions. Since this study involves the cultural factors in IS organisational dimensions, there is no specific theory and the construction of the theory will be based on the final discovery of the research.

6.9 Generalisation of the Research Work

A critical issue in interpretive research concerns the generalisation of the findings. On this issue, Yin (1989) suggests four types of generalisation of interpretive studies: the development of concepts, the generation of theory, the drawing of

specific implications and the contribution of rich insight. In the context of this study, the generalisation of the findings involved some of the organizational issues in government organizations. There will be the development of concept in how the interaction of the IS and information trading activities as well as the role of cultural factors. There will also be the construction of theoretical framework on how the implementation of information trading in government organizations is carried out. This framework may be valuable for the scope of research and for further theoretical development (Jones and Nandhakumar, 1993). The outcome of the study may explain further the impact of culture on the ability of the government organizations to make use of IS facilities and become information provider.

6.10 Conclusion

Development of Information System is a multi-disciplinary subject and addresses the range of strategic, managerial and operational activities including the use of information and its associated technologies, in society and organization. There is increasing emphasise attention of information systems researchers to interpretive research approaches than positivist approaches. Interpretive approaches are capable of providing an adequate framework for the analysis of important issues that has rised in the IS discipline. The approaches can reflect the genuine ontological status of information systems in the world considering both social and technical aspects. In relation to this study, the interpretive or qualitative methods are employed since it concerns the interaction of technology and organizational activity, which include social and cultural issues. The strength of interpretive research is in its ability to explore the actual practices in real-world situation for relevant issues and may develop a framework, which can be used by both practitioners and researchers. Interpretive approaches will become the main research method in this study and its suitability is judged on to what extent it can explain the raised issue in this study. The implementation of this research method in achieving the objective of the study will be discussed in next chapter.

CHAPTER 7

RESEARCH APPROACH FOR DATA COLLECTION AND ANALYSIS

7.1 Introduction

This chapter discusses the application of the research approaches adopted in data collection and analysis process of this study. The justification of using interpretative or qualitative methods has been elaborated in Chapter 6. The qualitative methods used in this research are interviews and case studies which are based on similar researches in the IS field (Bensabat et. al, 1987; Willcock et. al, 1996; Silverman, 1998). Some modifications of the research approaches were made to suit the nature of this study which mainly pertain to cultural issues in IS organisations. Some of the referred research approaches adopted by researcher in cross-cultural studies of information technology and information system management were used (Leidner et. al, 1995; Grover et.al. 1994; Harvey, 1997).

The structure of this chapter is provided in Table 7.1. Discussion of the aims of the study, the research questions and the scope of the research will indicate the objectives of the study and the coverage of the research that will be conducted. Furthermore, theoretical analysis of the research approach is put forward to show its suitability. This includes the data collection and analysis processes. The next section will discuss the execution of research work and the data collection process. This includes how the interviews and case studies were conducted.

Table 7.1: Structure of the Chapter

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- Research Background And Objectives
 - Research Approach and Research Model Components
 - Theoretical Analysis of Research Approach
 - Formulation of Interview Questions
 - Theoretical views on Data Analysis Techniques
 - Research Implementation and Data Collection Stages
 - Data Analysis Stages
 - Conclusion
-

7.2 Research Background and Objectives

This section highlights the detailed background of the research and links it to the framework of data collection and analysis. In particular, understanding the objectives of the research indicates whether the research approach is appropriate to the study.

7.2.1 Statement of Research Questions

The main research questions in this study are: what factors influence information trading in public sector with particular reference to Malaysia and what are the cultural issues that influence the organisation in implementing an information trading function. The research will explore the effect of organisational culture on information management in two different public sector organisations i.e. in Malaysia and UK Governments. These principle questions give rise to a series of more detailed questions:

- What are the organisational, management and institutional issues that influence the implementation of tradable information function in the public sectors?
- What are the similarities and differences in information trading practices between government organisation in the UK and Malaysia?
- What is the relationship between the cultural context and the involvement of the government organisation in information trading?

- To what extent do national cultural dimensions influence the information management and information trading in government organisations?

In identifying these research questions, it is important to ensure that the questions are appropriate in terms of their interest, significance and value to describe the phenomenon.

7.2.2 The Scope of the Study

The main scope of the research is to identify the cultural differences in managing tradable information function between Malaysian and UK government/public organisations. This involves a comparative study of the differences and similarities in information management and the practice of information trading in these countries. In relation to the research question, this study will explore the influence of organisational or corporate culture on information management and the commercialisation of information within the organisations. The scope of this study is to:

- Identify the similarities and differences in information trading practices between government organisations in the UK and Malaysia.
- Assess the issues and constraints affecting the implementation of tradable information functions in government organisations?
- Explore how do the cultural factors affecting information trading in Malaysian government organisations differ from the UK government organisations?

7.3 Research Methodology

Qualitative approaches are employed in the research work. This section discusses the link between the element of research model and the research approaches. To design interpretive research approach in this study, three main

aspects of the government information-trading context were noted. These aspects have been illustrated in research model discussed in Chapter 5. Firstly, the study focuses on relationship between the exploitation of information and IT management and implementation of information trading functions. This has been categorised as resource element components of research model. Secondly, there is a scope to examine to what extent the organisations have practised the tradable information business management. Thirdly, the study covers the analysis of the role of organisational and management context in information trading practices. The nature of the components of the research model indicates that it concerns the social and cultural phenomena. In order to examine the impact of cultural factors an interpretive research approach was applied.

In interpretative research there is no redefined dependent and independent variables but the focus is on the full complexity of human sense making as the situation emerges (Kaplan and Maxwell, 1994). The research mainly examined 'how' and 'why' phenomena on the specific practices in implementing the tradable information functions (Kirsch, 1997. Brown 1997).

To what extent does this research approach suit to the study? There are several possible causes of the success or failure of the information trading in government organisations. Moreover, the process of implementation takes place over time, and it is a complex process involving multiple actors influenced by events that happen unexpectedly (Bensabat et. al, 1987). The qualitative approaches are well suited to identify the important events or issues and to link them in a causal chain. As observed in the research model, the chain is between information management systems and the business activity within the organisations. The process to become an information provider may be influenced by the organisational practises and structure. This study is similar to some other studies, for example: the impact of organisational strategy on the IS organisations (Schonberger, 1984,) and factors affecting the success of end-user developed application (Rivard and Huff, 1984). This study is characterised as exploratory in nature because it will explore phenomena that were not well understood. Almost

all the qualitative approaches in exploratory studies concluded with the list of suggestions to improve the success of future implementation effort and at the same time to generate theoretical framework.

7.4 Limitations of Methodology

As the research is an exploratory research, the use of qualitative method manages to explore the problem and has an opportunity to ask penetrating questions. This may be able to capture the richness of organisational behaviours but the conclusion drawn may be specific to the particular organisations studied and may not be generalisable. Besides that another limitation of this approach is inability to manipulate independent variables, the risk of improper interpretation and lack of power to randomise. Furthermore, this approach may lack controllability, deductibility, repeatability and generalisability (Lee, 1989).

7.5 Theoretical Analysis of Research Approach

Theoretically a qualitative method is an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with meanings of what is observed, not the frequency (Van Mannen, 1983). Qualitative methods exploit the context of data, which enhances the value of data. These methods yield a large volume of exceeding rich data obtained from a limited numbers of individuals. Consequently, qualitative method is characterised by the detailed observation and attempts to avoid prior commitment to hypothesis formulated before gathering the data (Yin, 1994).

In the context of this research, the investigation of social-cultural phenomena issues in information trading activity suggested that the philosophical stance of interpretative and qualitative approaches is more applicable. Furthermore, these methods may provide a richer, contextual basis for interpreting the social and cultural phenomena existing in IS community. Interpretative or qualitative

research methods are powerful and popular technique in data collection in IS nature of research and supported by many researchers (Gable, 1995; Bensabat et al, 1987; Willcock. et. al, 1996; Walsham, 1995).

Conversely, in cross-cultural studies, a questionnaire-based survey is the most popular technique in data collection, (Leidner et. al, 1995; Grover et. al, 1994, Carlson et. al, 1997; Harrison and Mchinnon, 1990). While in IS research, the intepretive and qualitative approaches have become more appropriate techniques in examining the interaction of human and technological issues (Orlikowski, 1993; Walsham, 1995). There is also, a trend of using qualitative approaches in cultural study particularly in IS (Shore and Venkatachalam, 1996; Madon, 1992; Harvey, 1997). As been highlighted in Chapter 6, it is accepted that qualitative approaches and analysis are needed to explain the effect of cultural issues (Alasuutri, 1995; Hofstede, 1991; Walsham, 1993). These approaches provide more complete picture of cultural issues in the context of IS organisational research. The discussion of these two approaches will be used in this study.

7.6 Case Study

Case study may be seen as an essentially interpretivist approach. Walsham (1993b) argued strongly that case studies are used as a means to develop deeper understanding of information system phenomena. A case study is an in-depth exploration of one situation in which the researcher will try to understand the reality of the domain, the mechanism of the problems or the linkages between the factor and processor within the organisation. The case study approach seeks to understand the problem being investigated. Even though case study is not a widely used method within the field of information systems (Myers, 1997), many researchers are arguing the suitability for and use of case studies, (Benbasat et al., 1987; Willcocks et al., 1996; Walsham, 1995b). Benbasat et al (1987) identified three reasons for the use of the case study in information systems:

- The investigator can study information systems in natural organisational settings. This is advantageous, as it is very difficult to separate information systems/ information technology from the people who are using them in a specific organisation environment.
- The case study paradigm allows the investigator to seek answers for 'how' and 'why' questions.
- A case study method is a suitable way to investigate a topic in which little previous research has been conducted (which is the case for this research).

One of the most important advantages of case study is that the researcher conducting the interview may discover things that were not even considered before interacting with interviewee (and cannot be discovered by survey) (Gonzalez, 1998).

The weakness of the case study is that the result or (the findings) might be peculiar to only the organisations that were studied and generalisation may not be possible (Gable, 1994). Other disadvantages are that the case study is time consuming and labour intensive (Gonzalez, 1998). Walsham (1993b) argued that the validity of an extrapolation from an individual case or cases depend on the logical reasoning used in describing the results for the cases and in drawing the conclusions.

7.7 Data Collection Techniques

In this study, data was primarily collected from face to face interview with one or more of the individuals in selected sample (Rockart and Flannery, 1983; Yin 1998a). An reference was constructed to investigate the constructs and relationships indicated on the research model. Interview and transcription were used to identify issues and factors that could potentially influence the exploitation of information and IS facilities for developing information trading function.

Interviews are an opportunity for researchers to probe deeply to uncover new clues, open up new dimensions of a problem and to secure vivid, accurate, inclusive accounts that are based on personal experience (Burgess, 1982). Interviews help in understanding how individuals construct the meaning and significance from their situations through the complex personal framework of beliefs and values which they have developed in the organisation, in order to help explain and predict events. (Easterby, et. al, 1991)

Yin (1984) pointed that in about half of case studies, the data were collected by multiple means, others half relied solely on interviews. A few studies on the implementation of information technology in public sectors collected data from a large number of sources, using interview methods (King, 1983).

7.8 Theoretical Views on Data Analysis Techniques

7.8.1 Qualitative Approach of Analysis

The analysis of data such as from interviews depends heavily on the interpreting powers of the researchers (Bensabat et. al, 1987), There are number of qualitative methods available for analysis of qualitative data. For example, pattern-matching, explanation-building , multiple views method or grounded theory. In this study, since the attention is more on comparative study, the essential data analysis is more on the contextual and cause-effect explanation. This means that there will be a reasoning relationship in establishing these cause and effect or drawing the assumptions. The data analysis will be based on the research questions which lead to an assumption supported by the interpretive data uncovered and finally to conclusions (Bensabat et. al,1987). Together with that, an intentional analysis is used which will describe the interviews from interpretivist perspectives (Sander, 1992; Willcock et. al, 1996). The detailed steps of this analysis will be discussed in the following section of data analysis stage.

7.8.2 Comparative Analysis on Impact of National Cultural Factors

This study is a comparative study as described by Pyburn (1983) and relies on the fact that outcomes at the different sites may be the result of identified differences in those factors measured for their conclusions. The comparative analysis based on the components of the research model and the analysis of the impact of national culture factors on each aspect will be based on the differences that emerge from the data analysis and interpretation. The study draws on the culture dimensions adopted by Trompenaars (1993), Hofstede (1991) and national cultural factors (Madon, 1992). In doing the comparative analysis, the components of research model will become the basic comparative framework.

In this study, the culture is measured using qualitative data which is assessed by the analysis of the interview and case study input. The value of culture is dependent primarily on the criteria and nature of behavior and actions of the organisation (Hofstede , 1991). In evaluating the role of culture in the organisations, interpretation and judgement of the existing phenomena can be used to explain how strong or weak the cultural factors are within organisations. A strong culture can be interpreted as a homogeneous culture i.e one in which all the respondents give about the same answers on the key questions regardless of their content. A weak culture is a heterogeneous one this occurs when answers among different people in the same unit are varied widely. Using this concept, the culture is measured based on the analysis of the outcome of the research findings.

7.9 Research Implementation and Data Collection Stages

7.9.1 Research Implementation Framework

The research implementation framework is illustrated in Figure 7.1. This describes the main sequential research activities undertaken in this study.

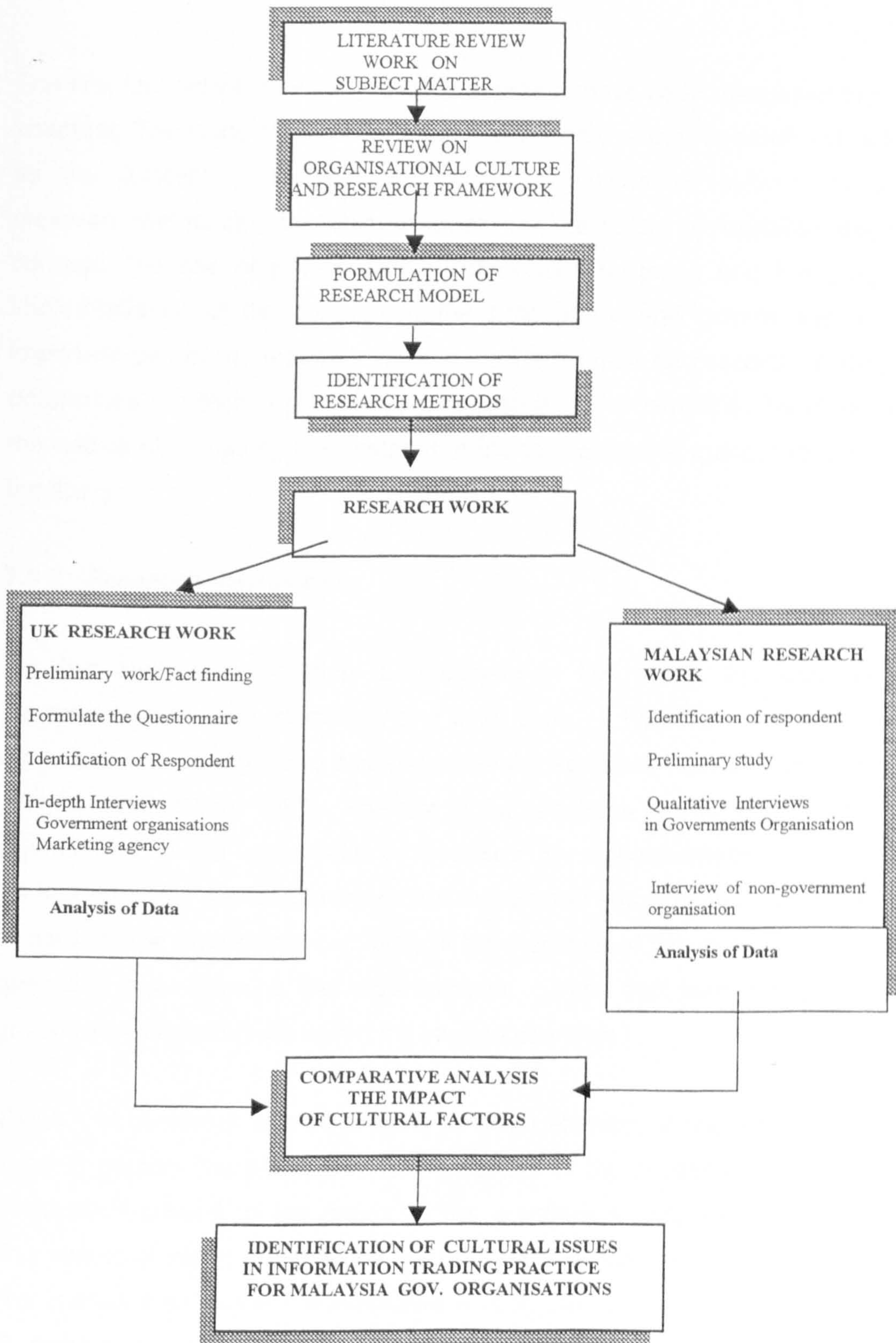


Figure 7.1: The research implementation framework

The first four activities of the research approach have been discussed in previous chapters. The study started with a literature review of the research subjects such as the concept of tradable information, organisational cultural factors and research methodologies. This includes the definition of tradable information concept, the role of government in information business and the progress of implementation of the concept in the both public and private sectors. The important part of the research work is the formulation for research model, which determines the elements of research questions. Furthermore, the discussion of the nature of this study has resulted in the application of qualitative approach in the study.

7.9.2 Research Instruments

As the qualitative approach is employed in this study, the main research instrument used were interviews and case study. For this purpose, interview questions were designed to accommodate the scope of 'how and why' concepts. (Krisch, 1997; Brown 1997). The aim of the questions was to assess the existing phenomena in the organisations regarding the implementation of information trading concepts and to identify critical issues that influence this situation, hence to confirm the explanatory capability of the elements of the research model. The questions also examine the organisational culture that was perceived by the government organisations within the studied countries.

The set of questions was developed for each element of the research model in order to capture the organisational perception of the research subject. These questions focussed on the nature of the practices in information management. This reflected the role of cultural factors in the organisations (Hofstede, 1980). The primary objective of the interviews was to gain a better understanding of the IS context and information trading activities along with the organisational and technological implications.

Specifically, within the scope of this study, the unstructured interviews protocol consisted of questions on the information management and information trading practices. The design of interview questions was based on the research work by Willcock et. al (1996). This includes the issues on the IT exploitation, information management systems, organisational management style, personal issues, role of organisation in information business and government policy. The interview questions consisted of the typical areas of the study and are listed in **Appendix A**.

7.9.3 Sampling Population

The type of sampling for research respondents used here is purposeful sampling (Pettigrew, 1990). This is where the sample selected may represent the polar extremes that enable comparison across important aspects of the evaluation and decision domain. The use of this method of sample selection is suitable for this type of interpretative approach because of most of the respondents are similar hence the sample should cover the widest spectrum possible. Generally the respondents for interviews were selected departments in the UK and Malaysia government organisations, which were assumed to be involved in information management and also information trading activities.

7.9.4 Research and data collection Site

As a cross-cultural study in nature, the data collection was carried out in two different sites. (Leidner et. al, 1995; Grover, et. al, 1994; Harvey, 1997). In this study the research sites were the UK and Malaysia. These countries were purposely chosen because of their differences along the cultural dimensions. This is also due researcher's interest in meeting on the practical objective of research which is to adopt the IS management style of developed nation. The different patterns of cultural profiles of these two countries may impact the IS organisations. Hence the research provides an adequate cross-representation of

cultural characteristics necessary to uncover the research interest (Grover, et. al 1994). The data collection was carried out in the UK and Malaysia.

7.9.5 Selection of the Government Departments

Since the research is related to the implementation of tradable information in government organisations, the main respondents were government departments in the UK and Malaysia. For UK government organisations, the selection of departments was based on the preliminary study using the survey method in a number of departments. The list of selected departments was obtained from the Open Government Website, which were assumed to disseminate information to the public. The outcome of the study was indicated that some of the departments or agencies have implemented information trading activities. For the purpose of case study, three main departments; ONS, DVLA and TSO were selected. The nature and background of these departments in practising information marketing activities was the main characteristics of their selection for the study.

In Malaysian study, the interview was conducted in more than 30 departments and agencies. The departments and agencies were selected among the existing government departments and likely to present the general nature of government information collection and dissemination activities. The department is ranged from the Federal government agencies such as Federal Treasury and National Economic Planning Unit of Prime Minister Departments to the Operating agencies such as Ministry of Transport or Royal Custom Department. The wide range of departments were chosen for Malaysian study because they can provide enough input in exploring the issues in information management and trading activities in the government organisations.

7.10 Research Work in the UK Organisation

The research work in the UK organisations was divided into three main parts, the initial survey work, case study and qualitative interviews in government

organisations; and interviews with the commercial information companies.

7.10.1 Survey Work on Information Trading in Government Organisations

At the first stage of the study, a small scale of survey was conducted in order to explore the basic ideas on the implementation of tradable information functions in government organisations in the UK. The aim of the survey was to get some insight into how the information marketing is practised by those departments, to identify the background of the service, the issues and preliminary perception of the organisations toward information marketing function. The aim of this approach was to build up the research framework for the purpose of further in-depth study (Gable, 1994; Willcock et al., 1996). A questionnaire was sent to a selected list of government agencies and departments. These agencies were committed to the UK Open Government policy where one of the main responsibilities of the departments was to disseminate government information and make information available for the public. Thirty-two departments were selected and eleven responded to the survey. This elicited a 34.38% response rate. The basic findings of this survey will be discussed in the following chapter. A particular set of survey findings pointed the possibility for a detailed case study investigation into the evaluation of information trading practice in government organisations.

7.10.2 Case Study in Selected government organisations

In order to develop detailed understanding of the implementation of tradable information practices, case studies were conducted in selected UK government organisations. The research work was conducted in between November 1998 and January 1999. For the case study, Officers from the National Statistics Office (ONS), the Driver and Vehicle Licensing Agency (DVLA) and Tarrif Statistical Office of tHM Customs and Excise were interviewed. Since all of these organisations have been actively involved in information trading, the research was mainly focused how the activities were established and the relationship between the organisational structure and practices and information management and

utilisation. The data was collected by face-to face interviews where possible with the individuals directly involved in the information business on behalf of the organisations. In one department, several telephone interviews were conducted with the marketing officers and the IT personnel. The interviews were recorded by note taking and in some cases written explanations were acquired from respondents. Several documents and supporting articles were collected by the researcher as the respondents considered them relevant.

7.10.3 Interviews with the Marketing Agents

To accomplish the data collection work, several interviews were conducted with the marketing agents to assess the perception of the private information companies concerning government information trading practices. Two marketing agents were selected in which face-to-face interview and telephone interviews were conducted. The open structured interview questions were designed to discover how the private sector organisations evaluate the public sector information trading practices and the pattern of relationship between both the parties. This relationship is considered significant in the government information business and has been recognised as one of elements in the research model. Interviewees of the marketing agents were principally the senior marketing managers.

7.11 Research Work in Malaysia Organisations

The other part of this study was the research work and data collection in Malaysian organisations. The fieldwork in Malaysia was conducted between March and May 1999. Similarly as the UK research work, the data collection work in Malaysia was conducted in several parts and involved a similar types respondents. As compared to the UK work, a qualitative interview approach was employed instead of the survey method. Several parts of research work in Malaysian organisations were as follow:

7.11.1 Preliminary Study

Several preliminary interviews were conducted as pilot study work. The selected respondents were from identified personnel of different departments. A proposed list of questions was used in this pilot study and the purpose of this pilot study was to refine the data collection plan and to provide insight into the basic issues being studied. The related issues that emerged were:

- Differentiation between the government data and government information - this required further explanation in actual interviews.
- Clarification on the terms of information marketing in government organisation which seemed to be confusing to respondents.
- Different questions for trading information departments and non-trading information organisations. This facilitated the research work in exploring the issues in these respective organisations.
- The organisation and managerial issues were examined in order to explain the role of cultural factors in the organisations.
- The idea of information marketing in government organisations is still uncommon, so that is useful to examine the relevant factors and issues that exist in present information management activities.
- The list of questions was too wide and needed to be more focussed on the main issues of information management.

The investigation of the pilot study provided more specific guidelines in revising the scope of the interviews and case study. Modifications of the questions were made and this helped in the process of development of clearer research questions.

7.11.2 Qualitative Interview in Government Organisations

In the first part of the research work in Malaysian government organisation, qualitative interviews were conducted in a number of selected government ministries and departments. The data was collected via on-site, face-to-face interviews with relevant officers in those departments. The respondents were mainly top level managers, head of the units and IS executive or professionals. Most of them were responsible for information technology management units or some other related units. In some organisations, several different people were interviewed. Semi-structured interview questions were used and to remain focused on the patterns and issues on information management and trading in the organisations.

An interview took about forty to sixty minutes and the discussion was taped recorded and note taken. The first part of the interview explored the background of information management within the organisations. Subsequent questions, focused on issues concerning the existence of information trading functions.

More than fifty respondents were interviewed from the selected organisations. The list of the respondents with their position is shown in **Appendix B**. These respondents were involved in formulating the organisational policies and directly responsible for information management. The wide range of background of the respondents is significant in this research since they may give diversified views and perception on the issues.

7.11.3 Case Study in Selected Departments

The interview work was considered as macro level data collection, which presented the overviews of the issues on the research subject. In order to have more micro analysis three case studies were conducted in three different departments. The case study sites were Department of National Statistical (DNS), Road and Transport Department (RTD) and Malaysian Royal Customs and

Excise. The selection of these departments was laterally similar with the UK case study sites. The aim of the case studies was to explore in depth implementation of information marketing in Malaysian government organisation.

Multiple methods of data collection during the case study were employed including interviews with several officers in different units, observation on the activities and examination of existing documents. The scope of the case study covered the IT and IS management, the nature of information management and trading, the relationship between different sections, the policies and regulations, information management and trading issues and problems. The observations were framed within the context of cultural factors and their influences to these elements.

Since, the official language in Malaysian government departments is Malaysian language, the interview and case study were conducted in both Malaysian language and English. This has facilitated the respondents to understand the questions and encouraged the discussion.

7.11.4 Interviews with Non-government Organisations

In order to inquire different perceptions on the role of government organisation in information sector, face-to-face interviews were also carried out in two non-government organisations. These two private information companies are the information companies in city which get their information from, and have a business with government organisations. The findings from these interviews were used to verify the emerging issues from the interviews with government organisations.

Following completion of all the interviews and case studies, the entire interviews were taped recorded and transcribed. This is important to make certain the respondents' comments and perceptions were recorded accurately. The interview transcription and relevant documents were used to identify aspects or variables

that could potentially demonstrate the cultural differences in implementation of tradable information functions in two different government organisations.

7.12 Data Analysis stages

There are two main parts in data analysis stage of this study. The analysis of the research findings from the data collection and comparison work on the impact of cultural factors on the research findings. In the first part the tape-recorded interviews were transcribed into text. The numerous emerging issues regarding the implementation of information trading and IS within the organisation have been extracted and interpreted. The concept of intentional and contextual analysis are applied in order to address the research questions. There are several stages in the analysis, which are based on data analysis method suggested in the interpretative research work (Willcock et. al , 1996). The analysis work consisted of the following stages:

- Classify and describe of the fact of phenomena according to the research model framework.
- Determine the way in which participants ascribe meaning to reality by how the participants perceive cause and effect.
- Identify the themes interpreted from the participant viewpoints.
- Assess our own views as to how the accumulated evidence can be interpreted.
- Specify the patterns, themes and principles emerged from the interpretation works.

The analysis of data also involves evidence from other sources. In this study, the data from the interview of private information companies is used to validate the findings from the government organisations. The analysis of both sources of evidence is the way to evaluate the issues or themes raised in the study. In this contextual analysis excerpts from the transcribed interviews is used as part of the discussion to help the validity of the analysis (Astley, 1985).

The second part of data analysis, the different nature of practises and phenomenon the implementation of information trading function between the UK and Malaysia were analysed in relation to National cultural dimensions. This comparison looked at how the present organisational cultures in each country play a role in the ability and willingness of the organisation to practice information trading. The analysis was framed in the context of the research model components.

7.13 Conclusion

This chapter highlighted the background of the research; its scope and the research questions that will facilitate the understanding of research approach applicable for this study. Furthermore, this chapter has discussed the research approaches used in collecting and analysing the empirical data and evidence. This study has used mainly qualitative approaches such as interviews and case study methods. The research implementation framework showed the research processes undertaken in the study such as the literature review, respondent identification, collection techniques and analysis stages. In data analysis stages, a comparative analysis between two different governments was framed in the context of cultural characteristics and their influences. The background of the research sites and respondents were discussed to show the possible difference in research findings which become the key input for the study. The actual findings and data analysis from the research work are discussed in Chapter 8 and 9 respectively.

CHAPTER 8**THE KEY ISSUES IN INFORMATION MANAGEMENT AND IMPLEMENTATION OF A TRADABLE INFORMATION FUNCTIONS IN MALAYSIAN GOVERNMENT ORGANISATIONS****8.1 Introduction**

This chapter analyses the key issues which emerged from the research work conducted in Malaysian government organisations. The primary concern of this study is to surface the issues affecting the implementation of tradable information functions in Malaysia public departments. To date, no similar research has been conducted to examine the above matter in the Malaysian government sector. This study therefore necessitated the gathering of a considerable amount of basic information as a starting point.

The research conducted has focused on the relationship between the information management and the ability of the organisation to transform information into a valuable product. The findings will be used to identify what are the organisational, management and business issues that influence the ability of the organisations to practise information trading. This is one of the research questions formulated in the study.

The structure of this chapter is summarised in Table 8.1. The discussion will begin with the basic findings from the research, which describe to what extent the tradable information function is implemented in the Malaysian public sector. Following this, issues will be highlighted according to research framework

(Chapter 5). The issues are categorised into a few components which provide some understanding regarding the discussed issues. This will reflect the influence of cultural factors on government information exploitation that will be discussed in Chapter 10 later.

Table 8.1 Structure of The chapter

- Introduction
 - General Findings On Implementation of Information Trading In Malaysian Organisations
 - Issues Affecting The Information Management and Trading Functions
Resource Management
Business Management-
Organisational Infrastructure
 - Relationship Between Organisational Factors and Information Trading Activities.
 - Overview of The Issues And Factors from the Research
 - Conclusion
-

8.2 Research Findings of the Research Works

The discussion on research findings will be divided into two main parts. Firstly the general findings on the nature of implementation of information trading practices. This is in relation with the basic findings from the background of the respondents. This will be followed by the findings on the issues that are associated with the information trading activities in the departments. In this part the discussion on the research findings was aimed to link to the research questions, i.e to identify the issues that influence the implementation of information trading in Malaysian government organisations.

As it has been highlighted in the previous chapter, the majority of the respondents of this research were the government ministries, departments and agencies. These departments were selected representing several types of government departments which carry out different responsibilities. This includes the central government agencies which are controlling the IT and Government policies and

departments. The listed departments indicated the wide range of functions, from formulating national policy to providing public services. The accumulated research work cover a wide spectrum of the government departments and agencies. The descriptive information on the respondents' background and their basic characteristics are shown in Table 8.2.

The majority of the respondents were directly responsible for IT and information management. They were often involved in departmental IT policy formulation, monitoring the implementation of IT and information management procedures. Besides that some of the respondents were administrators who were responsible for organisational management including financial and human resource management. The different type of respondents selected in this research managed to provide a wide spectrum of findings especially regarding the information and technical management.

The general findings as shown in Table 8.2 provided some basic information regarding the status of information trading activities practised in the departments. It also indicated the wide variety of data collected from the government departments. These data are from primary sources including the public and through transaction processes with the government clients. These data are collected directly from sources such as from the export entry points. This shows that government is collecting a large volume of information from various sectors.

The research showed that the government IT programme has resulted in wide utilisation of IT facilities such as PCs, mainframe systems and on-line facilities in most of the departments and organisations.

Table 8.2 : Basic Interviewee's Profile On Information Management In Malaysian Government Organisations

ORGANISATION / DEPARTMENT	Organisational Functions	Data or Information Handled	Participants	Organisation Statutory	Information Trading & Years of service	IT Utilises Main frame/ On-line/PC	Main IT facilities and utility	Revenues earning function
Ministry of Education	Formulate national policy on education and implementation of educational infrastructure	Student, school, education, social statistic	Head of Information Unit	Fully government	No	On-line PC	Data collecting storing	No
National Library	Provide reading facilities and centre of reference	Economic, social	Asst Director, Information and Research Unit	Fully government	No	Mainframe/PC	Data storing and updating	No
Ministry of Entrepreneur Development	Policy, planning for development of entrepreneurship sector i.e. SMI	Entrepreneurship information Small Medium industrial sector	1. Head of Information Technology Unit 2. System Analyst	Fully government	No	Mainframe PC	Data collecting storing	No
Ministry of Agriculture	Formulate national policy on agriculture and projects	Agriculture statistics, Land use	Head of Information Unit and Documentation	Fully government	No	Mainframe PC	Data collecting storing	No
Federal Agriculture and marketing authority (FAMA)	Regulate the agricultural product market and pricing	Agricultural product statistic, Retailer information, supply, Demand and price.	Information Officer, Market Information Management Division	Government Statutory agency	Yes > 5 years	Mainframe PC		Yes
Malaysia Agriculture Research and Development Institute (MARDI)	Deal with agricultural research and development.	Agricultural research findings Scientific research	Head of Information Technology Unit/	Government Statutory agency	Yes > 10 years	Mainframe PC	Data collecting storing	Yes
Ministry of Finance	Government financial policy, Budget and economic policy.	Budgetary, contract and Economic statistics	1. Head of IT Unit 2. Chief Assistance Budget unit 3. Budget officer	Fully government	No	Mainframe PC	Data collecting storing	No
The Inland Revenue Board of Malaysia	Collection of income tax	Personal information, business and commercial	Asst Head of IT Unit	Government Statutory agency	No	Mainframe PC	Data collecting Storing, processing	Yes
Royal custom and excise	Taxation on good and services and enforcement of law on trade	Export and import statistics Tax, commodities	Asst Director, Training Unit	Fully government	No	On-line (in progress) PC	Data collecting storing, processing	Yes
Evaluation and Properties Department	Provide evaluation service for the government asset and properties	House, land and asset	Asst. Head of Information and Corporate Unit	Fully government	Yes < 5 years	Mainframe PC	Data collecting storing, processing	Yes

Ministry of Health	Policy on health and medical sectors and planning health projects	Medical and health Social statistics	1. Head of IT & Information Unit 2. Asst Director, Information unit	Fully government	Yes, < 5 years	On-line PC	Data collecting Storing, updating	No
Immigration department of Malaysia	Controlling the entrance of visitors and immigration matters	Social, tourist	Asst Director, IT Unit	Fully government	No	Mainframe PC	Data collecting processing and Storing	Yes
Ministry of housing and local government	Policy on national housing sector and local government matter	Housing project and price Statistics	Director of Research and Planning unit	Fully government	Yes < 7 years	PC	Data collecting storing	No
Ministry of Human resources	Policy and planning on national employment and labour force	Labour force and employment	Asst Secretary, Administrative and	Fully government	No	PC	Data collecting storing	No
National Archives of Malaysia	Centre of national artefacts and documentation	Government artefact, documentation's	Head of Research and Documentation Division	Fully government	No but searching service	PC	Data collecting	No
Ministry of information	Policy on national broadcasting sector and informative matters	Official Government statistics	IT and Information Officer	Fully government	No	PC	Data collecting	No
Ministry of international trade and industry	Formulate the policy on national industry and international trading	Trade and economic data Tax and commercial statistic	1. Head of IT Unit 2. Head of Trade Focal Centre	Fully government	No	PC	Data collecting updating	No
Malaysia Industrial development authority (MIDA)	Promote the development of industrial sectors	Industrial sector and Investment	Information Officer	Government Statutory agency	No	Mainframe PC	Data collecting storing	No
Malaysia external trade and development corporation (MALTRADE)	Promote the international trade and foreign investments	Trade economic and investment sector	Investment Information Officer	Government Statutory agency	No	PC	Data collecting storing	No
National productivity corporation (NPC)	National Centre of training on the productivity and administrative consultant	Productivity data, consultant handout, economic statistics	Training and Consultancy Officer	Government Statutory agency	Yes > 10 years	PC	Data collecting storing, updating	Yes
Ministry land and cooperative development	Planning the development of land for new settlement and cooperative body.	Land ownership and Cooperative organisation	Information Officer System Analyst	Fully government	No	Mainframe PC	Data collecting storing	No
Department of survey and mapping	National body of surveying and centre of mapping	Map and surveying report	Head of Mapping Unit	Fully government	Yes > 20 years	Mainframe PC	Data collecting Storing, processing	Yes

Statistics department	Centre of government information and statistical.	Economic, social,	1. Head of Business and Co-ordination Unit 2. Asst. Head of IT Division 3. Head of Administrative and Financial Division	Fully government	Yes > 30 years	Mainframe PC	Data collecting storing, processing and	Yes
Election commission	Conduct the national election and electoral roll	Electoral roll	IT Unit Manager	Fully government	Yes > 20 years	Mainframe PC	Data storing and updating	No
National Registration Department	Registration of citizen, birth and death.	Personal and demography	Asst director, IT unit	Fully government	No	Mainframe PC	Data collecting Storing, processing	No
Ministry of Primary Industry	Policy on the primary industries sectors	Commodities and primary industry sectors	Head of IT	Fully government	No	Mainframe PC	Data collecting storing	No
Malaysia science and technology information centre	Centre of reference of scientific research and information	Research on scientific findings	Head of Information Management	Fully government	No	PC	Data collecting storing	No
Standards and industrial research institute of Malaysia (SIRIM)	Conduct industrial and scientific research and issuing the standard of products	Standard and specification information, research findings	Information Unit Manager	Government Statutory agency	Yes	Mainframe PC	Data collecting storing	Yes
Road and Transport Department	Register the vehicles, issue of driving licence and traffic regulation enforcement	Vehicle data, licensing and Registration statistics	1. Director of Vehicle Registration Unit 2. Director of Administration and Financial Division 3. Head of IT division	Fully government	Yes < 5 years	on-line mainframe PC	Data collecting storing	Yes
Ministry of National Unity and Social Welfare	Policy on national unity and social security matters	Social and public	Head of Research and Information Unit	Fully government	No	PC	Data collecting storing	No
National Population and Family Development Authority	Planning the project for social and family affairs.	Population statistics, Family information	Head of Information and Business unit	Fully government	No	PC	Data collecting storing	No
Register of Business	Legalise the companies business activity	Business sector	Economic Officer	Fully government	Yes > 10 years	Mainframe PC	Data collecting Storing, processing	Yes
Register of company	Register and processing of the company	company and Share holder	Administrative and Financial Officer	Fully government	Yes > 5 years	PC	Data collecting storing	Yes

8.3 Information Trading Activities in Malaysian Public Organisations

In this section, the discussion is mainly focused on to what extent tradable information function has been implemented in the organisations. The research findings showed that the implementation of a tradable information function in Malaysian government organisations is not a common activity. Information trading in Malaysian government organisations is not well established. As shown in Table 8.2, out of 33 departments interviewed in this study, only 12 departments have claimed that they practise information selling or provided some information service to the public. In the research, the organisations are said to have an information trading activity if they provide or sell their information or data to users, either at production cost or an agreed price. This may include selling the statistical data, departmental reports, and maps. Nevertheless the information trading practice is still considered as minor function of the organisation and in most cases, it is implemented on a small scale only.

The findings also revealed that the service is provided by a few selective departments, which are directly involved in commercial data such as Federal Agricultural Marketing Authority (FAMA), Evaluation and Property Department and some research Institutions like Malaysian Agricultural Research and Development Institute (MARDI) and Standard Industrial Research Institute of Malaysia (SIRIM). The research indicated that The Department of Statistics (DOS) has become the main information provider for public and private organisations. A majority of the respondents claimed that most of the government information is collected and disseminated by DOS. In Malaysia, DOS is considered as the main government information centre.

8.3.1 The Factors for Information Trading Activities

As it has been discussed in Chapter 3, pushing factors which may relate to the exploitation of IT facilities influence the implementation of a tradable information function in government organisation. This makes dissemination of information in

an efficient and effective manner. There are also pulling factors such as the demand for the information product or the development of information industry. These factors may contribute to the development of tradable information functions. In contrast, the findings from Malaysian research suggest there is less impact of pushing factors. Four main factors which could be seen to influence the tradable information function in Malaysian government organisations are demanded from the users, obligation to the law, awareness of the information value and revenue generation (Please refer to Table 8.3).

It was found that demand for information from the public has a significant influence on the implementation of information trading. The idea of selling information started when the departments realised that there is growing demand for their information. The demand for information from the users is generated by the distinctive and comprehensive nature of the information provided by the government.

Another factor that encourages departments to sell information is the obligation for the department to make information available to the public. For the Department of Statistics and Election Commission, it is an obligation of the department to sell information to the users whenever requested by them. The departments have to make sure their information is prepared for dissemination. It was revealed that in the Standard Industrial Research Institute of Malaysia (SIRIM), the information trading activities started when the government allowed the department to become an information supplier by amending the law, which permitted them to generate revenues.

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trading activities started when the government allowed the department to become an information supplier by amending the law, which permitted them to generate revenues.

Table 8.3: The factors influencing the information trading practice in Malaysian government organisations

FACTORS	Example of Interview quotations
Demand from the information users	<p><i>...It started because of the clients who want to buy.. then we formulate in the Act.. pulling factor.. because there is the demand for it (Head of Corporate Unit, Department of Statistics)</i></p> <p><i>.....because of the demand from the users, developers, last time we keep collect the data, and we realised that there is continues request from the users on the data, (Research Officer, Ministry of Housing)</i></p> <p><i>..... some of our clients are private companies are involved in economic activity.. they buy our maps.(Asst Director, Mapping Unit, Department Survey and Mapping).</i></p>
Stated obligation in the law or Acts	<p><i>Firstly we have an Act.. which states that all research findings financed by government are considered as public property.. this means academic findings from university research. professional .and the information is considered public property.. can accessed and also for the user or clients... because the money come from government so we should disseminate to the public (Head of IT Unit, MARDI)</i></p> <p><i>Due to obligation, due the Company Act, we can sell the information...(Economic Officer, Registrar of Company)</i></p> <p><i>but when we diversified.. we have to amend our Acts... to enable National News Agency (BERNAMA) to sell information.. (Secretary, BERNAMA)</i></p>
Awareness of the importance of information	<p><i>some of information in the report can be used for the productivity report.. our users want other information or other information on productivity figure only not the report.. so we start to sell.. it started because we realise we can sell it...(Training and Consultancy Officer, National Productivity Corporation)</i></p> <p><i>Because of development.. our data is closely related to economic progress.. land development.. road constructions.. they need that data first. how this idea start pulling or pushing factor.. (Head of Information Unit, Ministry of Land and Co-operative Development)</i></p>
Revenue generating activity	<p><i>...we have 'vision' by political.. or the current national request.. which instruct us.. this technology information has a value.. commercial value and emphasised to MARDI ..this information is no more public domain.. (Head of IT Unit, MARDI)</i></p> <p><i>...because we want to generate income. for the organisation.. that is the reason.. This is in line because now government policy for their agencies particularly privatised agencies to make some revenue so to cut cost (Head of Information and corporate Unit, National Population and Family Development Authority)</i></p> <p><i>why we should charge them, public also said this, and during recession time, people said that if we don't charge that means we don't use our resource efficiently (Business and Public Officer, Department of Statistics),</i></p>

Another factor that encourages departments to sell information is the obligation for the department to make information available to the public. For the Department of Statistics and Election Commission, it is an obligation of the department to sell information to the users whenever requested by them. The departments have to make sure their information is prepared for dissemination. It was revealed that in the Standard Industrial Research Institute of Malaysia (SIRIM), the information trading activities started when the government allowed the department to become an information supplier by amending the law, which permitted them to generate revenues.

In the Malaysian Agricultural Research and Development Institute (MARDI), it was claimed that the reason for selling information is that they have a vision for disseminating information to the public. This vision was formulated by the politicians when the organisation was formed. The research reports must be disseminated to the interested parties

Generally, there is a trend in the government organisations which are already aware of the commercial value of information to sell in order to generate some income. The management is looking for ways to create revenue and one of the alternatives is to exploit the data as a saleable product. This was claimed by the Head of Corporate and Public Relations Unit of National Population and Planning Departments. The respondent thought that the department should create income from the data because it has economic value.

The use of IT facilities in government organisations would help departments in managing information. The technology may lead departments to make sure information can be processed efficiently and effectively and is made available to the users. As there is a growing demand for government information particularly from the business sector, government organisations will be required to play a more active role in dissemination of the information. This might be a contributory factor for the government organisation in trading their information.

8.3.2 The Nature of Information Trading in Government Organisations

The study showed that information trading is considered as a minor activity in Malaysia public organisations. The information products sold by the departments are limited to annual reports, statistical report sheets, pamphlet and report abstracts. The number of organisations that produce information in modern medium like diskette or CD-ROM is still small.

The position of government organisations in providing information to the private users in economic sector can be related to the ability of government to make their information available to the public. However, the readiness of the government organisations to take the opportunity is still questionable. This study has found that the Malaysian Government departments encounter several constraints and weaknesses. These relate to the management structure and organisational practices of the organisation. These will be further highlighted in detail in the next section.

8.4 Issues Affecting the Implementation for Tradable Information Function in Malaysian Government Organisations

Preliminary findings from this study have identified the nature of information trading activities in Malaysian government organisations. However, it is quite challenging to investigate the trend of information trading function in the Malaysian government organisations. In the following section the discussion will focus on how the research findings can be related to the research question : what are the organisational, management and business issues that influence the ability of government departments to implement information business?'. The understanding of these issues will be related to the role of cultural factors and this will become the main aspect of this research.

For the purpose of this discussion, the research model framework as formulated in Chapter 5 will be used. There are three main components of the research model: Resource management, Business management and organisational structures. Within each component, there are several categories of issues, which are used to highlight information management and trading issues.

8.4.1 Research Findings

In discussing the research findings for Malaysian study, several elements from the research model were identified and this was to describe to what extent these are issues experienced by each department. Positions of government departments on the scale are derived from reading the interview notes. Table 8.4 shows the position of each department on a descriptive scale for each of the elements.

The selection of these elements will cover some spectrum of the matters that been have carried out within the organisations. The elements may directly the extent of the ability of the organisations in providing information trading services. These basic findings will be linked to the some other research findings particularly in relation to the specified research model components used in the study.

This Table 8.4 indicates differences in characteristics between the departments practising information trading. The analysis that follows aims to produce a detailed picture in the form of the respondents' perception of specific characteristics. This enables us to assess the effect of the characteristics and the degree of difficulty the organisation has experienced in improving the management of information. In order to facilitate the analysis, the section is divided according to the elements of the research model as stated before.

Table 8.4: Measures of information management and trading in selected Malaysian government organisations

Characteristics of Issues	Ministry of Education	National Library	Ministry of Entrepreneur Development	Ministry of Agriculture	FAMA	MARDI	Ministry of Finance
IT -deployment/ Data processing	distributed	Centralised	Centralised	Centralised	centralised	Decentralised	decentralised
Technology diffusion	Moderate	Moderate	Moderate	low	moderate	high	Moderate
Information Management systems	moderate	low efficiency	moderate	low efficiency	moderate	highly efficient	low efficiency
Data quality awareness	low	low	medium	medium	high	high	low
Attitude to data	moderate	low	moderate	low	high	high	moderate
Awareness of value	moderate	moderately existence	moderate	low	high	high	moderate
Information trading awareness / understanding	rarely existence	moderately existence	rarely existence	rarely existence	widely existence	widely existence	rarely existence
contribution of information in management	moderately contribution	low contribution	low contribution	low contribution	moderately contribution	moderately contribution	moderately contribution
Impact of OSA on information management	negatively influenced	less influenced	negatively influenced	negatively influenced	less influenced	less influenced	negatively influenced
Information dissemination practice	occasionally	occasionally	occasionally	occasionally	continuously	continuously	rarely
Departmental information trading policy	not specified	not specified	not specified	not specified	well specified	well specified	not specified
Inter-departmental co-ordination	fairly good	good	fairly good	not so good	fairly good	fairly good	not so good
Department as information trader	likely	likely	likely	likely	most likely	most likely	likely

Characteristics of Issues	The Inland Revenue Board of Malaysia	Royal Custom and Excise	Evaluation and Properties Department	Ministry of Health	Immigration Department of Malaysia	Ministry of Housing and Local Government	Ministry of Human Resources
IT -deployment/ Data processing	centralised	distributed/centralised	centralised	distributed / centralised	centralised	centralised	Centralised
Technology diffusion	moderate	low	Moderate	moderate	Moderate	low	Low
Information Management systems	Moderate	low efficiency	Moderate	low efficiency	Moderate	low efficiency	low efficiency
Data quality awareness	medium	medium	high	medium	low	low	low
Attitude to data	low	low	high	low	low	moderate	low
Awareness of value							
Information trading awareness / understanding	rarely existence	rarely existence	widely existence	moderately existence	rarely existence	moderately existence	rarely existence
Contribution of information in management	low contribution	moderately contribution	moderately contribution	moderately contribution	moderately contribution	low contribution	low contribution
Impact of OSA on information mgt	negatively influenced	negatively influenced	negatively influenced	negatively influenced	negatively influenced	negatively influenced	negatively influenced
Information dissemination practice	rarely	rarely	continuously	occasionally	rarely	occasionally	rarely
Departmental information trading policy	not specified	not specified	well specified	partly specified	not specified	partly specified	not specified
Inter-departmental coordination	fairly good	not so good	good	not so good	good	not so good	not so good
Department as information trader	not likely	not likely	most likely	not likely	not likely	likely	not likely

Characteristics of Issues	National Archives of Malaysia	Ministry of information	Ministry of international trade and industry	MIDA	MALTRADE	National productivity corporation (NPC)	Ministry land and copulative development
IT -deployment/ Data processing	Centralised	Decentralised	Centralised	Centralised	Centralised	Centralised	Distributed / centralised
Technology diffusion	Low	Low	Moderate	Moderate	Moderate	low	low
Information Management systems	low efficiency	low efficiency	medium efficiency	medium efficiency	medium efficiency	highly efficient	low efficiency
Data quality awareness	low	low	medium	high	medium	high	low
Attitude to data	low	low	moderate	moderate	moderate	high	low
Awareness of value							
Information trading awareness / understanding	moderately existence	rarely existence	rarely existence	moderately existence	moderately existence	widely existence	rarely existence
Contribution of information in management	low contribution	low contribution	moderately contribution	moderately contribution	moderately contribution	moderately contribution	low contribution
Impact of OSA on information mgt	negatively influenced	negatively influenced	negatively influenced	Less influenced	Less influenced	less influenced	negatively influenced
Information dissemination practice	rarely	continuously	continuously	continuously	continuously	continuously	rarely
Departmental information trading policy	partly specified	not specified	not specified	not specified	not specified	well specified	not specified
Inter-departmental co-ordination	good	not so good	not so good	good	good	good	not so good
Department as information trader	not likely	not likely	not likely	likely	likely	likely	not likely

	Department of survey and mapping	Statistics department	Election commission	National Registration Department	Ministry of primary industry	Malaysia science and technology information centre	Standards and industrial research institute of Malaysia (SIRIM)
IT -deployment/ Data processing	Centralised	Centralised	Centralised	Centralised	decentralised	Centralised	Decentralised
Technology diffusion	high	high	high	moderate	moderate	low	high
Information Management systems	Moderate	Moderate	Moderate	low efficiency	low efficiency	Moderate	highly efficient
Data quality awareness	high	high	medium	low	low	low	high
Attitude to data	high	high	low	low	low	low	high
Awareness of value							
Information trading awareness / understanding	widely existence	widely existence	moderately existence	rarely existence	rarely existence	rarely existence	widely existence
Contribution of information in management	moderately contribution	moderately contribution	low contribution	low contribution	low contribution	low contribution	moderately contribution
Impact of OSA on information mgt	negatively influenced	negatively influenced	negatively influenced	negatively influenced	negatively influence	negatively influenced	less influenced
Information dissemination practice	rarely	continuously	occasionally	occasionally	occasionally	rarely	continuously
Departmental information trading policy	well specified	well specified	well specified	not specified	not specified	not specified	well specified
Inter-departmental co-ordination	good	good	good	fairly good	not so good	not so good	good
Department as information trader	most likely	most likely	likely	unlikely	not likely	not likely	most likely

Characteristics of Issues	Road and transport department	Ministry of National Unity	National Population and Family Development Authority	Register of Business	Register of company
IT -deployment/ Data processing	distributed/centralised	Centralised	Centralised	Centralised	Centralised
Technology diffusion	high	low	Moderate	I Moderate	I Moderate
Information Management systems	Moderate	low efficiency	low efficiency	low efficiency	low efficiency
Data quality awareness	medium	low	low	low	medium
Attitude to data	moderate	low	low	moderate	moderate
Awareness of value					
Information trading awareness / understanding	moderately existence	rarely existence	moderately existence	widely existence	widely existence
Contribution of information in management	moderately contribution	low contribution	moderately contribution	low contribution	low contribution
Impact of OSA on information mgt	negatively influenced	negatively influenced	negatively influenced	Less influenced	less influenced
Information dissemination practice	occasionally	rarely	occasionally	rarely	rarely
Departmental information trading policy	partly specified	not specified	partly specified	well specified	well specified
Inter-departmental co-ordination	no so good	nod so good	fairly good	good	good
Department as information trader	likely	not likely	likely	likely	most likely

8.5 Resource Management Issues

Framed by components of research model, the analysis of the findings will link to the stated research questions, mainly on the organisational and management issues. Resource management is considered as organisational and management issues. This is associated with the effectiveness of the organisational information systems in utilising the informational, technological and financial resources within the organisations (Grover, et. al (1994). Similarly Information resources are important in implementing a tradable information function and must be managed strategically.

Resource management is broken down into three main components: information management, budget and financial policy and IT resources. Financial and budgetary commitment is considered in terms of the availability budget and financial policy on information management while IT resource is examined in terms of the deployment or distribution of information technology. These elements are related to the main component i.e. information management. Importantly the information resource management is suggested to be a large determinant of the level and success of the information management and information trading function. Effective use of IT will create systematic and efficient information handling. Furthermore, it is suggested that the level of resource management is influenced by managerial beliefs, values and attitudes that are interwoven with cultural background. The issues identified under the heading of resource management are shown in Table 8.5. The group of issues are discussed in turn as below:

Table 8.5 : Summary of the issues and related matters on the information management and trading in Malaysian Government Organisations

Main Heading : Resource Management

Sub Heading	Concept and Issues	Number of Departments N = 33	Number of respondents n = 46	Example of Interview Quotations
Information Management	Unsystematic information management	25	38	<p><i>...I think in government information management is not really efficient.. why, our system.. or our culture, attitude (Research Officer)</i></p> <p><i>... We still have difficulty in information management, although we have IT but still not fully used, generally I think in government information management is not really efficient (Head of Planning Unit).</i></p>
	Lack of standardisation of procedures	20	32	<p><i>...Other problem is we don't have structure. In that sense everybody will decide what information we want some body want some information but no body can do it.(information Officer)</i></p> <p><i>I found that each departments has it own style of management of information.. sometime it difficult to get data or information.. they may collect the information by their own means. (System Analyst)</i></p>
	No collective or co-ordination in information management	25	34	<p><i>...I think in government organisation it difficult to have good data flow and co-operation, this is human factor (Head of IT Unit).</i></p> <p><i>...we have to control and monitor all the data, but because the system of the agencies are different and working procedures are not same, we have difficulty on this, we have to follow up every time if late, we have standard form (Head Research Unt</i></p>

	Under utilised of Information	22	34	<p><i>Yes not all information is utilised... strategic information as well operational information (Head of IT Unit)</i></p> <p><i>We still not don't see the trend in government, they don't see the use of information in planning, forecasting and economic use. (Administrative officer)</i></p>
	Redundancy of data collections	24	30	<p><i>We have several agencies and each agencies have their own functions and objective.. because now in every agencies has computer .. all the information data is kept by the agencies in their own computer there.. (IT Manager)</i></p> <p><i>each agencies has their own system.. so they can collect their data.. store and update the server.. so we don't control the information management in the agencies (IT Manager)</i></p>
IT Resources	Under utilisation of IT	22	28	<p><i>I doubt about that... we still use computer for ordinary works only.. so our information management system still questionable (IT manger)</i></p> <p><i>This because out IT is not fully utilised and not use properly. We still depend on hard copy data from our branches and still not good. (Information Officer)</i></p>
	Not well planned of IT development	18	24	<p><i>we are busy with IT programmes without realise the 'peopleware' to me IT is the tool.. (IT manager)</i></p> <p><i>we change.. every 10 years we need new.. or upgrade or systems. every time we carry out our census (Administrative and Financial Officer)</i></p>
	Lack of IT skill, shortage of staff	20	30	<p><i>we have shortage of budget.. and important one is people to use IT.. expertise (IT manager)</i></p> <p><i>we still shortage of staff... money.. facilities.. and government policy (Head of Information Unit)</i></p>

<p>Budget and Financial Policy</p>	<p>Shortage of budget for this activity</p>	<p>18</p>	<p>26</p>	<p><i>We have shortage of budget.. and important one is people to use IT.. Expertise.. if we have good systems but no one can use it.. no point waste our resources (Financial officer)</i> <i>we have computers but we don't utilise them.. use them.. we still shortage of staff... money.. facilities.. (IT Manager)</i> <i>.. so many problems, so less budget given and facilities as compare to others, Our IT still not capable, just simple processing. (Research officer)</i></p>
	<p>Unclear Revenue generation policy</p>	<p>18</p>	<p>26</p>	<p><i>but generally in the government we don't have guidelines. to generate income..(Computer Manager)</i> <i>What to do on the information. but generally, in the government we don't have guidelines. to generate income.. data collection is just to facilitate users.. (IT Manager)</i></p>
	<p>Issue on Advanced technology</p>	<p>12</p>	<p>20</p>	<p><i>I think we have good systems but not really efficient, so many weakness we faces, our IT is not really utilises (Computer Manager)</i> <i>Before that done was done by different system, so when we convert from old data to new data there was a lot of conversion problem, that the technical problem of new technology. (Asst Head of IT Unit)</i> <i>..</i></p>

8.5.1 Information Management

Information management in Malaysian public organisations faces several issues (See Table 8.5). Many of the issues found were internal management and organisational problems commonly experienced by the government departments. Most of the respondents expressed dissatisfaction with information management systems. As indicated in Table 8.4, majority of the departments perceived that their departmental information management systems are less or have moderate efficiency and this requires some attention by the departments. Some of the specific issues highlighted are:

- Unsystematic Information Management
- Lack of Standardisation of procedures
- Lack of collective or co-ordination in information management
- Redundancy of data collection
- Under utilisation of Information

Unsystematic information management is caused by a lack of specific procedures and co-ordination. A majority of the respondents interviewed asserted that information management systems in their departments are not well planned. As shown in Table 8.5, 38 out of 46 respondents said that there was no systematic information management in the departments. They have different backgrounds, knowledge and experience of information management officers, consequent upon different approaches are being implemented. It was shown from the research that most of the departments which have low awareness of information value, experience low efficiency of information management.

The issue of co-ordination is raised because of the different computer systems and working procedures between the organisations. This may relate to the insufficient IT planning and a lack of IT knowledge and expertise. Non-systematic information collection and lack of co-ordination among the departments have resulted in the collection of redundant data. For example, personal data such as

name, address and identity card number can be provided by the Department of Registration but are still being collected by other departments.

The issue of the under-utilisation of information is common in Malaysian government departments. As shown in Table 8.4, it was found that majority of the departments claimed that there was either low or medium contribution of information in the management of the departments. About 34 out of 46 respondents claimed that the collected information is not fully utilised. Most information in government is used only for simple management and administrative purposes and not for policy formulation. There is a perception that most of the policies are formulated based on political objectives rather than on the fact of information.

8.5.2 Budget and Financial Policy

Budgetary and financial policy affects the implementation of tradable information function in government organisations. In Malaysia, the budgetary systems and financial procedures are controlled by Federal Treasury. The government organisations have to ask for budgets for their programmes and activities. Departmental payment procedures, and revenue collection have to follow the Treasury guidelines. As has been shown in Table 8.5 there are two main issues related to budget and financial policy that affect the government information management and trading.

i. Shortage of budget for Information management activity

Several respondents highlighted the effect of financial constraints on information management and trading. Although government has emphasised the importance of IT programmes in government departments, there is limited evidence of implementation. Furthermore, the government has cut large portion expenditure that affects the use of IT as well as the performance of the organisation. As shown in Table 8.5, majority of the

respondents perceived that the departments are facing shortage of budget for IT activities.

Shortage of budget in information management causes difficulties to the organisation in upgrading their IT facilities. In information trading activities, this problem has been influencing the way of information is produced. Some respondents claimed that in the departments, no marketing strategies have been formulated for trading activity.

ii. Unclear Revenue Generation Policy

Information trading activities in public organisations in Malaysia are affected by the revenue generation policy. In organisations such as Inland Revenue Department, Custom and Excise Department and Road and Transport Department there are clear guidelines concerning how the government revenue is collected but there is no clear instruction for other organisations. In most cases, the organisations have no ultimate power to implement revenue generating activities unless they have been approved by Federal Treasury. Several respondents stated that all the revenue must be returned to Federal Treasury and the organisation may get little benefit from the revenue. Similarly in determining the price of the service, for example information pricing, the departments have to get approval from the Treasury. Some of the respondents claimed that this procedure does not give freedom to the department to decide the appropriate charges according to the total costs involved in the service.

8.5.3 IT Resources

Information technology (IT) resource utilisation affects the implementation of information management and information trading. As indicated in Table 8.4, the technology diffusion in Malaysian public sector is generally moderate. This means that although there is an effective use of the IT, more attention by the organisation

is required. In departments which are directly involved in research or technical matters for example SIRIM, MARDI and National Productivity Corporation (NPC), there is high diffusion of IT while in other departments, IT utilisation is still minimum. Some of the issues related to IT resource management are shown in Table 8. 5 :

i. Under Utilisation of IT Resources

Most of the respondents felt that the systems are under utilised. Computer facilities are used for word processing and report writing rather than for information compilation, processing and storing. In some departments, they have IT infrastructure including on-line networks to collect data from their agencies. In spite of advanced technology, it was found that the system is still not fully used and does not achieve the objectives of the projects. Some interviewees claimed that lack of expertise in IT, manpower shortage and low acceptance are the main reasons of under utilisation of IT.

ii. Lack of IT Skill and Shortage of Staff

Under utilisation of IT is due to the shortage of staff and lack of IT skill and knowledge. Presently the government has a policy of reducing the number of government staff. As a result, there is little new recruitment in government sector and most organisations are facing manpower shortage. Computerisation needs knowledgeable staff to handle the system. The research findings showed that large number of respondents claimed that the IT department had a limited number of skilled personnel in IT and that affects the use of the facilities.

iii. Issues of IT Planning

Some of the respondents claimed that IT project was implemented without realising the actual requirement of the organisations. The relevant factors

such as the objective of the system, nature of the work in the organisations, availability of manpower and culture were not taken into consideration. Lack of IT planning in some departments results in a tendency to keep changing the systems. This requires continuous investment from the government. It is observed that presently in government organisation there is a wide range of IT system, from personal computer to integrated on-line network systems (See Table 8.2). Consequently, the facilities are under-utilised because they are too sophisticated to be handled by the staff. For example, in the Department of Survey and Mapping, the Geographical Information Systems (GIS) facilities were still not fully utilised. The research indicated that lack of proper planning of IT resulted in lack of integration of IT system among the departments.

8.6 Business Management Issues

The second component of the trading information research model is business management. This concerns how the department manages the information trading from a business perspective. The research was aimed at finding out the issues and difficulties in practising good information management and information trading practices. The summary of the issues and their interview responses are shown in Table 8.6. These have been classified into four major elements. These group of elements are discussed below:

8.6.1 Political and Economic issue

i. Politicised government information

Many respondents claimed that political issues were the main constraint in information trading in the government organisations. In addition a majority of the respondents perceived that due to political reasons the government is enforcing strict law on dissemination of official information which is known as Official Secrets Act (OSA).

Table 8.6: The summary of issues and factors for Business Management components

Sub Heading	Concept and Issues	Number of Departments N = 33	Number of respondents n = 46	Example of Interview Quotations
Political And Economic Issues	Politicised government Information	28	38	<p>so government information should not be disseminated.. for the security or political reasons.. but this would affect the information trading (Head of IT Unit)</p> <p>we just disseminate information on government policy, news and government propaganda, not really on statistical data.(IT officer)</p>
	Charging policy is not politically advantages	20	26	<p>as government organisation, we still to serve people.. to if we charge high, there will be issue to the government (Head of Mapping Unit)</p> <p>Government shouldn't take money from the public. every public organisations are using public money.. (treasury office)</p>
	Government income generation	18	26	<p>I think government will try to get some money from the information.. they will ask us to make money. (Corporate officer)</p> <p>under economic problem now government encourage us to make some income ((Marketing Officer)</p>
	Responsibility of the government in information dissemination	21	28	<p>this due to the fact that information come from the public... so to the public it not right to sell it to them (Treasury Officer)</p> <p>I think our ministry must prepare to supply the data or information, I am sure private sector will come to us for the data (Computer Manager)</p>

Marketing Practices	No element of marketing strategies	21	32	<p>we don't have a marketing strategy.. we just do our normal work.. they will come to us because information is useful to them (Head Corporate Unit)</p> <p>But they don't have specific officer in charge on the marketing.. looking for market or customers.. no promotion.. marketing strategies (Finance officer)</p>
	Lack of marketing knowledge and expertise	20	29	<p>we don't advertise.. they know when the report will come out.. we don't have a marketing strategy..(IT manager)</p> <p>we have shortage to manpower or expertise, we still in development stage (IT manager)</p>
Pricing And Cost Elements	No profit orientation	24	30	<p>but I don't think we will make profit.. just to cover cost only.. all the cost are in our budget (System Analyst)</p> <p>But we still to be a government identity to provide service and not profit making (Investment information officer)</p>
	Centrally controlled pricing procedure	23	32	<p>although in our Act we can decide our price, but we still forward to Treasury (Computer Manager)</p> <p>we don't have guidelines, we follow Treasury roles so any increase or changes in the price (IT Officer)</p> <p>We can decide on price but se still forward to Treasury (Marketing Officer)</p>
Customer Service Management	No proper customer service	18	26	<p>We sell direct to customers, we have counter services and use computers (Head of Mapping Unit)</p> <p>We don't have special counter, people can come to administration unit or Operation unit and ask for it (Computer Manager)</p> <p>The customer can ask what format they want, if we have the format we can give but if not they have to wait (Administrative officer)</p>

This act has significant influence on the management of government information that will be discussed further in the relevant section of this chapter.

In Malaysian organisations, the dissemination of government information is restricted due to political factors. Some government information must not be disclosed because it will have an impact on the government and political motives. Hence dissemination of government information is restricted. In some departments, information and data have become a part of government tool in order to get support from the public.

ii. Information charges

Charges to get the information have been viewed by several respondents to have political and economic implications (see Table 8.6). The issue of charges is not politically advantageous to the government. They claimed that presently, people have been burdened with all sorts of charging. The introduction of fee on the government information is not the right decision. Some of respondents perceived that government information is a public asset and they argued that it is not right to charge them back in order to access government information. The issue of charging government information is not in favour of the government and may have some implications for the department information trading.

iii. Government Income Generation

Respondents in this research take the view that the information trading activities may give some revenue to the organisation and may cover cost of information collection. This is inline with the present trend in Malaysian government departments to charge public on any service such as for application of registration of birth forms and Immigration forms. If this trend continues, it is likely that the government will implement charges on

information. Furthermore, the present economic situation will encourage government departments to utilise their information products as a source of income.

v. Government Responsibility in Information Dissemination

The government's responsibility for information dissemination and people's right to government information may influence to an extent that information becomes a traded product in the market. According to Table 8.4, the findings have indicated that majority of the government departments have a tendency to disseminate their information either rarely or occasionally to the public. This may suggest that there are other factors such as government procedure, political issues or government secrecy that limit the dissemination of information. The research findings also showed that the majority of the respondents agreed that making the government information available to the public is one of the responsibilities of the department.

8.6.2 Marketing Practices

Information trading activities involve a marketing function; the organisation must have a conducive environment for good and reliable marketing practices. The research found that in most departments neither there is clear marketing nor there are marketing strategies formulated for the delivery of government products and services. Several issues have been identified under this aspect:

i. Element of Marketing Strategies

Most of the respondents felt that government is not profit making organisation. Government is more service-oriented and marketing activity is not a priority. Some of the respondents argued that the departmental marketing strategies

are not necessary because they assume that the public knows what information and services are available from them. The research suggested that the lack of marketing strategy in government information trading activities is also due to the shortage of budget and marketing skills.

ii. Lack of Marketing Knowledge and Expertise

Since government is a service-providing organisation, there is a lack of marketing knowledge and expertise in trading information functions. The research suggested that most of the officers and staffs are not well trained in marketing. As a result, it is very difficult for the departments to formulate marketing strategies. Most of the departments depend on their homepage as the marketing medium and consider this is the simplest way of marketing. Marketing activities are carried out by an administration unit, which is a minor role of their functions. Some of the respondents suggested that there is still lack of business-oriented style in most government departments concerning information management. This is supported by the fact that the majority of the departments have low awareness of information trading function (please refer to Table 8.4).

8.6.3 Pricing and Costing Elements

As been discussed in an earlier chapter (Chapter 3), the implementation of tradable information function must involve pricing and costing elements. The research showed that the price of government information may be influenced by the government's perception as a service provider. Some of the related issues on this aspect are:

i. Non Profit Orientation

The view was widely expressed by the management of the government departments that government is not a profit-making organisation and the aim

of government services is to serve public requirement (See Table 8.6). Most of the departmental information products and services are free or charged at minimum cost. In one IT unit a senior officer argued that the department has no intention to charge the public on the information because the public has to be served by the department. The underlying concept is that government is not a profit-oriented organisation and fundamentally government must act as public servant.

ii. Centrally Controlled Pricing Procedures

The research found that in the some departments, they have a right to determine the price according to their Law or Act but under present procedure, these departments still have to submit the proposal to the central agencies. As a result, most of the departments have to charge the information at minimum cost. The pricing of government products and services are controlled centrally. All the charges proposals must be submitted to the Treasury for approval. The department must show the justification of the proposal and the decision made by the central agencies normally will take into consideration national interest rather than departmental benefit. This may mean that departments cannot determine the charge for the products.

8.6.4 Customer Service Management

Customer service management is important in information management and trading. The research identified that no proper customer service is provided by most of the departments and they do not give the customer relationship much emphasis. For the Road and Transport Department, for example, they may provide a basic product such as a standard format of printout. If the buyers want to have different types of data format, a special arrangement has to be made with the department. This takes a long time and incurs a different charge.

An interview with an information company revealed that the level of co-operation from the government in providing information for their use is poor. There was a slow response from the department for their proposal to commercialise government information. The government departments seem to have tight bureaucracy system and their decision making is very slow. The company had to wait for more than six months before their proposal was discussed. The General Manager of the company said:

You know, we have proposed our idea to use some of the government data with one department. We wrote to them, but sadly, it took nearly two months to respond, I don't know why, so much red tape, and until now still no decision made...

A common response from government organisation on this matter is they had limited resources in terms of budget, manpower and expertise to provide the customer service. At the same time they claimed that information selling is not their main function. These arguments will be discussed in relevant sections.

8.7 Organisational Infrastructure Components

The third component in the information trading research model is the organisational infrastructure, which consists of two main elements: Organisational practice and structural characteristics. From these two elements, several issues have been identified. The organisational infrastructure component is mainly concerned with the structure of the organisation, which may influence the management practices, organisation co-ordination and the aspect of information management.

8.7.1 Organisational Practices.

Several issues emerged in relation to organisational practices in the context of information management and trading activities. Example of the comments of the

findings is shown in Table 8.7

A. Management Practices

i. Secrecy Issue and Official Secrets Act (OSA)

The research found that one of the issues surrounding government information is secrecy of the information. The demand of the OSA creates tacit and explicit barriers to the access of government information. As shown in Table 8.7, there is a negative impact of OSA on government information management. Most of the departments considered that the existing secrecy law had an impact on how government officers handled information. The issue of secrecy has influenced the free-flow of information between departments because most of the officers are unlikely to release information that they own. There is a tendency to consider that dissemination of any government information, internally or externally, may be unwise because of the OSA.

The Act is to safeguard the official government information being handled by irresponsible persons or national enemies. It also prevents the discrimination of classified information, which if disclosed will impact the security and stability of the country. The classified information may relate to military data, government cabinet confidential decision, government projects and programs restricted data on economy and political information. This has an impact on information trading. Within the departments, the OSA breeds defensiveness. Officers are unlikely to make any decision to allow certain information to be disseminated to others. They are likely to refer to their top management.

Table 8.7 : The summary of factors and issues for Organisational Infrastructure components

(Heading : Organisational Practices)

Sub Heading	Concept and Issues	Number of Departments N = 33	Number of respondents n = 46	Example of Interview Quotations
Management Practice	Issue of secrecy Act (OSA)	26	38	<i>It traditional way of management, they afraid to make mistake because of responsibility.. afraid of OSA.. so they don't like to give the data to other (Research and Planning Officer)</i> <i>OSA issue.. I think most government officer afraid of this act.. so they reluctant to make decision to disseminate the data, may be don't want to be blame (Research Office)</i>
	Level of IT acceptance	22	32	<i>we have a lot of problem in government.. Attitude to service. inefficient.. we have a lot weakness... government servant is not ready to change.. if we see computer use .. still not many staff can use computer (Head of IT unit)</i> <i>right now we face some difficulty in our organisation, some officer can use the technology and some still in process of learning and some don't want to know, (Head of information unit)</i>
	IT literacy and knowledge gap	19	26	<i>It seen there is obstacle in government, changes in attitudes is important but this difficult to happen. This because our background and education systems. It happens now, (IT Policy officer)</i> <i>some of them are not keen to use computer... may they are old already.. but I think in government.. our culture is like that.. difficult to change... some our managers not really support the change (Head of Information Unit)</i>

	Lack of Policy and guidelines	24	38	<p><i>I don't think there is clear policy on selling information... only the policy just on the handling secret or confidential information. (Treasury officer)</i></p> <p><i>On information marketing there is no clear policy on how to sell information, in most case we just to disseminate the information for the public (System Analyst)</i></p>
	Top Management support	18	27	<p><i>we have idea but still not exploit, what data we can sell,...., we are very concerned about this. only top management can decide on this.(Information officer)</i></p> <p><i>I think if we know the spirit of the law we can do it, maybe we are afraid to make decision. This common, so we just depend on the superior to make decision (Information and documentation officer)</i></p>
Attitude To Information	Awareness of information importance	16	38	<p><i>our awareness of the importance of information still low... I don't know the reasons but.. maybe our culture.. and attitude .. present management style have caused this.. (Head of information unit)</i></p> <p><i>Yes not all information is utilised... strategic information as well operational information.. some time they don't have the information, due to no system.. or the culture problems (IT Manager)</i></p>
	No commercial appreciation	24	32	<p><i>generally in government, commercial value of information still not explore yet.. this is still a new idea.. why ? we still government thinking, not commercial (Research and Planning Officer)</i></p> <p><i>people don't see the value added of the information... it very difficult,, they can not see the important of the use full of information (Computer Manager)</i></p>
	No commercial appreciation	24	32	<p><i>generally in government, commercial value of information still not explore yet.. this is still a new idea.. why ? we still government thinking, not commercial (Research and Planning Officer)</i></p> <p><i>people don't see the value added of the information.. it very difficult,, they can not see the important of the use full of information (Computer Manager)</i></p>

	Information as property policy	22	31	<p><i>In government organisation, some of them considered all the data and information is their 'property', either they know the value of it or use it.. we are not sure but they will not give to others, as a property they will keep for their own only..(IT Manager)</i></p> <p><i>is difficult to get the information from them because, they accept their information is their property, no body can get and use it, I think that happen in most government.(IT.Manager)</i></p>
Trading And Business Planning	No trading and business idea	18	26	<p><i>we are government agency so we should disseminate our data and information but to the extent to sell it.. I don't see the selling aspect because we don't have anything to sell (Corporate and Business Officer)</i></p> <p><i>We can't sell data.... we have an policy. .The idea of selling is not well exploited here, we still not sure who will use our data (Registering Officer)</i></p>
	Government as service oriented	20	28	<p><i>The role of government is service oriented and not business if the role of government is profit oriented ...government is not at the position to do that..(IT Manager)</i></p> <p><i>we still government.. and give service to people.. but I think it will change when we has corporatised... we have to survive... (PRO of Ministry)</i></p>
Quality Control	Improper quality control measurement	22	31	<p><i>at the moment all the data we get is basic data and we confidence that all the high potentials are right data (Head of Corporate Unit)</i></p> <p><i>we don't really care of the quality because we don't go to detailed data, only general figure, example, number of new registration (Asst Head of IT Unit)</i></p>
	Less emphasis on value added process	20	28	<p><i>Value added element in your information ? We just make report from programs managers, in term of value added is less, we just make simple analysis only..(Head of Information Unit)</i></p> <p><i>we don't value add.. our main task is what on the ground must appear in the map...so value added is done by others (Information Officer)</i></p>

Structural Characteristic Information Flow and Sharing	Reluctance to share information	22	31	<p><i>some departments reluctant to give their data although under a same department.. (Information Officer)</i></p> <p><i>most people don't particular on information.. may be they like to keep.. only... this is the problem.. maybe common attitude..(Head of Information Unit)</i></p> <p><i>We are too individualistic... our data just for our organisation, no element of sharing (Head of Corporate Unit)</i></p>
		21	30	<p><i>is not really well managed, the share and flow of information between the division still not good and systematic, most of the research information is not disseminated</i></p>
Departmental Co-ordination	Interdepartmental conflict	20	28	<p><i>the is also the problem of co-ordination and co-operation within department. in our government...some department said this is our data... we cannot give to others...(IT Manager)</i></p> <p><i>the issue here more on co-ordination among the parties involved, we have to control and monitor all the data, but because the system of the agencies are different and working procedures are not same, (Research and Planning Officer)</i></p>

ii. Level of IT Acceptance

The level of acceptance of the new technology is another significant factor. Many members of the departments interviewed expressed some resistance to changes in their departments particularly concerning information technology and management. Some indicated a negative attitude towards the technology. The officer in one information centre of a ministry claimed that one of the factors affecting failure in introducing computers was the reluctance to change attitude and culture. As a result, some departmental computer facilities are under-utilised.

iii. IT literacy and Knowledge Gap

The research has showed that the issue of under utilisation of IT resources and resistance to changes may be result of the low IT literacy within the government departments. Most of the respondent agreed, that in Malaysia IT literacy is low and this has affected public organisations. They claimed that large numbers of the government servants can be grouped as 'old generation' and most of them lack IT knowledge. Only the new recruits in government are equipped with basic computer knowledge.

Furthermore, there is a lack of IT knowledge among the top management who are mainly in the 'old generation' group. This issue was raised by several respondents who wanted to see a change of attitude in top management. A knowledge gap exists between the officers or staff in the department. The IT knowledge group will monopolise the use of computer and play a great role in the departments when the other group will leave. The knowledge gap problem in government organisations also results in difficulty in changing the information management systems.

iv. Top Management Support

Observations made from this study also suggested some influence of top management in organisations on information management. However, some departments there is involvement of top management in decision making but not in information utilisation and IT programme development. In this respect making information departmental product, in some departments, there is no clear support from the top management.

v. Attitude to Information

The second element in the organisational practice component of the model is attitude to information. This element concerns the perception of the organisation of information value and information trading practice. From the interviews, several themes were found in connection with the attitude of the organisations to the information. The issues are as follows:

vi. Awareness of Information Importance

The research suggested that there is a relationship between the awareness of information value and the utilisation of information within the department. As shown in Table 8.4, departments which have an information trading service, had higher awareness of information value. While information is less used within the department if the department has low awareness of the importance of information. Several respondents questioned the role of information in government policy making. They claimed that some of the policy was formulated without considering the existing information sources. For example, the IT manager in the Federal Treasury expressed his doubt about the use of government information both strategically and operationally. In this case, it seems that information is not playing a great role in top management decision. Some of the respondent indicated there was less awareness of the importance of information in the departments.

Low awareness of information value may contribute to unsystematic information management and inability to utilise the commercial value of information.

vii. No Commercial Appreciation

The research showed that the low awareness of the importance of information could also be linked to the ability of the departments to commercialise the information. Most of the respondents claimed that information they collected was not for commercial use since they do not consider it to be of economic value. Table 8.4 shows that awareness of the information-trading concept in the government departments was rare or moderate. In some departments information is accepted as an ordinary product and not for commercial use. The IT manager of one of the research institutions claimed that some people still do not appreciate the use of information and its importance. Furthermore, most of the departments still fail to realise any process of value adding to the information. There is some awareness of commercial value of information in some departments among the officers but the idea cannot be put forward to management because it is unlikely the top management will accept it.

viii. Information is Organisational Property Attitude

One of the important issues in information management in Malaysian government organisation is the attitude to claim information as organisational property. Several respondents indicated that information assets were not disclosed to other departments. For example the IT manager of one ministry argued that in some departments they simply accept that information is their property. This makes it difficult to access information from other departments. As a result islands of information occur and result in restricting flow of information, redundancy of data and overlapping data collection work. There is a tendency for departments to

keep the information for their own use only. Since each department keeps it owns data or information users may have to go to several departments to get complete set of information.

ix. Quality Control

The way the organisations control their information quality may be influenced by the awareness of the importance of information to the organisation. Departments which have high awareness of information value have put more emphasis on quality control. As shown in Table 8.7 the two main issues related to information quality control in Malaysian government departments are the issues of improper quality control measurement and no emphasis on value added processes.

In most of the government information management, a simple quality control process is carried out on the information collected. Information quality relies on the resources of the information provider.

Value added process is an important aspect in information management. This will enhance the quality of the information and its acceptability. However, from the interviews it was found that in most government departments no attempt was made value add process. The department may do simple analysis on the data while preparing reports. They sell raw information and any value-added processes is done by the customers.

8.7.2 Structural Characteristics

In this research, the main component of structural characteristic component are information flow and departmental co-ordination. The identified issues under this components that exist in Malaysian government organisations are shown in Table 8.7.

i. Issues in Information Flow and Sharing

The findings showed that reluctance to share information and restricted flow of information are the key issues in government information management. Most of the respondents have an unfavourable perception of information sharing in the departments. The departments try to control their own information for their own use. The senior office in the trade information centre of the Ministry of Industry and International Trade suggested that members of the department did not wish to make their information available to other department or to circulate within the department. This is also due to different interpretations of secrecy issues. This issue was argued by most of the respondents to be the result of the organisational attitude i.e information ownership. In some departments, the important factor that prevents them from giving their information is the OSA. In their opinion, any mistake in disseminating information will be penalised.

ii. Issue of Departmental Co-ordination

Some respondents felt that inter-departmental conflict in information management is a common issue. Problems with departmental co-ordination may be a consequence of the complex nature of the government. Organisational complexity is a result of different power, authority and management styles. There may also be a conflict of interest on the use of information. Some departments may consider maintaining the power by keeping the information for their own use only.

The issue of poor co-ordination between departments may also be due to the different distribution of power among the departments. In Malaysia, some departments such as Treasury, Public Service Department and Prime Minister Department are considered important departments in the Government. Each department will try to show its power or capability in any aspect and this adversely affects the performance of the organisation in the form of organisational clash or conflict. The study showed that interdepartmental co-ordination issue influences the sharing of information among the departments. The issue may happen due to the difference in working procedures and systems as well as lack of guidelines.

8.8 Relationship Between Issues And Factors Influencing Information Trading In Malaysian Government Organisations

The research findings have led to the identification of many factors, which may affect tradable information functions in Malaysian public sector. This section provides an analysis of the relationship between some of the key issues highlighted in previous section. The relationships between some of the issues on the information management and trading in Malaysian government organisations are shown in Table 8.8. This suggests how particular issues relate with some other issues. Interview quotations are provided to support the concepts of relationships. The discussion will try to link to one of the research questions with regard to the influence of organisational, management and business issues on the ability of government departments to implement information business.

Information system management success has been based on the organisational measures such as resource utilisation efficiency, system usage, user satisfaction or productivity gains (Bailey and Pearson, 1983). Furthermore, the success is also linked to the market impact such as improved customer service, innovative product offering and procurement advantages (Johnston and Vitable, 1988). In this study the success of information management and trading incorporates the ability of the organisations to utilise the component of information management

and to practise information selling activities.

8.8.1 Role of Organisational factors in government information management

Several organisational issues such as the organisational structure, lack of co-ordination of the information management and low awareness of the importance of information value may have directly influenced the success of information management and information trading in Malaysian government organisations. (Please refer to Table 8.8).

The organisational complexity of government organisations and lack of co-ordination require much attention in order to achieve effective and systematic information handling. Besides the issue of redundancy of information collection, there is a lack of information sharing and restricted information flow between the departments. This phenomenon was highlighted by many respondents as a consequence of non-co-ordination between the departments. Different organisations have their own information management styles and this makes it difficult to have good co-ordination system. This problem was worsened by the individualistic attitude of departments and the distribution of power.

Information management in Malaysian government organisation was found to be greatly influenced by the secrecy policy concerning government information. The Official Secret Act (OSA) covers government servants and the public. The Head of Department responsible for enforcing this stated that the main aim of this law is to make sure that government confidential documents are not accessed by inappropriate people, which may harm the security of the country. The important aspect of the law is that penalties imposed on any offence relate to the information dissemination. The study showed that this law has a great impact on the government information management. The OSA has discouraged government officers from being involved directly in information handling. The secrecy issue has also led some departments not to supply or disseminate any information to others because of fear of committing an offence. Individually some officers are

Table 8.8 : Relationship Between The Management Factors In Information Management and Trading Function In Malaysian Government Organisations

Main Issue	Relevant issue	Explanation of relationship	Example of Quotations
Unsystematic Information Management	Underutilisation of IT facilities	Incapability to use IT facilities has resulted low information management.	<i>our IT is not really utilises, we just use IT for simple task, ...because of there is no systematic system we are facing some problem to collect the data (Research officer)</i>
No Co-ordination of information management	Lack of co-ordination of information management	There is no co-ordination among the departments in information management practices	<i>there is still a problem on data management.. there is inefficiency of data flow..poor co-ordination between the departments, no clear directions , (IT head)</i>
	Organisational conflict	Organisational conflict such as power distribution and attitude influenced the co-ordination of information management	<i>They have different power or popular departments, so it difficult to co-ordination (Administrative officer)</i>
	No integration of IT facilities	Different IT systems in the organisation lead to less co-ordination of information management	<i>They plan their own plan each division and unit has owned IT and no integration and co-ordination. (Head of IT)</i>
Redundancy data collection	Lack of co-ordination of the process	Since there is no co-ordination, each department does the same job	<i>Each agency has their own system.. so they can collect their data.. so we don't control the information management in the agencies, there is the issue of redundancy of work..(Head of IT)</i>
Under-utilisation of IT	Lack of IT knowledge	Low IT knowledge in organisations directly affect the use of IT	<i>so the lack of expertise that caused us not to fully utilised the system, IT knowledge .. still in process of learning.. (Training officer)</i>
	Low level of Technology Acceptance	Negative acceptance of IT have resulted low utilisation of facilities	<i>, I feel we need to change the attitude of our government servants toward computer or IT, we don't use much the IT and sometime it difficult to ask or staff to learn computer, to use it.. (Planning and research officer)</i>
	Badly planned Technology	Human factors is not consider in IT planning	<i>we busy with IT programs without realise the 'peopleware' to me IT is the tool.. to help work.. but how willingly to change our work.. (Computer Manager)</i>
Low level of Technology Acceptance	IT literacy and knowledge gap	Low IT background knowledge affect the acceptance of technology	<i>in government organisations it is not fully utilised because we have a lack of knowledge in IT and there is a gap between staff in IT knowledge (Training officer)</i>

	Resistance of Changes	Negative attitude of the staffs toward technology.	So we have to change our attitude, but this is personal. so people like to change but other may be negative thinking, (information officer)
	Low Top management support	Top manages who are not IT literate don't encourage their subordinates	but to the top management, they look at different angle.... but they don't teach us.. some time their thinking is not technology oriented..(treasury officer)
Reluctance to disseminate government information	Secrecy issue on information (OSA)	OSA issue directly prevents wide dissemination of information.	OSA, since some our data is politicised data, so we normally keep it secret... less sensitive to the dissemination of information, or in keeping some information, (Head of IT)
	Information as 'organisational asset or property'	The attitude of keeping information for individual use make the organisation less ready to give away their information	It difficult to get data or information, we need to write officially to get information.. information is not disseminating easily.. (Librarian)
Issue of Secrecy (OSA)	Politicised government information	Government use information as their propaganda and political motivated	Government use information for their political purposes so it not easily to release.. some of this information show the weakness of government, so must close (IT Head Unit)
Effect of OSA	Less information dissemination	OSA has influenced the ability of dissemination of government information	Government data is control by OSA, so officer reluctant to keep or let the information to people, maybe they don't want to b punished on the mistake make on that information..(Librarian)
	Reluctance of handling information	Government officers are afraid to make decisions in managing the information	you know officer will say because of OSA, they afraid to handle or to give any information, they unlikely to say anything on information.. although is just a simple information, (IT Manager)
Low awareness of value of information	Government styled management	Less emphasise on information management has influenced the value awareness	I think it still no feeling on the value, awareness of value still not there, we are more government organisations so less emphasis on value (Asst IT head)
	less contribution of information in management	The less use of information policy and planning show low emphasise of the importance of information.	On value of information? I don't think we feel they is a value on our data, still not sure on the value, generally it does not contribute to management in government (IT Manager)
No Information trading function	Government as Service oriented	The nature of government as service provider discourage the element of information trading.	because in government we are not sell any data, we are service oriented, and also government policy on this (IT Head)

	Low commercial awareness	There still lack of commercial value of government information	<i>most of the management don't realise the value of information.. commercial value of information still not explore yet.. (Research and Planning Officer)</i>
	secrecy issue of government information	Government information is accepted as secret and possibility to make it is not exist	<i>OSA is main factor.. Government information is secret so.... Secret and no simply give to other so no government information dissemination and not for sale. (IT head)</i>
	No clear policy on trading	Lack of government policy in Information trading has created low priority on this aspect	<i>not really a policy, but just one of our functions, I think there is no clear policy from government on selling activities, (IT Head)</i>
Departmental co-ordination issue	Different in information management style	The organisations have different way in management and difficult to co-ordinate	<i>but it normal in government each unit or department has their style and some time we should accept this, their territory, we have small problems (Information officer)</i>
	Issue of individualistic attitude and power	Organisations tend to keep their power by keeping information themselves.	<i>we are to individualistic.. our data just for us or our organisation.. not element of sharing... poor co-ordination.. these issues are common.. in our ministry.. (Research and Information officer)</i>
Low Information sharing	effect of secrecy law (OSA)	The impact of OSA has led the organisations not to simply supply their information to others	<i>but OSA is sometime that affect the flow of information in general, it an offence to give information to other, (Market information officer)</i>
	Issue of 'belonging' of information	Organisation keeping their own information and reluctant to share information	<i>the want to control they territory...the issue of belonging and secrecy of information.. (Computer Manager)</i>
	Restricted information flow	Information is kept within one division or organisation only	<i>So in most cases, information flow is restricted in the one departments only so it difficult to share information (IT manager)</i>
No Marketing strategies elements	Lack of information marketing skill	Marketing function is not the main function in government	<i>we don't have market our service and also we are in government this is not our main responsibility (Corporate Officer)</i>
	Government service orientation	Government is not on social service oriented and not profit making organisations	<i>so we try to produce something it our responsibility and duty, this is our services, not for profit .. after all we are still government organisations, (Information officer)</i>
Less awareness of information quality	Low quality control procedures	Quality control procedure is not a main issues and not important	<i>We don't have any specific data quality control..so we rely on the source only.. (Information officer)</i>

reluctant to make any decision regarding the disclosure of any information and may refer to their superiors for any actions. Inevitably, it was found that OSA issue has great influence on the ability of the government organisation to perform information trading activities.

8.8.2 Management Issues in Government Information Management and Trading

There were several management practices such as unsystematic information management, use of technology influence, the success of information management and trading. As information management is considered as a prerequisite to the implementation of information trading, the departments are facing the issue of lack of co-ordination of information management (may be influenced by the lack of integration of IT facilities).

The department also has is low awareness of information importance and thus a little commercial appreciation of the information. There is a relationship between the perception of the government departments of information value and the readiness to make it available in the market. Apparently, there is an attitude in the organisation to accept their information as their organisational property which has to be fully controlled and made difficult to be accessed by others.

The issue of under-utilisation and non-integration of IT facilities may have a significant relationship with ability of having efficient and systematic information management. (see Table 8.8). The use of IT technology in government organisations in Malaysia is still at an early stage. Although the government emphasises IT, it doesn't have appropriate ways to support good information management system in government.

There is a difficulty of setting up an IT culture in Malaysian government organisations. This may be influenced by lack of IT knowledge and expertise, a low level of technology acceptance and poor IT programmes planning. This was evident from the Computer Manager in a Ministry that said that the government

does not realise the importance of 'peopleware' in IT programmes. Many of the respondents agreed that computer utilisation is still low in some government departments and there is low awareness of the importance of IT in government administration.

8.8.3 Role of Business Issue in Government Trading Service

The research found that there is low readiness to create information business within the government organisation. The philosophy of the government organisation is that government is more of service-provider and not profit making organisation. Thus, there is less emphasis on marketing elements of the services. The perception of the government as a service-oriented organisation still has a great influence on government information trading activity.

There is no clear policy on information trading practice and the organisations may use their discretion in practising the activity. Since there is no standard policy on information dissemination, there is a tendency for departments not to disseminate their information to the other departments, users or public. Furthermore, government information secrecy has a significant influence on the ability of the government to disseminate the information.

The study also suggested that the limited attention to business management within the government organisation is due to political and economic reasons. There is a selective disclosure of government information and it is unlikely that the government will make much information available free in the market. Furthermore, making government information as chargeable commodity is not politically advantageous because of the obligation to give information to public without charging. However, charging for information may generate revenue to the government. Some of the respondents suggested that charging for information is one way to cover the administrative cost in collecting the information and will make the public appreciate the value of the government information.

The current nature of information management and trading in Malaysian government organisations is still complex. There is an interrelation between organisational management and business issues in information management. In this analysis, it can be seen that there is close relationship between the nature of information management structure, IT utilisation, organisational structure and business issues on the readiness of the organisations in managing the information products. These issues are influenced by the organisational culture that exists in the organisations.

8.9 Overview of the Key Issues in Malaysian Government Information Management

The study in Malaysian government organisations has revealed some of the main issues influencing the information management and trading practices. The issues are related to the resource, business management and organisational factors. Most of the issues have a great negative impact on the departments. Some of the main issues related to this aspect are:

- i. Information management practices** - some of relevant issues include, lack of systematic information management, lack of standardisation for information procedures and co-ordination problems among the organisations. This has resulted in redundancy of data collection and under-utilisation of information.
- ii. Utilisation of IT facilities** - Government IT programmes are hampered by several constraints such as under-utilisation of facilities. This is due to the problem of lack of knowledge and skill in IT which originated from poor planning of the programmes.
- iii. Political and economic issues** - Government information has been politicised by the ruling government and there is selective disclosure of information which directly influences the wide dissemination and utilisation of the information,
- iv. Government policy** - lack of government policy in information trading activities is directly influencing the readiness of the

- organisations to provide information to the market.
- v. **Issues of Secrecy** - The secrecy law such as OSA, has a negative impact of information handling and dissemination.
 - vi. **Awareness of information value** - Information is treated as organisation property but the appreciation of its value is still low. Quality control procedures are not a priority.
 - vii. **Government identity issue** - Government sector is still perceived as a service-oriented organisation. The idea of revenue making and business activities in government does not exist.
 - viii. **Information marketing practices** - There is no emphasis given on marketing strategies in government information business.
 - ix. **Inter-departmental conflict** - The issue pertaining to information flow and reluctance of information sharing are raised because of inter-departmental problems which affect the nature of information management.

The study revealed how these issues are dominant in information management in Malaysian public sector. It is important for the government organisations to understand the issues and take appropriate measures in order to achieve efficient information management system. This will induce the readiness to the organisation to promote information-trading activity.

8.10 Conclusion

The study in Malaysian government organisations has firstly revealed that information trading is not recognised yet as a main government function. The commercialisation of government information is being carried out by a small number of organisations. The study has explored how the nature of information management systems in government sector are influenced by several issues. From the government perspective, there is a trend where information is used for political advantages and the introduction of government secrecy law (OSA) has

greatly influenced the nature of government information handling and dissemination. This discourages the idea of making the information a tradable product. These sets of issues were interrelated and have been considered as the organisational and management problems in government information management. These findings from Malaysian study will be used in making a comparison with the nature of government information trading practices in UK government departments which will be discussed in following chapter.

CHAPTER 9

THE KEY ISSUES AND FINDINGS ON THE INFORMATION TRADING PRACTICE IN UNITED KINGDOM GOVERNMENT ORGANISATIONS

9.1 Introduction

This chapter discusses the issues of information trading services in the public sectors based on the research studies conducted in the selected departments of the UK Government. The aim is to answer one of the research questions: what are the organisational, management and business factors that influence implementation of information trading in UK Government organisations. The findings of the research also indicate the progress of commercialisation of information in the UK public sector. The discussion is made according to the components of the research model.

The structure of this chapter is summarised in **Table 9.1**. The discussion begins with the background of the research work conducted. The related issues on the information management and trading activities identified from the findings will be examined. The chapter ends with a discussion of several main issues that influence the development and the progress of information trading in the UK Government departments.

Table 9.1: Structure of the chapter

-
- Introduction
 - UK Information Trading Study
 - Findings in Information Trading in the UK Government Organisations
 - Information Trading Activity in UK Public Sector - issues on:
 - Resource Management Issues
 - Business Management Issues
 - Organisational Practices
 - Structural Characteristics
 - Discussion on the Reflection on the Research Findings of UK Government Information Trading
 - Conclusion
-

9.2 Information Trading Activity in the UK Public Sector.

The first part of the study used the survey method. This was followed by case studies conducted in three departments, the Driver and Vehicle Licensing Agency (DVLA), the Tariff and Statistical Office (TSO) of HM Customs and Excise and the Office of National Statistics (ONS). The departments were identified during the preliminary survey among several departments. These departments were selected because they represent the departments that practise information trading activities. It was found that the information marketing has become the one of the main functions of the departments. The departments have an identical nature of information marketing style and this will provide a reliable input for the study. The discussion of the findings will be based on the outcomes from both the studies. The number of respondents for the survey was small and it does not permit any statistical analysis rather that it is used as a supporting input to the case studies findings. The summary of the basic information regarding information trading in the three departments is shown in Table 9.2 and 9.3.

Departments	Tariff and Statistical office of Custom and Excise (TSO)	Driver Vehicle Licensing Authority (DVLA)	Office of National Statistics (ONS)
Organisational Functions	Handling the marketing service of information	Registration of vehicle and licensing drivers	Collecting and distribution of statistical data
Data or Information Handled	Trade commodities data	Vehicles data	Social , economic statistics
Participants	Customer Liaison Manager	Efficiency unit officer, Business support officer	Marketing Manager
Organisation Statutory	Independent body of Custom and Excise	Government department	Government agency
Information Trading & Years of service	> 12 years	> 10 years	> 20 years
IT facilities and utility	Mainframe on-line, UNIX	not specified	Mainframe on-line
Main IT utilises/Facility	Collecting and processing	IT facilities are outsourced	Collecting, storing and processing
Revenues earning activity	Yes	Yes	Yes

Table 9.2: Basic interview profile on Information management in the UK information trading organisations

The research findings have suggested that the selected government departments in the UK carry out information trading activity (see Table 9.2). The departments sell information including the economic or social information. In some departments, the activity has been practised for more than 10 years. Although this activity has been carried out for a long time, it is in small scale. Many departments indicated they only sell their departmental reports or publications. On the other hand, the organisations in these case studies are dealing more with dissemination of department statistical data or figures.

Most of the government departments act as data collectors in carrying out their responsibilities. The data is collected through the daily transactions with their customers. This provides the departments with a vast volume of data. This data may have economic value. Moreover, as information providers, departments are obliged to provide certain information to the public. Hence, a vast majority of the information or publication is free, as a part of Open Government policy.

Table 9.3: Summary of the basic information on information trading in the UK Departments.

Department	Service Commence Period	Type of Information	Information Source	Form of Information output	Two Main customers	Pricing Aim
Dept. of Transport	20 years	Department Statistic & report	Daily transactions survey	Booklet reports	Public Research Inst.	Cover all costs
Dept. of Environment Transport & the region	n.a	Department Statistic & report	Daily transactions	Booklet reports Computer diskette	Government depts Public	cover some cost
Driving, Vehicle and Licensing Authority	25 years	Department Statistic & report (Vehicle data)	Daily transactions From documents submitted	Computer diskette	Information broker Business firms	Cover all costs make profit
Inland Revenue Dept.	11 years	Department report consultant, business submitted economic & Tax report	From documents	Range from booklet diskette & Internet	Public Business firms	Cover all costs
Dept. Federal Education Employment	4 years	Department Statistic & report	Daily transactions From documents submitted	Printed sheet Internet	Manufacturing firms and business firms	cover some cost
Dept. Trade & Industry	9 years	Sector report Country guides	Written by DTI export & commercial officer.	Booklet, pamphlet Computer diskette	Business Firms Information broker	Cover some cost
HM Land Registry	70 years	Public Land registration information	Daily transactions From documents submitted	Printed sheets	Business firms Public	cover all costs
HM Customs & Excise	20 years	Business related statistic	From documents submitted	Printed sheet, computer diskette and tapes	Government dept. Business firms	cover some cost
Ministry of Agriculture Fisheries & Food	n.a	Departmental statistic and survey	Surveys censuses	Booklet & Printout	Public relevant groups	Cover the cost

For example, the ONS has a responsibility to make the information disseminated as wide as possible. As shown in Table 9.3, UK Government departments have provided a variety of information output ranging from printed sheest to Internet medium. Where information is traded, the main customers are business firms and private information brokers.

9.3 The Nature of Information Trading in the UK Organisations

Tradable information functions have been practised in many UK public organisations. The summary of findings from the case studies is shown in Table 9.4. The elements of this framework were selected to illustrate the nature of information trading practices in these organisations. These elements are involved within the departments in implementing information trading. Most of the elements describe the nature and relevant aspects pertaining to the information trading in the organisations. Some of the elements are related to the different background on how information trading practices is implemented. This provides some background to discuss the relationship between the research findings and the research questions. The relevant research question is ; What are the organisational, managerial and institutional issues that influence the implementation of tradable information function in the public sectors? .

The findings of the research have indicated that tradable information functions have been practised in many UK public organisations. The significant element in the information trading within these organisations is the role of Marketing Agents. Marketing Agents (MAs) are used in order to avoid part effort into information trading. DVLA sells anonymised data because it has to, but 'its heart is not in it'. Although in some departments such as TSO, the use of Marketing Agent is becoming less important, they still contribute to the promotion of government information trading. The role of Marketing Agents in the UK Government information trading will be discussed later in this chapter.

Table 9.4 : Summary of findings of the case studies on Information Trading In The UK Government Organisation

ISSUES	TARIFF AND STATISTICAL OFFICE OF CUSTOM AND EXCISE (TSO)	DRIVER VEHICLE LICENSING AUTHORITY (DVLA)	OFFICE OF NAT NATIONAL STATISTICS (ONS)
Commencing of Information Trading	Since 1987 - started to supply information to private sector	In 1992 - Started to look on how to sell information. Selection of Selling agent in 1995	Serious information trading activities started after the merger of CSO and OPHS in 1996.
Involvement of Marketing agents	There are appointed marketing agents act as information supplier for the department	Use of selling agents.	They have no direct dealing with marketing but companies may use ONS data and resell to users
Selection of Marketing agents	Through tender and evaluation of the companies	Selected by competitive tender	Marketing agent has a negotiation with ONS for their business.
Supply of information	Monthly basis and annual timetable	Based on quarterly basis.	Information is provided based on the agreement for individual companies.
Factors for using MA	Lack of facilities and capability to give required service	To maximise the revenue from sale of data.	One of the information trading method beside market directly.
Term of contract	5 years and the MA is required to report to the department of the business activities.	3 years contract and cover the use and modification of data and payment mode.	No specific contract period and it depend on individual deal.
Control on marketing agents	There is control on MA's MA 's have to provide list of customer annual business plans, value of sales	The department not control the activities of MA but has to follow the specification of data input.	The department control the MA's in matter related to government policy and laws

ISSUES	TARIFF AND STATISTICAL OFFICE OF CUSTOM AND EXCISE (TSO)	DRIVER VEHICLE LICENSING AUTHORITY (DVLA)	OFFICE OF NAT NATIONAL STATISTICS (ONS)
Specification of data	The data provided in depend on agreed specification in the contract	There is one standard form of provided by the departments to MA's	Types of data input is based on negotiation between both parties and depend on the users requirements.
Pricing policy	Not making profit and just to cover the cost. Revenue goes to Treasury.	Not making profit and cover the cost only	Just to cover the cost and not making profit. The Department is allowed to use some revenue for development new product.
DTI guidelines and Departmental policy	Not really following the DTI guidelines and formulate own policy based on National policy on dissemination of information	Basically follow DTI guidelines and using private companies.	Has own policies marketing and disseminating the information. Most policies to maintain the departmental impartiality and integrity.
Opinion on Crown Copyright law	It doesn't affect the information marketing but controls the source of information	-	It important to the Government to control the use of information and guarantee the source.

Although information trading is widely practised, in most departments, the aim of pricing is generally just to cover the cost of production and handling the services. The two significant factors influencing information trading are the demand for information from the users and the awareness of the commercial benefit of the departmental information.

In TSO, the demand for information is the main factor in implementing the organisational information trading. This was explained by the Customer Liaison Manager.

...The demand for the information from the customer is the main factor for the TSO to have information marketing services. Local large companies as well as from other countries keen to have data and statistics on export and import goods. They are expecting the Customs and Excise to act as an information provider for them. Realising the demand on information the department has collected numerous types of data and information.

In ONS, the information trading activity started to meet requirement when the department realised that it is important to use the information sources of the people. This resulted in a process of commercialisation of the information within the organisations. The Marketing Manager of ONS explained that:

... it happened that the department is more 'inward looking' to what they are holding. . Organisation should think and realise that something should be done with the data or they will not get anything from them. The department has continuously collected data and large amount of money has been spent. There is awareness within the organisation to produce right things and can be easily used by the people.

The information provided suggests the ONS started to produce information for the public and developed a Marketing Division.

The department has taken some steps to tackle the information and pack in the way that it can be disseminated to the people ... The marketing unit came and took much of the information and data that was previously unexplored by the customers and puts it in publication CD ROM and market it the customers

While in DVLA, the process of commercialisation was started when the government realised that the data collected by the departments could be used commercially. Department was advised to carry out a study on how revenue from the data could be maximised. As a result, the department selected a few Marketing Agents, who acted as marketing wings of the department.

9.4 Findings and Issue of the Information Trading

In the following sections, the discussion will be on the findings and the issues gathered from the research work. Based on the research model elements, the research findings will be presented in order to discuss and answer the first research question what are the organisational, management and business factors that influence implementation of information trading in UK Government organisations. The three main component in the research model are directly appropriate to explain the issues.

The summary of the findings from these three case studies is shown in Table 9.5. Analysis of interviews suggested some characteristics or dimensions to which the research could allocate simple values. Analysis of the issues and findings in the UK Government information trading, have been discussed according to the research model components.

As mentioned before, the elements of the research model are used to categorise the issues pertaining to information trading activities in the organisations. These elements explain the relevant aspects of research questions about the organisational, management and business issues in the organisations. Furthermore resource management, Business management and organisational structure issues are surfaced in the case studies will be considered as the foundation to discuss the influence of cultural factors on information trading practices.

**Table 9.5 Summary of the issues related to the information management and trading in the UK Government organisations
(Case studies in ONS, TSO and DVLA)**

Main Heading : Resource Management	Concept and Issues	Example of Interview' Quotations
Sub Heading Information Management	Systematic information management	.. Basically we have good system.. within Business group there is division which collect data and process.. For other divisions, officers in the department will go and collect information from others..
	Standardisation of procedures	.. Among the department we have standard procedure in collecting information.. so each division is responsible for their own data.. we co-ordinate..
	Utilisation of Information	... Here.. we use data or information in most of our activities.. fro example we supply data to Local Council for budget preparation.. .. The data collected is use as our input.. we delivered to ONS for Balance of Payment Statement of the country.. we make use most of the information ..
Budget And Financial Policy	Shortage of budget for this activity	... We still have problem in budget although we allow to use some income.. it common in government.. but we still can carry give service..
	Revenue generation policy	In Treasury role, we must have service, marketing service not profit making and also not lost making Break even, But we must not on break even in all..
It Resources	Highly Utilisation of IT	Since we have capacity to process information by On-line example... all information coming to ONS and process and producing statistics

Political And Economic Issues	Unpoliticised government departments	<i>As a government dept ONS has right to produce policy ONS is not political agencies... As a government dept ONS has right to produce policy ONS is not political agencies.</i>
	Government income generation	<i>We were told that if we want to do more work we must have more income from customer..</i>
	Responsibility of the government in information dissemination	<i>What we should not allow is we should not keep the figure. ONS will issue the figure or public the figure although it is ONS is impartial.</i>
Marketing Practices	Emphasis on marketing strategies	<i>when we come together - more emphases to direct marketing, campaigning .PH review what they are doing, produce new product, value the market.</i>
	Use of Marketing agents	<i>We have marketing agent for marketing services, 2-3 for travel information.</i>
Pricing And Cost Elements	No profit orientation	<i>At the same time in disseminating the information the department is not making profit. At the same time the department realised that it should take some opportunity to promote the information trade</i>
	Centrally controlled pricing procedure	<i>Treasury guidelines is followed principally not profit making, why not making profit. it is main objective is to disseminate information as open as possible and to cover cost in doing it</i>
Customer Service Management	Customer service	<i>we jointly with them do campaigning to attract customers for different products. Go to the customers and match the project and target the market.</i>
Management Practice	Issue of secrecy	<i>some of government cannot be disseminate due to confidential and security.</i>
	Copyright law	<i>CCR is doesn't not prohibit the marketing it mean to ensure the source of information is clear, if people the government data it must to acknowledged the source not misuse the government material.</i>

	IT literacy and knowledge gap Level of IT acceptance	The use of IT facilities in that organisations has grown up over years and in this case TSO has to compete with the rest of other departments in the HM Custom and Excise for the service
Attitude To Information	Awareness of information importance	<p>.. due to that information is important it not only belong to government but belong to people, we should we do doing and tackle the information and pack in the way give to the people</p> <p>The department realised that information is important and we try to make sure it can be utilised properly and benefit to others..</p> <p>Marketing become a priority in the organisation and essential. the culture is changing we. Initially there is centralised culture from CSO generally we are taken mainly staff from there and put in marketing centre</p>
Trading And Business Planning	trading and business idea	<p>The information is used for government publication and is looking for a low cost of information which may available in Custom and Excise. In this case, government still provide some service to the public..</p> <p>... Quality is controlled in collection, processing. incoming and out going.. We make sure the statistician check the quality (MO)</p> <p>.. We take information and we have professional people in business.. writing comment on e.g.. population trend and social trend.</p> <p>Most of government department supply to ONS, information, review and report. Some supply in form. electronic information. ONS has integrated force between them..</p> <p>within our department, we have good system in monitoring the flow or information, each unit has to follow the procedures, so information is collected and shared between</p> <p>We do that in term of co-operation and dual agreement but not mandatory power.... They only asked. when have service level agreement between department, we agree on certain thing like a contract. What we give to them and what they can give.</p>
Quality Control	<p>Government as service oriented</p> <p>quality control measurement</p> <p>Emphasis on value added process</p> <p>Reluctance to share information</p> <p>Restricted flow of information</p>	
Departmental Co-Ordination	Good interdepartmental co-ordination	

9.5 Resource Management Issues

Under resource management issues, three main elements i.e the information management structure, IT utilisation, financial and policy matters will be discussed. These will also cover some aspects of organisational and management issues such as :

- **Information Management**
- **Budget and Financial Policy**
- **IT Utilisation.**

9.5.1 Information Management

The research findings suggest that there is a relationship between the effective and systematic information management in the organisations and there is the ability of the departments to promote information-trading function. The departments have good system for collecting, storing and processing the information. There is a standardisation of procedures of information handling within the organisations (see Table 9.5). In case of ONS, the marketing manager mentioned that there are several departments handling different types of information such as business statistic, population and health, socio-economic statistics and micro economic statistics. Each department uses its own standard procedure but this apparently does not create any problems in data collection. The Business Group Division is responsible for co-ordinating the collection of data from other sources such as macro information from business companies and financial information from the commercial firms.

Similarly, in the case of TSO, there is a good system of data collection in which all the statistical data is collected according to its classification of tariff for the easy categorisation. Data is collected by TSO with the help of two systems. Intrastat is the system for collecting data from traders dealing with European Union (EU) countries. Customs Handling of Import and Export Freight (CHIEF) is another

system for collecting non-EU trade movements. Under the present system, standard procedures allow the department to monitor and share trade statistical data.

The study also suggests that the departments have realised that it is critical to collect data properly to ensure its quality. A respondent of ONS claimed that the department emphasises on these matters because the completeness and reliability of information is influenced by the information collecting system practised.

9.5.2 Budget and Financial Policy

Research findings have indicated that shortage of budget and revenue generation policies are of significance. The budgetary matters are directly under the Central Treasury. In the ONS, they have an annual allocation from the Treasury. This allocation is affected by predictions of information trading income. A centrally controlled budget and financial system makes the department unable to utilise the information resources and expand the scope of selling function.

Presently, under new Treasury guidelines, this has changed. The departments are allowed to use their revenue generated by the departments to offset running cost expenditure (HM Treasury, 1998). This encourages the department to make better use of its assets by engaging in commercial services. As an example, in the ONS, it was claimed that the department has some right to retain some amount of the income for their own use for product development and customer research. While in the TSO, they are working on this and anticipate using the available funds from the information trading activity.

9.5.3 IT Utilisation.

In most UK information trading organisations there is substantial utilisation of IT in information management. In TSO and ONS IT facilities are distributed to

individual departments but are connected by the network service. While in DVLA, it is more centralised system. In the ONS processing of information is carried out over client/server network, which replaces mainframes, although mainframes remain in use in two offices. In compiling the data for dissemination, the marketing division extracts the data from the database and compile it as required. While in DVLA, the use of IT has helped the department in collecting and storing the vehicle data. Facilities are provided by a large outsourcing company. In TSO, there is wide use of IT in handling export and import documents. CHIEF has provided many facilities including direct electronic processing of import and export. TSO has launched an Internet version of INTRASTAT Supplement Declaration. This facility gives an option for submitting returns in off line electronic form; Online electronic form or comma separated variable files.

The utilisation of IT can also be observed the way the department prepares its output to the customers. Although the common form of information output provided by the Government organisations includes booklets, reports and printed pamphlets. In some specialised departments such as DVLA, TSO, ONS and DTI, information is sold through computer diskette or magnetic tapes. Recently TSO and ONS have introduced the use of Internet service in marketing the information. TSO has the UK Trade Information Online, which provides the most complete and up-to- date information on export from and import to the UK.

Although IT facilities have been utilised widely by the department, some may face an administrative problem. In case of TSO, most of the data is entered in a computer system in the port and the data is keyed in the system. The system is built and maintained by external contractor. These computer systems are maintained on a mainframe at HM Customs and Excise and the department has difficulty in the use of the systems due to less priority given to the department. TSO has to compete with other departments within custom and exercise for the service. The difficulty in using the computer system has led the TSO to engage MAs for trading the information. TSO has a problem of lack of flexibility in existing computer systems and a lack of resources necessary to provide information with

the flexibility and customisation required. Information technology is provided to the DVLA by a large outsourcing company. It is the outsourcing company which extracts the data for DVLA to pass to the Marketing Agents.

9.6 Business Management Issues

Several issues need to be considered in determining the ability of Government organisations to play their role in information business. The summary of the issues and their interview evidence are shown in Table 9.5. The main issues surfaced from the study are as follows:

9.6.1 Political and Economic Issues

Political and economic issues play a significant part in the UK information trading activities. They provide a support for the organisation to exploit the government information. Some of the findings related to the political and economic issues are:

i. Unpoliticised Government Information

Interviews suggested that the UK Government has not politicised information. In the case of the ONS, they have a right to publish figures even if the data is disadvantageous to the Government. Information may not generally be used by the ruling party for the political strategies. Interviewees at the ONS considered impartiality essential if customers are to trust the integrity of the information they are buying. Most information collected by the department is used for the Government policy and at the same time is disseminated widely to the public. The unpoliticised government information is supported by the open Government policy, which allows people to acquire government data.

ii. Government Income Generation

The interview feedback suggested that there are changes in the aims of Government information management which arises from a move towards income generation. This has encouraged the organisation to put more effort into information handling and making information into an organisational product. This has a significantly positive effect on information management. The DVLA's aim in information trading is to '*maximise revenue to the Treasury, utilising Agency assets and fulfilling a market requirement*' (Business Support Officer). In the case of the ONS, the department has put more priority on producing wide-ranging information products. In the TSO, it was claimed by a respondent that the department has realised that some income can be generated from the data trading.

iii. Government Responsibility in Information Dissemination

The Government responsibility to disseminate information to the public was found to have some influence on the implementation of information trading function. The TSO aims to '*provide the right statistics to the right people at the right time*'. The ONS is very much aware of its responsibility to the public. Its main function is information dissemination, not income generation. Nevertheless, the perception of the departments is that government information should be accessible by the public but at the same time, the service should be charged for. The aim of the charging is to cover some of the cost of handling the information. In this case, the departmental policy on information dissemination will determine the charging policy.

v. Government Policy on Information Trading

The study revealed that DTI guidelines have some influence on Government departments. The guidelines outline the activities that the departments should consider promoting tradable information functions and also provide clear

procedures for government departments' information industry. Some departments are under pressure to maximise income to manage their information responsibility that is inconsistent with DTI guidelines. For instance, ONS and TSO have a plan to sell their statistical data directly to the customers while the guidelines stated that there must not be a competition with private sector traders. DTI guidelines were not effective in those approaches of information trading have diversified amongst departments. This is due to a lack of direct and enforceable central policy. In ONS, the respondents claimed that DTI guidelines were not sensible and were formulated without considering the historical background of the Government information and functions.

Guidelines from HM Treasury on selling Government services into wider market (HM Treasury, 1998) covered the selling of public sector information. They indicated that projects should be conducted at a departmental level. Benefits of sales would be retained within the departments and such projects should be financed from within existing cash limits. The guidelines recognised that such activity may best take place in partnership with private organisations. It also recognises that the proposal to sell information could be affected by evolving policy on Crown copyright and Freedom of Information.

9.6.2 Marketing Practices

Three interrelated aspects of marketing practices emerged from the study, the marketing strategies, marketing expertise and the role of Marketing Agents (MAs). There is more emphasis given on marketing strategies in the UK information trading departments. Some departments have worked together with their Marketing Agents in marketing, more customer oriented and are focused toward business services. The ONS produces regular pamphlets, brochures, advertisements and run seminars to promote their services while the TSO uses a wide range of marketing strategies such as booklets, pamphlets and publications. The department has representatives in some other countries carrying out the promotions of TSO's services. Utilisation of Internet technology in

the Government organisations is one of the ways to market the services as well as a medium for the public to access Government information. For example the TSO emphasises UK Trade Information On-line to provide the most complete import and export data. The department emphasises marketing culture and carry out marketing research.

The study revealed differences in marketing expertise in the studied departments. In DVLA, the use of Marketing Agents suggested that the department still lacked marketing facilities and skill. While in TSO, there are changes in the marketing ability. The role of Marketing Agents was reduced as the department tried to get knowledge of information trading through development's online services and marketing strategies. In the ONS, greater emphasis is given to the marketing department, which provides expertise and support to the other ONS departments.

One interesting point arising from the study in relation to marketing practice is the appointment marketing agents (MAs) on a contractual basis who disseminate and sell government information. The findings from case study in DVLA and TSO have illustrated clearly the role of MAs in information trading in UK Government. In DVLA, six marketing agents were selected and supplied with anonymised vehicle data. These MAs reprocess the data and market it to the users. Under the contract, the MAs are invoiced quarterly for royalties from sale depending on the percentage of the data used.

In TSO, the similar approach is used where four MAs are appointed for five years contract. The role of MAs is to sell the information and data to the users in the market. They are supplied with data on a monthly basis on magnetic type according to the schedule agreed in the contract. Besides selling the information, MAs are required to assist in surveys of customer satisfaction, to submit business plans, annual reports, list of customers, and sale figures and to support a user group for TSO customers. Now, things have changed, TSO has a licence arrangement with the Marketing Agents rather than a formal contract. This allows

anyone to buy the data for distribution purpose and the department is less controlling the selling activity of the agents.

In ONS, there is different approach dealing with the Marketing Agents. The relationship between the ONS and the agents hinges on the trading of specific information, requested by the marketing agent and agreed by the ONS. It is usual for the agent to approach the ONS to negotiate an individual contract. The Marketing Agent is given freedom to use the information as he wishes for the benefits of his customers while paying agreed royalties to the ONS. The contract with the marketing agent contains some restrictions arising from the need to preserve privacy and to adhere to the Government policy.

9.6.3 Pricing and Cost Elements

The research findings show that departments which practise information-trading activity, has a philosophy of covering the cost and not making any profit. Information distribution is seen as part of the public service provided by the departments. Despite some pressure from central government to maximise revenue, the organisations are still not making any profit from the information. The aim of the service is to promote information sharing between government and the public. In ONS, the price of sold information covers overall break-even cost. The organisation considers that the cost of free information services to some public sector organisation is offset by the income from commercial information trading. In the TSO, the pricing policy also aims to cover the cost of the processing time in preparing the information.

Pricing procedure is generally controlled by the Treasury guidelines. The marketing manager of ONS claimed that this has negative influence on the implementation of information trading. The organisations are not free to decide the price of information sold to commercial and non-commercial information users. A respondent in TSO suggested that the department was not free to determine the price of information and in most cases it does not cover the cost.

9.6.4 Customer Service Management

In UK Government's trading activity, that there is increasing emphasis on the customer service. The way the department deals with their customers such as the marketing agents suggests that this aspect has been given a priority in enhancing the information trading function of the departments. There is good relationship between the departments and the MAs. In the DVLA, the departments work together with MAs to solve the problems with the quality of the data and discussions are held throughout the contract period to overcome this problem. While in the TSO, there is co-operation between the agency and marketing agents, which focuses on commercial data and customers. In ONS, the good customer service can be seen in the department trying to fulfil the demand of the users. This partnership has created a good cooperation and as well as ideas for new information products.

9.7 Organisational Infrastructures Issues

Organisational infrastructure issues influence the readiness of Government departments to trade the public information. There are several categories of the issues under this component as shown in Table 9.5.

9.7.1 Management practices

i. Issue of secrecy

In the UK government, although government information is accessible to the public there is still the issue of secrecy of official information. The Government has a code of practice on access to government information which supports the Government policy under the Citizen's Charter of extending access to official information and responding to reasonable requests for information (HMSO, 1997). This code of practice clearly states that the release of information should be

based on the assumption that information should be released except where disclosure would not be in the public interest. In this case, some categories of official information will remain confidential; for instance, information relating to defence, national security or law enforcement or which is personal or commercially confidential.

Although there are clear guidelines concerning secrecy, there is no direct effect on information trading in government departments. For instance, in DVLA, the confidentiality of the owner of the vehicle is maintained. The data comprises 28 data fields extracted from agency's vehicle register database. It does not include the name, address of owners, registration mark and identification. These information items have been omitted to ensure anonymity of individual owners. Other information which is useful to the commercial use is still available for the Marketing Agents and this information is used by the automobile industry. ONS also still preserve the privacy aspect of the data and information

ii. **Issue on Crown Copyright**

One of the main issues related to information trading in UK Government is the issue of Crown Copyright. Public sectors may claim copyright on their information products in order to ensure that the content is not altered. However, to the private sector, it seems that crown copyright does not make a positive contribution to overall standards of publishing of official information.

The findings of the study show that Crown copyright is being enforced in most Government organisations but has less influence on information trading. Although Crown Copyright is managed by HMSO, ONS has delegated power to manage the copyright issues. ONS is sensitive to the academic sector and has the flexibility to waive charges for students and academic use with a condition that the source for publication need to acknowledge. ONS also waived the copyright fee for public purpose and will monitor the use of the information, but for commercial use, there is a commercial copyright need. To ONS, Crown

Copyright does not prohibit the information dissemination and marketing but it is a means to ensure the source of information is clear.

For the TSO, the issue of Crown Copyright relates to the control of ownership of the data or information. This is to ensure the source of the data can be identified and at the same time can prevent the data from being misused by other people without acknowledging the source. One of the respondents suggested that the implementation of Crown copyright act has no effect on the information industry.

To the private sector, the crown copyright is a bit of burden because it increases their cost because it does not allow to copy the data. One of the information companies claimed that since Government data is collected for public good and it should be disseminated as wide as possible to help the business and the economy of the country. Nevertheless, the copyright law prevents the wide use of Government information. On the other hand they agreed that Crown Copyright is important as the law can protect the ownership right of the data.

Changes in Crown copyright have a significant impact on public sector information trading and have been a focus of attention from the information industry. The 1999 White Paper on the future Management of Crown Copyright (HMSO, 1999) sees Crown copyright as acting a brand or kitemark of quality. The White Paper highlights a need to differentiate between public and commercial use of public sector information in setting charges. The white paper also indicates the importance of providing data in an electronic form and states the departments will be encouraged to provide electronic data on a transparent licensing and charging basis.

iii. IT Knowledge and Acceptance

High IT knowledge and IT acceptance may have a positive influence on the implementation of information trading in UK Government. This factor emerged as a factor in the utilisation of IT facilities within the organisations. Because of high

knowledge and acceptance, the data handling in the organisation is done electronically or by network systems. The existence of high IT knowledge was evidenced by the growth of the use of IT facilities over the years in the TSO. The department has Management Support System (MSS) and fully utilised the IT facilities in data entry such as CHIEF and INSTRASTAT.

All three departments developed web-site for their information trading operations. DVLA used their site only to provide information about marketing agents, while both TSO and ONS developed on-line services. The study suggested that the Internet was having a significant effect on information trading. The Internet service provides a direct link between departments and customers without the use of agents as intermediaries. The delivery of information through download is simple and cost-effective. These services provide greater flexibility with small investment and a minimal risk. The development of the Regional Trade Statistic Service by TSO was an example of a new web-site service. Both the TSO's development of the UKTRADEINFO and ONS's development of National Statistic web-site represent significant changes in the marketing and delivery of information services.

9.7.2 Attitude to Information

As shown in Table 9.5, there is high awareness of the importance of information in the UK Government organisations. This is one of the factors that may influence the readiness of the department toward the information trading service. There is a significant positive attitude of the departments about the implementation of information trading. The case study in ONS indicated that the emergence of information trading service was because the department realised that the information belonged to government but also to people. There is an increased awareness of the value of the information held and the duty to get the best possible return from these assets on behalf of the public taxpayer.

9.7.3 Trading and Business Approaches

Two issues emerged in relation with trading and business planning aspect: the idea of information trading and the issue of government a service oriented organisation. As information-trading activity has become a part of the departmental functions, the study found that that there is proper trading and business planning in the organisations. The involvement of marketing agents in the department's business plans show that the departments play an active role in the information business. In TSO, there is a change in the marketing ways within the department, the department has begun to market or supply the information directly to the customers particularly to the Government departments, trade association, academic sector. Since there are changes in the marketing trend, the department is more focused on quality of the data and information. The department implements the concept of European Total Quality Management Model (TQM) in its marketing business. The service is more focussed on customer and company culture and towards a business- oriented service.

In the ONS, there was a change about the image of the departments, which resulted in more emphasis on direct marketing, campaigning and promoting the services. They reviewed what they are doing such as to produce new product, valuing the market and other works. Marketing has become a priority and essential in the organisation. The department has decentralised marketing functions, with the business units being more involved in marketing. At the same time the marketing division has gained expertise in controlling the marketing activities.

9.7.4 Quality Control and Value Added Process

This aspect has some influence on the success of the information trading since the quality and reliability of the data is important in the market. The case studies of the UK Government departments indicated that this aspect has been emphasised by the department together with the element of value added process.

The quality control process is conducted at the information collection stages and in the dissemination process.

In the TSO, the department has a good system of validating data collected. For non-EU data, validation is done at the entry points at the individual ports by a computer system. This is further checked by different units in the TSO in order to have uniform value. For EU data, special validation exercise is carried. A set of quality parameters is used which are considered as in house standard. Generally, the department has a good validation and quality control systems to safeguard the value of the data.

In ONS, there is standardised procedure in quality control. In the 'agreed checking system' the entire department understands their role in checking the data. The incoming data undergoes edit checking. Under the present procedure, there is a special checking at all the information sources and collecting points. At the marketing unit, the quality of the output presentation is mostly emphasised.

In order to enhance the quality of information product, there is value-added process carried out by the agencies. In the ONS, they use professionals in the business unit who evaluate and analyse the data. For instance, the department is working towards producing two new journals for monthly regular subscription and published reports on population trends and social trends.

In the TSO, the department is not involved in adding value to its information. Most of the data supplied to the marketing agents and end user is raw data. The marketing agents process and add value to the data before reselling to the clients. In this way the marketing agents can penetrate the selected markets or find more market for their products. Under a new marketing strategy, TSO has an on-line information trading site that provides a wide range of trade data tailored to the user's need.

9.7.5 Structural Characteristics

The organisational structure and attitudes of individual departments may impact inter departmental co-ordination. This may constrain information trading. The study suggested two main elements concerning information flow and departmental co-ordination.

i. Information Flow and Sharing

The study indicated that within the ONS itself, there is a systematic flow of information between the units. Although the operation of ONS takes place at three locations, each unit manages to access and process the relevant data. The data and information are processed in individual databases and output such as data publications can be extracted by other departments. ONS continuously receives data and information from other departments as well supplying the required data to them. A good example of information flow in information management is the relationship of ONS with Local Governments. In order to prepare the budget and financial submission to the Central Government, Local Governments require much information and most of this information comes from the ONS.

In TSO, the good information flow and sharing is due to the systematic monitoring procedure within the department. Each unit has to follow the same procedures so that the collected information can be shared between the departments. Similarly, TSO has information sharing with other European Customs and Excise departments. This good relationship encourages information exchange between departments.

ii. Departmental Co-ordination

Reasonable inter-departmental co-ordination in the UK government encourages information trading. The study suggested that there is a good relationship

between the departments and information is well distributed and can be shared by different departments or units. Within the ONS, there is good information co-ordination with other sub-departments. For example, the processing department co-ordinates with marketing department in formulating the marketing strategies. It was noticed that ONS is one of the members of the Government Statistician Service (GSS) group, which includes all the statisticians from the departments. The aim of GSS is to improve information sharing in government departments. Most departments will supply data and information to ONS. Despite having a good co-operation with other agencies, ONS does not have mandatory power to demand the information.

9.8 Analysis of the Research Findings of UK Government Information Trading

It was revealed that information trading function been widely practised in the UK public organisations. There is evidence that shows the departments of the case study have high capability to utilise information sources and commercialise the information. In the following sections the discussion will be on the several key elements identified during the study. These elements are recognised as the main elements which significantly influence the progression of UK government information trading.

9.8.1 Nature of Information and Technology Management

An effective information trading function relies on well-organised management of technology, the systems and the manpower. Standardisation of the IT and information management enable effective and flexible information systems for managing the collection, validation and value adding processes. The study showed that as a developed country, UK Government organisations have utilised the IT facilities efficiently in order to provide systematic information management systems in the organisations. This has resulted in highly managed information resources and enabled the organisations to explore the commercial value of the information.

It is noticed that high utilisation of IT facilities has influenced the nature of information management in the UK organisations. The widespread use of on-line information systems in the departments of ONS and TSO makes the organisations to have a systematic information management, which can be considered as pre-requisite for information trading. Standard procedures in information collection also enhance interdepartmental co-ordination and information sharing.

9.8.2 Information Value Awareness

In the UK Government there is an increase of awareness of information as a public asset, which should be managed and exploited commercially. In the ONS, the focus was on the value of information, considered both morally and economically. There was a commitment to make information accessed widely by the public. This has led the department to make sure that information is available in the market. On the other hand, in the DVLA the awareness of information value is still low. One agent suggested that the DVLA was not very much aware of the value of the information. This leads to problems in information quality and distribution. In TSO, the department realises that information is becoming an increasingly important commodity for business.

The assurance of access to pertinent, up-to-date information has become vital to the establishment of strategy for all the organisations. Promoting information sharing, utilising the potential information and enhancing information value are suggested as the main objectives of Government organisations in selling their information. This was evidenced in the Government directives and guidelines on information management such as the Open Government policy and commercialisation of information.

9.8.3 Role of Government in Information Trading

In UK, the Government has continuously encouraged the process of making information widely disseminated as economic activity. This was influenced by the changes of economic sector in present information age. The specified procedure of commercialisation of Government information was originally stated in DTI guidelines. Furthermore, HM Treasury provides a policy and guidance for exploiting commercial potential of their asset such as information by engaging in commercial services. The policy is intended to make better use of existing Government assets in wider markets.

One of the main aspects in DTI and HM Treasury guidelines is the role of private sector in promoting the information industry. The government agencies are allowed to supply their information to customers through a series of private intermediaries such as MAs. This aims to stimulate the growth of the information service market.

9.8.4 Government Policy on Information Trading

Government information policy has an impact on commercialisation of information. As a result, a number of policy issues regarding the information dissemination have to be reviewed by the Government. Moore and Steel (1991) discussed the existing legislative issues in UK information sector. They urged that, due to dramatic increased development in technology of information either in public and private sector, further legislation is needed. In UK, the departments have to follow Government guidelines on commercialisation of government information due to Data Protection Act. The study showed that to carry out the information trading, DVLA and ONS maintain the confidentiality of the data and take some measures to protect individual data.

During the period of 1997-1999, the archaic nature of Crown Copyright law was seen as a barrier to information trading. Marketing agents had indicated a wish

for the Crown copyright law to be reviewed since it did not reflect changes in the nature of information distribution and the development of an information economy. The law increased the scarcity value of public information since only a limited number of agents who had contracts with the government departments could sell it. At the same time, there was a need to reinterpret copyright legislation to accommodate new information technologies and to safeguard the government information itself. Subject to these constraints, UK information policy is again driven by a desire to provide the infrastructure for a competitive business environment.

9.8.5 Political Issue in Information Trading

The study suggested that there is less political impact of dissemination of government information. Most of the government information is widely disseminated to the public except for the reasons of confidentiality. As the UK government is more open to the public most of the information can be accessed from the departments. This was seen in the case of ONS, It is the responsibility of the department to make the dissemination as wide as possible to the public. Any possibility of government interference imposing restrictions on information will damage the ONS's reputation and reduce the value of the information traded.

9.8.6 Business and Marketing Practices

The emergence of government information trading has led some government departments to emphasise more on business and marketing practices. This includes the approaches in practising the marketing functions, the customer relationship and marketing strategic aspects. The study showed that some of UK information trading organisations have become more commercially oriented and emphasis is given to satisfy the customers.

There are new approaches in the delivery of information to customers. The customer in TSO can obtain the information on CD ROM, microfiche, floppy disk

and paper and the department will produce specific report that meets the particular needs of the customers. TSO also has launched the UK Trade information On-line which provides on-line service import and export data. While in ONS, there is already good delivery service provided either by computer diskette, CD-ROM or on line service.

TSO gives more emphasise on supplying the data to non-commercialised bodies such as trade associations, and education associations. Some part of marketing activities are handled by the marketing agents and other are taken up by TSO. The relationship with MAs was changed from contract-based to licence-based. This reduces the demands on the agent. Through licensing agreement, the TSO could allow anyone to buy data for distribution. In the ONS, the business practice focuses on joint ventures with other parties such as publishers. They have joint effort in marketing procedures and campaigning to attract customers for different products.

9.8.7 Issue of Interdepartmental Co-ordination

The process of exploitation of the public sector information may be enhanced by consolidated effort within the government organisations. This was evident in the case study of ONS, where the department is a member of working committee of several departments. The department has a mutual understanding concerning sharing information with other departments. Similarly in TSO different departments show a good response in supplying the information to TSO. The issue of openness and accessibility of information can be overcome by proper policy of Government. Without such a policy instrument, the present divergent access arrangements with the Government departments may distort the progress of the information business among the public and private sector information.

9.8.8 Information Trading Culture

The case studies showed that information-trading culture has been established within the UK organisations. This was obvious from the awareness of the value of the information, the idea of income generation and economic benefit of the distribution of that information. The departments were aware of the value of information beyond its use in the execution of administrative responsibility. Furthermore, an awareness of the value of the information as asset to the public and to commercial concerns may lead to an improved culture which values information quality.

In DVLA, information trading was seen as a peripheral activity, initiated externally by the department and carried out at minimum cost. The department has a market-aware culture in which attention is paid to the nature of the information industry and the ways in which information is traded with an understanding of the need of openness in providing information as a public service and a commercial awareness of information market. In TSO, the aim is to provide the right statistic to the right people at the right time. This encourages the departments to widely disseminate the trade data to the commercial sector. Such a culture has developed through interactions and partnerships with marketing agents who bring a culture of commercial awareness and customer orientation.

9.8.9 Cost and Pricing Issues

The findings suggest that the aim of the department studied pricing is not for profit making but to cover the cost. This is according to the government cost recovering policy (HM Treasury, 1998). Furthermore, there is still the perception that Government is service oriented and information should be disseminated free to the public. The government still has to provide service to the people and is responsible to supply the information to the taxpayers. This suggested that the government has a duty to recover the cost of collecting the information and thus reduce the burden on the taxpayer. The study suggested that the UK

departments strongly favour cost recovery as a basis for improving public information service provision.

In dealing with information, it is difficult for Government departments to determine the total cost involved in information management. In most cases, the price of information depends upon on the type of services and the nature of material used in preparing the information. Although the UK Government policy on pricing is to cover the cost, some departments had difficulty in recovering the total cost. In comparison with several mapping agencies in several countries (Coppers and Lybrand, 1996) the Mapping agencies in Great Britain managed to make substantial cost recovery around 78% of the total cost.

9.8.10 The Role of Marketing Agents in Government Information Trading

One of important elements in marketing strategies of UK Government is the role of Marketing agents (MAs) in information trading. This study showed that MAs and information brokers make a significant contribution in promoting the distribution of tradable Government information. DVLA, TSO and ONS have used the MAs services in marketing the Government data and statistical information.

In the case of DVLA, marketing agents provided the sole distribution point for DVLA anonymous data. The actual data provided was limited. A dataset was provided on what agents interpreted as a 'take it or leave it' basis. There was no negotiation on what data would be received and when. The agents carried the risks associated with marketing the data. In the case of the ONS there was a significant means of distribution and involved the development of new products. The presence of agents was required because of lack of resources, information processing skills and market access. The role of the agent, particularly in the cases of DVLA and TSO was more of a subcontractor, carrying out task on behalf of the department than a distributor or independent retailer of Government information.

The role of agents in TSO changed dramatically when the agreement between TSO and the agents was changed from a contract to a licence. The move to licensing gives TSO the freedom to gain new knowledge of information trading through the development of information online services. This facilitates the direct trading between the department and the customers.

The study indicated that the departments in the study sought to control the agents. The DVLA controlled the agents through quarterly report and potential for audits. The TSO's control was exerted on agents through a continued requirement for agents to provide details of customers. While in the ONS, the data to be traded was negotiated. The limitation on what data could be received and what could be done with it provided a means of controlling the agent by reducing the level of freedom of agent.

The study showed that there are divergent interests between Government departments and marketing agents in the context of information trading. Government departments wish to optimise income from information trading and control what was sold and to whom, with minimum investment and minimum risk. Agents were interested in flexible access to data and greater choice of data, the ability to compete effectively in the market, and simple and global procedures for gaining access to information and minimal legislative and bureaucratic restriction on data usage. These divergent interests were expressed in problems with data quality, timeliness and delivery, excessively long contract negotiations, restriction on what information is available and differences over the basis of fees. While some governments may seek to market their own information and exclude agents, the presence of agents may be important in the development of a large information trading market.

9.9 Conclusion

The findings revealed that there is a positive progress of information trading function in the UK government sectors. The organisations have recognised information is a tradable commodity and a distinct effort between the public and private sector enhances the process of commercialisation of public sector information. The government policy such as the DTI guidelines, HM Treasury and Crown Copyright provide a direction for the departments to streamline their trading activities. From the organisational perspective, the departments have possessed an information-aware culture with good resource and business management within the departments. There is already high awareness of importance of information as commercial product. There is a systematic information management procedure and utilisation of IT facilities within the organisations. In business management, the departments have good marketing strategies and provides effective service to the users. The departments have outsourced the marketing activity to the marketing agents, which may provide more effective marketing strategies. On the organisational infrastructure aspect, the high awareness of the importance of information has promoted a good co-ordination and information flow among the departments. This consolidated perception on the good access of information is one of the criteria in developed country where information is well accessible.

The study in UK Government organisations has illuminated some differences on how this country manages information sources and to what extent the information business has been exploited as compared to Malaysian Government departments. These differences are the impact of the social and cultural factors and the issue of multiple cultural differences will further analysed in following chapter.

CHAPTER 10

The Influence of Cultural Factors in The Implementation Of Tradable Information Functions in the Government Organisations.

10.1 Introduction

The two previous chapters have presented the research findings on the nature of information management and the implementation of information trading in the UK and Malaysia. Several important issues have been highlighted. This chapter analyses the differences and similarities in information resources and trading practices across the government departments in the UK and Malaysia. The analysis is framed within the context of cultural characteristics and their influence on the implementation of tradable information functions. This includes the organisational and managerial characteristics that are associated with the nature of information management and information trading practices.

The structure of this chapter is summarised in Table 10.1. The discussion begins with a summary of similarities and differences between Malaysia and the UK. The next section touches on some of the key issues and findings which relate to cultural issues.

Table 10.1: The structure of the chapter

-
- Introduction
 - Similarities and Differences of Information Management Practice in the UK and Malaysian Public Organisations
 - The Effect of Cultural Dimension on Information Trading Activities
 - The Reflection of Cultural Factor in Information Trading in Public Organisations
 - Conclusion
-

10.2 The Cultural Differences in Information Management and Information Trading Functions

In order to analyse the nature of cultural influences on management and organisational practices in both the countries, it is important to understand the similarities and differences concerning information management and trading practices. This is one of the research questions for this study. Furthermore, this account will provide the nature of cultural differences between two countries. Using the components of research model, Table 10.2. summarises the major aspects of comparison between the two countries. The selected elements are based on the research model and have been mentioned in Chapter 5, these elements are regarded as a group of issues that represent the organisational, management and business perspectives within the organisations. The elements have covered large spectrum of the relevant issues and act as the foundation to discuss: To what extent national cultural dimensions influence the information management and information trading in both the government organisations?

In the following sections, the discussion will focus on the similarities and differences in information trading practices between the Government organisations of the UK and Malaysia.

10.2.1 Resource Management

i. Information Management

The findings showed that there were significant differences between UK and Malaysian government with respect to information management. There was more effective and systematic information management in the UK organisations as compared to Malaysia. In UK Government departments, information is already accepted as an important input for management. The systematic information management has influence to make the information available in the market.

Table 10.2 : Summary of the research findings for the cultural differences analysis

Dimension/component	UNITED KINGDOM	MALAYSIA
Resource Management	Generally effective and systematic information collecting procedures. This promoting the information trading idea.	Relatively less efficient and still problematic area. Impact the ability to market the information.
Information management	More collective approach between departments in information collecting. Co-ordination is emphasised	Apparently each department collects their own information and duplication and redundancy of work is frequent. Issue of 'island of information' exists.
IT resources	IT installations in more decentralised or distributed among the departments. Highly utilisation of the IT facilities and good acceptance of the facilities and technologies Lack of expertise and budgetary has some effect on the information trading	More centralised controlled networks Information management procedures controlled by the Headquarters. IT facilities are still under-utilised and the issue of resistance to technology still exists. Human resource issues i.e. lack of expertise, manpower and personal behaviour still predominance.
Budgetary and financial resource	Although centrally controlled, but some departments can use their revenue in performing information business activities.	No autonomy in budget and financial power in departments. Central agency controls and affect the activities of the information trading.

Dimension/components	UNITED KINGDOM	MALAYSIA
<p>Business Management</p> <p>Marketing Practice</p> <p>Pricing and cost element</p> <p>Political and economic issue</p> <p>Customer service management</p>	<p>More involvement of private companies in information trading activities. Government organisations are more business oriented.</p> <p>Mainly to cover the cost but still operating as a commercial organisations with good service.</p> <p>There is more open information government policy. Information is available to the public. Freedom of Information is ultimate aim.</p> <p>Commercialisation of government information has become a part of the information management objective</p> <p>Good strategy in customer service. There is a specific contract or license with marketing agents.</p>	<p>Small scale of marketing practice. No clear direction concerning private sector involvement in information trading activity.</p> <p>Aims to cover some cost at minimum charge, still purely government oriented ie service providers.</p> <p>Government information is 'political weapon'. Mostly not accessible to the public. Selective disclosure of information</p> <p>Dissemination of government Information is more on service oriented basis and not really for commercial function.</p> <p>Less emphasis on customer service. Loose relationship with marketing agents.</p>

<p>Organisational Infrastructure Management Practice Issue of Secrecy</p>	<p>There is clear classification of non-disseminated government information, but it does not impact the information management and trading in government.</p> <p>Highly concern of individual information. The issue has been emphasised in information dissemination</p> <p>The issue used by the government to protect the status of ownership of the information. Apparently it affects the information trading.</p> <p>Departmental information policy may be formulated by each department as the central agency become a reference.</p> <p>Positive awareness on information value within the government sector. Evidenced from the role of government incentives and emphasis.</p> <p>Highly planned and strategic in information business, role of marketing agents and diversification of the information trading activities</p> <p>Primarily emphasised and given a priority in information management. Systematic processes are used.</p>	<p>Issue of secrecy on government information greatly influences information management. OSA has influenced the nature of perception of information flows and sharing.</p> <p>Less concern for the protection of individual data. This is not the issues in information dissemination</p> <p>There is loose binding of copyright issue in government information and no emphases given on this matter.</p> <p>All the policy must get approval from the central agency and must in line with government policy</p> <p>No clear trend in valuing the commercial value of information. Information as 'politicised' item</p> <p>Generally no information trading process and business idea planning. Involvement of private sector is very minimum.</p> <p>Quality is still the issue, no clear system of controlling. Mainly depend on the perception of the individual department</p>
<p>Structural characteristics Information sharing</p>	<p>Highly shared among the different departments and unit in an organisations.</p> <p>Departmental co-ordination is good, there is a working committee group. Clear working objective among the units in the department</p>	<p>Restricted flow of information</p> <p>Conflict between the departments or units. Issue of Territory, belonging and power.</p>
<p>Interdepartmental co-ordination</p>		

This was obvious the way ONS and TSO manage the information. On the other hand, in Malaysia, the departments are facing a number of problems in achieving systematic information management. The organisations' information practice is affected by several issues such as the awareness of importance of information, readiness to change, under-utilisation of IT and information ownership.

In UK public organisations, there is a co-operative approach between the departments concerning information collection. The collection of information is done systematically and there is a good co-ordination between the units. One of the respondents of TSO claimed that, in his department, there is a standard procedure for data handling and each unit has to follow the procedure. The findings also suggested that systematic information processing is carried out to reduce redundancy or duplication of data collection. The study showed that 28 out of 33 departments interviewed in Malaysian Government organisations had their own information management systems and it was highlighted that there was a significant problem of duplication of information collection and storage. This results in 'islands of information' as each department collects its own data without reference to other departments. The existence of decentralised system of information collecting has made it difficult to control the utilisation of information and has created a number of administrative problems. Culturally, as an advanced nation, the UK is more aggressive and innovative in the information management and makes better use of IT facilities. In Malaysia, low utilisation of information technology and less emphasis on the information management results from the slow diffusion of IT and a low information management skills.

ii. IT Resource Management

The use of advanced IT technology in the UK organizations has permitted the systematic data management information dissemination. This was suggested by the Marketing manager in ONS who claimed that the present IT facilities help the department in collecting and distributing the information. The research suggested that the high utilisation of IT in UK environment may be because of the good

acceptance of the technology and existing IT knowledge and skills. In the Malaysian public sector, the impact of IT installation in government departments is still at early stage. IT facilities have made some improvements in the government services mainly in providing efficient service to the public. This was claimed by several respondents, for example the Officer in Malaysian Manpower Planning Unit which plans the government IT programs. He said that although IT programmes have been launched over ten years, the efficiency of government service has still not really improved. In terms of the information management aspect, IT facilities are still under-utilised in providing good, effective and systematic information management in many departments. This was claimed by majority of respondents who agreed that their IT facilities are not being fully used. The issue of under utilisation of IT is further accentuated by existence of high resistance to the technology by the members of the departments. This issue has been argued, by several respondents to be the constraint on the government to achieve the objective of IT programmes in the government sector. One of the IT managers suggested that this issue is influenced by the background of the officers and cultural factor.

iii. Budgetary and Financial Resources

In the UK and Malaysian Government, the budgetary system is controlled by Central Agency. In terms of government revenue collected by the departments from activity, by obligation the department to return the money collected to the Central Agency and normally this money will become a consolidated fund for the Government. In UK, although the policy required the department to return the revenue to the Treasury in some circumstances, the department may use some of the income to promote information business activity. Recently, the HM Treasury guidelines have allowed departments to retain some of the revenues created from commercial activities for the departmental use. This provides an incentive for developing information services. In the Malaysian public sector, the budgetary system is strictly controlled by the Central Agency. As the departments have to return all the revenue for their activities to the government, it was shown that

there is a negative impact on the willingness of the department to take part in information trading activities.

10.2.2 Business Management

i. Marketing Practices

The study revealed that the UK government policy encourages more involvement of private companies in government information trading activities. The DTI guidelines outlined how the private sector could play a greater role in commercialisation of the government information. It is stated, '*The thrust of policy development has focused on the supply of Government-held information to private sector concerns who will create public access information retrieval service as a result (page 6)*'. Furthermore, HM Treasury guidelines promote a partnership between private and public sector in commercialising government assets. In contrast, in Malaysia government departments, the scale of information marketing is very small. There is little involvement of private sector in marketing the government information. Government policy on government information trading does not exist. There is still no clear trend of government information industry in Malaysia.

ii. Cost Element

The noticeable similarity between the two countries is that the main objective of pricing is to cover the cost. In UK, as stated in HM Treasury guidelines, the pricing must be fair and must also reflect a full and robust measurement of the department's cost. This has been followed by the ONS, TSO and DVLA. The charging of information is just to cover the cost of handling the information. Although TSO and ONS are promoting the information selling, the departments are aware of social needs. The marketing manager of ONS claimed that the main objective in disseminating information to the commercial sector is to enhance economic activity. While in TSO, the aim is directly to increase UK

competitiveness in information market. In Malaysian departments, generally the charging is to cover the cost and the minimal cost. The research showed that 20 out of 33 departments have agreed that the aim of charging is to cover the cost. This indicates that there is perception that the government departments act as service providers in the information dissemination activities. The Head of Mapping Unit of Department of Survey mentioned that as government departments, they still have to serve the people and element of charging is not a main issue.

iii. Political and Economic Issue

Research findings suggest that in UK government, information is more accessible to the public. This was evidenced from the government policy of information freedom. Government information is available from the departments and there is policy of Open Government in most departments. One of the aims of the Code of Practice on Access to Government Information is stated as '*to improve the policy-making and democratic process by extending access to facts and analysis which provide the basis for the consideration of proposed policy*'. In the ONS, there is a policy to disseminate information to the public although the data may be unfavorable to the government. At this point, the UK government has introduced the Freedom of Information Act which may allow wide dissemination of information. This policy may indicate that the government does not politicized the information.

In Malaysian government organisations, information is considered as government property and dissemination to the public is significantly limited. Most of the government information is classified as secret and not for the free consumption by the public. The government has politicised the information and in many cases government information has viewed as government propaganda. This was claimed by the Information Officer in Ministry of Information by saying that :

There are a lot of issues in government.... I think the government should be more open in information dissemination, don't be political motivated but be more transparent....

This argument was supported by Head of IT in one ministry who claimed that government information is too closed. The government has a policy of selective disclosure of information, giving a political advantage to the government. In Malaysia, explicitly all the main information providers such as radio and television stations and newspaper publishers are controlled by the Government.

In UK government, commercialisation of information has been addressed as a Government initiative with specific policy and guidelines. It was found that in ONS and TSO, the departmental information management objective is to have systematic information systems which make the information accessible to the public. Information dissemination has become an important activity in many departments. This is promoted by the increasing awareness of the economic value of information and the requirement of business sectors for information. In Malaysia, the economic value of information is still not recognised. Several respondents in the study agreed that dissemination of government information charging has negative impact on the government. Politically, this is not a favorable service from the government because under present economic problem, charging the information will burden the public because the public has been charged for many services.

iv. Customer Service Management

Consistent with earlier findings on the marketing practice, there are some differences in customer service management between the UK and Malaysia. In UK information trading good customer services are provided. In departments which use marketing agents the relationship between the departments and the customers is defined by the contractual or license agreements which are the basis for a mutual understanding for both the parties. The departments control some of the activities of the marketing agents to ensure the activities are consistent with government policies. In contrast, there is no involvement of marketing agents in Malaysian public information trading functions. Information is

sold directly to the customers such as information companies, publisher and the public. The study findings suggested that there is loose relationship between the departments and their customers. Several respondents such as the Head of Corporate Unit of National Population and Family Planning Department claimed that there is no proper customer service provided by the departments. The departments may supply the information that is already prepared and if the users require different type of information, they have to wait. The main reason that departments consider information-trading function is not a main responsibility and good customer relationship less emphasised.

10.2.3 Organisational Infrastructure

A. Organisational practice

i. Issue of secrecy

In UK Government, there is clear classification of non-disseminated information as stated in Open Government policy but it does not affect severely the government information management and information trading activities. The issue of government secrecy does not prohibit the readiness of the department to market their information. This was agreed by the Marketing manager in ONS who claimed that the present government policy on information secrecy does not effect the information trading in this country. This was supported by one of the marketing agents who suggested that although some of the information is considered confidential but the government departments will supply some selected information to the companies and this can be utilised by the companies commercially. The UK government, departments are more or less open organisations whose information is to a greater extent accessible by the public. Departments are fully aware of the requirement for government confidentiality.

In contrast, in Malaysia, the issue of secrecy on government information has a great impact on the dissemination of information to the public and the perception

of the departments in handling the information. Information sharing and the flow of information between departments is linked by the negative perception of government information secrecy policy. The existence of Official Secret Act (OSA) in Malaysia has great influence on the way the information is managed. Although this law aims to safeguard government information, it is a deterrent to government officers. The role of secrecy issue in information management in this country is associated with the political and bureaucratic factors.

As Malaysia is highly, politicized, secrecy is important in any occasion. Several respondents in the study fully agreed that information is controlled by the government in order to cover the gaps. The Head of IT in the Ministry of Trade and Industry said that in most cases, the information disseminated by the government does not represent the reality of what is really happening in the government. This is for political purposes. Most of the information is secret. This showed that the government tries to prevent wide dissemination since it might expose the gaps. In contrast, the UK which is more liberal and less politicized. This was evidenced from the wide dissemination of controversial information by newspapers and TV stations. The interview with ONS suggested that if someone disclosed information showed government's weakness, the minister will come forward to explain the issues. In this case there is not secrecy of the information and the government become more responsible.

ii. Data Protection Issue

In the UK, the protection of personal data is likely to contribute some effect on the information trading policy. Departments were concerned about the disclosure of individual data in implementing tradable information functions, for example, in the supply of vehicle data by the DVLA to marketing agents and in information trading in the ONS. In contrast, in Malaysia, the study suggested that there was evidence that the issue of personal data protection is not an issue in information management. This indicates that the issue exists but it may be that no one is addressing it. In the knowledge of researcher, there is no discussion on this issue

by either the public and the government. Neither is there any specific government policy on this issue. The findings suggest that most of data or information sold by the UK government department is protected by the law of data protection act. For example, in ONS, the data from census is summarised in the form of report and the source of the data is closed. Although there is data protection act in Malaysia, but the study suggested that does not significantly influence the information trading functions.

iii. Copyright issue on Government information

The use of Crown Copyright is a debatable issue in UK Government information trading. Crown Copyright gives the government a power to control the use of the official information. On the other hand, some groups feel that Crown copyright is outdated and its abolition would have far-reaching and positive consequences for the development of a modern information society. The government has presented a green paper to review the Crown Copyright laws. Some of the feedbacks suggested that the law constituted a serious and destructive barrier to the wide spreading the government information. The commercial sectors claimed that the law affects the growth of information industries in which the companies are not free to widely reproduce the information in the market. In ONS and TSO, this law does influence the information trading functions and they believe that this will secure the reliability of the information.

The issue of copyright law is not the major issue in Malaysian information industry. There is no specific copyright law enforced in the government but the government document is controlled by the Right Patent Law. This law states that government documents are prohibited from being reproduced without the permission of the relevant departments. The present phenomenon is related to the secrecy issue of the government information and the attitude of government officers to government information. The study showed that since there is high concern about the OSA, the officers are likely not to disseminate information and all information is considered as government secret.

iv. Government Information Policy

There is a significant difference in the government policy concerning information between the UK and Malaysian government. As discussed in previous section, in the UK government, the DTI and HM Treasury guidelines are used as a good reference. While guidelines give overall policy directions, details are determined at departmental level. These guidelines merely give a clear base for the government organisation in implementing the information trading activities. The DTI guidelines have become a reference to the departments and they may formulate any information policy that suit to their activities with the government policy.

In contrast there is no clear government policy for information trading in Malaysian government. At present, there are policies concerning how to handle government information and regarding information secrecy but considering information trading function. The procedures followed by departments in selling their information are according to their own interpretation. The study suggested that the UK departments use their discretion in formulating the information trading policy or procedures. Although there are general guidelines such as DTI and Treasury guidelines, there is possibility that the departments may consider the departmental objectives in formulating the information trading functions. For example in TSO, there was a change in policy to emphasise the supply of information to the non-commercial organizations. In Malaysian departments guidelines are controlled by the Central Agencies such as Treasury.

v. Attitude to Information Value

In UK Government, the findings have suggested that the role of information in economic sector particularly in information age has encouraged the government departments to make the information available in the market. Members of the departments interviewed realised that there was a demand for information

collected by departments from the private information companies. For example, in ONS there was an awareness of the value of information. In the TSO, the department has considered that the trade data can be used to enhance the economic activity and should be disseminated to the business sector. From an economic perspective, the awareness of the importance of information has encouraged departments to use the information as source of public sector income. In contrast, the Malaysian, public sector there was no clear perception of information value. The study showed that information is not fully utilised for management purposes. There was still low awareness of the commercial value of information within the departments. One of the IT Managers claimed that in Malaysian public departments, there is still no idea of commercialising information.

vi. Trading and Business Planning

The study suggested that the UK departments have played a great role in information trading activities. Although the information trading is still a minor activity, certain departments were looking for new ways to market information products. In TSO, the use of Internet as a new medium of delivery for the information and for the diversification of their information business was an example. Some departments such as DVLA seek business advantages through the use of agents. In TSO also, there is change in marketing strategy, the department has emphasised to market the information to non-commercial organisations. While in ONS, the departments work together with the customer to explore new products and marketing strategy. This was in sharp contrast to Malaysian information trading organisations. Generally, there was no information trading and business planning and the involvement of private sector was minimal. There was no proper marketing and promotion strategy. Marketing was done by small section of the department and was considered a minor activity of the organisations. Most of the departments do not question whether users know what information is available.

vii. Quality Control

Another issue that differentiates the way information is managed between the UK and Malaysian public organisations is the perception of quality control of information. This may relate to the attitudes to information. The UK departments gave more emphasis to quality control in information management. As has been discussed in Chapter 9, TSO and ONS have specific quality control systems. In these departments the quality of information has become a key information management objective. In contrast, Malaysian organisations have no clear perception of the quality of information. In most Malaysian departments, there is no clear system of quality control and they mainly depend on the information source to deal with quality. The quality control process is done manually for instance if the receivers doubt about the correctness of the data, they just recheck on the source. This was claimed by the Information officer in one of Ministry 'We do not have any specific data quality control.. so we rely on the source only'.

B. Structural characteristics

i. Information Sharing

Information sharing between departments in the UK government organisation is significantly better than the Malaysian departments. This was evidenced by good and systematic information flow between departments. For example, in the ONS there were a number of divisions handling different types of data but this data is centralised in one data base which can be shared by other departments. Within the ONS, a working group drawn from various departments co-ordinates information flow between the departments. On the other hand, information sharing between Malaysian Government departments is limited. The departments are very concerned about the privacy of their information and are unlikely to share their information with other departments. The main reason concerns the secrecy of government information. Furthermore, the departments feel uncomfortable

about disseminating their information freely and are afraid of losing their power over their information by sharing with others.

ii. Interdepartmental Co-ordination

The interdepartmental co-ordination differed between the UK departments and Malaysian departments. In UK, it seems that there is a good co-ordination between the departments. Clear working objectives and guidelines regarding information management led to the good co-ordination among the departments. In Malaysian departments, the hierarchical structures of the departments have great influence on the interdepartmental co-ordination. Under a ministry, there are a number of departments or agencies. Some of the departments are considered of a high status and some are low status. This results in the problem of less co-operation and co-ordination between the departments. The findings revealed that this issue results in the resistance to share the information and a restricted flow of information. The departments work in silo and they are reluctant to work closely with other departments.

Some differences in the nature of information practices between the UK and Malaysian departments may indicate that there is an influence of different cultural factors within the organisations. These differences maybe related to national culture. The role of cultural factors is further discussed in the following sections.

10.3 The Influence of Cultural Factor on Information Trading Functions in Government Organisations.

This study has identified some of the patterns of the management of information trading and practices across the UK and Malaysia government organisations. The similarities and differences between Malaysian and the UK government as highlighted in previous sections has established a potential presence of a cultural influence on the nature of the organizational, management and business

aspects of the organisations In the following section, the researcher will examine the impact of cultural factors.

The discussion on the influence of the cultural factors between the UK and Malaysian government will three main aspects as stated in Research model discussion in Chapter 5. The discussion the supporting evidence for issues have been highlighted in Chapter 8 and 9. The aim of this section is to answer the stated research questions as follow:

- What is the relationship between the cultural context and the involvement of the government organisations in information trading?
- To what extent do organisational cultural dimensions influence the information management and information trading in government organisations?

10.3.1 The impact of Culture Factors on Resource management

The study suggested that there were distinct differences in attitude concerning information management between the two cultures. Cultural differences impacted levels of the utilisation of information resources and management behaviour. Under resource management, two aspects will be discussed mainly the information management and IT utilisation. It can be suggested that organisational culture could have a significant impact of the development and operations of information systems within the organisations. The culture of organisations is embodied in the behaviour and values of its members and cultural factors inherently set them apart from others. In comparing the influence of culture between nations it can be argued that poor countries have idiosyncrasies that are inherently different in the rich countries (Hall, 1976)

Several information management aspects can be highlighted in relation to cultural factors. Firstly, the use of information as an operational versus strategic resource.

It was revealed that information has not been fully utilised in operational and management purposes in Malaysian departments as compared to the UK. These differences may be related to the extent to which information is utilised by the organisations (Hall, 1976). This refers to the amount of information that is explicitly required by the member of organisations. As the UK is a low-context country, information is considered to be an important element in management. The UK departments make use of information in making decision or as an administrative tool. While Malaysia, considered as high-context country, there is less use of information as an operational or strategic tool. Information is not an important element within the organisation and there is less reliance on explicitly stated facts and figure.

Secondly, the study revealed that information management in the UK is more advanced, systematic and less problematic than in the Malaysian Government. There is generally a positive attitude and high awareness of the importance of information in the UK, which resulted in a more aggressive approach to information management, competition and innovation. In term of Trompenaar's cultural dimension (Trompenaars, 1993), this can be explained by project-oriented attitude. A project-oriented attitude emphasizes motivation. The UK departments are concerned with the utilisation of information, for example, the ONS wants that the public benefits from the information dissemination. The department may have high intrinsic motivation to exploit the information resources. While in Malaysia, there may still be a lack of aggressiveness, innovation and positive attitude toward information. This has resulted in less utilisation of government information. This indicates that Malaysian departments take a low project-oriented attitude and high uncertainty avoidance attitude toward this aspect.

Thirdly, the UK departments are characterised by the low uncertainty avoidance and high masculinity attributes according to Hofstede (1991). Dimension of uncertainty avoidance and masculinity refer to the risk-taking ability and aggressiveness of cultural members. This can be observed from the wide

dissemination of government information to the public which maybe disadvantageous to the government. The government encourages the departments to play greater role in information industry. While Malaysian organisations are characterised by high uncertainty avoidance and low masculinity culture. This may relate to disclosure of information, less aggressiveness in information utilisation, less aggressive competitive postures as well as more conservative dispositions toward innovations. On the other under the present government leadership, there are some changes i.e aggressiveness toward the development of major IT project such as Multimedia Super Corridor (MSC) (Yap 1998). This project is pride of Malaysia.

The different levels of utilisation and readiness to accept the IT programmes between UK and Malaysian Government organisations may be influenced by the national culture. In Malaysia, the strong role-oriented and power-oriented culture has resulted in centralised autocratic structures for formulating IT policies. All the departmental IT projects are approved by Man-Power Planning Unit in Prime Minister Department. On the other hand, the less power-oriented and role-oriented culture in the UK may lead to better IT deployment and control structures. The IT facilities contribute to more effective information management.

In UK, the departments have high motivation in using the IT facilities and are progressive in their view of IT for management and competitive advantage. For examples, the use of On-line information dissemination in TSO and utilisation of IT in information processing in ONS. High exploitation of IT in UK may be influenced by the existing fulfilment-oriented culture as suggested by Trompenaars (1993). Furthermore, high utilisation of IT is due to the emphasis on the value for organisation achievement and the benefits from the technology. Framed within the Hofstede's cultural dimension, wide use of IT in the UK may also be related to the higher level of masculinity and low level of uncertainty avoidance that may lead to the aggressiveness of IT exploitation (Grover, et. al, 1994). While in Malaysia, the issue of IT may be influenced by high uncertainty avoidance and low masculinity culture. The lack of awareness of the importance

of IT, less innovations and aggressiveness may be as the result of the lack of project and fulfilment oriented cultural factors in Malaysia departments.

The study also found that IT acceptance differed between Malaysia and UK. The difference may be influenced by the IT knowledge and skill and organisational attitudes. Lack of IT skill and knowledge are the main issues in Malaysia. The status of knowledge may be as the result of differences in education systems (Grover, et .al. 1994). In Malaysia, the IT subject is relatively new in national education curriculum (Tengku Azman, 1992). Within the government, most of the government officers are not well equipped with IT knowledge. In the UK, there is relatively high IT literacy which may drive high acceptance of IT. Furthermore, Bensaou and Earl (1996), argued that since information technology is an innovation born in west, it is not easily diffused in eastern countries. This can be considered as an influencing factor on low acceptance of IT in the developing countries. In Malaysia, low acceptance of IT and reluctance to change may be result from the high uncertainty avoidance culture (Hofstede, 1991). This assumes that the members of department feel uncomfortable for any changes and prefer the present situation. While in UK, there is high awareness of IT utilisation and its acceptance.

The issue of low acceptance of IT is influenced by the culture of leadership (Madon, 1992). The leadership factor suggested that the success of the organisation depend on the nature of leadership, which influences the willingness of the subordinates to accept the changes. The concept of a power-oriented cultural dimension may also shed light on this leadership effect (Trompenaars, 1993). In Malaysia the failure of the computerisation program may be as the result of lack of support from the top management. It was pointed out that in some cases there is no encouragement from the head of the departments or senior officers. Some of the senior officers lack IT knowledge and are not really interested in computers.

10.3.2 The Role of Cultural Factors in Business Management Practices

From the business perspective, the relevant culture factor is the economic development within the country, which related to market development (Parkers and Sarbary, 1997). In the UK, a strong information market has provided push factor for the development of government information trading. The high demand of information from private sector has encouraged departments to disseminate information in the market. This is not the case in Malaysia. In Malaysian departments, information management innovation is less apparent and there is little participation for information industry.

The Trompenaars (1993) concept of project-oriented cultural dimension and uncertainty avoidance (Hofsted, 1991) influenced the organisational perception regarding the information trading functions such as the marketing practices, cost and pricing issues, trading and business planning and customers services. The project-oriented culture concerns the degree of innovation and aggressiveness. Less aggressive organisations such as in the Malaysian department viewed information trading is unimportant activity and the departments are uncertain to let the private companies to play a greater role in information trading. Thus there is little emphasis given on marketing and business aspects. In contrast, the UK government organisations have focused more on business activity and put more effort into marketing strategies and customer relationships. The departments have more project-oriented culture and low uncertainty avoidance. They believe that government can become a main information market player.

In Malaysia, the main aims of the departments are to focus on administration task, meeting requirement of authority and serving the public. Many departments doubt the ability of government information to become a commodity. The nature of management may be influenced by the culture of bureaucratic inefficiency and the culture of highly politicised decision making (Madon, 1992). Many government organisations considered that government should act as public information provider not an information seller. This perception indicated that there is high

preference for certainty of the duties of the government. The organisation's expected that their role in information management is limited to disseminating information to the public at minimum cost and not exploring the wider scope of information business. While in UK, the department such as ONS considered wide information dissemination might promote economic activities and enhance public service.

The wide use of marketing agents in information trading by the UK organizations may be influenced by the culture of project-oriented style and low uncertainty avoidance. The UK organizations preferred to give more opportunity to private companies for promoting information trading. Most of the marketing activities are given to the companies under specified conditions but at the same time the companies are free to carry out their own marketing strategies. While in Malaysian organizations as they are high uncertainty avoidance culturally, there is little involvement of other parties in marketing activities and the departments prefer to carry out this activity. There is less conformity towards private companies' involvement.

10.3.3 The Role of Cultural Factors on Organizational Structure

The organisational structure aspects may directly influence by the cultural factors within organisations. The attitude to information is related to the culture of bureaucratic inefficiency (Madon, 1992) and the role oriented culture (Trompenaars, 1993). The role-oriented culture is characterised as highly hierarchical structure with well-defined role organisations. The Malaysian administration still follows the style of colonial bureaucracies and strong hierarchical administration, which tends to be elitist, inflexible, authoritarian and paternalistic. The impact of these characteristics has inevitably been carried over into departmental management especially in the public services resulting in the inefficient government service. In information management and IT exploitation, these characteristics may influence poor IT planning and development, resulting in unsystematic and disorganised information management. The bureaucratic

culture in Malaysia has discouraged the exploitation of government information by departments and has influenced resource management. Besides that, the high uncertainty avoidance culture in Malaysian organisations may create complex, detailed role and instructions in the organisations and more formalisation of strategies. These aspects have created a unfavourable environment in developing information trading in Malaysian departments.

Redundancy of information collection, lack of information sharing and interdepartmental conflict in information management may be influenced by some cultural factors. As argued by Madon (1992) these issues are influenced by the culture of roles and status. This may concern the power and authority held by the person or organisation. Similarly these cultural factors can be related with the individualism and power distance (Hofstede, 1991) and power oriented dimension (Trompenaars, 1993). In Malaysia, high power distance, roles and status encourage departmental reluctance to divulge information to other departments for fear of eroding its information power. Interdepartmental co-ordination problems indicated that Malaysian Government departments are still concerned with their own allocation of rights, information, status and power. The study showed that the existence of these cultural factors resulted in organisational conflicts and a low success in achieving systematic and efficient information management in most Government departments.

In many developing countries, like Malaysia information is closely guarded. This may be related to power-oriented culture (Trompenaars, 1993) and the power distance cultural factor as well as uncertainty avoidance. Because of these cultural factors the government tend not to believe on free dissemination of information. The government information dissemination is controlled, for example most of the information from Ministry of Information is mainly for government propaganda and for government advantage. This was claimed by a respondent of the Ministry. Access to certain information has the capability to give others advantage and may jeopardise their security. Malaysian Government feels that the citizen should not be provided requisite information.

As compared to UK, the less politicised information is due to different political attitudes of the government. Restricted dissemination of government information harms the government popularity. The UK government tends to run a more open government and tries to make the information widely accessible by the public. The short power distance and low uncertainty avoidance culture may contribute to the attitude of the government to disseminate more information to the public and prepare to face its consequences.

In Malaysia, the highly politicised government information has resulted in the existence of Official Secret Act (OSA). The secrecy style of bureaucracy, which is part of the administrative culture in Malaysia, has resulted in a reluctance to divulge information to other officers or to other parties through fear of committing an offence under the law. The culture of information secrecy may be influenced by high power distance. Hence the Government may fear to lose its power through the greater visibility of information. In contrast, in UK, although there is an OSA as well, it does not impact the dissemination of government information and information trading functions. The secrecy law does not influence the attitude of departments in information management.

Another cultural factor that affects the issue of secrecy is individualism (Hofstede, 1991) There is more privacy concern in UK citizen than Malaysia. In UK, the public is very concerned about the personal issues. This influences government departments, for example, the DVLA marketing vehicle data by excluding indications of personal identity. The UK Data Protection Act is aimed to prevent the disclosure of any personal data and prevent the misuse of personal details. In Malaysia, which is less individualistic culturally, the issue of privacy is not a main concern in information handling and dissemination.

10.4 The Reflection of the Cultural Dimensions in Information Trading Management

The research has given the opportunity to examine the interaction of the cultural context of organisational practices with the process of commercialisation of government information. Information management and IT utilisation are assumed to be pre requisites to the ability of the organisation to make the information available in the market. The study suggested that the national cultural dimensions influence the nature of information management and information trading practice in different countries. The UK has more efficient and effective information administration and clear initiative in promoting information trading as compared to Malaysia. In Malaysia, Information management is still in its infancy and there are no clear steps taken by the government to encourage the organisations' involvement in information business.

The existence of high uncertainty avoidance, less project-oriented, high femininity and power-oriented culture in Malaysian organisations may contribute to difficulties encountered in changing the style of government management. The high uncertainty avoidance and less project-oriented may influence the willingness to exploit information value and utilisation of IT facilities. The existence of secrecy law may be as the result of power-oriented culture of the governments. Organisational conflicts such as restricted information sharing or less departmental co-ordination is the related to the culture role and status. Furthermore the culture of leadership may influence the readiness of the departments to play a role in information trading.

From the cultural perspectives, the findings of research suggest that recognition of the importance of IS, aggressive initiative of information utilization and good organisational management and information sharing/collaboration across parochial groups may tend to influence successful in information trading practices. Specific approaches to information planning, policies for information and patterns of technology implementation and diffusion are only a few of the

many factors that may vary among cultures and contribute to levels of success of the information business.

It is clear that the relationship between Information management strategy and IT management is important, but as revealed in this study the organisation environment is a key to determining the success of Information trading practices. These organisational environments include the government policy such as the law of secrecy, government business orientation and financial procedures. These issues may be impacted by the political and economic policy of the government. The study showed that the UK government political and economic environments have a positive influence on information trading. While in Malaysia, lack of government policy and high political implications may affect the dissemination of information.

It is suggested that cultural aspect should fit the aspect of organisational environment, information management, IT management and organisational business strategy. The proper atmosphere of culture encouraging innovation, progressive and aggressive use of IT in information management will encourage the success of systematic information management. Furthermore, there must be clear business and marketing strategies which emphasise product innovation and customer relationship. Then the organisation maybe ready to play role in information trading.

In the aspect of information management, systematic management systems influence the information management. In Malaysian departments, unsystematic management has led to substandard information management, lack of proper IT planning and under-utilisation of IT. Furthermore, the existence of awareness of importance of information may encourage the departments to give more priority to information handling and utilisation. Management commitments such as the top management support and interdepartmental coordination lead to the effective information management. Under utilised information management in Malaysian

Government departments may be as a result of lack of cooperation between the departments.

The study suggested that IT contributes to the success of information management and information trading. High skill and knowledge in IT can be considered a main factor in IT programmes implementation. Lack of IT skill and knowledge have contributed to the under-utilisation of IT in Malaysian departments. While in UK, high IT literacy in government department lead to the effective use of IT. Attitudes and lack of knowledge seem to influence the technology acceptance in Malaysian departments.

Organisational business strategy which emphasised the marketing and trading policy, pricing and customer relationship also influence the cultural factors. The study showed that in UK, the departments have considered information-trading functions as a way to give service to the public. The involvement of private sector in government information trading is suggested to enhance the information industry. While in Malaysian government departments the present organizational culture may result in the lack of these aspects.

10.6 Conclusion

This chapter examined the role of cultural factors influencing the implementation of tradable information function in two different Government organisations, the UK and Malaysia. It was illustrated that the nature of resource management, information management, IT facilities exploitation, business management and organisational practices are impacted by organisational culture which are rooted in national culture. The research has suggested that the national culture has markedly influenced the organisational practices particularly in government organisations. Consistent with national cultural profile, the UK government organisations seem to be more positive about the information industry while the Malaysian government organisations are still at the initial stage in realising the potential of government information.

Although an understanding of the culture of one nation may not be directly applicable in another country, cultural issues concerning management systems, IT and business management practices, information management systems and government roles can be transferred. The summary and further discussion of the study as well as the practical suggestions arising from this research will be highlighted in the following chapter.

CHAPTER 11

CONCLUSION

11.1 Introduction

This chapter reflects on the overall view of the research work that has been conducted and summarises some of the key research findings and achievements. The discussion starts with the understanding the aim and the background of the research. Furthermore, this chapter examines the outcome and conclusions reached by the research, its contribution to the field of research and propose any future research opportunities on the related subject. The interaction between the cultural factors and the issues involved in the implementation of Government information trading are addressed.

The structure of this chapter is shown in Table 11.1. The brief research review gives some idea of the research formulation and context. The overall findings from the study are summarised and discussed. Furthermore, discussion will be focused on the significance of the research and the contribution to knowledge. This follows with the suggestions for future research in relation with this research subject. On the practical implication of this research, the theoretical framework on the implementation of tradable information function in Malaysia will be addressed. The chapter will end with the discussion on the limitations and conclusion of the research.

Table 11.1: Structure of the chapter

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- Introduction
 - Research Overview
 - Summary of the Research Findings and Achievements
 - Contribution of the Research Toward Knowledge
 - Research Outcome and Implementation of IT In Malaysia Organisation
 - Suggestion For Further Works
 - Research Limitations
 - Summary
-

11.2 Research Overview

This research tried to determine the conditions necessary for information trading practice in Government organisations. This was achieved in this research project through identification of the culture differences in managing tradable information concept between the Malaysian and the UK Government organisations. Commercialisation of government information is considered as a new concept in government information management. Governments are principle information collectors and users, and hence government information can be potentially exploited as an economic resource. The technological push and rapid increase in demand for information have created a rapid growth of the information industry. Consequently, the public sector provides useful information for the use of commercial organisations. Within the Government, the implementation of information trading functions is affected by the composition of environment. These are in particular Government policy, organisational structure, management style and the nature of information and IT management.

In order to analyse environment from a cultural perspective; this study has explored the impact of cultural factors on information management and the commercialisation of information in public sector organisations. A comparison was made of the influence of national culture dimensions on information management, IT and business resources and the organisational practices in government organisations in UK and Malaysia. A research framework developed

by Grover et. al (1994) was adapted by modifying the IT, business resource components and organisational infrastructure (see Chapter 5). This research model provided a descriptive approach for the research. The research model consists of the three main components: resource management includes the information, IT and budgetary management. Business management outlines the aspect of marketing, political and economic issues and customers management. Organisational infrastructure consists of management practices, organisational structure and interdepartmental co-ordination. These components may influence the nature of the information trading in the government organisations. This descriptive framework was used to contrast the nature of information management and information trading between two countries and to highlight existing cultural issues.

As it has been highlighted in Chapter 6, this research is the exploratory approach and the main weakness of this approach is the lack of generalisability of the findings. The deductions and theoretical propositions cannot become a generation of theory but apply to the scope of the research only. In this case, recommendation made are in respect of the UK and Malaysian Government organisations. Research was organised around case studies and used an interpretive approach. The research findings have been listed according to the research model dimensions. The discussion was framed within the context of cultural characteristics and their influences on information management, business practices and management practices.

11.3 Summary of the Research Findings

11.3.1 Summary of Research Findings

This study has sought to identify some of the patterns of the management of information trading and practice across the UK and Malaysia government organisation. Generally, the level of implementation of information trading is dependent on the nature of information management, the diffusion of commercial

idea in public organisations. This may be influenced by the impact of information technology on Government organisations. Another aspect is the organisational perception of the importance of information and the readiness for change towards more commercialisation.

Significant differences have been determined between UK and Malaysian government information management (see Chapter 8 and 9). In UK, generally there is more effective and systematic information management, which lead to widespread implementation of information trading services. Government information is more accessible to the public and not a politicised item. The member of the organisations realised that the information collected by them should be utilised and would be used in revenue generating activities. The use of advanced IT technology permitted systematic data management and there is an increasing reliance on advanced telecommunication technologies to support the organisational process. IT resources are utilised in many ways such as quality control processes, data processing and storing, data compilation and data transmission. The high utilisation of IT in UK environment is influenced by good acceptance of the technology, knowledgeable member of organisations and good management support.

In Malaysian public organisations, information management is in its infancy and still a problematic management area. It is affected by several issues such as the awareness, readiness for change, under-utilisation of IT and issue of information ownership. The use of information technology and information management are still developing and the organisations are facing a number of problems in achieving a systematic information management. Government organisations seem to be politicised. Most government information is classified as secret and not for the free consumption by the public. Furthermore, there is still low awareness of the commercial value of information within the organisations.

In UK specific government policy and guidelines encourages commercialisation of information. The existence of formal marketing practice and the role of the private

sector varied significantly between these two countries. In Malaysia, marketing element does not exist in the organisations and there is little involvement of private sector in marketing the government information.

Further, the analysis was carried on three main aspects that may influence the implementation of government information trading functions. These three aspects were the resource management, business management practise and organisational structure. The resource management aspect includes the awareness of the importance of information and the nature of information management. The attitude of organisations to IT resources was found to be a factor that influences the ability of organisations to have systematic and efficient information management. The degree of IT diffusion in the organisations may be influenced by the attitude, knowledge and awareness of the organisations. The business management aspect of government information was influenced by a number of factors such as the government policy and initiatives, the awareness of commercial values of the information, the marketing strategies and charging policy. The ability of the government to make its information into a commercial product was affected by the perception of government organisations whether it is a service oriented or profit making organisations. The issue of secrecy seems to directly influence the government information policy. This issue resulted in restricted disclosure of information. This influenced the willingness of the organisation to make its information available in the market. These three main aspects were used to analyse the potential influences of cultural factors on the government information management and trading functions.

11.3.2 Cultural Factors and Explanation of Issues

In order to explain the role of national culture on the research findings, the national culture dimensions suggested by Trompenaars (1993), Hofstede (1991) and Madon (1992) were used. These models have been highlighted in Chapter 5. There is a distinct difference in the nature of information management UK and Malaysia. The aggressiveness, positive attitude and high awareness of the

importance of information in the UK explains the Trompenaars project-cultural oriented dimension (Trompenaars, 1993) which is characterised by the high intrinsic motivation of organisations to exploit the information resources. Furthermore, the Hofstede cultural dimension of low uncertainty avoidance and high masculinity pointed that the UK organisations being more aggressive in their approach to information management, competition and innovation. While Malaysian organisations are characterised by low fulfilment oriented culture and high uncertainty avoidance resulting in with no formal structure of information management and less aggressive competitive postures as well as more conservative dispositions toward innovations. The nature and attitude of information are also related to the culture of bureaucratic inefficiency (Madon, 1992) and the Eiffel tower culture (Trompenaars, 1993). In information management and IT exploitation, the issue of bureaucratic inefficiency was evidenced by poor management of IT planning and development. This bureaucratic issue has discouraged the idea of exploitation of Government information by the departments.

The issues of unsystematic and redundancy of information collection, information sharing and interdepartmental conflict in information management in Malaysia may be influenced by the culture of roles and status (Madon, 1992). Cultural dimensions of individualism and power distance (Hofstede, 1991) and power oriented dimension (Trompenaars, 1993) may be of high significance. High power distance and status culture encourage each department to maintain its own allocation of rights, power and ownership in their own boundaries of information.

The different level of utilisation and readiness to accept the IT programmes between UK and Malaysian Government organisations are explained by project oriented or guided-missile culture and fulfilment oriented cultural dimensions (Trompenaars, 1993). As project oriented culturally, the UK has high motivation in using the IT facilities and progressive in their view of IT for management and competitive advantage. The high utilisation of IT is due to the emphasis of value for organisation achievement and benefit from the technology. While in Malaysia,

the issue of IT utilisation is the existence of the influence of high uncertainty avoidance and low masculinity cultural factors which resulted in low utilisation of IT. The issue of low acceptance of IT in Malaysia is influenced by the culture of leadership (Madon (1992). Less support from top management also influences the willingness of the organisation to accept the IT programmes.

The issues of secrecy are connects culture of highly politicised information (Madon, 1992) and the power oriented culture dimension (Trompenaars, 1993). Malaysia is characterised by highly politicised information use by the Government. Government information is considered as the political weapon by the government. Most information is not widely disseminated and often used for political purposes. UK, the less politicised information is due to different political attitude of the government. Restricted dissemination of government information harms the government popularity. The UK Government tends to be more as open government and is trying to make the information widely accessed by the public.

11.3.3 Conclusion of the Research Findings

This section describes the conclusion of the research findings as well as the achievements with respect to the aim of the study:

- There is integration between the macro influence such as the government policy, management factors and micro influence: cultural factors and organisational behaviours in government information management and information trading.
- Government policies and initiatives on information management and trading influence the nature of departmental and individual practice.
- There are implicit and explicit influences of the cultural factors on the information management practice and the status of implementation of information tradable functions in government organisations.
- The attitude of organisations, which is influenced by cultural factors, can have a significant effect on information management.
- The efficient information management systems is greatly dependent on the degree of IT diffusion and exploitation of the technologies by the organisations

influencing the readiness and ability of the organisations to treat the information as economic commodity.

- The degree of aggressiveness, innovation and uncertainty avoidance within the organisations influence the success of implementation of government information trading functions.
- Political and economic views of government information dissemination seem to influence the information trading practices.

Summarising, in particular the research has provided some differences in organisational practices between Malaysia and the UK government organisations. A brief description of the organisational practises on information management and information trading in both the organisations are as follows:

- Different government roles and initiatives in promoting the information trading revealed by the different policy formulation, government attitudes and national interests particularly in information related matters.
- The issue of politicised information is greatly considered as normal phenomenon in Malaysian government. The ruling government has exploited information for political benefits and the disclosure of information is very selective. Government information is unlikely to be widely disseminated to the public.
- Degree of IT diffusion and its exploitation are relatively slow due to bureaucracy problems such as limited sources of budget, manpower, organisational perception of changes and power distribution.
- Negative attitude of the member of organisations toward the technological changes and the exploration of new management practices significantly influenced the establishment of systematic and efficient information management systems.
- Lack of appropriate policy and procedures of the governments have discouraged the development of information trading practices in the government organisations together with less initiatives within the organisations.
- The concept of government as a 'service oriented organisation' has strongly influenced negatively the readiness for government organisation to promote the idea of information trading.

- Less aggressiveness and innovation of the departments in Malaysian government have resulted in low information resources exploitation.
- Lack of marketing and business strategies is the main deficiency in government sectors that retards commercialisation of government information.

These phenomena exist in information management practices and organisational functions as a result of existing cultural factors in both organisations.

11.4 Contribution of the Research Toward Knowledge

The main research subject concerns the idea of commercialisation of government information. As an exploratory research, It has identified the major cultural issues affecting the implementation of information trading in the two Government organisations. The research has identified some specific cultural constraints faced by Malaysian Government in adapting a new era of IS management. More specifically, the following contributions are made by this study:

- The study of the exploitation of government information within the government organisations particularly in a cross cultural context between two different countries not has been attempted before. The study has identified the similarities and differences within the organisations, which are the result of national cultural factor influences.
- The research has identified the degree of impact of the several cultural dimensions originated from several national cultural models on the information management practices in two different government organisations. This may be used as a reference in similar studies of cross-cultural comparison.

To summarise, the study has provided a foundation for exploring the issues faced by the government of developing countries in information management for the feasibility to commercialise the government information. It also manages to explore the role of national cultural factors in determining the nature of information management practices and ability to implement tradable information functions.

11.5 Suggestion for Further Work

This research has tried to explore cultural differences in the implementation of tradable information concept between a developed country and a developing country. This research be an exploratory and empirical in nature can not claim to have established new theory or framework for successful implementation of tradable information function in government information. The study has provided insights concerning the cross-cultural differences between a developed county and developing country, how the concept of tradable information is implemented. It tried to establish a base of experience and understanding on some preliminary concepts of the differences of cultural impacts on the information management and exploitation. Thus it is more appropriate to have a further research to provide the framework which can be used to resolve information management problems. This work may lead to a number of further works in the related fields. Several areas with theoretical potential are particularly worth mentioning:

- Critical exploration of the cultural issues such as the issue of secrecy, Copyright law, data protection and price determination and investigation of the role of national culture on these matters.
- The study may further explore the impact of cultural factors on the implementation of information trading in non-government organisations between two different nations i.e. developed and developing countries. This will provide clear perspective of the nature of information business development.
- The effect of different government policies may suggest some critical study in relation with the socio-cultural issues.

Further studies in this area may continue to identify the characteristic of IT and Information trading practices that are different a cross countries. Specific approaches to planning policy for IS control, system development and patterns in technology implementation and diffusion are only a few factors that may vary among cultures and contribute to level of perceived system effectiveness.

9.6 Limitations and Constraints of the Research

This research afforded the opportunity to study the role of cultural factors that existed in organisations, which influence the nature of information management and the process of commercialisation of government information. The research also demonstrated how variability in cultural context would affect the shape, pace and direction of tradable information implementation on two different backgrounds of governments, the UK and Malaysia. Although the research work has managed to achieve the stated objectives but there were a number of limitations encountered during the study.

On the research subject matter, the limitation of this research might be its simplistic definition of government tradable information concept. Although the study particularly concerned with the government statistical data which has commercial and economic value such as Vehicle statistics, economic indicator and socio-economic data, there may be some misunderstanding to the respondents who included the dissemination of government documents, procedures and general publications with nominal cost. This issue influences the accuracy of the respondent's perception of the research. In research work in Malaysian government organisations, this research subject seemed to be a new concept. In order to overcome this problem, explanation of this concept was given.

Secondly, there is a general concept of national culture such as Trompenaars, Hofstede's culture model and Madon used in this study. Among these, Hofstede model has been used widely in other IS field research particularly in technological transfer and management issues. As the scope of this study is on the information-trading concept, it is likely that these models can explain the research findings. Besides that within government organisations management there are many different sub-cultures exist related with organisational and business culture.

The third limitation with the current research is the questions of proof. The study has used qualitative approach in explaining the impact of cultural factor in government organisations but the issue of organisational cultural is not something that can be absolutely verified by collecting data. At the same time cultural factors are often hard to locate because they are implicit.

Besides those mentioned limitations, during the study the researcher faced other problems and constraints such as:

- Due to financial and time constraints, the number of government organisations interviewed in Malaysian study work was limited. However, the research findings from this study managed to represent the overall picture of the management style and cultural issues of the organisations.
- There was difficulty to conduct large number of case studies in the UK government organisations due to time and communication problems. Nevertheless, the case studies in three main selected organisations i.e. ONS, DVLA and TSO have evidenced the nature of information management and information trading practices of the UK government.
- The different cultural background of the researcher may influence the understanding of the respondent during the study in the UK government organisations.
- There was very limited interview with private Information Companies in Malaysia because of difficulty to find Information Company.

Despite of a number of limitations and constraints, the study managed to surface several issues and findings.

11.7 Summary

This research project has identified the cultural differences in managing tradable information between the Malaysian and the UK government organisations. The study has also explored the influence of national culture on information management and the commercialisation of information within these organisations. The research findings have indicated that there are clear differences and some similarities in information management and trading resources, practices and perceptions. Information management and IT exploitation were identified as the pre-requisites for the implementation of information trading function in government organisations, the study has shown that there is a different impact of cultural factors between the UK and Malaysian government organisations.

The research findings of this study were grouped according to the information trading model parameters which consisted of three main components: resource management, business management and organisational infrastructure. These components were considered to be the main variable in implementing the tradable information function government organisations. The analysis of the impact of national culture dimension on these components suggested that the most significant cultural factors that influenced the ability of the government organisation in commercialising the information were the uncertainty avoidance and masculinity culture dimensions. The difference of influence of these culture dimensions within the two government organisations was observed in the aspects of IT utilisation, information exploitation, organisational practices and business strategy and planning. These are related to the issue of readiness to change, aggressiveness, innovation and risk taking practices including associated conservative strategy in resource management. An uncertainty avoidance culture may promote the creation of formalised policy and operating procedures, which was observed in the study as one of the main influencing factors in government information trading business. The study indicates that the different degrees of power distance and individualism have resulted in different policies of IT deployment and the freedom of policy formulation between the two governments.

Finally, the study has ascertained that national culture has great influence on the organisational practices on the country. In relation with the information management and the implementation of tradable information functions, this research has identified how the cultural factors influence the ability and readiness of the two different governments in exploiting the commercial value of the government information. Consistent with their cultural profile, the UK government seems positively to associate to tradable information function practise while the Malaysian Government organisations is still in the process of accommodating the technology diffusion and information management system development.

The significance of this research is that it has explored specifically the cultural differences in the implementation of tradable information concept in two different government organisations. The primary contribution to knowledge of this study is the examination of the cultural differences between developed and developing countries in information management and the effect on the valuing and use of information and specifically on the implementation of information trading in public sector. The findings of this research may aid the researchers in recognising and explaining the cultural differences and their potential influence on the IS issues specifically on the exploration of the business-oriented government information management. Such a comparative study may provide groundwork for similar studies in other countries.

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Appendix A

Interview guidelines – Questions for cultural study on Information Management and Trading in Public Sector Organisations in Malaysia.

Aims : To assess and evaluate organizational activities in commercialising information and the Implementation of Information trading in the organization. This will explore the effects of cultural issues on the service.

Section 1 : General Introduction and background of department

1. Background of the organizations, its role and functions and how the information management existing within the organisations.
2. What do you think about your government strategies in implementing information technology in government organization (objective, achievement and issues)
3. Source of Information , type of information collection mechanism and the information flows and information flows and information chain in the organization.
4. Issues in Information Management in Public organizations.

Section 2 : General questions

Information Management and trading in the Organisation (This section for departments that has information marketing service)

1. Background of the services : what types of information sold, methods of delivery, types of buyers and others
2. How the information trading service started in organisation, historical background and the leading factors
3. How the idea of selling information started in your organisation ? Was it because of the public requests or the idea from the management ?
4. Can you describe the problems in the early stage of its implementation ?
5. How the process or procedures carried out from the information collection until it sold.

Section 3 : Cultural factor Questions on Resource Management –

1. The attitude or perception of organisation on the Information Management ? How efficient the information management ? It is easy to get information from the organisation ? . What are cultural factors involved here ?
2. Is there a good corporation among the departments in information management ? Are the departments have the same procedures or systems ?.
3. What are the budgetary and financial policies that your followed in information management and how this affect the process ?
4. Why do the departments afraid to have their own policy and bounded to the existing policy?.
5. Background and function of your IT division in data/information management ?
6. Is IT is fully utilised in your organisations ? What is the attitude of the member of organisations toward IT? Why they are not ready for changing ?
7. Is it the existing culture in the organisations effecting the IT implementation ?
8. What are the issues facing by the organisation in IT utilisations and how the organisations overcome them ?

Section 4 : Cultural factor Questions on Business Management

1. How the government policies and economic factors influence information management and information trading ?
2. Is information in your organisation been 'politicised' ?Why it happens ? It the government willing to disseminate government information to the public freely ?
3. Is there cultural issues influencing this issue ? why this issue being considered as main issue in government information trading ?
4. What is the understanding of your organisation on information selling ? Are your willing to sell your information and get some income ? It not why .
5. Why the government organisations are not use any agent in selling the information ?
5. Should the government charging the information ? Should we make profit or just to recover the cost ?
7. Are we afraid to sell the information ? what are issues particularly the cultural factors ?

8. Should the government acts as the private information companies and change the government culture in providing the service ?. Is there any cultural factors that effect this matters ?.

Section 5 : Cultural factor Questions on Organisational Infrastructure

1. What do you think on information sharing among the departments, is there free flows of information ? What is the perception of organisation on this matters ? It is the culture of the organisation to kept your own information ?
2. Why most of the department are reluctant to share information ? What is the main issues that prevent your department and others in information sharing ? Is there any cultural issues involved ?
3. To what extent the relationship among the government departments in information management ?. Do you have good co-ordination ? It is the culture In information collection, is it top management directive or office responsibility ?
4. Who make decision in your organisation for information management ? What is the relationship between top, middle and low management level ? Is it your cultural that only top management can make the rules and regulations ?
5. What is your organisation perception on the information value ? Do they accept that information has value ? It not, why ?. Is your organisation thinking to make some revenue from the information ?
6. Is there any business strategy in selling information practice in the organisation? Why the government is not likely to act as private company ?
7. Is your department consider that information selling should not be your functions ? Why? It is because the existing culture ?
8. Do you really understand the quality control of the information? Why there is less emphasis on this issue ?

Section 6 : General questions on Cultural issue

1. Do you understand the organisational culture ? What are the main culture that existing in your organisations ? How it influence the management style ?
2. Is your organisation is innovative or progressive in information management or information selling ? What are the main factor that influence this ?

3. Is political issue influence your organisation's policy and procedures ? What is your power distance pattern in your organisations ?
4. Generally, is your organisation likely to explore or ready to take new challenge ; e.g in information selling ? Is your organisation can be considered as Feminine or Masculinity in nature ?
5. Do you think that most organisation in the government are more uncertainty avoidance culturally ?

Questions if there is no information trading in the departments

1. What are the reasons ?
2. How the following factors influence this situation ?
 - Information Management style
 - Government policies and regulations
 - Attitude to information's
 - IT facilities and expertise
 - Readiness of the organizations
 - Political and economic issues
3. How can the government organizations become information traders ? What changes should be done ?
4. How the private sectors roles in the Information industry ?
5. The future of information trading in government organisations?

**Appendix B - List of selected Ministries, Departments and Agencies
for Research Project in Malaysia**

1. Ministry of Agriculture
Federal Agriculture and Marketing Authority (FAMA)
Malaysia Agriculture Research and Development Institute (MARDI)
2. Ministry of Culture, Arts and Tourism
National Archives of Malaysia
3. Ministry of Domestic Trade and Consumer Affairs
Register of Company
4. Ministry of Education
National Library
5. Ministry of Energy, Telecommunication and Posts
6. Ministry of Entrepreneur Development
Entrepreneur Information Center
7. Ministry of Finance
Federal Treasury
The Inland Revenue Board of Malaysia
Malaysian Royal Custom and Excise
8. Ministry of Health
9. Ministry of Home Affairs
Immigration department of Malaysia
10. Ministry of Housing and Local Government
11. Ministry of Human Resources
12. Ministry of Information
13. Ministry of International Trade and Industry
Malaysia Industrial Development Authority (MIDA)
Malaysia External Trade and Development Corporation (MALTRADE)
National Productivity Corporation (NPC)
14. Ministry Land and Co-operative Development
Department of Survey and Mapping
Department of Director General of Land and Mines
15. Ministry of Primary Industries

16. Prime Minister's Department
Statistics department
Election commission
17. Ministry of Science, Technology and the Environment
Malaysian Science and Technology Information Centre (MASTIC)
Malaysia Institute of Microelectronics Systems (MIMOS)
Standards and Industrial Research Institute of Malaysia (SIRIM)
18. Ministry of Transport
Road and Transport Department