"For a start, we identify basic services like how to evaluate technology investments that clients of our members want to go into. That is the kind of services that we want to encourage and tell accountants how to go about doing them."

A niche exists for accountants to provide consultation and implementation services of business software for their clients. The accountant's role would be to help companies manage technology to achieve competitive advantage (Mok and Yu 2001).

1.1 Background to the study

The evaluation of information systems (IS) has attracted a fair amount of concern among practitioners (Serafeimidis and Smithson 1996). This interest has resulted in an increasing belief that the current approach to IS management has to change (Remenyi, Money and Twite 1994). IS is taking too long to develop, costing too much to produce and maintain and are frequently not perceived to be delivering the business benefits which were intended (Brynjolfsson 1993; Lubbe and Remenyi 1999).

Furthermore, the role of IT in the banking industry has changed. As mentioned in the introductory paragraph, banks are using IT as a means to gain competitive advantage and not merely to automate transaction processing. In consequence, management of IS vis-à-vis approaches to evaluation, have to change to adapt to the new role of IT in the banking industry.

Various studies throughout the 1980s and into the 1990s have found that the main issue that managers faced is in finding convincing methods to justify IT investment (Farbey, Targett and Land 1993). This is attributable to the complexity of the IS/IT evaluation exercise. It is complex because the idea of evaluation is subjected to more than one interpretation (Dickson, Weels and Wilkers 1988) and it involves various groups of people. The concept of evaluation varies according to one's perspective and such variations ought to be considered (Palvia, Sharma and Conrath 2001).

1.2 Statement of the problem

In view of the changing role of IT there appears to be an increasing need to subject investments in IT to more rigorous analysis and justification. Traditional accounting approaches used for normal capital expenditure may now be deficient as evaluation has many purposes. Given this scenario, a two-fold problem arises: how do banks decide on their IT investments, and what are the criteria or methods used?

It also raises the question of how do various stakeholders groups influence the approach towards the IS evaluation exercise. For example, do their perception differs in this matter so as to influence their choice of evaluation methods used during the IS evaluation process?

1.3 Research Objectives

As IT gains importance in its role to support the strategic business objectives of the banking industry, it is an opportune time to review the IT evaluation practices among Malaysian banks. The traditional project driven evaluation practices of purely financial costs and revenue analysis is no longer relevant to modern organizations (Serafeimidis and Smithson 1996; Giaglis, Paul and O'Keefe 1999; Fitzgerald 2000).

Therefore, the review would be focusing on evaluation methodologies used in the IS/IT evaluation exercise. It seeks to investigate the factors, which may influence the choice of using certain evaluation methods. Since IT evaluation involves various groups of stakeholders, this study would examine if the perceptions among stakeholders differ on the usage of evaluation methodologies.

Hence, the objectives of this study are summarize as follows:-

1. To determine the frequency in which evaluation is carried out throughout the life cycle of system development.

2. To identify the evaluation methods used during various stages of system development, vis-à-vis feasibility, system development and post-implementation stages.
3. To identify the most common evaluation method/(s) used during feasibility stage.
4. To determine if system characteristics influence the choice of evaluation methods used.
5. To determine whether difference in perception among stakeholders influence the choice of evaluation methods used.

1.4 Research Questions

With the purpose of the study as mentioned above, the following research questions are formulated:-

1. When is evaluation carried out (with respect to the life cycle)?
2. Which is the preferred evaluation method/(s) used during feasibility stage?
3. Are there any differences in the choice of evaluation methods with respect to the stages of evaluation?
4. Does system characteristics influence the choice of evaluation methods? The Project Ladder by Farbey et al (1993), is used as a basis to observe the following cases:-
   a. If the application being evaluated is considered mandatory (strategic, technological or regulatory necessity) precise quantification of costs and benefits is preferred

   b. If the application being evaluated is considered as value adding (DSS,EDI), experimental and judgmental processes (modeling and simulation) is preferred

   c. If the application being evaluated is considered of strategic nature risk assessment is incorporated

d. If the application being evaluated is considered of business transformation nature, senior management participation is evident

5. Is there significant difference on the choice of evaluation methods among different stakeholder groups?
   The mental model theory (Symons 1994; Senge 1994) are used as the basis to observe the following:-

a. If stakeholder has Accounting qualification, financial approach to evaluation is preferred

1.5 Significance of the study

The changing role of IT and its increasing budget allocation makes it important that the IS evaluation process is carried out efficiently and effectively. This has propelled many researchers to explore alternative methods of evaluation other than the traditional accounting approaches.

Therefore, this study provides information on the current IS evaluation practice among Malaysian banks. It helps managers who are involved in IT evaluation, to be aware of important factors that have an impact on the evaluation. By providing a broader perspective on IS evaluation, they are better equipped to cope with its complexities.

Furthermore, this study would help to promote the understanding of the phenomenon of IS/IT evaluation practice as a social process. It would add on to the literature in the area of IT evaluation practices, particularly relating to the differences between practice and theories.

1.6 Theoretical Framework

The elusiveness and complexity of evaluation requires a firm framework which can act as a foundation for discussion between researchers, evaluators

and other organizational decision-makers of the various aspects of IS evaluation in its organizational and business context (Symons 1991). The framework in this study is based on a broad conceptualization that sets out the linkages between the content, process and context of evaluation.

The framework (depicted in Figure 1) used here expands the traditional, narrow approach of the identification and quantification of the tangible costs and benefits of an IT investment.

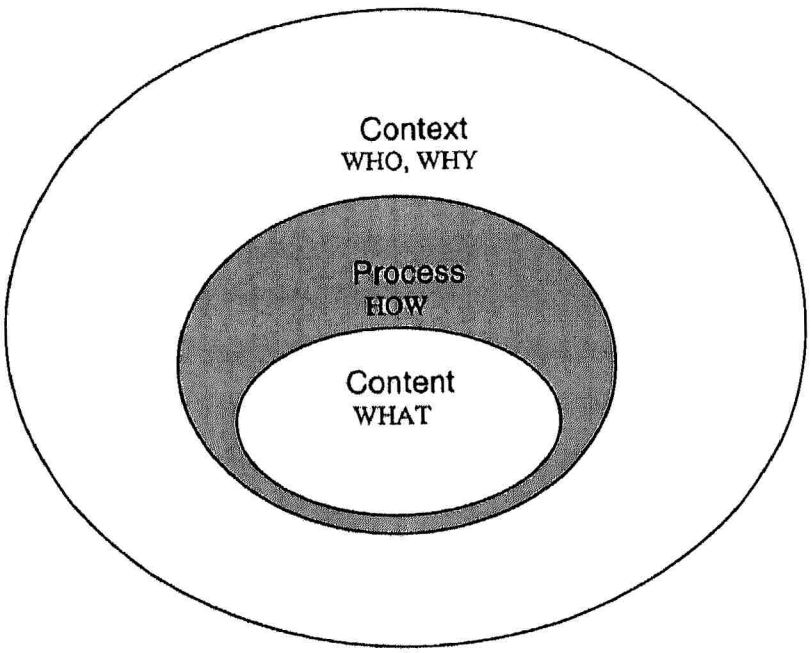

Figure 1. The three rings of the evaluation "onion" (Farbey et al 1993)

i. The *content* of evaluation refers to the value and criteria to be considered. It addresses the question of what are the relevant cost and benefits to be included in the evaluation.

ii. The second layer is about the process of evaluation. In this layer, the way in which evaluation is carried out in terms of the techniques and methods used is established.

iii. The *context* then refers to the whole area of **who** (the stakeholders) participated in the evaluation exercise; their actions and decisions.

The theory as depicted in this 'onion model', clearly shows that the three layers are strongly linked together. The *content* provides the central kernel of *what* is to be evaluated, while the *process* describes *how* this should be done, and the *context* examines the organizational background, in terms of *who* is involved (refer to Figure 3: Internal Stakeholder Map, Farbey et al 1993).

1.7 Limitations of the study

Evaluation of IT is a complex area of study as there are many factors, which influence the way it is being performed. As a social process, it goes beyond scientific methodology of merely pinning numbers to justify an investment in IT. Hence there are many aspects to which a research can be done, and this study is only focusing on the methods used and the influence of system characteristics and different groups of stakeholder on the choice of evaluation techniques. Furthermore, this study is carried out among local Malaysian banks and does not include other industries.

Due to time constraint, this study is undertaken as a one-time survey. It would describe the common evaluation methodologies and could not highlight problems nor suggest alternative models of IT evaluation.

1.8 Organization of the study

This study is organized into five chapters. Chapter one intends to describe the importance of IS/IT evaluation exercise. It incorporates the background, objectives, scope, theoretical framework, and limitation of this study.

Chapter two discusses the literature review on previous researchers on IS/IT evaluation practices. It includes detail description of various IS evaluation methodologies and theories that are relevant in this study.

Chapter three states the research methodology adopted in this study. It explained the research instrument, sampling procedure, data collection process and data analysis techniques used in this study.

Chapter four provides the findings of the survey. It covers major topics such as general characteristics of respondents, evaluation practices and methods used, and stakeholders' choice of evaluation methods.

Chapter five is the conclusion and recommendation to this study. It discusses the practical implication of this study and recommendations for future research.

CHAPTER 1 Introduction

Maglitta and Sullivan-Trainor (1991) found that organizations spend an average of 2.7% of corporate turnover on IT, while Datamation (1996) indicated that IS budget rose by an average of 6.2% in the USA during 1996. In this decade alone, banks' spending on IT has risen rapidly from some $14b in 1990 to $20b in 1995 (Anandarajan, Igbaria and Anakwe 2000). A recent survey conducted in the USA indicates that banks are increasingly deploying microcomputers to their employees in order to improve productivity and enhance customer service (Anandarajan et al 2000).

In Malaysia, the banking industry is among the biggest spender in IT. It accounts for 35% of total IT expenditure in the country (Salleh 1994). The impending liberalization of the financial services sector, originally scheduled in 2003, now extended to 2007, is the driving force for the Malaysian banks to improve and differentiate their services.

This diffusion of IT has begun to derive benefits in terms of employee productivity (Strachman 1994); increases in transaction throughput (Karr 1996); and overall profitability (Teixeira 1995). Since IT is regarded as giving a competitive edge, financial service providers began to invest heavily in IT in order to remain competitive and increase market share (Bank Negara Malaysia Annual Report 1999).

As technology becomes so much embedded in the financial services industry and demands high levels of investment, evaluating technology becomes an area of increasing concern to the organizations. The concern in IS evaluation is primarily due to the investment organizations have made in IT, and the strategic nature of the impact of IS on organizational performance (Lubbe and Remenyi 1999). Yet firms embarking on new technology often find themselves in a dilemma over the methods to be used in evaluating their investment in technology (Fadzilah 2001). Perhaps it is with this problem in mind that, Encik Nik Mohd Hasyudeen Yusoff, a council member with the Malaysian Institute of Accountancy said: