Chapter 3   Research Methodology

3.1   Sampling

Primary data sources are collected to conduct this study. The research design chosen is through survey by the use of questionnaire. Survey is particularly useful in order to learn what is happening or to learn the reasons for a particular business activity (Zikmund 1997). It also provides inexpensive and efficient means of assessing information about the population.

The targeted population (relevant population) is the local Malaysian banks. There are in total ten commercial banks and these would form the population being surveyed.

As this study is to obtain statistics on type of evaluation methods used and general understanding of evaluation practices for IT projects, the selection criterion among the ten banks is those with established Information System division. Preliminary investigation based on listed departments on the public directory of the banks, revealed that with the exception of one bank, all have established IS division. Therefore, the sample is further narrowed to nine banks, which represents 90% of the industry.

The questionnaire consists of five sections (Section A to E). The targeted group of respondents are the Head/Senior Manager from the IS division and project team members of existing/ongoing IT projects. All respondents are of tertiary qualifications.

For Section A to D (targeted for Head or Senior manager of IS division) nonprobability, purposive-expert sampling method (Trochim 1999) is used because the questions are technical and therefore, it is important that the respondents possess the required characteristic that is appropriate (Zikmund 1997). In this regard, the sample size (in terms of numbers) is no longer important as homogeneity of the responses for each bank can be assumed. In other words, the researcher believes that the Head/Senior Manager, from each bank has the required expertise to provide the answers to the research questions

and there is unlikely to be any difference in the answers if other respondents are included in the survey. However, nonprobability sampling do not allow the researcher to utilize statistical analysis to project the data beyond the sample (Zikmund 1997). Therefore, descriptive statistics would be used to analyze the results and this is sufficient to answer to the research questions relating to types and choice of IS evaluation methods among the banks.

For Section E (targeted for project team members of ongoing IT projects), quota sampling is used and it includes employees who are project team members of ongoing projects and recently completed projects. Since the study seek to investigate relationship between different groups of stakeholders, particularly whether those with Accounting qualification shows a preference for financial method of evaluation, the targeted group of stakeholders included those employees from Finance, IS and other user departments. Total numbers of respondents are targeted between 20 to 25 for each bank and from at least two different projects.

3.2   Instrumentation

The choice of the survey instrument is by way of a questionnaire. The questionnaire consists of primarily fixed-alternative type questions. The major advantage of using fixed-alternative type questions versus open-ended type of response is that it takes less time and is generally easier for the respondent to answer. Since close questions require classification of the answer into standardized groupings, it provides for comparability of answers and facilitates coding, tabulation and interpreting the data.

The questionnaire consists of five sections. Sections A to D, are designed to gather information to meet the first four research objectives. As mentioned in paragraph 1.3 and 1.4, these are answers to the questions on stages of evaluation, evaluation methodology and whether the choice of methods is contingent upon stage of evaluation or type of system being evaluated. To

simplify the process and ensure consistency of answers, the survey on methods is centered on feasibility evaluation.

To address the question on methodology, ten different methods as documented by Farbey et al (1993) are used (also discussed in paragraph 2 above). The methods provided include a broad range of both financial and non-financial methods. Therefore, in the researcher's opinion, these are comprehensive and sufficient to address the purpose of this study. Based on these ten methods, appropriate questions are formulated to gauge the importance of the methods on the evaluation process and type of system being evaluated. The degree of importance is measured using Likert type of scale as follows:-

5=most important, 4=important, 3=quite important, 2=not important,

1=not important at all.

This method is chosen because it is simple to administer and it provides a means of measuring attitudes without verbally questioning the respondent (Zigmund 1997)

Section E focused on preferences of various groups of stakeholders on the different type of evaluation methods. The purpose is to investigate difference of preference among groups of stakeholders and whether variables such as qualification influence their choice of evaluation methods. Stakeholders are differentiated based on their department, qualification and the role they play in the IT project. The questionnaire provides for five different roles, that is, project champion, system, finance, supporting and users (refer to Figure 3:Internal Stakeholder Map, Farbey et al 1993). To measure their preferences or attitude towards the importance of the ten different methods of IT evaluation, similar Likert type scale is being used. However, to ensure more reliability on the response given, 20 sentences, which describe the ten methods, are being formulated for this section. Respondents are requested to rate the level of importance they place on each of these sentences, which actually summarizes business activities undertaken for each of the ten methods of evaluation.

3.3   Data collection

The data collection process was conducted in three stages. Firstly, a formal letter to request for the necessary permission to conduct the survey was sent to the Chief Executive Officer (CEO) of each of the nine banks either by hand or through fax. Telephone calls were made to the secretaries of the CEOs to follow-up on this request. Upon approval from the respective CEOs, the second stage involved arranging a meeting with the Head of the IS division of the bank. During the meeting, the purpose of the study and the instrumentation of the survey were explained. The third stage was to distribute the questionnaires to the relevant parties. The distribution of Section E to the various stakeholders were done at the discretion of the Head of the IS division. Arrangements were made with the relevant officers to collect the completed questionnaires. An average of 2 to 3 weeks was given for the completion of the questionnaires.

On the whole, the entire data collection process took five weeks to complete. The longer time period was due to the Chinese New Year holidays in between the survey time frame.

The researcher placed considerable importance in ensuring that the return rate would be high, targeting at 100% for Sections A to D and above 50% for Section E. Therefore, efforts were made to speak to the Head of IS or its Senior Manager personally on the purpose of the study and the rationale for the target respondents. For Section A to D, a total of 9 forms were distributed, one to each bank. For Section E, a total of 185 forms were distributed among the nine banks. As mentioned in paragraph 3.1, for Section A to D, the Head of IS would be able to speak for the bank. Whereas, Section E is to gather other stakeholders' responses, so a bigger sample size would provide more accurate generalization.

3.4   Data analysis

All the questionnaires were first checked and edited for questions that are not answered. For nonresponse item (Zigmund 1997, page 511), a plug value is

used so as to avoid missing value. However, plug value is used when the total item nonresponse is less than 25% for each section, anything more, the questionnaire is classified as "non usable" and dropped from the sample. The plug value used is unique for each section and is based on the least important score responded. The rationale is based on the understanding that nonresponse is due to methods not being used and therefore not important to the respondent. Therefore, to ensure reliability, the least score recorded is used as the plug value. The plug value used for Section C and D is 2, and Section E is 1.

The next stage is to code the answer into a numerical score. Assigning numerical values allow each form from the survey to be processed in a computer using SPSS version 10 software. The coding categories are provided for each type of response as follows:

Section/Question	Coding			
A /Q 1.	Always=4	Often=3	Sometimes=2	Never=1
B / Q1.-10	Ticked=2	Not ticked=1		
E / Q1.	Finance=1	ISD=2	User dept.=3	
E / Q2.	Finance=1	Computer Science=2	General business=3	
E /Q3.	Champion=1	System=2	Finance=3	Supporting=4
	Users=5			

Upon completion of editing, coding and referencing each questionnaire, the results were keyed into SPSS version 10 for analysis.

Descriptive statistics using frequencies, mean and standard deviation is computed for Section A and B. The statistic derived would be able to show when evaluation is carried out and the preferred evaluation methodologies among the banks. Cross tabulation between stages of evaluation and types of methods would help in understanding the nature of the relationship between them. In order to investigate whether financial or non-financial methods is preferred for each of the three stages of evaluation, the data is transform to compute the

means for the group of six financial methods and the group of four non-financial methods.

To investigate the relationship between the system characteristic and the choice of evaluation methods, the mean scores of each of the ten methods are computed for each of the four system types (mandatory, value adding, strategic and business transformation). Based on the Project Ladder theory by Farbey et al (1993), the mean scores for financial methods should be higher for system at the bottom rung of the ladder, that is, mandatory system and lesser score as it moves up the ladder towards business transformation type. Similarly, mean scores of non-financial methods are investigated among the four system types to determine the relationship between system type and choice of evaluation method.

Finally, to investigate the preference for financial or non-financial evaluation methods among the different groups of stakeholders, descriptive statistics for the average means for financial and non-financial methods is analyzed to obtain the preferred method. Next, one-way Anova is conducted to compare the mean difference for the three groups of respondents with different qualification (Accounting, Computer Science and other General degrees, such as banking or business). The one-way Anova test is conducted using the variable qualification as the independent variable.

Further test of difference in perception of importance between financial and non-financial methods among the stakeholders with different roles are conducted using one-way Anova with roles as the independent variable.