CHAPTER 3
RESEARCH
METHODOLOGY

3.1 HYPOTHESIS DEVELOPMENT

3.1.1 Hypothesis 1, 2 and 3: Organizational factors and ITIL implementation progress

MSC status organizations in Malaysia are large organizations and approximately 8% of these organizations are classified by MDC (Multimedia Development Corporation) as 'world class' organizations and world class incubators. Approximately 20% constitute international companies. These companies have some advantage on innovation, financial resources to propel any framework implementation organization wide. These organizations due to size and complexity need more discipline and controls to manage mission critical IT services. A survey found that a higher proportion of IT managers of large organizations (24%) were familiar with ITIL compared to the IT managers at small and medium-sized organizations (17%) (Nerney, 2003).

This led to the development of hypothesis *H1* and *H2*

H1: Implementation of ITIL is positively associated with organization size in terms of budget/turnover.

H2: Implementation of ITIL is positively associated with organization size in terms of total employment.

Prior research has found that size of the development team is associated with software process improvement and software quality management systems (Davis, Gillies, Smith, & Thompson, 1993; Tan and Yap, 1995), this led to suggest hypothesis *H3*

H3 Implementation of ITIL is positively associated with organization size in terms of the number of IT staff.

3.1.2 Hypothesis 4: ITIL implementation progress with COBIT framework implementation

The third research question investigate if organizations implementing ITIL are also implementing COBIT governance framework. Managers are advised that IT service management and governance frameworks are not mutually exclusive, and when combined they provide effective IT governance, controls and best practices in IT service management (Mingay and Bittinger, 2002; Salle, 2004). Organizations are urged to use COBIT to put their ITIL program into the context of a wider control and governance framework (Mingay and Bittinger, 2002; Sun Microsystems, 2005). This led to suggest hypothesis H4:

H4: Implementation progress of ITIL in MSC status organizations is associated with implementation of COBIT framework.

3.1.3 Hypothesis 5: Satisfaction with effectiveness of ITIL is positively associated with ITIL implementation progress.

The fourth research question explore if satisfaction level with effectiveness of ITIL is associated with implementation progress. To implement ITIL, organizations must invest resources and overcome employee resistance to change. In some cases, IT managers were pressured to implement ITIL either for internal or external compliance requirements. In the initial stages of ITIL implementation, expectations may range from an extreme negative to an overly optimistic level. Potgieter et al. (2005) found that both customer satisfaction and operational performance improved as the activities in the ITIL framework progressed. To investigate if practitioners satisfaction level with ITIL increases as ITIL implementation progresses, the following hypothesis is proposed:

H5: Satisfaction with the effectiveness ITIL is positively associated with ITIL implementation progress.

3.2 RESEARCH METHODOLOGY AND THEORETICAL FRAMEWORK

This research is an exploratory research. Exploratory research explores what is happening and particularly useful when not enough is known. Since there is not enough ITIL implementation progress and success factors literature available (Hochstein et al., 2005; Potgieter et al., 2005; Cater-Steel et al. 2006), an exploratory research method was selected. Exploratory research is performed when few or no earlier studies available. There are no academic studies or literature available for ITSM/ITIL implementation progress in MSC status organizations. The focal point is to get insights and familiarity via exploratory research methods.

This research survey was conducted using web and email survey. The survey was distributed to MSC status companies. The survey respondents were limited to CIOs, COOs, technical managers, business service managers, Process managers, IT capacity managers, Availability managers, IT service level managers, IT support managers, Release managers, Application/account managers, project managers, Information security managers, Project managers, ITIL/ITSM consultants and other streams of IT managers.
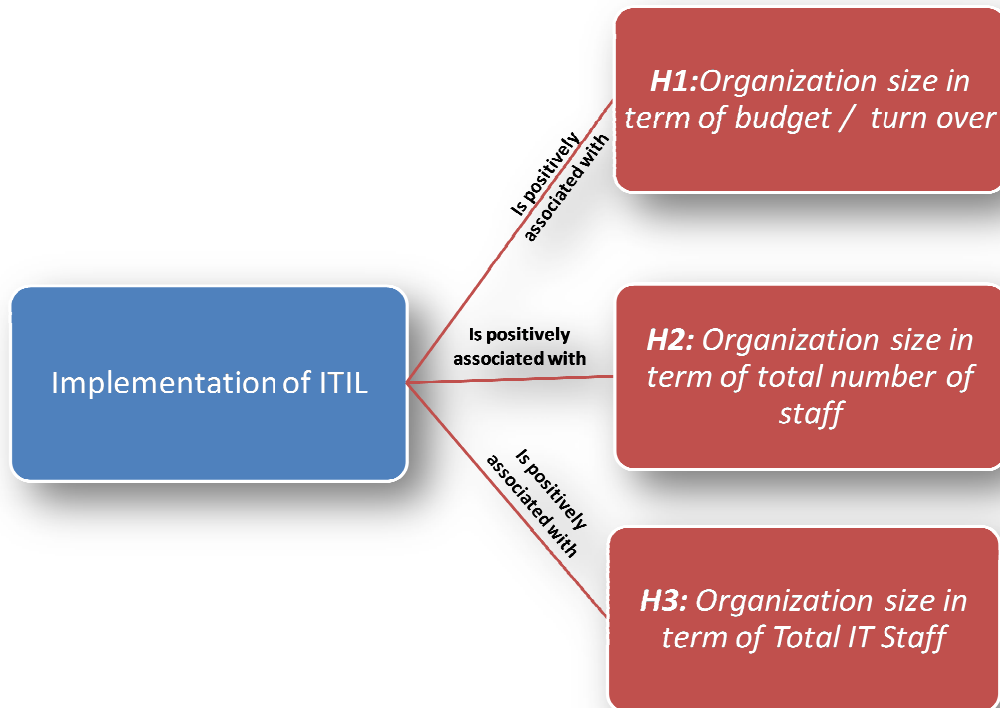
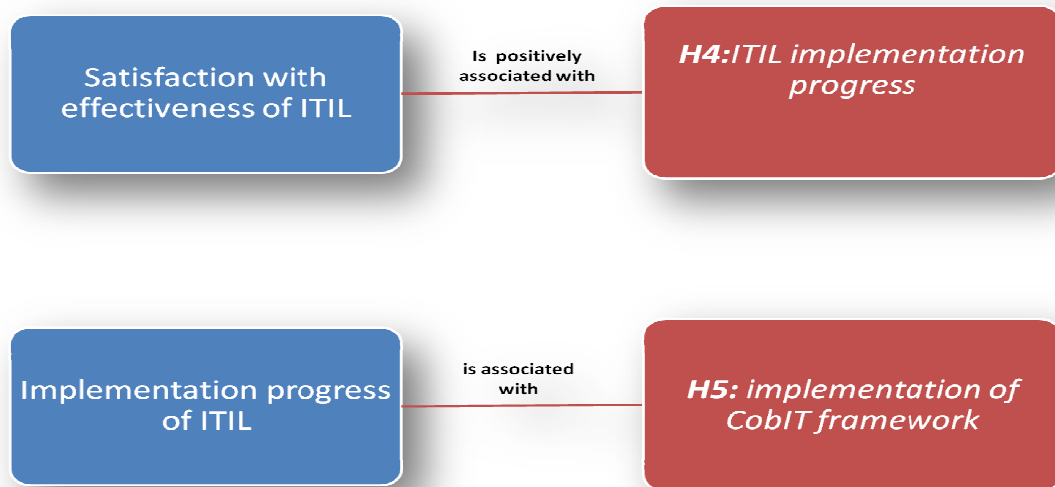Figure 3.1: Research Framework (organizational factor)

Figure 3.2: COBIT implementation and satisfaction with ITIL effectiveness

3.3 RESEARCH INSTRUMENT

Sapsford (1999) described that survey is a detailed and quantified description of a population. Mangione (1995) suggested postal surveys are best considered when research sample is widely distributed geographically and research subjects need time to respond.

The questionnaire for this research was adopted from the recent research (Cater-Steel and Wui-Gee Tan, 2008). The authorization to use the research instrument was secured from authors. There were no significant changes made to the original questionnaire except some localization.

To assure validity, a research instrument must measure what it was intended to measure. This research employed Cater-Steel and Wui-Gee Tan, (2008) survey instrument. The same survey instrument was utilized by authors (Cater-Steel and Wui-Gee Tan) for their studies to gauge ITIL implementation in Australia from 2005 to 2009.

The research instrument was already validated for reliability, content and construct validity. Black (1999) argued that reliability is an indication of consistency between two measures of the same thing, these measures can be articulated as

- The same instrument applied on two occasions.
- The same instrument administered by two different people.

Since the same instrument is used by itSMF (Australia) and Cater-Steel (2006) on yearly basis (from 2006-2009) to gauge ITIL implementation progress in Australia, it satisfies the Black (1999) argument on reliability.

The survey instrument consists of the following sections with 4 pages questionnaire. The web based on line version of the survey consist of five screens. The time requirement to complete the survey was 10 minutes, observed during the pilot study.

3.3.1 Section 1: Organization information:

Section 1 of the survey instrument collect the organization information. A respondent need to respond the following in section 1.

1) Position of respondent in the organization

2) Organization MSC designated location

3) Sector of business

4) Organization ownership

5) Approximate budget or profit turn over

6) Organization size in terms of number of employees and total number of IT staff.

3.3.2 Section 2: Organizations current initiatives and progress

This section captures what is the current progress of organizations in adopting or implementing IT service management, quality and corporate governance frameworks. Organizations have been urged to adopt multiple frameworks (Mingay and Brittain, 2003), especially COBIT and ITIL as service management and governance frameworks are not mutually exclusive.

From a consultant's point of view, ITIL, COBIT, CMMI, Balance Scorecard and ISO 9000 interpolate. Large organizations have some degree of advantages over smaller organizations in the landscape of innovation adoption, financial capabilities and human capital. Due to the size and complexity of these organizations, they have dedicated service management or process management resources to manage these activities. These organizations can effectively use past experience of implementing a framework to foster new process implementation (Raffa, 1993).

3.3.3 Section 3: Organizations ITSM / ITIL initiative and progress

This section captures implementation progress of different ITIL/ITSM processes. For example, Release Management, Change Management and IT continuity Management.

3.3.4 Section 4: Perceptions of the Factors Contributing to ITSM / ITIL Implementation Success

This section gauges the practitioner perception about factors contribute to successful ITIL implementation. This section has the following questions

1) Importance of the success factors in ITIL implementation
2) Significance of the benefits that ITIL has provided to respondent organization
3) To what extent ITIL met the expectations of respondent organization?

3.4 SAMPLING PLAN

Kerlinger (1986) stated that response rates as low as 40 or 50 per cent are common.

In context of Malaysia, different studies have suggested different benchmarks of response rates. Sohail and Hoong (2003) studied quality management framework implementation in Malaysian SME organizations and reported that survey response rate was 20%.   Cater-Steel and Wui Gui (2005) reported that ITIL implementation in Australian organizations survey response rate was 21%.

The sample size of this research was limited to 260 respondents with expected response rate between 25-35%.

The selection of respondent organizations was done using stratified sampling method as it provides greater precision than a simple random sample of the same size. The approach for sample selection was proportionate stratification. With proportionate stratification, the sample size of each stratum is proportionate to the population size of the stratum. The respondents were selected using Multimedia Development Corporation (MDC) classification of organizations. The MDC classify organizations into Software Development, Hardware design, Internet based business services, Creative Multimedia and Design, IT Support Services, Shared Service and Outsourcing categories.

With stratified sampling technique, 260 organizations from all six sectors were selected via randomly. The number of organizations in each sector as well as number of organizations sampled from each sector are tabulated in Table 3.1

Organization Sector	Total number of MSC status organizations	Sample Size
Software Development	1060	141
Hardware Design	194	26
Support Services	52	6
Creative Multimedia	253	33
Internet based Business	255	32
Shared Services and Outsourcing (in technology and business outsourcing)	180	22

Table 3.1: Research sample size

This research expected at least 100-120 respondents from these companies to respond. These respondents were Chief information officers, IT managers, Head of IT Departments, IT Managers and senior IT managerial or senior IT operation managers. The contact addresses of these organizations were taken from MDC website, MDC company showcase and organizations public websites.

3.5 DATA COLLECTION PROCEDURES

Before distributing the survey, it is very important to gauge user's viewpoint and how users will interpret the survey questions. A pilot survey was performed to assess user interpretation of questions. The pilot survey was performed for a week with 10 IT and technology managers. The respondents were able to interpret the questions without any difficulties. There were no significant changes made to survey instrument as a result of pilot study.

The duration of this study was 35 days (From 20th July 2010 to 25th August, 2010). The initial survey was conducted 100% through distribution of email survey and later ported to an online survey via website. The selected 260 organizations were contacted with the help of email addresses available on MDC and companies websites. Some of the respondents were contacted via phone and email to brief the purpose of the survey.

3.6 DATA ANALYSIS:

Besides reporting survey statistical summary, the following analysis was performed on the data to test hypothesis

- **Descriptive statistics**: Descriptive statistics transformed data into meaningful summaries to understand, interpret and provide descriptive information (Zikmund, 2003). In this study, descriptive analysis techniques were used to summarize and describe the data.

  There was no assumption made about the normality of the data at data collection phase and later the normality test suggested that data is not normally distributed. Hence, nonparametric statistical analysis was employed to analyze the data.

- **Spearman's rho:** Spearman's rank correlation coefficient was employed to measure statistical dependence between two variables and to assess how well and in depth the relationship between two variables can be described. The Spearman Rho correlation illustrates the magnitude and direction of the association between two variables