THEORISING MANAGEMENT ACCOUNTING PRACTICES AND SERVICE QUALITY

THE CASE OF MALAYSIAN HEALTH TOURISM HOSPITAL DESTINATIONS

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**Thesis submitted to the University of Nottingham
for the degree of Doctor of Philosophy
in Business and Management**

February 2017

ABSTRACT

Private hospitals in Malaysia are now extending their healthcare services to cater for patients travelling from the global market. These organisations are aggressively gearing themselves up to deliver quality services and to demonstrate quality assurance on their services. Hence, service quality strategies and initiatives have become critical for success in hospitals and the way forward. In pursuing quality initiatives, hospitals need to gain access to quality-related information and adopting the appropriate management accounting practices would be an important enabler and facilitator to generate useful management information leading to organisational successes. This study examines the usage of management accounting practices in these hospitals and attempts to develop a management accounting framework that would effectively facilitate the implementation of service quality initiatives pursued. Structured questionnaire was used to gather the perceptions of hospital management on service quality implementation level, usage level of management accounting practices usage and performance level of hospitals. Quantitative methods using MANOVA and structural equation modelling with AMOS were employed for data analysis. The results show that service quality implementation level was not found to be higher in hospitals that have obtained more types of quality achievements as compared to those that have obtained less or no achievements. Hospitals have benefitted from the implementation of quality initiatives related to *management, process and analysis*. However, such benefit was not found in quality initiatives related to *patient care*. In terms of the mediating role of management accounting practices, the results show no mediation effect on the impact of *patient care* on hospital performance. Meanwhile, there was partial mediating effect on the impact of *management, process and analysis* on hospital performance. Specifically, the mediating effect was found to be stronger from the advanced accounting practices compared to the basic accounting practices. The findings lead to a conclusion that adopting the appropriate management accounting practices would effectively facilitate hospitals in their quality pursuits. Limitations of this study and recommendation for future research are presented.

ACKNOWLEDGEMENT

I would like to express my heartiest appreciation to my supervisor, Professor Dr James Devlin, for being a tremendous mentor for me. He has been encouraging my research tirelessly and giving me all the motivations, guidance, comments and suggestions that I needed throughout my PhD journey. I would also like to thank my co-supervisor Dr Tan Hui Boon for her encouragement and supports at the initial stage of this work, and my fellow colleagues for their friendly advices and social supports.

A special thanks to my family for their love and encouragement. To my parents and sister, I am grateful for all the sacrifices you have made on my behalf. To my loving husband, thank you for inspiring me and for spending many moments with me when I found myself in the maze. To my beloved son, Han Jia, thank you for giving me the strengths and determinations to learn and grow with you.

Hung Woan Ting
June 2016

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ABBREVIATIONS

ADVMAP	Advanced Management Accounting Practices
APHM	Association of Private Hospitals of Malaysia
CFC	Costing and Financial Control
CSR	Corporate Social Responsibility
DCA	Data Collection and Analysis
EFF	Efficiency (operational) performance
ETP	Economic Transformation Programme
FIN	Financial performance
HTHD	Health Tourism Hospital Destinations
INNO	Innovation performance
ISO	International Organisation for Standardisation
ISQua	International Society for Quality in Healthcare
JCI	Joint Commission International
MAPs	Management Accounting Practices
MBNQA	Malcolm Baldrige National Quality Award
MOH	Ministry of Health
MPC	Management, Process and Communication
MPA	Management, Process and Analysis
MSQH	Malaysian Society for Quality of Health
OCWR	Operational Control and Waste Reduction
PCARE	Patient Care
PERF	Performance level of HTHDs
RMVC	Resource Management and Value Creation
SQIM	Service Quality Initiative Maturity
TQM	Total Quality Management
WHO	World Health Organization

CHAPTER 1   INTRODUCTION

1.1   BACKGROUND

Health tourism in Malaysia has emerged as one of the integral contributors of the country's economic growth over the past decade. With the government's plan to target health tourism as one of the prime growth factors of the country, hospitals in Malaysia are now aggressively extending their healthcare services to cater for patients from the global market. In seeking a preferred destination for treatment, health tourists typically look to the achievements of quality programmes, such as the ISO 9000 series standards certifications and the various quality accreditations as the common reference point. Consequently, hospitals both in Malaysia and around the world have been working towards securing multiple quality achievements as evidence of quality assurance. Extant research suggest that while there may not be a most superior strategy that healthcare organisations should aim to adopt, there is indication that the adoption of multiple strategies are more likely to be successful (Øvretveit, 2003). Nevertheless, such multiple strategies come with significant resource implications to the organisations and needs to be carefully considered.

In addition to demonstrating quality assurance on the services delivered, hospitals need to gear themselves up to deliver quality services as a sustainable business practice. Consequently, formulating service quality strategies and implementing initiatives that enhance service quality have become critical for success in the destination hospitals and the way forward. While the range of quality initiatives pursued by hospitals are typically shaped by the types of quality programmes sought, literature has warned about the need to evaluate the effectiveness in implementing such quality initiatives rather than making mere reference to the labels of quality programmes sought, or differentiating between quality adopters from non-adopters in a superficial manner (Ahire, et al., 1996; Askey and Dale, 1994; Øvretveit and Gustafson, 2002). Instances where management commitment for quality management faded over time, or systems were in place but malfunctioned, or where mission statements and plans were only evident on paper would largely hamper the implementation of any quality initiatives, let alone its effectiveness. Nevertheless, little knowledge

is available especially in the healthcare context to provide understanding on efforts to manage service quality beyond the labels of quality programmes achieved.

1.2   MOTIVATIONS OF THIS STUDY

Following the review of quality literature and the current industrial practice, it was recognised that limited knowledge is available to provide understanding on efforts to manage service quality beyond the labels of quality achievements, especially in the healthcare context and in developing countries such as Malaysia.

This study adopts the common perception of healthcare service as a credence-based service (Darby and Karni, 1973). Customers (patients) receiving such service rely on quality evaluation indicators such as quality accreditations in order to assess the quality attribute of such services. Consequently, an organisational centric approach is taken in this study to examine service quality that are delivered by healthcare service providers.

Accordingly, the study is motivated to seek an understanding on the detailed elements that resides within the quality achievements programmes, and then to examine the extent to which these organisations have implemented initiatives that promotes service quality management. This study draws on the general systems theory (Von Bertalanffy, 1972) and recognized the importance of ascertaining quality implementation by understanding the implementation of the specific quality aspects that make the quality system as a whole. The study refers to the functional quality (Grönroos, 1984) which involves the manner in which healthcare services are delivered, since it is the primary reference point for patients to determine their perceptions of service quality provided by a healthcare organisation (Donabedian, 1980).

In studying the functional quality of healthcare services, this study is motivated to consider the process component for quality (Donabedian, 1980) which would typically involve factors such as the responsiveness to patient needs and preferences, patients' right to dignity, client participation, empowerment, etc.,

since organization that has better processes would be in a better position to provide better outcomes (Brook, et al., 2000). Hence, this study adopts an operational definition for "implementing quality" as *the perceived maturity level of implementation of specific initiatives that are intended to provide functional quality of services, with a process orientation, in meeting patients' needs*. The definition is terms as Service Quality Initiative Maturity, or SQIM in short. The knowledge found in this study would provide a valid basis to evaluate quality implementation across destination hospitals that have obtained varied types of quality achievement programmes, hence giving insights as to whether achievements in different or multiple types of quality programmes would indeed bring about higher level of quality implementation.

This study is further motivated to deepen this understanding by examining how management accounting practices are facilitating management intention to implementation quality initiatives. To effectively implement the quality initiatives and integrate them into the operational activities, destination hospitals need to gain access to quality-related information that are useful in supporting management in planning, controlling, making informed decisions as well as evaluating quality performance. Hence, adoption of appropriate management accounting practices would be an important enabler and facilitator for the generation of useful management information leading to organisational successes (Langfield-Smith, et al., 2006). Nevertheless, more work is required for theorising management accounting practices in providing explanations on how the accounting practices works, how they are put into use and the context of their use (Malmi and Granlund, 2009). Knowledge in the use of management accounting practices to support quality strategy remain sparse and with inconsistent findings reported, especially in the healthcare context and in developing countries such as Malaysia.

Consequently, this study endeavours to provide explanatory concept on the characteristics of management accounting practices that are currently used and the extent of their use in the destination hospitals in order to provide a valid basis to examine the role of the different management accounting practices in supporting these organisations to effectively implement initiatives that promotes service quality. In this regard, this study employs the categorisations presented by IFAC (1998) and views each category as a social structure that carries the

structural properties as proposed by Giddens' (1984) in the course of examining the potential role of management accounting practices to support quality management. Additionally, this study adopts the institutional theory approach (Burns and Scapens, 2000) in examining the accounting adoptions within an organisation, and views that increased use of management accounting practices would allow such practices to be institutionalised within the organisation.

In gauging the effectiveness of implementing quality initiatives in the destination hospitals, this study has benefited from the extant literature pointing to the growing trend of adopting a comprehensive approach to measure organisational performance. Accordingly, the current study is motivated to examine the multiple perspectives of performance relevant to the destination hospitals and to employ a range of performance measures appropriate to evaluate the respective performance dimensions in these organisations.

1.3   RESEARCH OBJECTIVES

In facing the increasingly intense competition from both local and international players, many destination hospitals operating in the health tourism sector have begun to pursue competitiveness by implementing quality management initiatives leading to desired service quality level. Adoption and appropriate use management accounting has the potential of providing the organisations with better capacity to gain and to retain such competitive advantage, and in turns deliver the desired performance outcomes.

This research is a novel study on destination hospitals in Malaysia which seeks to understand the current usage of management accounting practices in facilitating the implementation of a range of quality initiatives. The objective of this study is to develop a framework that provides a nuanced and bounded understanding of when and how certain types of management accounting practices might have particular effects on destination hospitals that are aggressively pursuing a given dimension of service quality initiatives. Ultimately, this study aims to provide guidance to destination hospitals to gain better capacity in delivering quality services by making appropriate use of management accounting practices,

thereby improving performance and gaining a competitive edge in the health tourism industry in both the local and global market.

1.4   RESEARCH QUESTIONS

To achieve the set research objectives, the current study posts three main research questions:

1. *Would destination hospitals that have obtained more types of quality achievements demonstrate a higher quality implementation level as compared to those hospitals that have obtained less or no achievement?*

   Quality achievements are widely used as reference points to guide consumers in their buying decisions. Observations on the current practice among the hospital destinations suggest that there is a common tendency among the hospitals to seek different, and is some cases, multiple quality achievements on a voluntary basis. This observation may be partly explained by the institution theory suggesting that in attempting to be more adaptive and responsive to uncertainties in the environment, institutions take into account other organisations and they tend to imitate the structure, process, norms and practices of those organisations that they perceived to be more successful (Dimaggio and Powell, 1983). Nevertheless, such practice brings about very practical managerial implications, since maintaining the different programmes may result in possible synergies, redundancy or even distraction in managing the expectations from stakeholders. This might in turn affect management execution and hence the quality implementation level that was actually attained. In view of this, the research question seeks to investigate whether differences exist in the scope and depth of quality implementation in hospitals that have obtained particular types of quality achievements, hence providing evidence on whether such strategy in quality investments were indeed warranted.

   In seeking to investigate this question, this study is informed by the quality management literature that quality management practices are interdependent, and that management approaches such as total quality

management is a holistic philosophy that requires simultaneous implementation of its key principles. Hence, this study draws from the general systems theory (Von Bertalanffy, 1972) which suggests that system is the individual parts plus their interactions, and is shaped by the feedback and feedforward dynamics that exist among these parts. Consequently, this research question investigates the implementation of the various constructs or sub-systems of quality initiatives implemented, instead of seeking an aggregated view.

2. *Is there significant and positive direct effect of quality implementation on performance?*

Quality management is a contemporary approach aimed at continuously improving organizational performance. Consequently, the impact of quality management on organizational performance has attracted much research interest over the last decades. Despite a strong theoretical argument that quality management contributes to organisational performance, literature has produced somewhat mixed results in both the manufacturing and service industries including the healthcare industry. Recent studies have advanced the investigation on the quality-performance link by investigating the specific dimensions of quality and how they are related to organisational performance.

Given that the importance of different quality dimensions are very much context dependent and may not be generalised (Yeung, et al., 2005), and that limited study is available in the health tourism setting, this research question seeks to investigate how the destination hospitals that had attained quality achievements have benefitted from the use of the various elements or dimensions of the achievements, and whether there exists any notable pattern of differential benefits enjoyed by such hospitals. Hence, this research question provides evidence on the performance implications of the specific quality initiatives pursued by the hospitals, to inform the effectiveness of implementation as well as assess the justifications for investments in the quality initiatives.

3. *Is the impact of quality implementation on hospital performance being mediated by an increased use of management accounting practices?*

Effective implementation of quality initiatives requires quality-related information to facilitate management in planning, controlling, making informed decisions as well as evaluating quality performance. According to the institutional theory approach suggested by Burns and Scapens (2000), management accounting information is referred by its user when managing operational activities assigned to them, and over time such information may be institutionalised in the organisation and forms part of the organisational culture. Consequently, the types of management accounting practices adopted may facilitate the effective implementation of the types of service quality initiatives. Hence, it is important to understand the nature of management accounting practices being adopted and its relationship with the other organisational processes (Macintosh and Scapens, 1990; Scapens and Macintosh, 1996) in order to work towards an effective implementation of quality initiatives in the destination hospitals.

Literature has shown that the design of management accounting systems and practices in organisations have begun to change in such a way to better facilitate the adoption of modern management approaches. Nevertheless, knowledge on the use of management accounting practices to facilitate effective quality management remains limited, especially in the healthcare environment. Accordingly, this research question seeks to investigate whether or not, and the extent to which, the performance implications of quality initiatives were being affected by the adoption of management accounting practices. This would help to shape a framework for the adoption of management accounting practices carrying different capabilities in the pursuance of quality strategy in the destination hospitals.

Related to these three main research questions are two further questions on (a) is the level of quality implementation related to the usage of management accounting practices? This research question examines the relationship between the different types of quality initiatives and the range of management accounting practices. The question seeks to understand the support that management accounting practices may offer to the implementation of quality initiatives, and the extent to which the use of accounting practices is aligned with the quality management. And (b), is the usage of management accounting practices related to hospital performance? This research question examines the relationship between the different accounting practices and varied performance areas. The question seeks to understand the performance implications of using the different accounting practices, thus gauging the effectiveness of such practices and providing a basis for informed judgment and decisions when prioritizing and allocating resources for adopting accounting practices.

1.5 IMPORTANCE OF THIS STUDY

Careful adoption of management accounting practices is an important consideration that has a strategic impact on the performance of destination hospitals that are pursuing quality strategy. While management accounting practices on its own may not determine the success or failure of quality initiatives pursued by the destination hospitals, adoption of management accounting practices needs to be regarded as an integral part of an organisation's consideration in formulating its quality strategies. The current study seeks to provide empirical evidence on the potential role of such accounting practices in contributing to the capacity of quality initiatives to drive the performance of these organisations.

The importance of this study may be explained in five folds. First, by examining the level of quality implementation this study provide a greater understanding on the scope and depth of such managerial efforts. This knowledge is important since there is a common tendency among the quality-endorsed destination hospitals to have been seeking different, and is some cases, multiple quality achievements. Such practice brings about very practical managerial implications,

since maintaining the different programmes may result in possible synergies, redundancy or even distraction in managing the expectations from stakeholders. This might in turn affect management execution and hence the quality implementation level actually attained. The analysis is useful in highlighting how the choice of programmes might affect implementation level in the organization. The analysis would also shed some light on how well the different programmes complement each other in delivering specific areas of service quality initiatives that might be high in management priorities. Further, it may suggest possible selective implementation of SQIM following the choice of quality achievement programmes, thereby confirming whether the implementation is taking an integrative approach as suggested in the literature.

Second, by examining the performance implication of quality implementation in the destination hospitals this study highlights the extent to which these organisations have benefitted from the use of the various quality elements or dimensions of the quality achievement programmes that have been sought. This knowledge is important to understand how quality implementation affects the different perspectives of performance, thus providing some basis to gauge the effectiveness of implementation, and to assess the justifications for investments in quality. Such information would in turn enable the destination hospitals to make informed judgment and decisions when implementing quality initiatives with the objective to enhance its capacity to delivering service quality leading to better performance and competitive edge in the health tourism industry.

Third, by examining the relationship between quality implementation and management accounting practices this study provides a better understanding on the impact and significance of the relationships. Such knowledge would inform about the usage of management accounting practices that supports quality implementation, thereby suggesting the extent to which usage of accounting practices is aligned with the intention for managing service quality. The analysis also highlights possible lags in usage of accounting practices in the quality environment.

Fourth, by examining the relationship between management accounting practices and organisational performance this study provides greater insights on the impact and significance of the relationships. Such knowledge would inform

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about the performance implication of using the different accounting practices, thus providing some basis to gauge the effectiveness of usage of accounting practices and to identify room for improvement. Such information would in turn enable destination hospitals to make informed judgment and decisions when prioritizing and allocating resources for accounting practice adoption and usage.

Finally, by examining the potential impact of management accounting practices on the relationship between quality implementation and organisational performance this study provides a crucial understanding on how the different types of accounting practices may be useful in facilitating quality implementation in an effective manner. This study seeks to develop a theoretical framework that would provide guidance to destination hospitals in identifying the types of accouting practices that are found to be effective in facilitating their intention to pursue specific dimensions of service quality. Also, this study seeks to inform hospital management of the potential lags in accounting practices, who might wish to explore the gap to benefit from the practice adoption with the ultimate objective to deliver better performance.

1.6   CONTRIBUTIONS OF THE CURRENT STUDY

The current study contributes to the service quality literatures. Firstly, it adds to the on-going debate on the superiority and compatibility of different quality achievements by suggesting that quality accreditation and certification programmes complements each other in paving the way to implement service quality initiatives. Overall, the current study provides a novel conceptual understanding on the quality achievements commonly pursued by healthcare organisations operating in the health tourism sector in Malaysia. It offers suggestion that maintaining both recognitions from ISO 9000 series certification and MSQH accreditation would be the most optimal solution to approach service quality management. Such solution enables quality initiatives to be effectively implemented and integrated into operational activities, and hence allowing for such initiatives to be internalised in the organisation. Secondly, it provides insights to the ongoing debates for quality-performance link by suggesting that the link is contextual to the quality dimensions, whereby quality initiatives

related to management, process and analysis are found to have a positive link with multiple perspectives of organisational performance.

This study also contributes to the limited body of knowledge on the ways in which management accounting practices and service quality management may combine to enhance performance in destination hospitals that are pursuing quality initiatives as a strategic priority. The current study provides a framework on the role of management accounting practices in effectively managing specific dimensions of service quality in the healthcare environment. It draws upon Giddens' (1984) conceptualization of social structure to contribute to the institutional approach in examining the role of management accounting. The current study offers novel empirical insight on the institutionalization of management accounting practices with different characterisations that act as social structure to facilitate quality initiatives and to deliver performance. This study provides evidence that management accounting practices indeed carry with them the structural properties that facilitate communications, exercise of power and provide social norms to sanction conduct. Consequently, using such accounting practices would allow destination hospitals to enhance the effectiveness in implementing quality initiatives related to *management, process and analysis.* However, such enhancement would turn out more impactful if the adoption of management accounting practices is extended beyond the fundamental practices to include the more advanced practices.

The findings in the study will help destination hospitals to identify the appropriate characterisation of management accounting practices that would best facilitate the type of service quality initiatives being emphasised, with the ultimate intention to deliver a more promising level of organisational performance. The use of structural equation modelling provides a basis to examine the named hypotheses on the extent to which a range of quality initiatives and management accounting practices could have affected the performance of the destination hospitals. Subject to the methodological limitations, identifying the relationships of these variables with the organizational performance has provided important insights that may be used to direct further research on the possible reasons underlying the different combinations of these variables.

1.7   CHAPTER ARRANGEMENT

This thesis is organised into eleven chapters. Chapter One introduces the current study and its rationale in brief. Chapter Two to Four provide a review of extant literature in the constructs used in this study, namely quality implementation, management accounting practices and performance. Chapter Five presents the research model with justifications as informed by the relevant literature, followed by the hypotheses subjected to testing. Chapter Six explains the research methodology employed in this study. Chapter Seven and Eight describe the data collected and the measurement models used for analyses. Chapter Nine presents the detailed analyses undertaken and the relevant findings on the quality implementation levels in hospitals that have sought differing types of quality achievement programmes. Chapter Ten presents the detailed analyses and the relevant findings on the performance implications of quality implementation, and the potential mediating role of management accounting practices. Finally, Chapter Eleven provides detailed discussions on the results, together with managerial and policy implications, limitations and recommendations for further research. A final conclusion for this study is also provided.

CHAPTER 2   SERVICES QUALITY IN HEALTHCARE

The notion of quality has been defined in many ways in the literature. According to Deming (1986), quality of any products or services should be defined by the customer, and that the meaning of quality is a relative term that changes depending on customer's needs. Meanwhile, Juran (1999) purports that quality means the fitness for use in outputs, including goods and services, whereby the outputs meet customer needs, provide customer satisfaction, with the ultimate purpose of increasing income. This chapter presents the notion of quality in terms of services provided both in general and in a healthcare setting. Then, it outlines the different types of quality achievement programmes applicable to the healthcare environment, together with the detailed quality initiatives underlying these programmes and ways to gauge the implementation level of these initiatives. Following that, the current practice in destination hospitals in Malaysia is explained.

2.1   SERVICE QUALITY

Consumers requesting services would typically wish to assess the quality of the services that they will be engaging. To achieve this, relevant information is required to form expectations about the performance of such services.

Extant research proposes that products and services may be classified according to three levels of qualities depending on a consumer's ability to evaluate the quality. According to Nelson (1974), products or services may be of "search qualities" if they have attributes that are readily accessible by the consumer and hence enabling the evaluation process to take place prior to the decision to purchase. Examples of products or services with search qualities include style of clothes, layout and specifications of a house. Nelson (1974) also conceptualised that products and services are of "experience qualities" if they carry attributes that can only be evaluated during the consumption of such services. For instance holiday vacations, facial treatments, etc.

Darby and Karni (1973) added to the classification by pointing out that services may be of credence qualities if a consumer is unable to evaluate the attribute of

such service even after consumption. The difficulties are primarily due to the consumer being lack of the knowledge or expertise required to inform the evaluation process (Darby and Karni, 1973). The professional services including healthcare services would fall into this category. Consumers attempting to choose a professional service would find it much more challenging than choosing a product since there is generally lack of attributes to indicate quality, dependability and reliability of the services under consideration (Alford and Sherrell, 1996). Consequently, the use of pre- and post-quality evaluation criteria becomes particularly important. In some cases, professional services rely on personal recommendations to build their clientele. In the healthcare industry, the use of quality accreditations is a prominent pre-consumption quality evaluation proxy.

Alford and Sherrell (1996) proposed to view the three categories of qualities on an evaluation continuum, whereby service that contains many search qualities be located at the "easy to evaluate" end of the continuum, while service that has many credence qualities be located at the opposite end of the continuum marked as "difficult to evaluate". The authors further suggest that when evaluating services at the "difficult" end of the continuum, consumers may assess the services encountered by relying on two sources of data. The first source would be the consumer's "intuitive logic" and expectations on the consistency of sequence of events or the service process being performed. The second source would be the consumer's affective reactions to the service provider, and are drawn upon the consumer's memory of the categories of attributes and the associated affective tags based on some past experiences. In the even that an attribute category is absent in one's memory, the consumer may resort to examining the attributes on a piecemeal basis.

This section presents the concept of service quality as a credence service and provides justification for the use of quality accreditations as a reference point to form expectations about the quality of healthcare service. The next section explains the areas of service quality that are relevant to the healthcare environment and requires careful management.

2.2   SERVICE QUALITY IN HEALTHCARE

Organisation would typically pay attention to the service quality delivered in the key areas of its business. In the healthcare industry, the quality of services would encompass three key areas (Øvretveit, 2000), namely the *patient quality* that involves quality of services provided to the patients; the *professional quality* that involves the views of the medical practitioners on whether the service and procedures meet patients' needs; as well as the *management quality* that involves the quality of services by management in making the most efficient and productive use of resources to meet patients' needs.

Gronroos (1984) pointed out that both *technical quality* and *functional quality* are important for success in a service-oriented organisation. According to Gronroos (1984), *technical quality* refers to technical accuracy of the diagnosis and procedures. Due to its technical nature, such information is not generally made available to the public. Meanwhile, *functional quality* refers to the manner in which healthcare services are delivered. Given that patients generally lack expertise to accurately assess the technical quality of healthcare services, *functional quality* has been the primary reference point for patients to determine their perceptions of service quality provided by a healthcare organisation (Donabedian, 1980). Consequently, it is important that healthcare service providers give due consideration to develop functional quality of their services so as to influence patients' buying decisions.

To effectively assess the functional quality of healthcare services, Donabedian (1980) proposed that it is important to look into the three key components for quality, i.e. the input or structure (well-trained multidisciplinary personnel, motivation for quality improvement, validated standards, etc.); the process (responsiveness to patient needs and preferences, patients' right to dignity, client participation, empowerment, etc.); and the outcomes (effectiveness of care, patient satisfaction, etc.).

While information about quality can be produced for these three components, Brook, et al. (2000) forewarn that structural measures may not explain what has been done to the patient, while outcomes are only partially dependent on health services provided. Noting that healthcare organization that has better

processes would be in a better position to provide better outcomes, it would therefore be more meaningful to assessing processes in forming judgment of the service quality (Brook, et al., 2000).

In seeking to improve service quality and to ensure that a desirable quality level is attained, healthcare organisations need to devise a quality strategy which adopts an overall approach over a period of time. There are wide range of possible approaches which could be used to improve quality, these include increasing resources, undergoing large-scale reorganisation or financial reform, strengthening management, developing standards and guidelines, empowering patients and promoting their rights, adopting quality management system, engaging quality assessment and internal or external accreditation, pursuing total quality management and continuous quality improvement, forming quality collaboratives with other hospitals, re-engineering processes, adopting quality indicator comparison systems, internal and external benchmarking, and risk management (Øvretveit, 2003). Nevertheless, a thorough review of these approaches by Øvretveit (2003) concluded that while there is no conclusive evidence of effectiveness of any of these strategies, and that there is no evidence to suggest the most superior strategy that healthcare organisations should aim to adopt, there is an indication that the adoption of multiple strategies are more likely to be successful. The next section presents quality strategies involving the use of various quality achievement and management programmes that are commonly employed by healthcare organisations.

2.3 SERVICE QUALITY ACHIEVEMENT PROGRAMMES

Quality achievements in the healthcare industry have been widely used as reference points to guide both national and international patients when deciding their desired healthcare destinations. Quality management initiatives of TQM, ISO certifications and quality accreditations that are widely recognized at an international level are useful to address the quality concerns of patients, especially those who are travelling from abroad.

In this regard, the World Health Organization (WHO) is assuming an active leadership role in directing and coordinating quality of healthcare at a global

level. It not only shapes the quality research agenda, set norms and standards for quality healthcare practices, but also provides technical support to countries and monitors and assesses trends of quality of care worldwide. One of the many contributions by the WHO was the recent appointment of the International Society for Quality in Healthcare (ISQua) to undertake a global review of the quality and accreditation in health care services (WHO, 2003).

Nevertheless, a recent study by Shaw, et al. (2009) on 105 hospitals across 6 European countries has revealed a wide variation in the management of quality and safety in hospitals. While the large majority had a formal, documented infrastructure to manage quality and safety; basic systems are lacking in some hospitals; and exist in some others but are not functioning. Many hospitals that were surveyed revealed that the mission statements, plans, committees and systems were only evident on paper. These have largely constrained the quality systems from being effective in assuring the stakeholders, including patients, of quality and safety in these hospitals. It would therefore appear that tremendous effort is still required to promote and to manage the service quality in this industry in both developed and developing countries.

Through our observations, the initiatives undertaken by hospitals to pursue their quality strategies may include TQM and quality awards (national or international level); certifications by ISO 9000 standards; and accreditations by recognised institutions.

TQM and Quality Awards

Management approaches such as TQM is essential as it stresses on a systematic, integrated and consistent approach in managing all types of resources within an organisation. TQM has a clear customer focus in its practices and draws management attention on issues such as customer satisfaction and customer retention, and is coupled with a set of techniques and systems aimed at fostering continuous improvement throughout the organisation (Friedli, 1994). Consequently, the employment of more TQM methods in an organization has been found to lead to higher level of quality improvement (Sun, 1999).

To ensure successful implementation of TQM, organisations need to focus on the basic principles in leadership, commitment, total customer satisfaction, continuous improvement, total improvement, training and education, ownership, reward and recognition, error prevention, co-operation and teamwork (Ho, 1994). The TQM elements are more clearly elaborated through the development of quality and organizational excellence frameworks that usually lead to award recognitions (Sun, et al., 2004). Two of the most prominent frameworks that have received international recognition to benchmark TQM practices and achievement of results are the Malcolm Baldrige National Quality Award (MBNQA) Framework created in 1987 in the United States and the European Foundation for Quality Management's (EFQM) Excellence Model developed in 1988. Both these frameworks employ a self-assessment approach to evaluate the TQM programme in place. To illustrate this, a diagram showing the EFQM Excellence Model is presented in Figure 2.1. The excellence model is based on nine criteria, where five are "enablers" criteria which cover what an organisation does and the way these are being done, and four are "results" criteria which cover what an organisation achieves.

Figure 2.1   EFQM Excellence Model
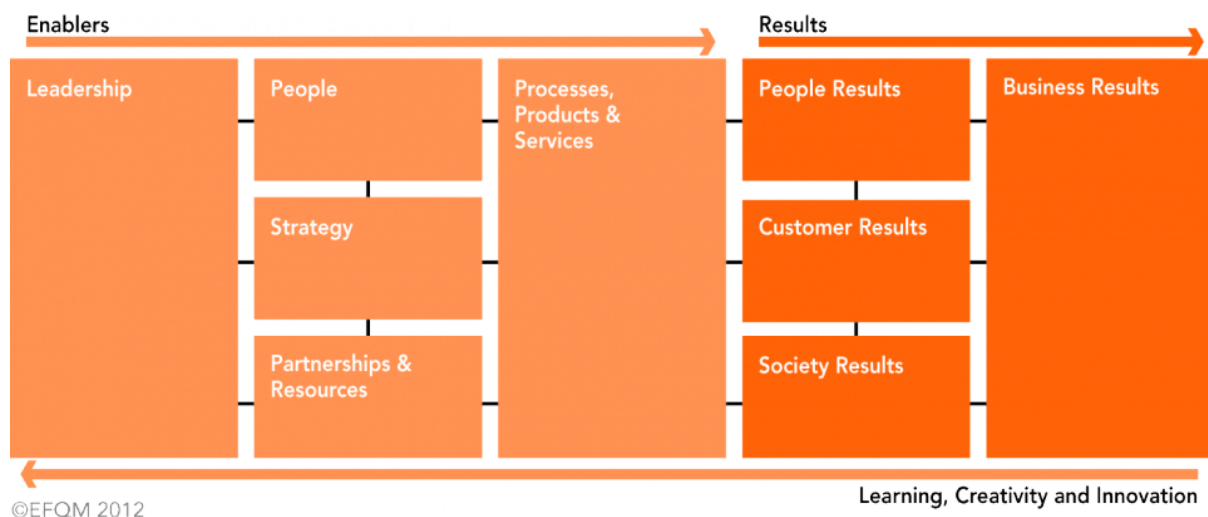
Source: www.efqm.org/efqm-model/model-criteria

The adoption of quality framework was found to differ in countries like Japan, USA, Canada and Europe (Laszlo, 1996). The quality models are also expected to differ at an organizational level so as to reflect a business model that integrates the quality concept with organisational concepts and managerial practices (Conti, 1997).

ISO 9000 family of Standards

The International Organisation for Standardization (ISO) has developed a series of standards, the ISO 9000 standards, to provide a guide to building a quality management system. Specifically, ISO 9000:2005 *Quality Management Systems – Fundamentals and Vocabulary*, ISO 9001:2008 *Quality Management Systems – Requirements*, and ISO 9004:2009 *Managing for the Sustained Success of An Organisation – A Quality Management Approach*. ISO 9000: 2005 has laid down the eight quality management principles that organisations should apply to improve their organisational performance. These principles are: customer focus; leadership; involvement of people; process approach; system approach to management; continual improvement; factual approach to decision making; and mutually beneficial supplier relationships.

Sun (1999) purported that ISO standards are helpful to organisations in building a quality management system effectively regardless of organisation's intention to seek certification. However, review of existing literature suggests that there is lack of general agreement as to how ISO 9000 standards and TQM are related, and theories providing a clear understanding of their complementary nature remain lacking (Taylor, 1995). The causal relationship of the influence of ISO 9000 on the implementation of TQM programme, and vice versa, is also unclear (Sun, 2000).

Some researchers suggest considerable complementarities between ISO 9000 and TQM (McAdam and Jackson, 2002). As such, both these initiatives should co-exist to contribute to quality improvement (Sun, 1999) and be completely and systematically implemented and integrated in an organization (Sun, 2000). Some other researchers however are of the opinion that quality management system proposed by ISO 9000 is a necessary foundation for other quality

methods in TQM (Sun, 1999; Taylor, 1995). Thus, implementation of ISO 9000 should be the first step towards TQM adoption (Bradley, 1994; Russell, 2000; Sun, 1999) and organisations should go further from ISO 9000 certification to adopt TQM (Ho, 1994; Kanji, 1998; Sun, 2000). By integrating the ISO 9000 procedures with the philosophy and methods, the human resource development and strategic management in TQM, organisations would be able to reap greater benefits from their quality initiatives (Sun, 2000).

According to Sun (1999), despite the fact that organization may not always implement ISO 9000 and TQM in parallel with each other, and regardless of the different patterns of implementation, i.e. TQM-then-ISO, ISO-then-TQM, or a balanced path, the implementation patterns are expected to be moving towards a paradigm where there is a proper combination of high-TQM and high-ISO implementation in an organisation.

Accreditations

Accreditations typically involves organisation as the object of evaluation. Accreditation is normally voluntary and involves a process where organisations are assessed for compliance with published standards and on-site evaluations. The accreditation standards are set at a maximum achievable level to stimulate improvement over time (Roa and Rooney, 1999). In that respect, the internationally recognised Joint Commission International (JCI) Accreditation has organised its standards according to patient care functions and management functions. Standards on patient care functions include access to care and continuity of care; patient and family rights; assessment of patients; care of patients; patient and family education. Meanwhile, standards on management functions include quality management and improvement; governance, leadership and direction; facility management and safety; staff qualification and education; management of information; and prevention and control of infections (Roa and Rooney, 1999). Accreditation bodies at national level have been established in many parts of the world. A review by Montagu (2003) reported that nearly three quarter of the national accreditation programmes have their standards

influenced by models adopted in developed countries such as USA, Canada and Australia.

2.4   SERVICE QUALITY INITIATIVES – BEHIND THE LABELS

While hospitals may adopt different or multiple types of service quality achievement programmes, research has warned that adoption and implementation of such quality programmes must not be taken at its face value. For instance, Askey and Dale (1994) found that managers tend to revert to their traditional practices in managing activities after gaining certification. Also, Øvretveit and Gustafson (2002) summarised extant research that conducted non-systematic reviews of hospital quality programmes, and concluded that the label given to a quality programme such as TQM should not be regarded as a guide to the activities that were being actually carried out. Also, quality programmes that carry the same label may be implemented in a very different manner in terms of their rates, coverage, and depth in the organisation (Øvretveit and Gustafson, 2002).

Ahire, et al. (1996) (p22) concluded that "it is not the implementation of a formal TQM campaign that matters. The real key to an effective quality management is how well a firm practices the various elements of the TQM philosophy represented by the ten constructs identified here". Furthermore, Ahire, et al. (1996) (p22) also "dispels the notion used by researchers for classifying firms as either TQM or non-TQM based on a simple yes or no response to a question of whether they have implemented TQM. In other words, firms should be classified in careful evaluation of the extent to which they have embraced the TQM philosophy. This will provide an accurate analysis of how adoption of the TQM philosophy can help organisations to improve their quality performance."

Consequently, this study is motivated to look beyond the various "labels" of quality initiatives and gain insights of the service quality that are being applied by the hospitals. In looking beyond the "labels" of quality implementation, this study seeks to explore issues such as whether more quality achievements would lead to better quality implementation; whether specific dimensions of quality are

particularly advanced in implementation following a quality achievement; whether any quality dimensions have been more effectively implemented to give favourable organisational performance.

This study draws on the general systems theory (Von Bertalanffy, 1972) which explains that systems comprise of autonomous yet interdependent parts that mutually interact to create a self-directing whole, which is equally autonomous. Hence, it is essential to understand quality implementation by understanding the implementation of the specific quality aspects that make the quality system as a whole.

2.5   SERVICE QUALITY INITIATIVE MATURITY (SQIM)

While the implementation of the different types of service quality initiatives provides a useful indication on efforts made by hospital management in pursuing their quality strategies, sound understanding of the maturity level of such initiatives would provide valuable insights into the strategic importance that management has placed on these initiatives.

This study adopts an operational definition for "implementing quality" as "the perceived maturity level of implementation of specific initiatives that are intended to provide functional quality of services, with a process orientation, in meeting patients' needs". The definition is terms as Service Quality Initiative Maturity, or SQIM.

Literature review shows various approaches to gauge the SQIM level in an organisation. Cooper and Zmud (1990) identifies adoption and implementation process into six stages, i.e. initiation; adoption; adaptation; acceptation; routinisation and integration. Wagner, et al. (1999) introduced a framework on developmental stage of quality systems in healthcare. The framework identifies four stages of development, namely orientation and awareness that change is necessary; planning and preparation for change; implementation of projects; and organisation-wide implementation and establishment of the innovation. Makai, at el. (2009) adopted the work of Wagner, et al. (1999) and refined the framework for quality management developmental stages and introduced the

stages as orientation and awareness; preparation; experimentation; and integration into business operation.

van der Wiele, et al. (2001) introduced an alternative perspective of appraising the developmental level of management initiatives. When assessing the extent to which corporate social responsibilities (CSR) are developed in an organisation, van der Wiele, et al. (2001) identifies four levels of scoring the development, i.e. whether the organisation uses ad hoc policy; standard policy that deals with minimum compliance; planned policy that enlightened self-interest; or evaluated and reviewed policy that is proactive.

Sower, et al. (2007b) proposed the use of factual information to gauge quality system maturity. Their work has referred to the ANSI/ISO/ASQ Q9004-2000 performance maturity level classification system (ASQ, 2000). The classification system identifies organisation's quality management approaches into having "no formal approach"; having a "reactive approach"; a "stable formal system approach"; a "continual improvement emphasized"; and" best-in-class performance". This study is inspired by the work of Sower, et al. (2007b) that uses factual information in assessing maturity level of SQ initiatives and will refer to the classification system in ANSI/ISO/ASQ Q9004-2000.

2.6 THE CASE OF MALAYSIA

Background

The Malaysian government has adopted a twin strategy for healthcare services in the country in view of the overwhelming demands. Since the 1980s, the healthcare industry is segmented into two parts, namely the private sector catering to a paying as well as foreign clientele, and the public sector for the others. Both these sectors are governed by the Ministry of Health (MOH) and have been receiving substantial support from the government (see Table 2.2).

Table 2.2   Financial Allocation

	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Total MOH Budget (RM)	16.9b	15.3b	13.7b	13b	11.2b	8.7b	7.9b	9b	7.6b	6.3b
Operating Budget (RM)	15b	11.7b	11.4b	10.7b	9.6b	7.4b	6.8b	6.4b	5.8b	4.9b
Development Budget (RM)	1.9b	3.6b	2.3b	2.2b	1.6b	1.3b	1.1b	2.6b	1.8b	1.4b
Per Capita Allocation (RM)	n/a	542	485	465	412	327	301	352	302	257
% of Total MOH Allocation to National Budget	7.3	8.0	6.6	7.3	7.0	6.3	6.7	8.0	6.9	6.3

Source: *Malaysia Health Facts*, www.moh.gov.my/v/duk

While there is heavy subsidy for the public healthcare sector, the private sector has also been benefiting from various supports including tax incentives such as the industrial building allowance for hospital buildings, exemption from service tax for expenses on medical advice and use of medical equipment, and tax deduction for expenses for pre-employment training. Table 2.3a and Table 2.3b show the comparisons of government support for healthcare services in some of the countries that are engaged in medical or health tourism.

Table 2.3a   General government expenditure on health as percentage of total expenditure on health

Country	2006	2005	2004	2003	2002
Argentina	45.5	43.9	45.3	52.2	50.2
Brazil	47.9	44.1	43.3	41.3	41.9
Costa Rica	76.1	76	76.7	78.4	78.1
Cuba	90.7	90.8	88.9	89.8	90
Hungary	70.8	70.8	70.5	71.3	70.2
India	19.6	19	17.7	18.5	19.1
Israel	65.3	66.5	67.9	69.1	69.1
Jordan	42	45.3	49.3	48.1	47.6
Lithuania	70	67.3	67.6	76	74.9
Malaysia	**45.2**	**44.8**	**50**	**56.4**	**55.4**
Philippines	39.6	36.6	38	38.2	40
Singapore	33.6	31.9	30	34	30.1
South Africa	41.9	41.7	40.6	40.1	40.6
Thailand	64.4	63.9	64.7	66.6	63.5

Source: World health statistics (www.who.int/whosis/data/Search.jsp), data from 2006 onwards were not available when viewed on 29/5/2013.

Table 2.3b   Total expenditure on health as percentage of gross domestic product

Country	2006	2005	2004	2003	2002
Argentina	10.1	10.2	9.6	8.3	8.9
Brazil	7.5	7.9	7.7	7.5	7.7
Costa Rica	7	7.1	6.7	7.3	7.3
Cuba	7.1	7.6	5.7	5.8	5.9
Hungary	7.6	7.8	8.1	8.3	7.6
India	4.9	5	4.9	4.8	4.8
Israel	7.8	7.8	8.1	8.2	8.3
Jordan	9.9	10.5	10.1	9.3	9.3
Lithuania	6.2	5.9	5.7	6.5	6.4
Malaysia	**4.3**	**4.2**	**4.5**	**4.7**	**3.5**
Philippines	3.3	3.2	3.3	3.3	3
Singapore	3.4	3.5	3.7	4.2	3.7
South Africa	8.6	8.7	8.5	8.4	8.3
Thailand	3.5	3.5	3.5	3.9	3.7

Source: World health statistics (www.who.int/whosis/data/Search.jsp), data from 2006 onwards were not available when viewed on 29/5/2013.

The strong encouragement from the Malaysian government, coupled with the growing demand from both the local and international market, has led the private sector to assume an increasing role in providing healthcare services for the country especially in the urban areas. The growth is evident in statistics shown in Table 2.4a and Table 2.4b below.

Table 2.4a   Health Facilities in Malaysia

	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Total Number of Private Hospitals, Maternity/Nursing Homes	**259**	**251**	**242**	**243**	**226**	**233**	**222**	**218**	**219**	**211**
Total Number of Beds in Private Hospitals, Maternity/Nursing Homes	**14,035**	**13,546**	**12,591**	**12,137**	**11,694**	**11,637**	**10,794**	**10,542**	**10,405**	**9 849**
Total Number of Government Hospitals	138	131	130	130	130	128	122	119	117	116
Total Number of Beds in Government Hospitals	38,394	33,211	33,083	33,004	32,149	30,969	30,021	28,966	28,633	29,068

Source: *Malaysia Health Facts* (www.moh.gov.my/MohPortal/health_fact.jsp)

Table 2.4b   Distribution of Hospitals in Malaysia, as at 31 Dec 2011

State	Private		Public (MOH)	
	Hospitals	**Beds**	Hospitals	Beds
Johor	**38**	**1084**	12	5,010
Kedah	**10**	**524**	9	2,314
Kelantan	**5**	**173**	9	1,652
Melaka	**4**	**813**	3	1,006
Negeri Sembilan	**10**	**484**	6	1,527
Pahang	**10**	**269**	10	1,996
Penang	**24**	**2,026**	6	1,930
Perak	**16**	**994**	15	5,670
Perlis	**1**	**2**	1	404
Sabah	**7**	**277**	24	4,446
Sarawak	**17**	**621**	22	3,614
Selangor	**67**	**3,627**	11	4,719
Terengganu	**3**	**30**	6	1,372
W.P. Kuala Lumpur	**47**	**3,111**	2	2,347
W.P. Labuan	**0**	**0**	1	109
W.P. Putrajaya	**0**	**0**	1	278
Total	**259**	**14,035**	138	38,394

Source: Ministry of Health Malaysia (2012) *Health Indicators*,
www.moh.gov.my/images/gallery/publications/md/hi/hi_2012.pdf

Statistics estimated by World Tourism Organization show that numbers of individuals engaged in healthcare tourism have increased by 32% between 2005 and 2010. The revenue, on the other hand, has increased by 42% to US$728.7b in 2010. Among the continents, Europe will remain the top destination with a market share of 52.4%, followed by Asia-Pacific (20.4%), America (18.9%) and Africa (4.7%) (Carrera and Bridges, 2006).

According to website surveys, Malaysia has found herself the world's top 10 retirement haven in 2007 (corporate.tourism.gov.my). The country was among the world's top 5 health tourism destinations in 2008 (corporate.tourism.gov.my) and was ranked second in the Best Havens for Quality Care Overseas in the 2013 Health Care Survey by the *International Living* magazine (internationalliving.com).

In fact, health tourism in Malaysia has emerged as one of the integral contributors of the country's economic growth over the past decade, with the number of healthcare travellers steadily increasing over the past 5 years, doubling from 341,288 in 2007 to 671,727 in 2012 (Malaysia Healthcare Travel Council, mhtc.org.my/en/statistics.aspx#, viewed on 29/5/2013). In 2010, about 400,000 health tourists travelled to Malaysia, generating over RM380m in

revenue (*Inside Malaysia*, July 2012, etp.pemandu.gov.my/upload/Inside%20Investor%20-%20Healthcare.pdf). A good majority of its visiting patients coming from Indonesia (72%), Singapore (10%), Japan (5%), Europe (3%) and India (3%) and others (7%) (The Star, 14/2/09). The government has targeted health tourism as one of the prime growth factors of the country. The 9th Malaysia Plan (2006-2010) reported that in 2005 health tourism accounted for 5% of total health expenditure, and more than 10% of private health expenditure.

One of the main drivers for such overwhelming demand from tourist patients of around the world coming to Malaysia to seek either medical or preventive treatments was the country's healthcare system that has demonstrated an overall remarkable performance by the standards of the World Health Organization (WHO) has been. Also, Malaysia offers good infrastructure and other supporting facilities at cost levels that are reasonably competitive (World Economic Forum, 2009). For instance, a heart bypass may cost $130K in US, $16.5K in Singapore, $12K in Malaysia and $11K in Thailand (wellnessvisit.com/procedures.php).

Motivated by the reputable image for modern healthcare amenities, efficiency and quality for healthcare services in the private healthcare sector, the Malaysian government has identified the private healthcare sector as the key service provider to tap into the global market share of healthcare tourism. To support the promotion of this service sector, the Ministry of Health has set up a health travel council to work in tandem with the Economic Planning Unit, government agencies and the Association of Private Hospitals in Malaysia. Commitment from government to support the development of health tourism is also evidenced in the announcement of the Economic Transformation Programme (etp.pemandu.gov.my/). Under the programme, the healthcare NKEA (National Key Economic Areas) aims to grow three subsectors, including health travel. There will be entry point projects to create a differentiated position for the country, to broaden the customer base beyond Indonesia, and to attract more foreign patients for secondary and tertiary care in Malaysia.

The quality issue

At a national level, the government has a strong commitment in supporting quality healthcare services. The MOH has set up an institutional framework for quality assurance via the implementation of quality assurance programmes and accrediting hospitals. The Ministry requires that all private medical centres be licensed for operation. In addition, the entrance of international hospitals such as Parkway and Columbia Pacific/Asia which began to operate in the local market has provided a good benchmark for the international service standards and quality. To ensure an effective management of service quality in the industry, the Ministry is currently working with the Association of Private Hospitals of Malaysia (APHM) in identifying and granting 35 private hospitals[1] with "health tourism status" (*this is more comprehensive than the status previously known as "medical tourism", since health tourism include both medical and preventive treatments*) as one of the means to assure quality of care for the medical tourists from abroad.

The Ministry has formalized the Quality Assurance Programme (QAP) in 1985. Since then, regular quality assurance (QA) training programmes are conducted at both the national and state levels. Databases are also compiled and maintained for the QA projects and trained personnel. Additionally, a National Patient Safety Council was established to provide advices to the Ministry on national strategies for patient safety. In 1998, the Ministry published a strategic plan for Quality in Health. As a continuous effort, the 8th Malaysia Plan (2001-2005) concentrated on improving the quality of public health and curative services, the 9th Malaysia Plan (2006–2010) aimed to improve human resources in the services. The MOH Strategic Plan 2006-2010 has announced a high priority to quality health care services (MOH, 2008). The *Country Health Plan* announced under the 10th Malaysia Plan (2011-2013) is aiming to ensure sound clinical governance in the private sector.

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[1] Source: www.hospitals-malaysia.org/portal/index.asp?menuid=42, viewed on 8 May 2011. The number of health tourism hospitals has increased to 41 when viewed on 20 May 2015 on the same web link.

The enforcement of the Private Healthcare Facilities and Services Act (PHFSA) 1998 and its regulations in May 2006 has further demonstrated the Ministry's commitment to quality services in private hospitals. The Act serves to, firstly, ensure private healthcare providers charge affordable fees to users, and secondly, to rate private hospitals based on their facilities and services. In order to effectively monitor the growth, the Corporate Department of the Ministry of Health (MOH) has begun to compile relevant information pertaining to the provision of healthcare, for example, the number of foreign in-patients and out-patients, revenue generated from the treatments and patients' home countries.

At a firm level, many hospitals in the country have carried out numerous quality improvement initiatives such as ISO 9000 certification, hospital infection control, practice guidelines and patient satisfaction surveys. To ensure that patient care is provided in a safe environment in line with professional and ethical practice, some hospitals have also subscribe to the Hospital Accreditation Programme managed by the Malaysian Society for Quality of Health (MSQH). There are also hospitals that have sought accreditation from the Joint Commission International (JCI) with a clear focus on improving patient safety.

A cursory review of hospital website of 17 private hospitals, which have been identified as providers of health tourism, i.e. the Health Tourism Hospital Destinations, henceforth the HTHDs, shows that, over the past decade, 15 of them have been accredited by the MSQH and 13 have been certified with ISO 9000 for their service quality. A good majority of these hospitals have received both MSQH and ISO recognitions. Table 2.5 shows the quality certification and accreditation by private hospitals.

Detailed information on the various service quality initiatives that individual HTHD pursued, and the implementation level in the corresponding service quality initiatives, is understandably not made available in the websites. Also, there is yet any published work on the level of quality implementations in the Malaysian healthcare organisations. Hence, knowledge on quality initiatives beyond the labels of quality achievements such as JCI, MSQH and ISO are sparse and warrant investigations.

Table 2.5. Quality certification and accreditation in HTHDs

	Private Hospitals grouped by year of quality initiatives	Type of Quality Achievement Programmes	Location of Operation
	2000-2002		
1	Ampang Puteri Specialist Hospital (KPJ)	MSQH; ISO 9002	Selangor
	2003-2005		
2	Gleneagles Intan Medical Centre	MSQH; ISO 9002; JCI[#1]	WP KL
3	Ipoh Specialist Hospital	MSQH; ISO 9001:2000	Pahang
4	Damansara Specialist Hospital	MSQH; ISO 9001:2000	Selangor
5	Sime Darby Medical Centre Subang Jaya	MSQH; ISO 9001:2000; JCI[#2]	Selangor
6	Sunway Medical Centre	MSQH; ISO 9001:2000	Selangor
7	Johor Specialist Hospital	MSQH; ISO 9001:2000	Johor
	2006-2008		
8	Loh Guan Lye Spec. Centre	MSQH; ISO 9001:2000	Penang
9	Selangor Medical Centre	MSQH; ISO 9001:2000	Selangor
10	Pantai Hospital Ayer Keroh	MSQH	Melaka
11	Mahkota Medical Centre	MSQH	Melaka
12	Penang Adventist Hospital	MSQH; JCI	Penang
13	Prince Court Medical Centre	MSQH; JCI	WP KL
	2009 - 2011		
14	Pantai Hospital KL	MSQH; ISO 9000:2008; JCI	WP KL
15	Sentosa Medical Centre S/Bhd	ISO 9001:2008	WP KL
16	Island Hospital	ISO 9001:2008	P Pinang
17	Institut Jantung Negara (National Heart Institute)	MSQH; ISO 9000; JCI	WP KL

Notes:

[#1] Accredited by JCI in year 2010.
[#2] Accredited by JCI in year 2009.

Nevertheless, it was noted that the resources required – in terms of both financial and time investments – to implement the quality programmes within organisations vary from programme to programme. For instance, in seeking ISO 9001 certification, the resources would depend on the approach that an organisation is seeking registration (http://the9000store.com). The organisation has an option of using a self-help approach and starting from scratch, thereby having to invest considerable time to create the requited documents and to cater for training. Alternatively, it may wish to adopt documentation templates and training programmes that are already made available to implement in-house using self-help. Another option would be to engage an ISO consultant to take the lead on completing the entire process. The last option is understandably the most expensive option that may range between $5,000 and $50,000.

The costs would involve contracting a Registrar (including auditor's fees, application fee, registration fee, certification and surveillance audits); internal costs of the organisation (including familiarisation with the standards, gap analysis, staff training, system documentation and implementation); and possibly fees payable to external consultants and tools such as software. The actual cost of registration is dependent on the size and complexity of the organisation, and whether it has already put in place some components of quality management system that contribute to the registration. For example, an organisation that has 101 to 250 staff, with no quality system in place as yet, would need to estimate around $25,000 to engage an external consultant and having its staff to spend around 256 hours on the registration (http://the9000store.com).

For organisation (outside of the USA) seeking the JCI accreditation, it would need to incur costs to cover the fees for mock survey and actual survey, consultancy fees, surveyors' air fares, accommodation and allowance, and educational updates. The range of cost is difficult to establish and there is no publicly available information on this. As a rough indication, a hospital in India was known to have spent around $100,000 in addition to the infrastructure upgrading work arising from the accreditation. Meanwhile, hospitals in Turkey were known to have spent around $500,000 to get their first JCI accreditation completed (http://joint-commission.blogspot.my, February 10, 2008).

As in JCI accreditation, the range of cost involved in MSQH accreditation is also largely difficult to establish and such cost information is not publicly accessible. However, there is notable amount of efforts and time cost involved for organisations seeking for the MSQH accreditation (www.msqh.com.my). The organisation must undergo a special accreditation training conducted by MSQH trainers and it is expected to conduct multiple self-assessments until it is substantially complying with the accreditation standards. Organisation that is ready for accreditation survey would submit an application for the survey. Upon successful application, the organisation is advised on steps that must be taken for training, education, organisational development and self-assessment that must take place prior to the actual survey. The organisation will also be informed about the costs that is specifically related to preparing for a survey applicable to itself (www.msqh.com.my).

2.7 SUMMARY

This chapter reviewed extant literature on service quality and the current initiatives in healthcare organisations. The different types of quality achievement programmes were discussed, and the approaches available to gauge the implementation level of quality initiatives were explained. Following that, the Malaysian health tourism sector was reviewed with particular focus on the health care providers in terms of their quality achievement programmes and the implementation of quality initiatives. The review of literature and the current industrial practice have pointed that little knowledge is available, especially in the healthcare context and in developing countries such as Malaysia, to provide understanding on efforts to manage service quality beyond the labels of quality achievements. Informed by such observations, this study seeks to understand the detailed elements that resides within the quality achievements programmes, and then to examine the extent to which these organisations implement initiatives that promotes service quality management. A more thorough literature review to justify this intention is presented in Chapter 5 (section 5.3). The next chapter reviews existing literature on management accounting practices.

CHAPTER 3   MANAGEMENT ACCOUNTING PRACTICES (MAPS)

According to the International Management Accounting Practice Statement No. 1 (IMAPS 1) *Management Accounting Concepts* issued by the International Federations of Accountants in 1998 (IFAC, 2002), management accounting refers to "that part of the management process which is focused on organisational resource use – to managerial processes and technologies that are focused on adding value to organisations by attaining the effective use of resources – in dynamic and competitive contexts" (p.9). In this regard, management process is regarded as the process that involves the "establishing of organisational directions in terms of objectives and strategies; aligning organisational structures, processes and systems to support established directions; securing the commitment at a requisite level of those contributing essential skills and effort; and instituting controls that will guide an organisation's progress towards the realisation of its strategies and objectives" (p.10).

Langfield-Smith, et al. (2006) further elaborated management accounting as "the process and techniques that focus on the effective and efficient use of organisational resources to support managers in their tasks of enhancing both customer value and shareholder value" (p.6). Extending from this definition, a management accounting systems can be seen as part of a wider management information system maintained by an organisation which specifically focuses on producing the information that managers would require when managing resources and creating value (Langfield-Smith, et al., 2006).

While the type of management accounting information provided by such systems may range widely according to managers' information needs and the types of resources that are being managed, it is important to ensure that the quality of information generated is of good quality. According to the economic models of decision-making, the provision of better quality information would result in improved resource allocation in conditions of uncertainty (Baines and Langfield-Smith, 2003). The provision of better quality information would also lead to effective managerial decisions, which in turn enhances the likelihood of positive organizational performance (Chenhall, 2003). Gupta (1987) further argued that

an organization's strategic information-processing capacity needs to adequately meet its needs as this would enable sound and timely decisions to emerge, and ultimately optimal performance to be delivered.

Hence, it may be argued that organisations require sound management accounting systems to provide them with up-to-date and relevant information which enables managers to arrive at informed business decisions, and to support them in enhancing both customer value and shareholder value. In this regard, it is important to note that the soundness of management accounting systems is dependent on the choice of accounting practices operating behind the systems.

This chapter presents the concept of management accounting practices and how such practices may be related to implementing quality management in organisations.

3.1   MANAGEMENT ACCOUNTING PRACTICES

According to IFAC (2002), management accounting practice (MAP) refers to "the inter-related set of management accounting perspectives, orientations to actions, deployments in management process, work technologies used, and functional arrangements used in the management process of organisations to ensure ongoing value creation through the efficient and effective use of resources" (p.17).

Literature has suggested numerous theories that provide understanding of MAP, its usage in organisations and the effect of such usage. Given that management accounting is a routine feature of organisational behaviour – such as preparing budgets, monitoring performance, producing reports – in many organisations, literature has adopted an institutional theory approach to view MAP as a set of institutionalised routine whereby it creates understandings of activities undertaken by organizations through a set of established accounting policies and procedures (Scapens, 1994). In this regard, Burns (2000) studied changes in accounting using the Old Institutional Economics and proposed accounting as an 'institution' that makes sense to certain social group.

Burns and Scapens (2000) use the concept of habits, routines and institutions to explain how MAP can turn into routines and become institutionalised. As organisations faces changes in environmental conditions, new accounting techniques and procedures get introduced into the system. These techniques and procedures will be adapted and modified to suit the new environmental conditions. Over time, through the process of institutionalisation these will evolve into being part of organisational activities (Scapens, 1994).

The institutional theory implies that when management accounting information is reported, users of the information may want to refer to such information when managing operational activities assigned to them. Over time, this information may be institutionalised in the organisation and become part of the organisational culture. Consequently, the types of MAPs adopted may facilitate the effective implementation of management initiatives such as the service quality initiatives.

In addition, the institutional theory approach also suggests that the institutionalised MAP is moulded by and impacts on other institutions in the organisational context. These may include business strategies, organisational policies, reporting, performance monitoring, and budget elaboration through clearly specified rules or procedures. For instance, Hoque (2003) suggested that the adoption of MAPs may in itself impact upon the effectiveness of quality practices.

In this regard, Macintosh and Scapens (1990) further argues that MAP provide an interpretive scheme for making sense of activities undertaken in organisations. The authors adopted Giddens (1984) conceptualisation of social structures and viewed MAP as a mechanism that is capable of generating actions. According to Giddens (1984), social structures generates human actions that are situated in specific time-space settings and are always linked to specific subjects. Such generative structures typically carry with them three structural properties, namely (1) the structure of significance which provide general interpretive schemes for people to interpret events and attach meanings to actions, hence supporting communications within organisations; (2) the structure of legitimation that provide norms to sanction certain forms of conduct; and (3) the structure of dominance that provide facilities for

management to exercise power. Appreciation of the assumption on these structural properties is essential to set the expectation on the potential role of MAP in facilitating business strategies such as quality management strategies.

The use of MAP may also me explained using the contingency theory. The contingency theory of organisations predicts that the relationship between the characteristics of an organisation and organisational performance is dependent upon specific contingent factors. According to this theory, the management accounting practices and systems cannot be universally appropriate, and processes and management accounting information systems must be devised to support strategic priorities in organisations (Johnson and Kaplan, 1987; Shank and Govindarajan, 1993). More specifically, the implementation of management control systems and adoption of MAPs must effectively support organisation's business strategy (Otley, 1992). A good match of organisation's environment, strategy, structures and systems may lead to high organisational performance (Govindarajan, 1988).

Literature has also adopted the resource-based view of the organisation (Barney, et al., 2001) to explain the impact of management accounting systems on organisational capabilities. According to this theory, organisations are viewed as bundles of resources and organisations that seek to gain competitive advantages would need to identify and use those resources that are valuable, rare, unique and non-substitutable. Organisational capabilities refer to those processes that organisations adopts to acquire or develop those important resources (Day, 1994). In this regard, these capabilities may be enhanced through the use of management accounting systems for both diagnostic and interactive purposes (Bisbe and Otley, 2004). According to Simons (1995) levers of control framework, the use of performance measurement systems for both these purposes would facilitate positive growth as it generates tension between predictable goal achievement and innovation.

3.2   CHARACTERISTICS OF MAP

In seeking to understand the characteristics of MAP, extant literature suggests that MAP may be classified according to its level of sophistication. For instance, Chenhall and Langfield-Smith (1998) suggest that MAPs typically encompass traditional techniques such as budgeting for planning and control, performance measures for responsibility centres, profit reporting for business divisions, and cost-volume-profit analysis for decision-making. MAPs may also include a variety of contemporary practices such as benchmarking, activity-based costing and management, balanced performance measures, team-based performance measures and strategic planning techniques.

Meanwhile, the International Federation of Accountants statement on *Management Accounting Concepts* (IFAC, 1998) has categorised MAP in accordance with its capability to provide managerial information for planning, controlling and decision-making in order to create value. In particular, a given MAP may be categorised into four capability levels (IFAC, 1998) as described below.

(1)   Cost determination and financial control

MAP in this category primarily focuses on determining the cost of product which is largely driven by the use of direct labour. The focus on product costs was supplemented by budgets and the financial control of the production processes which are relatively simplistic and labour intensive. Budgeting and cost accounting technologies were some of the prevalent practices in this category. MAPs in this category were typically developed before the 1950s.

(2)   Provision of information for planning and control

MAP in this category focus on provision of information for planning and control purposes. This involves staff support to the line management through the use of technologies for decision analysis and responsibility accounting. MAPs in this category were typically developed in the 1960s.

(3) Reduction of waste in business resources

MAP in this category focus on the use of process analysis and cost management technologies in providing information to support managers and employees who have been empowered with varied responsibility at all levels of the organisations. The use of MAP reflects the information needs of organisations in meeting increasing global competition. The introduction of new management and production techniques, and the need to control cost levels through reduction of waste in resources, in both financial and real terms, deployed in the processes were some of the drivers that shape the MAPs in this category which were typically developed in the 1980s.

(4) Creation of value through effective resource use.

MAP in this category focus on meeting intensive global competition via the creation of customer value, shareholder value and organisational innovation through the leveraging of resources and the use of information processing technologies. MAPs in this category were typically developed in the 1990s.

According to IFAC (1998), MAP in Categories 3 and 4 are seen as an integral part of the management process, since the use of resources and real time information becomes available to management in supporting them to create value for the organisation. In attempting to gain and maintain a competitive advantage, organisations need to make strategic decisions as part of the strategic management process.

To support the strategic management activities, MAP would need to take a higher order and provide both financial and non-financial information to assist management in developing and evaluating competitive strategies and monitoring and assessing progress towards such strategies. The focus of *strategic management accounting* is broader than the traditional approach to management accounting. It takes an external oriented approach and is largely customer centric.

According to Roslender and Hart (2003), strategic management accounting is a generic approach to accounting for strategic positioning, and is defined by an attempt to integrate insights from management accounting and marketing management within a strategic management framework. Meanwhile, Tomkins and Carr (1996) offers a conceptual framework to describe strategic management accounting in the context of strategic investment decisions. See Figure 3.1 for the framework. According to the researchers, management accounting is required to take a strategic approach in supporting such decisions. More specifically, it needs to be capable of assessing both the customer requirements and the capacity of rivals to deliver them; conduct attribute analysis to identify investment possibilities for delivering specific product or service attributes; analyse the value chain by means of which such attributes can be delivered; conducting detailed analysis of the activities required to deliver all the required attributes; and determining the potential of the planned value chain activity in delivering the desired level of profits. In the event that the desired profit is not possible, then strategic management accounting needs to support further analysis on improving the efficiency of the delivery systems through identifying non-value added activities and removing them, refining the volume of high-cost cost drivers, or employing cost of quality routines to remove inefficiency. Meanwhile, strategic management accounting may also support further analysis on the possibility of re-engineering any part of the value chain in order to deliver the attributes more effectively.

Amongst the strategic management accounting practices, the contemporary performance measurement systems has been frequently discussed in the literature, for instance in Ittner, et al. (2003) and in Davis and Albright (2004), as the tool that facilitates strategy implementaton and enhances organisational performance. According to Ittner, et al. (2003), contemporary performance measurement systems provides the information in both financial and non-financial terms that enables the organisation to identify the strategies which offer the highest potential to align its management processes and to achieve its objectives. Franco-Santos, et al. (2012) further illustrates that a contemporary performance measurement system is a system that uses both financial and non-financial performance measures to operationalise strategic objectives. According to Franco-Santos, et al. (2012), it is assumed that such systems evaluate

performance for either informational or motivational purposes. It is further assumed that the systems involves specific measure design, data capture and information provision processes, where the processes may range from simplistic data collection and analysis method using Excel to more sophisticated information system working on enterprise resource planning platforms. Some popular examples of contemporary performance measurement systems include systems based on the Balanced Scorecard (Kaplan and Norton, 1992, 2001, 2007) and any systems that employ multiple key performance indicators that are linked to the organisation's strategy.

Figure 3.1 A systematic formal analysis for strategic investment decisions
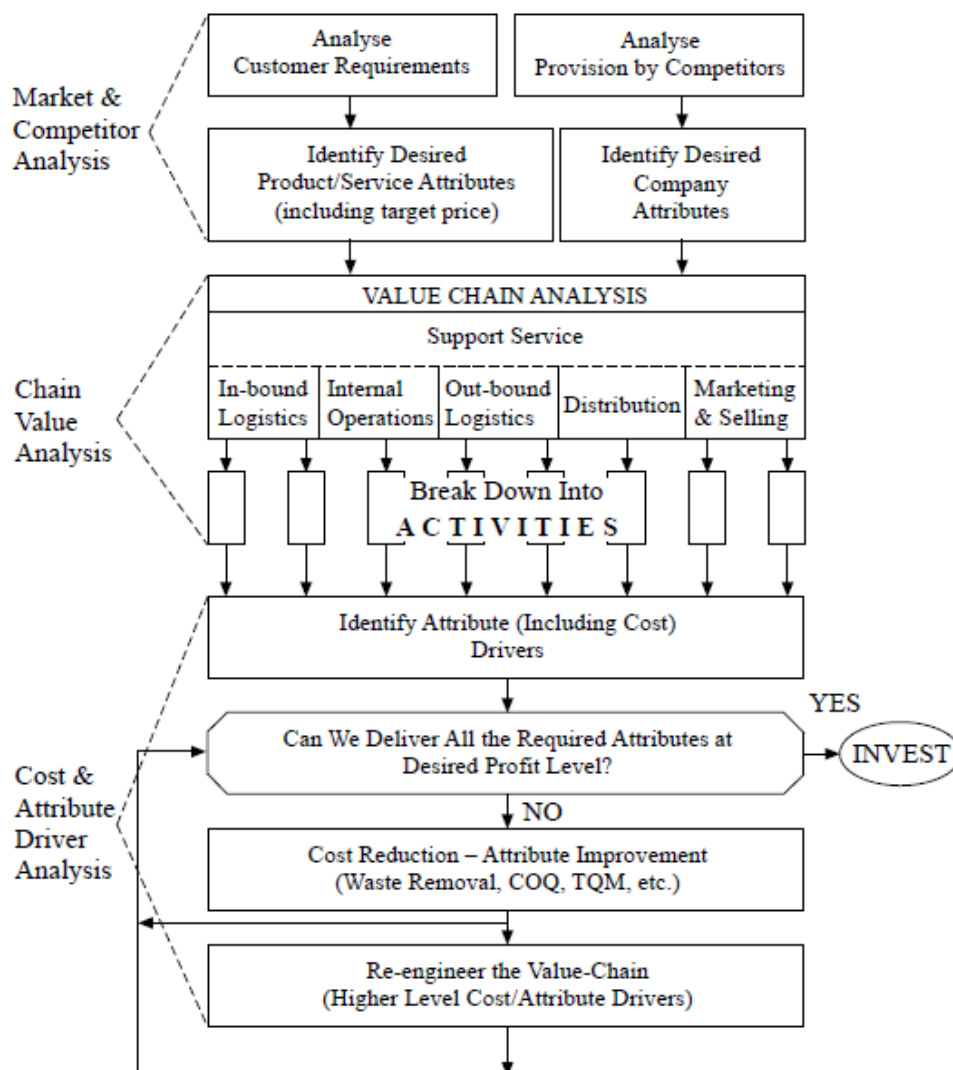
Adopted from Tomkins and Carr (1996)

Research has studied the impacts of contemporary performance measurement systems on organisational capabilities. Franco-Santos, et al. (2012) reviewed the existing literature and summaried the consequences as follows: (1) While the systems positively affect strategy processes, the degree of such effect is subject to the design, development and use of the system, the cognitive limitations of managers, and other specific characteristics of the systems; (2) The measurement systems were found to have direct effect on communication. That said, the system needs to be supported by two-way communications in order to encourage knowledge-sharing and generate trust within the organisation; (3) An appropriate balance between the diagnostic and the interactive uses of the measurement systems can encourage the development of strategic capabilities in organisation such as entrepreneurship and organisational learning; (4) The relationship between the systems and management practices is uncertain and are subject to moderating factors such as organisational culture, the way system is used, maturity of the system and its users; (5) The impact of the systems on corporate control is inconclusive and may depend on contextual factors such as environmental uncertainty and organisational culture.

The current study employs the categorisations presented by IFAC (1998) and views each category as a social structure that carries the structural properties as proposed by Giddens (1984) in the course of examining the potential role of MAP to support quality management. Additionally, motivated by MAP literature adopting the institutional theory approach in examining its adoption within an organisation, this study views that increased use of MAP would allow such practices to be institutionalised within the organisation. The next section presents the adoption of MAP in supporting organisations that pursue quality strategy.

3.3   MAP AND QUALITY MANAGEMENT

According to the "Juran trilogy" (Juran, 1986), managing for quality requires extensive use of three universal managerial processes, namely quality planning, quality control and quality improvement. See Table 3.1 for the activities involved

in each of these managerial processes. These quality processes are parallel to, and shares the same conceptual approach with, the typical financial processes underlying the financial management functions (Juran, 1999). Such similarities in the management approaches create useful synergy in managing for quality and finance. Table 3.2 outlines the financial parallels.

Table 3.1   Quality Processes in Juran Trilogy

Quality Planning	Quality Control	Quality Improvement
• Identify the external and internal customers • Determine customer needs • Develop product (goods or services) features according to customer needs • Establish quality goals that meet the needs of customers and suppliers, while aiming at a minimum combined cost • Develop a process capable of delivering the required product features • Prove process capability in meeting quality goals under operating conditions	• Identify and choose subjects to control • Choose appropriate unit of measurement • Establish the measurement • Establish standards of performance • Measure actual performance • Interpret the difference between actual and standard performance • Take action on the difference	• Prove the need for improvement • Identify specific projects for improvement • Organise to guide the projects • Organise for diagnosis to discover causes • Diagnose to find the causes • Provide remedies • Prove that the remedies are effective under operating conditions • Provide for control to hold the gains

Adopted from Juran (1986) "The Quality Trilogy".

Table 3.2   Financial Processes Supporting Juran Trilogy

Financial Planning	Financial Control	Financial Improvement
Prepares annual financial budget • Defines the deeds to be done next year • Translate the deeds into financial measures • Determines financial consequences of doing these deeds • Establish the financial goals for organisations and its sub-units	Encompasses cost control, expense control, inventory control, etc. • Evaluating the actual financial performance • Comparing actual financial performance with the financial goals • Taking action on the variances	Improving financial results • Cost-reduction projects • New facilities to improve productivities • New product development • Acquisitions and/or business alliances

Adopted from Juran (1999) The Quality Handbook.

Literature has further recognised that in an organisation that identifies quality as part of its strategy, the adoption of MAPs that have traditionally focus on the obvious measures of cost effectiveness and on financial accounting performance measures are unlikely to be sufficient in evaluating how processes are supporting strategies that are customer-focused (Shank, 1989). The decision to continue with the use of traditional management accounting systems must be made with caution as they can be a great obstacle to implementing Total Quality Management (TQM) and continuous improvement. For instance, the popular standard costing systems is concerned with the efficiency measures in terms of budget attainment. Such systems institutionalise waste and failed to reward non-financial performance (Shank and Govindarajan, 1993).

To facilitate quality initiatives, MAPs not only need to provide management with information leading to full understanding of the cost implications of their investment and decisions in delivering quality services (Ball, 2006), but also ensure that information that is available and adequate in (i) supporting strategy formulation and implementation, (ii) directing business improvement, (iii) increasing efficiencies, and (iv) enhancing capacity for value creation (Burns and Baldvinsdottir, 2007).

Quality practices are generally associated with more extensive use of non-traditional systems that emphasise more on team and non-financial performance, greater use of bottom-up data gathering process, and more frequent provision of quality related information to all levels of the organisation (Ittner and Larcker, 1995). Also, the TQM theory requires a continuous flow of information to the members of the organization who are actually performing the tasks. Management accounting information systems would thus be required to facilitate the flow of information pertaining to (i) process information that identifies the sources of defects and monitors the consequences of improvement activities; and (ii) information on strategic priorities, plans and goals that needs to be broadly communicated throughout the organization to align quality efforts (Ittner and Larcker, 1995).

In this respect, extant research has found that the design of management accounting systems and MAPs in organisations have changed to better facilitate the adoption of modern approaches such as the TQM (Chenhall, 1997; 2003;

Hoque and Alam, 1999). Carr, et al. (1997) has also confirmed that performance measurement and reporting systems in organisations that are certified for quality under the ISO standards are indeed more quality-oriented than those organisations that are not ISO-certified. Meanwhile, organisations that employ TQM are also found to emphasise more on the sophisticated MAPs (Abdel-Kader and Luther, 2008). More specifically, the role of MAP in developing adequate performance measurement systems has been emphasised in Chenhall and Langfield-Smith (2007). According to Chenhall and Langfield-Smith (2007), organisations aiming to achieve continuous improvement need to devise their performance measurement systems to include benchmarking and sound performance management systems such as balanced scorecards that is able to link between strategy and operations.

In view of the limited findings that explains how MAP may support quality strategy in organisations, much work is needed to research and theorise management accounting practices to provide support for practitioners in businesses generally and in a healthcare setting specifically. As pointed out in Malmi and Granlund (2009), work is needed for theorising MAP in explaining which MAP works (for instance simple vs. sophisticated cost allocations; reliance on financial vs. non-financial measures); how MAP is used (i.e. for decision-making or control purposes; at the top or bottom management level or throughout the whole hierarchy); and in which circumstances it is used.

Hence, this study aims to provide an understanding on the use of MAP in supporting organisation's strategies that are specifically related to service quality management. In this study, MAP is regarded as a social structure identified according to its capability to provide managerial information to create value which, with an increased use, may be institutionalised within the organisation to serve its intended purposes. Figure 3.2 presents the underlying theory of the current work.

Figure 3.2   Underlying theory for MAP in this study

Adopted from Burns and Scapens (2000)

3.4   SUMMARY

This chapter reviewed existing literature on management accounting practices in organisations with a focus on the pursuit of quality strategy. The concept of management accounting and its practices are explained, followed by its role in supporting service quality management. The review of literature has identified that while the adoption of MAP has developed to better facilitate quality intention in organisations, knowledge in the use of MAP to support quality strategy remain sparse, especially in the healthcare context and in developing countries such as Malaysia. Informed by such observations, this study seeks to understand the types of MAP that are currently used, and the extent of their use, in destination hospitals. This study further seeks to examine the role of the different MAPs in supporting these organisations to implement initiatives that promotes service quality management. A more thorough literature review to justify this intention is presented in Chapter 5 (section 5.5 to 5.7). The next chapter reviews existing literature on organisational performance.

CHAPTER 4   ORGANISATIONAL PERFORMANCE (PERF)

The performance of an organisation has been generally referred to as a measure of how successful the organisation has performed with regards to achieving its intended outcomes. A review of the literature by Strasser, et al. (1981) has identified performance as multifaceted and that it is "the degree to which organisations are attaining all the purposes they are supposed to" (p. 322). While the word "performance" has been frequently referred in the management studies, there seem to be somewhat ambiguous definition of such word in the literature (Lebas and Euske, 2007). This chapter presents the concept of organisational performance, its different perspective and the development of performance measurement from the traditional accounting discipline and from the non-accounting discipline of operations management.

4.1   CONCEPTUALISING ORGANISATIONAL PERFORMANCE

According to Lebas and Euske (2007), literature refers "performance" as a contextually dependent construct, where it may be interpreted to be equivalent to factors such as effectiveness, efficiency, competitiveness, cost reduction, value creation, long-term survival and growth. In this regard, Seashore and Yuchtman (1967) pointed out that the concepts of goals and goal attainment are not applicable to organisations. The authors examined the annual performance of 75 insurance sales agencies over 11 years using factor analysis methods. They found that the factors of performance represent continuing process of resource acquisition instead of representing stable goals of the organisations. Hence, organisational performance should be seen as an organisation's "ability to exploit its environments in the acquisition of scarce and valued resources to sustain its functioning" (p. 393).

In seeking a clear conceptual and operational definition of performance, a set of propositions have been outlined by Lebas and Euske (2007) as follows:

Proposition 1.   Performance is expressed as a set of indicators, quantitative or qualitative, that describe the process through which the targeted outcomes are achieved. The indicators are complementary and may even be contradictory;

Proposition 2.   The performance measures should not be mistaken for performance itself as the measures may only partially describe the performance;

Proposition 3.   Performance is dynamic and not a one-off event. It may be illustrated by using a causal model that describes how current business processes may lead to potential outcomes in the future;

Proposition 4.   The relevance of the causal model is to be continuously validated from both within and outside the organisation to reflect the rapidly changing markets and technologies;

Proposition 5.   Performance is a social construct which is defined by the user when referring to the signals of performance. It has no objective description and is subject to judgment and interpretation;

Proposition 6.   Performance may be understood differently by both the internal and external evaluators. The external evaluators view the operations within the organisation as a black box, while the internal evaluators view performance in conjunction with the other internal actors;

Proposition 7.   Performance must be associated with an area of responsibility. Such association provides the basis to understand the management of performance within an organisation;

Proposition 8.   Performance must be capable of being described and measured. This will in turn allow it to be communicated and actions taken upon;

Proposition 9.   Performance is a relative concept and requires judgement and interpretation. Performance would only be meaningful if taken as part of a comparison and with the key parameters of performance reviewed and decided by the users of information.

Based on Lebas and Euske (2007), performance is only meaningful within the context of decision-making and that the concept may not be generalised across decision makers. Consequently, performance would occur if there is an alignment of the decision-makers both within and outside the organisation.

Informed by the literature, the current study seeks to examine the performance of destination hospital in the areas that are of concerned to its management and the other stakeholder groups, which includes its patients and the regulatory bodies, following its efforts to implement a range of service quality initiatives and its supporting management accounting practices. The intention of this is to inform the effectiveness of such efforts and hence providing justifications for such investments.

4.2   OPERATIONALISING ORGANISATIONAL PERFORMANCE

Literature has attempted to operationalise performance in different ways. According to Franco-Santos, et al. (2012), organisational performance may be classified into two distinct groups, namely reported performance and perceived performance. Reported performance comprises of financial performance such as accounting performance and marketing performance, as well as non-financial performance reported in published documents such as the annual reports of organisations. While perceived performance may also include financial and non-financial aspects of organisational performance, such as performance outcomes

and performance improvement, it is drawn from the perception of the research participants rather than those being reported (Franco-Santos, et al., 2012).

In the marketing literature, Burton, et al. (2003) distinguished actual performance from perceived performance. According to Burton, et al. (2003), measures relating to actual performance are often available for managerial use on a continuous basis. Meanwhile, measures of perceived performance are often gathered less frequently and suffer time lag to allow for data collection, analysis and dissemination of such information (Burton, et al., 2003). While customers may estimate actual performance inaccurately (Hornik, 1984), the relationship between actual performance and perceived performance was found to be significant and positive though not highly correlated (Burton, et al., 2003).

While many research uses actual data to benefit from its objectivity and easy accessibility, some research have referred to the perception of survey respondents as a proxy for performance instead. For instance, Chenhall (1997) used perceived measure of performance to assess divisional profitability in a manufacturing setting in response to the reluctance of the chief managers to permit the disclosure of actual data relating to growth in assets and return on assets.

In the study by Chenhall (1997), respondents were requested to evaluate the performance of their divisions based on their own judgment and in comparison to industrial averages and comparable entities over the past three years. In another study conducted by Ittner and Larcker (1997) to assess the performance consequences of strategic control systems, the researchers referred to the perceived overall organisational performance alongside with actual financial performance. The objective was to capture any other financial or non-financial goals that may be important to the organisation.

Govindarajan and Fisher (1990) used perceived performance measures in their study of the effects of strategy, control systems and resource sharing on the performance of strategic business units. According to the researchers, objective performance measures offer limited value to the study. Given that different business units were pursuing different strategies aiming at different goals and priorities, the use of a common set of performance criteria would not be

meaningful. Also, the researchers found that it was impossible to identify objective performance measure that was able to assess some critical success factors of certain strategies. In some cases, objective data on performance for the industry in which the business unit operates were not available for comparison. Accordingly, the study required its respondents to rate the performance of their business-units relative to the corporate standards.

4.3 PERSPECTIVES OF PERFORMANCE

Given that organisational performance is unobservable by nature, a wide range of performance dimensions has been referred as indicators to gauge the outcomes of organisational activities. Commonly referred performance dimensions include accounting returns, stock market performance, operational performance and organisational growth.

In an attempt to seek clarification of organisational performance, Hamann, et al. (2013) has explored some 19 indicators used in around 5,000 US listed companies over a 21-years period. According to their construct validity study, there was evidence of four dimensions of organisational performance, namely stock market performance, growth, profitability and liquidity. According to Hamann, et al. (2013), the stock market performance dimension indicates the changes in the market perceptions of an organisation's value and the comparison between market value and book value. The growth dimension refers to changes in accounting outcomes and the size of organisations. Meanwhile, the profitability dimension indicates the efficiency of an organisation to utilise its resources to generate incomes, while the liquidity dimension refers to an organisation's ability to meet its financial obligations based on cash flows generated from its current operations.

In this regard, literature in quality management is in agreement with the view that organisational performance may be appraised from a range of different perspectives. Amongst these, reference to the financial perspective has been widely adopted in studies such as Lakhal, et al. (2006), Minkman, et al. (2007), Sower, et al. (2007b), Su, et al. (2008), Chung, et al. (2008), and many others. Performance indicators for the financial perspective include measures such as

profits, return on investment (ROI), market share, and so on. Meanwhile, a more comprehensive business performance including financial performance, operational performance, product quality (Terziovski, et al., 1997); and other perspectives that focus on customer satisfaction, employee morale, employee growth and market share growth has been adopted in the literature (Terziovski and Samson, 1999).

Recent studies have begun to look into more contemporary perspectives on performance such as innovation. Innovation performance refers to indicators such as the development of new product, service or process, creative capability and culture, and managing the learning of new ideas (Martinez-Costa and Martinez-Lorente, 2008; McAdam, et al., 1998; Thai Hoang, et al., 2006). Meanwhile, research has also begun to look at corporate social responsibility (CSR) as an important dimension of organisational performance, with performance indicators including fairness of practice, openness and transparency in activities, protection of stakeholders' interests, and so on (Ghobadian, et al., 2007; Hazlett, et al., 2007; van der Wiele, et al., 2001).

Informed by the literature, a more comprehensive evaluation of the varied perspectives of performance would be useful to provide insights on the extent to which an organisation has achieved its intended outcomes. Accordingly, this study seeks to examine the performance of the destination hospitals from multiple perspectives that are of typical concerns to its stakeholders, with the aim to gauge the effectiveness of implementing the quality initiatives and their supporting accounting practices, hence providing justifications for their investments

4.4   PERFORMANCE MEASURES

Following the literature review that organisations need to be monitoring and evaluating multiple perspectives of their performance, there is a need to have appropriate sets of performance measures to provide clear indications for the level of performance achieved by the organisations.

Performance measures have been traditionally developed by management accounting to support managers in planning and controlling their organisations.

These measures are typically financial measures that are aggregated, internally oriented and profit-based measures. The measures have had a long tradition of wide adoption in organisations to evaluate managerial and divisional performance. The use of return on investment is one such indicator referred to evaluate managerial operating efficiency.

Nevertheless, its adoption has also been criticised for introducing dysfunctional impact on decision-making. For instance, Johnson and Kaplan (1987) has highlighted the limitations of short-term financial measures and warned how they may be disconnected with the organisation's long-term goal. According to them, short-term financial measures such as profits and cost levels do not cater for changes in the business environment which is driven by shortened product life cycles, rapid technological changes, contemporary approaches to production operations and innovations. Johnson and Kaplan (1987) also pointed out that evaluating short term profit as an indicator of organisational performance is no longer a valid approach because the traditional accounting approach of applying the matching concept to treat revenues and costs are hindered by the increased capital intensity and decreased use of direct labour in the conversion process, as well as greater contribution from the employment of intangible resources and intellectual capital.

Johnson and Kaplan (1987) emphasised that an appropriate set of non-financial measures must be adopted to measure performance, and these measures must be careful selection based on the organisation's strategy. They further proposed that those organisations that focus their strategy on quality would need to measure quality indicators such as customer complaints, defect rates, scrap, rework and warranty calls, since these non-financial measures are better connected to the organisations long-term goals. In this regard, Bromwich and Bhimani (1989) further highlighted that in the new manufacturing environment that uses modern approaches such as just-in-time and advanced manufacturing technologies, performance measures need to evolve from the use of the traditional measures of labour productivity and standard cost variances to using measures that indicate quality performance, delivery time, machine performance and inventory reduction. Such evolution would put the performance measures in

a better position to assist decision-making and to facilitate organisational strategy.

The development of non-financial performance measures has received great attention more recently in view of the need of organisations to assess their performance from more than just a single financial oriented dimension. According to Chenhall and Langfield-Smith (2007), the non-accounting disciplines such as operations management, marketing management, human resource management and corporate strategy have contributed to the development of such measures which provide greater relevance to their specific domain and responsibilities.

Within the operations management discipline, management focuses on providing organisation with better competitive edge with the adoption of practices, such as total quality management, aim at achieving operating improvements via greater process efficiency and effective operational control. Hence, performance measures developed in this discipline are not only aiming to help management understanding the causes of costs and to control these causes, but also to assist management in identifying opportunities for process improvements and to differentiate activities that are value-adding from those that add no value to the organisations. Accordingly, Chenhall and Langfield-Smith (2007) remind that performance measures developed in this discipline could be taken at various levels ranging from a broad business-level to the more detailed activity-level, with a common focus to measure competitive position such as quality level of products and services.

4.5   SUMMARY

This chapter reviewed existing literature to conceptualise organisational performance and to appreciate the different perspectives of performance that organisations are commonly evaluated on. This chapter also presents the development of performance measurement from both traditional accounting discipline and non-accounting discipline of operations management. The review of literature has identified the growing trend in using multiple performance measures to provide a more comprehensive approach in assessing organisational

performance. Also, the measures for performance in the varied dimensions have been developed and adopted to aid performance evaluation in these areas. Informed by the literature, this study seeks to identify the key areas of performance applicable to the destination hospitals and to employ performance measures developed in the literature with the aim to evaluate these performance areas following the implementation of quality initiatives and supporting accounting practices in these organisations. A more thorough literature review to justify this intention is presented in Chapter 5 (section 5.4, 5.6 and 5.7). The next chapter presents the research model developed for this study and its justifications.

CHAPTER 5   RESEARCH MODEL AND JUSTIFICATIONS

5.1. INTRODUCTION

In the previous chapters, a review of literature pertaining to SQIM, MAP and PERF have been presented to provide useful background for this study. This chapter deals with the formulation of research models in this study, and their justification as informed by the literature. This is important not only in rationalizing the research agenda in this study, but also to highlight the specific knowledge gaps that would be addressed in this study. This chapter first explains motivation for this research and outlines the research questions together with their intended contributions. Following that, it provides detailed explanations on each of the research models formulated and their respective justifications.

5.2. RESEARCH MOTIVATION AND CONTRIBUTIONS

Private hospitals in Malaysia that used to only deal with local patients now have to extend their healthcare services to cater for patients from the global market. As part of the business sustainability measure, these organisations are aggressively gearing themselves up to deliver quality services and to demonstrate quality assurance on their services. Consequently, service quality strategies and implementation of the relevant initiatives have become critical for success in hospitals and the way forward.

Following the literature reviews presented in Chapter 2, 3 and 4, gaps has been identified and this study intend to address the gaps as shown in Figure 5.1.

This study builds on the basic concepts of SQIM, MAP and PERF presented in the earlier chapters, and aims to gain an understanding of the interplays among the three constructs, and to theorise the usage of MAP that would best support HTHDs in delivering high level of SQIM for better performance. The research questions, together with the intended contributions, are specified as follows.

Figure 5.1   Summary of gaps in the literature
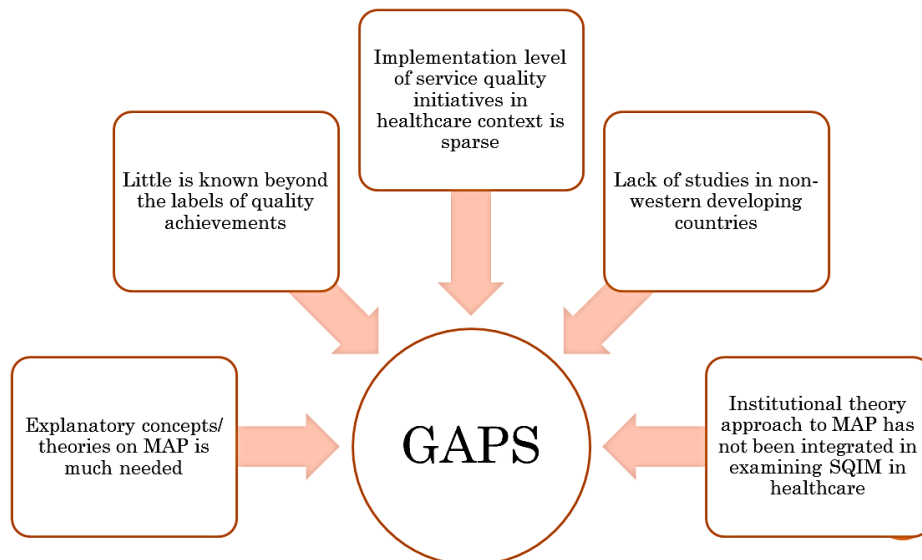
First, are there any differences in the SQIM levels in HTHDs that have obtained a certain type of quality accreditations or certifications (or combinations of these)? Given that the criteria of quality achievements are substantially addressed by the relevant management systems and initiatives, examining the level of SQIM implementation would provide a greater understanding on the scope and depth of quality implementation in these organisations. This analysis is important since there is a common tendency among the quality-endorsed HTHDs to have been seeking different, and is some cases, multiple quality achievements. Such practice brings about very practical managerial implications, since maintaining the different programmes may result in possible synergies, redundancy or even distraction in managing the expectations from stakeholders. This might in turn affect management execution and hence the SQIM implementation level actually attained. The analysis is useful in highlighting how the choice of programmes might affect SQIM level in the organization. The analysis would also shed some light on how well the different programmes complement each other in delivering specific areas of service quality initiatives that might be high in management priorities. Further, it may suggest possible selective implementation of SQIM following the choice of quality achievement programmes, thereby confirming whether the implementation is taking an integrative approach as suggested in the literature.

Second, what is the impact of SQIM implementation on PERF? The purpose of examining performance implication of SQIM implementation in HTHD was to highlight how HTHDs that had attained quality achievements have benefitted differentially from the use of the various elements or dimensions of the achievements. This knowledge is important to understand how SQIM implementation affects the different perspectives of PERF, thus providing some basis to gauge the effectiveness of implementation, and to assess the justifications for investments in SQIM. Such information would in turn enable HTHDs to make informed judgment and decisions when implementing SQIM with the objective to enhance its capacity to delivering service quality leading to better PERF and competitive edge in the health tourism industry.

Third, what is the direct impact of SQIM implementation on MAP? This model examines the relationship between the two constructs and their detailed dimensions in order to gain better understanding on the impact and significance of the relationships. Such knowledge would inform about the MAP usage that supports SQIM implementation, thereby suggesting the extent to which MAP usage is aligned with the intention for managing service quality. The analysis also highlights possible lags in MAP usage in the quality environment.

Fourth, what is the direct impact of MAP on PERF? This model examines the relationship between the two constructs and their detailed dimensions in order to gain greater insights on the impact and significance of the relationships. Such knowledge would inform about the PERF implication of using the different MAP, thus providing some basis to gauge the effectiveness of MAP usage and to identify room for improvement. Such information would in turn enable HTHD to make informed judgment and decisions when prioritizing and allocating resources for MAP adoption and usage.

Finally, the fifth question asks for the impact of SQIM implementation on PERF that is being mediated by increased use of MAP. It is crucial to understand how the implementation in SQIM that affects the different perspectives of PERF is being transmitted via given usage of MAP. This analysis would provide a framework for MAP to help HTHDs identify current MAP usage that are effective in facilitating their pursuance of specific dimensions of SQIM. Additionally, this analysis highlights potential lags in MAP usage that HTHD might wish to explore

in order to reap the benefits of such practices. Consequently, it would allow HTHD to earn a better capacity in delivering service quality and hence better PERF.

This section has presented the motivation and intended contribution of the current study. The next sections explain the proposed research models together with their justifications.

5.3. IMPLEMENTATION OF SQIM (H1)

Quality achievements are widely used as reference points to guide consumers in their buying decisions. Quality management initiatives of TQM, quality accreditations and ISO certifications are some of the popular tools to address quality concerns. In the HTHD, adoption of quality achievement programme has started since a decade ago and has been largely voluntary. The typical programmes that have been widely pursued include quality accreditations at national level (the MSQH accreditation) and international level (the JCI accreditation), and certifications based on the ISO 9000 quality standards. In many cases multiple programmes were adopted.

Such observation of the norm may be explained by the institution theory which attempts to describe homogeneity between organisations. According to Dimaggio (1983), in attempting to be more adaptive and responsive to uncertainties in the environment, institutions take into account other organisations and they tend to imitate the structure, process, norms and practices of those organisations that they perceived to be more successful. Hence, over time institutional isomorphism would occur when these institutions become similar.

Nevertheless, literature has warned about the potential shortcomings of merely differentiate adopters from the non-adopters as a reference point for service quality. For instance, in Askey and Dale (1994), a study on one UK-based medium-sized manufacturer revealed that management commitment that was apparent during the quality system development stage was found to have faded soon after the registration for ISO 9002, and has subsequently led to considerable difficulties in managing quality. Further, the management team was found to have lost their direction and motivation post registration because the

organization did not conduct the registration in the context of an overall quality management, and an overall TQM philosophy had not been developed.

Øvretveit (2002) took on similar view and pointed out that, due to reasons such as methodological difficulties, there has been little research evidence on the effectiveness, or the conditions for maximum effectiveness, of quality strategies and quality accreditations. Hence, quality programmes that carry the same label may be implemented at a different rate, scope and depth, and should not be taken at its face value.

Such concern is likely compounded in situations where a variety of quality programmes are adopted simultaneously. For instance, Krishnan, et al. (1993), studied a telecommunication company and found that there was little tangible progress when many different quality improvement programmes were implemented simultaneously, since there may be a variety of conflicting quality goals in place that may cause confusion among employees when executing several quality initiatives. Consequently, careful evaluation of the extent to which such initiatives have been implemented would provide meaningful insights to the quality programmes.

The study by Ahire, et al. (1996) has provided strong empirical support for this approach. In their study, manufacturing firms in a single industry was examined and the findings suggest that while TQM firms generally outperformed non-TQM firms in quality performance, within the TQM firm, rigorous execution of TQM initiatives would lead to better quality performance. Meanwhile, in non-TQM firm, the extent to which TQM initiatives are incorporated in its quality strategy would determine its quality performance. Ahire, et al. (1996) further noted that commitment from management towards quality would lead to a higher level of quality performance, regardless of the formalisation of TQM campaigns. Nevertheless, the study observed that the best quality performance was achieved through management commitment towards long term formal quality implementation.

Informed by the literature, this study seeks to study how well quality initiatives have been implemented in HTHD following the adoption of the quality achievement programmes of choice. This study examines the variety of SQIM constructs currently being implemented in HTHDs that have endorsed various

quality achievements. The analysis is important since there is a common tendency among these organisations to have been seeking different, and is some cases multiple, quality achievements. Such practices bring about very practical managerial implications, since maintaining the different quality achievement programmes may result in possible synergies, redundancy or even distraction in managing stakeholders' expectations. This might in turn affect management execution and hence the SQIM implementation level actually attained.

To provide meaningful insights to the adoptions, implementation level of SQIM would be carefully assessed. The scope of implementation would be defined by the common themes of quality initiatives that are currently required by the respective quality programmes. This approach would accommodate the adoption of multiple quality programmes in HTHD.

Also, this study seeks to analyse the implementation of the various constructs of SQIM instead of seeking an aggregated view. Drawing from the general systems theory (Von Bertalanffy, 1972), systems comprise of autonomous yet interdependent parts that mutually interact to create a self-directing whole, which is equally autonomous. In other words, system is the individual parts plus their interactions, and is shaped by the feedback and feedforward dynamics that exist among these parts. Hence, changes to one or more of the systems would cause changes to the other parts, and perhaps also throughout the systems comprising the organization (Von Bertalanffy, 1972). This study therefore argues that in order to understand SQIM implementation in HTHD as a whole, it would be useful to understand the implementation level of the specific SQIM constructs that make the quality system as a whole.

Literature has suggested the notion that quality management practices are interdependent, and that TQM is a holistic philosophy that requires simultaneous implementation of its key principles. For instance, Abrunhosa, et al. (2008) analysed the introduction of TQM in the Portuguese footwear industry and found high correlations among the elements of TQM principles, thereby providing evidence that the elements complement each other. In Kaynak (2003), a cross-sectional study in the US revealed that while there were some core TQM practices (e.g. supplier quality management, product designs, etc.) that have direct effect on firm performance, there were other TQM practices (e.g.

leadership, quality data reporting, etc.) that were affecting performance through the core TQM practices. Kaynak and Hartley (2008) provided empirical evidence from the US for the importance of internal and external integration of quality management practices to deliver quality performance. Sila and Ebrahimpour (2005) studied manufacturing companies in the US and found that TQM factors are holistic in that synergies must be created among them to achieve favourable business results.

Therefore, this study adopts the view that in building a quality culture in organisations, quality management initiatives and practices need to be implemented as an integrated system rather than as selective subsets. It argues that the nature of these dimensions, regardless of the types of quality programmes adopted, is autonomous yet interdependent in their implementations. Hence, effective implementation of all these dimensions in parallel is likely to provide leveraging effects, hence allowing a holistic approach to manage service quality in an organization.

This study hypothesises that HTHDs that have sought a certain type of quality achievement programmes (or combination) would demonstrate a different level of SQIM implementation. Test would be conducted for each of the dimensions SQIM as identified in the data preparation stage later. The analysis is useful in highlighting how the choice of quality achievement programmes might affect SQIM level in the organization. Also, this study would compare the implementation level of specific SQIM dimensions across the different type of quality achievement programmes. The analysis would identify whether SQIM implementation has been selective according to the choice of quality achievement programmes. Specifically, this study hypothesises that

H1 $SQIM_{1,2..s}$ level is higher in HTHDs that have obtained more types of quality achievement as compared to those HTHDs that have obtained less or no achievement.

where $SQIM_{1,2..s}$ denotes the different constructs of SQIM.

5.4. THE RELATIONSHIPS BETWEEN SQIM AND PERF (H2)

Quality management is a contemporary approach aimed at continuously improving organizational PERF. Consequently, the impact of quality management on organizational PERF has attracted much research interest over the last decades. Despite a strong theoretical argument that quality management contributes to organisational PERF, literature has produced somewhat mixed results.

Within the manufacturing setting, research work has provided support for the relationship between quality and PERF to be positive (Akgun, et al., 2014; Chenhall, 1997; De Cerio, 2003; Douglas and Judge, 2001; Hendricks and Singhal, 1997; Kaynak, 2003). In high-tech organisations, Kaynak (2005) found that high-performing organisations have implemented quality management more extensively than low-performing organisations. Nevertheless, research has also reported mixed or negative relationship (Benson, et al., 1991; Fynes and Voss, 2001; Phillips, et al., 1983; Samson and Terziovski, 1999; Saraph, et al., 1989; Sharma and Gadenne, 2002).

Meanwhile, in the service industries, Brah (2000) studied the service sector of Singapore and found that TQM implementation improves business PERF in the service sector, and that the rigor of its implementation matters rather than the duration of implementation. In the healthcare setting specifically, literature generally shows a positive relationship between SQIM implementation and organisational PERF (Jackson, 2001; Shortell, et al., 1995; Weiner, et al., 2006). Positive relationship between quality management and service quality performance was also reported (Li, 1997; Prajogo, 2005). As in the manufacturing setting, negative and mixed relationships were also reported between SQIM and PERF (Harteloh, 2003; Kunkel and Westerling, 2006; Kunst and Lemmink, 2000; Raju and Lonial, 2002; Shortell, et al., 1995; van Harten, et al., 2002).

The continuing debate on quality-PERF link has also been evidenced in meta-analysis (Nair, 2006). The mixed results reported were probably due to the nature of the research designs employed. Nevertheless, the lack of systematic evidence on the quality-PERF link motivates further investigation, hence this study, to gain insights on the relationship for the contexts of interest.

In spite of the inconsistencies in findings, review of the literature for instance the works of De Cerio (2003) and Ebrahimi and Sadeghi (2013) have provided a general indication that effective quality management implementation would lead to significant improvements in PERF. Sun (2000) emphasised that most quality management practices contribute business PERF. Such improvement in PERF could be derived from quality programmes based on both the TQM and ISO 9000 programmes (Martínez-Costa, et al., 2008). There is also empirical evidence that quality is critical to achieve long-term competitive advantage (Zhang and Xia, 2013). Based on a study of quality award-winning organisations across the industries, Zhang and Xia (2013) found that organisations that continuously improve their quality have continued to benefit from better financial PERF that supersede those of their competitors.

In addition to studying SQIM implementation as a whole, some research has reported the performance implications of implementing some specific SQIM dimensions. Samson and Terziovski (1999) studied large manufacturing companies in Australia and New Zealand and found a mixed relationship between quality factors and organisational PERF. The relationship is positive with specific dimensions relating to customer focus, leadership, people management, but negative with information and analysis. There is no relationship with process management and strategic planning. In a meta-analysis of the quality-PERF relationship, Nair (2006) reported that positive relationships exist between PERF and quality dimensions relating to customer focus, process management and quality data analysis.

Specifically, customer focus was found to be having no direct or indirect effects on business results in manufacturing companies in the U.S. (Sila and Ebrahimpour, 2005). This may be explained by the argument from Wright and Snell (2002) that merely having a customer focus and acquiring customers may not be sufficient for business success, since bad experience with the products or services, or new entrants to the market may easily lead to a loss of customers. To address the issue, organisations may consider using customer loyalty and retention programmes to mediate the relationship between customer focus and business results (Wright and Snell, 2002).

On the other hand, process management is a key part of any quality management strategy (Anderson, et al., 1995). Sila and Ebrahimpour (2005) found that process management in manufacturing companies in the U.S. is the only factor, other than leadership, that has a direct effect on business results. Appiah Fening, et al. (2008) further contended that organisations are sets of interlinked processes, and the improvement of these processes would lead the way to better PERF. Das and Joshi (2012) argued that process management is based on the notion that an organisation's capability is embedded in processes and the capability may be strengthened through effective management of such processes.

Information and analysis is another quality dimensions that have been widely reported. According to Sila and Ebrahimpour (2005), information and analysis, and leadership, are two factors that act as the foundation that enables synergies to be derived from the various dimensions of quality management. Thus, organisation resources such as use of information technology, quality tools, reliable and user friendly hardware and software systems and benchmarking must be allocated to strengthen capabilities in the use of procedures that monitor key PERF indicators. In a study on U.S. manufacturing companies, Sila and Ebrahimpour (2005) found that information and analysis only has an indirect effect on business results which is mediated through process management. According to Kim, et al. (2012) who summarised the literature, managing quality data and reporting offers opportunities for establishing strategic relationship with suppliers, improving processes and designing a new product. These would ultimately influence organisational PERF.

In addition to examining the impact on organizational PERF on the overall, extant research has also reported the implication of quality implementation on some specific perspectives of PERF. For instance, Douglas and Judge (2001) suggested that the extent to which TQM practices are implemented is positively and significantly related to the perceived financial PERF. Raju and Lonial (2002) reported positive relationship between financial PERF and quality outcomes.

However, some research has also identified negative impact of quality on financial PERF. For instance, Sila (2007) studied manufacturing and service companies in the U.S. and found that TQM had no direct effect on financial and

market results, but have significant and indirect effect on these results through the mediating effect of the other PERF measures on human resource, customer, and organisational effectiveness. Also, in a study on Italian public healthcare providers, Macinati (2008) found a lack of significant statistical relationship between quality management systems and financial PERF. The author opined that the result may be due to time lag effect.

Research on the relationship between quality and efficiency PERF has generally offered two lines of arguments. On the one hand, literature has argued for the trade-off between quality and operating efficiency. According to Skinner (1969), achievement of one capability must come at the expense of another. This is due to the apparent conflict between low cost and high quality in operating activities (Lapre and Scudder, 2004) and the limited resources available to pursue these capabilities.

On the other hand, there is a counter argument for the cumulative capability perspective between quality and operating efficiency. According to Ferdows and Meyer (1990), quality and efficiency do not need to be seen as mutually exclusive and that they may be pursued collectively. The cumulative perspective has been supported by Rosenzweig and Easton (2010) following their comprehensive meta-analysis on manufacturing research. Similar support was rendered by Talluri, et al. (2013) who conducted an empirical study on a service industry in Korea. Based on the findings, operating efficiency and service quality can be pursued at the same time.

In a healthcare setting, Navarro-Espigares and Torres (2011) studied the link between efficiency and quality in Spanish hospitals. The study measured technical efficiency and healthcare quality using indicators of perceived quality and scientific technical quality. While a weak association between efficiency and quality indicators was reported, the study dismissed the existence of quality-efficiency trade-off.

Innovative PERF is another perspective of PERF that has been widely examined for its relationship with quality. For instance, Flynn (1994) studied how the implementation of TQM-based measuring instrument affects the product development time. Empirical studies have generally supported that quality management is positively associated with innovative PERF. For instance, Prajogo

and Sohal (2003) found TQM significantly and positively relates to product quality and product innovation PERF. Also, there is significant causal relationship between quality performance and innovation PERF. Similar finding was reported in Martinez-Costa and Martinez-Lorente (2008), who studied Spanish organisations and found that TQM promotes both product innovation and process innovation in organisations. Abrunhosa and Sa (2008) analysed the introduction of TQM in the Portuguese footwear industry and found that TQM principles are the enablers of innovations, and that organisations will be more prepared to innovate as the level of implementation of TQM principle increases. Prajogo and Hong (2008) found TQM makes a significant contribution to research and development PERF. In a study on Taiwanese high-tech industry companies, Hung, et al. (2011) found that TQM has significant and positive effect on innovative PERF. Molina, et al. (2007) found that quality management has a significant positive influence on knowledge transfer, hence leading to competitive advantage. This is echoed by Kim, et al. (2012), who found that quality management practices provide employees with opportunities to efficiently determine customer needs, improve processes, and generate knowledge sharing, hence minimising non-value adding activities and reducing time and costs for new product development.

Nevertheless, research has warned that the overall impact of TQM on innovation is rather difficult to generalised. Studies (Feng, et al., 2006; Perdomo-Ortiz, et al., 2006; Prajogo and Hong, 2008; Thai Hoang, et al., 2006) have provided empirical evidence that only specific combination of quality management practices is positively related to innovation. According to Prajogo and Sohal (2004; 2001, 2006), the impact of TQM on innovation is dependent on the "soft" and "hard" elements of TQM being emphasised. TQM can be important obstacle to innovation if the "hard" elements of TQM are highly valued, where continuous improvement is pursued by calling upon incremental change and certain degree of formalisation and standardisation. In contrast, if the "soft" elements prevail, where TQM establishes a system and culture that promotes teamwork, creativity and knowledge management (McAdam, 2004; Molina, et al., 2007), and continuous search for new ideas and improvement, TQM can be a strong driver of innovation according to Prajogo and Sohal (2004; 2001, 2006).

Nonetheless, empirical findings on Spanish industrial sectors suggested that TQM and business innovation capability are compatible concepts (Perdomo-Ortiz, et al., 2006). The study found that not only there is a positive relationship between them, there is a positive causal relationship between the implementation of TQM and the building of business innovation capability. Contrasting the contention of Prajogo and Sohal (2004; 2001, 2006), Perdomo-Ortiz, et al. (2006) provided evidence that both the soft (human resource management) and hard (process management, product design) TQM practices are highly significant in building the business innovation capability.

Present research has also begun to study the association between quality management and corporate social responsibility (CSR) PERF. It is perceived that organisations that implement quality management practices are more likely to address public concerns and environmental issues (Jo, 2003; King and Lenox, 2001). Berens, et al. (2007) found a link between corporate quality CSR, and suggested that organisations implementing quality management practices are more likely to address CSR practices.

A few studies have provided further evidence of the implication of specific SQIM dimensions on particular dimensions of PERF. Amongst the available evidences, Wilson and Collier (2000) studied the causal relationship between Malcolm Baldrige National Quality Award and organisational PERF and reported a mixed relationship between quality factors and financial PERF. The relationship is positive and direct with process management and information and analysis, but negative with leadership, human resource management and strategic planning. Chung Woon (2000) found strong positive relationship between operational PERF and quality factors including use of information and analysis, strategic planning, management of process quality and customer focus. Fuentes-Fuentes, et al. (2004) studied Spanish organisations and found that customer focus is positively associated with both profitability and operational PERF.

As for innovative PERF, Miller (1995) studied large multinational firms and concluded that managing quality data is the most important quality management practice that can be applicable to innovative activities. Separately, Klassen and Menor (2007) argued that process management involves process documentation, measurement of process outcomes and repetition of value-

added processes. This provides opportunity for incremental learning and innovation in the course of identifying best practices or routines (Benner and Tushman, 2002). In this regard, Kim, et al. (2012)provided strong empirical evidence that quality management practices through process management are associated with innovation.

Meanwhile, Parast and Adams (2012) found that quality information availability has a positive and significant effect on CSR. Nevertheless, Kaynak (2003) reported that quality data and reporting does not have any direct effects on any PERF dimensions, but it has indirect influences on these PERF through process management and supplier quality management.

In a meta-analysis conducted by Nair (2006) to study the quality management-PERF relationship, it was found that a large variance in the overall PERF can be attributed to quality management practices. Process management was positively associated with the overall PERF and with financial PERF. Quality data analysis were positively associated with the overall PERF but not with financial and operational PERF. Customer focus was positively related to the overall PERF and with all individual measures of PERF, including financial, operational, customer service and product quality.

Overall, review of literature suggests that existing research produces inconsistent results and that a few studies have begun to investigate specific dimensions of quality and PERF to establish their association. Yeung, et al. (2005) advised that quality dimensions are context dependent. In their study on the electronic industry, process management and customer focus are found to be more important that other dimensions. Nevertheless, there is rather limited study on the healthcare to provide insights unique to this industry.

This study therefore examines the impact of the different SQIM dimensions on different perspectives of PERF in HTHD. The aim is to highlight how HTHDs have benefited differentially from the use of SQIM and its various dimensions. This knowledge is important to understand how SQIM implementation affects different perspectives of PERF, thus providing some basis to gauge the effectiveness of implementation, and to identify room for improvement. Such information would in turn enable HTHD to make informed judgment and decisions when prioritizing SQIM implementation and allocating limited resources

to facilitate the implementation. This would in turn enhance its capacity to delivering service quality leading to better PERF and competitive edge in the health tourism industry. Accordingly, this study hypothesises that SQIM implementation provides a direct impacts on PERF. Hence,

H2   *The implementation of SQIM provides a significant and positive direct effect on PERF.*

This test would be conducted for each of the constructs of SQIM and PERF as identified in the data preparation stage later. Consequently, this study further hypothesises that

> *The implementation of SQIM$_{1,2..s}$ provides a significant and positive direct effect on PERF$_{1,2..p}$.*
>
> *where SQIM$_{1,2..s}$ denotes the different constructs of SQIM; PERF$_{1,2..p}$ denotes the different constructs of PERF.*

5.5.   THE RELATIONSHIPS BETWEEN SQIM AND MAP (H3)

The previous hypothesis examines the implementation of the specific quality aspects that make the quality system as a whole, as informed by the general systems theory (Von Bertalanffy, 1972). This hypothesis looks at how the institutionalization of MAP as a social structure (Giddens, 1984) may be supporting such quality implementations.

Extant literature has seen MAP as the infrastructural systems intended to measure events representing those factors that are core to competitive strategy of an organisation (Eccles, 1991). Tayles and Walley (1997) studied the links between accounting practices and functional strategies of marketing and manufacturing with the use of three case studies. The findings revealed that "best practice" MAP are shaped and determined by a company's functional strategies, and that consistency between the functional strategies and the

accounting practices may have a direct impact upon the company's competitiveness.

According to Henderson and Venkatraman (1993) who developed the Strategic Alignment Model to conceptualise the emerging areas of strategic management of information technology, one of the fundamental characteristics of strategic management is functional integration, i.e. integration between business and functional domains. This deals with the link between organisational infrastructure and processes and the information systems infrastructure and processes.

An appropriate link is essential in ensuring internal coherence between the organisational requirements and expectations and the delivery capability within the information systems function (Henderson and Venkatraman, 1993). Within the context of our study, it is important to ascertain such link between services provided in line with the quality strategies in hospitals and management accounting practices that are tasked to provide information to management and to facilitate the quality initiatives.

This study adopted the strategy execution alignment perspective developed by Henderson and Venkatraman (1993). This is a widely understood perspective and is appropriate for our study. This perspective of alignment assumes that business strategy has been articulated and is the driver of both organisational design choice and the design of information systems infrastructure. For this perspective to be successful, the top management should play the role of the strategy formulator whereas the role of information systems manager should be the strategy implementer. Also, the performance of information systems function would be assessed based on financial parameters that a cost or service centre would typically focus upon.

Accordingly, this study argues that increasing SQIM implementation may impact upon systems related to it. More precisely, in managing the quality strategy pursued through SQIM implementation, a sound PERF management process or systems that adequately support such quality intention is essential. In this regards, Neely, et al. (1994) empirically examined different dimensions of manufacturing PERF and concluded that organisations that compete primarily on quality have placed most emphasis on PERF measures, such as flexibility-based measures, which were compatible with their strategy. Daniel and Reitsperger

(1991) examined the link between MAP and quality strategy in Japanese automotive and electronics companies and found that greater use of MAP for quality feedback and goal setting were associated with the zero defect strategy adopted. Carr, et al. (1997) confirmed that performance measurement and reporting systems in organisations that are certified for quality under the ISO standards are indeed more quality-oriented than those organisations that are not ISO-certified.

Samson, et al. (1991) further emphasized that organisations that pursue a change towards differentiation strategy requires a shift from cost and efficiency-based PERF measures to ones which measures specific non-financial aspects of strategy, such as quality, service and flexibility. Similar arguments were made by Hartman, et al. (2002) contended that organisations that adopt quality management programmes more fully would approach information systems implementation in more matured ways. Baines and Langfield-Smith (2003) found that increased emphasis on differentiation strategies was significantly related to the increased use of advanced MAP. Meanwhile, organisations that employed TQM are also found to emphasise more on the sophisticated MAPs (Abdel-Kader and Luther, 2008).

Nevertheless, interdependence of SQIM and MAP to mirror the strategic intention could have been overstated in the literature, in that MAP may be time-consuming exercises that can increase costs and workloads, and generate internal tensions. For instance, Larson and Kerr (2007) studied a case company that has implemented ISO 9000 and activity-based costing to support continuous quality improvement. They reported that despite the potential for complementary implementation of these process management tools, separate systems were built for the initiatives hence making them compete for funding and management attention.

Review of literature suggests that study on the impact of quality implementation on the usage of MAP is limited, and that there has been a primary focus on manufacturing. This study therefore seeks to examine the relationship between SQIM and MAP, and their respective detailed dimensions in order to gain better understanding on the impact and significance of the relationships. Such knowledge would inform about the MAP usage that supports SQIM

implementation, thereby suggesting the extent to which MAP usage is aligned with the intention for managing service quality. The analysis would also highlights possible lags in MAP usage in the quality environment. Accordingly, this study hypothesises that SQIM implementation provides a direct impacts on MAP. Hence,

H3 *The implementation of SQIM provides a significant and positive direct effect on MAP.*

This test would be conducted for each of the constructs of SQIM and MAP as identified in the data preparation stage later. Consequently, this study further hypothesises that

The implementation of $SQIM_{1,2..s}$ provides a significant and positive direct effect on $MAP_{1,2..m}$.

where $SQIM_{1,2..s}$ denotes the different constructs of SQIM; $MAP_{1,2..m}$ denotes the different constructs of MAP.

5.6. THE RELATIONSHIPS BETWEEN MAP AND PERF (H4)

The economic models of decision-making assert that in conditions of uncertainty, the provision of better quality information would result in improved resource allocation (Baines and Langfield-Smith, 2003) and effective managerial decisions, which would in turn enhance the likelihood of positive organizational PERF (Chenhall, 2003). According to Gupta (1987), an organization's strategic information-processing capacity needs to adequately meet its needs as this would enable sound and timely decisions to emerge, and ultimately optimal PERF to be delivered. The challenges for management accounting system and MAP is to provide up-to-date information to enable managers arrive at informed economic decisions, and to support them in enhancing both customer value and shareholder value (Langfield-Smith, et al., 2006).

Many studies have rendered support for the view that greater MAP usage is positively related to PERF (Abernethy and Guthrie, 1994; Baines and Langfield-Smith, 2003; Chenhall, 2005; Chenhall and Langfield-Smith, 1998; De Geuser, et al., 2009; Evans, 2004; Gul and Chia, 1994; Henri, 2006a; Hoque, 2004; Ittner, et al., 2003; Mahama, 2006; Mia and Chenhall, 1994; Mia and Clarke, 1999; Scott and Tiessen, 1999; Stede, et al., 2006). In other words, it may be argued that advancements in MAP may impact upon organization PERF. In this regard, Abernethy and Lillis (1995) found that organisations adopting flexible manufacturing has resulted in improved PERF when they placed greater reliance on non-financial measures. Increased reliance on non-financial measures is found to be associated with improved PERF (Baines and Langfield-Smith, 2003; Said, et al., 2003). Stede, et al. (2006) found that organisations using broader scope of PERF measurement tend to report stronger PERF. Precisely, Evans (2004) purported a positive relationship between the broader scope of PERF measurement systems and organization PERF in terms of financial, customer and market results. Furthermore, organisations that track key success factors through the use of non-financial PERF measures are more likely to achieve their strategic objectives (Baines and Langfield-Smith, 2003). Said, et al. (2003) maintained that the non-financial PERF measures, typically encompassing a more comprehensive measure of PERF, provide a means of transforming an organisation's strategy and vision into a tool that motivates PERF and communicate strategic intent.

While there appear to be a dominance of findings in support of positive associations between MAP and PERF, Perera, et al. (1997) found that no association between the use of non-financial measures and perceived PERF existed in an organization that has formulated a customer-focused manufacturing strategy. Callen, et al. (2000) found that non-financial PERF indicators are not related to profits in both Just-in-Time (JIT) and non-JIT organisations.

Meanwhile, some studies have reported the association between MAP and PERF to be negative (Ittner and Larcker, 1997). Banker, et al. (2000) found that only some specific non-financial measures were positively associated with future rather than current revenues and profit. Hence, there appear to be an

ambiguous picture may be drawn on the relationship between MAP usage and PERF (Chenhall and Moers, 2007).

Nevertheless, some studies have attempted to show that greater MAP usage may not always be positively related to PERF as it is highly dependent on the ways the MAP is developed and used (Jazayeri and Scapens, 2008; Johnston, et al., 2002; McAdam and Bailie, 2002). For instance, non-financial PERF measures would not result in improved PERF if management has identified the wrong critical success factors to be managed. Evidence suggest that it is the way the systems are designed, developed and used that brings about PERF improvements (Griffith and Neely, 2009; Henri, 2006a; Ittner and Larcker, 1997) and how well it fits the context within which it operates (Franco-Santos and Bourne, 2005; Neely, et al., 2005; Otley, 1999).

In the context of quality environment, Kaplan (1984) argued that traditional PERF measures do not address quality measures and would undermine quality improvement. Ittner and Larcker (1995) reported that greater use of non-financial PERF measures is associated with improved financial PERF in settings lacking formal quality programmes, but not in settings having such programmes. Pizzini (2006) studied the relationship between cost system design, managers' evaluations of the relevance and usefulness of cost data, and financial PERF in US hospitals. It was reported that only the ability to supply cost detail is favourably associated with measures of financial performance. According to Pizzini (2006), the functions of a costing system per se do not in itself produce performance effect because the range of performance is produced by the visibility of process and entities being managed. Chenhall and Langfield-Smith (1998) found that organisations which emphasized product differentiation strategies have benefited from the use of advanced MAP and reliance on non-financial PERF. In business units that follow a customer-focused strategy, it was established that a greater use of non-financial information had a positive impact on PERF (Davila, 2000). Meanwhile, in an environment of manufacturing flexibility, Abernethy and Lillis (1995) and Perera, et al. (1997) found positive relationship between emphasis placed on various forms of advanced management practices and the use of non-financial measures. In situations where teams were provided with comprehensive PERF measures that combine

financial and non-financial measures, improved PERF has been evident (Scott and Tiessen, 1999).

Current literature has looked at the role of MAP in supporting innovative PERF. Cruz, et al. (2011) found that reorganisation of a global strategic PERF measurement system fostered innovative practices. Marginson (2002) found that the interactive use of a strategic PERF measurement system can enhance the development of new ideas and initiatives within a firm, improving innovation. Henri (2006b) showed that interactive use of strategic PERF measurement systems is enabling or promoting learning as it fosters organisational capabilities in terms of innovativeness by focusing organisational attention on strategic priorities and stimulating dialogue. The diagnostic use of strategic PERF measurement systems promotes controls and hence weakens the capabilities. However, Bisbe and Otley (2004) reported that the interactive use of a strategic PERF measurement system would favour innovation only in organisations with low levels of innovation, and that it actually mitigates against innovation in organisations with high levels of innovation.

On the other hand, there is a theoretical argument for MAP to facilitate CSR performance in organisations. MAP, especially those at advanced level focusing on resource management and value creation, is in good position to contribute to sustainable business practices. Nevertheless, limited research evidence is available and there is a much needed management attention for greater MAP involvement to execute CSR commitments. For instance in a longitudinal study of sustainable business practices in New Zealand, Collins, et al. (2011) reported that many management accountants are fulfilling their traditional role of financial specialist but they are not yet playing an active role in driving sustainability as a business goal.

Advised by the management accounting literature (Fullerton and McWatters, 2004; Gosselin, 1997; Guilding, et al., 2000) many organizations do not use advanced MAP and systems despite their apparent technical superiority. Hence, more needs to be understood about the nature of MAP, and the reason for specific organizations to be having their particular MAP. This study examines the relationship between MAP and PERF, and their detailed dimensions in order to gain greater insights on the impact and significance of the relationships. Such

knowledge would inform about the performance implication of using the different MAP, thus providing some basis to gauge the effectiveness of MAP usage and to identify room for improvement. Such information would in turn enable HTHD to make informed judgment and decisions when prioritizing and allocating resources for MAP adoption and usage. Accordingly, this study hypothesises that MAP implementation provides a direct impacts on PERF. Hence,

H4 The usage level of MAP provides a significant and positive direct effect on PERF.

This test would be conducted for each of the constructs of MAP and PERF as identified in the data preparation stage later. Consequently, this study further hypothesises that

> *The usage level of MAP $_{1,2..m}$ provides a significant and positive direct effect on PERF$_{1,2..p}$.*

> *where MAP $_{1,2..m}$ denotes the different constructs of MAP; PERF$_{1,2..p}$ denotes the different constructs of PERF.*

5.7.   THE MEDIATION ROLE OF MAP FOR SQIM-PERF (H5)

For quality initiatives to be successful, HTHD need to gain access to quality-related information that are useful in supporting management in planning, controlling, making informed decisions as well as evaluating quality performance.

Based on the institutional theory approach suggested by Burns and Scapens (2000), when management accounting information is reported, users of the information may want to refer to such information when managing operational activities assigned to them. Over time, this information may be institutionalised in the organisation and become part of the organisational culture. Consequently, the types of MAPs adopted may facilitate the effective implementation of the types of service quality initiatives.

Therefore, there is a theoretical argument that adoption of appropriate MAP is an important enabler and facilitator to generate useful management information leading to organisational successes. In this regard, Mia and Clarke (1999) found an indirect association between the intensity of market competition and business unit performance through the use of management accounting information. Cadez and Guilding (2008) examined large Slovenian companies and suggested that strategic choice affects the application of strategic management accounting, which in turns mediates the effect on company PERF.

In seeking to better understand the nature of MAP, Macintosh and Scapens (1990) and Scapens and Macintosh (1996) suggest that the key is in studying the relationship between MAP and other organisational processes. The authors referred to Giddens' structuration theory to conceptualise management accounting systems as modalities of structuration which mediate between managerial action and structure. They argued that as organisations practices management accounting systems, it is able to provide interpretive schemes, communication norms as well as facilities for control when undertaking the operational activities of the organisations. Hence, it is essential to explore the relationship between accounting and other organisational processes. Research such as Granlund (2001) has adopted this approach to study the stability and resistance in management accounting systems. Informed by the literature, the current study seeks to understand the how an increased use of MAP is related to the initiatives undertaken by healthcare organisations in pursuing service quality.

A review of the extant literature has shown that the design of management accounting systems and MAP in organisations have begun to change in such a way to better facilitate the adoption of modern management approaches. For example, Perera, et al. (1997) reported increased use of non-financial PERF measures, which offer greater insights then the basic financial oriented accounting measures, among the companies that were adopting advanced manufacturing technologies. It was also reported that there were lack of evidence on association with company PERF. Fullerton and Wempe (2009) provided empirical evidence that utilization of non-financial PERF measures, typically gathered through the MAP, mediates the relationship between lean manufacturing and financial PERF. Within an enterprise resource planning

environment, Kallunki, et al. (2011) studied the mediation role of management control systems in Finnish business units and concluded that the use of formal types of management controls help organisations improve PERF in the long-run.

Literature has also advanced to seek understand on how well MAP is supporting quality strategies in particular. For example, Chenhall (1997) found that the relationship between TQM and PERF is stronger when manufacturing PERF measures, generated via the management accounting systems and MAP, were used as a part of managerial evaluation. Similar findings were reported in Hoque and Alam (1999) in a case study on TQM adoption in a New Zealand construction company, and in Chenhall (2003) that reviewed the findings from contingency-based studies over a period of 20 years.

This study therefore argues that adoption of MAP, especially the advanced types using a strategic approach, is theoretically related to the pursuance of service quality since both these initiatives are oriented towards creating values and managing the use of available resources. Nevertheless, research on the use of MAP for quality management remains limited, especially in the healthcare environment. This study aims to analyse the role of MAP as a mediator on the impact of SQIM on PERF. This provides insights on the performance implication of SQIM that may be transmitted via a given usage of MAP when operational decisions are made in HTHD. This analysis would provide a framework that helps HTHDs to identify current MAP usage that are facilitating their pursuance of SQIM dimensions. Additionally, this analysis also highlights the effectiveness in MAP usage when facilitating the quality intentions. Accordingly, this study hypothesises that SQIM implementation provides an indirect impacts on PERF via MAP. Hence,

H5   The positive impact of implementation of SQIM on PERF will be mediated by increased use of MAP.

This test would be conducted for each of the constructs of MAP as identified in the data preparation stage later. Consequently, this study further hypothesises that

The positive impact of implementation of SQIM on PERF will be mediated by increased use of MAP $_{1,2..m}$.

where MAP $_{1,2..m}$ denotes the different constructs of MAP.

5.8. SUMMARY

This chapter explained the motivation for this research and summarized the gaps identified in reviewing the relevant literature as presented in Chapter 2 to Chapter 4 earlier. It then outlined five research questions together with their intended contributions and justifications. In particular, the relationship between the constructs SQIM, MAP and PERF are studied, and the mediation role of MAP in the SQIM-PERF relationship is explored. The main hypotheses to be tested are outlined as follows. Figure 5.2 presents Hypothesis 1 and Figure 5.3 presents Hypothesis 2 to Hypothesis 5. The next chapter explains the research methodology employed for this study.

Figure 5.2   Hypotheses testing – H1
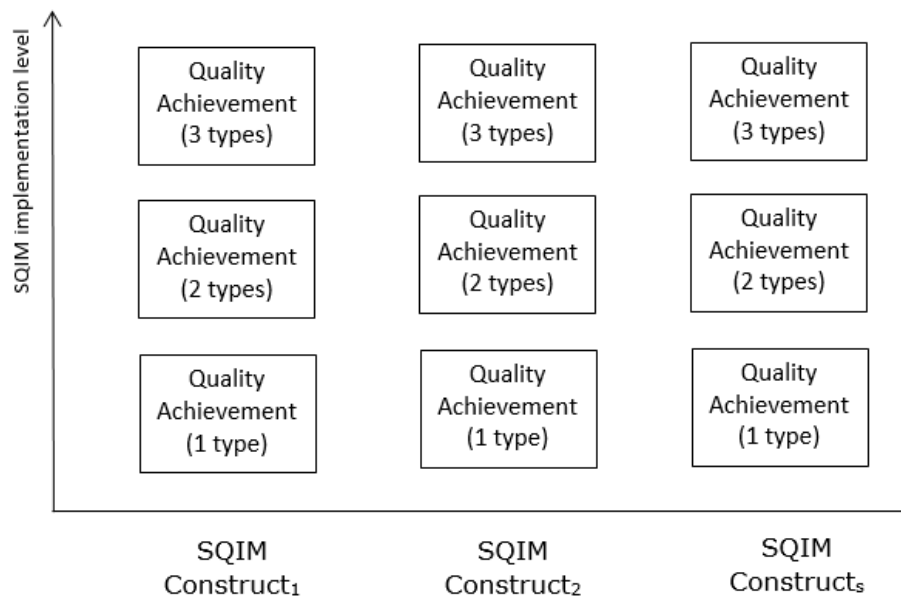
Figure 5.3   Hypotheses testing – H2 to H5
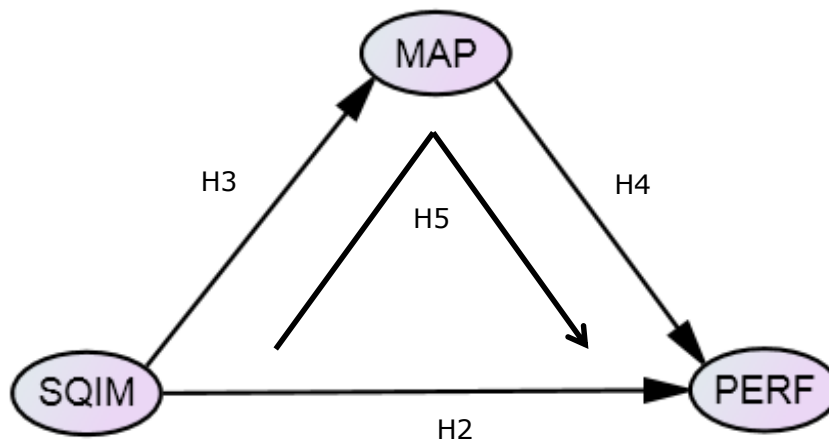
CHAPTER 6 RESEARCH METHODOLOGY

6.1. INTRODUCTION

The research model and its justifications have been presented in the previous chapter. Accordingly, appropriate research methodology is to be designed to facilitate the required analysis. This chapter presents the research philosophy that the current study subscribe to, the research design and discussion of methods together with their limitations. It also provides an audit trail on how data was produced and analyzed. Problems and issues faced would also be discussed.

6.2 RESEARCH PHILOSOPHY AND STRATEGY

A research philosophy is a set of common beliefs about how problems should be understood and addressed in the course of conducting research. Research philosophy consists of ontology, epistemology, methodology and methods (Scotland, 2012). While the ontological assumption is concerned with what reality is, where researcher would take a position on their perception of how things are and how they work, the epistemological assumption is concerned with how knowledge can be created, acquired and communicated (Scotland, 2012).

According to the differing ontological and epistemological positions, researchers may be employing different research approaches such as the positivist and the interpretivist approaches. The positivist approach regards that there is a single truth or reality which can be measured and known. Also, the researcher or observer is deemed independent of the observation. Hence researchers taking this position are likely to use quantitative methods to measure the reality (Scotland, 2012). The interpretivist approach on the other hand regards that reality needs to be interpreted as there is no single truth or reality. Also, the observer is considered part of the object of observation. Hence research taking this stance is likely to use qualitative methods to interpret the reality (Scotland, 2012).

The current study involves the investigations of the impact of implementing quality initiatives on organizational performance, and the potential mediating

role of management accounting practices on such performance implications. The researcher regards that there exist a state of quality implementation that would benefit the organisation, and that there exist a state of accounting practice adoption that would best facilitate the effective quality implementation. Additionally, the researchers intend to remain objective by being separate from the research observation while regarding the facts gathered from the field study as the main point of focus rather than focusing on interpreting the meanings of the facts. Accordingly, the researchers believe that a positivist philosophy is appropriate for this purpose.

According to the research philosophy and research objectives, this study undertakes survey of primary research data using structured survey questionnaire to gather respondents' perceptions on SQIM implementation level in HTHDs, the different types of MAPs usage in support of SQIM, as well as on the different perspectives of PERF in the said HTHDs.

There was initial plan to conduct interviews with HTHDs to gain insights on the data. The plan was to draw from the results of data analysis and identify the HTHD that have demonstrated overall highest level of SQIM as well as the HTHD with the overall lowest level of SQIM will be identified for interviews. Semi-structured questionnaire would be employed to facilitate interviews with personnel in these HTHDs. Data to be collected include the scope of MAPs usage, the rationale for using specific MAPs in a HTHD (reasons may include cost-benefit struggle, management techniques/organizational culture not supporting service quality initiatives, use of performance measures as part of reward and compensation schemes, etc.), key enablers, and reflections on the implementation journey. Nevertheless, due to the practical challenges in securing the interview opportunities and the timeline set for this study, interview was not conducted. Hence, the study draws from the findings based on the structured survey questionnaire to form the basis of discussion.

6.3   RESEARCH VARIABLES AND QUESTIONNAIRE DEVELOPMENT

Based on the research model derived in Chapter 5, three variables were required to conduct the analysis, namely SQIM, MAP and PERF. This section presents the scale development and development of the structured questionnaire that was adopted in the study.

6.3.1 SCALE DEVELOPMENT

Scales are a series of items about a specific domain that can be summed to produce a score. According to Churchill (1979), in order to develop good measures, it is important that domain of the construct is clearly specify and that sample items are carefully generated. Further, data collected needs to be purified and assessed for reliability and construct validity. In this study, Churchill's (1979) framework was adopted for developing better measures for MAPs, service quality initiatives, and HTHDs performance. Details of procedures undertaken are outline below.

Extant literature was reviewed to conceptualise the constructs used in this study and to specify their domains. Literature search was also employed to generate possible sample of items that captures the domain specified. The items are combined/ modified/ reworded as needs arise. Details of these processes are explained in the respective constructs presented within this section.

In measuring the constructs of SQIM, MAP and performance, respondents were required to indicate their perceptions on issues of concern instead of the actual "facts". Despite the lack of objectivity in the data collected, this approach has been used in many studies (Chenhall, 1997; Chenhall and Langfield-Smith, 1998; Daniel, et al., 1995; Govindarajan, 1988; Govindarajan and Fisher, 1990; Gupta and Govindarajan, 1984; Ittner and Larcker, 1997; Martinez-Costa and Martinez-Lorente, 2008; Powell, 1995) given that some of the factual data may not be accessible or readily available, and that some data may not be easily quantifiable in an objective manner.

The use of employees' perception for data collection is deemed appropriate in this study. Firstly, the measures of construct, especially SQIM implementation level and MAP usage level, may not be quantified objectively. Secondly, employees are internal party to the HTHDs and would therefore be in the best position to reveal the types of MAPs being implemented and the maturity stages of service quality initiatives in their workplace.

Possibility was anticipated that some respondents may not be highly aware of all the issues of concern (e.g. detailed MAP in adoption; performance level of their department/divisions; etc.). This may be due to reasons such as lacking direct work experience or non-involvement in managerial functions. Nevertheless, it is normally expected that employees would have reasonable amount of interaction and co-operation with other members of the hospital, both inter- and intra-department. Their input would therefore still be valuable reflection of data intended in this study.

To ensure data reliability, the survey was targeted at managerial staff who are competent enough to answer the survey questions. These will typically include the heads of department, managers and line supervisors. Targeted respondents were encouraged to answer the questions to the best of their knowledge, and clarification was provided that this survey was interested in their perception in the issues instead of very accurate answers in them.

6.3.1.1 SQIM

Service quality initiatives generally refer to types of efforts and practices within organisations to deliver services that exceed customer expectations. Øvretveit (2000) proposes that in the healthcare industry, service quality would include quality of medical practitioners' service that deliver procedures in meeting patients' needs; quality of other non-technical services to patients; and quality of managerial service to make the most efficient and productive use of resources to meet patients' needs. Consequently, service quality initiatives refer to efforts and practices to provide the service quality.

Given the technical nature of medical practitioners' services in providing diagnosis and procedures to patients, and the suggestions from literature that patients determine their perceptions of healthcare service quality by primarily referring to the non-technical aspects of healthcare services (Donabedian, 1980), the domain of service quality initiatives were set to focus on efforts and practices within HTHDs that are made with the objective to deliver non-technical service quality. Specifically, the domain of this construct would cover initiatives made to provide quality services in (1) all non-technical services to patients and (2) managerial service to make the most efficient and productive use of resources to meet patients' needs.

To effectively assess the quality of these services, Donabedian (1980) proposed that it is important to look into the three key components for quality, i.e. the input or structure (well-trained multidisciplinary personnel, motivation for quality improvement, validated standards, etc.); the process (responsiveness to patient needs and preferences, patients' right to dignity, client participation, empowerment, etc.); and the outcomes (effectiveness of care, patient satisfaction, etc.). While information about quality can be produced for these three components, Brook, et al. (2000) forewarn that structural measures may not explain what has been done to the patient, while outcomes are only partially dependent on health services provided. Noting that healthcare organization that has better processes would be in a better position to provide better outcomes, it would therefore be more meaningful to assessing processes in forming judgment of the service quality (Brook, et al., 2000).

Consequently, the focus of this study was set on the service quality initiatives made in the processes for delivering (1) all non-technical services to patients and (2) managerial service to make the most efficient and productive use of resources to meet patients' needs.

In attempting to identify service quality, considerable number of researches such as Carman (1990), Fuentes (1999), Lam (1997) and Sohail (2003), have drawn from the work of Parasuraman, et al. (1985) and identify five dimensions of service quality, namely tangibles; reliability; responsiveness; assurance and empathy.

Meanwhile, contributions from quality leaders and empirical research and management studies have provided useful framework to classify key quality factors. For instance, Crosby (1979) focused on the cultural and behavioural aspects of quality and identified 14 quality steps, such as management commitment, quality measurement and cost of quality evaluation, to achieve quality improvement. Deming (1986) proposed 14 principles of quality management including leadership, training and continual improvement. Saraph, et al. (1989) identified 120 items which were categorised into 8 critical quality factors, including role of top management leadership, role of quality department, training, process management, quality data and reporting, employee relations, product design and supplier quality management. Flynn, et al. (1994) identified 7 quality management dimensions including top management support, process management, quality information, work force management, product design, supplier involvement and customer involvement. Powell (1995) identified 12 quality factors such as committed leadership, adoption and communication of TQM, customer relationships, supplier relationships, employee empowerment, process improvement, quality measurement, benchmarking, training and open organisation.

Research on service quality in the healthcare industry generally refers to criteria published by quality awards, certifications and accreditation programmes to establish the service quality dimensions. This study adopts similar approach. To ensure that the construct fairly reflects the current industrial emphasis in the Malaysia, the range of service quality themes/dimensions was framed by drawing upon the quality achievements that have been commonly sought by the HTHDs in the country. These are identified through a cursory review of the HTHD websites. Such initiatives include ISO 9000 quality certifications and quality accreditations by the JCI and MSQH.

Following that, reference was made on the emphasis laid down in ISO 9000:2005 *Quality Management Systems – Fundamentals and vocabulary*; JCI Accreditation Standards for Hospitals (2010); and the MSQH Hospital Accreditation Standards: Philosophy, Process and Assessment (2010) to specify the domain for this construct.

Similar approach was adopted in previous studies. For instance, Black and Porter (1996) extracted a series of items from MBNQA criteria for development of critical factors of quality management. MBNQA is a national leader of TQM in the United States and the criteria are generally regarded as the guidelines for recognition. However, measurement instruments developed in extant literature are deemed less appropriate for use in this study since the measurement construct should ideally provide a fair reflection of the current industrial emphasis in the HTHD operating in Malaysia. Hence, a new measurement construct was developed to suit the need.

To prescribe the service quality construct, a content analysis of the quality standards was conducted where elements of quality achievements contained within a standard were identified. To achieve this, reference was made to the main headings and sub-headings on quality management requirements specified in these standards. See Table 6.1 below. These headings and sub-headings were then compared across the different standards to establish the commonalities and to develop a comprehensive list of the areas of emphasis.

Table 6.1: Prescriptions for the service quality initiative construct

ISO 9000:2005

1. **Customer Focus**
   - Understanding current customer needs
   - Understanding future customer needs
   - Meeting customer requirements
   - Striving to exceed customer expectations

2. **Leadership**
   - Establishing unity of purpose and direction for the organization
   - Establishing the organisation's internal environment

3. **Involvement of People**
   - Developing abilities fully
   - Using abilities to maximum benefit

4. **Process Approach**
   - Managing resources as a process
   - Achieving desired results more efficiently

5. **Systems Approach to Management**
   - Identifying
   - Understanding
   - Managing the interrelated processes of a system to effectively and efficiently attain objectives

6. **Continual Improvement**
   - Making improvement a permanent objective

7. **Factual Approach to Decision Making**
   - Analyzing data and information logically

8. **Mutually Beneficial Supplier Relationships**
   - Creating value through mutually beneficial, interdependent relationships

JCI (2010)

Patient-centered standards for:

1. Access to care and continuity of care
2. Patient and family rights
3. Assessment of patients
4. Care of patients
5. Anesthesia and surgical care
6. Medication management and use
7. Patient and family education

Health care organisation management standards for:

1. **Quality improvement and patient safety**
   - Design of clinical and managerial process
   - Data collection for quality measurement
   - Analysis of measurement data
   - Improvement

2. **Prevention and control of infections**
   - Programme leadership and coordination
   - Focus of the programme
   - Isolation procedures
   - Barrier techniques and hand hygiene
   - Integration of the programme with quality improvement and patient safety
   - Education of staff about the programme

3. **Governance, leadership and direction**
   - Governance of the organisation
   - Leadership of the organisation
   - Direction of departments and services
   - Organisational ethics

4. **Facility management and safety**
   - Leadership and planning
   - Safety and security
   - Hazardous materials
   - Disaster preparedness
   - Fire safety
   - Medical equipment
   - Utility systems
   - Staff education

5. **Staff qualifications and education**
   - Orientation and education
   - Medical staff (determining medical staff membership; assignment of clinical privileges; ongoing monitoring and evaluation of medical staff members)
   - Nursing staff
   - Other health care practitioners

6. **Management communication and information**
   - Communication with the community
   - Communication with patients and families

- Communications between practitioners within and outside of the organisation
- Leadership and planning
- Patient clinical record
- Aggregate data and information

MSQH Hospital Accreditation Standards (proxied by the MSQH (2011) Medical Clinic Standards)

1: Access To Care
    1.1: Priority Of Care – Urgent / Non-Urgent
    1.2: Practice Policy
    1.3: Appointment
    1.4: Practice Hours And Type Of Services

2: Practice
    2.1: Physical Structure
    2.2: Equipment
    2.3: Legal Requirements
    2.4: Information
        2.4.1: Fees And Services
        2.4.2: Security Of Records
    2.5: Drugs / Dda / Vaccines
        2.5.1: Drug Management
    2.6: Quality Of Care
        2.6.1: Clinical Management
        2.6.2: Training
        2.6.3: Patient Care
        2.6.4: Doctor Patient Relationship
        2.6.5: Referral System
        2.6.6: Feedback
        2.6.7: Health Promotion And Prevention

3: Human Resource
    3.1: Human Resource Management
    3.2: Human Resource Development
    3.3: Appropriate Training For Specific Procedures

4: Safety
    4.1: Safe Patient Care
    4.2: Adverse Drug Reaction
    4.3: Infection Control
    4.4: Occupational Safety
    4.5: Waste Management

5: Ethical Practice
    5.1 : Patient Confidentiality
    5.2 : Patient's Right
        5.2.1: Patient Values
        5.2.2: Patient Privacy
    5.3 : Family Rights
    5.4 : Grievance Mechanism

6: Quality Improvement Activities
    6.1: Effective Quality Improvement Activities For The Practice.

A careful comparison of the elements of these quality standards yielded seven key themes of quality, namely "patient focus", "leadership"; "human resources"; "processes"; "management"; "communication" and "data collection and management analysis". Accordingly, the reflective indicators were developed for each of the themes as follows:

Items with similar emphasis were integrated and refined so that only items relating to processes (e.g. responsiveness to patient needs and preferences, patients' right to dignity, client participation, empowerment, etc.) for delivering non-technical services and managerial services are emphasised. Meanwhile, for other items, i.e. items on technical services and items on input/structure (well-trained multidisciplinary personnel, motivation for quality improvement, validated standards, etc.) and outcomes (effectiveness of care, patient satisfaction, etc.), these were rephrased to capture their implications on the processes for delivering non-technical services and managerial services. This will ensure that the comprehensiveness of the quality management requirements published by the respective institutions are maintained.

Meanwhile, items that tend to be unique to certain operations/departments are excluded as these will not be useful for the sample respondents as a whole. Items that appear to suggest the maturity levels of the service quality initiatives are removed from the list as they will be captured in the SQIM measures. Items that are highly overlapping are also removed in the interest of keeping the list within a manageable length. To establish content validity, the prescriptions of these items were rephrased and reworded in such a way that they represent the concept being measured while maintain ease of comprehension in the opinion of the researchers. Based on these prescriptions, the reflective indicators have been developed for each of the themes as shown in Table 6.2.

Table 6.2: Reflective indicators for the service quality initiative construct

	REFLECTIVE INDICATORS	INDICATIVE QUESTIONS
THEME 1 PATIENT FOCUS	1. Understanding patients' needs	We make effort to understand the services that our patients need from us *(e.g. obtaining feedback from patients).*
	2. Meeting patients' requirements	We make effort to meet the needs of our patients *(e.g. ensuring they have access to our health care services, etc.).*
	3. Manage good relationship with patients	We maintain good relationship with our patients *(e.g. via health promotion campaigns; facilitating referral system, etc.).*
THEME 2 LEADERSHIP	1. Sound governance structure	The different roles of our leaders and the relationships among the various roles are useful in managing/governing our operation.
	2. Providing clear directions within HTHDs	Our leaders/We provide clear directions to guide our operation in achieving the objectives of our hospital.
	3. Promoting organisational ethics	We make effort to provide patient care in an ethical manner and to protect patients and their rights *(e.g. respect patient confidentiality; have grievance mechanism, etc.).*
	4. Promoting safety and waste management	We make effort to promote safety at the hospital and to manage wastes *(e.g. provide safe patient care; promote safe workplace for staff; infection control, etc.).*
THEME 3 HUMAN RESOURCES	1. Providing staff orientation	All staff members in our operation are oriented to the organisation/operation to which we are assigned and to our specific job responsibilities, such that we are familiar with the policies and procedures in place.
	2. Continuous developing staff abilities/capacity	All staff members in our operation receive ongoing training and/or education to maintain/enhance the skills and knowledge *(e.g. on-the-job training; in-house training; external courses, etc.).*
	3. Manage and evaluate staff performance	We make effort to manage and evaluate the performance of staff members in our operation.
THEME 4 PROCESSES	1. Design/redesign processes for quality control	We make effort to ensure that the designs (or redesigns) of our operational processes are promoting better control over the quality of services we deliver.
	2. Design/redesign processes for quality improvement	We make effort to ensure that the designs (or redesigns) of our operational processes are promoting better improvement in the quality of services we deliver.

THEME 5 MANAGEMENT	1. Managing and continuous improving processes/systems	We make effort to manage and continually improve the processes/systems in our operation.
	2. Managing and continuous improving facilities (physical assets and information systems)	We make effort to manage and continually improve the facilities *(e.g. physical assets; information systems)* in our operation.
	3. Making good use of the abilities/capacity to achieve objectives of HTHD	We make good use of the staff abilities/capacity to achieve the objectives of our hospital.
THEME 6 COMMUNICATION	1. Communicate with key stakeholders (patients and families, suppliers, community, etc.)	On the overall, we make effort to communicate with our key stakeholders *(e.g. patients and families, suppliers, community, etc.)* and meet their information needs *(e.g. timely; understandable language; in an expected format; with the desired frequency; etc.)*.
	2. Maintain mutually beneficial relationships with key stakeholders	On the overall, we make effort to maintain mutually beneficial relationships with our key stakeholders.
	3. Maintaining patient clinical records	We maintain a clinical record for every patient assessed/treated, and such record is available to doctors/staff so that they can communicate the essential information.
THEME 7 DATA COLLECTION & MANAGEMENT	1. Factual approach to decision making	We refer to factual information and data when making decisions.
	2. Measure and analyse data for quality improvement	We measure and analyse information to understand our performance in providing patient care, and to improve the quality of our services.
	3. Aggregate data/information for communication with stakeholders	We refer to relevant statistics/summaries of data/information when communicating with our key stakeholders.

Once the key service quality themes are identified, measurement was developed to gauge how well the service quality themes are being implemented in the operations, i.e. the maturity levels of service quality within the HTHDs. The measure of service quality initiatives maturity (SQIM) level will provide us with useful indications about the implementation of service quality initiatives.

Literature review suggests various approaches to gauge the SQIM in an organisation. Cooper and Zmud (1990) identifies adoption and implementation process into six stages, i.e. initiation; adoption; adaptation; acceptation; routinisation and integration. Wagner, et al. (1999) introduced a framework on

developmental stage of quality systems in healthcare. The framework identifies four stages of development, namely orientation and awareness that change is necessary; planning and preparation for change; implementation of projects; and organisation-wide implementation and establishment of the innovation. Makai, et al. (2009) adopted the work of Wagner, et al. (1999) and refined the framework for quality management developmental stages and introduced the stages as orientation and awareness; preparation; experimentation; and integration into business operation. van der Wiele, et al. (2001) introduced an alternative perspective of appraising the developmental level of management initiatives. When assessing the extent to which corporate social responsibilities (CSR) are developed in an organisation, van der Wiele, et al. (2001) identifies four levels of scoring the development, i.e. whether the organisation uses ad hoc policy; standard policy that deals with minimum compliance; planned policy that enlightened self-interest; or evaluated and reviewed policy that is proactive.

Meanwhile, extant literature (Ahire, et al., 1996; Flynn, et al., 1994; Hartman, et al., 2002; Saraph, et al., 1989) suggests that the degree of SQIM implementation in an organisation can be measured by examining the perceived use of quality management programmes. Hence, the perceived usage was measured in these studies with a range from "not used" to "high use".

This study argues that while the perceived usage levels provide useful indication on the degree of implementation, it does not reflect the approach that SQIM is being used. Specifically, the frequency of use provides no indication on whether SQIM is being implemented in an informal, ad hoc or integrative approach. The different approaches are largely driven by strategic intentions in HTHD, and are likely to influence the outcomes of SQIM implementation. Therefore, this study attempts to contribute to the measure by providing a strategic view to the measure of perceived usage. It is assumed that SQIM that is strategically important is fully integrated into the various departments/units, hence highly used, is high in implementation level. On the other hand, SQIM that is not strategically important, hence not used or little used, is low in implementation level.

The conceptualisation of implementation level for the SQIM construct in this study was inspired by the classification system adopted in the American Society for Quality Standards (2000). The Standards published the ANSI/ISO/ASQ Q9004-2000

performance maturity level classification system to identify organisation's quality management approaches. The maturity level is classified as having "no formal approach"; having a "reactive approach"; a "stable formal system approach"; a "continual improvement emphasized"; and" best-in-class performance". This factual approach to gauge quality system maturity has been used by Sower, et al. (2007a) when studying cost of quality usage and the relationship to quality system maturity. This forms the basis for us to conceptualise the SQIM construct. It was anticipated that some HTHDs may still be in an early stage of service quality maturity, scales were therefore modified to provide more rooms at the lower-end of the classification system. To enhance accessibility to the target respondents, the prescriptions of these items were rephrased and reworded in such a way that will ease their comprehension in the opinion of the researchers. See Table 6.3.

Accordingly, a 5-point Likert scale was used to measure SQIM, where "1" is *not strategically important* and "5" is *fully integrated into department/division*. Since all the HTHDs included in this survey are obtained quality certification/accreditations from established institutions, it is highly unlikely that any of the quality themes are not applicable to their operations. Therefore, the option of "not applicable" was not provided as a response.

Table 6.3: Measurement for SQIM level

Maturity Levels	Prescriptions
1. Not strategically important	This initiative is not strategically important when we provide services to patients/clients.
2. Strategically important but little (or not) implemented	This initiative is strategically important when we provide services to patients/clients, but there is little or no implementation thus far.
3. Somewhat implemented	This initiative is in place, and the approach is somewhat disorganised or is driven by the existing problems/quality issues.
4. Reasonably well implemented	This initiative is well implemented, and is showing good results/evidence of improvement.
5. Fully integrated into department/division	This initiative is fully integrated into the way we work in our department/division.

6.3.1.2   MAP

The International Federation of Accountants Statement on *Management Accounting Concepts* (IFAC, 1998) categorises MAPs according to their capability in providing managerial information for planning, controlling and decision-making in order to create value. In particular, MAPs may be grouped into four capability levels, namely (1) cost determination and financial control; (2) provision of information for planning and control; (3) reduction of waste in business resources and (4) creation of value through effective resource use. In view of its comprehensiveness, the categorisation made in the statement issued by IFAC (1998) was adopted in this study to specify the domain for this construct.

To prescribe the MAP construct in each of the categories, the works of Abdel-Kader and Luther (2006; 2008) was referred. Abdel-Kader and Luther (2006; 2008) revealed literature on the development of management accounting and has subsequently identified 38 MAPs/techniques and classified them into different groups within the IFAC framework. Additionally, the list of MAPs was extended by incorporating the work of Chenhall and Langfield-Smith (1998) that introduces contemporary practices such as benchmarking, balanced performance measures, team-based performance measures and strategic planning techniques. See Table 6.4. The resultant list is, in the opinion of the researchers, a reasonably good representation of MAPs available for adoption by any organisation in current times. Based on these prescriptions used in the literature, subjective judgment was used to identify indicators that are not only appealing to the theme in each category of the MAP construct within the healthcare environment, but also are accessible to the managers responsible for the departmental activities in a healthcare organisation. For instance, in *Category 1: Cost determination and financial control*, item 1 and 5 are generally determined or managed centrally instead of at a departmental level; item 6 and 7 are overlapping with item 2, with the latter being more prominently focused by the departments in the healthcare organisations. Hence, only items 2, 3, and 4 are used as the reflective indicators for this category. Following this logic, the reflective indicators were developed for each of the categories as shown in Table 6.5.

Table 6.4: Prescriptions for the MAP construct

Prescriptions for MAPs arranged in Categories as per IFAC framework	Sources
Category 1: Cost determination and financial control	
1. Using a plant-wide overhead rate	Abdel-Kader (2008)
2. Budgeting for controlling costs	Abdel-Kader (2008), Chenhall a Langfield-Smith (1998)
3. Flexible budgeting	Abdel-Kader (2008)
4. Performance evaluation based on financial measures	Abdel-Kader (2008), Chenhall & Langfield-Smith (1998)
5. Evaluation of major capital investment based on payback period &/or accounting rate of return	Abdel-Kader (2008)
6. Budgeting systems for planning cash flows	Chenhall & Langfield-Smith (1998)
7. Budgeting systems for planning financial position	Chenhall & Langfield-Smith (1998)
Category 2: Provision of info for planning and control	
1. A separation is made between variable/incremental costs and fixed/non-incremental costs	Abdel-Kader (2008)
2. Using departmental overhead rate	Abdel-Kader (2008)
3. Using regression and/or learning curve techniques	Abdel-Kader (2008)
4. Budgeting for planning	Abdel-Kader (2008)
5. Budgeting with "what if" analysis	Abdel-Kader (2008)
6. Budgeting for long term (strategic) plans	Abdel-Kader (2008)
7. Performance evaluation based on non-financial measure(s) related to operations	Abdel-Kader (2008)
8. Cost-volume-profit analysis for major products	Abdel-Kader (2008)
9. Product profitability analysis	Abdel-Kader (2008)
10. Stock control models	Abdel-Kader (2008)
11. Evaluation of major capital investments based on discounted cash flow method(s)	Abdel-Kader (2008)
12. Long range forecasting	Abdel-Kader (2008)
Category 3: Reduction of waste in business resources	
1. Activity-based costing	Abdel-Kader (2008), Chenhall & Langfield-Smith (1998)
2. Activity-based budgeting	Abdel-Kader (2008)
3. Activity-based management	Chenhall & Langfield-Smith (1998)
4. Cost of quality	Abdel-Kader (2008)
5. Zero-based budgeting	Abdel-Kader (2008)
6. Performance evaluation based on non-financial measure(s) related to employees	Abdel-Kader (2008)
7. Team performance measures	Chenhall & Langfield-Smith (1998)
8. Employee attitude measures	Chenhall & Langfield-Smith (1998)
9. Employee-based qualitative measures	Chenhall & Langfield-Smith (1998)
10. Evaluating the risk of major capital investment projects by using probability analysis or computer simulation	Abdel-Kader (2008)
11. Performing sensitivity "what if" analysis when evaluating major capital investment projects	Abdel-Kader (2008)
Category 4: Creation of value through effective resource use	
1. Target costing	Abdel-Kader (2008)
2. Performance evaluation based on non-financial measure(s) related to customers	Abdel-Kader (2008)

3.	Performance evaluation based on residual income or economic value added	Abdel-Kader (2008)
4.	Benchmarking	Abdel-Kader (2008)
5.	Benchmarking product characteristics	Chenhall & Langfield-Smith (1998)
6.	Benchmarking operational processes	Chenhall & Langfield-Smith (1998)
7.	Benchmarking management processes	Chenhall & Langfield-Smith (1998)
8.	Benchmarking with outside organisations	Chenhall & Langfield-Smith (1998)
9.	Benchmarking strategic priorities	Chenhall & Langfield-Smith (1998)
10.	Customer profitability analysis	Abdel-Kader (2008)
11.	Non-financial aspects are documented and reported to evaluate major capital investments	Abdel-Kader (2008)
12.	Calculation and use of cost of capital in discounting cash flow for major capital investment evaluation	Abdel-Kader (2008)
13.	Shareholder value analysis	Abdel-Kader (2008)
14.	Industry analysis	Abdel-Kader (2008)
15.	Analysis of competitive position	Abdel-Kader (2008)
16.	Value chain analysis	Abdel-Kader (2008)
17.	Product life cycle analysis	Abdel-Kader (2008)
18.	The possibilities of integration with suppliers' and/or customer' value chains	Abdel-Kader (2008)
19.	Analysis of competitors' strengths and weaknesses	Abdel-Kader (2008)
20.	Formal strategic planning	Chenhall & Langfield-Smith (1998)
21.	Long range planning	Chenhall & Langfield-Smith (1998)
22.	Balanced scorecard	Chenhall & Langfield-Smith (1998)
23.	Non-financial measures	Chenhall & Langfield-Smith (1998)

Table 6.5: Reflective indicators for the MAP construct

	REFLECTIVE INDICATORS	INDICATIVE QUESTIONS
CATEGORY 1 COST DETERMINATION AND FINANCIAL CONTROL	1. Budgeting for controlling costs	We use budgets (*e.g. target spending*) to control cost levels in our operation.
	2. Flexible budgeting	When assessing the performance of our operation, we first adjust the budget to the actual activity level worked, and then compare the adjusted budget with the actual results.
	3. Performance evaluation based on financial measures	When assessing the performance of our operation, we use measures that are expressed in financial terms (*e.g. costs; financial ratios; etc.*).
CATEGORY 2 PROVISION OF INFO FOR PLANNING AND CONTROL	1. A separation is made between variable/ incremental costs and fixed/non-incremental costs	We differentiate between variable/incremental costs and fixed costs spent in our operation.
	2. Performance evaluation based on non-financial measure(s) related to operations	When assessing the performance of our operation, we use measures that are not expressed in financial terms (*e.g. number of activities handled/completed within specific time; time taken to achieve the target set; etc.*).
	3. Stock control models	We use a formal approach to manage and control the level of stock (*e.g. drugs; consumables; etc.*), i.e. we monitor the current stock level; we know the maximum stock level that we can have; the minimum stock level where we should start to re-order; and the quantity that needs to be re-ordered.
CATEGORY 3 REDUCTION OF WASTE IN BUSINESS RESOURCES	1. Activity-based costing	We use *activity-based costing,* where we identify activities performed and find out the costs associated to these activities.
	2. Cost of quality	We use *quality costing,* where we measure and report costs that have been spent to maintain good quality of our products/services (*e.g. cost of pre-testing a new system/ technology before putting it to use; cost of finding out if the quality of products/services meets the expectations; cost of correcting a mistake made earlier; etc.*) so that management will know of any problems related to quality.
	3. Performance evaluation based on non-financial measure(s) related to employees	When assessing the performance of our operation, we use employee-related measures that are not expressed in financial terms (*e.g. number of employees resigned this year; employee satisfaction level; etc.*).

	4. Team performance measures	When assessing the performance of our employees, we measure the performance of a team rather than of an individual (*e.g. the best team of the month; time taken to complete a group project; number of activities completed by different teams; etc.*).
CATEGORY 4 CREATION OF VALUE THROUGH EFFECTIVE RESOURCE USE	1. Performance evaluation based on non-financial measure(s) related to customers	When assessing the performance of our operation, we use customer-related measures that are not expressed in financial terms (*e.g. number of customer complaints; customer satisfaction level; etc.*).
	2. Benchmarking	To improve our operation, we identify the best practices in other organisations and refer to them as good standard/ benchmark for our internal processes or performance.
	3. Analysis of competitive position	We analyse competitor positions in our industry by assessing and monitoring their changes (*e.g. changes in their products/services; processes; sales levels; cost levels; new technologies; market share; etc.*). We then compare our position with theirs and look for ways to keep/improve our position.
	4. Balanced scorecard	When assessing the performance of our operation, we use both financial measures and non-financial measures (*e.g. using the Balanced scorecard; Performance Pyramid; etc.*).

To establish content validity, the prescriptions of these items were rephrased and reworded in such a way that they represent the concept being measured while maintain ease of comprehension in the opinion of the researchers. This is done with reference to the definitions provided in management accounting literatures including Guilding, et al. (2000) and Cadez and Guilding (2008). Since the respondents include non-accounting staff in HTHDs, some of the terms currently used to describe the MAPs was reworded/rephrased to remove the technicality as far as possible. Items that were very common in their approaches or that have overlapping functions were also consolidated. This will help to reduce the range of the items to a size manageable to the respondents while still maintaining good representation within each category outlined in the IFAC framework. Also, items that facilitate capital investment decisions were removed as these are beyond the scope of this research.

The usage level of MAP was measured using a 5-point Likert scale, where "1" is *almost never*, "2" *not frequently*; "3" *once every few months*; "4" *about once a month*; and "5" means *once a week or more*. The scale definitions are subject to pre-test and may be redefined to capture a reasonable spread of responses. Since these MAP are generic and applicable to different types of operations, the option of "not applicable" was not provided to respondents.

6.3.1.3   PERF

A review of literature suggests that organisational performance may be appraised from different perspectives. These include financial performance (Chung, et al., 2008; Lakhal, et al., 2006; Minkman, et al., 2007; Sower, et al., 2007b; Su, et al., 2008) a more comprehensive business performance including financial performance, operational performance and product quality (Terziovski, et al., 1997); customer satisfaction, employee morale, employee growth, market share growth (Terziovski and Samson, 1999; Terziovski, et al., 1997); innovation (Martinez-Costa and Martinez-Lorente, 2008; McAdam, et al., 1998; Terziovski, et al., 1997; Thai Hoang, et al., 2006); and CSR (Ghobadian, et al., 2007; Hazlett, et al., 2007; van der Wiele, et al., 2001).

This study attempts to ensure that the performance construct maintains a good balance between financial and non-financial performance measures, and that it gives a reasonably comprehensive view of HTHDs' performance. In so doing, measures on quality outcomes were excluded (such as service quality and customer satisfaction) as they are not intended for this research. In order to maintain the scope of the construct to be organisational-centric, measures that are employee-centric (such as employee growth and morale) were excluded from the study. Accordingly, this study attempts to measure the performance of HTHDs from the perspectives of *financial performance*, *operating efficiency*, *innovation* and *CSR*. See Table 6.6.

Table 6.6: Prescriptions for PERF

Prescriptions for organisational performance	Examples of previous studies using the prescriptions
Perspective 1: Financial performance	
1. Growth in revenue (sales) achieved 2. Growth in net profit achieved 3. Return on investment (ROI) achieved 4. Cash flow generated from operating activities 5. Cost control 6. Sales volume achieved 7. Market share 8. Market development	Powell (1995), Ittner & Larcker (1997), Chenhall (1997), Terziovsk, et al. (1997), Terziovski & Samson (1999), Evans & Jack (2003), Lakhal, et al. (2006), Sower, et al. (2007), Chung, et al. (2008), Martinez-Costa & Martinez-Lorente (2008), Su, et al. (2008), etc.
Perspective 2: Operating efficiency	
1. Speed and reliability of services delivered 2. Cycle time required 3. Inventory turnover 4. Cost of quality relative to total services provided 5. Unit cost of services provided	Terziovski & Samson (1999), Chung, et al. (2008), Martinez-Costa & Martinez-Lorente (2008), etc.
Perspective 3: Innovation	
1. New product/service development 2. New process development 3. Direct a more creative business 4. Develop greater creative capability 5. Build a more creative culture 6. Manage the learning for new ideas 7. Organise creativity in a better way 8. Take wiser decisions	McAdam (1998), Singh (2004), Hoang, et al. (2006), Martinez-Costa & Martinez-Lorente (2008), etc.
Perspective 4: CSR	
1. Not engaged in any action that leads to harm people, environment and eco-system 2. Open and transparency in its activities 3. Protects stakeholders' interests through visible and active participation in its decision making process 4. Fair in its actions	Ahmed & Machold (2004), Hazlett (2007), Ghobadian (2007), etc.

The performance of HTHDs may be measured at either firm level or at sub-unit level. While the former is useful in providing an overview of performance achieved by each HTHD, the latter reflects such achievement within the same local context corresponding to the types of service quality initiatives and MAPs that are put in place. Since the objective of this study is to understand the relationships between MAP, SQIM and PERF, and these may well correspond to a local context, the performance of HTHDs was therefore measured at sub-unit level. To aid the respondents in their scoring process, suggestions were made that they consider their performance relative to their key competitors over the past year.

To establish content validity, the prescriptions of these items were rephrased and reworded in such a way that they represent the concept being measured while maintain ease of comprehension in the opinion of the researchers. Based on these prescriptions, the reflective indicators have been developed for each of the perspectives as shown in Table 6.7.

Table 6.7: Reflective indicators for the PERF construct

	REFLECTIVE INDICATORS	INDICATIVE QUESTIONS
PERSPECTIVE 1 FINANCIAL	1. Growth in revenue (sales) achieved.	The growth in revenue (sales) achieved in our hospital is generally greater than our key competitors.
	2. Cash flow generated from operating activities.	The cash flow generated from operating activities in our hospital is generally better than our key competitors.
	3. Cost control.	The cost control in our hospital is generally better than our key competitors.
	4. Market share.	The market share of our hospital is generally larger than our key competitors.
PERSPECTIVE 2 OPERATING EFFICIENCY	1. Speed and reliability of services delivered.	The speed and reliability of services delivered by our operation are generally better than our key competitors.
	2. Inventory turnover	The inventory turnover in our operation is generally faster than our key competitors.
	3. Cost of quality relative to total services provided.	The cost of quality *(e.g. cost of reworking a mistake; cost of having low staff morale; having reduced patient loyalty; cost of inspection/testing; quality audit; cost of test equipment; quality planning; training; etc.)*, relative to total care services provided, in our operation is generally lower than our key competitors.
	4. Unit cost of services provided.	The unit cost of care services provided in our operation is generally lower than our key competitors.
PERSPECTIVE 3 INNOVATION	1. New product/service development.	The new product/service development in this hospital is generally better than its key competitors.
	2. New process development.	The new process development in this hospital is generally better than its key competitors.
	3. Build a more creative culture.	The leaders in our operation manage to build a more creative culture compared to our key competitors.
	4. Manage the learning for new ideas.	The leaders in our operation manage the learning for new ideas in a better way compared to our key competitors.

PERSPECTIVE 4 **CSR**	1. Not engaged in any action that leads to harm people, environment and eco-system.	Our operation is not engaged in any action that leads to harm people, environment and eco-system compared to our key competitors.
	2. Open and transparency in its activities.	Our operation is open and transparent in its activities compared to our key competitors.
	3. Protects and promotes the rights of people.	Our operation protects and promotes the rights of people compared to our key competitors.

Following the development of the above indicators on organisation performance, measurement was developed to capture the level of performance. While there are many research using actual (financial) data to benefit from their objectivity, some research have attempted to use the perception of survey respondents as proxy for financial performance (Chenhall, 1997; Ittner and Larcker, 1997; Powell, 1995) and for multiple dimension of performance (Chenhall and Langfield-Smith, 1998; Govindarajan, 1988; Govindarajan and Fisher, 1990).

In view of the performance construct that has been developed, and respondents' limited accessibility to the actual data on the different performance perspectives, this study attempted to measure respondents' perception on the performance level of the department/division that they are attached to. The perceived performance level is measured by 5-point Likert scale, where "1" is *strongly disagree* and "5" is *strongly agree*. A mean score will be computed for each of the performance perspectives. Factor means would be derived to capture the performance level of a given performance perspectives.

6.3.1.4 Respondents' profile

Basic information on respondents' background was collected in order to profile the responses gathered from the survey. Information requested are general and non-sensitive in order to avoid resistance to responses. These include department/ division that the respondent is currently affiliate with; the number of staff in the department/division; the primary role and decision-making function assumed by respondent; mode of employment; years of work experience in current employment and in the industry; gender; ethnic group; highest year of education; and age

group. A summary of the constructs and the corresponding items that represent them are listed in Table 6.8.

6.3.2 PRE-TESTS FOR CONSTRUCTS AND QUESTIONNAIRE

After developing the measurement construct, the items are subjected to review and pre-test. According to Dillman (1978, 1999), the purpose of pre-test is to test both the questions and the questionnaires. The pre-test is useful to establish the extent to which a measure is a good representation of all aspects of a given concept (content validity), and to invite experts' opinion on the presentation the questionnaire and on the appropriateness of the questions in terms of their relevance, reasonableness and unambiguousness (face validity)(Bowling, 2009).

To ensure that the questions work as intended, Dillman (1978, 1999) recommends subjecting the questions (questionnaires) to the scrutiny of three groups of people. Questions should first be submitted to the colleagues who have an understanding of the design and topic to assess the extent to which the measures provides results that are consistent with the underlying theories (construct validity), and to advise whether the questions will deliver the study objectives. The questions should then be tested by prospective respondents to identify and rectify problems with the questions, and to remove unsuitable/technical language. Lastly, feedback should be obtained from users of the data. This will not only ensures that the survey benefits from their substantive knowledge /work experience with the topic, but also increases the likelihood that the questions use terminology that are familiar and well received by the respondents Dillman (1978, 1999).

In terms of the size of the pre-test sample, Hunt, et al. (1982) reviewed the literature which has suggested different sample sizes, ranging between 12 and 30. Hunt, et al. (1982) further concluded that the size of pre-test sample is not fixed and should be a function of the survey instrument and the population. Specifically, long and complex instruments would justify larger pre-test samples. Meanwhile, unsophisticated target populations would normally require a larger pre-test sample (Hunt, et al., 1982). In the context of this study, the

questionnaire covered three constructs presented in a rather straightforward manner, and was kept to a minimal and manageable length. The target populations include hospital management staff who may come from diverse background in terms of their functional areas, work experience and demographic profiles. In view of these factors and of the limited resources and accessibility to the pre-test prospects, this study aims to use a small sample size to confirm the validity of the questionnaire developed.

Advised by the above literature, items representing each of the constructs are reviewed by four academic colleagues in the University of Nottingham. The outcomes are pre-tested with six professionals who are identified through the researchers' personal network and who have at least ten years of managerial experience in different industries. Finally, the items are pre-tested by two managerial staff who are currently attached to HTHDs that fall within the sample. These are identified through the researchers' personal contact. Although the selection of pre-test candidates is based largely on convenience sampling, we only contact personnel who have at least five years of managerial work experience so that the pre-tests will provide us with sensible and practical comments on the appropriateness and ease of comprehension.

The debriefing method (Hunt, et al., 1982) was used where these respondents filled out all the questions (questionnaires) while the researcher makes careful observations and probes the respondent for any potential problems with the questions once the questions are attempted.

Following the feedback in the pre-tests, some of the descriptions of items representing the constructs are re-worded and/or rephrased. The overall presentation format of the questionnaire is also improved for better accessibility of respondents in view of their busy schedule and heavy work load. The improvements include the use of larger font size and the spacing between questions and sections. The pre-test responses on the MAP construct indicate that there are many scores around "3" (i.e. once every few months) and "4" (i.e. about once a month). To allow a better spread of responses, the scale was subsequently redefined where "1" means *never/infrequently*; and "2" *about*

twice a year. See Appendix 1 for a sample copy of the survey questionnaire used in this study.

This study recognises the value that may be derived from pilot testing the questionnaire. However, there were practical limitations in accessibility of such responses primarily due to the hectic workload of HTHD management, the process was found not possible. Hence, this study drew from the available feedback from the pre-tests to modify and improve the instrument for actual use.

Table 6.8   Structure for questionnaire

Constructs	Item No.
Section A: Service Quality Initiatives	
Patient Focus	A1–A3
Leadership	A4-A7
Human Resources	A8-10
Processes	A11-A12
Management	A13-A15
Communication	A16-A19
Data Collection and Management Analysis	A20-A23
Section B: MAPs	
Cost determination and financial control	B1-B3
Provision of info for planning and control	B4-B6
Reduction of waste in business resources	B7-B10
Creation of value through effective resource use	B11-B14
Section C: Performance	
Financial	C1-C4
Efficiency	C5-C8
Innovativeness	C9-C12
CSR	C13-C16
Importance of performance areas	C17-C20
Section D: Respondents' Profile	
Type of operation/department	D1
Size	D2
Role	D3
Decision making function	D4
Employment mode	D5
Experience	D6-D7

Gender and ethnicity	D8-D9
Education	D10
Age	D11
HTHD location (Central/North/South/East)	n/a

6.4 SAMPLING AND UNIT OF MEASUREMENT

This section describes the sampling method and the unit of measurement identified for data collection.

6.4.1 QUESTIONNAIRE DEVELOPMENT

According to Bowling(2009), it is fundamental that, when using structured questionnaires, both researchers and respondents share a common theoretical frame of reference and that both parties be interpreting the words, phrases and concepts in the same way. Therefore, care was exercised to ensure that the questionnaire used in this survey was developed following the basic rules of questionnaire design. Good practices promoted in research methodology literatures (Bowling, 2009) were consulted to ensure that the question wordings, form and order were carefully presented so as to minimise their influences on the responses obtained and subsequently the biasness in the results.

A covering letter was prepared to introduce the survey to the HTHDs. Advised by Bowling(2009), the content of the letter has included a brief explanation about how the HTHDs were selected to participate in the survey, an outline of the study aims and the benefits arising from their participation, and guaranteed confidentiality. The letter was addressed to the target recipients by name. This was printed with the School's letterhead and may be kept for reference and reassurance that the study is bona fide (Bowling, 2009). Both the questionnaire and the cover letter were written in English which is the common business language in the country.

6.4.2 TARGET SAMPLE

This study involved 35[2] of the country's larger private hospitals that were being recognised by the Malaysian Ministry of Health as "health tourism status" (formerly "medical tourism status"). These hospitals are typically the larger and more established ones in the service sector. When measured by the total number of inpatient beds, they accounted for approximately 53.6% of total beds available in the private hospital industry. See Table 6.9. Given their establishment, they are targeting both local and international patients for their healthcare services. To gain competitive edge, they had embarked on quality initiatives in a formal approach, and were likely to have employed a wide range, including the more advanced types, of management accounting practices to facilitate their quality management.

While the findings may not be interpreted as representative of the general population of hospitals in Malaysia, the study provides a good indication of the current practices among the bigger (hence more resourceful) players in the private healthcare sector.

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[2] Source: www.hospitals-malaysia.org/portal/index.asp?menuid=42, viewed on 8 May 2011. The number of health tourism hospitals has increased to 41 when viewed on 20 May 2015 on the same web link.

Table 6.9   Size of HTHDs

	HTHD	Approx. total staff number[#]	Total beds[*]
	Industry (total 220 private hospitals), as at 31/12/2011	n/a	13,568
	Central		
1	Assunta Hospital	700	344
2	Gleneagles Intan Medical	1,050	311
3	IJN (National Heart Inst)	1,700	424
4	KPJ Ampang Puteri Specialist	500	230
5	KPJ Damansara Specialist	450	209
6	KPJ Selangor Specialist Hospital	500	173
7	KPJ Sentosa Medical Centre	300	201
8	KPJ Tawakkal Specialist Hospital	500	188
9	Pantai Hospital Kuala Lumpur	750	264
10	Prince Court Medical Centre	1,010	212
11	Sime Darby Medical Centre Subang Jaya	1,500	393
12	Sunway Medical Centre	1,300	185
13	Taman Desa Medical Centre	130	128
14	TMC Fertility Centre	100	70
15	Tun Hussein Onn National Eye Hospital	200	44
16	Tung Shin Hospital	600	238
	North		
1	Gleneagles Medical Centre	630	227
2	Hospital Fatimah	510	226
3	Island Hospital	700	192
4	KPJ Ipoh Specialist Hospital	800	260
5	Lam Wah Ee Hospital	600	442
6	Loh Guan Lye Specialists Centre	690	265
7	Mount Miriam Cancer Hospital	200	40
8	Pantai Hospital Penang	380	180
9	Pantai Hospital Ipoh	450	121
10	Penang Adventist Hospital	600	276
	South		
1	Columbia Asia Hospital, Seremban	370	65
2	KPJ Johor Specialist Hospital	700	^263
3	Mahkota Medical Centre	700	356
4	NCI Hospital	160	25
5	Pantai Hospital Ayer Keroh	600	120
6	Putra Specialist Hospital	430	225
	East		
1	KPJ Sabah Medical Centre	600	175
2	Normah Medical Specialist	500	130
3	Timberland Medical Centre	400	72
	Total	**21,310**	**7,274**

Source: Management staff in the respective hospitals. Information obtained between September and November 2012.
* Source: Information on the industry was extracted from *Health Facts 2012* published by the Ministry of Health Malaysia, downloaded at
www.moh.gov.my/images/gallery/stats/heal_fact/health_fact_2012_page_by_page.pdf on 27/5/2013.
Information on individual hospitals was extracted from the Association of Private Hospitals od Malaysia website,
www.hospitals-malaysia.org/portal/index.asp?menuid=42 viewed on 27/5/2013.
^ Source: Archival records obtained from APHM website, as at 17/12/2008.

6.4.3 UNIT OF MEASUREMENT

The unit of measurement in this study was the individuals that participate in the survey. While it was possible to measure the service quality initiatives and MAPs within HTHDs, it was recognised that the service quality initiatives may vary across different departments in the same HTHD depending on factors such as the types of functions (the routineness of activities, exposure to different level/types of risks, etc.), the degree of expectation (from both internal and external) for service quality to be in place, etc. Based on these differences, the information needs of management would differ accordingly and thus the types of MAPs that are put in place.

Such choice of measurement unit has been used in the previous research, whereby questionnaire responses were requested from individuals working across different functions within the sample firms. For instance, Daniel and Reitsperger (1991) attempted to relate quality strategies with the management control information provided for quality in 26 Japanese automotive and consumer electrics firms. Their study was based on 459 responses received from employees of the 26 Japanese consumer electronics and automotive manufacturers. Daniel and Reitsperger (1992) undertook an analysis on the type and frequency of production and quality internal failure goals and feedback information provided. The study was based on responses from 1468 operating managers in 64 U.S. and 50 Japanese electronics firms. Daniel and Reitsperger (1994) compared quality strategies and their relationships with management control systems in the Japanese and U.S. electrical industry. The comparison was based on 679 responses received from employees in 50 firms in Japan and 789 from 64 firms in the U.S. Daniel, Reitsperger and Gregson (1995) examined the implementation of quality strategies through management control and reward systems electronics manufacturing industry in Japan and the U.S. The study used data gathered from 698 Japanese manufacturing managers in 50 Japanese electronics firms and 789 manufacturing managers in 64 U.S. electrics firms. Meirovich, Brender-Ilan and Meirovich (2007) measured the impact of formalization and decentralization on quality of hospital services. The study used questionnaire responses from 758 staff members and patients in five hospitals.

6.4.4 SAMPLING AND SAMPLE SIZE

It was intended that this study gather data on the research issues from the management of the targeted HTHDs. It is generally expected that these target respondents would be having reasonably sound knowledge pertaining to the research issues applicable within the context of their workplace, thereby providing valuable input to the research process.

The purposive sampling (or judgement sampling) method was therefore adopted in this study. Bowling (2009) defined this method as a deliberate non-random sampling method that samples a group of people or settings that carry a particular characteristic desired in the research. Though this method is generally restricted to qualitative research, it has also been used by health economists in their highly complex and structured utility analysis (Bowling, 2009). The use of this non-random sampling method would mean that the results are not generalizable to the wider population of interest. However, it is able to capture valuable (and potentially more reliable) data that are useful to provide insights to the research issues and to generate hypotheses for further study (Bowling, 2009).

The population size in this study includes the total number of managerial staff currently employed by the 35 HTHDs. The "managerial staff" referred to staff involved in the managerial activities of a hospital. These would typically include directors, heads of department and managers in any functional areas. Since information on the actual number of managerial staff is not readily available, it was therefore necessary to derive an estimation based on indicative information gathered from the hospitals.

Ideally, this study would like to include only managerial staff who are reasonably experienced, say two years of work experience, in the HTHD that they are currently attached to. This criterion would provide us with greater assurance on reliability of data collected about the hospital. Nevertheless, it was necessary to consider the practical implications that imposing such additional criterion may have on the willingness of HTHDs to participate in this survey. Since there has yet been much evidence from the media or literature highlighting turnover of

managerial staff in private hospitals as an issue of concern, it was therefore decided to ignore this criterion when framing the sample.

To derive the population size, information was obtained on the total staff number either through enquiries with hospital management or from the websites of hospital or APHM. The friendly advices from some of the target hospitals was carefully considered to establish a rough approximation on the proportion of staff that would typically represent the managerial staff in a private hospital, albeit the different organisation structure that may be adopted in different hospitals. After much deliberation, it was ascertained that a fraction of 1/10 of the total staff number in a given hospital would be sensible to derive the approximate number of managerial staff in that hospital. Consequently, the number of people who meet the criterion for this survey was derived. See Table 6.10.

Table 6.10   Population size and its distribution

	HTHD	Approx. total staff number	Population size
	Central		
1	Assunta Hospital	700	70
2	Gleneagles Intan Medical	1,050	105
3	IJN (National Heart Inst)	1,700	170
4	KPJ Ampang Puteri Specialist	500	50
5	KPJ Damansara Specialist	450	45
6	KPJ Selangor Specialist Hospital	500	50
7	KPJ Sentosa Medical Centre	300	30
8	KPJ Tawakkal Specialist Hospital	500	50
9	Pantai Hospital Kuala Lumpur	750	75
10	Prince Court Medical Centre	1,010	101
11	Sime Darby Medical Centre Subang Jaya	1,500	150
12	Sunway Medical Centre	1,300	130
13	Taman Desa Medical Centre	130	13
14	TMC Fertility Centre	100	10
15	Tun Hussein Onn National Eye Hospital	200	20
16	Tung Shin Hospital	600	60
	North		
1	Gleneagles Medical Centre	630	63
2	Hospital Fatimah	510	51
3	Island Hospital	700	70
4	KPJ Ipoh Specialist Hospital	800	80
5	Lam Wah Ee Hospital	600	60
6	Loh Guan Lye Specialists Centre	690	69
7	Mount Miriam Cancer Hospital	200	20
8	Pantai Hospital Penang	380	38
9	Pantai Hospital Ipoh	450	45

10	Penang Adventist Hospital		600	60
	South			
1	Columbia Asia Hospital, Seremban		370	37
2	KPJ Johor Specialist Hospital		700	70
3	Mahkota Medical Centre		700	70
4	NCI Hospital		160	16
5	Pantai Hospital Ayer Keroh		600	60
6	Putra Specialist Hospital		430	43
	East			
1	KPJ Sabah Medical Centre		600	60
2	Normah Medical Specialist		500	50
3	Timberland Medical Centre		400	40
		Total	**21,310**	**2,131**

* Population size is the estimated number of managerial staff in HTHDs, which is derived from the approximate total staff number using a fraction of 1/10

Zikmund, et al. (2013) provided a review on statistical theory underlying sample size determination and suggested that three factors are required to specify sample size, namely the confidence level; the heterogeneity of the population; and the magnitude of acceptable error for mean being estimated.

In determining the confidence level, the convention was followed, as in most business research, to have a 95 percent confidence level that the population parameter is being correctly estimated. This reflects the level of risk that this study was willing to take that the true margin of error may exceed the acceptable margin of error. The value for alpha level of .025 in each tail is 1.96 (Z). In estimating the standard deviation of the population (S), the rule of thumb (Zikmund, et al., 2013) was used which is to expect the standard deviation to be about one-sixth of the range. Since a 5-point Likert scaled response was used in the questionnaire, the standard deviation was to be .833 (5 divided by 6). The allowable magnitude of error, or the confidence interval, indicates the precision required when estimating the mean. This may be derived from managerial judgment which considers the possible cost of an error following the room for random sampling errors. Alternatively, this value may be calculated by multiplying the number of points on primary scale (in this case 5-points) with the acceptable margin of error (Bartlett, et al., 2001). According to Krejcie and Morgan (1970), the general rule for acceptable margin of errors for

continuous data is 3 percent in social research. Accordingly, the allowable magnitude of error is calculated to be .15 (5*.03)

Guided by Bartlett, et. al. (2001), since data analysis in this study would be using continuous data, and that categorical variables will not be playing a primary role in the analysis, the Cochran's sample size formula for continuous data was referred and the required sample size was determined as follows:

$$n \quad = [(Z*S)/E]^2$$

$$= [(1.96*.833)/.15]^2$$

$$= 118.47$$

Therefore, a sample size of 118 is required for a population of 2,131. However, since this sample size exceeds 5% of the population, the Cochran's correction formula was used to derive the final sample size (Bartlett, et al., 2001). The sample size correction is as follows:

$$n_1 \quad = n_0 / (1 + n_0/\text{population})$$

$$= 118 / (1 + 118/2131)$$

$$= 111.81$$

Where

n_1 = required returned sample size where sample exceed 5% of population

n_0 = required returned sample size according to Cochran's formula

Therefore, a returned sample size of 112 would be required for this survey. However, participation in the survey was largely voluntary and at the discretion of the top management of the respective hospitals, thus a possibility of non-participation from some. It was therefore necessary to pad the sample size (oversampling). There is yet any agreed standard for an acceptable minimum

response rate. Based on a cursory review of research literature in social science and on consultations with colleagues experienced in field study, it was decided that an estimated response rate of 30% would be realistic for this study. Consequently, the sample size was adjusted to be 374 to cater for the estimated response rate. To achieve the target sample size of 374, it was further estimated that the sample distribution would somewhat follow the size of managerial staff in the HTHDs. This provided an indicative target sample size for each HTHD identified in this study. See Table 6.11.

The initial contacts with senior personnel in the hospitals suggested that some hospitals have opted not to participate due to reasons such as policy matter. Meanwhile, hospitals that were happy to participate in the survey had indicated that it was unlikely for them to obtain responses from all managerial staff, primarily due to their busy schedule and other work commitments. Hence, this study resorted to encouraging the top management to identify as many as possible of their staff who are competent enough to provide the responses. For HTHDs that are more participative and receptive to suggestions, verbally indications were made to them stating the preference for participations from managerial staff across the different business functions. This approach has invited practical limitations on the sampling frame since it is likely that some eligible respondents might have been excluded from the survey based on the discretions exercised by the top management of HTHDs.

Permissions were received from top management of 15 (out of 35) HTHDs to conduct the survey in their hospitals. 420 responses were received from eligible respondents, giving a response rate of 19.71 percent of the total eligible study population. See Table 6.11 for the distribution of actual responses received.

It was noted that there was no participation from the targeted HTHDs operating in East Malaysia. This was largely due to the lack of interest of such hospitals when they were contacted about the current research. Nevertheless, given that the main medical tourism destinations in Malaysia have been located in West Malaysia, and are primarily concentrated in the states of Penang and Malacca, as well as the central region of the Peninsular, such non-response from East Malaysia might not cause significant concern over the representativeness of samples studied, albeit the difference in geographical locations.

Out of the 15 HTHDs that had responded to the survey, 8 have been certified under the ISO 9000 standards, 10 have sought accreditation by the MSQH, and 3 have been accredited by the JCI. According to the official websites of these participating HTHDs, the quality achievements were received rather recently. Specifically, the ISO 9000 certifications were received between 1998 and 2008; MSQH accreditations between 2002 and 2011; and JCI accreditations between 2007 and 2010. The somewhat recent adoption of the varied quality achievements across the sample might suggest a comparable managerial experience and practices adoptions in quality management, and the ultimate impact on performance. Hence, the data produced would enable a meaningful study in answering the research questions on SQIM implementation in these HTHDs, and its performance implications both directly and indirectly via MAP usage (see *Chapter 5*).

Following the data screening process (see Section 6.7 later), the number of useful responses was maintained at 420.

Table 6.11   Sample size and its distribution

	HTHD	Target responses	Actual responses
	Central		
1	Assunta Hospital	12	0
2	Gleneagles Intan Medical	18	18
3	IJN (National Heart Inst)	30	14
4	KPJ Ampang Puteri Specialist	9	0
5	KPJ Damansara Specialist	8	37
6	KPJ Selangor Specialist Hospital	9	0
7	KPJ Sentosa Medical Centre	5	0
8	KPJ Tawakkal Specialist Hospital	9	42
9	Pantai Hospital Kuala Lumpur	13	0
10	Prince Court Medical Centre	18	0
11	Sime Darby Medical Centre Subang Jaya	26	0
12	Sunway Medical Centre	23	0
13	Taman Desa Medical Centre	2	28
14	TMC Fertility Centre	2	0
15	Tun Hussein Onn National Eye Hospital	3	21
16	Tung Shin Hospital	11	81
	Sub-total	198	241
	North		
1	Gleneagles Medical Centre	11	57
2	Hospital Fatimah	9	9
3	Island Hospital	12	0
4	KPJ Ipoh Specialist Hospital	14	30
5	Lam Wah Ee Hospital	11	0
6	Loh Guan Lye Specialists Centre	12	0
7	Mount Miriam Cancer Hospital	3	1
8	Pantai Hospital Penang	7	0
9	Pantai Hospital Ipoh	8	25
10	Penang Adventist Hospital	11	33
	Sub-total	98	155
	South		
1	Columbia Asia Hospital, Seremban	6	14
2	KPJ Johor Specialist Hospital	12	0
3	Mahkota Medical Centre	12	10
4	NCI Hospital	3	0
5	Pantai Hospital Ayer Keroh	11	0
6	Putra Specialist Hospital	7	0
	Sub-total	51	24
	East		
1	KPJ Sabah Medical Centre	11	0
2	Normah Medical Specialist	9	0
3	Timberland Medical Centre	7	0
	Sub-total	27	0
	Total	374	420

6.5   DATA COLLECTION PROCEDURE

For each target hospital, the Chief Executive Officer was contacted through their personal assistants using email, phone calls or meetings. The initial contacts with all target HTHDs spread over a period of four months, starting August 2012 and ending November 2012. The length of period was deemed necessary as it was preferred that the HTHDs be contacted in different batches over the time. This approach provided us with the opportunity to learn from experience in order to better convince the target HTHDs for their participation, and to more effectively gauge the needs of HTHDs when rolling out the survey. Appendix 2.1 shows a sample of invitation letter used. Follow-up calls were made around two weeks after the initial contact. HTHDs that originally did not show interest to participate were contacted again and persuaded to participate in the survey.

Permissions were received from top management of 15 (out of 35) HTHDs to conduct the survey in their hospitals. The initial plan was to provide a briefing to the target respondents to explain the purpose of the survey, and to walk through the structured survey questionnaire with them to avoid any undesired misunderstanding of information required. However, the experience showed that most of the HTHDs were reluctant to invest in such meetings as it would mean disruptions to their normal work flow and work schedules. Also, since responses from the different areas of business functions were required, it was not feasible to arrange a time that fit all within a HTHD.

Hence, request was made that the top management identify a survey coordinator to facilitate the survey process. This approach has been adopted in the works of Daniel and Reitsperger (1991; 1992; 1994) and Daniel, Reitsperger and Gregson (1995). For this survey, it was observed that the top management have a tendency to identify either the personal assistant to CEO, or senior staff in human resource function or customer relations function as the survey coordinator. Such appointments would inevitably add credibility to the survey process. To assist the survey coordinator in facilitating the process, a written set of guidance notes was prepared (see Appendix 2.3). Mobile contacts were also provided to the coordinators and encourage them to seek clarifications where deemed necessary.

The guidance notes, along with multiple sets of questionnaires and a cover letter (see Appendix 2.2), were couriered to HTHDs within one working day upon obtaining their permissions to conduct the survey. The survey coordinator would normally provide an indication of the number of questionnaires to be sent for use. Follow-up calls were made to confirm the safe receipts of these materials and to remind survey coordinators of contact details of the researcher in case of enquiries. The questionnaire and survey process was administered in English which is the common business language in the country.

The survey process was intended to be completed within a month but was very much negotiable. Follow-up calls were made one month after the materials were despatched with the purpose to check the progress and to renegotiate the completion date where necessary. Upon completion of the survey, the survey coordinator would inform us and pick-up via courier services would be arranged within one working day with a reverse charge. Details of time taken to complete the survey in each participating HTHD are in Table 6.12.

Table 6.12   Time taken to complete survey

HTHD	Date			Approx. cycle time* (calendar days)
	Initial Contact	Dispatch	Returned	
Central				
1 Gleneagles Intan Medical	23-08-2012	21-10-2012	17-12-2012	116
2 IJN (National Heart Inst)	22-08-2012	18-11-2012	17-12-2012	117
3 KPJ Damansara Specialist	*23-08-2012*	*08-01-2013*	*05-03-2013*	*194*
4 KPJ Tawakkal Specialist Hospital	23-08-2012	27-10-2012	11-01-2013	135
5 Taman Desa Medical Centre	31-07-2012	14-08-2012	19-09-2012	50
6 Tun Hussein Onn National Eye Hospital	23-08-2012	08-09-2012	03-11-2012	72
7 Tung Shin Hospital	08-08-2012	14-08-2012	24-09-2012	47
North				
1 Gleneagles Medical Centre	25-10-2012	12-11-2012	20-12-2012	56
2 Hospital Fatimah	25-10-2012	09-11-2012	03-12-2012	39
3 KPJ Ipoh Specialist Hospital	25-10-2012	12-11-2012	26-11-2012	32
4 Mount Miriam Cancer Hospital	25-10-2012	25-10-2012	16-11-2012	22
5 Pantai Hospital Ipoh	25-10-2012	29-11-2012	06-02-2013	104
6 Penang Adventist Hospital	25-10-2012	20-11-2012	20-12-2012	56
South				
1 Columbia Asia Hospital, Seremban	09-11-2012	16-11-2012	07-01-2013	59
2 Mahkota Medical Centre	*08-11-2012*	*20-03-2013*	*23-05-2013*	*196*

*   The cycle time measures the time period between the initial contact and return of completed questionnaires

6.6 NON-RESPONSE BIAS

The response rate in this study was 19.71 percent of the total eligible study population. This leaves about 80 percent of the sample population who have not responded. The non-respondents may differ in some ways from the respondents. According to Bowling (2009), non-response reduces the sample size and thus resulting in a loss of precision in the estimates. Since non-responses would potentially mean that the quality of the research data be affected and that survey results be biased, it is important to ascertain whether the non-respondents differ from respondents in relation to the estimates of population variables. If the survey estimates are not different between the two groups, then it would provide confidence that there is no response bias due to the non-responses, i.e. the true population values are accurately estimated and external validity is preserved. If, however, the survey estimates are different between the two groups, then the difference would have to be addressed. Bowling (2009) suggested the use of statistical weighting methods to attach weight to the responding units. This would compensate for units that are not being included in the final sample.

This study employed a cross-sectional survey. As there was little (or no) information available for non-respondents, it was difficult to estimate the response bias. Armstrong and Overton (1977) examined methods for estimating non-response bias in mail surveys and advised that the use of extrapolations to estimate the effects of non-response was helpful to substantially reduce the error of that found with no extrapolation. According to Armstrong and Overton (1977), extrapolation methods assume that subjects who respond less readily (or later) tend to resemble non-respondents. The basis of extrapolations varies from carrying over successive waves of a questionnaire; following time trends; or using concurrent waves. In this survey, there was only one wave of questionnaire, and no inducement was used to encourage responses. Therefore, the time trend method was employ as the basis for extrapolation. This method assumes that respondents who respond later are assumed to be similar to non-respondents.

In using the time trend method, it is necessary to measure the time from the respondent's awareness of the questionnaire until completion (Armstrong and Overton, 1977). In this case, Table 6.12 was referred to establish the time period between initial contact and final collection of questionnaires were measured. The HTHDs that took the longest cycle time, in this case Mahkota Medical Centre (196 calendar days) and KPJ Damansara Specialist (194), are identified as a proxies for non-respondents.

Non-response bias tests were conducted to compare the respondents who participated with the "non-respondents". The two groups are of uneven sizes, with 354 in the "response" group and 47 in the "non-response" group. To assess the normality of data, for the "non-response" group (n=47), the Z scores of skewness and kurtosis coefficients were checked. Since the group size is <50, Z score > ±1.96 would suggest non-normality. The Shapiro-Wilk test (p=.05) was also sought. For the "response" group (n=354) the absolute value of skewness and kurtosis were checked. A value of >2 would suggest substantial non-normality. The Kolmogorov-Smirnov test (p=.05) was also sought. Details of the assumption testing and the statistical outputs for t-tests are in Appendix 4.1. Based on these statistics, there appeared to be some violation to the normality assumption in the variables. However, since there is no indication of any substantial non-normality, the t-tests were sought to compare the responses with the non-response group identified.

In the independent sample t-test, the Levene's test has a probability greater than .05 for mean-SQIM and mean-PERF, and the population variances were assumed to be relatively equal. Therefore, the t-value, degree of freedom and two-tail significance for equal variance estimates were used to determine whether difference in responses exist between groups. The two-tail significance for both mean-SQIM and mean-PERF indicates that p<.05 thus is significant. The null hypothesis was therefore rejected that the two groups do not seem to come from the same population because significant difference exists. The Levene's test for mean-MAP suggests that equal variance is not assumed (p<.05) for its population variances. The t-value, degree of freedom and two-tail significance for unequal variance estimates were used to determine whether difference in responses exist between groups. The two-tail significance for mean-MAP

indicates that p<.05 thus is significant. Therefore, similar conclusion is drawn. See Table 6.13 for details.

Based on the results of the t-tests, there is significant difference in the factor means of responses on SQIM, MAP and PERF from the respondents and the non-respondents. The non-response bias results may be due to the use of purposive sampling, instead of random sampling, which has limited the ability to evaluate the response/non-response bias. Nevertheless, the result has provided an indication that the survey participants may not be representative of the target population and external validity may not be preserved. Upon reflection on the data collection process, the researchers were of the opinion that the respondents were generally much keen and prepared to share their thoughts about the implementation of quality initiatives at their workplace when compared to the non-respondents (proxied by the late respondents).

Table 6.13   Independent sample t-tests on non-response bias

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
MeanSQIM	2.159	.143*	-4.922	418	.000	-.44913	.09126	-.62851	-.26975
MeanMAP	9.462	.002	-4.637	69.487	.000	-.49397	.10653	-.70646	-.28147
MeanPERF	1.217	.271*	-4.603	411	.000	-.42418	.09215	-.60532	-.24303

* Equal variance assumed

6.7   DATA SCREENING

Data screening is an essential process to protect the integrity of inferential statistical tests. This section reports the procedures undertaken to screen the data and to prepare them for analyses. The procedures are guided by Tabachnick and Fidell (2007) and Meyers, et.al. (2013). SPSS version 20 was used to screen the data and to conduct further analysis. This is one of the most commonly used computer programmes when analysing research data in social science.

6.7.1. ACCURACY OF DATA INPUT

Recognising that the integrity of the data analysis can be significantly compromised by entering wrong data, the data was entered personally to ensure its accuracy. There was no involvement of part-time assistance in the data entry process.

The univariate descriptive statistics were inspected for accuracy of input. The frequency tables and the minimum /maximum values for each of the variables were checked to identify values that are out of the expected range. See Appendix 3.1 for a list of corrections made and statistical outputs.

6.7.2. RESPONSES FROM NON-MANAGERIAL STAFF

The initial intention of this study was to target the managerial staff, however, it turns out that some of the HTHDs have decided to include their non-managerial staff for responses. To establish if responses from non-managerial staff should be included in the analysis, it is necessary to compare the responses from the managerial staff and staff members. To do this, an independent sample t-test was conducted to compare the factor means of responses (for SQIM, MAP and PERF respectively) from managerial staff and staff members in individual HTHDs.

A review of the responses from each HTHD (see Table 6.14) shows that two HTHDs have returned sample size that is suitable for t-test, namely Tung Shin (80) and GLNPG (56).

Table 6.14   Actual responses from HTHDs

	Respondents		Total
	Staff member	Managerial	
TDMC	14	14	28
Tung Shin	**57**	**24**	**81**
THONEH	1	20	21
MOUNT	0	1	1
GLNKL	0	18	18
IJN	9	5	14
KPJIP	1	29	30
FATIM	0	9	9
PAH	0	33	33
GLNPG	**27**	**30**	**57**
COLAS	1	13	14
KPJTWK	18	24	42
PANIP	1	24	25
KPJDSR	1	36	37
MAHKOTA	0	10	10
Total	130	290	420

To assess the normality of data, the skewness and kurtosis coefficients and their respective z-scores were checked. The z-scores were derived manually by dividing the statistics by its standard error. Since the sample size in each group is small (n<50 in most cases), distribution that has z-score for skew or kurtosis of greater than ±1.96 will be inferred as not normal. Given that the small sample size, the Shapiro-Wilk test was used to test the hypothesis (p>.05) that data are from a normal distribution. Details of the assumption testing and the statistical outputs for t-tests are in Appendix 4.2.

Based on these statistics, there appeared to be violation to the normality assumption in some of the variables. However, the skewness and kurtosis coefficients do not suggest any substantial non-normality. Hence, the t-tests were sought to compare the responses from managerial staff and staff members of the two HTHDs identified.

In the independent sample t-test for Tung Shin Hospital, the Levene's test has a probability greater than .05, and the population variances were assumed to be relatively equal. Therefore, the t-value, degree of freedom and two-tail significance for equal variance estimates were used to determine whether staff level differences exist. The two-tail significance for mean-SQIM indicates that p>.05 thus is not significant. The null hypothesis was therefore accepted that the two groups must come from the same population because no significant

difference exists. Similar conclusion is drawn for mean-PERF. For mean-MAP, the two-tail significance indicates that p<.05 thus is significant. See Table 6.15 for details. The null hypothesis was therefore rejected and it was concluded that significant difference exist between the two groups.

In the t-test for GLNPG, the Levene's test has a probability greater than .05, and the population variances were assumed to be relatively equal. Therefore, the t-value, degree of freedom and two-tail significance for equal variance estimates were used to determine whether staff level differences exist. The two-tail significance for mean-SQIM indicates that p>.05 thus is not significant. See Table 6.15 for details. The null hypothesis was therefore accepted that the two groups must come from the same population because no significant difference exists. Similar conclusion is drawn for mean-MAP and mean-PERF.

The results of t-tests suggest that there is no significant difference in the factor means of responses from managerial staff and staff member, except for the MAP scores in Tung Shin Hospital. The responses from the non-managerial staff in all HTHDs were therefore included in the analysis.

Table 6.15   Independent sample t-tests on responses from non-managerial staff

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | F | Sig.* | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
								Lower	Upper
Tung Shin Hospital									
Mean SQIM	.670	.416	1.287	78	.202	.20469	.15900	-.11185	.52123
Mean MAP	1.193	.278	2.784	71	.007	.54105	.19433	.15357	.92852
Mean Perf	1.677	.199	.902	76	.370	.122	.135	-.148	.392
GLNPG Hospital									
Mean SQIM	.078	.782	.190	54	.850	.02865	.15054	-.27316	.33045
Mean MAP	2.032	.160	1.355	50	.181	.38087	.28106	-.18366	.94541
Mean Perf	.264	.610	1.381	54	.173	.22799	.16510	-.10302	.55901

* Equal variance assumed

6.7.3. MISSING DATA

As missing data is found in the data set, it was necessary to assess the seriousness by looking at the pattern of missing data, how much is missing, and the likely reason for the data to be missing.

Comparisons were made on cases with and without missing values based on the factor means of SQIM, MAP and PERF using independent sample t-test. Cases with any amount of missing data in any of the variables are coded as "1" and cases with complete data (i.e. no single data being missing from any variable) as "0". See Appendix 5.1 for the assumption testing and the statistical outputs. In assessing the normality of data, since the sample size in each group is large (n>150), the absolute value of skewness and kurtosis coefficients were checked. Coefficients with value of >2 would suggest substantial non-normality. Also, the Kolmogorov-Smirnov test with Lilliefors correction was used to test the hypothesis (p>.05) that data are from a normal distribution.

Based on these statistics, violation to the normality assumption in some of the variables was found. However, the skewness and kurtosis coefficients do not suggest any substantial non-normality. Hence, t-test was sought.

In the independent sample t-test for cases without missing data and cases with missing data, the Levene's test has a probability greater than .05, the population variances were assumed to be relatively equal. Therefore, the t-value, degree of freedom and two-tail significance for equal variance estimates were used to determine whether inter-group differences exist. The two-tail significance for mean-SQIM indicates that p>.05 thus the difference is not significant. Therefore the null hypothesis was accepted that the two groups must come from the same population because no significant difference exists. Similar conclusion is drawn for mean-MAP and mean-PERF. See Table 6.16.

The results of t-test suggest that there is no significant difference for this dummy coded independent variable on the factor means of SQIM, MAP and PERF. This therefore provided the confidence that the missing values are not related to the given factor under study.

Table 6.16   Independent sample t-test on missing data

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.*	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Mean SQIM	.074	.785	1.100	418	.272	.06804	.06185	-.05354	.18962
Mean MAP	.003	.956	-.700	401	.485	-.06447	.09215	-.24563	.11668
Mean Perf	.080	.778	.164	411	.870	.01039	.06328	-.11401	.13479

* Equal variance assumed

Following this, the Missing Value Analysis (MVA) module in SPSS was used to highlight patterns of missing values and to evaluate the amount and distribution of missing data in the factor means as well as the profiling variables.

A t-test was requested to check if the missing variable is related to any of the other variables, with p=.01. The test is made for any variables with at least 1 per cent of data missing. A table of correlations and a test of whether data are missing completely at random (MCAR) were requested. See Appendix 5.2 for the statistical outputs.

The Univariate Statistics table shows that the missing value on the factor mean variables and on the profiling variables are less than 5 percent, except for variable D1 (Department; 6.9%) and D10 (Highest year of education; 8.3%). The Separate Variance t tests (p<.01) show that there is no systematic relationship between the data that are missing in factor means (for SQIM, MAP and PERF, respectively) and the other variables. The Missing Patterns table shows the cases and their respective missing values. The Little's MCAR test (under the EM Correlations table) is statistically significant (p<.05), indicating that MCAR may not be inferred, i.e. data are not missing completely at ransom. Based on the results from the t test, it was inferred that data are missing at random (MAR) and the non-response may be ignored and these may be predicted from other variables in the data set.

Since the missing data are scattered throughout the cases and variables, deletion of cases with any missing data will cause substantial loss of subjects for

analysis. Given the inference that data are MAR, cases or variables with missing data were not deleted. Instead, attempt was made to predict the values of missing data and introduce them into the data set. Amongst the methods available for prediction (namely using prior knowledge; inserting mean values; using regression; expectation-maximisation; and multiple imputations), the mean substitution method was used, whereby the means are calculated from available data and then used to replace any missing values prior to data analysis.

Apart from its popularity, this method is conservative since the mean for the distribution as a whole does not change, and it is not necessary to guess at the missing values in the absence of other related information (Tabachnick and Fidell, 2007). Nevertheless, it was noted that following the mean substitution, the variance of a variable would be reduced and consequently the correlation that the variable has with other variables. It was necessary to assess the extent of loss in variance due to the mean substitution method. Although this study do not benefit from having prior knowledge on the actual values that are missing, it was able to consider the amount of missing data in the data set. See Table 6.17.

Table 6.17   Variables with missing data

	N	Missing	
		Count	Per cent
Mean SQIM	420	0*	0.00
Mean MAP	403	17*	4.22
Mean PERF	413	7*	1.69
D01 Department/Division	391	29	7.42
D02 Size – staff number	407	13	3.19
D03 Primary role	408	12	2.94
D04 Decision-making function	405	15	3.70
D05 Employment mode	418	2	0.48
D06 Years of work experience – this hospital	414	6	1.45
D07 Years of work experience – this industry	415	5	1.20
D08 Gender	415	5	1.20
D09 Ethnic group	413	7	1.69
D10 Years of education	385	35	9.09
D11 Age category	414	6	1.45

* These are cases with missing value in all items for the same factor. Cases with missing values in some items for the same factor will not be reported as "missing" as the factor mean will be averaging on the available items.

Since the percentage of missing data for the factor means are rather small (<5%), the extent of loss in variance may not be a serious concern in the opinion of the researchers. Nevertheless, to be less conservative as inserting overall mean values, a compromise approach (Tabachnick and Fidell, 2007) was used by substituting the missing value with a group mean. It was noted that the reduction in within-group variance may lead to large differences among groups. However, this will not be a concern as this study did not intend to conduct any data analysis among these groups. In this study, the HTHDs were used as the grouping factor. Group means are used to substitute missing values in all variables for SQIM, MAP and PERF. See Appendix 5.3 for the statistical outputs on group means and a list of cases having their missing values substituted with the corresponding group means.

After substituting missing values with the corresponding group means, the univariate descriptive statistics was assessed for normality, linearity and homoscedasticity. See Appendix 3.2 for the statistical outputs.

According to Meyers, et al. (2013), to establish the confidence that the missing data interventions reflect statistical reality, comparisons should be made on statistical analysis with cases using only complete data to check if differences emerge between complete and imputed data sets. However, in view of the minimal amount of interventions made, such comparisons were not pursued.

6.7.4. DISTRIBUTION OF DATA

The means and standard deviations for the constructs SQIM, MAP and PERF are shown in Table 6.18.

Table 6.18   Means and standard deviations

	SQIM	MAP	PERF
Mean	3.94	3.04	3.65
Std. Deviation	.602	.836	.579
N	420	420	420

The statistics seem to be reasonable. It was noted that the mean value of construct MAP suggests a somewhat average level of usage ("1"=never; "5" = once a week or more). The standard deviation suggests that the usage level is relatively spread out, indicating varied usage level for MAP.

6.7.5. NORMALITY, LINEARITY AND HOMOSCEDASTICITY

The continuous variables were screened for normality as required in multivariate analysis. This study dealt with a large sample (n>300). In a large sample, a variable with statistically significant skewness often does not deviate enough from normality to make a substantive difference in the analysis. Thus, the significance level of skewness is not as important as its actual size (Tabachnick and Fidell, 2007). Therefore, the absolute values of skew and kurtosis were checked to assess the normality of distribution for continuous variables. Variables with skew value or kurtosis value greater than 2 are regarded as substantial non-normality. The means for constructs SQIM, MAP and PERF each returns a value less than 2 for their skewness and kurtosis, as shown below. It was also noted that all the factors are negatively skewed and the distributions are generally flat with many cases in the tails. See Table 6.19.

Table 6.19   Skewness and kurtosis

	SQIM	MAP	PERF
Skewness	-.372	-.465	-.302
Std. Error of Skewness	.119	.119	.119
Kurtosis	-.195	-.455	.151
Std. Error of Kurtosis	.238	.238	.238
N	420	420	420

The histograms were also checked since departure from normality are obvious from inspection of the difference between frequencies expected under the normal distribution (the superimposed curve) and the obtained frequencies. The histograms suggest the distributions are fairly normal. Details in Appendix 3 (ii).

Following this, the linearity and homoscedasticity were checked between the means for constructs SQIM and PERF, MAP and PERF, and also SQIM and MAP. The bivariate scatterplots and the Pearson Correlation coefficient were referred for each of these relationships.

The scatterplot of means for constructs SQIM and PERF suggests a somewhat linear relationship. The scatterplots between the two variables are having roughly the same width all over with some bulging towards the middle, thereby suggesting homoscedasticity in the relationship. The Pearson Correlation coefficient between the means for constructs SQIM and PERF ($r=.632$, $p<.001$) confirms the results of the scatterplot in that a significant positive relationship exists.

The scatterplot of means for constructs MAP and PERF suggests a weaker but still somewhat linear relationship between the two variables. Some evidence of homoscedasticity in the relationship is also shown. The Pearson Correlation coefficient between the means for constructs MAP and PERF ($r=.540$, $p<.001$) suggests that there is a significant positive relationship, though weaker compared to SQIM-PERF.

The scatterplot of means for constructs SQIM and MAP suggests a weaker but still somewhat linear relationship between the two variables. Some evidence of homoscedasticity in the relationship is also shown. The Pearson Correlation coefficient between the means for constructs SQIM and MAP ($r=.434$, $p<.001$) suggests that there is a significant positive relationship, though weaker compared to the two other pairs of relationships.

6.7.6. OUTLIERS

The univariate outliers were identified by inspecting the histograms, box plots and normal probability plots. When profiled with these graphical techniques, the univariate outliers are visibly separated from the bulk of the cases on a given variable.

According to Tabachnick and Fidell (2007), there are a few ways to deal with the univariate outliers in order to reduce their influence. One may choose to delete

the variables that are responsible for many outliers. One may also consider deleting cases with outliers if they are not part of the population from which the sample is drawn. If they are considered part of the population, then it may be necessary to transform the variable to change the shape of the distribution and make it more normal. An alternative strategy would be score alterations. This is done by assigning the outlying cases with a raw score on the offending variable that is one unit larger/smaller than the next most extreme score in the distribution.

The box plots suggest that the amount of outliers in each of the variables is rather insignificant when compared to the total sample size. Based on the approach that used to target the survey respondents in this study, we were of the opinion that all cases in the data set belong to the population. These outliers were therefore maintained in the data set.

6.7.7. PURIFY THE MEASURE AND ASSESS RELIABILITY

Churchill (1979) suggests that coefficient alpha should be the very first measure to assess the reliability of a measure based on internal consistency of a set of items measuring the same construct. The coefficient alpha for each of the components in the constructs for MAP, SQIM and PERF were calculated following exploratory factor analysis on the data and would be reported in Chapter 8 later.

6.8   METHODS OF DATA ANALYSIS

Data that has been screened would be subjected to quantitative analysis. Specifically, MANOVA test would be sought to analyze SQIM implementation in HTHDs that have pursued varied quality achievement programmes. Then, path analysis using AMOS would be conducted to study the impact of SQIM on PERF. Finally, structural equation modelling would be undertaken to determine the impact of SQIM on PERF through MAP as the mediator.

6.9   RESEARCH ETHICS

Whilst the current research was conducted before the ethical approval process and ethics policy for research at the University were made available (available since 2016), this study follows the general ethical principle governing research.

Specifically, the current research is mindful that respondents should not be harmed as a result of their participation in the subject being researched and in the use of the instruments employed by the research. The data collected in this research were coded and the results would be interpreted in a generic form without having any individuals being separately identifiable.

Additionally, the participating HTHDs were assured of the confidentiality of information provided in this survey. Clarification was also made that all data collected would be protected and solely used for this survey, and that no part of the information would be revealed to other parties without first obtaining permission from the HTHD concerned.

To communicate this obligation, a written statement was provided in the invitation letter to HTHDs as well as in the cover letter accompanying the questionnaires.

Due respect was also given to the hospitals' policy in the course of carrying out the survey. For instance, one pre-test respondent who has been working as a managerial staff in one of the target HTHDs had indicated her responses by scoring on the questionnaire during the pre-test. Since there was no significant changes required on the set of questions, and that the respondent has been affiliated to a HTHD within the sample (working as the Chief Nurse), the completed questionnaire would be a potentially useable response case. However, when the CEO of the HTHD concerned was formally approached to seek his permission to conduct the survey, it appeared that it was against the hospital's policy to participate in non-statutory surveys. Following this information, this response case was duly excluded from the data collections.

6.10 LIMITATIONS OF METHODOLOGY

As for many research methodologies, the methodology adopted in this study is subjected to some limitations. Amongst these limitations, data collection using questionnaire restricts information to what was asked in the instruments. Also, the use of structured questionnaire provides no allowance for narrative feedback. However, given the challenges faced in getting responses from HTHD managers who have tight work schedules, discretion was made to maintain the use of structured questionnaire for data collection. Meanwhile, gathering responses from the same respondent for each response case may subject the data to common method variances. Given the practicality of data collection exercise, the risk is taken into consideration when conducting data analysis at a later stage.

6.11 SUMMARY

This chapter has presented the research design and discussion of methods together with their limitations. A clear audit trail on how data was produced and analyzed has also been provided, with the problems and issues faced discussed in detail. The next chapter provides descriptive statistics in order to shape some initial understanding of data produced.

CHAPTER 7   DESCRIPTIVE STATISTICS ON HTHDS

7.1. INTRODUCTION

The research methodology employed in this study, including details on data collection and screening procedures have been explained in the previous chapter. The resultant data were intended for analyses with the objective to answer the research questions identified (see Chapter 5).

This chapter presents the descriptive statistics on data produced. This allows a preliminary understanding of the attributes of data that would be subjected to further analysis.

SPSS v20 was employed to analyze the data profiles. Descriptive statistics were sought for the demographic variables of respondents, followed by the mean score for each of the measurement constructs, namely SQIM, MAP and PERF. The bivariate relationships between these constructs were also examined.

7.2. PROFILE OF RESPONDENTS

A brief descriptive statistics on the profile of respondents who participated in the survey are shown in Table 7.1. Descriptive statistics on respondents according to HTHDs are shown in Table 7.2.

Based on the statistics, responses have been received across the different functional areas in HTHDs, though there was dominance from departments/divisions of maternal and child care, nursing and nursing education. The size of the departments/divisions was generally small, with 80% of respondents affiliated with departments/divisions having 50 or less staff members. Most of the respondents were full-time middle management with a combination of line and staff functions in the decision-making process. There was an even spread of industrial experience among the respondents. 84.7% of the respondents have received at least 14 years of education.

Table 7.1   Descriptive statistics on respondents

Department/division affiliated with (D1)	Frequency	%
Human Resource Management	7	1.7
Marketing, Public Relations	18	4.3
Hospital Information Systems	8	1.9
Plant Maintenance/Operations	10	2.4
Accounting, Admissions, Financial Planning	23	5.5
Maternal and Child, Nursing, Nursing Education	156	37.1
Medical, Medical Education, Ancillary	44	10.5
Communications, Food/Cafeteria, House Keeping, Laundry, Safety/Security, Stock Management, Ambulance	25	6.0
Laboratories, Medical Records, Pharmacy, Rehabilitation, Social Services	45	10.7
General Management, Programme Development, Strategic Planning	44	10.5
Others	11	2.6
Valid	391	93.1
Missing	29	6.9
Total	420	100.0

Staff number in the department/division (D2)	Frequency	%
50 or less	337	80.2
51-100	20	4.8
101-150	6	1.4
151-200	10	2.4
201 or more	34	8.1
Valid	407	96.9
Missing	13	3.1
Total	420	100.0

Primary role in the department/division (D3)	Frequency	%
Director	16	3.8
Physician[#]	6	1.4
Manager	178	42.4
Supervisor	76	18.1
Staff Member	130	31.0
Others	2	.5
Valid	408	97.1
Missing	12	2.9
Total	420	100.0

[#] The physicians were assuming a managerial role in the department/divisions.

Decision-making function (D4)	Frequency	%
Exclusively Line Function	48	11.4
Exclusively Staff Function	45	10.7
Combination	312	74.3
Valid	405	96.4
Missing	15	3.6
Total	420	100.0

Mode of employment (D5)	Frequency	%
Full-time	412	98.1
Part-time	6	1.4
Valid	418	99.5
Missing	2	.5
Total	420	100.0

Years of experience in this hospital (D6)	Frequency	%
5 years or less	159	37.9
5+ to 10 years	95	22.6
10+ to 15 years	67	16.0
15+ to 20 years	53	12.6
More than 20 years	40	9.5
Valid	414	98.6
Missing	6	1.4
Total	420	100.0

Years of experience in this industry (D7)	Frequency	%
5 years or less	96	22.9
5+ to 10 years	88	21.0
10+ to 15 years	75	17.9
15+ to 20 years	64	15.2
More than 20 years	92	21.9
Valid	415	98.8
Missing	5	1.2
Total	420	100.0

Gender (D8)	Frequency	%
Male	87	20.7
Female	328	78.1
Valid	415	98.8
Missing	5	1.2
Total	420	100.0

Ethnic Group (D9)	Frequency	%
Malay	144	34.3
Chinese	188	44.8
Indian	59	14.0
Others	22	5.2
Valid	413	98.3
Missing	7	1.7
Total	420	100.0

Highest Year of Education (D10)	Frequency	%
10	2	.5
11	32	7.6
12	10	2.4
13	20	4.8
14	67	16.0
15	54	12.9
16	99	23.6
17	28	6.7
18	19	4.5
19	8	1.9
20	12	2.9
21	10	2.4
22	24	5.7
Valid	385	91.7
Missing	35	8.3
Total	420	100.0

Table 7.2   Descriptive statistics on respondents according to HTHDs

Department		Name of Hospital														Total
	TDMC	Tung Shin	THONEH	MOUNT	GLNKL	IJN	KPJIP	FATIM	PAH	GLNPG	COLAS	KPJTWK	PANIP	KPJDSR	MAHKO	
Human Resource Management	1	0	0	0	1	0	1	0	0	0	0	3	0	1	0	7
Marketing, Public Relations	0	1	0	0	0	5	2	0	0	4	2	1	2	0	1	18
Hospital Info Systems	2	0	1	0	0	0	1	0	1	0	0	0	1	2	0	8
Plant Maintenance/Operations	0	0	0	0	0	0	2	0	2	1	0	1	2	2	0	10
Accounting, Admissions, Fin Planning	6	2	1	0	0	1	1	2	0	0	2	4	3	1	0	23
Maternal and Child, Nursing, Nursing Edu	4	51	5	0	4	4	7	2	13	26	0	16	5	15	4	156
Medical, Medical Edu, Ancillary	2	9	1	0	3	0	3	1	3	10	1	3	5	2	1	44
Comm, Food/Cafeteria, Hse Keeping, Laundry, Safety/Security, Stock Mgt, Ambulance	0	0	2	0	3	2	2	1	3	5	0	1	3	3	0	25
Labs, Medical Records, Pharmacy, Rehab, Social Serv	3	9	4	0	3	0	5	0	3	6	3	3	2	4	0	45
General Mgt, Prog Dev, Strategic Planning	3	3	4	1	2	0	4	2	6	3	2	8	0	3	3	44
Others	0	0	0	0	1	0	2	1	2	0	1	1	0	3	0	11
Total	21	75	18	1	17	12	30	9	33	55	11	41	23	36	9	391

Primary Role		Name of Hospital														Total
	TDMC	Tung Shin	THONEH	MOUNT	GLNKL	IJN	KPJIP	FATIM	PAH	GLNPG	COLAS	KPJTWK	PANIP	KPJDSR	MAHKO	
Director	0	1	1	1	1	0	2	1	4	0	0	1	2	0	2	16
Physician	0	1	0	0	0	0	0	0	0	3	1	0	1	0	0	6
Manager	8	11	13	0	13	4	27	8	14	14	8	6	16	30	6	178
Superviser	6	9	6	0	3	0	0	0	13	12	3	13	5	5	1	76
Staff Member	14	57	1	0	0	9	1	0	0	27	1	18	1	1	0	130
Others	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Total	28	80	21	1	17	13	30	9	31	56	13	38	25	36	10	408

Yrs of Experiance Here	TDMC	Tung Shin	THONEH	MOUNT	GLNKL	IJN	KPJIP	FATIM	PAH	GLNPG	COLAS	KPJTWK	PANIP	KPJDSR	MAHKO	Total
5 yrs or less	13	51	13	0	5	7	8	1	8	8	6	14	16	7	2	159
5+ to 10 yrs	2	19	2	1	5	5	3	1	11	15	6	7	5	11	2	95
10+ to 15 yrs	7	3	1	0	2	2	4	2	7	16	1	9	2	11	0	67
15+ to 20 yrs	3	4	2	0	4	0	6	3	5	3	1	6	2	8	6	53
More than 20 yrs	1	4	2	0	1	0	9	2	2	14	0	5	0	0	0	40
Total	26	81	20	1	17	14	30	9	33	56	14	41	25	37	10	414

Highest Year of Education	TDMC	Tung Shin	THONEH	MOUNT	GLNKL	IJN	KPJIP	FATIM	PAH	GLNPG	COLAS	KPJTWK	PANIP	KPJDSR	MAHKO	Total
10	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
11	3	5	3	0	0	3	6	0	2	7	0	2	1	0	0	32
12	4	2	1	0	0	1	0	1	0	0	0	0	1	0	0	10
13	2	7	0	0	2	0	0	0	1	2	0	5	1	0	0	20
14	4	20	3	0	2	2	2	1	1	17	3	6	2	4	0	67
15	4	12	1	0	2	5	1	1	4	6	3	4	2	7	2	54
16	5	15	6	1	5	1	10	2	7	13	5	8	7	9	5	99
17	0	3	0	0	1	0	2	3	5	3	1	0	5	4	1	28
18	0	1	0	0	0	0	4	1	1	4	1	2	3	2	0	19
19	0	0	1	0	0	0	0	0	1	0	1	2	0	2	1	8
20	0	1	0	0	1	0	1	0	1	0	0	2	1	5	0	12
21	1	3	2	0	0	0	0	0	2	0	0	1	1	0	0	10
22	3	2	3	0	1	1	2	0	5	1	0	3	1	2	0	24
Total	26	71	20	1	14	13	28	9	31	53	14	36	25	35	9	385

7.3. PROFILE OF MEASUREMENT CONSTRUCTS

A brief descriptive statistics on the measurement constructs are presented in Table 7.3.

SQIM implementation seemed rather high ("1" = not strategically important; "5" = fully integrated). The mean value of construct MAP suggests a somewhat average level of usage ("1"=never; "5" = once a week or more). The standard deviation suggests that the usage level is relatively spread out, indicating varied usage level for MAP. The kurtosis statistics further suggest considerable responses at the tail ends of this measure. PERF level is noted to be reasonably high ("1" = strongly disagree; "5" = strongly agree). This is somewhat expected in view of the rather high SQIM implementation.

Based on the skewness and kurtosis statistics, the three constructs are distributed normally (Tabachnick and Fidell, 2007). Further, the distributions were found to be negatively skewed and generally flat with many cases in the tails. Descriptive statistics on the measurement constructs according to HTHDs are presented in Table 7.4.

Table 7.3   Descriptive statistics on measurement constructs

	SQIM	MAP	PERF
Mean	3.94	3.04	3.65
Std. Deviation	.602	.836	.579
Skewness	-.372	-.465	-.302
Std. Error of Skewness	.119	.119	.119
Kurtosis	-.195	-.455	.151
Std. Error of Kurtosis	.238	.238	.238
Min	2	1	2
Max	5	5	5
N	420	420	420

Table 7.4   Descriptive statistics on measurement constructs according to HTHDs

	HTHD	Mean	SD	Skewness	Kurtosis
SQIM	TDMC	3.76 (.115)	.610	.079 (.441)	.377 (.858)
	Tung Shin	3.63 (.073)	.654	-.310 (.267)	-.740 (.529)
	THONEH	3.82 (.125)	.574	-.410 (.501)	-.019 (.972)
	GLNKL	4.20 (.079)	.334	.096 (.536)	-.409 (1.038)
	IJN	3.55 (.116)	.435	.117 (.597)	-1.693 (1.154)
	KPJIP	4.55 (.078)	.427	-1.113 (.427)	1.201 (.833)
	FATIM	4.37 (.171)	.512	-.987 (.717)	-.122 (1.400)
	PAH	3.71 (.084)	.485	.435 (.409)	-.213 (.798)
	GLNPG	3.83 (.073)	.549	-.406 (.316)	-.001 (.623)
	COLAS	3.88 (.109)	.409	-.952 (.597)	1.659 (1.154)
	KPJTWK	4.08 (.084)	.545	-.577 (.365)	.096 (.717)
	PANIP	4.06 (.074)	.372	-.203 (.464)	.079 (.902)
	KPJDSR	4.41 (.077)	.469	-.226 (.388)	-1.100 (.759)
	MAHKO	4.09 (.131)	.414	.365 (.687)	-.372 (1.334)
MAP	TDMC	3.31 (.136)	.722	-.713 (.441)	.384 (.858)
	Tung Shin	2.46 (.085)	.762	-.003 (.267)	-.450 (.529)
	THONEH	3.12 (.152)	.694	.226(.501)	-.841 (.972)
	GLNKL	3.51 (.132)	.560	-.771 (.536)	2.179 (1.038)
	IJN	2.83 (.217)	.811	.244 (.597)	-1.466 (1.154)
	KPJIP	3.39 (.097)	.534	.625 (.427)	1.466 (.833)
	FATIM	2.17 (.188)	.564	.964 (.717)	.226 (1.400)
	PAH	2.66 (.126)	.721	-.361 (.409)	-.105 (.798)
	GLNPG	2.86 (.125)	.942	-.429 (.316)	-.836 (.623)
	COLAS	3.13 (.130)	.487	.495 (.597)	1.258 (1.154)
	KPJTWK	3.70 (.103)	.665	-1.688 (.365)	2.667 (.717)
	PANIP	3.15 (.143)	.714	-.931 (.464)	1.111 (.902)
	KPJDSR	3.48 (.109)	.664	-1.399 (.388)	2.489 (.759)
	MAHKO	3.49 (.202)	.639	-.254 (.687)	-1.127 (1.334)
PERF	TDMC	3.61 (.111)	.585	.678 (.441)	.343 (.858)
	Tung Shin	3.33 (.061)	.548	.245 (.267)	-.146 (.529)
	THONEH	3.68 (.101)	.464	.009 (.501)	-.636 (.972)
	GLNKL	3.99 (.120)	.509	-.413 (.536)	-.561 (1.038)
	IJN	3.49 (.171)	.641	.473 (.597)	.090 (1.154)
	KPJIP	4.07 (.075)	.410	-.631 (.427)	.677 (.833)
	FATIM	3.82 (.137)	.412	.189 (.717)	.732 (1.400)
	PAH	3.43 (.084)	.483	-.938 (.409)	.629 (.798)
	GLNPG	3.47 (.087)	.657	-.692 (.316)	.734 (.623)
	COLAS	3.75 (.105)	.392	.835 (.597)	.382 (1.154)
	KPJTWK	3.87 (.060)	.387	-.728 (.365)	.280 (.717)
	PANIP	3.59 (.097)	.484	-.350 (.464)	.019 (.902)
	KPJDSR	4.05 (.088)	.532	-.231 (.388)	-.394 (.759)
	MAHKO	4.02 (.145)	.459	.461 (.687)	-1.163 (1.334)

Note: Std error are shown in parenthesis.

The descriptive statistics of the survey questions for SQIM, MAP and PERF are presented in Table 7.5. The cross tabulated correlations for the survey questions for each of these constructs are presented in Table 7.6.

Table 7.5   Descriptive statistics of survey questions

	Mean	SD		Mean	SD		Mean	SD
SQI - A01	4.07	.783	MAP - B01	3.07	1.154	PRF - C01	3.63	.944
SQI - A02	4.05	.782	MAP - B02	2.85	1.121	PRF - C02	3.57	.934
SQI - A03	4.13	.788	MAP - B03	3.08	1.147	PRF - C03	3.47	.877
SQI - A04	3.91	.813	MAP - B04	2.99	1.133	PRF - C04	3.23	1.041
SQI - A05	3.95	.866	MAP - B05	3.15	1.077	PRF - C05	3.75	.773
SQI - A06	4.15	.800	MAP - B06	3.38	1.088	PRF - C06	3.40	.873
SQI - A07	4.13	.771	MAP - B07	3.17	1.059	PRF - C07	3.37	.833
SQI - A08	4.12	.845	MAP - B08	3.27	1.108	PRF - C08	3.33	.792
SQI - A09	4.10	.828	MAP - B09	2.86	1.090	PRF - C09	3.56	.842
SQI - A10	4.02	.807	MAP - B10	2.67	1.217	PRF - C10	3.59	.811
SQI - A11	3.79	.788	MAP - B11	3.53	1.036	PRF - C11	3.65	.887
SQI - A12	3.81	.772	MAP - B12	2.90	1.133	PRF - C12	3.80	.810
SQI - A13	3.90	.786	MAP - B13	2.82	1.109	PRF - C13	4.13	.780
SQI - A14	3.88	.814	MAP - B14	2.81	1.139	PRF - C14	3.97	.846
SQI - A15	3.86	.802				PRF - C15	4.13	.769
SQI - A16	3.88	.789				PRF - C16	3.88	.833
SQI - A17	3.68	.777						
SQI - A18	3.71	.749						
SQI - A19	3.96	.884						
SQI - A20	4.00	.797						
SQI - A21	3.92	.872						
SQI - A22	3.92	.856						
SQI - A23	3.80	.857						

Table 7.6   Cross tabulated correlations for survey questions

	SQI - A01	SQI - A02	SQI - A03	SQI - A04	SQI - A05	SQI - A06	SQI - A07	SQI - A08	SQI - A09	SQI - A10	SQI - A11	SQI - A12	SQI - A13	SQI - A14	SQI - A15	SQI - A16	SQI - A17	SQI - A18	SQI - A19	SQI - A20	SQI - A21	SQI - A22	SQI - A23
SQI - A01	1																						
SQI - A02	.809**	1																					
SQI - A03	.696**	.706**	1																				
SQI - A04	.547**	.507**	.535**	1																			
SQI - A05	.508**	.529**	.474**	.612**	1																		
SQI - A06	.569**	.601**	.556**	.537**	.596**	1																	
SQI - A07	.531**	.564**	.510**	.522**	.528**	.658**	1																
SQI - A08	.474**	.514**	.465**	.504**	.543**	.597**	.677**	1															
SQI - A09	.435**	.443**	.451**	.427**	.513**	.444**	.530**	.584**	1														
SQI - A10	.465**	.455**	.378**	.530**	.541**	.476**	.534**	.585**	.666**	1													
SQI - A11	.484**	.464**	.369**	.550**	.532**	.505**	.561**	.545**	.530**	.632**	1												
SQI - A12	.480**	.493**	.444**	.543**	.531**	.499**	.582**	.528**	.517**	.562**	.809**	1											
SQI - A13	.439**	.464**	.372**	.467**	.512**	.465**	.539**	.485**	.505**	.534**	.637**	.654**	1										
SQI - A14	.486**	.467**	.407**	.508**	.509**	.512**	.550**	.468**	.542**	.536**	.635**	.658**	.795**	1									
SQI - A15	.428**	.455**	.388**	.485**	.539**	.461**	.463**	.494**	.493**	.580**	.559**	.551**	.555**	.625**	1								
SQI - A16	.465**	.465**	.473**	.479**	.577**	.473**	.456**	.503**	.556**	.561**	.570**	.580**	.543**	.604**	.687**	1							
SQI - A17	.463**	.472**	.469**	.440**	.493**	.430**	.501**	.473**	.531**	.541**	.585**	.622**	.537**	.544**	.531**	.629**	1						
SQI - A18	.437**	.442**	.440**	.497**	.511**	.423**	.484**	.473**	.529**	.514**	.596**	.587**	.540**	.573**	.532**	.620**	.803**	1					
SQI - A19	.452**	.456**	.444**	.467**	.562**	.560**	.522**	.472**	.444**	.495**	.515**	.503**	.498**	.467**	.456**	.496**	.472**	.493**	1				
SQI - A20	.455**	.450**	.482**	.489**	.569**	.541**	.539**	.487**	.486**	.529**	.513**	.566**	.478**	.509**	.502**	.577**	.559**	.527**	.681**	1			
SQI - A21	.487**	.459**	.422**	.559**	.554**	.590**	.512**	.542**	.400**	.573**	.554**	.541**	.464**	.506**	.537**	.575**	.524**	.509**	.667**	.634**	1		
SQI - A22	.467**	.441**	.412**	.553**	.513**	.507**	.518**	.562**	.496**	.618**	.593**	.553**	.550**	.591**	.560**	.605**	.538**	.578**	.577**	.616**	.802**	1	
SQI - A23	.460**	.444**	.446**	.535**	.562**	.470**	.533**	.507**	.521**	.574**	.618**	.638**	.548**	.547**	.540**	.626**	.646**	.653**	.601**	.666**	.650**	.683**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7.6 (cont')

	MAP - B01	MAP - B02	MAP - B03	MAP - B04	MAP - B05	MAP - B06	MAP - B07	MAP - B08	MAP - B09	MAP - B10	MAP - B11	MAP - B12	MAP - B13	MAP - B14
MAP - B01	1													
MAP - B02	.764**	1												
MAP - B03	.659**	.653**	1											
MAP - B04	.648**	.622**	.813**	1										
MAP - B05	.566**	.504**	.576**	.585**	1									
MAP - B06	.574**	.523**	.570**	.592**	.626**	1								
MAP - B07	.578**	.539**	.626**	.646**	.607**	.644**	1							
MAP - B08	.601**	.566**	.623**	.639**	.576**	.658**	.846**	1						
MAP - B09	.467**	.456**	.487**	.482**	.442**	.462**	.581**	.586**	1					
MAP - B10	.451**	.437**	.449**	.486**	.429**	.420**	.522**	.511**	.654**	1				
MAP - B11	.366**	.405**	.411**	.407**	.400**	.469**	.436**	.450**	.469**	.396**	1			
MAP - B12	.400**	.437**	.455**	.492**	.414**	.411**	.515**	.523**	.536**	.574**	.489**	1		
MAP - B13	.435**	.494**	.474**	.506**	.432**	.408**	.512**	.495**	.521**	.590**	.397**	.706**	1	
MAP - B14	.471**	.521**	.568**	.521**	.442**	.401**	.553**	.506**	.571**	.594**	.425**	.608**	.720**	1

**. Correlation is significant at the 0.01 level (2-tailed).

	PRF - C01	PRF - C02	PRF - C03	PRF - C04	PRF - C05	PRF - C06	PRF - C07	PRF - C08	PRF - C09	PRF - C10	PRF - C11	PRF - C12	PRF - C13	PRF - C14	PRF - C15	PRF - C16
PRF - C01	1															
PRF - C02	.807**	1														
PRF - C03	.466**	.554**	1													
PRF - C04	.565**	.614**	.518**	1												
PRF - C05	.361**	.379**	.467**	.362**	1											
PRF - C06	.485**	.558**	.490**	.552**	.434**	1										
PRF - C07	.456**	.420**	.447**	.564**	.445**	.512**	1									
PRF - C08	.376**	.391**	.482**	.449**	.303**	.461**	.732**	1								
PRF - C09	.330**	.404**	.557**	.413**	.595**	.406**	.463**	.425**	1							
PRF - C10	.328**	.384**	.531**	.386**	.591**	.399**	.424**	.393**	.886**	1						
PRF - C11	.299**	.354**	.467**	.363**	.506**	.348**	.398**	.261**	.613**	.623**	1					
PRF - C12	.276**	.274**	.452**	.302**	.536**	.330**	.347**	.288**	.639**	.660**	.810**	1				
PRF - C13	.296**	.290**	.290**	.209**	.445**	.282**	.294**	.226**	.356**	.357**	.400**	.473**	1			
PRF - C14	.301**	.324**	.310**	.290**	.392**	.357**	.308**	.297**	.404**	.418**	.452**	.504**	.573**	1		
PRF - C15	.302**	.304**	.296**	.219**	.422**	.315**	.348**	.278**	.376**	.368**	.366**	.440**	.667**	.678**	1	
PRF - C16	.297**	.311**	.407**	.336**	.369**	.374**	.416**	.336**	.419**	.427**	.455**	.469**	.387**	.452**	.561**	1

**. Correlation is significant at the 0.01 level (2-tailed).

7.4. BIVARIATE RELATIONSHIP BETWEEN THE CONSTRUCTS

The bivariate relationships between the constructs were examined using a parametric test and the Pearson Correlation coefficient between the constructs SQIM and PERF, MAP and PERF, and also SQIM and MAP were referred.

As indicated in Table 7.7, the Pearson Correlation coefficients for all the three pairs of relationships suggest that they were significant and positive. Nevertheless, the relationship was found to be strongest between SQIM and PERF (r=.632, p<.001); followed by MAP and PERF (r=.540, p<.001); and lastly SQIM and MAP (r=.434, p<.001).

The bivariate relationships are reasonable. Firstly, there is theoretical arguments that quality management would pay-off. The rather strong evidence found in this study has provided support for this argument. Secondly, it is generally expected that MAP usage should be motivated by the information needs and supports for effective SQIM implementation, and ultimately the delivery of performance. Hence, the impact of MAP on PERF is expected to be realized indirectly via management initiatives, in this case SQIM, rather than directly. The moderate performance implication of MAP usage found in this study is expected, and is further justified by the dominating effect from SQIM to PERF. Thirdly, SQIM and MAP are theoretically related concepts, since greater implementation of SQIM would need to be facilitated by greater usage in MAP. Nevertheless, the correlation coefficient was somewhat weaker than expected, hence suggesting a possible lag in MAP usage.

Observation of the bivariate relationship has also rendered support for the mediation modelling of MAP on the SQIM-PERF relationship. Details have been described in Chapter 5.

Table 7.7   Pearson correlations

	SQIM	MAP	PERF
SQIM	1		
MAP	.434[**]	1	
PERF	.632[**]	.540[**]	1

**. Correlation is significant at the 0.01 level (2-tailed).

7.5. SUMMARY

This chapter has provided an initial understanding of data produced from questionnaire survey. Descriptive statistics on the demographic profiles of respondents and the three measurement constructs have been presented. An apparent dominating relationship between SQIM and PERF, alongside with a seemingly lag in MAP usage have been observed. Also, the bivariate relationships are supportive of the mediation modelling proposed by this thesis. The next chapter explains preparation of the data using the exploratory factor analysis before further analyses would be pursued.

CHAPTER 8   MEASUREMENT MODEL

8.1. INTRODUCTION

The previous chapter has provided useful background understanding of the data produced by questionnaire survey. Data profiles have been described and the bivariate relationships between constructs have been explained.

This chapter explains how the data was prepared before it was subjected to actual analyses. The preparation is important to ensure quality outputs may be generated in subsequent data analyses. This study adopts the model development strategy using model specification procedure. The source of model misfit is identified and then a model that can achieve better fit of data is generated (Byrne, 2008). Data were subjected to exploratory factor analysis (using SPSS v20) and confirmatory factor analysis (using IBM SPSS AMOS 19.0). Both these analyses have been widely used for social sciences research to provide insights into the validity and reliability of the measurement.

This chapter first explains the analyses, and subsequently profiles the outputs of the analyses and presents the bivariate relationships between the constructs.

8.2. EXPLORATORY FACTOR ANALYSIS (EFA)

This study uses a set of items to measure the constructs for SQIM, MAP and PERF. EFA was used to reduce the data set from groups of interrelated items to a smaller set of components.

Principal component analysis was conducted to decompose the data into a set of linear components and to determine how a particular item might be contributing to a given component (Field, 2009). Given the nature of the constructs SQIM, MAP and PERF, it was largely expected that the underlying factors should be correlated within each of the constructs. Hence, oblique rotation (direct oblimin) was sought.

To ensure that the factors identified explain more variance than individual items, a cut-off Eigenvalue (Kaiser's criterion) of 1.0 was used to determine the number of factors (Hair, et al., 2010).

To ensure unidimensionality of the factors, factor loadings were examined to establish the correlation of each items and the factor. Also, the squared loading explains the amount of the item's total variance accounted for by the factor. While a higher loading suggests the item is representative of the factor, there is no absolute cut-off point to determine the significance of a factor loading. Hair, et al. (2010) suggests that factor loadings in the range of 0.3-0.4 are considered to meet the minimal level for interpretation, loadings of 0.5 or greater are considered to be practically significant, and loadings greater than 0.7 are ideal for a good factor structure. This study treats values of at least 0.5 as significant since this would translate to approximately 25 percent of the variance being accounted for by the factor. Also, to ensure discriminant validity where individual items only represents one factor, items that are cross-loading on more than one factor needs to be removed from the measurement model.

Following this, the communalities of items were assessed to confirm if the items meet acceptable level of explanation. Communality is the amount of variance that an item shares with all other items in the factor solution. Generally, only items that have communalities of greater than 0.50 should be retained in the solution (Hair, et al., 2010), since at least one-half of the variance of each item is taken into account.

An initial analysis on SQIM was run to obtain eigenvalues for each component in the data. Three components had eigenvalues over Kaiser's criterion of 1 and in combination explained 66.134% of the variance. The scree plot showed inflexion that would justify retaining factor 3. Given the large sample size, the Kaiser's criterion on three components and the convergence of the scree plot, three components were retained in the final analysis. Statistical outputs of the factor analysis are in Appendix 6.1. The items that cluster on the same components suggest that Component 1 represents **Management, Process and**

Communication (MPC). Component 2 represents **Patient Care** (PCARE). Meanwhile, Component 3 represents **Data Collection and Analysis** (DCA).

Initial analysis on MAP showed that two components had eigenvalues over Kaiser's criterion of 1 and in combination explained 65.599% of the variance. When three components were extracted, with items B05 and B11 removed due to low communalities, the three components in combination explained 75.443% of the variance. Therefore, three components were retained in the final analysis. Statistical outputs of the factor analysis are in Appendix 6.2. The items that cluster on the same components suggest that Component 1 represents **Costing and Financial Control** (CFC). Component 2 represents **Resource Management and Value Creation** (RMVC). Meanwhile, Component 3 represents **Operational Control and Waste Reduction** (OCWR).

Initial analysis on PERF returned three components with eigenvalues over Kaiser's criterion of 1 and in combination explained 66.242% of the variance. When four components were extracted, the four components in combination explained 72.281% of the variance. The scree plot showed inflexion that would justify retaining factor 4. Therefore, four components were retained in the final analysis. Statistical outputs of the factor analysis are in Appendix 6.3. The items that cluster on the same components suggest that Component 1 represents **Innovation** (INNO). Component 2 represents **Financial** (FIN). Component 3 represents **Corporate Social Responsibility** (CSR). Meanwhile, Component 4 represents **Operating Efficiency** (EFF).

The Kaiser-Meyer-Olkin (KMO) statistics and Bartlett's test of sphericity were referred to verify the sampling adequacy for factor analysis. KMO statistics of at least 0.70 and significant values are desirable (Hair, et al., 2010). The KMO statistics for SQIM (0.950), MAP (0.918) and PERF (0.878) were regarded as 'superb' according to (Field, 2009). The Bartlett's test of sphericity showed Chi-Square (253) of 7725.518 for SQIM (p<.01), Chi-Square (66) of 3729.569 for MAP (p<.01) and Chi-Square (120) of 4463.619 for PERF (p<.01). The analysis indicates

that correlations between items were sufficiently large and that data were adequate for EFA.

To assess common method bias for the constructs, Harman's single factor test was undertaken. The results show that there is a dominating factor in SQIM, with total variance explained being slightly greater than 50%. Nevertheless, when CFA was conducted, it was found that a three-factor model derived from EFA has a better model fit compared to a single-factor model. Hence, the three-factor model was maintained for subsequent analysis. Similar findings were noted for MAP and the three factor model derived from EFA was maintained. For PERF, no dominating factor was found and the four-factor model was found to be a better model than a single-factor model. Hence the four-factor model was kept. Details of the tests are presented in Appendix 6.4.

To establish the reliability of the factors, the Cronbach's alpha was sought to assess the consistency of the entire scale. Nunnally and Bernstein (1994) recommended a threshold level of 0.7 for reliability. While this is the generally agreed lower limit for reliability coefficient, it may decrease to 0.6 in exploratory study (Hair, et al., 2010). High construct reliability indicates that all the measures consistently represent the same construct, hence internal consistency exists. To ensure a reliable unidimensional scale, further analysis was made on statistics detailing revised reliability if certain items were deleted.

Summary of results of the EFA and indications of unidimensionality and reliability are summarised in Table 8.1. The range of factor loadings was generally between 0.7 and 0.85 and indicates the robustness of the solution. Reliabilities that range from 0.84 to 0.93 were well above the minimum threshold level of 0.7, hence suggests that the scales employed in this study are generally excellent.

Table 8.1   Results of EFA

	Factor Loading
SQIM	
Patient care (Eigen value 8.550; Cronbach's Alpha .884)	
Making effort to understand the services that patients need (A01)	.871
Making effort to meet patients' need (A02)	.905
Maintaining good relationship with patients (A03)	.868
Making effort to provide patient care ethically and to protect patients' rights (A06)	.610
Management, process and communication (Eigen value 11.234; Cronbach's Alpha .934)	
Providing ongoing training/education to staff to maintain/enhance their skills/ knowledge (A09)	.658
Making effort to manage and evaluate staff performance (A10)	.560
Making effort to ensure that the designs/ redesigns of processes are promoting better control over service quality (A11)	.798
Making effort to ensure that the designs/ redesigns of processes are promoting better improvement in service quality (A12)	.796
Making effort to manage and continually improve the processes/systems (A13)	.894
Making effort to manage and continually improve the facilities (A14)	.891
Making good use of staff abilities/capacity to achieve objectives (A15)	.672
Making effort to communicate with the key stakeholders (A16)	.632
Making effort to meet the key stakeholders' information needs (A17)	.742
Making effort to maintain mutually beneficial relationships with the key stakeholders (A18)	.750
Data collection and analysis (Eigen value 9.188; Cronbach's Alpha .905)	
Making patient records accessible to doctors/staff when communicating the essential information (A19)	-.770
Referring to factual information/data when making decisions (A20)	-.701
Measuring/analysing staff performance in providing patient care (A21)	-.866
Measuring/analysing performance to improve the quality of services (A22)	-.667
Referring to relevant statistics/summaries of data/information when communicating with the key stakeholders (A23)	-.521
MAP	
Costing and financial control (Eigen value 5.420; Cronbach's Alpha .900)	
Use budgets to control costs (B01)	.837
Adjust budgets to the actual activity level when comparing with the actual results (B02)	.874
Measure performance in financial terms (B03)	.763
Differentiate between variable costs and fixed costs (B04)	.687
Operational control and waste reduction (Eigen value 4.598; Cronbach's Alpha .883)	
Use formal approach to manage and control stock/material level (B06)	-.669
Identify activities performed and determine their costs (B07)	-.721
Measure/report costs to maintain good quality services (B08)	-.740
Resource management and value creation (Eigen value 5.332; Cronbach's Alpha .885)	
Measure performance in non-financial terms relating to employees (B09)	.580
Measure the performance of a team rather than of an individual (B10)	.741
Identify best practices in other organisations and refer to them as good standard/ benchmark (B12)	.824
Monitor changes in competitors' position to maintain/ improve your position (B13)	.874
Measure performance in both financial and non-financial terms (B14)	.782

PERF

Financial (Eigen value 4.631; Cronbach's Alpha .851)
You generate more sales from the healthcare services provided (C01)   .924
You have greater growth in revenue/sales (C02)   .948
You have a larger market share (C04)   .622

Operating efficiency (Eigen value 3.940; Cronbach's Alpha .845)
You incur lower cost of quality as a percentage of total services provided (C07)   .815
You incur lower unit cost of services provided (C08)   .912

Innovation (Eigen value 5.873; Cronbach's Alpha .901)
You deliver better services in terms of speed and reliability (C05)   .582
You are better at developing new service (C09)   .885
You are better at developing new process (C10)   .911
You have a more creative culture (C11)   .840
You learn new ideas in a better way (C12)   .844

Corporate social responsibility (Eigen value 4.332; Cronbach's Alpha .840)
You do not cause harm to people, environment and/or the eco-system (C13)   .810
You are open and transparent (C14)   .771
You protect and promote human rights (C15)   .919

Descriptive statistics for the means of the measures are shown in Table 8.2. The means of SQIM constructs suggest that implementation level was highest in PCARE (4.10), followed by DCA (3.92) and MPC (3.86). The relatively lower implementation levels of MPC and DCA seemed to suggest these two initiatives have been lagging behind PCARE, and that PCARE might not have leveraged on the two other initiatives.

The means of MAP constructs suggest relatively high usage level for OCWR (3.27), followed by CFC (3.00) and RMVC (2.81). The relatively low usage level in MAP (RMVC) is generally expected in the developing countries since this involves more advanced and contemporary MAP techniques.

Meanwhile, for the PERF measures, the means suggest highest performance level in CSR (4.08), followed by INNO (3.67), FIN (3.48) and EFF (3.35). The results indicate that respondents generally perceived their departments/divisions as outperforming their key competitors more in terms of being socially responsible and innovative, and least in terms of being operational efficient.

Correlation levels between the constructs in the measures are shown in Table 8.3. SQIM constructs were positively related to each other with the correlations ranging from .644 to .794. Hence, the SQIM constructs were deemed implemented in a somewhat integrative approach. This is consistent with the general expectation that different aspects of quality initiatives should operate in a holistic manner. The data also show a stronger relationship between MPC and DCA (.794). This is logical since both MPA and DCA concerns processes involving management and analysis.

The positive correlations between the MAP constructs (ranging from .652 to .747) suggest that these constructs were used in an integrative manner. This is consistent with the proposition from IFAC that the stages of MAP advances while still encompassing practices in the earlier stages. The data also indicate a relatively stronger relationship between CFC and OCWR (.747).

Correlation levels between the PERF constructs suggest that these constructs were positively related to each other. Hence, it appears that these different constructs of performance have been achieved in a comprehensive manner. A closer review indicates that the relationships were relatively weaker for FIN-CSR (.367) and EFF-CSR (.361), and stronger relationships for INNO-CSR (.558) and FIN-EFF (.545). These are consistent with the general perceptions on the different perspectives of PERF.

Table 8.2   Descriptive statistics

	SQIM			MAP			PERF			
	PCARE	MPC	DCA	CFC	OCWR	RMVC	FIN	EFF	INNO	CSR
Mean	4.10	3.86	3.92	3.00	3.27	2.81	3.48	3.35	3.67	4.08
SD	.679	.628	.727	.999	.977	.942	.855	.756	.699	.695
Skewness	-.661	-.338	-.465	-.395	-.693	-.238	-.546	-.398	-.386	-.586
(Std. Error)	(.119)	(.119)	(.119)	(.119)	(.119)	(.119)	(.119)	(.119)	(.119)	(.119)
Kurtosis	.578	.029	-.237	-.803	-.157	-.847	.435	.934	.657	.121
(Std. Error)	(.238)	(.238)	(.238)	(.238)	(.238)	(.238)	(.238)	(.238)	(.238)	(.238)

Table 8.3   Correlations

	MPC	PCARE	DCA	CFC	RMVC	OCWR	INNO	FIN	CSR	EFF
MPC	1									
PCARE	.662**	1								
DCA	.794**	.644**	1							
CFC	.403**	.233**	.297**	1						
RMVC	.410**	.228**	.327**	.652**	1					
OCWR	.416**	.289**	.330**	.747**	.661**	1				
INNO	.554**	.433**	.429**	.405**	.419**	.431**	1			
FIN	.451**	.401**	.391**	.402**	.384**	.380**	.467**	1		
CSR	.420**	.430**	.420**	.170**	.183**	.231**	.558**	.367**	1	
EFF	.417**	.318**	.389**	.337**	.432**	.389**	.476**	.545**	.361**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the EFA, there are 3 factors identified for SQIM, 3 factors for MAP and 4 factors for PERF. This has provided an initial theoretical understanding on the influences and dynamics of the data collected which resulted in the observed variation and covariation on the items. Factor loadings suggest that the pattern is robust and reliability measures indicate excellent internal consistencies in the solutions.

Following this, CFA was conducted to test the structures of the components and their relationships to each other. This would provide assurance on the goodness of the model which would be used for further analysis. The next section describes the CFA.

8.3.   CONFIRMATORY FACTOR ANALYSIS (CFA)

Informed by Hair, et al. (2010), structural analyses are often unreliable if the measurement model is of low reliability and validity. Hence, the components identified in EFA for the measurement constructs were subjected to CFA in order to establish the construct validity and reliability. Essentially, any items that did not fit

the measurement model due to low factor loading would be removed. To effect this, CFA was run for the measurement model individually. The validity and reliability of each of the constructs were then assessed against the following criteria:

Unidimensionality is achieved when the measuring items for the respective constructs have acceptable factor loadings. Factor loading of an item that is 0.5 or higher is considered to be practically significant (Hair, et al., 2010).

Convergent validity is achieved when all items in a measurement model are statistically significant. The validity is verified by computing the Average Variance Extracted (AVE) for each construct, using the formula AVE=$\frac{\sum K^2}{n}$, where K is the factor loading of every item and n is the number of items in a model. Hence, AVE shows the average percentage of variance as explained by the measuring items for a construct. Validity is achieved when the value of AVE is ≥ 0.5 (Hair, et al., 2010).

In addition to AVE, reliability is also an indicator of convergent validity. This is achieved when the measurement model is reliable in measuring the intended latent construct. The rule of thumb is that *internal reliability* is achieved when the measurement model has a Chronbach's Alpha value of $\geq$ 0.7 (Nunnally and Bernstein, 1994). *Composite reliability (CR)* is the measure of reliability and internal consistency for a latent construct. CR is calculated using the formula CR= $\frac{(\sum K)^2}{(\sum K)^2+(\sum 1-K^2)}$ where K is the factor loading of every item and n is the number of items in a model. Reliability is indicated if CR has a value of $\geq$ 0.7 (Hair, et al., 2010).

Construct validity is achieved when the model that best represents the data reflects underlying theory, and is indicated when the fitness indexes for a construct achieved the required level.

The literature has proposed a wide range of indexes to establish model fit, alongside with intense debate on the criteria for fitness (Tabachnick and Fidell, 2007). This study follows Bollen (1990) recommendation to assess multiple indexes of model fit since a model that achieves good fit on a particular index may

be inadequate on the other indexes. This approach is also in line with advice from Hair, et al. (2010) that no specific value on any of these index is capable of guaranteeing a correct model. To this effect, Hair, et al. (2010) further suggests that researchers are encouraged to report at least one incremental index, one absolute index, and the ChiSq value with the associated degrees of freedom. Also, at least one index should be the badness-of-fit index.

Consequently, this study reports a selection of popularly used indexes which would serve as the reference point to guide the assessment of model fit. According to McIntosh (2007), the first overall test of model fit would be the ChiSq test, where a significant ChiSq statistic indicates a poor model fit. However, since the ChiSq test is extremely sensitive to sample size (Bentler, 1990), the suggestion to use the statistic that is normalized by the associated degree of freedom ($\frac{x^2}{df}$) is adopted in this study. For the badness-of-fit index, RMSEA was chosen since it is found to be providing consistent results across different estimation approach (Sugawara and MacCallum, 1993).

Table 8.4 presents the fit indexes adopted for this study, together with their recommended benchmark for model fit. To achieve goodness of fit for the empirical data, both the measurement model and structural model should meet the requirements of the selected indexes.

Table 8.4   Selected fitness indexes and their acceptance level required

Index category	Common indexes	Level of acceptance
Absolute fit	Discrepancy Chi-Square (ChiSq)	P>.05 (Barrett, 2007) This index is sensitive to sample size above 200 and may be ignored in such cases
	Chi-Square/Degrees of Freedom $(\frac{x^2}{df})$	No consensus on the acceptable ratio: ≤3.0 (Bagozzi and Yi, 1988); (Hair, et al., 2010) ≤2.0 (Tabachnick and Fidell, 2007)
	Goodness of Fit Index (GFI)	≥.90 indicates well-fitting model (Hu and Bentler, 1999); (Byrne, 2008)
	Root Mean Square Error of Approximation (RMSEA)	≤.06 indicate good fit (Hu and Bentler, 1999) ≤.08 as the stringent upper limit (Browne and Cudeck, 1993)
Incremental fit	Normed-Fit Index (NFI)	≥.90 (Bentler and Bonett, 1980) ≥.95 indicates superior fit (Hu and Bentler, 1999)
	Comparative Fit Index (CFI)	≥.90 (Bagozzi and Yi, 1988); (Bentler, 1990) ≥ .95 indicates superior fit (Hu and Bentler, 1999)
	Non-normed Fit Index (NNFI) (TLI)	≥.90 (Bentler and Bonett, 1980)
Parsimonious fit	Adjusted Goodness-of-Fit Index (AGFI)	≥.80 (Chau and Hu, 2001)

Where the construct validity requires improvement, the standardized residual covariance is referred. Any item with a pattern of larger residuals (generally ≥4.0) would be a problematic indicator, hence the need to modify the model. To modify the model, the modification indexes (MI) on covariances were reviewed. Covariances with very large modification indexes suggest the room for improving the fit of the model, as indicated by the parameter change statistics. A common approach used to improve the model fit is by removing items with low factor loading and with relatively high MI (≥4 as a rule of thumb) on the covariances.

An alternative approach to improve the model fit is by introducing correlations between errors that are found around the same factors. Pairs of items with high MI suggest redundant items that may arise due to some degree of overlap on content

or reverse coding of data. In such cases, Byrne (2008) and Blunch (2013) recommend that the redundant items may be set as "free parameter estimate" to ensure discriminant validity. This study follows the common practice and adopts the former approach to improve model fit.

To assess discriminant validity, correlations between the constructs were assessed to ensure that the constructs are distinct and they do not measure the same. The correlation should be <.85 for discriminant validity to hold true. In this study, a more rigorous examination was carried out by following Fornell and Larcker (1981) method to establish convergent and discriminant validity of the constructs. The square roots of AVE of a construct are compared with the correlation estimate between the constructs and the other constructs. Discriminant validity is achieved if the square root of AVE of a construct is greater than the correlation estimate between the constructs (Hair, et al., 2010).

The EFA has identified 3 factors for SQIM, 3 factors for MAP and 4 factors for PERF. Unidimensionality has been checked to ensure that no item with factor loading of less than 0.5 was included in the measurement model.

When assessing the construct validity, the fitness indexes for the model were checked against the established criteria as presented in Table 8.4. The initial models, Model 1, for SQIM (see Figure 8.1), MAP (see Figure 8.3) and PERF (see Figure 8.5) were found to be less satisfactory in terms of absolute fit, incremental fit and parsimonious fit.

Hence, the standardized residual covariance and the MI on covariances were reviewed. See Appendix 6.5. Items with high value in standardized residual covariance and MI were removed from the measurement construct. The model's fitness indexes were re-examined after each removal. The process ended when the fitness indexes showed that the required levels were met. Care has been exercised to remove only minimal number of items in order to preserve the theory underlying the model.
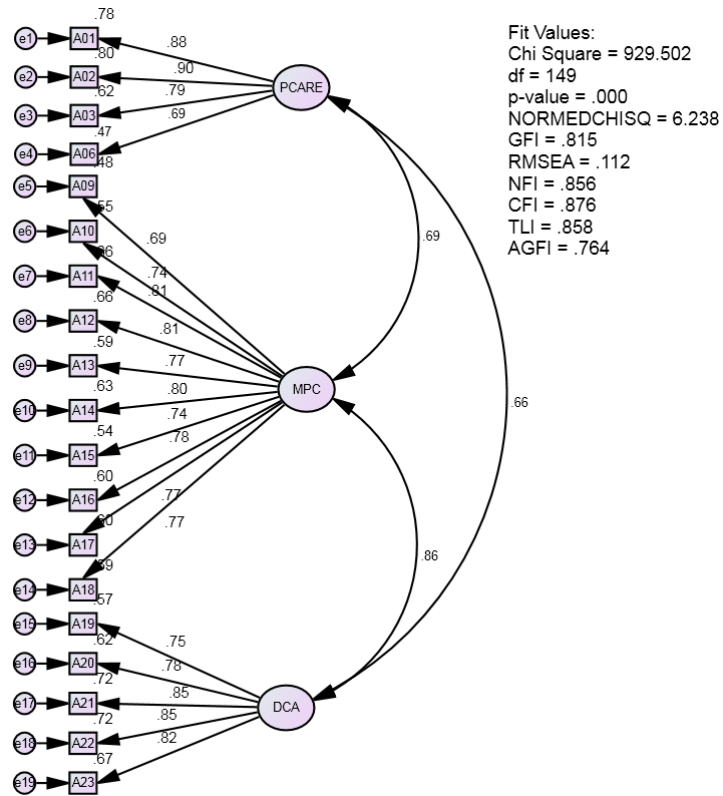
Figure 8.1 CFA on SQIM – Model 1

Fit Values:
Chi Square = 929.502
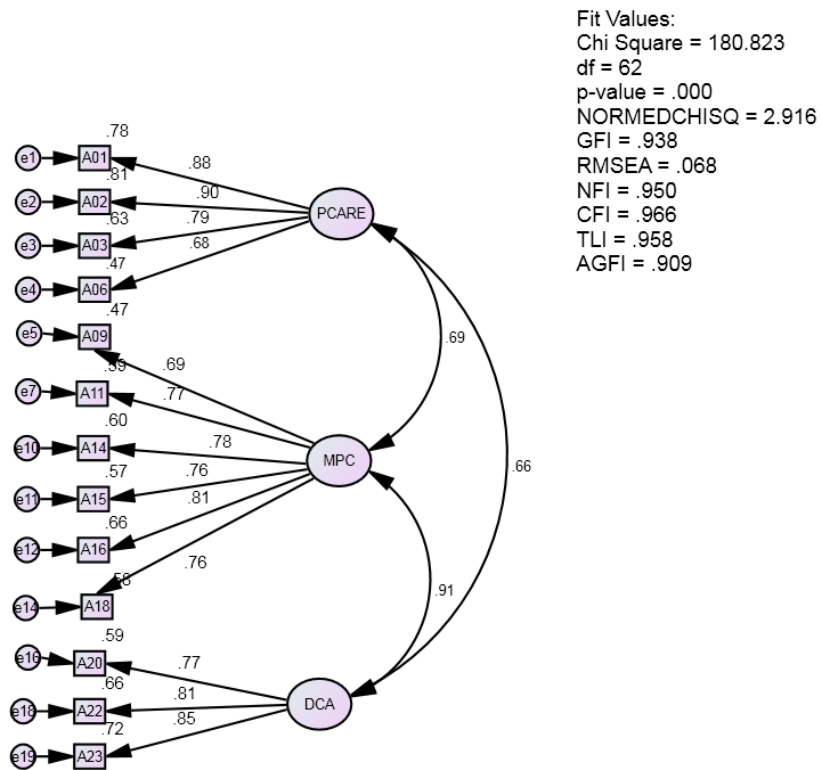df = 149
p-value = .000
NORMEDCHISQ = 6.238
GFI = .815
RMSEA = .112
NFI = .856
CFI = .876
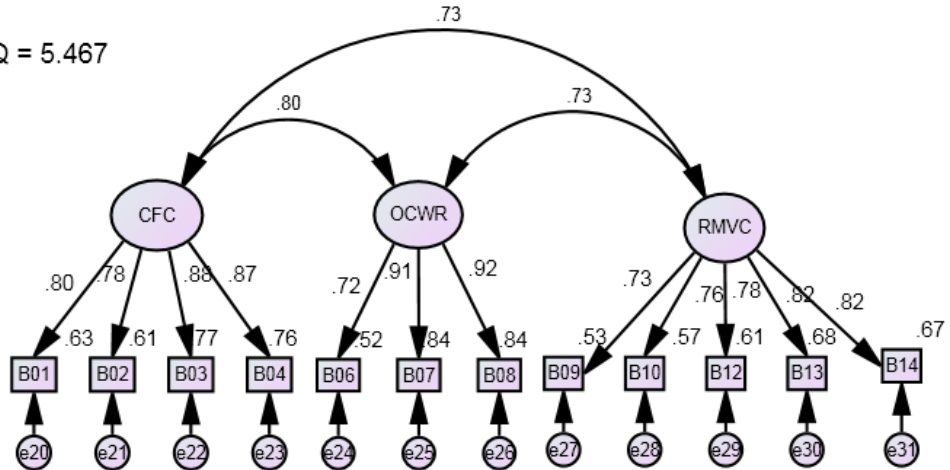TLI = .858
AGFI = .764

Figure 8.2 CFA on SQIM – Model 2

Fit Values:
Chi Square = 180.823
df = 62
p-value = .000
NORMEDCHISQ = 2.916
GFI = .938
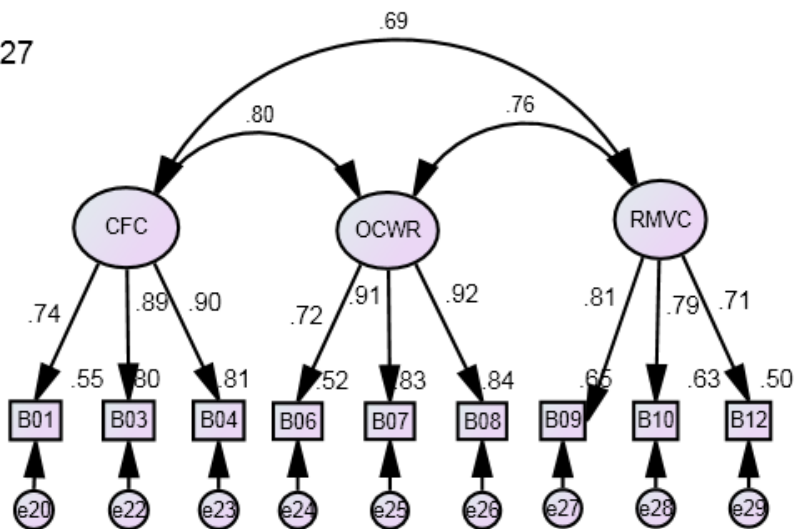RMSEA = .068
NFI = .950
CFI = .966
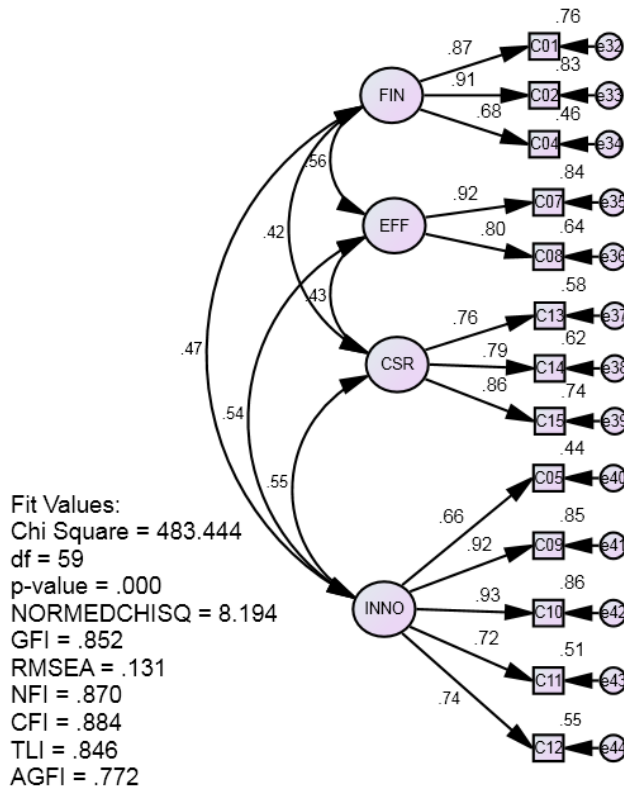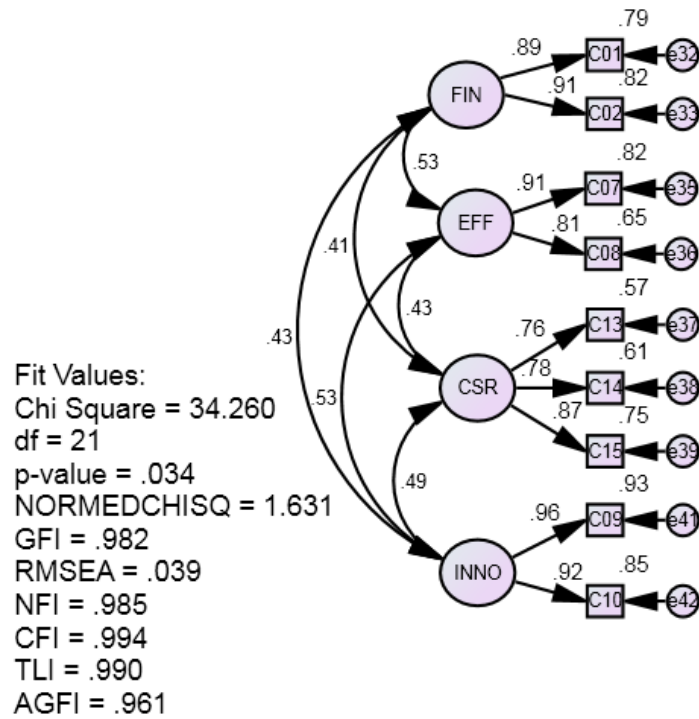TLI = .958
AGFI = .909

Figure 8.3 CFA on MAP – Model 1

Fit Values:
Chi Square = 278.842
df = 51
p-value = .000
NORMEDCHISQ = 5.467
GFI = .898
RMSEA = .103
NFI = .926
CFI = .939
TLI = .920
AGFI = .843

Figure 8.4 CFA on MAP – Model 2

Fit Values:
Chi Square = 60.636
df = 24
p-value = .000
NORMEDCHISQ = 2.527
GFI = .970
RMSEA = .060
NFI = .976
CFI = .986
TLI = .978
AGFI = .944

Figure 8.5 CFA on PERF – Model 1

Figure 8.6 CFA on PERF – Model 2

At the end of this process, four items were removed from MPC (A10, A12, A13 and A17). Two items were removed from DCA (A19 and A21). For MAP, one item was removed from CFC (B02) and two items removed from RMVC (B13 and B14). For PERF, one item was removed from FIN (C04) and three items removed from INNO (C05, C11 and C12).

The resultant models, Model 2, for SQIM (see Figure 8.2), MAP (see Figure 8.4) and PERF (see Figure 8.6) were found to be satisfactory in terms of absolute fit, incremental fit and parsimonious fit. Hence construct validity has been achieved.

To enable a meaningful analysis, AMOS imposes a strict requirement that data must be normally distributed. Therefore, the normality of data was assessed before proceeding to modelling the structural model. AMOS was used to test for normality and outliers in order to assess the distribution of every item involved in the measurement model. The statistical result are presented in Appendix 6.6. In a large sample such that used in the study (n>300), a variable with statistically significant skewness often does not deviate enough from normality to make a substantive difference in the analysis. Thus, the significance level of skewness is not as important as its actual size (Tabachnick and Fidell, 2007). Therefore, the absolute values of skew and kurtosis were checked to assess the normality of distribution for continuous variables. Variables with skew value or kurtosis value greater than 2 are regarded as substantial non-normality. The absolute values for items in each construct show that the items are normally distributed. It was also noted that all the factors are negatively skewed and the distributions are generally flat with many cases in the tails.

The multivariate kurtosis statistic was found to be 300.546. This was greater than the acceptable threshold of 20, indicating non-normality. Hence, the Mahalanobis distance was checked to identify the outliers. Cases with P1 value of <.01 were identified as outliers and thus removed from the dataset. Consequently, a total of 48 cases were excluded from the analyses. The resultant multivariate kurtosis statistic showed a value of 148.622. While the value has improved, the multivariate

normality was still violated. This issue will be address at a later stage when the structural model analysis was undertaken using the bootstrapping technique.

A summary of the CFA results and indicators of convergent and discriminant validity are presented in Table 8.5. For each construct, the value of AVE was greater than 0.5 and CR greater than .7, suggesting that all items in the measurement model are statistically significant and convergent validity has been achieved.

For the SQIM constructs, AVE shows that the average percentage of variance explained by the measuring items ranges from 0.603 to 0.687. Meanwhile, internal consistency for these constructs has also been evident with the CR values ranging from 0.854 to 0.901. For MAP, AVE shows that the average percentage of variance explained by the measuring items ranges from 0.600 to 0.770. Internal consistency for these constructs has also been evident with the CR values ranging from 0.818 to 0.908. In PERF, AVE shows that the average percentage of variance explained by the measuring items ranges from 0.698 to 0.867. Meanwhile, internal consistency for has also been evident with the CR ranging from 0.874 to 0.929.

Table 8.5 Measurement model (after removing the multivariate outliers)

Construct	Item	Factor loading	CR ($\geq$ .7)	AVE ($\geq$ .5)
Patient Care (PCARE)	Making effort to understand the services that patients need (A01)	.87	.897	.687
	Making effort to meet patients' need (A02)	.90		
	Maintaining good relationship with patients (A03)	.79		
	Making effort to provide patient care ethically and to protect patients' rights (A06)	.75		
Management, Process and Communication (MPC)	Providing ongoing training/ education to staff to maintain/ enhance their skills/knowledge (A09)	.68	.901	.603
	Making effort to ensure that the designs/ redesigns of processes are promoting better control over service quality (A11)	.80		
	Making effort to manage and continually improve the facilities (A14)	.80		
	Making good use of staff abilities/capacity to achieve objectives (A15)	.79		
	Making effort to communicate with the key stakeholders (A16)	.80		

	Making effort to maintain mutually beneficial relationships with the key stakeholders (A18)	.78		
Data Collection and Analysis (DCA)	Referring to factual information/data when making decisions (A20)	.77	.854	.661
	Measuring/analysing performance to improve the quality of services (A22)	.81		
	Referring to relevant statistics/ summaries of data/information when communicating with the key stakeholders (A23)	.86		
Costing and Financial Control (CFC)	Use budgets to control costs (B01)	.75	.902	.757
	Measure performance in financial terms (B03)	.93		
	Differentiate between variable costs and fixed costs (B04)	.91		
Operational Control and Waste Reduction (OCWR)	Use formal approach to manage and control stock/material level (B06)	.73	.908	.770
	Identify activities performed and determine their costs (B07)	.94		
	Measure/report costs to maintain good quality services (B08)	.94		
Resource Management and Value Creation (RMVC)	Measure performance in non-financial terms relating to employees (B09)	.82	.818	.600
	Measure the performance of a team rather than of an individual (B10)	.79		
	Identify best practices in other organisations and refer to them as good standard/ benchmark (B12)	.70		
Financial (FIN)	You generate more sales from the healthcare services provided (C01)	.87	.911	.837
	You have greater growth in revenue/sales (C02)	.95		
Operating Efficiency (EFF)	You incur lower cost of quality as a percentage of total services provided (C07)	.90	.896	.811
	You incur lower unit cost of services provided (C08)	.90		
Corporate Social Responsibility (CSR)	You do not cause harm to people, environment and/or the eco-system (C13)	.79	.874	.698
	You are open and transparent (C14)	.83		
	You protect and promote human rights (C15)	.89		
Innovation (INNO)	You are better at developing new service (C09)	.95	.929	.867
	You are better at developing new process (C10)	.91		

Note: Fit values: ChiSq=669.320, df=389, p-value=.000, NORMEDCHISQ = 1.721, GFI = .898, RMSEA = .044, NFI = .926, CFI = .968, TLI = .961, AGFI = .870

Table 8.6 Discriminant validity

	EFF	INNO	CSR	FIN	OCWR	RMVC	CFC	DCA	PCARE	MPC
EFF	**0.901**									
INNO	0.608	**0.931**								
CSR	0.462	0.543	**0.835**							
FIN	0.530	0.516	0.411	**0.915**						
OCWR	0.451	0.382	0.259	0.428	**0.877**					
RMVC	0.494	0.438	0.221	0.358	0.789	0.775				
CFC	0.445	0.344	0.214	0.467	0.774	0.679	**0.870**			
DCA	0.463	0.502	0.506	0.420	0.384	0.444	0.390	0.813		
PCARE	0.383	0.450	0.504	0.379	0.341	0.328	0.282	0.694	**0.829**	
MPC	0.500	0.534	0.493	0.463	0.474	0.482	0.432	0.920	0.758	0.777

Note: Values on the diagonal (bold) represent the square root of the AVE while off-diagonals represent correlations. Values with border indicate multicollinearity. All the correlations are significant at the .01 level.

When the model was checked for discriminant validity, multicollinearity was observed between RMVC–OCWR and MPA–DCA. See Table 8.6. Given that there is theoretical understanding of such relationships, each of the pairs of constructs was grouped into second order.

Following this, MPA was grouped with DCA to make a new composite construct called the Management, Process and Analysis (MPA). Meanwhile, OCWR and RMVC were grouped together to make a new composite construct called the Advanced Management Accounting Practices (ADVMAP). The regression weights for the second order (see Table 8.7) suggest that the second order relationship is significant for both MPA and ADVMAP.

Table 8.7 Regression weights for second order

			Estimate	S.E.	C.R.
OCWR	<---	ADVMAP	.908	.046	19.534***
RMVC	<---	ADVMAP	.654	.052	12.579***
MPC	<---	MPA	.561	.033	17.037***
DCA	<---	MPA	.616	.035	17.617***

*** Significantly different from zero at the 0.001 level (two-tailed)

Table 8.8 Measurement model (second order)

Construct	Item	Loading	AVE (≥.5)	CR (≥.7)
PCARE	A01	0.88	0.687	0.897
	A02	0.90		
	A03	0.79		
	A06	0.75		
MPA	MPC	1.00	0.923	0.960
	DCA	0.92		
CFC	B01	0.75	0.757	0.902
	B03	0.93		
	B04	0.91		
ADVMAP	OCWR	0.93	0.792	0.884
	RMVC	0.85		
FIN	C01	0.87	0.837	0.911
	C02	0.96		
EFF	C07	0.90	0.811	0.896
	C08	0.90		
CSR	C13	0.79	0.698	0.874
	C14	0.83		
	C15	0.89		
INNO	C09	0.95	0.867	0.929
	C10	0.91		

Note: Fit values: ChiSq=695.151, df=402, p-value=.000, NORMEDCHISQ = 1.729, GFI = .894, RMSEA = .044, NFI = .924, CFI = .966, TLI = .961, AGFI = .870

Table 8.9 Discriminant validity

	MPA	ADVMAP	EFF	INNO	CSR	FIN	CFC	PCARE
MPA	**0.961**							
ADVMAP	0.516	**0.890**						
EFF	0.500	0.512	**0.901**					
INNO	0.536	0.440	0.607	**0.931**				
CSR	0.505	0.274	0.462	0.543	**0.835**			
FIN	0.461	0.451	0.530	0.516	0.410	**0.915**		
CFC	0.430	0.825	0.445	0.345	0.214	0.467	**0.870**	
PCARE	0.757	0.373	0.383	0.451	0.504	0.378	0.281	**0.829**

Note: Values on the diagonal (bold) represent the square root of the AVE while off-diagonals represent correlations. All the correlations are significant at the .01 level.

A summary of the CFA results and indicators of convergent and discriminant validity for the measurement model including the second-order measures are presented in Table 8.8. For each construct, the value of AVE was greater than 0.5 and CR greater than .7, suggesting that all items in the measurement model are statistically significant and convergent validity was achieved.

As shown in Table 8.9, the discriminant validity for all constructs is achieved since the diagonal values are higher than the values in their respective row and column. The correlation between MPA and PCARE was relatively high at .757. This was expected since both are measures relating to SQIM. Nevertheless, since the correlation is <.85, it is argued that both MPA and PCARE were not redundant. This finding supports the conceptual distinction between the two constructs of SQIM. Meanwhile, the measure of correlation between the constructs for MAP and SQIM remained within the threshold of .85, hence discriminant validity between these exogenous constructs was achieved.

It was further noted that the correlation between the MPA and the MAP constructs range between .430 and .516, while correlation between PCARE and the MAP constructs has a lower range of .281 and .373. This observation has provided justification for treating MPA and PCARE as distinct measures. Hence, the second-order model for SQIM and MAP was maintained for hypotheses testing.

These relationships established are useful in assessing the possibility that the relationships between PCARE/MPA and PERF were mediated by MAP. Given that the causal variables (implementation of PCARE and MPA) have significant relationships with the outcome variables (FIN, EFF, CSR and INNO), the direct and unmediated relationship was found to be significant. Implementation of PCARE and MPA were also significantly related to CFC and ADVMAP, therefore establishing the relationship with the potential mediators. Finally, CFC and ADVMAP were significantly related to the outcome variables, thus supporting the relationship between the mediator and the outcome variable.

The bivariate correlations between the constructs are in the predicted direction and significant ($p<.01$). None of the correlations has a negative sign. The absence of any negative correlation coefficients indicates that a high value on PCARE or MPA does not exclude a high value on MAP constructs and a high value on PERF constructs. As these findings support the predicted relationships between the constructs, there appear to be strong support for Hypotheses 2 to 5.

8.4. SUMMARY

This chapter deals with the identification of the various constructs for SQIM, MAP and PERF. The aim was to prepare data in a meaningful and manageable form before it was subjected to actual analyses. Also, this was useful in providing a theoretical understanding on the influences and dynamics of the data collected.

EFA and CFA were employed to reduce the data for each of the constructs. The data shows that all factor loadings for all the constructs are significant and are above 0.5. Hence, it may be concluded that the measurement constructs are robust and comprehensive. Specifically, two construct were identified for SQIM, two for MAP and four for PERF. These measurement models were found to be fit in terms of its unidimensionality, validity and reliability. Following this, the measurement models would be introduced into for hypotheses testing.

Based on the model justification detailed in Chapter 5, the analyses is to be carried out to test the hypotheses as follows. Hypotheses H1a to H1c are presented in Figure 8.6. Hypotheses from H2 to H5 are illustrated in Figure 8.7. The next chapter explores H1, which deals with the implementation of SQIM in HTHDs that have pursued varied quality achievement programmes.

Implementation of SQIM (H1)

This study hypothesises that HTHDs that have obtained more types of quality achievements, namely ISO 9000, JCI and MSQH, would demonstrate a higher level of SQIM implementation level as compared to those HTHDs that have obtained less or no achievement. For this purpose, the MPA construct that comprises MPC and DCA is examined in detail to explore the likely differentiation that quality achievements might make on the implementation of these quality constructs. Specifically, this means the following:

H1a   PCARE level is higher in HTHDs that have obtained more types of quality achievements as compared to those HTHDs that have obtained less or no achievement.

H1b   MPC level is higher in HTHDs that have obtained more types type of quality achievements as compared to those HTHDs that have obtained less or no achievement.

H1c   DCA level is higher in HTHDs that have obtained more types type of quality achievements as compared to those HTHDs that have obtained less or no achievement.

The relationships between SQIM and PERF (H2)

This study hypothesises that implementation of SQIM provides a significant and positive direct effect on the PERF constructs. Specifically, this means the following:

H2$_1$:   The implementation of PCARE provides a significant and positive direct effect on FIN.

H2$_2$:   The implementation of PCARE provides a significant and positive direct effect on EFF.

H2$_3$:   The implementation of PCARE provides a significant and positive direct effect on CSR.

H2$_4$:   The implementation of PCARE provides a significant and positive direct effect on INNO.

H2$_5$:   The implementation of MPA provides a significant and positive direct effect on FIN.

H2$_6$:   The implementation of MPA provides a significant and positive direct effect on EFF.

H2$_7$:   The implementation of MPA provides a significant and positive direct effect on CSR.

H2$_8$:   The implementation of MPA provides a significant and positive direct effect on INNO.

The relationship between SQIM and MAP (H3)

This study hypothesises that implementation of SQIM provides a significant and positive direct effect on the usage level of the MAP constructs. Specifically, this means the following:

$H3_1$: The implementation of PCARE provides a significant and positive direct effect on CFC.

$H3_2$: The implementation of PCARE provides a significant and positive direct effect on ADVMAP.

$H3_3$: The implementation of MPA provides a significant and positive direct effect on CFC.

$H3_4$: The implementation of MPA provides a significant and positive direct effect on ADVMAP.

The relationship between MAP and PERF (H4)

This study hypothesises that the usage level of MAP provides a significant and positive direct effect on the PERF constructs. Specifically, this means the following:

$H4_1$: The usage level of CFC provides a significant and positive direct effect on FIN.

$H4_2$: The usage level of CFC provides a significant and positive direct effect on EFF.

$H4_3$: The usage level of CFC provides a significant and positive direct effect on CSR.

H4$_4$:   The usage level of CFC provides a significant and positive direct effect on INNO.

H4$_5$:   The usage level of ADVMAP provides a significant and positive direct effect on FIN.

H4$_6$:   The usage level of ADVMAP provides a significant and positive direct effect on EFF.

H4$_7$:   The usage level of ADVMAP provides a significant and positive direct effect on CSR.

H4$_8$:   The usage level of ADVMAP provides a significant and positive direct effect on INNO.

The mediation role of MAP for SQIM-PERF (H5)

This study hypothesises that the usage level of MAP mediates the positive impact of SQIM implementation on PERF in HTHDs. Specifically, this means the following:

H5$_1$:   The positive impact of implementation of PCARE on FIN will be mediated by increased use of CFC and ADVMAP.

H5$_2$:   The positive impact of implementation of PCARE on EFF will be mediated by increased use of CFC and ADVMAP.

H5$_3$:   The positive impact of implementation of PCARE on CSR will be mediated by increased use of CFC and ADVMAP.

H5$_4$:   The positive impact of implementation of PCARE on INNO will be mediated by increased use of CFC and ADVMAP.

H5$_5$:   The positive impact of implementation of MPA on FIN will be mediated by increased use of CFC and ADVMAP.

H5$_6$:   The positive impact of implementation of MPA on EFF will be mediated by increased use of CFC and ADVMAP.

H5$_7$:   The positive impact of implementation of MPA on CSR will be mediated by increased use of CFC and ADVMAP.

H5$_8$:   The positive impact of implementation of MPA on INNO will be mediated by increased use of CFC and ADVMAP.

Figure 8.6 Hypotheses testing – H1a to H1c
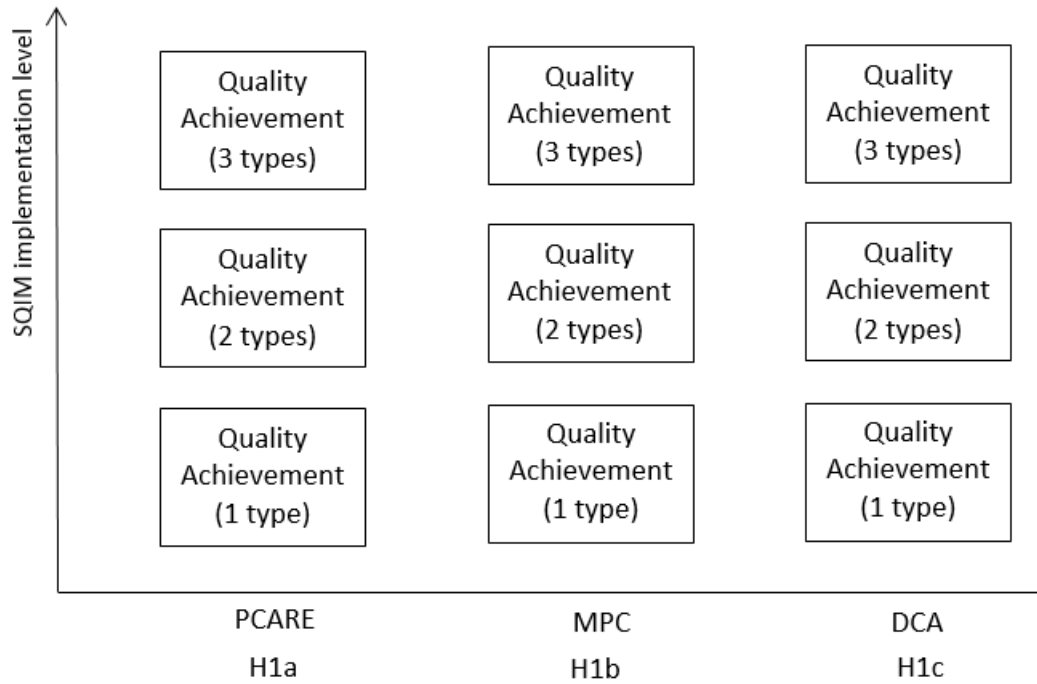
Figure 8.7 Hypotheses testing – H2 to H5
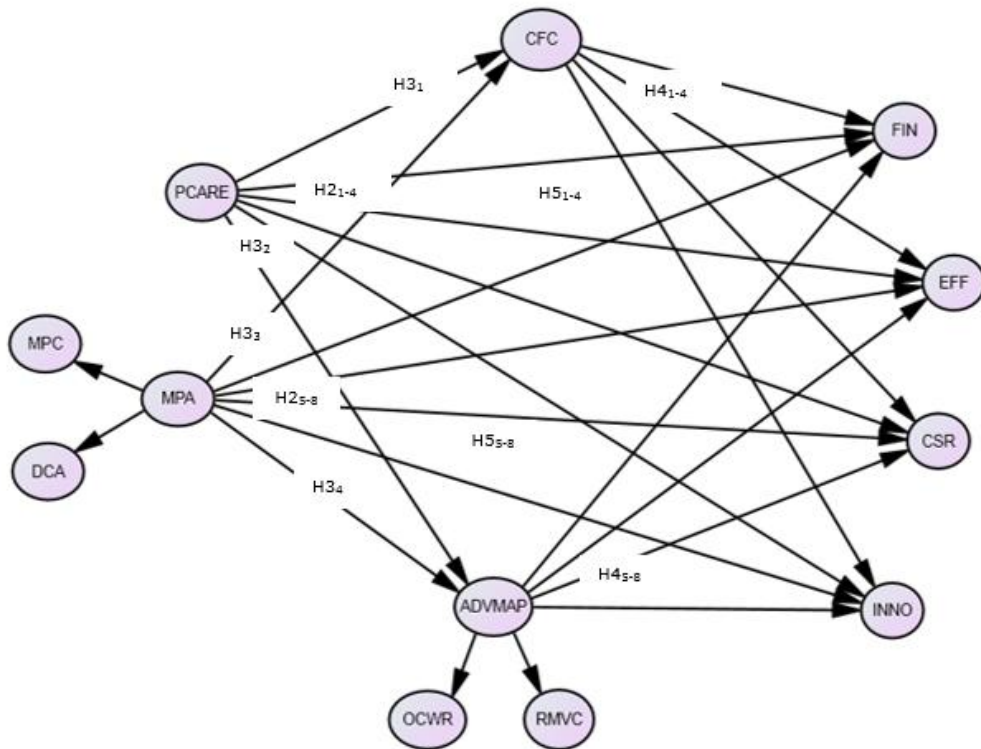
CHAPTER 9   QUALITY ACHIEVEMENTS AND SQIM

9.1. INTRODUCTION

Following the confirmatory factor analysis in the previous chapter, this chapter examines the SQIM constructs that are currently being implemented in HTHDs that have endorsed various quality achievements. The criteria of quality achievements are substantially addressed by the relevant management systems and initiatives. Therefore, examining the level of SQIM implementation would provide a greater understanding on the scope and depth of quality implementation in these organisations.

This analysis is important since there is common tendency among the quality-endorsed HTHDs to have been seeking different, and in some cases, multiple quality achievements. Such practice brings about very practical managerial implications, since maintaining the different quality achievement programmes may result in possible synergies, redundancy or even distraction in managing the numerous expectations from stakeholders. This might in turn affect management execution and hence the SQIM implementation level actually attained. The analysis is useful in highlighting how the choice of quality achievement programmes might affect SQIM level in the organization. It may also suggest whether SQIM implementation has been selective according to the choice of quality achievement programmes.

This study hypothesises that SQIM level is higher in HTHDs that have obtained more types of quality achievements as compared to those that have obtained less or no achievement. To conduct the analysis, cumulative categorization of quality achievements was sought to allow a meaningful comparison of SQIM. Based on the types of quality achievements pursued by HTHDs, eight categories have been identified, namely "JCI+ISO+MSQH"; "JCI and MSQH"; "ISO and MSQH"; "ISO and JCI"; "ISO only"; "MSQH only"; "ISO only" and "None". Implementation level of the SQIM constructs in a given quality achievement category was examined.

The SQIM constructs that have been identified (see *Chapter 8*) for the analysis are Patient Care (PCARE), Management Process and Communications (MPC) and Data Collection and Analysis (DCA). The first order constructs have been used for this analysis (instead of the second order construct, MPA comprising MPC and DCA) to allow detailed examination of the likely differentiation that quality achievements might make on the implementation of these quality constructs. Given that the assumption for univariate normality has been observed for these constructs (see Chapter 8), and that the analysis do not involve constructs for MAP and PERF, the dataset of 420 was examined. Descriptive statistics of survey questions for the SQIM constructs have been reported in *Chapter 7*. Following this, multivariate analysis of variance (MANOVA) was employed to undertake the analysis. An overview of the analyses is outlined in the following section.

9.2. OVERVIEW OF ANALYSIS

The categories of quality achievements among HTHDs are examined to provide a context to understanding the likely differential level of SQIM implementation. Cumulative categorization of quality achievements is employed in this study. It is hypothesised that SQIM level, across all its constructs, is higher in HTHDs that have obtained more types of quality achievements as compared to those that have obtained less or no achievement. Figure 9.1 shows an overview of this analysis.
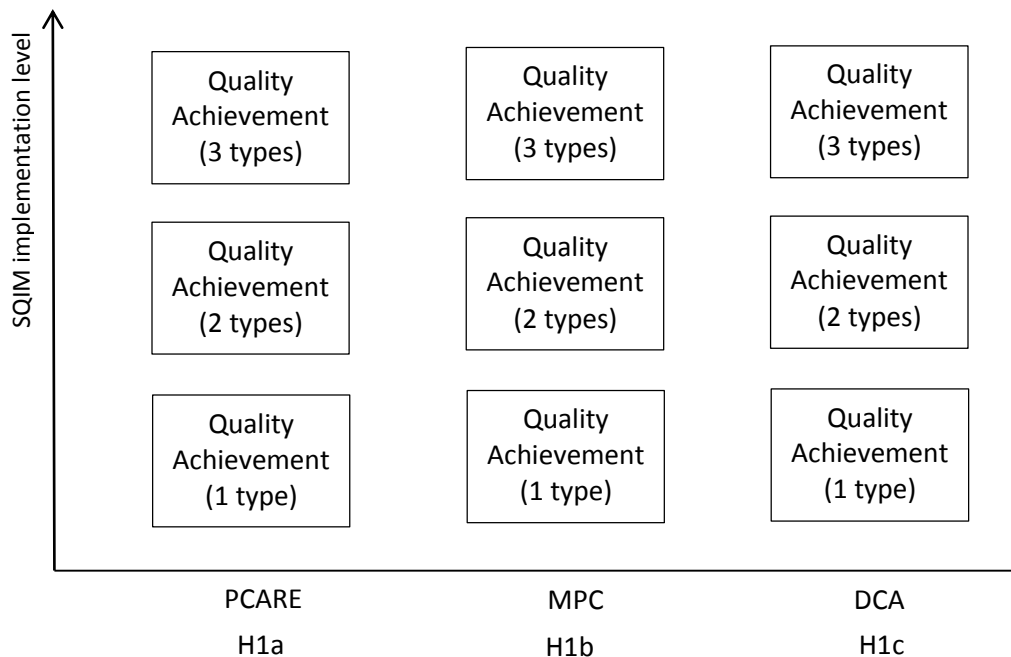
Figure 9.1   Types of quality achievements and SQIM implementation level

Based on the types of quality achievements pursued by HTHDs, eight categories of achievements have been identified, i.e. "JCI+ISO+MSQH"; "JCI and MSQH"; "ISO and MSQH"; "ISO and JCI"; "ISO only"; "MSQH only"; "JCI only" and "None". Of these eight possible categories, there was no HTHD that belonged to the category of "ISO and JCI" and "JCI only", hence these two categories have been removed from the analysis. See Table 9.1 for details of the categories. The descriptive statistics for each group is reported in Table 9.2.

Based on the descriptive statistics, the "ISO and MSQH" group is showing the highest level of implementation across all the SQIM constructs, while the "ISO only" shows the lowest level of implementation in all constructs. This observation appears to provide inconsistent support to the expectation that having more types of quality achievements would lead to greater SQIM implementation level.

It was noted that the "None" group is showing a reasonable level of implementation across the three SQIM constructs, with means ranging from 3.72 to 3.99 and standard deviation being relatively large compared to the other groups. The finding

suggests that, as in many established organisations, systems for quality and administration may already be in place though not in a formal way.

Based on the six categories of quality achievers identified, the next section employs MANOVA test to analyze SQIM constructs in these categories.

Table 9.1   Cumulative categories of quality achievers

HTHD	JCI+ISO+MSQH	JCI+MSQH	ISO+MSQH	ISO only	MSQH only	None
Columbia Asia Hospital, Seremban (14)						√
Gleneagles Intan Medical (18)	√					
Gleneagles Medical Centre (57)					√	
Hospital Fatimah (9)			√			
IJN (National Heart Inst) (14)	√					
KPJ Damansara Specialist (37)			√			
KPJ Ipoh Specialist Hospital (30)			√			
KPJ Tawakkal Specialist Hospital (42)			√			
Mahkota Medical Centre (10)					√	
Mount Miriam Cancer Hospital (1)				√		
Pantai Hospital Ipoh (25)					√	
Penang Adventist Hospital (33)		√				
Taman Desa Medical Centre (n=28)						√
Tun Hussein Onn National Eye Hospital (21)						√
Tung Shin Hospital (81)				√		
N (Total=420)	32	33	118	82	92	63

Table 9.2   Descriptive statistics for categories of quality achievement

SQIM constructs		JCI +ISO +MSQH	JCI +MSQH	ISO +MSQH	ISO only	MSQH only	None
PCARE	Mean	3.96	3.83	4.46	3.83	4.09	3.99
	Std. Dev.	.651	.603	.547	.723	.567	.766
MPC	Mean	3.84	3.58	4.27	3.51	3.85	3.77
	Std. Dev.	.484	.525	.559	.717	.543	.564
DCA	Mean	3.92	3.73	4.30	3.59	3.86	3.72
	Std. Dev.	.713	.700	.611	.779	.642	.739

9.3.   ANALYSIS OF SQIM CONSTRUCTS IN QUALITY ACHIEVEMENT CATEGORIES (H1A-H1C)

Prior to undertaking the MANOVA test, assumptions required for the test are checked and reported below. Data for each SQIM constructs was screened for normality of distribution. The univariate normality for each group was screened using the skewness and kurtosis statistics requested in SPSS. Following this, Z scores for skewness and kurtosis were computed for each group by dividing the statistics with the corresponding standard error. See Table 9.3. For groups with sample size of <50, normality assumption is violated if Z>±1.96. For groups with sample size between 50 and 150, normality assumption is violated if Z>±3.29. Based on these criteria, there are some violations to the normality assumption across the groups. When the normality tests were requested via SPSS, the Shapiro-Wilk statistics (for sample size <100) and the Kolmogorov-Smirnov statistics with Lilliefors significance correction also provided indications for some violations to the assumption.

Multivariate outliers, which influence normality assumption, were screened by requesting the Mahalanobis distance. The Mahalanobis distance is evaluated as chi-

square with degrees of freedom equal to the number of dependent variables, with a recommended alpha level of .001. The critical value of chi-square for three SQIM variables at an alpha level of .001 is 16.2. Guided by this value, there are four outlying cases. Since this is not unexpected is a sample size of 420, the outliers were retained in the dataset. However, since there are some violation in the univariate normality assumption, interpretation of the main effect must be undertaken with caution and further test would be required to compare each category to all other categories to identify where the differences in means were found.

Table 9.3   Descriptive statistics on normality of distribution

	Skewness			Kurtosis			Shapiro-Wilk statistics	Kolmogorov-Smirnov[a]
	Stats	S.E.	Z_{score}	Stats	S.E.	Z_{score}		
PCARE								
JCI+ISO+MSQH	-.090 (.414)		-0.217	-.795 (.809)		-0.983	.952	
JCI+MSQH	-.859 (.409)		-2.100**	2.389 (.798)		2.994**	.881*	
ISO+MSQH	-.789 (.223)		-3.538**	.215 (.442)		0.486		.211*
ISO only	-.315 (.266)		-1.184	-.646 (.526)		-1.228	.955*	
MSQH only	-.279 (.251)		-1.112	.035 (.498)		0.070	.949*	
None	-1.142 (.302)		-3.781**	2.335 (.595)		3.924**	.910*	
MPC								
JCI+ISO+MSQH	.018 (.414)		0.043	-.512 (.809)		-0.633	.963	
JCI+MSQH	-.038 (.409)		-0.093	-.052 (.798)		-0.065	.980	
ISO+MSQH	-.481 (.223)		-2.157**	-.513 (.442)		-1.161		.132*
ISO only	-.400 (.266)		-1.504	-.420 (.526)		-0.798	.967*	
MSQH only	-.373 (.251)		-1.486	.486 (.498)		0.976	.971*	
None	-.153 (.302)		-0.507	.475 (.595)		0.798	.983	
DCA								
JCI+ISO+MSQH	-.663 (.414)		-1.601	-.273 (.809)		-0.337	.910*	
JCI+MSQH	-.198 (.409)		-0.484	.065 (.798)		0.081	.948	
ISO+MSQH	-.567 (.223)		-2.543**	-.396 (.442)		-0.896		.161*
ISO only	-.271 (.266)		-1.019	-.175 (.526)		-0.333	.964*	
MSQH only	-.615 (.251)		-2.450**	.311 (.498)		0.624	.937*	
None	-.592 (.302)		-1.960	.429 (.595)		0.721	.954*	

a. Lilliefors Significance Correction;
**normality assumption violated (p<.001); *normality assumption violated (p<.05)

Linearity among all pairs of dependent variables, i.e. SQIM constructs, was confirmed using correlation matrix and scatterplots. From the correlation matrix (see Table 9.4) and the scatterplots (see Figure 9.2a), the variables are found to be significantly related (p<.01). Figure 9.2b shows the scatter-plots across groups. While the linearity assumption might not be clear in some of the groups, the MANOVA analysis is preceded since there is a theoretical relationship between these variables.

Table 9.4   Correlations

	PCARE	MPC	DCA
PCARE	1		
MPC	.650**	1	
DCA	.614**	.789**	1

**. Correlation is significant at the 0.01 level (2-tailed).

The homogeneity of regression assumes that the relationship between covariate and dependent variables in one group is the same as the relationship in other groups. This assumption relates to stepdown analysis and is relevant if stepdown analysis of the dependent variables (SQIM constructs) is required. Since there is no theoretical ground for ordering the SQIM constructs, the assumption of homogeneity of regression is not tested in this analysis.
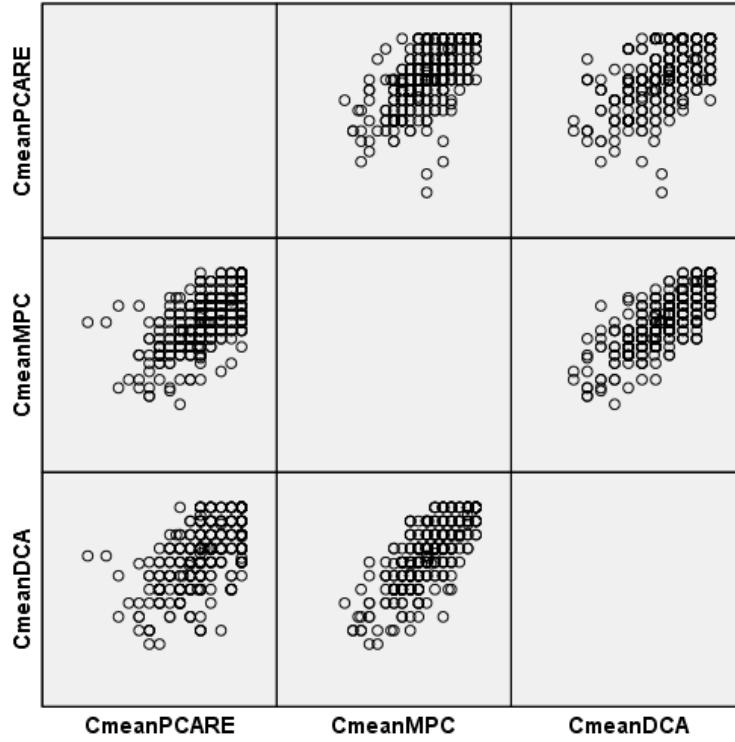
Figure 9.2a   Scatterplots of SQIM constructs
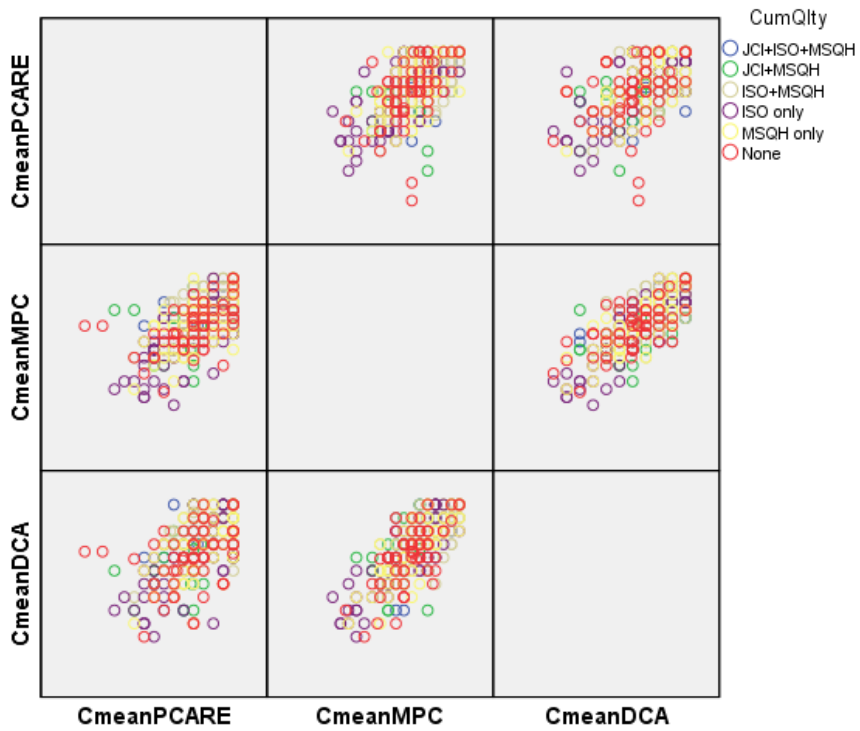
Figure 9.2b   Scatterplots of SQIM constructs – across groups

The univariate tests for homogeneity of variance for each of the dependent variables is shown in Table 9.5. For DCA, since the Levene's test of equality of error variances is not significant (p>.05), homogeneity of variance has not been violated for exposure to this variable. However, for MPC and PCARE, the Levene's test of equality of error variances is significant (p<.05) hence homogeneity of variance has been violated. Multivariate homogeneity of the variance-covariance matrices, which is the assumption that the correlation between any two dependent variables is the same in all categories, is tested using Box's M test. This test should be non-significant (p>.001) if the matrices are the same. According to the Box's M test, the homogeneity of variance assumption has been violated at an alpha level of .001. See Table 9.5. Since there are some violation in the assumption of homogeneity of variance and the and the variance-covariance matrices, interpretation of the main effect must be undertaken with caution and further test would be required to compare each category to all other categories to identify where the differences in means were found.

Table 9.5   Homogeneity of variance

	F	df1	df2	Sig.
Levene's Test of Equality of Error Variances				
MPC	2.779	5	414	.018
PCARE	2.322	5	414	.042
DCA	.935	5	414	.458
Box's M = 84.945	2.764	30	101990.186	.000

To test whether there are significant group differences on a linear combination of the dependent variables, the multivariate tests of significance is requested. See Table 9.6. Four multivariate statistics, namely the Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root were produced via SPSS. Among these statistics, the Pillai's Trace criterion is considered to have acceptable power and to

be the most robust statistics against violation of assumptions. Using the Pillai's Trace, there was a significant effect of quality achievements pursued on SQIM implementation level, $V = .22$, $F (15, 1242) = 6.56$, $p<.05$. The multivariate test of significance revealed that there is a significant multivariate effect for the group. In other words, the category of quality achievements has a significant input on the implementation levels of SQIM constructs. Consequently, the between-subject effects are interpreted.

Table 9.6   Multivariate test of significance

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.977	5720.278[a]	3.000	412.000	.000
	Wilks' Lambda	.023	5720.278[a]	3.000	412.000	.000
	Hotelling's Trace	41.653	5720.278[a]	3.000	412.000	.000
	Roy's Largest Root	41.653	5720.278[a]	3.000	412.000	.000
CumQlty	Pillai's Trace	.220	6.546	15.000	1242.000	.000
	Wilks' Lambda	.784	6.990	15.000	1137.752	.000
	Hotelling's Trace	.271	7.412	15.000	1232.000	.000
	Roy's Largest Root	.252	20.866[b]	5.000	414.000	.000

a. Exact statistic
b. The statistic is an upper bound on F that yields a lower bound on the significance level.

As shown in Table 9.7, separate univariate ANOVAs on the outcome variables revealed significant effect of quality achievements pursued on PCARE implementation level, $F (5, 414) = 12.51$, $p<.05$, and MPC implementation level, $F (5, 414) = 19.63$, $p<.05$, and finally DCA implementation level, $F (5, 414) = 12.81$, $p<.05$. Hence, there is indication that SQIM implementation levels is significantly influenced by the quality achievements pursued, and that such observation applies to all the three SQIM constructs. An examination of the means for SQIM constructs and the categories of quality achievement (see Table 9.2) indicate that those HTHDs in the "ISO+MSQH" category had achieved SQIM implementation level that were higher than those in the other categories. Therefore, the result suggests that

SQIM level may not be higher in HTHDs that have obtained more types of quality achievements. In other words, H1a – H1c are not supported.

Nevertheless, since the normality and homogeneity of variance assumptions have been violated in some instances as reported earlier, interpretation of the main effect must be undertaken with caution.

Table 9.7   Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected	PCARE	25.338[a]	5	5.068	12.511	.000
Model	MPC	33.369[b]	5	6.674	19.632	.000
	DCA	30.270[c]	5	6.054	12.805	.000
Intercept	PCARE	5356.239	1	5356.239	13223.024	.000
	MPC	4784.569	1	4784.569	14074.500	.000
	DCA	4906.483	1	4906.483	10378.329	.000
CumQlty	PCARE	25.338	5	5.068	12.511	.000
	MPC	33.369	5	6.674	19.632	.000
	DCA	30.270	5	6.054	12.805	.000
Error	PCARE	167.699	414	.405		
	MPC	140.738	414	.340		
	DCA	195.724	414	.473		
Total	PCARE	7244.220	420			
	MPC	6464.327	420			
	DCA	6630.974	420			
Corrected Total	PCARE	193.037	419			
	MPC	174.107	419			
	DCA	225.993	419			

a. R Squared = .131 (Adjusted R Squared = .121)
b. R Squared = .192 (Adjusted R Squared = .182)
c. R Squared = .134 (Adjusted R Squared = .123)

Post hoc test

Post hoc test on the independent variable was further requested to compare each category to all other categories to identify where the differences in means were found. To effect this, multiple comparison procedures were requested using a few test procedures that were deemed suitable to the data set being analysed. According to Field (2009), the Gabriel's pairwise test procedure was designed to cope with situations in which sample sizes are different, as in this analysis. This procedure is generally powerful but may be too liberal when the sample sizes are very different (Field, 2009). Others procedures that have also been requested include the Tukey's HSD for situations where the population variances are different as in this case; Tamhane's T2 which is conservative; Dunnett's T3 which keeps very tight control over Type I error and Games-Howell which is the most powerful procedure and is accurate when sample sizes are unequal (Field, 2009).

The post hoc analysis for PCARE is shown in Appendix 7.1. The mean difference for PCARE was found to be significant at the .05 level when comparing the "ISO+MSQH" category with all the other five quality categories. Such result is consistent across the five test procedures. A review of the mean values indicates that the mean of the "ISO+MSQH" category has higher value than those of the other categories. The mean difference among the rest of the categories was found to be non-significant.

The post hoc analysis for PCARE is shown in Appendix 7.2. Similar findings for MPC were supported by all the test procedures, whereby only the mean difference between "ISO+MSQH" and the other categories are statistically significant, with the former showing higher mean values. Additionally, all test procedures have also found a significant difference in the mean for MPC between HTHDs in the "MSQH only" and "ISO only" categories. Specifically, HTHDs in the former category has shown a higher value.

For DCA, all test procedures found significant mean difference between "ISO+MSQH" and four other categories, namely "JCI+MSQH", "ISO only", "MSQH only" and "None". See Appendix 7.3. Only the Gabriel's pairwise test procedure found a significant difference in the mean value between "ISO+MSQH" and "JCI+ISO+MSQH". In all the above observations, the mean value is higher in the "ISO+MSQH" category.

Based on the post hoc tests, SQIM level may not be higher in HTHDs that have obtained more types of quality achievements. Such observation is consistent across the three SQIM constructs. Therefore, H1a – H1c are not supported.

Discriminant analysis

Given the relationships that exist between the SQIM constructs (reported in the earlier section), a discriminant analysis is conducted to investigate how the SQIM constructs discriminate the quality categories. The analysis identifies the linear combinations of the SQIM constructs that are significantly separating the categories of quality achievement

Table 9.8 shows the initial statistics on covariance matrices for the separate categories. These matrices indicate how the relationship between SQIM constructs changes from category to category. However, the values are unstandardized hence they do not show the substantive importance of the relationships. Based on the matrices, across the categories, there is positive though weak relationship between the SQIM constructs. In other words, across the categories, when the SQIM level of one construct increases, the SQIM level of the other construct increases as well.

Table 9.8   Covariance matrices

CumQlty		PCARE	MPC	DCA
JCI+ISO+MSQH	PCARE	.424		
	MPC	.182	.234	
	DCA	.282	.219	.509
JCI+MSQH	PCARE	.364		
	MPC	.033	.276	
	DCA	.182	.179	.490
ISO+MSQH	PCARE	.299		
	MPC	.210	.312	
	DCA	.210	.274	.373
ISO only	PCARE	.523		
	MPC	.363	.514	
	DCA	.387	.478	.607
MSQH only	PCARE	.321		
	MPC	.181	.294	
	DCA	.202	.273	.413
None	PCARE	.586		
	MPC	.214	.318	
	DCA	.204	.279	.546

Table 9.9 shows the variance and significance tests of the variates (i.e. combination of the SQIM constructs). Three variates are identified. The first variate explained 93.1% of variance, canonical R^2 = .20, the second variate explained only 5.0% of variance, canonical R^2 = .013, whereas the third variate explained 1.9% of variance, canonical R^2 = .005. In combination, these discriminant functions significantly differentiated the quality achievement categories, Λ = .784, $\chi^2(15)$ = 100.87, p<.05. Removing the first variate indicate that the second and third variates in combination did not significantly differentiate the categories, Λ = .982, $\chi^2(8)$ = 7.711, p >.05. Also, the third variate alone did not significantly differentiate the categories, Λ = .995, $\chi^2(3)$ = 2.090, p >.05. Therefore, the differences in quality categories shown by the MANOVA test earlier can be explained in terms of three underlying constructs in combination.

Table 9.9 Variance and significance tests of the variates

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation	Squared Canonical Correlation
1	.252[a]	93.1	93.1	.449	.20
2	.014[a]	5.0	98.1	.116	.013
3	.005[a]	1.9	100.0	.071	.005

a. First 3 canonical discriminant functions were used in the analysis.

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.784	100.870	15	.000
2 through 3	.982	7.711	8	.462
3	.995	2.090	3	.554

Table 9.10 Structured Matrix

	Function		
	1	2	3
MPC	.969[*]	.021	-.245
DCA	.769[*]	.639	.014
PCARE	.769[*]	-.064	.636

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.
*. Largest absolute correlation between each variable and any discriminant function

Table 9.10 shows the canonical variate correlation coefficients which explain the relative contribution of each SQIM construct to the variates. The coefficients are comparable to factor loadings and indicate the substantive nature of the variates (Field, 2009). The correlations between SQIM constructs and the variates revealed that MPC loaded highly onto the first variate; DCA loaded more highly onto the first variate (r = .769) than the second variate (r = .639); PCARE loaded more highly onto the first variate (r = .769) than the third variate (r = .636).

In the first variate, all the three SQIM constructs have the same effect, i.e. positive relationship. Since these values can range between 1 and -1, these relationships are strong although MPC is the strongest, and therefore has a larger contribution to group separation. Hence, the first variate could be seen as one that differentiates the categories on some construct that affects MPC, PCARE and DCA in the same way. Meanwhile, the second variate has a strong positive relationship with DCA, but very weak relationships with both MPC and PCARE. DCA therefore contributes most to group separation. Hence, the second variate differentiates the categories on some construct that affects only DCA. For the third variate, there is an opposite effect from the SQIM constructs. PCARE has a strong positive relationship while MPC has a rather weak negative relationship. DCA has a very weak relationship with the third variate. Hence, the third variate differentiates the categories on some construct that affects PCARE and MPC differently.

The group centroids are reported in Table 9.11. The centroids are the mean variate scores for each group. It can be seen that the "ISO+MSQH" category has a positive centroid. All other categories have negative centroids, with the "ISO only" category having the largest negative value. The results are also shown in the combined-groups plot (see Figure 9.3). This graph plots the variate scores for each response according to the categories of quality achievement to which the response belonged. The group centroids from Table 9.11 are shown as blue squares. Both the tabulated values and the graph of the centroids show that variate 1 discriminates the "ISO+MSQH" and "ISO only" categories. The second variate discriminates the "JCI+MSQH" and "None" categories but the difference is not as dramatic as for the first variate. There is a much weaker group difference in the third variate. Nevertheless, as shown in Table 9.9, the variates significantly discriminate the categories in combination, i.e. when all three variates are considered.

Table 9.11   Functions at Group Centroids

CumQlty	Function		
	1	2	3
JCI+ISO+MSQH	-.099	.150	-.195
JCI+MSQH	-.518	.234	-.013
ISO+MSQH	.722	.036	.029
ISO only	-.618	.023	.079
MSQH only	-.027	-.066	.008
None	-.188	-.201	-.064

Unstandardized canonical discriminant functions evaluated at group means
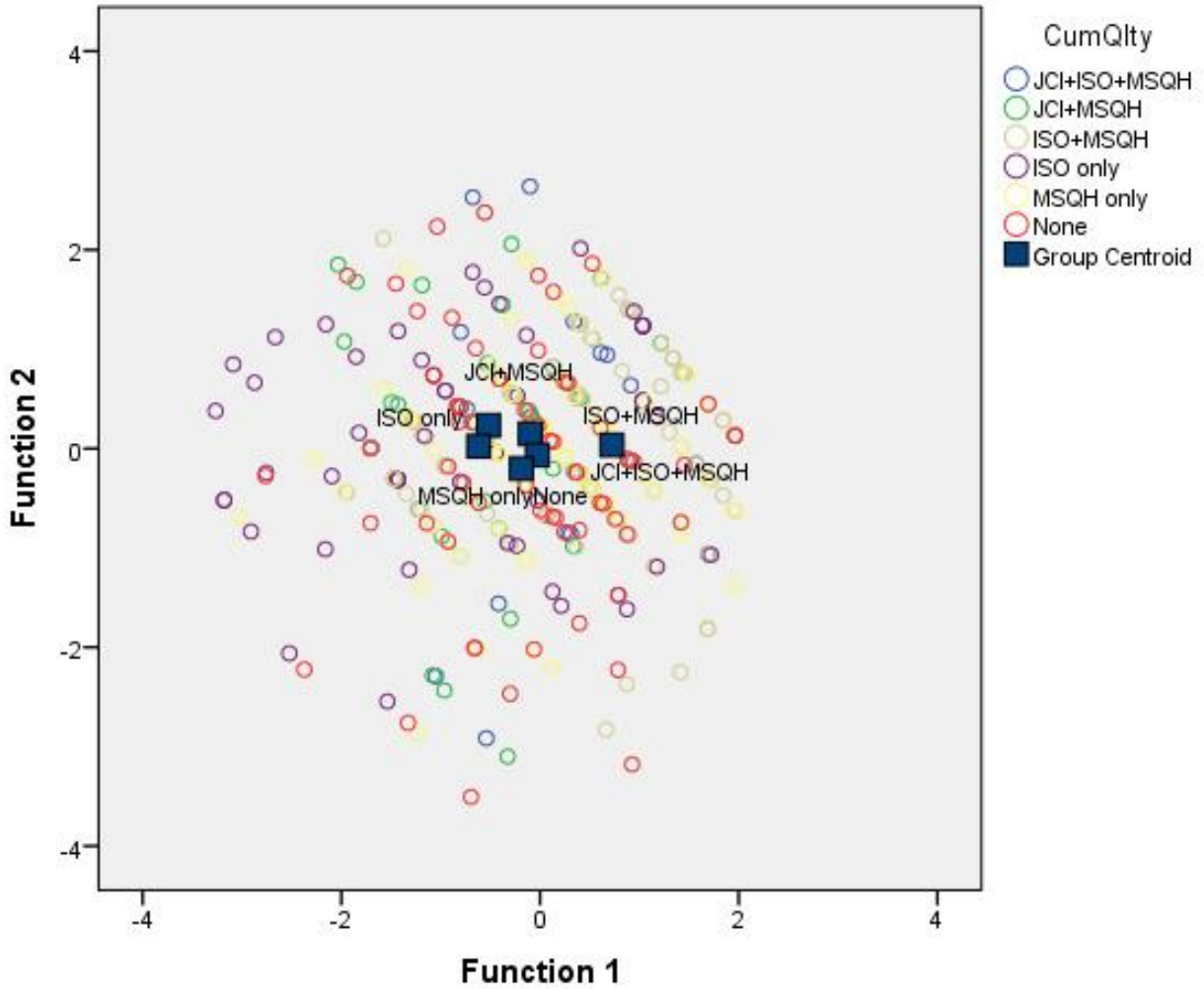
Figure 9.3   Canonical discriminant functions

This section has examined the SQIM implementation level in HTHDs that have sought different categories of quality achievements. The following section provides a summary of findings and a brief conclusion.

9.4. SUMMARY

This chapter examines the categories of quality-achieving HTHDs and their respective SQIM implementation level. The aim of the analysis was to seek greater understanding on the scope and depth of quality implementation in organizations across the categories.

This study found that the category of quality achievements has a significant input on the implementation levels of SQIM constructs. Further evidence suggests that across all the three SQIM constructs, namely PCARE, MPC and DCA, SQIM implementation level is significantly influenced by the choice of quality achievements. Specifically, HTHDs that belonged to the "ISO+MSQH" category had achieved a higher implementation level than those in the other categories. This observation is true across the three SQIM constructs. The findings suggest that HTHDs that have achieved both the MSQH accreditation and certification under the ISO 9000 standards had demonstrated significantly better SQIM implementation level across the three SQIM constructs. Additionally, there is also evidence that implementation level of MPC is significantly higher for HTHDs in the "MSQH only" when compared to those in the "ISO only" categories. Drawing from the evidence, this study concludes that SQIM implementation level may not be higher in HTHDs that have obtained more types of quality achievements. Such observation is consistent across the three SQIM constructs. Therefore, H1a – H1c are not supported.

Further, this study found that within the quality categories, the relationship between the SQIM constructs was positive though weak. In other words, as the SQIM level of one construct increases, the SQIM level of the other construct increases as well, vice versa. When further investigating into how the SQIM

constructs have been separating the categories of quality achievements, the finding suggest that the differences SQIM implementation level across these categories can be explained in terms of a combination of three underlying variates. Amongst the three variates, MPC was found to be loaded onto the first variate, DCA loaded more onto the first and second variate, while PCARE loaded onto the first and third variate. Nevertheless, the variates significantly discriminate the categories in combination, i.e. when all three variates are considered. There was also evidence that the first variate –loaded highly by MPC, PCARE and DCA – has been discriminating the "ISO+MSQH" category from the "ISO only" category with a considerable higher implementation level in the former. The finding suggests that HTHDs that have achieved both the MSQH accreditation and certification under the ISO 9000 standards can be distinguished from HTHDs that had only sought the certification under the ISO 9000 standards using a variate that has the same effects on MPC, PCARE and DCA. That said, it appears that the ISO 9000 series certifications and MSQH accreditation programmes complements each other well, as compared to the other combinations. Also, the findings suggest that there was no selective implementation of specific dimensions of SQIM regardless of the types of quality pogrammes pursued. Such findings suggest that implementation of SQIM has been taking an integrative approach as proposed by the literature. The findings are discussed in detail in Chapter 11, together with their implications and limitations.

CHAPTER 10   PERFORMANCE IMPLICATION OF SQIM AND ENHANCEMENT FROM MAP

10.1. INTRODUCTION

In the previous chapter, the impact of quality achievements on SQIM was examined. The findings suggest that HTHDs that have achieved both the local accreditation by MSQH and certification under the ISO 9000 standards had demonstrated better SQIM implementation level. This observation was true for all the three SQIM dimensions.

In this chapter, the hypothesized relationships among the constructs were tested. First, the performance implication of SQIM implementation in HTHD was examined. The aim is to highlight how HTHDs that have attained quality achievements benefit differentially from the use of the various elements of the achievements, i.e. the SQIM dimensions. This knowledge is important to understand how SQIM implementation affects the different perspectives of PERF, thus providing some basis to gauge the effectiveness of implementation, and to assess the justifications for investments in SQIM. Such information would in turn enable HTHDs to make informed judgment and decisions when implementing SQIM to enhance its capacity to delivering service quality, which in turn leads to better performance and competitive edge in the health tourism industry. Accordingly, this study hypothesises that the implementation of SQIM provides a significant and positive direct effect on the PERF of HTHDs.

This study also examines the role of MAP as a mediator on such impact of SQIM on PERF. This knowledge is crucial in understanding how the implementation in SQIM that affects the different perspectives of PERF is being transmitted via given usage of MAP when HTHDs make their operational decisions. This analysis would provide a management accounting framework that helps HTHDs to identify current MAP usage that are effective in facilitating their intended SQIM dimensions. Additionally, this analysis highlights potential lags in MAP usage that HTHD might wish to explore and reap the benefits of such practices. Consequently, it would allow HTHD to earn a

better capacity in delivering service quality, thus gaining better performance and competitive edge in the health tourism industry.

Prior to the mediation analysis, path analyses on the impact of SQIM on MAP and the impact of MAP on PERF was undertaken. Since the paths are part of the mediation model, such analyses would allow a comprehensive understanding of the relationship among these constructs, hence providing valuable insights to the mediation analysis.

The proposed analyses were conducted using covariances and the most widely used maximum-likelihood estimation method. The covariance-based approach evaluates goodness of fit by focusing on minimisation of the discrepancy between the observed covariance matrix and the estimated covariance matrix (Hair, et al., 2010). This approach is appropriate for use in this study since it is seeking confirmation of established theories that explained the relationships between the constructs. Nevertheless, in order to conduct the covariance-based analyses, the sample size of data needs to be sufficiently large.

According to Hair (2001), the minimum sample size would depend on the model complexity and the basic characteristics of the measurement model. For instance, a model containing five or less constructs, each with more than three observed variables, and with high item communalities ($\geq$0.6) would require a minimum sample size of 100. Meanwhile, a model containing seven or less constructs, with some constructs being under-identified (fewer than three observed variables), and/or with lower item communalities (<0.45) would require a minimum sample size of 300.

This study analyses model with eight constructs. Each of these constructs has three or more observed variables, except for three dimensions in PERF that have fewer than three observed variables. A good majority of the items communalities range between of 0.6-0.8. Hence, it is envisaged that the minimum sample size of 300 would be appropriate. Since the actual sample size in use (372 after removing the multivariate outliers), it was deemed appropriate to adopt the covariance-based approach for analyses.

IBM SPSS AMOS 19.0 was employed to conduct both the path analyses and structural model analyses. Path analyses were conducted to examine the relationship between the constructs. Structural model analysis was conducted to examine the mediating role of MAP on the SQIM-PERF relationship.

Descriptive statistics and cross tabulated survey questions for the constructs have been reported in *Chapter 8 Measurement Model*. Following the CFA (see Chapter 8), two constructs have been identified for SQIM, namely **PCARE** (which measures service quality initiatives that relates to patient care) and **MPA** (which measures the management process and analysis and encompasses both MPC and DCA). Four constructs have been identified for PERF, i.e. **FIN**, **EFF**, **CSR** and **INNO**. Two constructs was finalized for MAP, namely **CFC** (which entails the use of most basic MAP) and **ADVMAP** (which measures the use of more advanced MAP and includes both OCWR and RMVC).

An overview of the analyses is outlined in the following section.

10.2. OVERVIEW OF THE ANALYSIS

As discussed in *Chapter 5 Research Model and Justifications*, this study looks into the impact of SQIM implementation on PERF and how MAP may enhance the relationship. The hypotheses to be tested have been outlined in *Chapter 8 Measurement Model*. A diagrammatic presentation of the hypotheses is provided in Figure 8.7 (see Chapter 8).

Path analyses

This study examines whether SQIM implementation has a positive and direct effect on PERF. Specifically, the respective effects from PCARE ($H2_1$ to $H2_4$) and MPA ($H2_5$ to $H2_8$) on FIN, EFF, CSR and INNO were tested.

Then, the study examines whether SQIM implementation has a positive and direct effect on MAP usage. The respective effects from PCARE ($H3_1$ to $H3_2$) and MPA ($H3_3$ to $H3_4$) on CFC and ADVMAP were tested.

This study also assesses if MAP usage has a positive and direct impact on PERF. The respective effect from PCARE ($H4_1$ to $H4_4$) and MPA ($H4_5$ to $H4_8$) on FIN, EFF, CSR and INNO were tested.

Mediation analyses

This study examines the mediation effect of MAP on the relationship between SQIM implementation and PERF. In other words, this study looks into whether increased use of CFC and ADVMAP would enhance the impact of PCARE ($H5_{1-4}$) and MPA ($H5_{5-8}$) on FIN, EFF, CSR and INNO.

The mediating role of MAP was tested based on the suggestion of Baron and Kenny (1986). According to Baron and Kenny (1986), a variable functions as a mediating variable if the following conditions are met: (1) the causal variable affects the outcome variable; (2) the causal variable affects the mediating variable; (3) having controlled for the causal variable, the mediator affects the outcome variable; and (4) having controlled for causal and mediating variables, a previously significant relationship between the causal and outcome variable is no longer significant.

Nevertheless, the mediation effect may be envisaged as a continuum (Baron and Kenny, 1986). Where the path coefficient between the causal and outcome variable is zero, complete mediation occurs and the mediator is a single and dominant one. A path coefficient that is not zero indicates the existence of multiple mediators. Meanwhile, a reduction in the path coefficient would by itself suggest that the mediator is a potent one (Baron and Kenny, 1986).

To provide a more powerful analysis of the mediation, the bootstrapping technique was employed in this study. The following sections describe the tests of hypotheses and their findings.

10.3. PATH ANALYSIS OF IMPACT OF SQIM ON PERF (H2)

This section examines how SQIM implementation affects PERF. Path analyses of the effect of PCARE and MPA on FIN, EFF, CSR and INNO are presented in Figure 10.1.

As indicated in the figure, the fitness indexes indicate an overall goodness-of-fit. R^2 for the PERF constructs range from 0.43 to 0.58, suggesting that PCARE and MPA collectively explain 43% to 58% of variation in the PERF constructs. Table 10.1 shows the regression weights for the paths of concern.

Figure 10.1 Path analysis of SQIM on PERF

Fit Values:
Chi Square = 523.993
df = 198
p-value = .000
NORMEDCHISQ = 2.646
GFI = .886
RMSEA = .067
NFI = .915
CFI = .945
TLI = .936
AGFI = .855
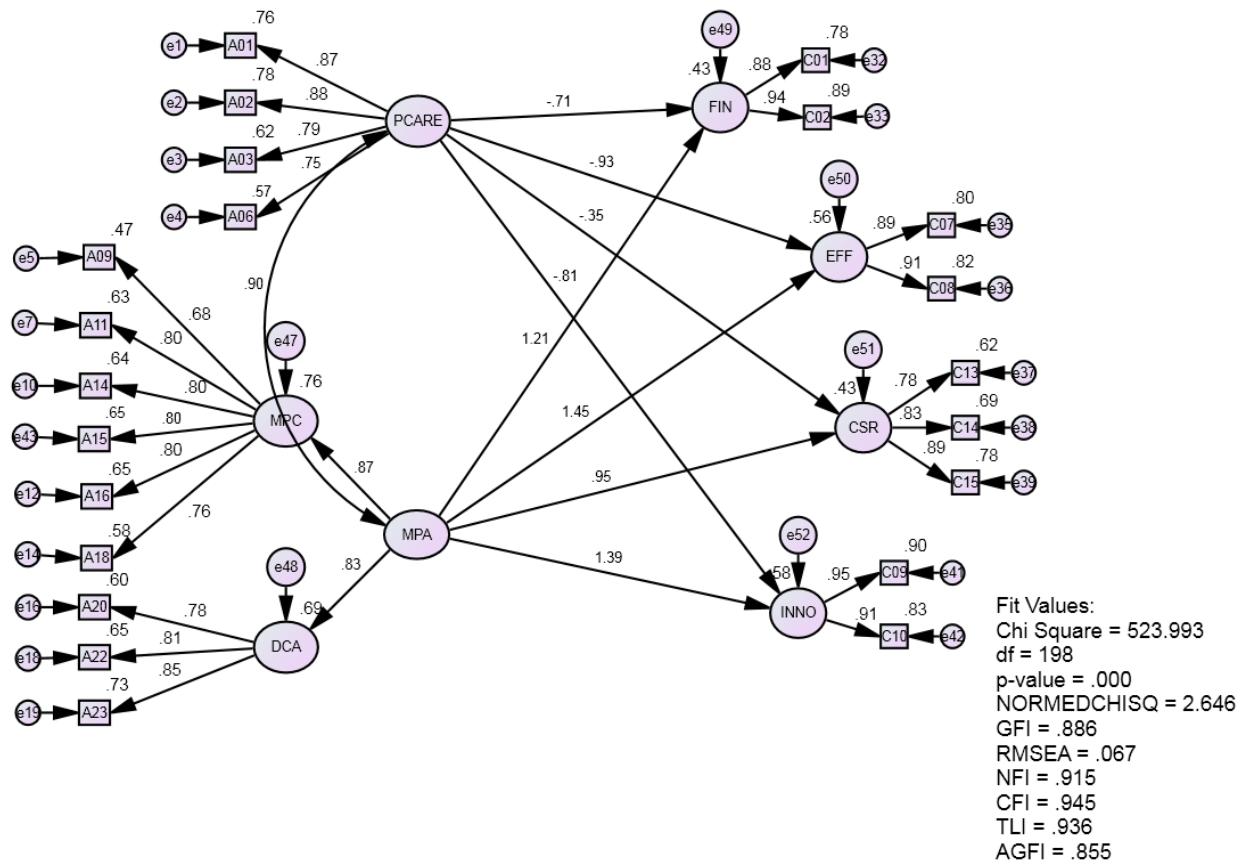
Table 10.1 Regression weights (SQIM on PERF)

			Estimate	Standardised Estimate	S.E.	C.R.	Rank
FIN	<---	PCARE	-.946	-.706	.213	-4.442***	
EFF	<---	PCARE	-1.132	-.928	.212	-5.351***	
CSR	<---	PCARE	-.382	-.351	.154	-2.471*	
INNO	<---	PCARE	-1.039	-.806	.207	-5.007***	
FIN	<---	MPA	.886	1.207	.119	7.458***	3
EFF	<---	MPA	.973	1.455	.116	8.373***	1
CSR	<---	MPA	.566	.948	.087	6.472***	4
INNO	<---	MPA	.985	1.393	.113	8.711***	2

*** Significant at .001 (one-tailed); * Significant at .01 (one-tailed).

As indicated in Table 10.1[3], in the prediction of the PERF constructs by PCARE and MPA, the probability of getting the listed critical ratios in absolute value is less than 0.001 (except for PCARE→CSR, p<0.01). In other words, the regression weights for PCARE and MAP in the prediction of all the PERF constructs are significantly different from zero.

Based on the values of the standardised estimates, PCARE was found to have a negative effect on all the PERF constructs. Hence, **H2₁ to H2₄ are not supported**, suggesting that PCARE has no positive and direct effect on FIN, EFF, CSR and INNO.

Nevertheless, in the prediction of the PERF constructs by MPA, the values of the standardised estimates show that MPA has a positive and direct effect on the PERF constructs (p<0.001). Hence, **H2₅ to H2₈ are supported**, suggesting that MPA has a significant positive and direct effect on FIN, EFF, CSR and INNO. Also, the standardised estimates showed that MPA has the greatest effect in predicting EFF, followed by INNO, FIN and lastly CSR.

This section examined the relationship between SQIM and PERF. The following section examines the impact of SQIM on MAP.

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[3] The occurrence of standardised estimates of greater than one in magnitude that were due to factors being correlated (oblique) has been discussed in Deegan, J., 1978, On the occurence of standardised regression coefficients greater than one: Educational and Psychological Measurement, v. 38, p. 873-888.

10.4. PATH ANALYSIS OF IMPACT OF SQIM ON MAP (H3)

This section examines how SQIM implementation affects MAP. Path analyses of the effect of PCARE and MPA on CFC and ADVMAP are presented in Figure 10.2.

As indicated in the figure, the fitness indexes indicate an overall goodness-of-fit. R^2 for the MAP constructs range from 0.27 (CFC) to 0.36 (ADVMAP), suggesting that PCARE and MPA collectively explain 27% of variation in CFC and 36% of variation in ADVMAP. Table 10.2 shows the regression weights for the paths of concern.

Figure 10.2 Path analysis of SQIM on MAP

Fit Values:
Chi Square = 598.868
df = 200
p-value = .000
NORMEDCHISQ = 2.994
GFI = .885
RMSEA = .073
NFI = .904
CFI = .934
TLI = .923
AGFI = .854
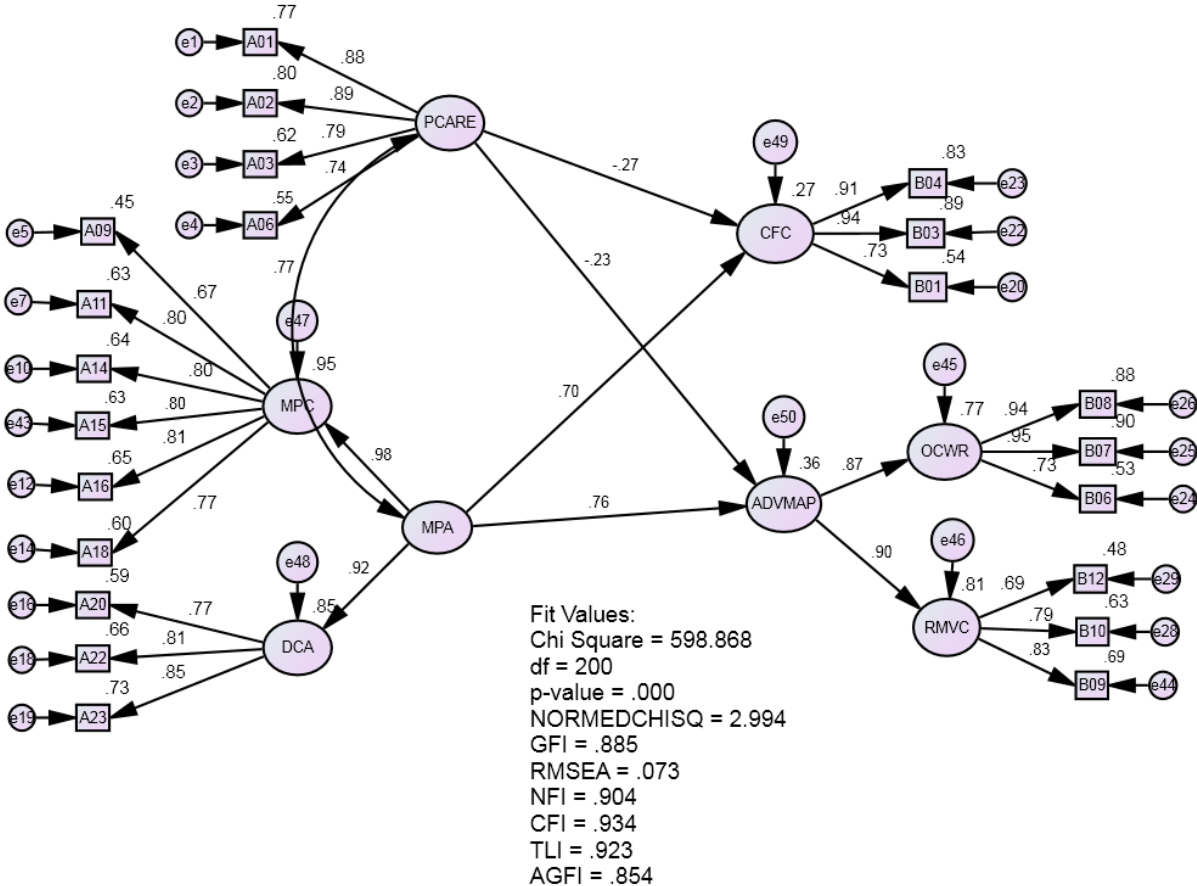
Table 10.2 Regression Weights (SQIM on MAP)

			Estimate	Standardised Estimate	S.E.	C.R.	Rank
ADVMAP	<---	PCARE	-.359	-.227	.152	-2.363*	
CFC	<---	PCARE	-.501	-.272	.172	-2.922*	
ADVMAP	<---	MPA	.651	.760	.088	7.372***	1
CFC	<---	MPA	.694	.696	.096	7.238***	2

*** Significant at .001 (one-tailed); * Significant at .01 (one-tailed).

As indicated in Table 10.2, in the prediction of the MAP constructs by PCARE and MPA, the probability of getting the listed critical ratios in absolute values is less than 0.01 for PCARE and less than 0.001 for MPA. In other words, the regression weight for PCARE and MPA in the prediction of MAP is significantly different from zero.

Based on the values of the standardised estimates, PCARE was found to have a negative effect on all the MAP constructs. Hence, **H3₁ and H3₂ are not supported**, suggesting that PCARE has no positive and direct effect on CFC and ADVMAP.

In the prediction of the MAP constructs by MPA however, the values of the standardised estimates show that MPA has a positive and direct effect on the MAP constructs ($p<0.001$). Hence, **H3₃ and H3₄ are supported**, suggesting that MPA has a significant positive and direct effect on CFC and ADVMAP. Also, the standardised estimates showed that MPA has a greater effect in predicting ADVMAP compared to CFC.

This section has examined the relationship between SQIM and MAP. The following section examines the impact of MAP on PERF.

10.5. PATH ANALYSIS OF IMPACT OF MAP ON PERF (H4)

This section examines how MAP usage affects PERF. Path analyses of the effect of CFC and ADVMAP on FIN, EFF, CSR and INNO are presented in Figure 10.3.

As indicated in the figure, the fitness indexes indicate an overall goodness-of-fit. R^2 for the PERF constructs range from 0.42 to 0.67, suggesting that CFC and ADVMAP collectively explain 42% to 67% of variations in the PERF constructs. Table 10.3 shows the regression weights for the paths of concern.

Figure 10.3 Path analysis of MAP on PERF
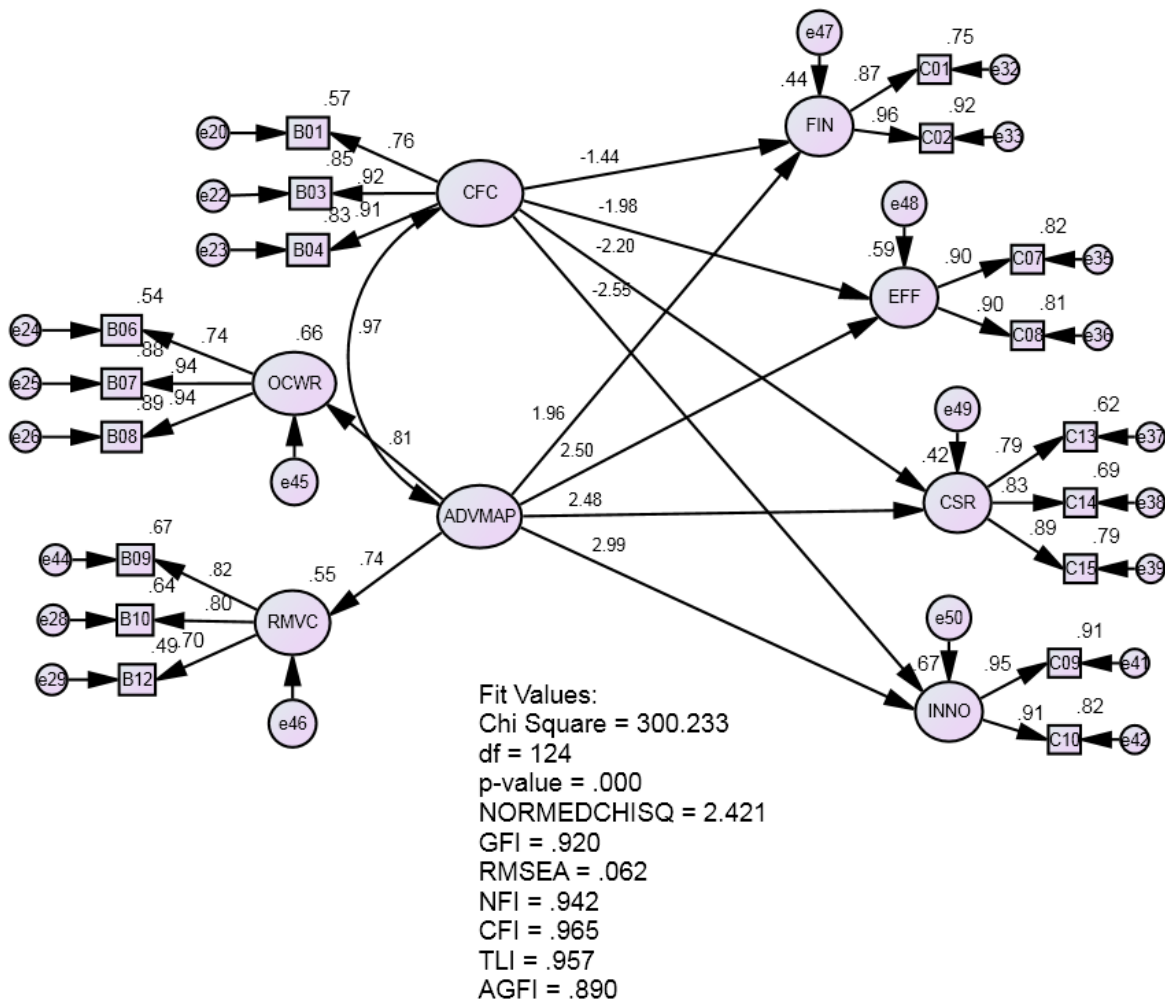
Table 10.3　Regression Weights (MAP on PERF)

			Estimate	Standardised Estimate	S.E.	C.R.	Rank
FIN	<---	CFC	-1.038	-1.436	.278	-3.733***	
EFF	<---	CFC	-1.340	-1.977	.314	-4.271***	
CSR	<---	CFC	-1.318	-2.195	.290	-4.551***	
INNO	<---	CFC	-1.820	-2.555	.388	-4.686***	
FIN	<---	ADVMAP	1.411	1.955	.279	5.055***	4
EFF	<---	ADVMAP	1.694	2.504	.312	5.426***	2
CSR	<---	ADVMAP	1.485	2.479	.288	5.152***	3
INNO	<---	ADVMAP	2.127	2.992	.385	5.522***	1

*** Significant at .001 (one-tailed).

As indicated in Table 10.3, in the prediction of the PERF constructs by CFC and ADVMAP, the probability of getting the listed critical ratios in absolute values is less than 0.001 for CFC and ADVMAP. In other words, the regression weight for CFC and ADVMAP in the prediction of PERF is significantly different from zero.

Based on the values of the standardised estimates, CFC was found to have a negative effect on all the PERF constructs. Hence, **H4$_1$ to H4$_4$ are not supported**, suggesting that CFC has no positive and direct effect on FIN, EFF, CSR and INNO.

In the prediction of the PERF constructs by ADVMAP however, the values of the standardised estimates show that ADVMAP has a positive and direct effect on the PERF constructs (p<0.001). Hence, **H4$_5$ and H4$_8$ are supported**, suggesting that ADVMAP has a significant positive and direct effect on FIN, EFF, CSR and INNO. Also, the standardised estimates showed that ADVMAP has the greatest effect in predicting INNO, followed by EFF, CSR and lastly FIN.

This section has examined the relationship between MAP and PERF. The following section examines the mediation effect of MAP on the SQIM-PERF relationship.

10.6. MEDIATION ANALYSIS OF IMPACT OF MAP ON SQIM-PERF (H5)

This section examines the mediation role of the MAP constructs on the SQIM-PERF relationship. This study employed the Baron and Kenny (1986) approach (see Section 10.2) to identify the potential mediation effect from the MAP constructs. Subsequently, the study employed bootstrapping technique to provide a powerful analysis of the mediation effects.

Firstly, to establish if that there is an effect to be mediated, the variations in the causal variables (PCARE and MPA) needs to significantly account for variations in the outcome variables (FIN, EFF, CSR and INNO). This was tested in Section 10.3. The results (see Table 10.1) suggest that both PCARE and MPA were significantly related to all the PERF constructs. Nevertheless, positive relationship was only noted for MPA but not PCARE. Hence, the first condition for mediation was satisfied.

Secondly, the causal variables (PCARE and MPA) need to significantly affect the mediating variables (CFC and ADVMAP). This was tested in Section 10.4. The results (see Table 10.2) suggest that both PCARE and MPA were significantly related to both the MAP constructs. Nevertheless, positive relationship was only noted for MPA but not PCARE. Hence, the second condition for mediation was satisfied.

Consequently, this study estimates the mediated model and assesses the level of mediation from MAP onto SQIM−PERF. To achieve this, two models were estimated. Model A was estimated without the direct effect from the causal variables to the outcome variables. This shows whether the potential mediator affects the outcome variables, having controlled for the causal variable. The outcome of Model A would establish whether the third condition of mediation is satisfied.

Meanwhile, Model B was estimated with the direct effect from the causal variables to the outcome variables. This shows whether the previously significant relationship between the causal variable and outcome variable is no longer significant when both the causal variable and potential mediator were controlled. The outcome of Model B would establish whether the fourth and last condition of mediation is satisfied.

The mediation models are presented in Figure 10.4 to Figure 10.7. The results for mediation analyses are reported in Table 10.4. The fitness indexes of Model A and Model B are found to be generally satisfactory for both the potential mediators, namely CFC (see Figures 10.4 and 10.5) and ADVMAP (see Figures 10.6 and 10.7).

As shown in Table 10.4, Model A for CFC suggests that having controlled for PCARE and MPA, CFC has a significant (p<.001) and positive relationship with FIN, EFF, CSR and INNO. Hence, the third condition has been met.

Model B suggests that the path estimate for the relationships between PCARE and the four PERF constructs became insignificant (at p=.01 level) with the introduction of the mediator. The results therefore suggest a **full mediation effect from CFC on the PCARE-PERF relationship**. According to Model B, the path estimate for the relationships between MPA and the four PERF constructs remained significant (p<.001) with the introduction of the mediator. Nevertheless, the direct relationship between MPA and all the four PERF constructs have reduced. The results therefore suggest a **partial mediation effect from CFC on the MPA-PERF relationship.**

Meanwhile, when the mediation effect from ADVMAP was analysed, Model A suggests that having controlled for PCARE and MPA, ADVMAP has a significant (p<.001) and positive relationship with FIN, EFF, CSR and INNO. Hence, the third condition has been met.

Model B suggests that the path estimate for the relationships between PCARE and FIN, EFF and INNO became insignificant (at p=.01 level) with the introduction of the mediator. The relationship between PCARE and CSR remained significant (p<.01). The results therefore suggest a **full mediation effect from ADVMAP on the relationship between PCARE and FIN, EFF and INNO, and a partial mediation effect on PCARE-CSR**. According to Model B, the path estimate for the relationships between MPA and the four PERF constructs remained significant (p<.001 for INNO and p<.01 for the others) with the introduction of the mediator. Nevertheless, the direct relationship between MPA and all the four PERF constructs have reduced. The results therefore suggest a **partial mediation effect from ADVMAP on the MPA-PERF relationship**.

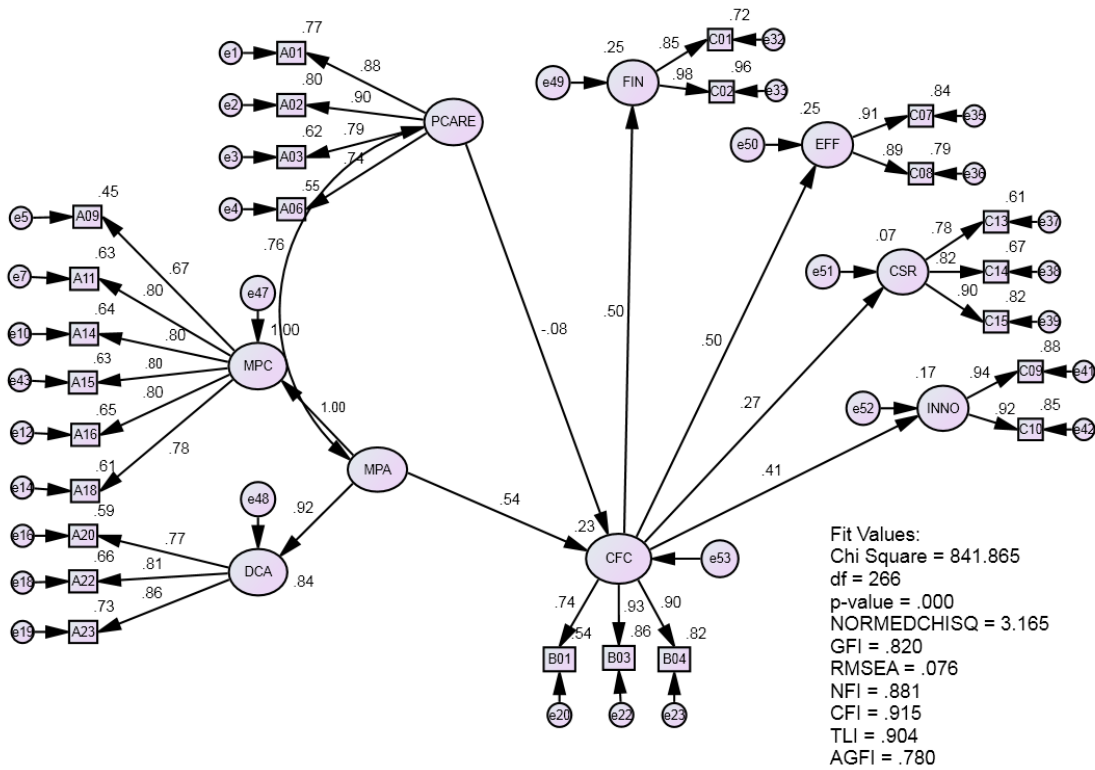Figure 10.4 Mediation effect from CFC on SQIM-PERF (Model A)

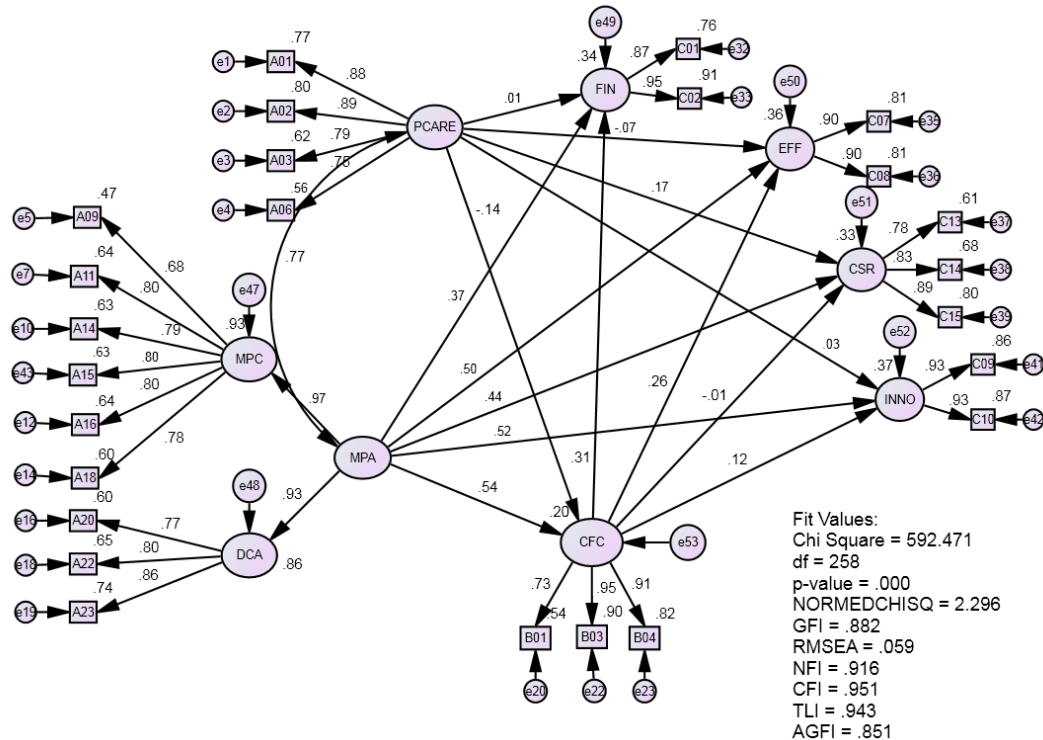Figure 10.5 Mediation effect from CFC on SQIM-PERF (Model B)

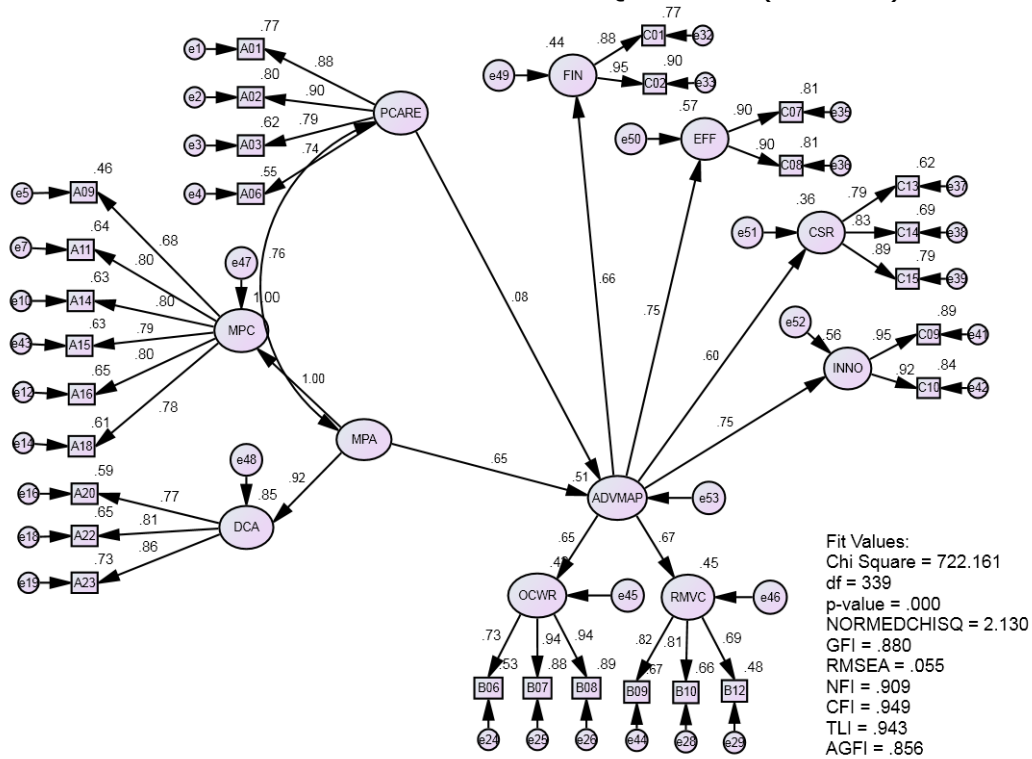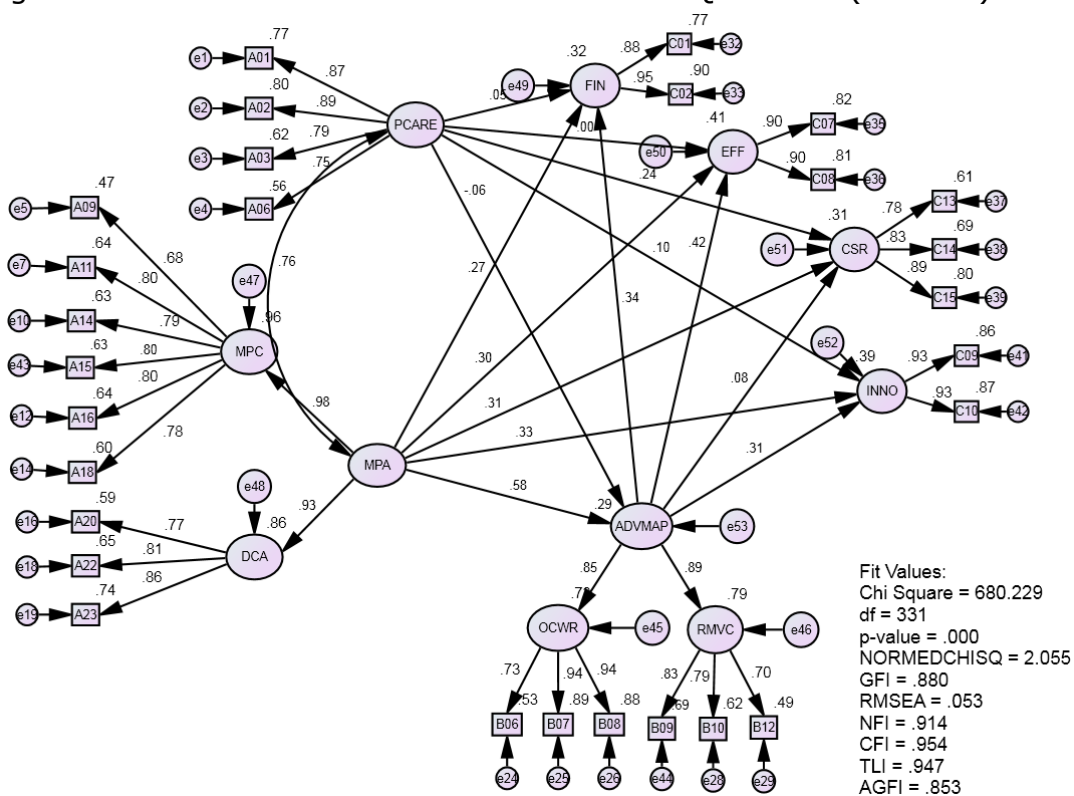## Figure 10.6 Mediation effect from ADVMAP on SQIM-PERF (Model A)

Fit Values:
Chi Square = 722.161
df = 339
p-value = .000
NORMEDCHISQ = 2.130
GFI = .880
RMSEA = .055
NFI = .909
CFI = .949
TLI = .943
AGFI = .856

Figure 10.7 Mediation effect from ADVMAP on SQIM-PERF (Model B)

Fit Values:
Chi Square = 680.229
df = 331
p-value = .000
NORMEDCHISQ = 2.055
GFI = .880
RMSEA = .053
NFI = .914
CFI = .954
TLI = .947
AGFI = .853

Table 10.4 Mediation of MAP on SQIM-PERF

Standardised estimates	Direct Effects (without mediation)	With mediation	
		Model A (only Indirect Effects)	Model B (Indirect and Direct Effects)
CFC			
CFC <-- PCARE		-.082	-.138
CFC <-- MPA		.539***	.539***
FIN <-- CFC		.504***	.313***
EFF <-- CFC		.498***	.255***
CSR <-- CFC		.273***	-.012
INNO <-- CFC		.409***	.120
FIN <-- PCARE	-.706***	.000	.009
EFF <-- PCARE	-.928***	.000	-.067
CSR <-- PCARE	-.351*	.000	.169
INNO <-- PCARE	-.806***	.000	.026
FIN <-- MPA	1.207***	.000	.368***
EFF <-- MPA	1.455***	.000	.496***
CSR <-- MPA	.948***	.000	.435***
INNO <-- MPA	1.393***	.000	.525***
ADVMAP			
ADVMAP <-- PCARE		.081	-.063
ADVMAP <-- MPA		.654***	.582***
FIN <-- ADVMAP		.662***	.338***
EFF <-- ADVMAP		.754***	.422***
CSR <-- ADVMAP		.600***	.077
INNO <-- ADVMAP		.749***	.306***
FIN <-- PCARE	-.706***	.000	.053
EFF <-- PCARE	-.928***	.000	-.002
CSR <-- PCARE	-.351*	.000	.239*
INNO <-- PCARE	-.806***	.000	.100
FIN <-- MPA	1.207***	.000	.268*
EFF <-- MPA	1.455***	.000	.304*
CSR <-- MPA	.948***	.000	.311*
INNO <-- MPA	1.393***	.000	.330***

*** Significant at 0.001 (two-tailed); *Significant at 0.01 (two-tailed).

To obtain a final multiple-mediator model that is most parsimonious, the competing model strategy was employed where the existing model was tested against some alternative models where paths were fixed to zero.

The existing model (M_E) was used as the baseline model for this test. The fit indexes for the existing model and the alternative models (M_1 to M_7) were compared to identify a model that provides the best fit to the data. This approach was used in Lai and Cheng (2005) and also recommended by MacKinnon (2008) when dealing with multiple mediators. Comparisons of the fit indexes of the existing model with alternative models are shown in Table 10.5.

Table 10.5   Comparisons of the fit indexes of the proposed model with alternative models

Path relationship	M_E	M_1	M_2	M_3	M_4	M_5	M_6	M_7
MPA ↔ CFC	Yes	No	No	Yes	Yes	Yes	No	Yes
MPA ↔ ADVMAP	Yes	No	Yes	No	Yes	Yes	Yes	No
PCARE ↔ CFC	Yes	No	Yes	Yes	No	Yes	No	Yes
PCARE ↔ ADVMAP	Yes	No	Yes	Yes	Yes	No	Yes	No
Fit indexes								
Chi-square	847.30	1203.08	1085.50	1089.61	1042.96	1039.40	1117.40	1139.60
Degree of freedom	409	413	410	410	410	410	411	411
Probability	.000	.000	.000	.000	.000	.000	.000	.000
ChiSq/df	2.072	2.913	2.648	2.658	2.544	2.535	2.719	2.773
GFI	.874	.832	.850	.850	.854	.854	.849	.848
RMSEA	.054	.072	.067	.067	.065	.064	.068	.069
NFI	.907	.868	.881	.880	.885	.886	.877	.875
CFI	.949	.909	.922	.921	.927	.927	.918	.916
TLI	.942	.897	.911	.911	.917	.917	.907	.905
AGFI	.847	.798	.819	.818	.823	.823	.817	.816

The fit indexes for the existing model and the alternative models show support for fitness in M_E. Specifically, M_E has the best fit to the data as indicated by a smaller chi-square value (χ^2=847.30, df=409, p=.000), a higher value in GFI (.874), NFI (.907), CFI (.949), TLI (.942) and AGFI (.847). Comparison among the RMSEA also indicates that M_E has a smaller value (.054). When compared to the acceptable thresholds for a good structural model, all the fit indexes for M_E have well achieved the required level. Therefore, the test provides confidence that model M_E best fits the observed data. In other words, the results found **mediation effects from both CFC and ADVMAP on the relationships of PCARE-PERF and MPA-PERF**.

To provide a more powerful analysis of the mediation effects, bootstrapping technique was employed using AMOS. The maximum likelihood method was used. 5000 bootstrap samples were requested and the bias-corrected confidence intervals were set at 95. The use of bias-corrected confidence intervals would be useful to deal with any common method variance in the data. Table 10.6 presents the results of bootstrapping.

Table 10.6 Standardised effects

	Indirect effect	Direct effect (with mediation)
PCARE		
EFF	.002 (1.038~5.818)	.001
INNO	.002 (1.423~7.486)	.001
CSR	.001 (1.301~6.006)	.001
FIN	.001 (.594~5.039)	.001
MPA		
EFF	.002 (-6.787~-1.379)	.002
INNO	.002 (-8.719~-1.924)	.001
CSR	.001 (-6.895~-1.733)	.001
FIN	.002 (-5.810~-.785)	.001

Note: Two-tailed significance (Bias-Corrected). The lower bounds and upper bounds are indicated in parentheses.

As shown in Table 10.6, the bootstrapping results show that the indirect effects of PCARE and MPA on the four PERF constructs were significant ($p<.01$). Review of the lower bound and upper bound of the indirect effects showed that the effects were unlikely to be zero. Hence, the results suggest mediation effects from the MAP constructs. Since the direct effects of PCARE and MPA on these PERF constructs remained significant, the results therefore suggest partial mediation effects from the MAP constructs on the relationships between PCARE and the four PERF constructs, and between MPA and the four PERF constructs.

Following the test results of Hypotheses $H2_1$ to $H2_4$ (see Section 10.3), that PCARE has no positive direct effect on the PERF constructs, there is no positive effects to be mediated by increased use of CFC and ADVMAP. Hence, **$H5_{1-4}$ are not supported, suggesting no positive effect was mediated by the MAP constructs.**

Meanwhile, following the test of Hypotheses $H2_5$ to $H2_8$ (see Section 10.3) that supports a positive direct effect of MPA on the PERF constructs, the mediating analysis found that increased use of CFC and ADVMAP have partial mediated the

effect of MPA on the four PERF constructs. Hence, **H5$_{5-8}$ are supported, suggesting that positive impact of implementation of MPA on FIN, EFF, CSR and INNO were mediated by increased use of CFC and ADVMAP.**

Subsequently, the size of the indirect effects from CFC and ADVMAP were evaluated to identify the construct that is more impactful in mediating the performance implication of MPA. Table 10.7 reports the comparisons and full details are in Appendix 8.

Table 10.7 Effect size

	Indirect Effect →CFC→	Indirect Effect →ADVMAP→	Direct Effect
MPA→FIN	0.423	2.013	3.927
MPA→EFF	1.322	1.894	4.915
MPA→CSR	1.309	2.155	4.167
MPA→INNO	1.845	2.311	5.577

Based on the absolute value of the effect size, the **impact of MPA was found to be stronger when transmitted through ADVMAP compared to CFC**. Such observation was noted across all the four PERF constructs.

The results also provide evidence for a **dominating direct effect of MPA on the four PERF constructs**. Such dominant relationship may have contributed to the mediating effect of CFC and ADVMAP being somewhat lower than expected. Nevertheless, a significant mediating effect was evident.

On the overall, the mediation results may be partly explained by the relationship between MPA and the MAP constructs, where MPA provides a significant positive direct effect on MAP. Additionally, the mediation results may also be explained by the significant positive impact of CFC and ADVMAP on the PERF constructs, having controlled for the effects of the SQIM constructs on the MAP constructs.

This section has observed the mediation role of MAP constructs on the relationship between PCARE-PERF and MPA-PERF. The following section provides a brief conclusion on the findings.

10.7. SUMMARY

This chapter presents the analyses of relationships among the constructs of SQIM and PERF. Also, it deals with the analysis of the mediating effect of MAP constructs on the SQIM-PERF relationship. The aim of the analysis was to understand how changes in these constructs affects the other constructs, and how a given use of MAP constructs may mediate the positive impact of SQIM implementation on PERF. Out of the 28 hypotheses tested in this study, 14 hypotheses were supported. Table 10.8 provides a summary of findings reported in this chapter. Figure 10.8 shows a diagrammatic presentation of the findings.

Table 10.8   Summary of hypothesis testing

	Hypotheses	Results
H2$_1$	The implementation of PCARE provides a significant and positive direct effect on FIN.	Not supported
H2$_2$	The implementation of PCARE provides a significant and positive direct effect on EFF.	Not supported
H2$_3$	The implementation of PCARE provides a significant and positive direct effect on CSR.	Not supported
H2$_4$	The implementation of PCARE provides a significant and positive direct effect on INNO.	Not supported
H2$_5$	The implementation of MPA provides a significant and positive direct effect on FIN.	Supported
H2$_6$	The implementation of MPA provides a significant and positive direct effect on EFF.	Supported
H2$_7$	The implementation of MPA provides a significant and positive direct effect on CSR.	Supported
H2$_8$	The implementation of MPA provides a significant and positive direct effect on INNO.	Supported
H3$_1$	The implementation of PCARE provides a significant and positive direct effect on CFC.	Not supported
H3$_2$	The implementation of PCARE provides a significant and positive direct effect on ADVMAP.	Not supported
H3$_3$	The implementation of MPA provides a significant and positive direct effect on CFC.	Supported
H3$_4$	The implementation of MPA provides a significant and positive direct effect on ADVMAP.	Supported
H4$_1$	The usage level of CFC provides a significant and positive direct effect on FIN.	Not supported
H4$_2$	The usage level of CFC provides a significant and positive direct effect on EFF.	Not supported

H4₃	The usage level of CFC provides a significant and positive direct effect on CSR.	Not supported
H4₄	The usage level of CFC provides a significant and positive direct effect on INNO.	Not supported
H4₅	The usage level of ADVMAP provides a significant and positive direct effect on FIN.	Supported
H4₆	The usage level of ADVMAP provides a significant and positive direct effect on EFF.	Supported
H4₇	The usage level of ADVMAP provides a significant and positive direct effect on CSR.	Supported
H4₈	The usage level of ADVMAP provides a significant and positive direct effect on INNO.	Supported
H5₁	The positive impact of implementation of PCARE on FIN will be mediated by increased use of CFC and ADVMAP.	Not supported
H5₂	The positive impact of implementation of PCARE on EFF will be mediated by increased use of CFC and ADVMAP.	Not supported
H5₃	The positive impact of implementation of PCARE on CSR will be mediated by increased use of CFC and ADVMAP.	Not supported
H5₄	The positive impact of implementation of PCARE on INNO will be mediated by increased use of CFC and ADVMAP.	Not supported
H5₅	The positive impact of implementation of MPA on FIN will be mediated by increased use of CFC and ADVMAP.	Supported
H5₆	The positive impact of implementation of MPA on EFF will be mediated by increased use of CFC and ADVMAP.	Supported
H5₇	The positive impact of implementation of MPA on CSR will be mediated by increased use of CFC and ADVMAP.	Supported
H5₈	The positive impact of implementation of MPA on INNO will be mediated by increased use of CFC and ADVMAP.	Supported

Figure 10.8   Hypotheses supported by this study
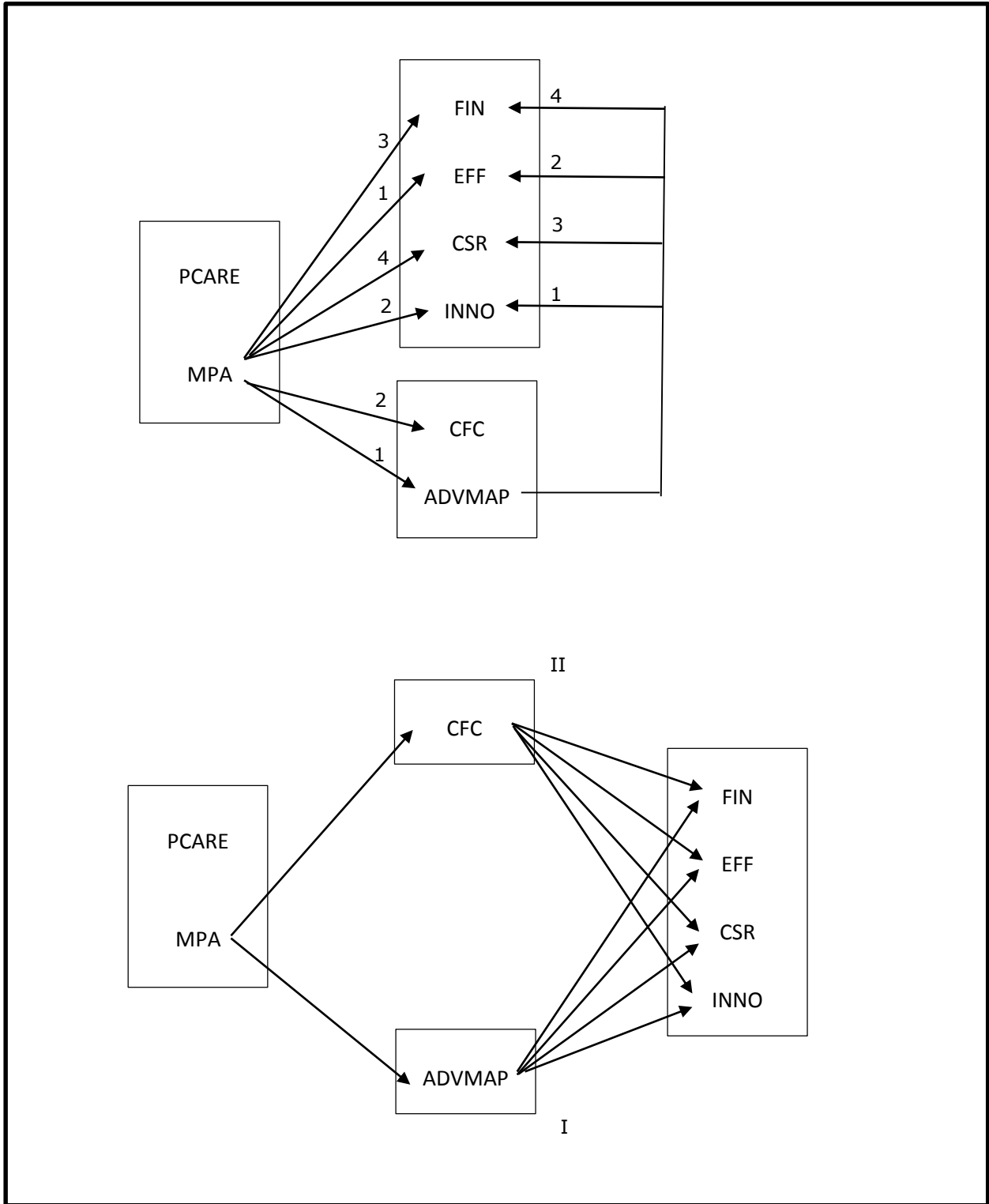
Note: Numbers denote rankings for standardised estimates in the respective path analyses. Roman numerals denote ranking for effect size in mediating analyses.

Hypotheses $H2_1$ to $H2_4$ expected positive effects of PCARE on the PERF constructs. While, PCARE did not predict positive effect of the PERF constructs, namely FIN, EFF, CSR and INNO, PCARE was found to correlate positively with these PERF constructs (see Chapter 8). Hypotheses $H2_5$ to $H2_8$ expected positive effects of MPA on the PERF constructs. The findings indicate that MPA was not only positively and significantly correlated with PERF, it was also predictive of all the four PERF constructs. More specifically, MPA was found to have greater effect on EFF, followed by INNO, FIN and lastly CSR.

The results suggest that compared to implementation of quality initiatives associated with patient care, implementation of quality initiatives associated with management, process and analysis have provided a positive influence on HTHD performance, especially in terms of operating efficiency and innovation.

Hypotheses $H3_1$ and $H3_2$ expected positive effects of PCARE on CFC and ADVMAP. The findings suggest that while PCARE did not predict CFC and ADVMAP, it was found to correlate positively with these MAP constructs. Hypotheses $H3_3$ to $H3_4$ expected positive effects of MPA on CFC and ADVMAP. The findings suggest that MPA was not only positively and significantly correlated with CFC and ADVMAP, it was also predictive of these MAP constructs.

Based on the results, it appears that implementation of quality initiatives associated with management, process and analysis have provided a positive influence on the usage level of MAP, and that initiatives associated with patient care have no such influence on MAP usage level.

Hypotheses $H4_1$ to $H4_4$ expected positive effects of CFC on the PERF constructs. The findings indicate that while, CFC did not predict positive effect of the PERF constructs, it was found to correlate positively with these PERF constructs. Hypotheses $H4_5$ to $H4_8$ expected positive effects of ADVMAP on the PERF constructs. The findings indicate that ADVMAP was not only positively and significantly correlated with PERF, it was also predictive of all the four PERF constructs. More specifically, ADVMAP was found to have greater effect on INNO, followed by EFF, CSR and lastly FIN.

The results suggest that compared to usage level of the CFC, higher usage level of ADVMAP have provided a positive influence on HTHD performance, especially in terms of innovation and operating efficiency.

Hypotheses $H5_1$ to $H5_4$ expected the positive impact of PCARE on the PERF constructs to be mediated by CFC and ADVMAP. Given that PCARE was found to have no positive impact on PERF, there was no positive effect to be mediated by increased use of CFC and ADVMAP. The findings therefore suggest that these MAP constructs did not mediate the prediction of PCARE on PERF.

Hypotheses $H5b_5$ to $H5b_8$ expected the positive impact of MPA on the PERF constructs to be mediated by CFC and ADVMAP. The various mediation conditions set by Baron and Kenny (1986) have been met. Specifically, the findings show that the causal variables (PCARE and MPA) have significant direct effect on the outcome variables (FIN, EFF, CSR and INNO) and the mediators (CFC and ADVMAP). Meanwhile, having controlled for the causal variables, the mediators have significant effect on the outcome variables. Having met these conditions, the mediation results further suggest that MAP has enhanced the prediction of MPA on the PERF constructs, and that the mediation effect was partial.

In other words, MPA has not only a direct effect on PERF but also an indirect effect through MAP. Specifically, the mediation effect was stronger from ADVMAP compared to that from CFC. Generally, the mediation results show a dominating direct effect of MPA on PERF. Such dominant relationship may have contributed to the mediating effect of CFC and ADVMAP being somewhat lower than expected notwithstanding its significance.

The next chapter provides a detailed discussion on the findings, together with their managerial and policy implications, and research limitations. Then, recommendation for future studies is presented, followed by final conclusions.

CHAPTER 11   DISCUSSION AND CONCLUSIONS

11.1 INTRODUCTION

In facing the increasingly intense competition from both local and international players, many private hospitals operating in the health tourism sector have begun to pursue competitiveness by implementing quality management initiatives leading to desired service quality level. Adoption and appropriate use of management accounting provides the organisations with a better capacity to gain and to retain such competitive advantage, and in turns deliver the desired performance outcomes.

This research is a novel study on destination hospitals in Malaysia to understand the current use of management accounting practices in facilitating quality initiative implementations. The aim is to provide a nuanced and bounded understanding of when and how management accounting practices might have particular effects on hospitals that are aggressively pursuing service quality. This research first examined the implications of seeking quality achievements on actual implementation of quality initiatives. It then ascertained the performance implications of implementing quality initiatives directly, as well as indirectly via management accounting practices as a mediator.

This chapter discusses the findings following hypotheses testing presented in Chapters 9 and 10, before considering managerial and policy implications, followed by limitations and recommendations for future studies. Overall conclusions are presented at the end.

11.2 DISCUSSION OF FINDINGS

This section discusses the findings derived from analysis reported in Chapter 9 and 10.

11.2.1. *DISCUSSION OF MEASUREMENT, DESCRIPTIVES AND CORRELATIONS*

This section provides an evaluation of the conceptual model used for analysis. The study developed a measurement model to examine service quality implementation maturity level in the destination hospitals. Content analysis of the criteria for quality achievements – namely the Joint Commission International (JCI), accreditation by the Malaysia Society for Quality in Health (MSQH) and certification by the ISO 9000 standards (ISO) – indicate that while the elements of criteria do not coincide exactly, these elements resembled seven key themes of quality. The themes include "patient focus", "leadership"; "human resources"; "processes"; "management"; "communication" and "data collection and management analysis".

The new conceptual understanding of quality themes provides unique insights to the healthcare industry in Malaysia. It also sets out the prevailing dimensions of service quality that private hospitals involved in the health tourism industry are expected to benchmark themselves against.

The study confirmed that the measurements employed in the study were reliable and valid. These measurement models provide novel empirical insights to the healthcare setting in Malaysia. In particular, a common measurement scale for implementation of service quality initiatives has been developed based on the stringent requirements of those quality achievement programmes that prevail in the country. Given that the vast majority of research in quality management tends to refer to either a specific quality programme or the quality principles laid down in the total quality management literature, the measurement models developed and employed in this study provide important novel insights to the current emphasis in service quality management that are unique to the healthcare sector in Malaysia.

In measuring the implementation of service quality initiatives, two constructs have been identified in measuring the implementation level of service quality initiative, namely "patient care" which refers to the efforts being made to understand and meets patients' needs and maintaining good relationship with them; and "management, process and analysis" which refers to the efforts made in managing resources, enhancing processes, and collecting and analysing data to facilitate communication with the various stakeholders. In other words, the measurement model proposes a clear conceptual distinction between initiatives that are oriented towards patient focus and those that are related to processes and operations. Such observations provide novel understanding of the different constructs of quality initiatives that are being emphasised in the destination hospitals in Malaysia.

The correlation analysis found positive strong relationship between these quality constructs. In other words, a high level of implementation in initiatives for "patient care" is related to a high level of implementation in initiatives for "management, process and analysis", vice versa. The results provide indication that while these two types of initiatives may be inherently related and consistent with each other within the quality system, the hospitals have indeed been able to roll out the initiatives and have delivered the implementation level in an interdependent manner. Such finding further suggests that destination hospitals have not been implementing quality initiatives on a selective basis, in that a reasonable amount of emphasis has been given across the quality initiatives and none of them was being undermined in the course of implementation.

The finding is promising since the quality elements should be complementing each other and the quality initiatives need to be implemented as an integrated system rather than as selective subsets of systems (Kaynak, 2003; Kaynak and Hartley, 2008; Sila and Ebrahimpour, 2005). Similar finding was reported in Abrunhosa and Sa (2008). Drawing from the finding of the current study, one may infer that since the destination hospitals have been implementing service quality initiatives in an integrative manner, they are likely to acquire a better capacity to pursue quality initiatives effectively which would in turn lead to better organisational performance.

In measuring management accounting practices, this study found that on the overall the usage of management accounting practices is not particularly advanced in the healthcare sector, suggesting at best an average level of usage for such practices in these organisations. Further, the usage level of management accounting practices was relatively spread out, indicating varied usage levels. The empirical finding is important to shed light on practice adoption of management accounting practices in healthcare industry in Malaysia, and to indicate possible room for improvement where necessary. The observation on the average level of usage in management accounting practices in the current study seems to confirm the literature (Fullerton and McWatters, 2004; Gosselin, 1997; Guilding, et al., 2000) that organisations may not be using the advanced types of management accounting practices despite their apparent technical superiority. The current study seeks to provide an explanation on the observation on usage level of management accounting practices by examining how quality implementation may have affected the usage of accounting practices, and by understanding how the use of accounting practices may facilitate effective implementation of quality initiatives.

The analysis has provided further insights to the characterisation of management accounting practices as a social structure that generates actions to support quality strategy. Specifically, two constructs have been identified in measuring management accounting practices, namely the "costing and financial control" which deals with the more basic functions of cost controls and financial performance measures, and the "advanced management accounting practices" which involves accounting supports for operational controls, waste reduction, resource management and value creation. In other words, this study finds support for the conceptual distinction between the two management accounting practice constructs, with one representing the use of basic and perhaps more traditional accounting practices, and the other representing the use of more advanced and comprehensive accounting practices.

The distinction made in the measurement model for management accounting practices is deemed sensible given the different capabilities of these two types of practices and their intended purposes. Such reported distinction follows the

management accounting practices classification used in Chenhall and Langfield-Smith (1998), which sees the practices as either those that include traditional techniques for planning, control, performance measures and decision-makings, or those that include a variety of contemporary practices that deals with various forms of benchmarking, activity-based techniques, balanced performance measures and strategic planning.

Meanwhile, the classification reported in this study is not quite in line with the categorisations proposed under the framework developed by the International Federation of Accountants in its Statement on *Management Accounting Concepts* (IFAC, 1998). According to the Statement, management accounting practices may be categorised into four capability levels, namely (1) cost determination and financial control; (2) provision of information for planning and control; (3) reduction of waste in business resources and (4) creation of value through effective resource use. According to this study, destination hospitals adopts management accounting practices for the purpose of either costing and financial control (i.e. Category (1)) or for operational controls, waste reduction, resource management and value creation (i.e. Categories (3) and (4)). In other words, the destination hospitals viewed Categories (3) and (4) as largely similar capabilities and purposes of the management accounting practices. Also, there is indication that destination hospitals regarded the use of management accounting for the provision of information for planning and control as an inherent capability of accounting practices and hence not a distinguishable practice by itself.

Such distinction is useful in allowing the current study to gain insights when examining how quality implementation may have affected the use of the basic accounting practices as opposed to the more advanced ones. It also allows the current study to contrast the role of basic and advanced accounting practices in facilitating effective implementation of quality initiatives.

In measuring organisational performance, four constructs were identified, namely "financial performance", "operational efficiency", "corporate social responsibility" and "innovative performance". In other words, these four perspectives of

performance were found to be conceptually distinctive in the opinion of the respondents engaged in the current study. Such findings fit well into the intended dimensions of performance to be included in this study.

The bivariate correlations between the constructs for quality implementation, management accounting practices and performance were found to be positive and significant as predicted. In other words, implementation of quality initiatives and usage of management accounting practices are found to be taking place in the same directions as the performance level of destination hospitals. This preliminary finding provides indication that quality initiatives are being supported by appropriate use of management accounting practices, and that these efforts are paid off by better organisational performance.

The significant relationships found between the implementation of quality initiatives (the causal variable) and the organisational performance (the outcome variable) suggest that the direct and unmediated relationships are significant. On the other hand, implementation of quality initiatives was also found to be significantly related to the management accounting practices (the potential mediator), thereby establishing the relationship of the causal variable with the potential mediators. Meanwhile, the management accounting practices were found to be significantly related to the organisational performance, thus supporting the relationship between the potential mediator and the outcome variable. Uncovering these relationships is useful for the current study to assess the possibility that the relationships between quality initiatives and organisational performance were indeed mediated by the use of management accounting practices. The following sections discuss the hypotheses tested in the current study.

11.2.2.   *QUALITY IMPLEMENTATION IN DESTINATION HOSPITALS*

In Chapter 9, it was hypothesised that the maturity level in implementing service quality initiatives is higher in hospitals that have obtained more types of quality achievements as compared to other hospitals that have obtained less or no achievement. This means that hospitals that have adopted more quality achievement programmes are in a better position when implementing the quality initiatives. Such understanding is important because quality accreditations is not merely a recognition of what a hospital is already doing to manage their quality of services provided, but the journey of going through the accreditation process in itself is a driver of quality given the motivations that the hospital management have to reflect upon the ways of work and rooms for improvement.

Observation on the current industrial practice showed that there is a common tendency among the quality-endorsed hospitals to have been seeking different, and is some cases multiple, quality achievements. Such practices bring about very practical managerial implications, since maintaining the different quality achievement programmes may result in possible synergies, redundancy or even distraction in managing the numerous expectations from stakeholders. This might in turn affect management execution and hence the quality implementation level actually attained.

Past literature has warned about the potential shortcomings of merely differentiating adopters from non-adopters of quality achievement programmes to signal service quality level (Askey and Dale, 1994; Øvretveit and Gustafson, 2002). Also, adopters need to be mindful that there may be little tangible progress in quality programmes due to conflicting quality goals and likely confusion among staff when executing the programmes (Krishnan, et al., 1993).

Hence, this study examines quality adoption in detail by undertaking a careful evaluation of the extent of quality initiatives implementation following its adoption in the various quality dimensions. Informed by the general systems theory (Von

Bertalanffy, 1972) which explains that systems comprise of autonomous yet interdependent parts that mutually interact to create a self-directing whole, which is equally autonomous, this study seeks to understand quality implementation by understanding the implementation of the specific quality aspects that make the quality system as a whole.

The analysis is useful in highlighting how the choice of quality achievement programmes might affect the implementation level of service quality initiatives in hospitals. The aim is to understand how well the different programmes complement each other, hence providing theoretical guide to hospital in seeking high level of quality implementation. The analysis also seek evidence for possible selective implementation of quality initiatives following the pursuit of chosen quality programmes, and to provide empirical evidence on whether implementation of quality initiatives is taking an integrative approach as suggested in the literature.

The common quality achievements sought by the hospitals include accreditation by the Joint Commission International (JCI), accreditation by the Malaysia Society for Quality in Health (MSQH) and certification by the ISO 9000 standards (ISO). When the quality achievements were categorized in a cumulative manner, six categories have been identified, namely "JCI+ISO+MSQH"; "JCI+MSQH"; "ISO+MSQH"; "ISO only"; "MSQH only", and "None". Quality implementation levels in these categories were compared using MANOVA test.

The results suggest that hospitals in the "ISO+MSQH" category had demonstrated significantly better implementation of quality initiatives when compared to all the other categories. This observation was true for the quality initiatives involving patient care as well as those concerning management, process, communication and analysis. Additionally, compared to the hospitals in "ISO only" category, the current study found that hospitals in the "MSQH only" category has significantly better implementation level for quality initiatives that deal with management, process and communication. Comparisons among the other quality achievement categories found no significant difference in the implementation level of the quality initiatives. Hence, H1a-H1c are generally not supported.

In other words, implementation level of quality initiatives was not higher in hospitals that have obtained more types of quality achievements as compared to those hospitals that have obtained less or no achievements. Such finding has provided novel empirical insights on quality implementation in hospitals that have sought different types on quality achievement programmes.

Overall, a plausible explanation of the results can be found in the institutional theory. According to Dimaggio and Powell (1983), the institutional theory explains the variance in the quality achievement sought by hospitals and the corresponding quality implementation level. In other words, the results suggest that in attempting to be more adaptive and responsive to environment uncertainties, hospitals appeared to be following the practices adopted in some of the dominant market players. Over time, these hospitals have demonstrated somewhat similar quality implementation.

The findings provide empirical evidence that the choice of quality achievement programmes, or their specific combinations, would indeed affect quality implementation level in organization. Specifically, when compared to hospitals in the other quality achievement categories, hospitals that have sought the combination of quality achievements from ISO 9000 and MSQH were found to have the highest implementation level across the range of quality initiatives. Such high implementation level was found to be most profound when contrasted with hospitals that have only achieved ISO 9000 certification.

Based on the results, it is apparent that the better edge in quality implementation may have accrued from the complementary properties drawn from the achievements, whereby MSQH accreditation provides a principle-based approached to managing service quality whilst ISO certification caters the procedural specification to aid the necessary executions.

There was further evidence that, among hospitals that have only sought a single type of achievement, activities related to management, process and communications, were better implemented when they were guided by the principle-based MSQH accreditation rather than by the procedural specifications under the

ISO 9000 certification. The finding may be unique to studies such as this, where the human resources involved in the activities were largely knowledge workers and educated professionals. A principle-based approach may be sufficient and more effective in guiding the involvement of such workforce in managing service quality.

This study has provided useful empirical evidence to guide hospitals in carefully selecting quality programmes that are complementary by nature, hence preventing possible risk of having conflicting quality goals and confusion among staff (Krishnan, et al., 1993).

The analysis also provides an interesting observation that there is considerable level of quality implementation in hospitals that have not sought any types of formal quality achievement. Such observation may suggest that, as in many established organisations, management efforts and control mechanisms may already be put in place though in a less formal manner. This finding provides an indication that while the choice of quality programmes is a determinant for quality implementation level in hospital, management commitment would prove to be another important driver for quality implementation. The role of management commitment in quality management has been promoted by quality Gurus such as Crosby, Deming and Juran, and has been widely recognised in the literature.

The current study also offers empirical findings suggesting that, in each of the six quality achievement categories, the quality implementation levels across the range of quality initiatives were comparable, indicating that there was no apparent selective implementation of any quality initiatives in the hospitals. The result is consistent with the literature, for example Flynn, et al. (1995), Kaynak (2003) and Kaynak and Hartley (2008), which suggests that while the quality initiatives may be autonomous, they are interdependent in the course of implementation. Hence, implementing these quality initiatives concurrent to each other would provide a holistic approach to effectively manage service quality in organisations.

Nevertheless, the current study found that within each of the six quality achievement categories analysed, the relationships between the quality initiatives appeared to be weak albeit positive. Such findings is not consistent with the extant

literature (Abrunhosa and Sa, 2008; Kaynak, 2003; Kaynak and Hartley, 2008; Sila and Ebrahimpour, 2005) that reports high correlations among elements of TQM principles in supporting the argument that the quality elements complement each other well and are simultaneously implemented. Hence, the result of this study suggests that, regardless of the types of quality achievements that a hospital has sought, there remain a room for the hospital to further enhance the implementation of its quality initiatives. Specifically, there appear to be a need to better recognize the complementary nature of the range of quality initiatives currently being pursued, and look into ways to implement these initiatives in a more integrative manner in order for such implementations to support management intention to promote service quality.

11.2.3. *PERFORMANCE IMPLICATION OF QUALITY IMPLEMENTATION*

In Chapter 10, it was hypothesized that implementations of quality initiatives provide a significant and positive direct effect on hospital performance. This means that when the implementation of service quality initiatives becomes more intensive, hospital is able to demonstrate better performance. The aim of this study is to highlight how hospitals have benefited from the implementation of quality initiatives, and whether such benefit is differential among the range of the initiatives that have been implemented.

This knowledge is important to understand how implementation of the range of quality initiatives may affect the varied perspectives of hospital performance in terms of financial performance, operational efficiency, innovativeness and corporate social responsibility. This knowledge would provide a basis to gauge the effectiveness of quality implementation, and to identify room for improvement.

Despite the inconsistency in findings, past research generally suggests positive relationship between quality management and organizational performance for businesses in general and for healthcare industry in particular. Furthermore, it has been suggested that improvement in performance could be derived from quality

programmes based on both TQM and ISO programmes (Martínez-Costa, et al., 2008).

Informed by the literature, this study developed a scale for service quality initiatives implementation based on the prevailing quality achievement programmes sought by hospitals, including both TQM based accreditations and ISO 9000 series standard. The results suggest that, hospitals have benefited differentially from implementing two different aspects of service quality initiatives, namely those initiatives involving patient care and those initiatives involving management, process and analysis.

Specifically, initiatives concerning patient care were found to have no positive direct effect on any of the performance areas examined. Hence $H2_1$ to $H2_4$ are not supported. This result challenges literature that has reported customer focus as positively related to performance (Nair, 2006; Samson and Terziovski, 1999). Nevertheless, the finding that patient care related initiatives have no significant effect on performance was not unexpected. Similar finding was reported in Sila and Ebrahimpour (2005) in a manufacturing environment. According to Wright and Snell (2002), being customer focus is important but not sufficient for success in business. Initiatives on customer focus would typically involve maintaining good relationship with customers, and making effort to understand and meet their needs in an ethical manner.

This study provides novel empirical evidence that, while initiative related to patient care are significant in its own right, activities related to patient care would not lead to improved organisational performance (in terms of financial, efficiency, corporate social responsibility and innovation). One plausible reason for such finding is that initiatives to promote patient care may be impacting other aspects of the performance that are not being measured in the current study. Other areas of performance such as quality performance and patient satisfaction may have benefitted from patient care related initiatives. Another possible explanation is that while patient care initiatives do not give a direct impact on performance, the impact of such initiatives might have been translated into other quality management

activities, which would in turn affect hospital performance. Nevertheless, Yeung and Armstrong (2005) argued that quality dimensions are generally context dependent, and some dimensions may be more important that the other dimensions in a given industry. Hence, it is likely that initiatives related to patient care are indeed less important in driving hospital performance.

On the other hand, this study found that quality initiatives related to management, process and analysis have significant and positive direct effect on all the four areas of hospital performance. Hence $H2_5$ to $H2_8$ are supported. The results also show that such quality initiatives have the greatest positive direct effect in predicting operating efficiency, followed by innovative performance, financial performance and lastly corporate social responsibility.

Past literature (Appiah Fening, et al., 2008; Sila and Ebrahimpour, 2005) found that quality related to process management has direct effect on business results. Meanwhile, quality management related to information and analysis act as the foundation to enable synergies to be derived from quality initiatives (Kim, et al., 2012; Sila and Ebrahimpour, 2005). Nevertheless, the current study finds that both *management, process and communication* and *data collection and analyses* are sharing the same underlying properties, and that collectively, these quality initiatives provide a positive direct effect on the four aspects of hospital performance. In other words, this study provides empirical evidence that quality initiatives related to management, process and analysis have been effectively implemented and hence would justify high management priority in investment decisions and resource allocations.

Overall, this study advocates that hospitals have benefited from the implementation of quality initiatives, and such benefits are primarily drawn from initiatives related to management, process and analysis as oppose to initiatives related to patient care.

Additionally, the current study also found that the implication of quality initiatives on corporate social responsibility performance is generally lacking. In particular, patient care initiatives were found to have no positive impact on corporate social

responsibility performance, while the impact coming from initiatives relating to management, process and analysis were found to be the weakest compared to the impact on the other aspects of hospital performance. Such observations provides an indication that quality initiatives implemented in hospital are lacking in its contribution to the corporate social responsibility performance, despite the conceptual similarity between quality management and corporate social responsibility and the synergies suggested in the literature (King 2001, Jo 2003, Berens 2007). In this regard, it would be useful to know more about the hospitals' strategic intention in quality management and corporate social responsibility, and the strategies that have been formulated to align such intentions.

11.2.4.   *IMPACT OF QUALITY IMPLEMENTATION ON MANAGEMENT ACCOUNTING PRACTICE USAGE*

Having examined the implementation of the specific quality aspects that make the quality system as a whole, as informed by the general systems theory (Von Bertalanffy, 1972), and the institutional theory approach suggested by Burns and Scapens (2000), this study examined the relationship between the implementation of service quality initiatives and the usage level of management accounting practices in order to gain better understanding on the impact and significance of the relationships. Such knowledge would inform about the usage level of management accounting practices in supporting the implementation of quality initiatives, thereby suggesting the extent to which such management accounting practices usage is aligned with the intention for managing service quality. The analysis also highlights possible lags in management accounting practices usage in the quality environment.

Extant literature have argued that adoption of management accounting practices is shaped and determined by the functional strategies of an organisation, and consistency between the strategies and the use of management accounting practices would have a direct impact on competitiveness of the organization (Tayles and Walley, 1997). In the context of quality management, research has found that

organisations pursuing quality strategies are making greater use of management accounting practices for performance measurement and reporting (Carr, et al., 1997; Daniel and Reitsperger, 1991; Neely, et al., 1994). There are also evidence for greater use of non-financial performance measures (Hartman, et al., 2002; Samson, et al., 1991) and advanced management accounting practices (Abdel-Kader and Luther, 2008; Baines and Langfield-Smith, 2003) to facilitate the execution of quality strategies.

The current study suggests that within the healthcare industry in Malaysia, usage level of management accounting practices varied according to the types of quality initiatives implemented. Specifically, implementation level of patient care related initiatives were found to have no positive effect on the usage level of the different types of management accounting practices identified in this study. Hence $H3_1$ and $H3_2$ are not supported. Meanwhile, this study finds that implementing initiatives relating to management, process and analysis have significant and positive direct effect on both types of the accounting practices identified. Hence $H3_3$ and $H3_4$ are supported.

In other words, this study finds that higher usage of management accounting practices is driven by some but not all of the quality initiatives implemented in hospital. In particular, the findings suggest that implementation level of initiatives related to patient care is not related to usage level of any of the management accounting practices. There may be a few plausible causes for such observation. First, there may indicate a lag in the use of management accounting practices in facilitating initiatives to promote patient care. Second, such lack of relation may suggest that management accounting practices usage is not being aligned with the intention to manage patient care initiatives. Third, it is likely that initiatives on patient care are being translated into other activities (such as those related to management, process and analysis), and the latter activities may in turn drive the usage of management accounting practices. If this were the case, then the absence of relationship between patient care initiatives and management accounting practices would be rather sensible since management accounting practices is not required to inform decisions related to patient care per se. The last contention that

initiatives on patient care may have been translated into other quality initiatives such as management, process and analysis would perhaps be the most plausible one, given that inherent relationship between these initiatives and their implementation level have been found in the current study.

Meanwhile, greater implementation of initiatives in promoting management, process and analysis is related to increased use of both types of the management accounting practices identified in this study. Additionally, the current study shows that initiatives in promoting management, process and analysis have greater effect in predicting the usage level of the advanced types of management accounting practice, as compared to the usage level of the basic types of accounting practices which are primarily dealing with cost control and measuring financial performance.

This finding is encouraging since it signals effective usage of management accounting practices in supporting quality initiatives that involves management, process and analysis. Also, the usage level of management accounting practices – especially the advanced types of practices – was well aligned with the intention to pursue such quality initiatives. The finding also concurs the argument that traditional measures are less adequate in addressing quality measures (Kaplan, 1984). In this regards, the current study provides empirical support for hospital management to be engaged with the more advanced types of management accounting practices, as these practices supports the management in dealing with operational control, waste reduction, resource management and value creation. Such supports are well complementing service quality initiatives involving management, process and analysis.

Further, the current study also provides further evidence for the earlier findings on the performance implications of quality implementation (presented in section 11.2.3). In other words, greater implementation of quality initiatives relating to management, process and analysis was able to provide a significant and positive direct effect on not only hospital performance but also on the use of management accounting practice. In contrast, implementation of quality initiatives relating to

patient care appears to have no positive impact on both hospital performance and the use of management accounting practices.

11.2.5. PERFORMANCE IMPLICATION OF MANAGEMENT ACCOUNTING PRACTICES USAGE

This study seeks to examine the relationship between the use of management accounting practices and hospital performance to gain greater insights on the impact and significance of the relationships. Such knowledge would inform about the performance implication of using the different management accounting practices, thus providing some basis to gauge the effectiveness of management accounting practices usage and to identify room for improvement. This information would in turn enable hospitals to make informed judgment and decisions when prioritizing and allocating resources for adoption and usage of management accounting.

There is overwhelming evidence in the literature that greater use of management accounting practices is positively related to organizational performance (Chenhall, 2005; De Geuser, et al., 2009; Mia and Chenhall, 1994). Meanwhile, research (Abernethy and Lillis, 1995; Baines and Langfield-Smith, 2003; Stede, et al., 2006) has also shown that the use of broader scope and non-financial measures is associated with improved performance as these measures help to track key success factors leading to achievement of strategic objectives. However, some literature has evidence that challenges such positive relationship between management accounting practice adoption and performance (Banker, et al., 2000; Callen, et al., 2000; Ittner and Larcker, 1997). Accordingly, there remain ambiguous picture on the relationship (Chenhall and Moers, 2007).

More recent research has attempted to explain the link between management accounting practice and performance by examining the ways the accounting practices have been developed and used (Griffith and Neely, 2009; Jazayeri and Scapens, 2008; McAdam and Bailie, 2002) and by ascertaining how well the

accounting practice fits the context within which it operates (Franco-Santos and Bourne, 2005; Neely, 2005; Otley, 1999).

This study provides novel empirical evidence to explain the relationship between management accounting practices and organisational performance in the context of healthcare. Specifically, it was found that the basic types of management accounting practices that deal with cost control and financial performance measures (i.e. CFC) has no positive direct effect on any of the four aspects of hospital performance. Hence $H4_1$ to $H4_4$ are not supported. In other words, the findings suggest that increased use of the basic management accounting practices appear to lack the ability to drive performance level in the course of managing service quality. It is plausible that, as suggested in the wide literature, the basic types of management accounting practices are not sufficient to equip management with the necessary tools to deliver better performance. Meanwhile, it is also likely that the control aspects of such practices yield benefits that have been overlooked by the survey respondents.

On the other hand, the current study provides empirical evidence for significant positive direct effect of the advanced types of management accounting practices on all aspects of hospital performance that have been examined in this study. Hence $H4_5$ to $H4_8$ are supported. The results suggest that in pursuing quality management, the use of advanced management accounting practices that facilitates operational control, resources management and value creation would provide a holistic support, and hence drive performance in a comprehensive manner.

This supports the argument in Baines and Langfield-Smith (2003) that advanced management accounting practices carries the essential properties that are compatible with the effective implementation of strategic intentions. While adding to the existing literature, for instance Said, et al. (2003), Evans (2004), Stede, et al. (2006) on the positive impact that advanced management accounting practices has on organisational performance, the current study has also provided empirical evidence in a healthcare setting where the advanced management accounting

practices is found to be providing an effective structure for hospitals to deliver performance in the course of managing service quality.

Further, the current study points out that use of the advanced types of management accounting practices have the greatest effect in predicting innovative performance, followed by operating efficiency, corporate social responsibility performance and finally financial performance. In other words, amongst the different aspects of hospital performance examined, using the advanced management accounting practices has the strongest relationship with innovative practices. The findings provides further insights to existing literature (Cruz, et al., 2011; Marginson, 2002) which suggests that advanced and strategic approach of performance measurement are useful to foster innovative practices in organisations. According to the current study, the advanced types of management accounting practices is able to assert positive impact on innovative performance, and such impact is greater than the other aspects of hospital performance examined, namely operating efficiency, corporate social responsibility performance and finally financial performance.

The results provide evidence that, in the context of service quality management, the use of advanced management accounting practices has been useful and effective in promoting innovative practices. Such effectiveness was found to be less obvious in delivering the other aspects of hospital performance, with least impact on financial performance. While such observations may be partly explained by the properties of advanced management accounting practices that are oriented towards resource management and value creation, thus enhancing innovative practices, management attention is still warranted to ensure that management accounting practices practices better enhance overall hospital performance and ultimately improved financial bottom line.

11.2.6. MEDIATING THE PERFORMANCE IMPLICATION OF QUALITY IMPLEMENTATION WITH MANAGEMENT ACCOUNTING PRACTICES USAGE

This study provides insights on the performance implication of implementing service quality initiatives that may be transmitted via the use of management accounting practices in hospitals. This analysis would provide empirical evidence that helps hospitals to identify current management accounting practices usage that are facilitating their efforts in implementing specific types of service quality initiatives. Additionally, this analysis also highlights the potential lags in management accounting practices usage that hospital may need to explore in order to reap the benefits of adoption. Such knowledge is important for hospital management to secure a better capacity in delivering service quality and enhanced performance.

Gidden's (1984) idea of social structure was used to conceptualise the role management accounting practice as structures within organisations that is capable of generating interpretive schemes useful for communications, providing norms to sancation certain actions, and providing facilities for management to exercise power. Additionally, the institutional theory approach suggested by Burns and Scapens (2000) was employed in this study to support the contention that greater use of management accounting practices in providing management accounting information would prompt users of the information to be more engaging with such information when managing operational activities assigned to them. Over time, this information may be institutionalised in the organisation and become part of the organisational culture. Consequently, the types of management accounting practices adopted may facilitate the effective implementation of the types of service quality initiatives.

Past research has presented management accounting practices as an important enabler for business performance (Mia and Clarke, 1999). Research (Macintosh and Scapens, 1990; Scapens and Macintosh, 1996) has urged for more studies to explore how accounting facilitates business processes in the course of delivering business performance. More recently, it has been reported that strategic choice affects the use of strategic management accounting, which in turns affects the

effect on business performance (Cadez and Guilding, 2008). Within the context of quality management, literature has found that management accounting practices mediates the relationship between TQM and performance (Chenhall, 1997; Chenhall, 2003; Hoque and Alam, 1999).

The current study examines the role of management accounting practices usage in facilitating the performance implications of implementing service quality initiatives within a healthcare context. Based on the results, the mediation role of management accounting practices is dependent on the types of quality initiatives implemented.

In particular, no mediating effect of management accounting practices was found on the relationship between patient care and hospital performance. Hence $H5_1$ to $H5_4$ are not supported. In other words, the findings suggest that the use of management accounting practices was not able to enhance the impact of patient care initiatives on any aspects of the hospital performance examined. Meanwhile, the study found partial mediating effect of management accounting practices on the relationship between hospital performance and the quality initiatives involving management, process and analysis. Hence $H5_5$ to $H5_8$ are supported. In other words, the use of management accounting practices is able to mediate or enhance the positive impact of such quality initiatives on hospital performance.

The mediation results found may be partly explained by the direct impact of quality implementation on the use of management accounting practices, as well as the direct impact that management accounting practices have on hospital performance. Based on discussions in the earlier sections, quality initiatives involving management, process and analysis have significant and positive effect on both the use of management accounting practices and hospital performance. However, such effect on accounting practices and performance were found to be lacking from quality initiatives involving patient care.

Taken together, the findings suggest that the institutionalization of management accounting practice as a social structure has provided support for better implementation of selected quality initiatives. More specifically, the mediating effect

found of management accounting practices on the relationship between hospital performance and the quality initiatives involving management, process and analysis provides evidence that the structural properties of management accounting practices, namely significance, domination and legitimation (Giddens, 1984), has indeed generated actions by providing interpretive schemes useful for communications, providing norms to sancation certain actions, and providing facilities for management to exercise power.

According to Baron and Kenny (1986), the effect of mediation is best considered as a continuum of intervention from none to perfect. Given that, as the direct effect of quality initiatives involving management, process and analysis on hospital performance is found to be much stronger than the indirect effect through the use of management accounting practices, the mediation effect is deemed to be weak.

This study has provided evidence for a significant, albeit weaker than expected, mediating effect of management accounting practices on the link between hospital performance and quality initiatives relating to management, process and analysis. The observation may be attributable to the dominant relationship noted between such type of quality initiatives and hospital performance.

The implication of having such stronger direct effect of the said quality initiatives on performance than the indirect effect through management accounting practices is perhaps two-fold. One, this may suggest that the interdependence of quality initiatives and management accounting practices to mirror the strategic intention could have been overstated in the literature (Larson and Kerr, 2007). Two, it may be inferred that achieving a tight coupling between quality initiatives and management accounting practices was not deem necessary among hospitals to ensure successful organisational performance. To some extent, such observations may have posed a challenge to the fundamental purpose of employing accounting practices for service quality management.

Nevertheless, it is plausible that pursuance of service quality initiatives in hospital may be better fostered by other forms of non-administrative controls that complement the use of management accounting practices. According to Hopwood

(1974), control at work in an organisation may come in the forms of administrative controls, social controls and self-control. The use of management accounting practices and systems are one typical administrative control devise that operate through the setting up of performance measurement systems. Meanwhile, organisations may also benefit from social controls which are developed via social interaction and sharing of common beliefs or professional values. Such controls may be fostered through the setting up of team-working or quality circle that prompts employees entrusted with similar responsibilities to meet regularly and solve work-related problems. Additionally, self-control may also exist within an organisational setting, where the individuals modify their own behavior either through advancement of skills and knowledge. The findings of the current study seem to provide indications that destination hospitals were able to draw on such non-administrative controls to ensure effective implementation of service quality initiatives. If this is indeed the case, then the use of management accounting might be redeployed to other areas of management that requires its support and contribution.

Nonetheless, further examination of the mediating role of management accounting practices found that the mediating effect was stronger from the advanced types of management accounting practices as compared to the basic types of practice. This means that, as compared to the basic types of management accounting practices, the advanced ones are able to better transmit the positive effect of quality initiatives involving management, process and analysis onto hospital performance. The size of mediation may be partly explained by the direct effects reported between management accounting practices and hospital performance. As discussed earlier, of the two types of management accounting practices, the advances practices were found to provide significant positive effect on hospital performance but such effect on performance was not found from the basic types of management accounting practices.

The order of the mediation effect found was consistent with general expectation since the adoption of advanced types of management accounting practices for resource management and value creation and the pursuance of service quality are

theoretically related concepts. This has provided empirical evidence for argument that traditional performance measures do not address quality measures and would undermine quality improvement (Kaplan, 1984). The findings also provide evidence in the healthcare environment while confirming existing literature (Abdel-Kader and Luther, 2008; Baines and Langfield-Smith, 2003) that sees increased use of advanced management accounting practices in pursuing quality strategies. In this regard, Chenhall and Langfield-Smith (2007) emphasised that to achieve continuous improvement, which is an important element of quality management, organisations need to devise their performance measurement systems to include benchmarking and performance management systems such as balanced scorecards that is able to link between strategy and operations. Hence, adopting the advanced management accounting practices would give organisations a strong position to pursue their quality strategy.

Overall, the current study adds to the current literature (Abdel-Kader and Luther, 2008; Carr, et al., 1997; Chenhall, 1997; 2003; Hoque and Alam, 1999) on the role of management accounting practices for contemporary management. Specifically, it has provided useful insights on the mediation role of management accounting practices in managing service quality. The results suggest that, as compared to the use of basic accounting practices, using the advanced types of practices have been more effective in enhancing the positive effect of quality initiatives involving management, process and analysis on hospital performance. The result has also enriched the limited research in management accounting that supports quality management initiatives in healthcare. The findings have provided support for the role of advanced management accounting practices in enhancing the performance implications of service quality implementation.

11.3 MANAGERIAL AND POLICY IMPLICATIONS

The results of this study provide useful insights for both the fields of management accounting and service quality management. This study contributes to theory development in the usage of management accounting practices for effective

implementation of service quality initiatives. The theoretical model developed may be presented in three parts. First, a common measurement scale for quality implementation in a local context has been developed based on the stringent requirements of the prevailing quality achievement programmes in Malaysia. Second, a quality-performance link has been proposed and specified according to the quality constructs pursued. Third, an institutional approach has been adopted in examining the role of management accounting in implementing service quality initiatives within a healthcare setting, and a number of exploratory propositions are presented.

In addition to its contribution to theory development, the current study would also be of interest to hospitals. It seeks to inform practices by providing a guide to improve the quality of decisions on the adoption of quality achievement programmes. Hospitals seeking competitive advantage by enhancing the implementation of quality initiatives may benefit from the complementary nature of quality accreditation and certification. Further, perhaps more importantly, this study offers a guide to improve the quality of decisions on the adoption of management accounting practices that are set up to facilitate the pursuance of service quality.

Specifically, this study provides the following implications for hospital management and policy formulation. Firstly, hospitals in Malaysia are increasingly engaging themselves with quality achievement programmes and are often juggling between the commonly sought choices of ISO 9000 series standards certifications and accreditations by JCI and MSQH. However, study in this aspect is lacking especially in the Malaysian context. Therefore, this study has provided a theoretical guidance for hospital management in the choice of programmes. According to the study, adequate adoption of quality programmes would be desired and due recognition should be given to the complementary nature of the principle-based quality accreditation and the certifications primarily grounded on procedural specification.

Secondly, the finding that suggests service quality initiatives were complementing each other in implementation provides an important indication to management. Hospitals intending to pursue service quality initiatives needs to adopt an

integrative approach to ensure such initiatives are executed effectively in order to reap the intended benefits.

Thirdly, this study reveals that within each of the quality achievement categories (categorisations explained in Chapter 9), the positive relationship among implementation of service quality initiatives were found to be somewhat weaker than generally expected. Hence, management attention is warranted to investigate the causes and to find ways to strengthen such relationships. This would in turn promote better synergies and enhance quality culture within the organisation.

Fourthly, given the lack of systematic evidence on the quality-performance link in the literature, this study has contributed to the continuing debate by providing empirical evidence in the context of healthcare in Malaysia. Specifically, this study provides indication that quality initiatives related to management, process and analysis are effectively implemented and are directly beneficial to hospitals and should be high in management priority when allocating resources to support its implementation. Meanwhile, greater attention on initiatives related to patient care may be warranted to ensure that initiatives put in place is adequate for adding value and driving hospital performance. Drawing from the evidence in this study, it is further proposed that aligning the use of management accounting practices with the implementation of service quality initiatives could differentiate the performance implications. Such knowledge in useful in enabling hospital management to make informed judgment and decisions when prioritizing quality management initiatives and allocating resources to facilitate the implementation. Hence, the capacity to delivering service quality would be enhanced, leading to better performance and competitive edge in the health tourism industry.

Fifthly, this study has contributed to the literature on the link between quality and management accounting practices by providing empirical evidence to suggest that the interdependence of service quality management and management accounting practices for quality intention could have been overstated in the literature. According to the current study, the relationship between quality management initiatives and usage of management accounting practices vary according to the types of quality initiatives being implemented. And where the relationship exists, it

seems that the relationship is stronger between quality management initiatives and the advanced types of accounting practices. This novel finding is important to guide hospital management in effectively implementing quality initiatives. Specifically, hospitals need to put in place sound management accounting practices, especially the advanced types of management accounting practices, which provide support for successful implementation of quality initiatives that promotes management, process and analysis. On the other hand, hospitals need to review the execution of patient care related quality initiatives as there appear to be lack of evidence that such effort is being supported by suitable management accounting practices.

Sixthly, review of literature indicates that more needs to be understood about the nature of management accounting practices and the reasons for organisations to be adopting a particular accounting practice. The current study contributes to the developments in research on the management accounting practices-performance link by providing empirical evidence in the healthcare industry. The results suggest that in the pursuit of service quality management, a higher priority to adopt the advanced types of management accounting practices – as opposed to the fundamental ones – would prove worthy since usage of the advanced management accounting practices brings about better performance.   This study also highlighted that hospitals seeking to promote innovative practices would find the adoption of advanced management accounting practices useful and effective. On the other hand, there remain room for improving the use of such advanced management accounting practices in delivering other aspects of hospital performance, namely financial performance, operational efficiency and corporate social responsibility performance. Further, this study added to the limited research on the management accounting-corporate social responsibility link by providing evidence that within the healthcare setting, the choice of management accounting practices would impact organisation's performance in corporate social responsibility. Specifically, using the advanced types of management accounting practices improves the delivery of corporate social responsibility performance while the use of fundamental management accounting practices is insufficient to facilitate such performance.

Lastly, this study proposes a framework that provides a nuanced and bounded understanding of when and how management accounting practices might have an effect on performance of destination hospitals that are aggressively pursuing service quality. In other words, are practices in management accounting able to enhance the performance level of such organisations? Understanding such relationships is important to organisations given the high investment required. It draws from the empirical evidence that recognizes the properties of management accounting practices at different advancement level. Based on these, it suggests that selective combinations of service quality implementation and management accounting practices could be beneficial to facilitate hospital performance.

Overall, this study proposes that employing management accounting practices to support quality initiatives involving management, process and analysis would contribute to the various aspects of performance in destination hospitals. This is partly due to the properties of management accounting practices that is able to facilitates communications and the exercise of power, and to provide norms to sancation certain actions in the the pursuit of service quality management.

In addition, such contributions come greater from the use of the advanced management accounting practices compared to the basic management accounting practices. Consequently, the current study prompts management attention to deliberate the choice of management accounting practices and to improve its adoption, so as to put in place better support for implementing quality initiatives which in turns lead to improved hospital performance. This study also provides evidence for a much needed research and management attention to have greater management accounting practices utilisation in supporting quality initiatives relating to patient care. The proposed framework could be handy for hospital management to implement service quality initiatives in a more effective manner.

11.4 LIMITATIONS

This section presents the limitations faced by the current study, details of which are explained below.

First, the questionnaire survey was only able to draw participation from the peninsular of Malaysia. No response was received from East Malaysia though there were 3 hospitals operating there with a targeted response of 27. Hence, the results should be interpreted with caution as it might not be generalizable across the entire nation. The use of purposive sampling instead of random sampling has also limited the generalizability of conclusions and the ability to evaluate research issues such as response/non-response bias. However, the results may be useful for developing more formal theories to describe the relationships among quality implementation, management accounting practices and organizational performance.

Second, the number of responses with JCI experience is considered low when compared to responses with other quality achievement programmes. This was largely due to the relatively low take up for the international JCI accreditation as opposed to the local MSQH accreditation. The unequal responses have limited the strength of the analyses conducted in this study.

Third, the survey responses were drawn from one single source for assessing the implementation level of service quality initiatives and usage level of management accounting practices. To improve validity of the study, responses at different times, site visits and other sensible data sources could be gathered.

Fourth, the dimensions of service quality initiatives employed in this study are embodied in the criteria and standards that are commonly sought by hospitals to demonstrate their level of healthcare service quality. These dimensions constitute the operationalized definition of service quality initiatives in this study. Nevertheless, different operationalized definitions of such initiatives could potentially attract different scores for the construct.

Fifth, the assumption of unidirectional relationships between the constructs may pose additional limitation to this study. Some of the relationships may be in the

opposite direction or reciprocal rather than the relationship specified in the model. For instance, it may be that the greater use of management accounting practices has built the capacity for better implementation of service quality initiatives. Further, the modelling technique used in this study assumed linear relationship between the constructs. It is likely that linearity is invalid or valid only within a specific relevant range. Such limitation may be overcome with the use of case studies approach or complex quantitative analysis (Baines and Langfield-Smith, 2003).

Sixth, this study did not examine the effects of other environmental and organizational variables, except for industry category and eligibility of organisation to claim a health tourism status in the country. Further research may extent the specification of the current research model by considering the role of other relevant variables and thus providing a more comprehensive view on the context studied.

11.5 RECOMMENDATIONS FOR FUTURE STUDIES

Following the discussions presented and the limitations challenging the current study, some recommendations for future studies are put forward as follows.

First, further study on quality implementation using a qualitative research approach would be useful to provide richer and deeper insights into the attitudes and expectations of key stakeholders of the hospitals towards the implementation and maintenance of the multiple quality achievements, given that synergies, redundancies and even distractions in management efforts might have been experienced following such multiple adoptions of achievement programmes.

Second, within a given quality achievement category analysed in this study, the relationship between the types of service quality initiatives were found to be positive but weak. Such observation is true across all the categories and hence proposing the need to investigate further on the possible causes or contingency factors that might have contributed to such observation.

Third, this study brings out the observation that quality initiatives relating to patient care did not have positive implications on either hospital performance or usage of management accounting. It is worthy to examine the detailed reasoning for such observation to gain useful insights. Specifically, further studies may be undertaken to examine the impact of patient care related initiatives on other aspects of hospital performance that were not included within the scope of this study. Future research might also investigate whether the impact of patient care related initiatives is translated into other quality management activities, how and the extent to which this has taken place, and the ultimate effects of such activities on management accounting practices usage and hospital performance.

Fourth, a more thorough research on the link between implementing service quality initiatives and corporate social responsibility performance is warranted to ascertain how quality management may facilitate the increasing demand for corporate social responsibility in businesses generally and in healthcare specifically. Further research is also needed to determine the extent to which implementation of service quality initiatives, especially those initiatives relating to patient care, motivates changes in the use of management accounting.

Fifth, in applying the structuration theory to examine the mediation role of management accounting practices for the relationship between implementation of service quality initiatives and hospital performance, this study has captured the usage level of management accounting practices as modalities of structuration that facilitates implementation of service quality initiatives. To provide more comprehensive understanding on the role of management accounting practices, it is also worthy to study the accounting practices as an agent within the structure. This could be done by analyzing management accounting activities undertaken by knowledgeable people, typically the management accounting professionals, within the system that facilitates implementation of service quality initiatives. However, the analysis was not addressed within the scope of this study.

Sixth, further research might be conducted as a result of this study. It would be useful for future research to apply the framework proposed in this study as a basis

for designing more rigorous research studies on hospitals. For instance, it would be useful to identify other determinants that are mediating the relationship between implementations of service quality initiatives and hospital performance, and to ascertain the use of management accounting practices in facilitating those determinants. Longitudinal studies would also be useful to examine the research questions put forward in this study. This would provide useful insights to enrich and validate the propositions suggested. Further research may also apply the framework in studying service quality management in other industry, thereby confirming its external validity.

Seventh, further research might be conducted to extend the model by exploring some of the contingency factors relevant to the model. Relevant factors including accountants' participation in decision-making processes, strategy type, organization size, and so on have been examined in different settings. The research would provide a better contextual understanding on the mediation effect of management accounting practices in the quality-performance link, hence contributing to research on the mediation role of management accounting practices that draws on the contingency theory perspective (Cadez and Guilding, 2008).

11.6 FINAL CONCLUSIONS

Hospitals operating in the health tourism industry in Malaysia are aggressively positioning themselves to deliver quality services and to demonstrate quality assurance on their services. This study examines the implementation of service quality initiatives in these hospitals, its performance implications and the mediation role of management accounting practices for such implications.

Specifically, this study posted three main research questions, namely (a) would hospitals that have obtained more types of quality achievements demonstrate a higher implementation level for service quality initiatives as compared to those hospitals that have obtained less or no achievement?; (b) is there significant and positive direct effect of service quality implementation on hospital performance?;

and lastly (c) is the impact of service quality implementation on hospital performance being mediated by increased use of management accounting practices? Related to these three main research questions are two further questions: (d) is the level of quality implementation related to the usage of management accounting practices? And finally (e) is the usage of management accounting practices related to hospital performance?

The research was conducted using questionnaire survey. A measurement scale for the implementation of service quality initiatives has been developed based on the stringent requirements of the prevailing quality achievement programmes. Quantitative methods using MANOVA and structural equation modelling were employed for data analysis.

In answering the first question, the findings suggest that while implementation level of service quality initiatives is significant influenced by the choice of quality achievement, the implementation level is not higher in hospitals that have obtained more types of quality achievement. Further, hospitals that are both MSQH accredited and ISO 9000 certified have been able to show significantly better implementation level across the different types of service quality initiatives as compared to the other hospitals examined in the current study.

In answering the second question, the results indicate that the impact of implementing service quality initiatives on hospital performance is not universal. While quality initiatives involving management, process and analysis have significant and positive direct effect on hospital performance, such impact is not evident from quality initiatives relating to patient care.

Findings for the last question report that selective combinations of the types of service quality initiatives being implemented and the types of management accounting practices used to support such implementations could be beneficial in delivering hospital performance. Specifically, no mediating effect of management accounting practices was found on the relationship between hospital performance and quality initiatives relating to patient care. Meanwhile, usage of management accounting practices is able to assert a partial yet significant mediation effect on

the impact of quality initiatives relating to management, process and analysis on hospital performance, amidst the dominant direct relationship between the said quality initiatives and hospital performance. The mediating effect derived from advanced types of management accounting practices is stronger than that of basic types of accounting practices.

The research contributes to the service quality literatures. Firstly, it adds to the on-going debate on the superiority and compatibility of different quality achievements by suggesting that quality accreditation and certification programmes complements each other in paving the way to implement service quality initiatives. Overall, the current study provides a new conceptual understanding on the quality achievements commonly pursued by healthcare organisations operating in the health tourism sector in Malaysia. It offers suggestion that maintaining both recognitions from ISO 9000 series certification and MSQH accreditation would be the most optimal solution to approach service quality management. Such solution enables quality initiatives to be effectively implemented and integrated into operational activities, and hence allowing for such initiatives to be internalised in the organisation. Secondly, it provides insights to the ongoing debates for quality-performance link by suggesting that the link is contextual to the quality dimensions, whereby quality initiatives related to management, process and analysis are found to have a positive link with multiple perspectives of organisational performance.

This work also contributes to the literatures on management accounting practices by providing a framework on the role of management accounting practices in effectively managing specific dimensions of service quality in the healthcare environment. It draws upon Giddens' (1984) conceptualization of social structure to contribute to the institutional approach in examining the role of management accounting. The current study offers novel empirical insight on the institutionalization of management accounting practices as a social structure that facilitates quality initiatives with the ultimate objective to deliver performance. It purports that while the use of management accounting practices would enhance the effectiveness in executing quality initiatives related to management, process and analysis, such enhancement would turn out more impactful if the adoption of

management accounting is extended beyond the fundamental practices to include the more advanced practices.

Adoption of management accounting practices is an important consideration in the course of implementing quality strategy for destination hospitals that intent to leverage on it to maximise its performance within a health tourism environment. While management accounting practices on its own may not determine the success or failure of quality initiatives pursued by the destination hospitals, the current study provides evidence that such accounting practices is contributing positively to the capacity of quality initiatives in driving the performance of these organisations. Therefore, adoption of management accounting practices needs to be regarded as an integral part of an organisation's consideration in formulating its quality strategies.

The findings in the study will help destination hospitals to identify the appropriate types of management accounting practices that would best facilitate the type of service quality initiatives being emphasised, with the ultimate intention to deliver a more promising level of organisational performance. The use of structural equation modelling provides a basis to examine the named hypotheses on the extent to which a range of quality initiatives and management accounting practices could have affected the performance of the destination hospitals. Subject to the methodological limitations, identifying the relationships of these variables with the organizational performance has provided important insights that may be used to direct further research on the possible reasons underlying the different combinations of these variables.

APPENDICES

Appendix 1   Questionnaire

Appendix 2   Other survey documents

        Appendix 2.1   Sample invitation letter

        Appendix 2.2   Sample cover letter accompanying questionnaire

        Appendix 2.3   Guidance notes for survey coordinator

Appendix 3   Statistical outputs – Data screening

        Appendix 3.1   Descriptive statistics (with missing data)

        Appendix 3.2   Descriptive statistics (after group mean substitution)

Appendix 4 Statistical outputs – Tests on responses

        Appendix 4.1   Non-response bias

        Appendix 4.2   Response from non-managerial staff

Appendix 5 Statistical outputs – Missing values

        Appendix 5.1   Missing value independent sample t-test

        Appendix 5.2   Missing value analysis

        Appendix 5.3   Group mean substitutions

Appendix 6 Exploratory and Confirmatory Factor analysis

        Appendix 6.1   SQIM

        Appendix 6.2   MAP

        Appendix 6.3   PERF

        Appendix 6.4   Common Method Variance

        Appendix 6.5   Covariance

        Appendix 6.6   Normality

Appendix 7   MANOVA – Post hoc analysis

        Appendix 7.1   PCARE

        Appendix 7.2   MPC

        Appendix 7.3   DCA

Appendix 8   Bootstrapping

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