OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE ADDING SELECTION

MYZATUL AISHAH KAMARAZALY

2007

OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE ADDING SELECTION

A research thesis presented in fulfillment of the requirements for the degree of

Master of Philosophy
(MPhil)
In
Construction

Institute of Technology & Engineering
College of Sciences
Massey University at Wellington
New Zealand

Myzatul Aishah Kamarazaly

2007

ABSTRACT

Investment in the physical infrastructure and the provision of facilities management (FM) services should be geared toward achieving the strategic objectives of an organization, which largely aim at value creation. Sole focus on the financials while choosing between outsourcing and in-house FM options excludes other non-financial measures such as the extent to which the FM route contributes to improving internal business processes and the overall strategic health of the organization.

This paper presents the results of investigations into a holistic perspective on the key variables to consider in choosing between outsourcing and in-house FM in order to provide value added service and improve organizational performance. The study was limited to the views expressed by facilities and property managers registered with the Property Institute of New Zealand Property and the Facilities Management Association of Australia. The descriptive survey method was used, which comprised qualitative data gathering using unstructured interviews and quantitative data gathering using structured questionnaires. Content analyses, multi-attribute methods and Spearman's rank correlation tests were used in the analysis of the data and the testing of the research propositions/ hypotheses.

Results showed that four broad categories constitute the holistic FM functional areas: strategic, operational, property development/project management and general services. Outsourcing was perceived to be more suited than in-house for providing operational, property development/ project management and general services; in-house was more suited for the provision of strategic FM functions. The relative importance of the value adding criteria underlying the broad categories of FM services, as well as the suitability of the use of outsourcing and in-house approaches in meeting each criterion were established. Using the concept of Overall Suitability Score, a process chart was developed for use in making a strategic choice between outsourcing and in-house FM service provisions. The use of this chart is recommended to property and facilities managers, and other stakeholders who may be faced with the dilemma of choosing between outsourcing and in-house approaches to providing FM services. The methodology developed in this study could be replicated in related contexts to resolving strategic decision dilemma involving making choices amongst competing alternatives.

Keywords: Facilities management; in-house FM, outsourcing, property management, strategic management.

ACKNOWLEDGEMENT

I would like to record my gratitude to my Supervisor, Dr Jasper Ikeokwu Mbachu, for his guidance in the research process and for his constant encouragement and advice.

Great appreciation is extended to the members of Property Institute of New Zealand (PINZ) and Facilities Management Association of Australia (FMAA), especially those registered as property and facility managers, for their willingness to participate in the research surveys and for their time in thoughtfully responding to the questionnaires.

I also wish to thank the Executive of the Institute of Technology & Engineering for providing supplemental funding for this research.

The approval granted for the undertaking of the questionnaire surveys by the Massey University Human Ethics Committee (MUHEC) is hereby acknowledged.

This research was strongly supported by Mara University of Technology (UiTM), Malaysia through the Young Lecturer Scheme grant, and for which I am very grateful.

Finally, my sincere thanks go to my parents and family for their blessings, unfailing faith and enormous support, which contributed to the successful completion of this research.

This research is dedicated to all those who helped in making this research work a success.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

1.1 Background

Facilities management (FM) adds value to organizations in a variety of ways. For instance, FM offers an integrated approach to maintaining, improving and adapting the buildings and other infrastructure of an organization in order to create an environment that strongly supports the primary objectives of the organization (SFMS, 2006). Cotts and Lee (1992) describe FM as an essential business function affecting not only revenues and costs but production, quality of life for employees, health and safety, the work environment, and increasingly, the ability to recruit and retain employees. In addition, Connors (2003) observes that when FM is practiced properly, the following benefits accrue to the company:-

1. Facility strategic plans match corporate strategic plans, ensuring the use of FM initiatives to achieve corporate objectives
2. Space is available when and where needed
3. Capital expenditures are planned and controlled
4. Costs are minimized, and sometimes avoided.

Three approaches exist for the provision of part or whole of FM services: out-sourced, in-house or a hybrid of both: Atkin and Brooks (2005) argue that the approach taken depends on the priority set by the organization for the services to be provided. In lending further support, Barrett (1995) opines that some organizations favour a totally in-house option, while others literally contract out every service possible, yet others use a combination of both.

From a contractual perspective, outsourcing is a service commissioned from an external supply organization, particularly on the basis of a formal contractual arrangement based upon the terms and conditions derived from a service-level agreement (Barrett and Baldry, 2003). Hiemstra and Van Tilburg (1993) add to this view by opining that outsourcing is the subcontracting of custom-made articles and construction, such as components, sub-assemblies, final products, adaptations and/ or services to another company.

Outsourcing holds benefits to organizations in a number of ways. For instance, Lankford and Parsa (1999) observe that the advantages in outsourcing can be operational, strategic or both. Operational advantages usually provide quick fixes or short-term trouble avoidance, while strategic advantages offer long-term contributions to maximizing opportunities. Fill and Visser (2000) concur that the decision to outsource enable organizations to achieve cost reduction, expand services and expertise, improve employee productivity and morale, as well as achieve greater potential towards sharpening corporate image. In addition, Wise (2007) opines that outsourcing enables organizations to select the best service provider on the basis of wide ranging experience, quality, and speed as well as performance efficiency.

From a business perspective, Beitz (1998) argues that outsourcing has a great potential in bringing a businesslike approach to bear in areas which may have no run on traditional lines for a long time, introducing new ideas, technologies and new findings; providing attractive possibilities for existing and new staff with appropriate skills, upgrading assets and services as well as providing reduced costs through specializations and large scale economies. Furthermore, Bernard Williams Associates (1999) concludes that outsourcing is the key for the core business advantage of an organization due to benefits in relation to cost, quality, motivation, flexibility and availability of skills.

In contrast to outsourcing, in-house approach is essentially referred to as a service that is provided by a dedicated resource directly employed by the client organization, where monitoring and control of performance is normally conducted under the terms of conventional employer/ employee relationship; although internal service-level agreements may be employed as a regulating mechanisms (Barret and Baldry, 2003). Several potential benefits have been associated with the in-house approach. For instance, in-house option is preferable to outsourcing where the provision of the FM service requires building skill and knowledge for improved customer service. Wise (2007) lists the most significant benefits of in-house approach to include offering FM companies the opportunity to grow people instead of hiring from outside, and as a result provide career prospects that reduce staff turnover.

From a loyalty perspective, in-house employees usually will serve the interest of the organisation better than outsourced employees, as the latter aim to serve the interests of their own employers, rather than for the organisation for which they are working by proxy. In addition, in-house option has been found to result in simultaneous improvements in the customer satisfaction, as well as employee morale and satisfaction, which are central to improving productivity and bottom-line.

1.2 Statement of the research problem

Facilities management could be an avenue to achieve strategic corporate objectives. Without a doubt, both outsourcing and in-house approaches to providing FM services offer significant benefits if chosen in the right context. However, due to sole reliance on cost while making a choice, organizations could, and in fact do, end up choosing outsourcing, where in-house could have delivered better value in the long run; or vice versa. This could result in a misalignment between FM services and corporate strategic initiatives, and consequently, to suboptimal value delivery from the FM initiative. To guard against this, Barrett (1995) opines that the decision to choose between both approaches should be made having regard to the path that leads to long term best value for the organization.

However, due to the lack of a holistic and effective decision making framework for choosing between outsourcing and in-house FM approaches in meeting their FM needs, most organizations solely focus on short-term cost minimization, or use subjective means in their decisions, to the exclusion of other equally important variables. For instance, Cotts (1999) observes that most facility managers prefer a rule of thumb approach to solving FM problems. In addition, Wise (2007) finds that results of short-term financial analysis usually support outsourcing rather than in-house; while long-term financial analysis provides the opposite.

The literature is replete with findings on the benefits of outsourcing and in-house approaches to FM service provisions, but little research exists on the suitability of either approach to meeting specific FM needs, which is central to making the right decisions. This study contributes to filling this gap by identifying and prioritizing value-adding criteria underpinning effective facilities management functions as well as exploring the suitability of each approach to providing parts or whole of FM services.

The outcomes provide the building block for the development of a framework for making value-adding selection.

1.3 Objectives

Specifically, the study aims to achieve the following objectives.

1. To identify and prioritize the criteria underpinning value-adding facilities management (FM) service
2. To compare out-sourcing and in-house approaches in terms of their value-adding capabilities in providing the components and sub-categories of FM functions
3. To establish a framework for choosing between outsourcing and in-house FM routes.

1.4 Propositions

The following propositions provide directions for the research design, data gathering and data analysis with a view to meeting the research objectives.

1. In the broad categories of FM functional areas, strategic management is perceived as most important to organizations
2. The use of outsourcing is preferred to in-house in performing all FM services.
3. Significant differences exist between facilities managers' and property managers' ratings of the relative suitability of the use of outsourced FM services in performing the subsets of functions under broad categories of FM functional areas.

1.5 Scope and limitations

The study was limited to the views expressed by facilities and property managers registered with the Property Institute of New Zealand (PINZ) and the Facilities Management Association of Australia (FMAA). The focus was on institutional properties and associated facilities, but attempt was made to consider generic issues that could be of strategic importance to broader categories of facilities.

Limitations envisaged in the study are the inability to generate sufficient responses owing to the small size of PINZ membership and low response rates. To minimize the impact of this on the reliability of the anticipated findings, the target sampling frame were widened to include property and facilities managers registered with the Facility Management Association of Australia, given the commonality of practice and close-working relations existing between practitioners in both countries.

1.6 Importance of the research findings

Exploratory survey results illustrated that four broad categories constitute the holistic FM functional areas: strategic, operational, property development / project management and general services. Basically, the full paper attempts to determine the relative importance of the various underlying attributes in adding value to an organization. Additionally, this paper addresses the issue of the suitability of the outsourcing and in-house approaches in providing the broad categories of FM functions. The research finding provides the basis for a methodical framework for choosing between outsourcing and in-house facilities management routes in providing FM functions.

1.7 Structure of the thesis

The thesis comprises six chapters.

Chapter 1 is the introduction, which highlights the background, statement of the research problem, objectives, propositions, scope and limitations and the importance of the research findings.

Chapter 2 is devoted to the reviews of related literature, which provided insights into the nature of facilities management (FM), concept of value and value-added FM functions, and outsourcing and in-house FM approaches and the criteria underpinning their selections. The chapter concludes with a section summarizing the insights gained from the literature, the gaps that exist and where the current study aims to contribute to filling the identified gaps. Overall, the reviews provided insight into research strategies and methodologies that were considered appropriate to the research problem and objectives. A summary of the bases and contexts of the research propositions as

drawn from the literature is presented, and subsequently the chapter ends with the statement of the research propositions.

The methodology employed in the study is reported in Chapter 3. The key elements of the methodology are the overall research strategy adopted, the procedure used to select random samples from the sampling frames, the data-gathering instruments used, and the methods employed in data analyses. The chapter also highlights compliance with the Massey University's Code of Research Ethics, including approval by the Massey University Human Ethics Committee for the undertaking of the research.

Data obtained from the questionnaire administration are presented, analyzed and discussed in Chapter 4. The data were first subjected to preliminary analyses to produce the parameters used in testing the research propositions. The results of the analyses were discussed in relation to the research objectives and congruence with or divergence from related literature.

Test of the research propositions and development of the research models are reported in Chapter 5. An outline of the propositions and the statistical techniques employed in the tests are presented. The chapter also includes discussions of the outcomes of the tests of propositions in relation to the research objectives.

Conclusions from the research findings are presented in Chapter 6, as well as the recommendations for further investigations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction to FM

2.1.1 FM in context

The vast growth of facilities management industry has given credence to the organization's capability of adding world class values to its business operations in order to achieve the best business outcomes in terms of agility, flexibility, business continuity, corporate strategic objectives and most importantly competitive advantage. Ideally, FM offers an integrated approach to maintaining, improving and adapting the buildings and other infrastructure of an organization in order to create an environment that strongly supports the primary objectives of the organization (SFMS, 2006; Barret and Baldry, 2003). The International Facilities Management Association (IFMA, 2006) describes FM as a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology. This also served to reinforce the observations made by Alexander (1996) that FM is the process by which an organization ensures that its buildings, systems and services support core operation and processes as well as contribute to achieving strategic objectives in changing conditions.

In addition, the Centre for Facilities Management (1992a, b) observes FM as the process by which an organization delivers and sustains a quality working environment and quality support services to meet the strategic needs and organization's objectives at best cost. Hinks (1998) further argues that FM is indeed a means of contributing to the multidimensional enhancement of business competitiveness through the strategic management of built asset, rather than the cost efficient management of the built asset for the benefit of the business. In addition, Spedding and Holmes (1994) maintain that besides optimizing the running costs of buildings, FM aims to increase the effectiveness of the management of space and related assets for people and processes, in order to ensure that the mission and goals of the organization may be achieved with the best combination of efficiency and cost.

From a strategic management perspective, Nutt (2004) observes that FM is the prime source for management of infrastructure resources and services with the focus to support and sustain the operational strategy of the organization overtime. Overall, FM is essentially a key function in managing facility resources, support services and working environment to support the core business of the organization in both long-term and short-term (Chotipanich, 2004).

In terms of scope of services, facilities management encompasses a wide-range of activities. Alexander (1996) observes that the scope of FM discipline covers all aspects of property and space management, environmental control, health and safety, and support services, and requires that appropriate monitoring and control centers are established in the organization. In practice, FM can cover a great variety of services including real estate management, financial management, change management, human resources management, health and safety and contract management, in addition to building maintenance, domestic services (such as cleaning and security) and utilities supplies (Atkin and Brooks, 2000). Binder (1989) sees FM as a field that incorporates many diverse functions including the following:-

- Master space planning
- Space inventory
- Space and furniture standard settings
- Project Management (Administration and Implementation)
- Programming requirements
- Financial control (Budgeting and Forecasting)
- Scheduling
- Layout and Design
- Purchasing
- Construction Management
- Ongoing maintenance management.

Hamer (1988) adds to the FM functions as follows:-

- Real Estate Strategy
- Site Management
- Overall system coordination.

The breadth of the FM activities also covers the following (Collings, 2007): cleaning, heating, ventilation, air-conditioning, electrical, building and plumbing trades, grounds or landscaping, concierge, call centre, tenant liaison, car parking, energy management, waste management, sustainability management, mail-room and pest control.

Amaratunga et al. (2000) see FM as an umbrella term under which a broad range of property and user related functions may be brought together for the benefit of the organization and its employees as a whole. With dynamic facilities policy, corporate values may be persistently generated, leading to efficient response to issues covering space allocation and charging, environmental control and protection as well as direct and contract employment. Thus, FM provides greater bearing for the organization in establishing values for users of facilities particularly the corporation, operating units, clients, individual employees and the public. Consequently, the enormous growth in FM activities worldwide, results in a diverse and highly competitive marketplace of the following distinctive related individuals: FM contractors, in-house FM teams, FM suppliers, FM consultants and professional FM institutions (Nutt, 1999; Tay and Ooi, 2001).

From a managerial perspective, American Library of Congress (1989) observes FM as the practice of coordinating the physical workplace with the people and work of an organization, integrating the principles of business administration, architecture, and the behavioral and engineering services. Then (1999) opines that the practice of FM is concerned with the delivery of an enabling workplace environment – the functional space that supports the business processes and human resources. Furthermore FM is described as the management of premises and services required to accommodate and support core business activities of the client organization, while constantly adding value to the stakeholders (Alexander, 1999; Bernard Williams Associates, 1999). FM can strongly be summarized as integrated management of the workplace to enhance the performance of the organization (Tay and Ooi, 2001).

From an asset management perspective, Becker (1990) views FM as referring to buildings in-use and involves planning, design, and management of occupied buildings and their associated building systems, equipment and furniture to enhance the organization's ability to compete successfully in a rapidly changing world. In this light, facility management enhances organizational effectiveness. Thus, FM can be outlined as creating an environment that is conducive to carrying out the organization's primary operations, taking an integrated view of the services infrastructure, and using this to

deliver customer satisfaction and best value through support and enhancement of the core business (Atkin and Brooks, 2005).

The above perspectives show that the definitions and scope of facilities management and FM services could be wide-ranging. It is in recognition of this that McDougall (1999) and Kelly et al. (2002) concluded that, “FM could mean different things to different parties, and the scopes of services vary between organizations or departments”. However presented, Atkin and Brooks (2005) argue that a holistic definition of FM should emphasize on the importance of integrative, interdependent disciplines whose overall purpose is to sustain an organization in the pursuit of its business or objectives This means that the FM service should aim to accomplish the following:-

- Support people in their work and other activities
- Enhance individual well being
- Enable the organization to deliver effective and responsive services
- ‘Sweat’ the physical assets to make them highly cost effective
- Allow for the future change in the use of space
- Provide competitive advantage to the organization’s core business
- Enhance the organization’s culture and image.

It was argued that “the differing definitions of facility management show that it is an evolving field whose nature is still somewhat fluid” (Hamer, 1988, p.23). It is therefore inadequate to formulate a holistic definition, which will capture the true essence and scope of FM functions. However, the above reviews provided some holistic insights into the wide spectrum of FM services upon which this research and the findings will be anchored.

2.1.2 Classification of FM works

From an administrative perspective, Then and Akhlaghi (1990) classify facilities management works into three distinctive groups: strategic FM, tactical FM and operational FM. The balance between technical, managerial and business acumen is required in the strategic, tactical and operational decision making processes.

It is very important for an organization to produce more informed business decisions through effective management of complexity that may lead to providing competitive advantage.

The strategic FM focuses on the receptiveness of the facility to the organization and business challenges; it concentrates on the complement between facilities and corporate objectives. Pitching FM at the strategic level is claimed to have great impact on the decision making process, as it involves planning decisions and relatively in a direct communication with higher management or the senior personnel at corporate decision making level in order to ensure that facilities meet clearly defined business objectives. Alexander (1996) argues that the strategic FM role entails the following:-

- Formulating and communicating a facilities policy
- Planning and designing for continuous improvement of service quality
- Identifying business needs and user requirements
- Negotiating service level agreements
- Establishing effective purchasing and contract strategies
- Creating service partnerships
- Systematic service appraisal, quality, value and risk.

On the other hand, the tactical FM works are basically emphasized on the organization and administration procedures. It involves monitoring, controlling and managing the operational FM; in order to ensure that the operations are well performed in accordance with the organization's requirements or standards as well as implementing the policy, strategy and plan. The scope of operational FM covers all types of daily and routine services on the workplace. It is also concerned with the effectiveness of the service functionality in an organization.

Then and Akhlaghi (1990) note that every item of the FM tasks represents a category of decisions that have to be made at various management levels with skills required to make and implement them or to access their effectiveness and performance. The authors' classification of the facilities management tasks is shown in Table 1. The table presents typical executive responsibilities, management roles and project tasks associated with the three distinct classes of FM as discussed above.

Table 1: Classification of FM tasks (Source: Then and Akhlaghi, 1990, p.45)

FM class	Executive responsibilities	Management roles	Project tasks
Strategic	• Mission Statement • Business Plan	• Investment Appraisal • Real Estate Decisions • Premises Strategy • Facility Master • Planning IT Strategy	• Strategic Studies • Estate Utilization • Corporate Standards • FM Operational • Structure Corporate Brief
Tactical	• Corporate Structure • Procurement Policy	• Setting Standards • Planning Change • Resource • Management • Budget Management Database Control	• Guide-line Documents • Project Programme • FM Job Description • Prototypical Budgets • Database Structure
Operational	• Service Delivery • Quality Control	• Managing Shared Facilities • Building Operations • Implementations • Audits • Emergencies	• Maintenance • Procurement • Refurbishment • Inventories • Post-occupancy Audits • Furniture Procurement

The FM practice experienced a remarkable development due to the challenging and changing of FM needs. Collings (2007) has reviewed the transitions of the FM practice in 1990's and 2000's as presented in **Table 2**.

Table 2: Review of FM practice (Source: Collings, 2007, p.20)

1990's	2000's
• "Making do" with Real Estate • Operated as "silo" within the organization • Self sufficient – with some outsourcing • Transactional • Domestically focused • Technology unsophisticated	• Opportunity for reinvestment • Proactive to workplace change • Experienced at contracting – expect less & more – still innovating in supply chain • Process and strategic • Global options • Technology integrated
Influencing Trends: 1. Changing economics 2. Globalization of supply and increasing expectations 3. The shift towards outcome based service requirements (fit for purpose, availability etc).	

2.1.3 Impact of market perspective on FM

Global market conditions drive significant changes in the facilities management industry. During economic boom, the facilities are hurriedly and poorly commissioned; consequently the end results are unsatisfactory, especially the workmanship quality and the occupancy performance. In addition, the facilities faced excessive deterioration and depreciation, leading to serious obsolescence in terms of its physical state and functionality.

On the contrary, during the economic slump or recession, facilities management industry vitally contributes to the reduction of asset depreciation rate as well as decrease in the functional obsolescence. Greater improvement and achievement can be gained through effective policy planning, strategic management and efficient utilization of resources. Lower costs offered and provision of better quality services help to retain and attract tenants, leading to new uses and tenure arrangements and the active management of obsolescence, vacancy and underutilization (Nutt, 1997). Perhaps, the choice between outsourcing and in-house facilities management could be influenced by market conditions and trends.

2.1.4 Key FM Concepts

Four key concepts have been identified in the application of facilities management practices: cost effectiveness, proactive, integrative and strategic FM (Hamilton, 2004). The author notes that cost effectiveness primarily emphasizes on achieving best quality and service performance with required standards at the lowest reasonable costs. Proactive FM ensures that facilities management practices are aimed to perform services in advance, thus evading possible failures, loss or interruption. Integrative FM deals with cost reduction, diminishing works redundancy and conflicts, all of which can be achieved through integrative planning and coordination of facilities management services. Strategic FM focuses on the organization long term planning and clear justification of its potential business direction, which will contribute to the success of FM development. These concepts provide building blocks to the understanding of the contribution of FM to value creation.

2.2 Concept of Value

2.2.1 Definition of value

Facilities management aims to improve the efficacy of the organization's operations. It focuses on the capability and quality of its working atmosphere to support core activities, and aims at significant value addition through effective planning and management. Generally, value entails a strong relationship amid cost or price and quality or performance (Atkin and Brooks, 2005). Most organization look forward to attain best value decision or best value for money for their business or support services. "Best value decision" or "best value for money" extends the concept of value for money to imply a need to strive continually for something superior at the lowest practicable cost.

In order to achieve "best value decision", there are two key factors that need to be taken into account; namely the cost or price and the quality or performance (Atkin and Brooks, 2005). Both key factors are central in deciding whether to retain services in-house or out-source them. Notably, decisions should support the choice of approach and service provision that contributes best value for money; rather than solely rely on the lowest cost. This lends credence to the observations of Roberts (2001), that value

addition in FM is seen as an optimization process, rather than only cost cutting. It is of the essence to measure the performance of the service provided against the cost and quality. This served to reinforce the views of Vorkurka and Fliedner (1995) that a balance between financial and non-financial measures is enviable in the pursuit of "best value" decisions.

Atkin and Brooks (2005) maintain that the concept of value for money is often associated with cost reduction. Whereas cost is easier to measure, value for money is concerned with quality of a service and the economy, efficiency and effectiveness with which it is delivered. Atkin and Brooks argue that lowest price should not be the sole factor in deciding which tender to accept and frown at tenders accepted on the basis of price alone.

Quality should play an equally important part in any evaluation, if best value is to be derived. Atkin and Brooks (2005) further emphasize that cost savings strongly correlate to value, where both of the aspects cannot be segregated. Therefore, it is crucial for organizations to demonstrate what they are getting for their money and should not assume paying less today is proof of better value for money.

However, in most of the cases, the achievement of best value is demonstrated by acceptance of the lowest tender price in a competition where all other criteria (quality, performance, terms and conditions) are equal. Best value can also be achieved through collaborative arrangements with suppliers and service providers.

2.2.2 How can value be added?

Both in-house and outsource facilities management have unique abilities to contribute to the achievement of best value for money. For instance, in-house FM function can contribute to value addition by providing more reliable service and by better aligning operations to the strategic goals of the organization on the basis of insider knowledge of the organization's secrets and latent needs. Value can also be delivered through support to other departments, which cannot be quantified in monetary terms.

On the other hand, when an organization decides to outsource the services, they may have the opportunity to gain value for money and savings through lowering overhead costs (e.g. supervisions) and expenditure on other direct costs (e.g. plant and

equipment and idle times).. This is derived from the fact that the outsource company deploys its own equipment and personnel, and bears the risk of inefficiency in the use of equipment and resources. As a result, the employer company improves its operational efficiencies and effectiveness by delivering cheaper but quality services. In addition, by concentrating on core activities, the organization will be able to stay focused on its core strength and improve its competitive advantage.

2.3 FM functions

The vital function of FM is to support the organization's core business or activities for improved economic outcomes. FM department is responsible to manage the infrastructure / facilities and property in order to achieve optimum productivity, constant quality improvement, cost reduction and risk minimization and ultimately improved value for money.

Effective facilities management focuses on corporate asset management to add value to core business activities, provide enabling environment for offering superior service quality in support of business operations (Alexander, 1996). FM also aims to sharpen the corporate image through facilities improvement, and enhancement of operational efficacy.

Hamilton (2004) notes that FM aims to achieve the following objectives:

- To communicate well at all levels
- To establish procedures, schedules programmes, benchmarking and feedback
- To lead and be pro-active
- To identify and provide the services essential to the organization and consider contracting out / partnering for others
- To utilize existing expertise and be able to delegate and trust staff

Alexander (1996) and Hamilton (2004) provide the following additional roles of facilities management:

- Creating a facilities policy that expresses corporate values
- Giving the authority to the facilities business unit to improve service quality
- Developing facilities to meet business objectives

- Recognizing the value that facilities add to the business
- Essentially strategic and business directed, with focus on what the organization requires in the future
- Maximizing value and gaining competitive advantage
- Control and sustainability of computerized integrated management systems; in order to achieve more informed decision-making from the vast amount of facilities data to be recorded
- Management of outsourcing and partnership agreements
- Environmental control
- Energy management
- Identifying customer needs and how to satisfy them.

Kincaid (1996) identifies three distinctive characteristics of FM: firstly, FM is a support role within an organization, or a support service to an organization. Secondly, FM must link strategically, tactically and operationally to other support activities and primary activities to create value. Finally, within FM, managers must be equipped with knowledge of facilities and management to carry out their integrated support role.

Spedding and Holmes (1994) also raised the importance for organization to create business competitiveness in order to compete globally and staying proactive in this challenging and busy FM industry. The authors suggested that the generic FM mission can be achieved through the provision of effective working environment, optimization of service quality and cost as well as maximizing and sustaining property value. The proper application of facilities management techniques enables organizations to provide right environment for conducting their core business on a cost-effective and best value basis.

In conclusion, Spedding and Holmes (1994) emphasized the aim of facilities management should be not just to optimize running costs of buildings, but to raise the efficiency of the management of space and related assets for people and processes, in order that the mission and goals of the firm may be achieved at the best combination of efficiency and cost.

2.4 FM Competencies

Another way of looking at the broad categories of FM functions is through the International Facilities Management Association's (IFMA, 2006) competency framework, which identifies nine key competencies required of a certified professional facilities manager. In this context, FM functions can be broadly categorized into operations and maintenance, real estate, health and environmental management, planning and project management, leadership and management, finance, quality assessment and innovation, communication, and technology. The details of the nine competencies are described in Table 3-8. It is doubtful if any one facilities manager or facilities management firm can attain the listed competencies or perform all the functions.

Table 3: FM Competencies (Source: IFMA, 2006)

COMPETENCY AREA	COMPETENCY	PERFORMANCES
OPERATIONS & MAINTENANCE	1 Oversee acquisition, installation, operation, maintenance and disposition of building systems.	1 Assess a facility's need for building systems. 2 Recommend building systems. 3 Oversee the acquisition, installation and operation of building systems. 4 Recommend policies. 5 Establish practices and procedures. 6 Determine and administer the allocation of building systems' resources. 7 Monitor and evaluate how well building systems perform. 8 Manage corrective, preventive and predictive maintenance. 9 Develop emergency procedures. Implement disaster recovery plans.
	2 Manage the maintenance of building structures and permanent interiors	1 Evaluate building structures and permanent interiors. 2 Manage the maintenance and cleaning needs of building structures and permanent interior elements.
	3 Oversee acquisition, installation, operation, maintenance and disposal of furniture and equipment.	1 Assess needs and oversee acquisitions. 2 Recommend policies. 3 Establish standards, practices and procedures. 4 Evaluate furniture and equipment performance. 5 Manage the maintenance and cleaning of furniture and equipment.
	4 Oversee acquisition, installation, operation, maintenance and disposal of grounds and exterior elements.	1 Assess the effect of climatic and extreme environmental conditions. 2 Assess the need for alterations in grounds and exterior elements. 3 Recommend policies. 4 Establish standards, practices and procedures. 5 Evaluate the performance of grounds and exterior elements. 6 Manage the maintenance and custodial needs of grounds exterior elements.

Table 4: FM Competencies (Source: IFMA, 2006) *(continued)*

COMPETENCY AREA	COMPETENCY	PERFORMANCES
REAL ESTATES	1 Manage and implement the real estate master planning process.	1 Manage the development and implementation of a real estate master plan for the organization. 2 Maintain the real estate master plan. 3 Evaluate and recommend action on development decisions.
	2 Manage real estate assets.	1 Manage the acquisition disposition of company leased and owned property. 2 Evaluate and recommend action on development decisions. 3 Direct highest and best use studies. 4 Evaluate the effects of economic change on real estate assets. 5 Evaluate the effects of proposed real estate changes on different business units. 6 Manage the real estate lease portfolio. 7 Inventory, track and report real estate assets. 8 Main real estate documents. 9 Manage development support services for other functions.
HUMAN ENVIRONMENTAL FACTORS	1 Develop and implement practices that promote and protect health, safety, security, the quality of work life, the environment and organizational effectiveness.	1 Evaluate and manage the facility's support of organizational goals and objectives. 2 Monitor changes in laws and regulations. 3 Assure the facility and its operation comply with laws and regulations. 4 Monitor and assure changes in the facility function and services. 5 Monitor changes in the people who use and visit the facility. 6 Monitor information and trends about human and environmental concerns. 7 Provide training to maintain safe and effective use of the facility. 8 Direct the development and administration of environmentally conscious programs. 9 Conduct due diligence studies.
	2 Develop and manage emergency preparedness procedures.	1 Develop emergency plans. 2 Assure people are trained in emergency procedures. 3 Assure all emergency systems and procedures are tested as planned. 4 Assure emergency drills are conducted. 5 Develop disaster recovery plans.

Table 5: FM Competencies (Source: IFMA, 2006) *(continued)*

COMPETENCY AREA	COMPETENCY	PERFORMANCES
PLANNING & PROJECT MANAGEMENT	1 Develop facility plans.	1 Interpret the overall business goals and the corporate strategies used to accomplish those goals. 2 Develop long-term, interim and short-term facility plans. 3 Maintain long-term, interim and short-term facility plans. 4 Evaluate long-term, interim and short-term facility plans.
	2 Plan and manage all phases of projects	1 Define the scope of the project. 2 Identify the project team. 3 Develop the project plan. 4 Generate alternative strategies. 5 Identify needed resources. 6 Develop bid specifications. 7 Set compliance and performance criteria. 8 Secure necessary resources. 9 Develop and coordinate the approval process. 10 Coordinate project tasks. 11 Monitor the project. 12 Identify and evaluate changes. 13 Control change orders. 14 Evaluate the results of the project.
	3 Manage programming and design.	1 Manage the programming phase. 2 Evaluate the adequacy of the program. 3 Manage the design phase. 4 Evaluate the design.
	4 Manage construction and relocations.	1 Manage construction projects. 2 Evaluate how well construction projects meet business needs. 3 Manage relocation projects. 4 Manage how well moves are performed.
LEADERSHIP AND MANAGEMENT	1 Plan and organize the facility function.	1 Create a mission for the facility function. 2 Assess business trends. 3 Plan facility function activities. 4 Organize the facility function.
	2 Manage personnel assigned to facility.	1 Plan staffing needs and requirements. 2 Hire, contract, reassign, retrain, right-size. 3 Coordinate personnel assignments. 4 Coordinate work performed as contracted services. 5 Evaluate performance.

Table 6: FM Competencies (Source: IFMA, 2006) *(continued)*

COMPETENCY AREA	COMPETENCY	PERFORMANCES
LEADERSHIP AND MANAGEMENT	2 Manage personnel assigned to facility *(continued)*	6 Support personnel development. 7 Provide leadership.
	3 Administer the facility.	1 Administer policies, procedures and practices. 2 Administer the acquisition, distribution and use of material resources. 3 Maintain documentation systems.
	4 Manage the delivery of facility services.	1 Plan for the delivery of services. 2 Assure services are delivered. 3 Evaluate service delivery.
FINANCE	1 Manage the finances of the facility	1 Analyze financial information. 2 Manage chargeback systems. 3 Prepare budgets. 4 Manage the budget. 5 Monitor revenues and expenditures to contain costs. 6 Manage the financial obligations of the facility function.
QUALITY ASSESSMENT & INNOVATION	1 Manage the process of assessing the quality of services and the facility's effectiveness.	1 Assure customer surveys are conducted. 2 Assure processes are documented. 3 Select methods to collect data. 4 Establish standards. 5 Analyze data. 6 Improve the facility and service delivery processes. 7 Monitor and promote the quality process.
	2 Manage the benchmarking process.	1 Establish benchmarks. 2 Determine the potential for improved performance. 3 Integrate findings into the facility management function and business goals.
	3 Manage audit activities.	1 Comply with laws and regulations. 2 Conduct internal audits. 3 Conduct mandatory audits as required by regulation.
	4 Manage developmental efforts of facility services to make innovative improvements in facilities and facility services.	1 Investigate ways to improve facility services. 2 Assess risks and oppurtunities. 3 Conduct pilot tests when developing new procedures.

Table 7: FM Competencies (Source: IFMA, 2006) *(continued)*

COMPETENCY AREA	COMPETENCY	PERFORMANCES
COMMUNICATION	1 Communicate effectively.	1 Use effective communication strategies. 2 Give directions. 3 Actively clarify interpretations and confirm understanding. 4 Make oral presentations. 5 Actively listen. 6 Present information visually. 7 Communicate in writing. 8 Use communication technologies. 9 Conduct effective meetings. 10 Comprehend written and graphic information. 11 Comprehend financial and technical information. 12 Negotiate for services, resources, information and commitments. 13 Establish personal and professional networks.
TECHNOLOGY	1 Plan, direct and manage facility management business and operational technologies.	1 Monitor information and trends related to facility managemet technologies. 2 Identify and interface with eternal and external accountable resources. 3 Identify evaluation criteria, evaluate and recommend facilities management technologies solutions. 4 Assess how changes to facility management technologies will impact current infrastructure, processes and building systems. 5 Plan for and oversee the acquisition, installation, operation, maintenance, upgrade and disposition of components supporting facility management technologies. 6 Recommend and communicate policies. 7 Establish practices and procedures. 8 Develop and implement training programs for facilities staff and ancillary resources. 9 Monitor performance of facility management technologies and make appropriate recommendations when modificatons are needed. 10 Manage corrective, preventive and predictive maintenance. 11 Develop, test and implement when necessary, emergency procedures and disaster recovery plans.

Table 8: FM Competencies (Source: IFMA, 2006) *(continued)*

COMPETENCY AREA	COMPETENCY	PERFORMANCES
TECHNOLOGY *(continued)*	2 Plan, direct, manage and/or support the organization's technological infrastructure.	1 Monitor information and trends related to technological infrastructure. 2 Identify and interface with internal and external accountable resources. 3 Contribute a facility management perspective to the identification of evaluation criteria, the evaluation and recommendation of the organization's technological infrastructure. 4 Assess how changes being made by other resources to infrastructure technologies will impact current infrastructure, processes and building systems. 5 Direct, manage, and/or support the acquisition, installation, operation, maintenance, and disposition of components supporting infrastructure technologies. 6 Manage or participate in the development of policies, practices and procedures. 7 Manage or participate in the development and implementation of training programs for facilities staff and ancillary resources. 8 Manage and support/or support corrective, preventive, and predictive maintenance efforts. 9 Manage or participate in testing, and implementing when necessary, emergency procedures and disaster recovery plans.

2.5 Value addition in FM functions

In this study, the criteria that add value to FM function as gleaned from the literature could be identified within the four broad respective facilities management functions; namely the strategic FM functions, operational FM functions, property or project management functions and general services functions. Each group may have its own unique value adding criteria that collectively contribute to the value added facilities management function.

Usher (2004) conceptualizes comprehensive evaluation criteria in clarifying value addition in FM functions. These aim to ascertain key challenges and success factors as well as to assist in determining the best decision on whether to retain services in-house or out-source them. The themes upon which the evaluation can be made are given in Table 9.

Table 9: Criteria for evaluating value addition in FM function (Source: Usher, 2004, p.353-354)

Criteria	Description
Cost	The total cost of the contract including all self-performed and subcontracted specialist services.
Quality	The service levels as defined in Service Level Agreements or other contractual or specified input or output structures.
Risk and Liabilities	The degree to which the effective cost of the contract may vary to either party.
Specialization and diversity	Many functions within an outsourcing contract are occasional rather than full-time equivalent roles of a specialized and marginal nature.
Responsibilities and accountabilities	The complexity and clarity of specific and general roles and assigned duties within and for the contract.
Flexibility	The potential and ability to action changes in the nature, magnitude, resource, location and focus of the service delivery when required.
Innovation	The degree to which newly designed or conceived processes, methods, solutions or products are brought to bear within the outsourcing contract.
Investment	In respect to the agreed length and determined stability of the contractual relationship, the degree to which time and money are dedicated to improvements in, and development of the scope and facets of the service delivery.
Information	The nature, format and validity of data, qualitative and quantitative, determining performance and metrics in relation to the provision of the services, and the regularity and manner of presentation of this information for the benefit of both client ad supplier.
Customer Orientation	The degree to which the provision of the services understands and responds to the specific needs of the customer at all levels, in support of its business in relation to its own customers and shareholders, its management and staff, and those persons interacting with the business on a regular basis.

Furthermore, Alexander (1996) observes that value is added to an organization at the workplace in the following ways:

- Through the provision of services in the most efficient and effective way;
- By the development and efficient implementation of quality managed systems
- Through the establishment of guidelines and service levels and, at the policy level
- Through development of a strategy and a framework within which to deliver services

Jan van Ree and McLennan (2006) corroborate Alexander's (1996) observation by associating value addition with the three concepts of:

- *Organizational effectiveness*: the extent to which actual result (output in quality and quantity) compares with the aimed result (output in quantity and quality)
- *Organizational efficiency*: the aimed resource use (input in quantity and quality) compares with the actual resource use (input in quantity and quality),
- *Organizational productivity*: the extent to which the actual result of the transformation process (input in quantity and quality) compares with the actual resource use (input in quantity and quality).

Jan van Ree and McLennan's concepts show that value is added through improving effectiveness and efficiency and ultimately, productivity in the transformation process from input to output.

2.5 Criteria underpinning the selection of outsourcing or in-house FM approach

Facilities management is a very wide field and consequently a continually changing one (Barrett, 1995). In practice, facilities management can cover a wide range of services including the real estate management, financial management, change management, human resources management, health and safety and contract management, in addition to building maintenance, domestic services (such as cleaning and security) and utilities supplies (Atkin and Brooks, 2005). This lends credence to the views expressed by Tranfield and Akhlagi (1995) that in the context of the whole organization, the role of facilities management has gradually evolved from merely

helping the organization to survive, to acting and to enhance its potential to prosper in a volatile commercial climate. It then follows that the challenge for facilities managers is indeed the same challenge facing the organization. Atkin and Brooks (2005), emphasize that these extensive facilities management functions may be successfully performed or provided either by in-house or out-sourcing approach, depending on the priority of the activities or services of an organization. Two possible options exist in the decision to outsource or not to outsource:

- the organization decides to retain or out-source the services on the whole basis,
- the organization out-sources part of the services and retain certain services in-house (particularly if the FM function is part of the organizational strategic management process).

Atkin (2003) observes that some organizations operate what might be described as a mixed economy – retaining some services in-house whilst contracting out others. Barrett (1995) re-echoed this observation by stating that some organizations favor a totally in-house option, while others literally contract out every service possible; yet others use a combination of both. The decision should be made having regard to the path that leads to long term best value for the organization. This is achieved by taking full account of the implications, especially the true cost of all options (Atkin and Brooks, 2005).

Consequently, Atkin (2003) envisage that there will be advantages or disadvantages to providing services either in-house or by outsourcing. Nevertheless, there are no hard and fast rules concerning what should be kept in-house and what should be contracted out (Barrett, 1995). This agrees with Atkin's (2003) argument that there is no general rule in this regards, rather a need to define the thinking, practice and procedures that will lead to best value for the organization.

2.6 Outsourcing in FM

Outsourcing is referred as a service commissioned from an external supply organization, usually under the terms of a formal contractual arrangement and based upon terms and conditions derived from a service-level agreement (Barrett and Baldry, 2003). There may be several of these contractual relationships operating in parallel for a range of services from a variety of suppliers. In this context, outsourcing is a process

where a user employs a separate company (the supplier), under a contract, to perform a function, which had previously been carried out in-house; and transfers to that supplier asset, including people and management responsibility. Atkin (2003) corroborates this definition by adding that outsourcing is the placing of the facilities management services required by an organization into the hands of external service providers.

From a somewhat different perspective, Lankford and Parsa (1999) describe outsourcing as the procurement of products or services from sources that are external to the organization. Outsourcing deals with the issue where certain non-core activities can be alienated and given to another organization with the purpose to deliver the services on the original organization's behalf (Collings, 2007).

Outsourcing is not a new concept (Winkleman et al., 1993; Huff, 1991; Moran and Taylor, 1998). It is a natural result of specialization and the decision as to whether an organization should 'make or buy' to ensure the supply of goods or services necessary for a firm's operation (Moran and Taylor, 1998). Over the past ten years, there has been significant shift toward the outsourcing of facility and real estate services in both public and private sector (Price and Akhlaghi, 1999; Jones, 2000; Roberts, 2001; El-Haram and Agapiou, 2002). With the extensiveness of facilities management role, outsourcing becomes the ideal prospect and valuable source for the demanding FM due to the restricted internal resources (Practical FM, 2006). The reason being, many organizations view that there is a need for outsourcing to provide the following crucial drivers that lead to the changing of business environment: competitive pressures of global economy, swift changing technologies, niche rivals that can change industries overnight, high demands of institutional investors, and governments' demand for improved services and less taxes (Greaver, 2007). Consequently, outsourcing evolves as a rapid growing transformation tool for effective business solutions that provides higher benefits with lower risk results (Greaver, 2007; Outsourcing Institute, 2005). This has given credence to the fact that the utilization of outsourcing approach is rapidly developing in the United States, Europe and Asia countries (Outsourcing Institute, 2005).

Outsourcing FM means having to contract one or more company's FM business processes to an outside service provider to help increase shareholder value, by primarily reducing operating cost and focusing on core competencies (HRO Today, 2003). Cost, quality, motivation, flexibility and availability of skills are all practical

reasons why out-sourcing may work to the core business advantage for the organization (Bernard Williams Associates, 1999).

Furthemore, outsourcing may be viewed as not just from the outcome of a costing exercise; it has a strategic dimension as the organization attempts to find the right size to fit new environments (Rothery and Robertson, 1995). Welch and Raganath Nayak (1992) cautioned that while cost is always important in any business decision, managers should consider strategic and technological issues in conjunction with the cost-driven decision to outsource. Cost efficiency remains primary explanation for the development of outsourcing where organizations evaluate outsourcing to determine if current operating costs can be reduced as well as access new resources such as technical expertise (Fill and Visser, 2000).

The decision to outsource can be made subjectively or objectively (Atkin and Brooks, 2005). Harkins (1996) notes that vision; function and economics drive the need for outsourcing. Apparently, the decision for outsourcing is vitally derived from the fact that it is able to support functions that can be completed faster where better quality can be guaranteed at cheaper and reasonable cost. McCarthy (1996) identifies several primary reasons why a firm may consider outsourcing:

- Outsourcing allows companies to refocus their resources on their core business.
- Outsourcing lets companies re-examine their benefit plans, makes them more efficient and saves time and money while improving efficiencies.
- Companies outsource to improve the benefit plan service level to their employees by making the information more consistent and more available.
- To reduce costs over the longer term.

Several findings point to the criteria that drive outsourcing decisions. Winkleman et al. (1993) identify two basic drivers behind the growth of outsourcing: cost reduction and a strategic shift in the way organizations are managing their business. Furthermore, Beulen et al. (1994) indicate that there are five main drivers for outsourcing; quality, cost, finance, core business and cooperation. Hiemstra and van Tilburg (1993) designate four motives for outsourcing; costs, capital, knowledge and capacity.

Behara et al. (1995) emphasize the factors that need to be considered in outsourcing decision in the context of a specific firm's situation as follows:-

- Impact on company competitiveness
- Identifying services to be outsourced
- The number of suppliers to be used
- Ability to return to in-house operations if required
- Supplier reliability and service quality
- Coordinating with the supplier and evaluating performance
- Flexibility in the products offered by the supplier
- Providing the latest or advanced technology and expertise.

The Outsourcing Institute (2005) adds to the lists of significant reasons companies choose to outsource: improve focus, reduce costs, gain access to world class capability, free up resources, resources not available internally, reduce time to market, take advantage of offshore capabilities, and accelerate engineering benefits, share risks and functions difficult to manage. Figure 1 illustrates top ten reasons companies outsource and its transition from year 2002 to 2005.

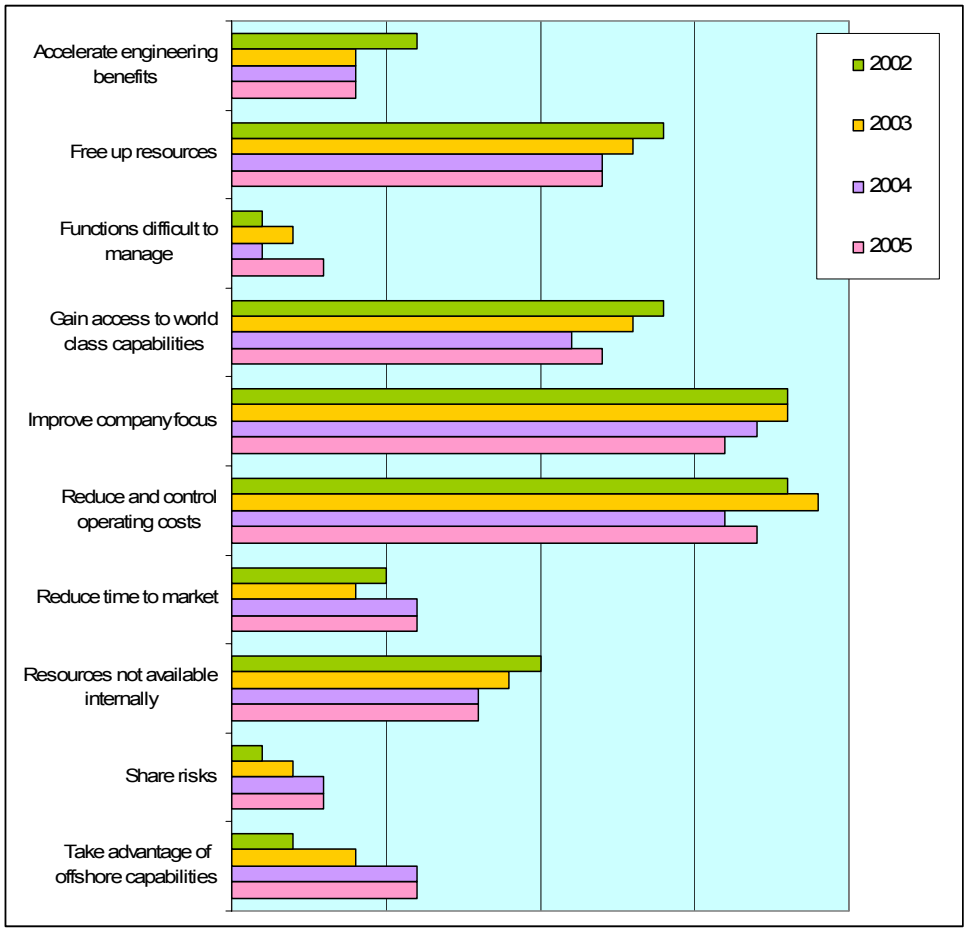


Figure 1: Top ten reasons companies outsource (Source: Outsourcing Institute's 8th Annual Index, 2005).

From a holistic perspective, Atkin (2003) identify the key factors that should be taken into account in choosing to outsource:

- Organizations should identify the key characteristics of services they require so that a balanced view of needs is established as the basis for evaluating available options as part of the decision to retain in-house or to outsource.
- Organizations should define their own evaluation criteria with respect to these attributes of service so that the importance or weight given to options is truly reflective of the organization's real estate and facilities management strategies and policies.

- Attention should be paid to direct and indirect costs of both in-house and contracted service provision made on like-for-like basis to enable decision to be taken on best value grounds.
- Support services should represent the best value, on the basis of affordability, in the implementation of the objectives of the organization's strategic plan, irrespective of the cost of those services.
- Evaluation criteria for the sourcing decision must embrace hard and soft measures and compare all costs with the required quality.
- Roles and skills must be defined from the services to be provided, with specialist skills highlighted.
- Since the factors affecting the choice of in-house or outsource facilities management may change, the route by which services are procured should be reviewed at appropriate intervals and in appropriate manner.

2.6.1 FM functions suitable for outsourcing

The key to deciding what to outsource rests with those elements that differentiate the organization, especially in the areas of value and quality (Fill and Visser, 2000). Inevitably, Fill and Visser (2000) note that while management must own those operations that define a company's core business and its core business process, other functional areas that are non-core should be considered potential candidates for outsourcing. The authors also argue that by outsourcing non-critical functions, a company can leverage its financial resources, share its financial risk and allow management to concentrate more fully on core business activities. Mudrak et al. (2004) corroborate this by observing that outsourcing all the non-core activities enables the management of client organization to focus on core business.

Blumberg (1998) lists the viable circumstances for which the FM functions are suitable for outsourcing:-

1. Customers are concerned with the outcome of the functions performed and pay little attention to the process.
2. Capabilities are readily available in the mass market and proximity or access to the customer is not an issue.
3. The technology to perform the function is very stable.
4. World class performance is a critical success factor.
5. External vendors are clearly more competent.

6. Significant capital and resources are required to improve any performance gap.
7. Organizations have plans to harvest or exit the business in the near future.

The Outsourcing Institute (2005) reports ten activities that are largely outsourced: transportation, sales/marketing, finance, contact/call centers, manufacturing, facilities management, distribution/logistics, human resources, administration and information technology (IT) (see Figure 2).

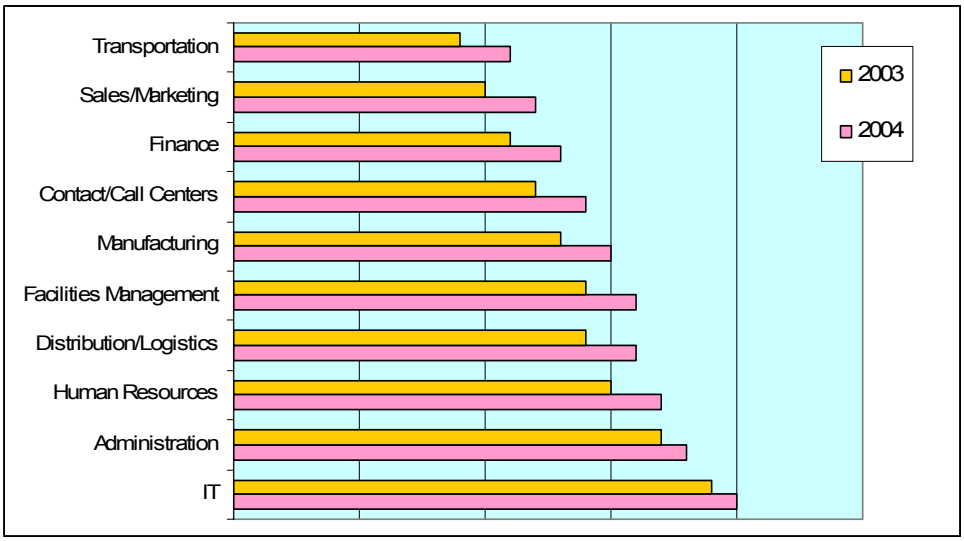


Figure 2: Top ten activities being outsourced (Source: Outsourcing Institute Annual Outsourcing Index, 2005).

2.6.2 Advantages & disadvantages of outsourcing

Decision to outsource services leads to both advantages and disadvantages. Gilley and Rasheed, (2000) observe that sole reliance on outsourcing is not usually a viable competitive strategy. In support of this, Markides and Berg (1988) argues that continuously switching from one supplier to another may merely postpone the "day of reckoning" when firms must fix what is wrong with their organizations.

Advantages of outsourcing

On the positive side, outsourcing creates competitive advantage when products or services are produced more effectively ad efficiently by outside suppliers. This lends

credence to the observations of Gilley and Rasheed (2000), that organizations are increasingly turning to outsourcing in an attempt to enhance their competitiveness. The authors identify firms that outsource may achieve long-run advantages compared to firms relying on internal production. Additionally, Lankford and Parsa (1999) observe that the advantages in outsourcing can be operational, strategic or both. Operational advantages usually provide short-term trouble avoidance, while strategic advantages offer long-term contributions in maximizing opportunities. Perhaps, this lends credence to Quinn's (1992, p.15) remarks that "virtually all staff and value chain activities are activities that an outside entity, by concentrating specialists and technologies in the area, can perform better than all but a few companies for whom that activity is only one of many". A much better reason is the specialized knowledge that the contractor can provide (Davies, 1995).

Cutting costs is the foremost benefit gained from outsourcing. Bettis et al., (1992) concur that outsourcing firms often achieve cost advantages relative to vertically integrated firms. The authors further opine that through outsourcing, manufacturing costs decline and investment in plant and equipment can be reduced. This leads to the declination of investments as manufacturing capacity lowers fixed costs and shortens break-even point. Moreover, the decision to outsource enables organizations to achieve costs reduction, expand services and expertise, improve employee productivity and morale, as well as achieve greater potential towards sharpening corporate image (Fill and Visser, 2000). Fill and Visser also note that outsourcing allows companies to better weather market downturns while accepting only slightly lower earnings during favorable economic periods. The short-run cost improvement swiftly reinforces the outsourcing decision (Bettis et al., 1992).

Furthermore, Gilley and Rasheed (2000) observe that firms focusing on outsourcing can switch suppliers as new, more cost effective technologies become available. On the other hand, in-house production increases organizational commitment to specific type of technology and may constrain flexibility in the long run (Harrigan, 1985). Indeed, outsourcing has helped companies ameliorate competitive pressures that squeeze profit margins and eliminate investments in fixed infrastructure, which allowed for improved quality and efficiency; increased access to functional expertise; and offered potential for creating strategic business alliances and fewer internal administrative problems (Fill and Visser, 2000). In addition, outsourcing allows for quick response to changes in environment (Dess, Rasheed, McLaughlin & Priem, 1995) in ways that do not increase costs associated with bureaucracy (D'Aveni & Ravenscraft, 1994).

An increased focus on an organization's core competencies is another crucial benefit associated with outsourcing (Dess et al., 1995; Kotabe & Murray, 1990; Quinn, 1992; Venkatraman, 1989). Outsourcing non-core activities allows the firm to increase managerial attention and resource allocation to those tasks that it does best and to rely on management teams in other organizations to oversee tasks at which the outsourcing firm is at a relative advantages (Gilley and Rasheed, 2000).

Outsourcing has some non-financial benefits. Kotabe & Murray (1990) observe that it promotes competition among outside suppliers, thereby ensuring availability of higher quality goods and services in the future. Dess et.al, (1995) and Quinn (1992) add to the non-financial advantages of outsourcing: quality improvements may also be realized by outsourcers because they can oftentimes choose suppliers whose products or services are considered to be among the best in the world. Outsourcing also spreads risk. This is because by using outside suppliers for products or services, an outsourcer is able to take advantage of emerging technology without investing significant amounts of capital in that technology. Hence, the outsourcer is able to switch suppliers when market conditions demand.

Blumberg (1998) provides a fresh perspective to the list of potential benefits gained from outsourcing: effective means of reducing costs by contracting with a third party who can provide better service and high quality at a lower cost, improvement of operating efficiency, increase return on assets and improve profitability.

Wise (2007) provides further benefits of outsourcing:

1. Current business trends indicate that outsourcing was the way to go (especially in IT functional areas)
2. Results of short-term financial analysis usually support outsourcing rather than in-house option
3. Outsourcing enables the organisation to pick the best service provider in terms of experience, quality, speed and efficiency.

Barrett and Baldry (2003) rank the advantages of outsourcing in Table 10 as follows:-

Table 10: User-perceived advantages of outsourcing in ranking order (Source: Barret and Baldry, 2003, p.136).

Ranking by weighted average	Categories of potential advantages
1	Reduced costs / economies of scale
2	Concentration on core business / strategic appreciation of service
3	Right-sized headcount / reduce space
4	Improved productivity / operational efficiencies
5	Increased flexibility / workload pattern
6	No obsolescence / latest technology / specialist knowledge / current statutory knowledge
7	Overcome skills shortage / specialist equipment shortage
8	Added value at no extra cost / quality / value for money
9	Reduced management burden
10	Career path development
11	Implementation speed / response time
12	Improved management control / performance levels targeted
13	One-stop shopping / one invoice / contractor acts as screen between user and suppliers
14	Improved accountability / performance levels monitored / user risk reduced
15	Optimal equipment configuration
16	Assist user to obtain competitive advantages in market-place
17	No operational headaches
18	No capital outlay / latest technology for least capital outlay
19	Tax gain

In a broader perspective, Greaver (2007) perceived the priority of outsourcing depends on which chair one sits. Outsourcing requires professional and strategic manner approach as it has long term inferences. In this context, the significant reasons for outsourcing can be listed as shown in Table 11.

Table 11: Reasons to outsource and related benefits (Source: Greavor, 2007)

REASONS	BENEFITS
1. Organizationally Driven	• Enhance effectiveness by focusing on what the organization do best • Increase flexibility to meet changing business conditions, demand for products/services and technologies • Organization transformation • Increase product/service, customer satisfaction and shareholder value
2. Improvement Driven	• Improve operating performance • Obtain expertise, skills and technologies, which would not otherwise be available • Improve management and control • Improve risk management • Receive innovative ideas for improving the business, products, services, etc • Improve credibility and image by associating with superior providers
3. Financially driven	• Reduce investments in assets freeing up these resources for other purposes • Generate cash by transferring assets to provider
4. Revenue driven	• Gain market access and business opportunities through the provider's network • Accelerate expansion by tapping into the provider's developed capacity, processes and systems • Expand sales and production capacity during periods when such expansion could not be financed • Commercially exploit the existing skills
5. Cost driven	• Reduce costs through superior provider performance and the provider's lower cost structure • Turn fixed costs into variable costs
6. Employee driven	• Give employees a stronger career path • Increase commitment and energy in non-core areas • While it is not an exhaustive list, it should provide food for thought

In summary, the Outsourcing Institute (2005) pointed out that a successful outsourcing approach or implementation may evolve in the balance of the two notable elements: infusing and implementing best practices and methodologies, with unit cost savings, truly value-added services and guaranteed service-level commitments and culture, language, relationship and empathy.

Disadvantages of outsourcing

Bettis et.al, (1992) and Kotabe (1992) note that reliance on outside suppliers is likely to lead to a loss of overall market performance. One of the most serious threats resulting from a reliance on outsourcing is declining innovation by the outsourcer (Gilley and Rasheed, 2000). Additionally, outsourcing can lead to a loss of capacity for and benefits of long-run research and development (R&D) (Teece, 1987). This is because it is all too easy to use outsourcing as a substitute for innovation. As a result, firms that outsource are likely to lose touch with technological breakthroughs that offer opportunities for product and process innovations (Kotabe, 1992).

From the business perspective, outsourcing vendors may gain knowledge of the product being manufactured and in fact use the knowledge to begin marketing the product of their own (Prahalad & Hamel, 1990). Gilley and Rasheed (2000) cite an instance where many Asian firms have made their initial entrance into U.S. markets by first entering supplier arrangements with U.S. manufacturers and subsequently marketing their own brands aggressively. Therefore, many Asian firms have achieved market dominance over their U.S. rivals.

In this context, Collings (2007) lists the problems experienced with outsourcing to include the following:

1. Outsourcing vendor unable to deal with volume of activities.
2. Variance in work ethic between organization and outsourcing vendor.
3. Outsourcing vendor unable to perform task in specified time and fail to produce contractual results.
4. Inadequate contract performance measures and penalties.
5. Lack of capability to deal with time management when associating with outsourcing vendor.
6. Lack of flexibility.
7. Contract solely focuses on cost cutting issues.

Several other risks have been associated with outsourcing as summarized by Barret and Baldry (2003) in **Table 12**.

Table 12: User perceived disadvantages of outsourcing in ranking order (Source: Barret and Baldry, 2003, p.137**)**

Ranking by weighted average	Categories of potential disadvantages
1	Claimed savings based on forecast hopes / not always cost-effective
2	Personnel problem – shift from user to supplier / those leaving versus staying; unions / redundancies
3	Lack of control of suppliers
4	Risk of selecting a poor supplier / supplier market being incompetent
5	Personnel problem – loyalty to user
6	Confidentiality of data / security issues
7	New (different) management problems
8	Worse strategic focus / can't separate strategic from operational
9	Strategic risk / outsourcing critical segments may jeopardize user's organization
10	Lose in-house expertise or capability
11	Long-term fixed contracts
12	Supplier's capacity
13	Contrary to culture of user's organization
14	Ownership of new applications with supplier
15	Ignores in-house solution
16	Supplier's commitment being questionable
17	Supplier's availability not reliable
18	Supplier's continuity not assured
19	Hidden costs surface at the critical stages
20	Decision time required when considering outsourcing
21	Lack of independent advice by supplier
22	Learning curve for supplier
23	Slower response time to problems
24	Lack of flexibility
25	User tends to wrongly rationalize outsourcing decision as correct
26	Taxation penalty

2.7 In-house provision of FM functions

In-house approach is a “service that is provided by a dedicated resource directly employed by the client organization, where monitoring and control of performance is normally conducted under the terms of conventional employer / employee relationship, although internal service-level agreements may be employed as regulating mechanisms” (Barret and Baldry, 2003, p.17). An in-house approach remains to deal internally with product or services that require skill and knowledge in order to serve customers better.

2.7.1 Advantages & disadvantages of in-house delivery of FM functions

Advantages of in-house provision of FM functions

Wise (2007) provides insight to the benefits of in-house provision of FM functions:

1. People who are in-house own their work. In-house employees usually will perform better than outsourced employees who make decisions based on how they will affect their own employers, not the people for whom they are working by proxy.
2. Results of long-term financial analysis usually support in-house rather than outsourcing option. For instance, USA-based Abrazo Health Care saved $2 million by providing its IT data centre in-house, rather than outsourcing it.
3. In-house option has been found to result to improved employee as well as customer satisfaction at the same time.
4. In-house offers the company the opportunity to grow people instead of hiring from outside, and so provide career prospects that reduce staff turnover.
5. Outsourcing could enable the organisation to pick the best service provider in terms of experience, quality, speed and efficiency. However, these may be quick fixes which are not sustainable in the long run.

Disadvantages of in-house provision of FM functions

Several draw backs associated with in-house provision have been identified in previous research. One of the demerits noted by Atkin and Brooks (2005) is that the retention of estates-related and facilities management services might be considered of less interest, even of lower importance, as a topic when compared to outsourcing. The authors further argue that in a sector that has sustainable and compatible outsourcing practices, it may be considered that in-house provision has lower economic worth.

Atkin and Brooks (2005) provide further insight on the disadvantages of in-house provision of FM functions:-

1. A poorly defined scope will lead, almost inevitably, to problems in the management of the service with higher supervision costs and lowering of customer satisfaction. Consultation with all stakeholders is essential.
2. Without delineation of roles and responsibilities, it can be difficult to measure the performance of in-house personnel.
3. Given that the organization's management may be looking periodically at the market for external service provision, it makes sense for the in-house team to operate in business like way so that it can compete fairly if the need arises. Most of the organizations manage to do this, but the weakness is in maintaining a consistent level over time.
4. One of the biggest threats to the in-house team's success is from complacency, which is easily noticed by customers.

Bernard Williams Associates (1999) note that many in-house set-ups may be uncompetitive in financial and performance terms. The author further observes that cost, quality, motivation, flexibility and availability of skills are all practical reasons why outsourcing may work better for the core business advantage of the organization than 'in sourcing'.

One of the major problems for the in-house team is the rate at which their accumulated experience gets out of date once they are removed from the competitive cross-company contracting environment, which is so essential to the ability of any individual to retain his market-edge in knowledge and pragmatism (Connors, 2003). Connors (2003) sees further disadvantages of in-house provision of FM functions as follows:-

1. The prolonged application of increasingly out-dated concepts to the organization's changing requirements.
2. Well-managed in-house departments frequently run up costs of facilities way above outsourced norm simply by over-providing quality of service.
3. In-house teams sometimes do not have the authority to take on temporary relief staff as easily as their external counterparts.

2.8 Summary of literature review

The reviewed literature has provided insights into the current trends and thinking in the field of FM. In addition, related works of researchers in the past have been studied with a view to visualizing gaps in the literature where the current study may contribute to filling.

In relation to the research objectives, the reviews have provided part answers as proffered by researchers in the past. These are discussed as follows.

Findings in relation to the first objective

The first objective of the study is to identify the key criteria underpinning value addition in FM services. Outcomes from the literature review show that the criteria for assessing value addition in FM services include cost, quality, risk and liabilities, and other criteria listed in **Table 9**.

However, notwithstanding the above criteria for assessing value addition as gleaned from the literature, other equally important criteria might exist, especially those that are unique to the New Zealand context. This study will explore additional criteria used by client organizations in assessing value addition in FM services. In addition, the studies will priorities the criteria in order to establish their perceived relative levels of importance in influencing decisions to outsource or use in-house approaches.

Findings in relation to the second objective

The second objective of the study is to compare in-house and outsourcing approaches to providing FM services. Findings from the literature are in respect of the generic

advantages and disadvantages of the both options. For instance, outsourcing offers advantages including reduced costs / economies of scale, concentration on core business / strategic appreciation of service, improved productivity / operational efficiencies, and other benefits highlighted in Section 2.6.2. On the other hand, in-house option is more appropriate in some context including in-house ownership of the work by the employees, superior financial performance in the long-term, improved employee and customer satisfaction, lowering staff turnover through the provision of career prospects for employee, and other benefits highlighted in Section 2.7.1.

Gap in the literature

There is a general lack of specific guideline as to the suitability or otherwise of both approaches for providing specific FM functions. This represents another gap in the literature, which this study aims to fill.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research design

The descriptive survey method was used as the preferred research approach. This is in line with Zikmund's (1997) recommendations, as the opinions of respondents provided the primary data for the research. The data were gathered through the application of the observation technique involving two stages of data gathering: unstructured pilot interviews and structured questionnaire surveys. The questionnaires were structured using the constructs sourced from the literature, but with open-ended sections for further inputs by respondents.

The study was limited to the views expressed by the property and facilities managers registered with the Property Institute of New Zealand (PINZ) and the Facilities Management Association of Australia (FMAA). The membership directories of both organizations provided the sampling frame for the study. The questionnaires were self-administered; participation was voluntary. Questionnaire forms were distributed by posts, and some through fax and email. Completed questionnaires distributed by post were returned using enclosed stamped and self-addressed envelopes; others were received by fax or as attachments to emails.

At the qualitative data gathering stage, unstructured pilot interviews were conducted with a convenience sample of seven property and facilities managers selected randomly from the target sampling frames. Recurring themes on the key variables underlying value-adding FM services were analyzed and incorporated into a questionnaire, which was pre-tested and distributed to a randomly selected sample comprising 120 facilities and property managers in the sampling frame who did not take part in the pilot interviews and pre-tests. In the questionnaire surveys, respondents were asked to rate on a five-point Likert scale, the levels of importance of the identified variables underlying value addition in FM services and the level of suitability of both outsourcing and in-house in providing each service function. Using multi attribute analysis, the mean ratings representing the majority opinions were computed. The outcomes of the analysis provided the basis for the development of a framework for choosing between outsourcing and in-house FM routes.

3.2 Research strategy

Figure 3 presents the flowchart of the process used in carrying out the research project from conception to completion.

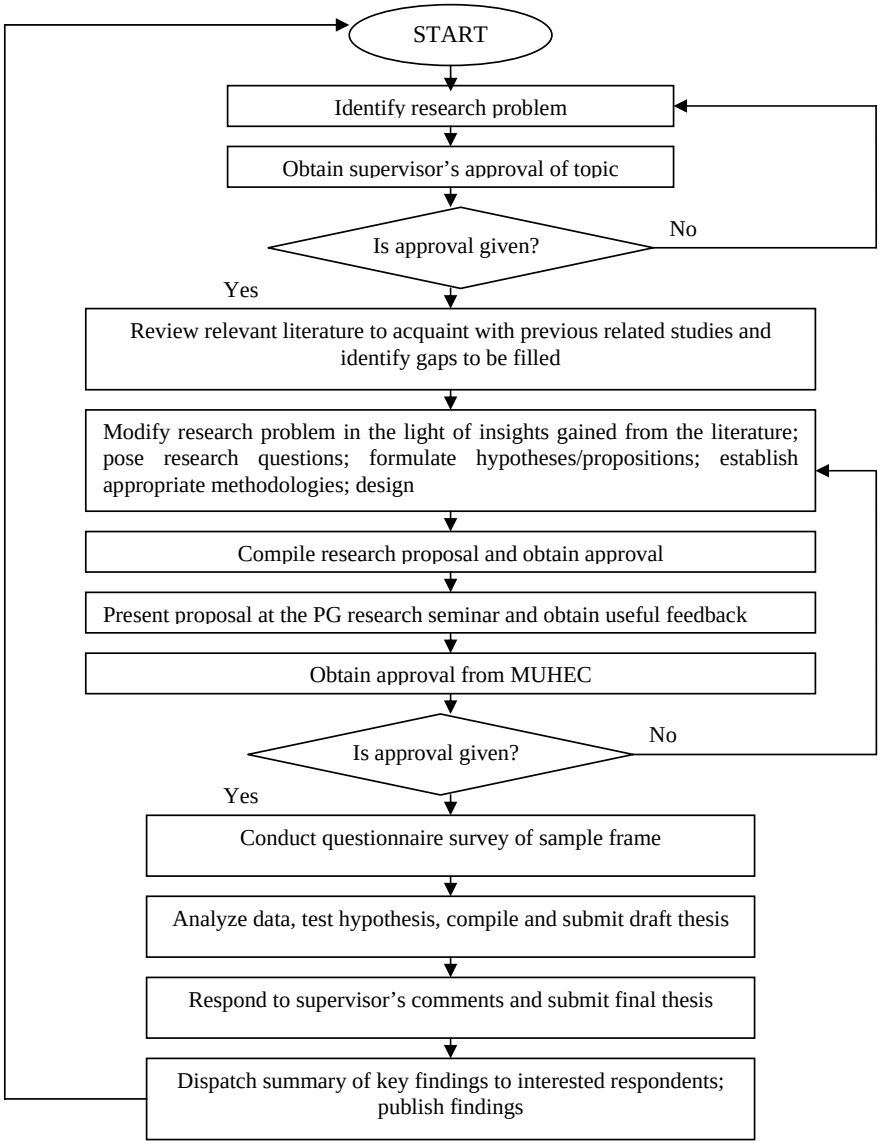


Figure 3: Flowchart of the process used in carrying out the research project from conception to completion.

3.3 Target Population & Sampling Frame

The target populations of respondents for the study were property managers and facilities managers in New Zealand. The sampling frame was registered members of the Property Institute of New Zealand (PINZ) as provided by the membership directory.

3.4 Data Gathering

Secondary data

The secondary data for the study were sourced from relevant literature including journals, conference proceedings, and other documents existing in the public domain. Completed thesis and research reports from reputable tertiary institutions were also consulted. Information from these sources helped in putting the current research in context and as well provides part answers to the research objectives.

Primary data

The primary data for the study were opinions of facility managers and property managers registered with the PINZ. These were obtained through questionnaire surveys involving the use of self–administered open-ended questionnaires.

3.5 Data Analysis

Content analysis and multi-attribute methods were used in analyzing the data obtained from the questionnaire survey. Content analysis served the purpose of cross-tabulation and frequency counts. It was considered the best approach for this purpose as recommended by Zikmund (1997), given that frequency counts were adequate to meet the relevant research objectives.

The multi-attribute analytical technique was essentially used to analyze the ratings of the respondents with a view to establishing a representative or mean rating point for each group of respondents. The analysis drew from the Multi-attribute Utility approach of Chang and Ive (2002), and involved the computations of the Mean Rating (MR) and the Relative Importance Index (RII) for each attribute under a subset. The MR indicates the mean or average rating point of the respondents for the level of importance of an attribute within a subset of attributes. In each computation, the total number of respondents (TR) rating each attribute was used to calculate the percentages of the number of respondents associating a particular rating point to each attribute as shown in Equation 1.

$$MR_j = \sum_{k=1}^{5} (R_{pjki} \times \%R_{jk}) \quad (1)$$

(Where: MR_j = Mean Rating for attribute j; R_{pjk} = Rating point *k* (ranging from 1 – 5); $R_{jk\%}$ = Percentage response to rating point *k,* for attribute j). The Mean Rating of the level of suitability of either outsourcing or in-house FM approach to meeting a given attribute was computed in the same manner.

Relative Importance Index (RII): This was used to compare the MR values of the variables in a given subset. It was computed as a unit of the sum of MR's in a subset of variables:

$$RII_i = \frac{M_i}{\sum_{i=1}^{N} M_i} \quad (2)$$

Criterion Suitability Score (CSS)

The CSS value served to assess the level of suitability of the use of either outsourcing or in-house FM in providing each FM need within a subset. The CSS of the i^{th} criterion in a subset was computed as follows:

$$CSS_i = RII_i \times MR_i \quad (3)$$

Where: RII_i = Relative Importance Index of the criterion; MR_i = the Mean Rating (i.e. the level of suitability of the use of either outsourcing or in-house in meeting the criterion).

Overall Suitability Score (OSS)

The OSS indicated the overall suitability of the use of either outsourcing or in-house FM in meeting each subcategory of FM needs. The OSS of a subcategory of FM needs was computed as follows:

$$OSS = \sum_{i=1}^{N} CSS_i \qquad (4)$$

1 < OSS < 5

The OSS value therefore provided the basis for choosing either the in-house or outsourcing route in meeting a particular subcategory of FM needs. To enable the mapping of the OSS value into a continuum, the five-point Likert scale was transformed into the following rating bands:

OSS value	Overall suitability of outsourcing or in-house FM
< 1.51	Not suitable (NS)
1.51 – 2.49	Somewhat suitable (SS)
2.50 – 3.49	Moderately suitable (MS)
3.50 – 4.49	Highly suitable (HS)
> 4.49	Very highly suitable (VHS)

Rank correlation analyses

For the purpose of improving reliability and validity of the research findings, the opinions of facilities and property managers were compared with a view to establishing "multiple sources of evidence" (Tan, 2002, p.63) or measuring internal consistency through the "equivalent-form method" (Zikmund, 1997, p.341). The comparison involved matching the sets of ranks analyzed from the responses of project managers and contractors on the attributes of dimensions being rated.

Both Cooper and Emory (1995) and Zikmund (1997) recommend the use of Spearman rank-order correlation as the appropriate statistical technique in situations involving the ordinal level of measurement and two related sample cases. Naoum (2003) also supports the use of Spearman correlation test where "the problem is to measure the amount and significance of a correlation between people's rank on a number of issues"

(p.124). The Spearman rank-order correlation coefficient rho (ρ) is computed (Zikmund, 1997, p.649) using Equation 1.

$$\rho = 1 - \frac{6\sum_{i=1}^{n} di^2}{n^3 - n} \quad (1)$$

Where d_i is the difference between the ranks given to the i^{th} attribute by each group; n is the number of attributes being ranked.

T-Score

The Spearman rank-order correlation coefficient ρ, computed in Equation 1 assumes a normal distribution where the data points are thirty or more. For a small sample size, with data points less than thirty, Zikmund (1997) recommends converting the ρ to Student-T test statistic for a more accurate result.

The Student-T test statistic is computed using Equation 2 below:

$$\text{T-score} = \rho\sqrt{\frac{n-2}{1-\rho^2}} \quad (2)$$

Where:

n = number of objects ranked

t = Student t test statistic computed as a transformation of the Spearman's rank correlation coefficient correlating both sets of paired ranks of the CSS scores computed from property and facilities managers' ratings

t_c = Critical value of Student t test statistic for a given degree of freedom, df (i.e. n-2) corresponding to n number of pairs of ranked objects at 0.05 level of significance.

Test of significance

To associate some level of confidence in the outcome of the proposition testing, the propositions were formulated as hypothesis and tested with the appropriate test statistic (Zikmund, 1997; Tan, 2002).

In the test of significance of the computed value of Spearman rank correlation coefficient, the null hypothesis (H_0) assumes that no significant correlation exists between the two sets of ranks of n attributes computed from the ratings of property and facilities managers. In statistical terms, this implies that the computed rho (ρ) is less than or equal to the critical rho ($\rho_{\square}$). In the study, an alternative hypothesis (H_A) is chosen for one tailed test, which assumes that a significant and positive correlation exists. At 5 percent level of significance, both H_0 and H_A could be stated as statistical hypotheses as follows:

H_0: $\rho \leq \rho_{\square}$ (i.e. no significant correlation exits) (3)

H_1: $\rho > \rho_{\square}$ (i.e. significant and positive correlation exits) (4)

3.6 Research Model / Conceptual Framework

The conceptual framework that provides insights into the expected outcome and use of the research findings is shown in Figure 4. It is basically a flow chart of the process to choosing between outsourcing and in-house approaches to meeting FM functions, as envisaged in the study.

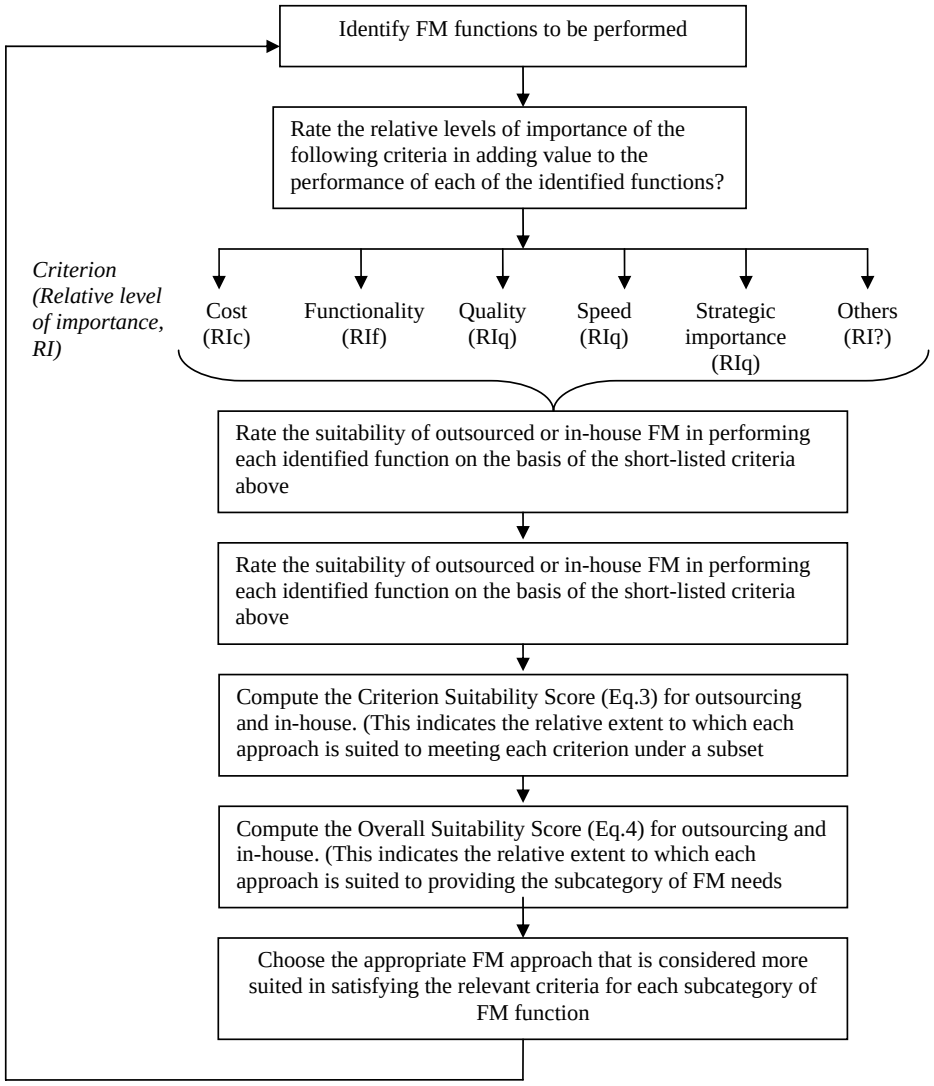


Figure 4: Research model / Conceptual Framework

3.7 Research programme

The timescales planned for the execution of the various stages of the research project are shown in Table 6. It shows that the final completion of the study was forecast to be around late July 2007. The plan provides the basis for monitoring progress to ensure completion of the project at the stipulated time.

Table 13: Research Programme: Snapshot as at December 2006

	Activity	Duration (Months)	Calendar 2006						Calendar 2007						
			Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
1	Literature Survey	5													
2	Research Proposal	`1 1/2													
3	Interviews	2													
4	Questionnaire administration	4													
5	Data analysis	`1/2													
6	Report compilation	`1/2													
7	Presentation of findings	`1/4													
8	Corrections & final submission	`1/4													

3.8 Ethical issues in research

3.8.1 Clearance for research undertaking

As part of Massey University's Policy on research involving human participants, application for permission to undertake the questionnaire survey was made to the Massey University's Human Ethics Committee (MUHEC) prior to obtaining the research data. The application was approved (see Appendix D) on the basis of the following principles; details are provided in the MUHEC Code of Ethical Conduct (Massey University, 2006):

1. Respect for persons
2. Minimization of risk of harm
    - Risk of Harm to Participants
    - Risk of Harm to Researchers
    - Risk of Harm to Groups/Communities/Institutions
    - Risk of Harm to Massey University
3. Informed and voluntary consent
4. Respect of privacy and confidentiality
5. Avoidance of unnecessary deception
6. Avoidance of conflict of interest
7. Social and cultural sensitivity
8. Justice

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

4.1 Overview

In this chapter, data obtained from questionnaire administration are presented and analyzed. The chapter subsections include questionnaire survey, criteria underpinning value-added facilities management service, suitability of the uses of outsourcing and in-house approaches in providing FM functions and the framework for choosing between outsourcing and in-house FM routes.

The demographic data serve not only to classify the responses but also to scrutinize particulars of the respondents to ensure compliance with the data admissibility criteria initially set for the responses.

Preliminary analyses were carried out on the usable data to obtain variables for testing the research propositions.

4.2 Questionnaire survey

4.2.1 Survey responses

In total 140 questionnaires were dispatched to the target population of facility managers and property managers. Only 75 responses were received by the cut-off date, out of which 60 were found usable. This represented an effective 43% response rate. The discarded responses were from respondents who failed to meet the required quality and consistency checks used in the screening processes. These included responses from respondents who did not belong to the sampling frame or from members whose responses appeared not to be thoughtfully made.

4.2.2 Demographic profiles of respondents

The demographic profiles of the respondents are summarized in Figure 5.

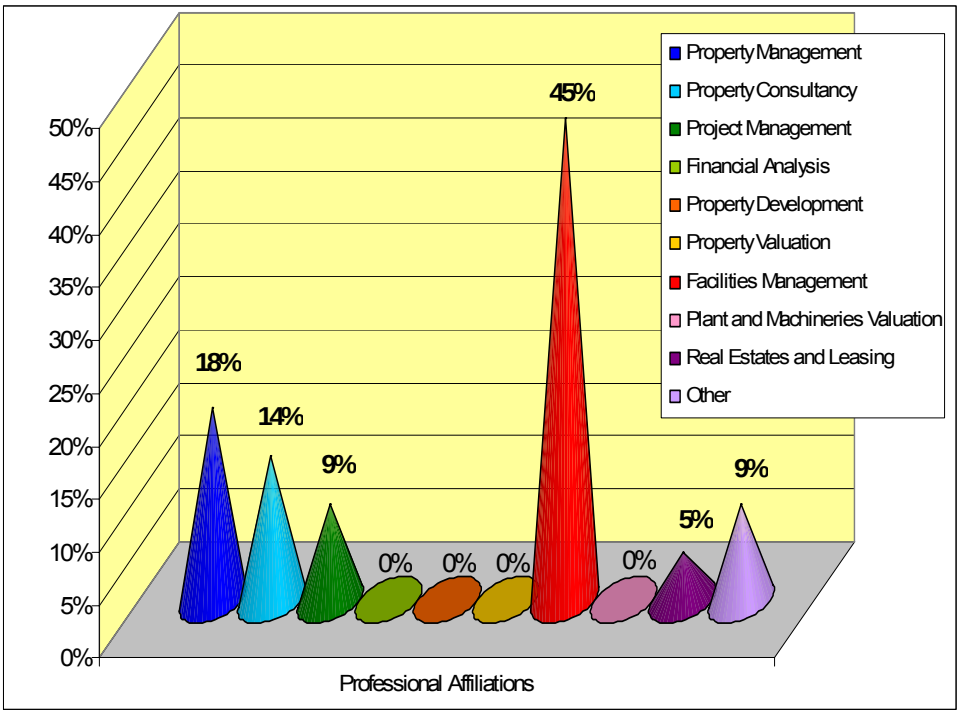


Figure 5: Professional Affiliations of Respondents

The above Figure 5 shows that the categories of professional or organizational affiliations of the respondents encompass facilities management (45%), property management (18%), property consultancy (14%), project management (9%), real estates and leasing (5%), as well as from other entities that constitute 9% of the responses. These comprise property brokers, analysts and researchers. The findings of the study and the conclusions reached were therefore biased towards the views expressed by facilities and property manages. This should be acceptable, as the facilities and property managers are at the forefront of property and facilities management practice and so should be in positions to give more authoritative feedback on issues concerning outsourcing and in-house approaches to providing facilities services.

4.2.3 Length of experience of the respondents

The length of experience of the respondents in the property industry / facilities management practice is summarized in Figure 6.

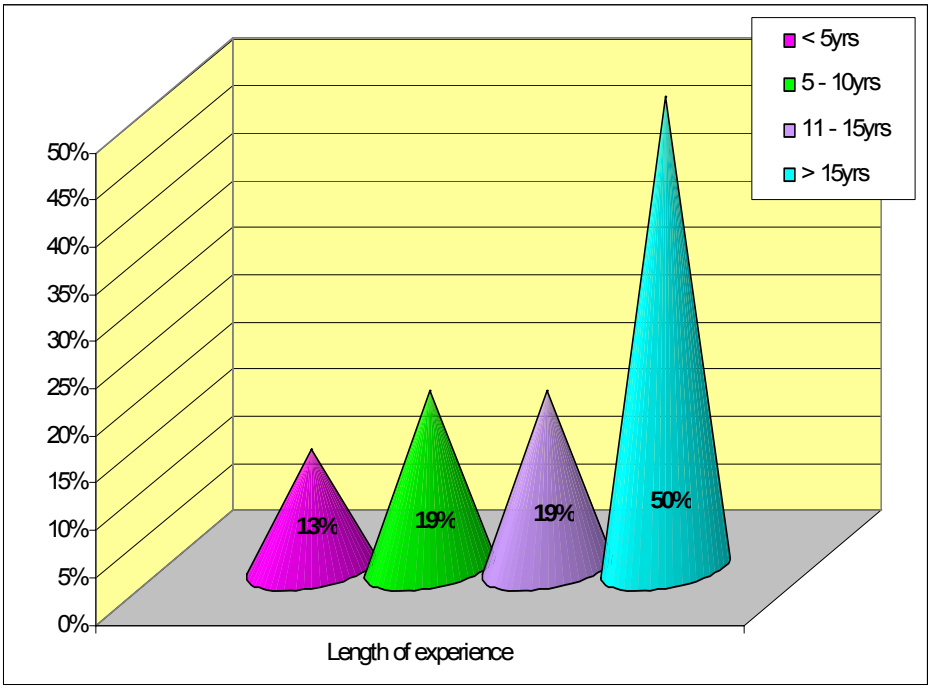


Figure 6: Respondent's length of experience

Figure 6 shows that half of the respondents (i.e 50%) have more than 15 years of working experience in property and facilities management related fields. This profile means that the respondents' extensive experience contributes to the quality of the responses received, and to the reliability and validity of the conclusions to be drawn from the research findings.

4.2.4 Purpose groups of buildings / facilities managed by respondents

The purpose groups or facilities managed by respondents are shown in Figure 7.

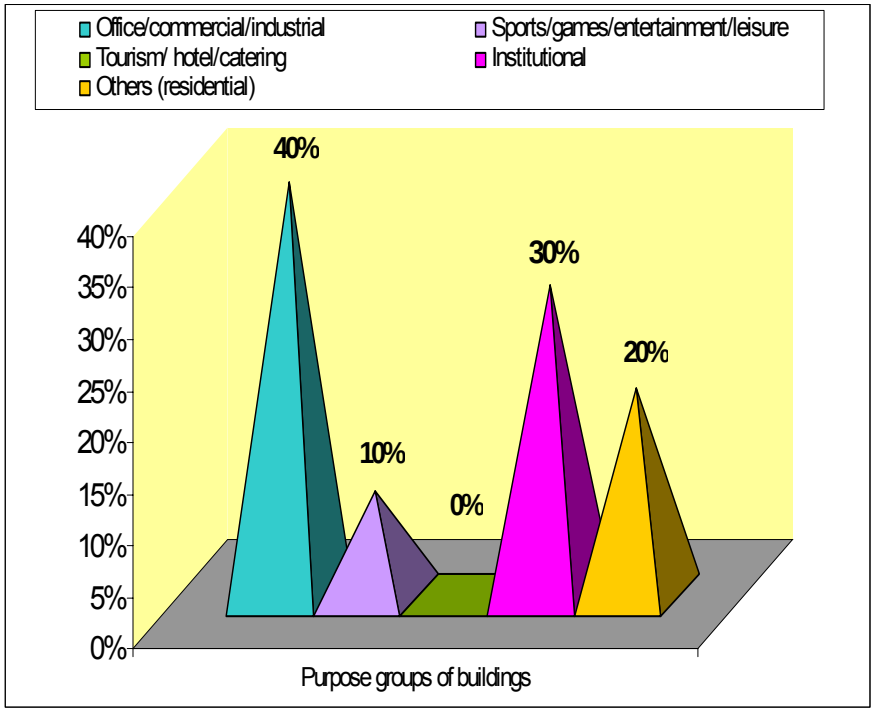


Figure 7: Purpose groups of building/facilities managed by respondents

Figure 7 shows that the respondents were largely involved with five distinctive purpose groups of building/facilities: Office/ commercial (40%), institutional (30%), sports /entertainment / leisure (10%) and others (20%), which comprise residential buildings. None of the respondents were involved with the management of tourism/catering or hotel facilities. Overall, this result indicates that the findings and conclusions reached in relation to outsourcing / in-house decisions are mainly applicable to office/ commercial and institutional facilities, and may not be applicable to facilities for tourism/ hotel/ catering.

4.2.5 Categories of owners of facilities managed by respondents

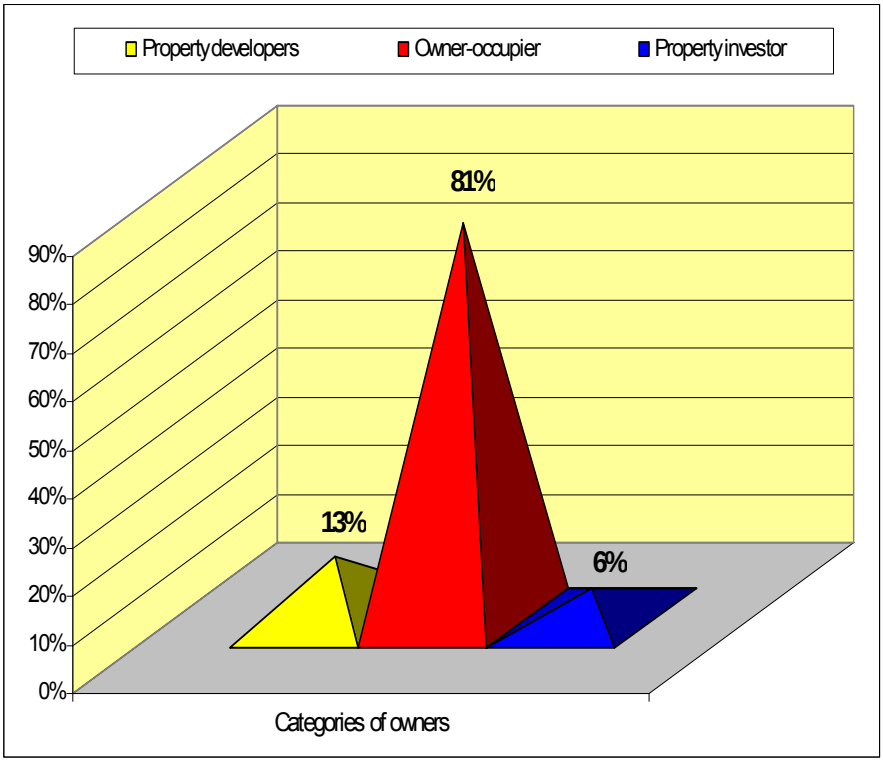


Figure 8: Categories of owners of facilities managed by respondents

Figure 8 shows the categories of owners of the facilities managed by the respondents. Results showed that owner-occupiers constitute the majority (81%) of the property or facilities managed by the respondents. The property developers (13%) and property investors (6%) were in the minority. The findings of this research will therefore be more applicable to outsourcing and in-house FM decisions involving the property or facilities of owner-occupiers.

4.2.6 Respondents' status in their respective organizations

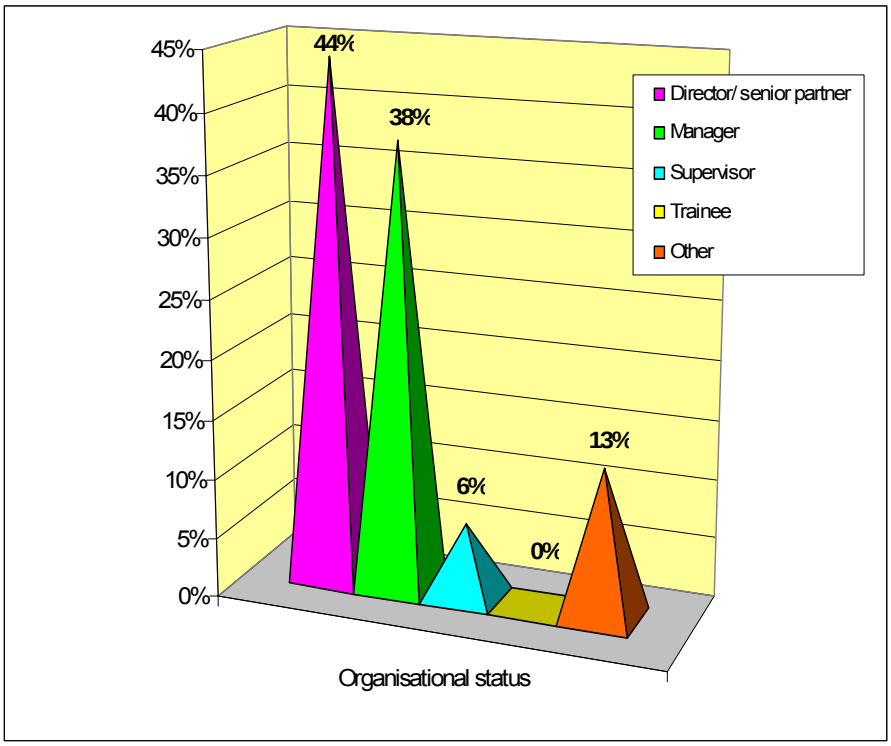


Figure 9: Respondents' status in respective organizations

Figure 9 presents the status of respondents in their respective organizations. Results showed that majority of the respondents are directors or senior partners (44%) and managers (38%). This profile means that the responses were from high ranking individuals who make strategic decisions in their respective organizations. Their responses should therefore be reliable and valid. This adds to the quality of the research findings and conclusions.

4.3 Criteria underpinning value-adding facilities management service

The first objective of the study is to establish the criteria underpinning value-adding facilities management service. Preliminary investigations revealed four key areas of FM services as shown in Figure 10.

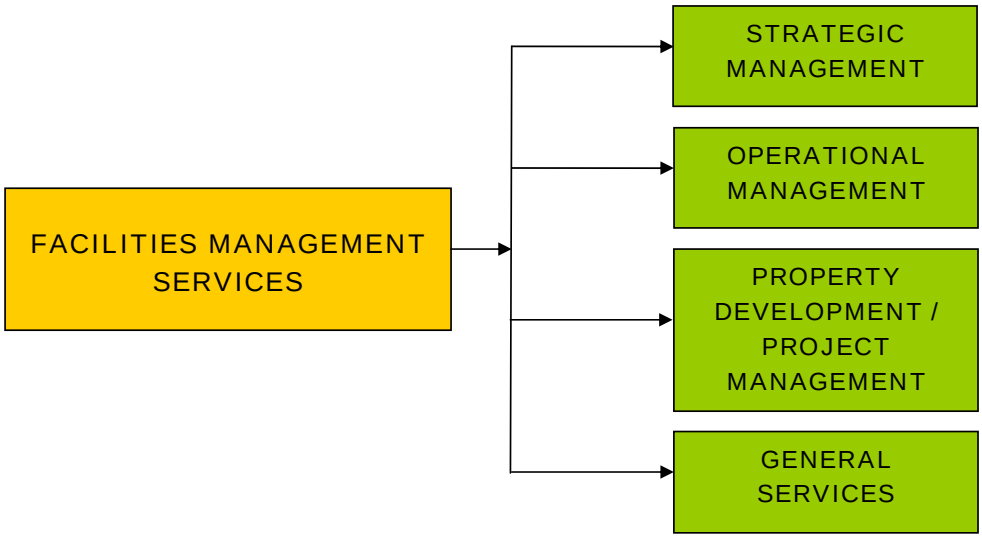


Figure 10: Broad categories of FM services

Respondents' feedback on the criteria underpinning value-added FM service under each broad category of FM service are presented and analyzed in Tables 14-17 for strategic management, operational management, property development/project management and general services.

Criteria underpinning value added strategic management service

Table 14 presents the value adding criteria underpinning strategic management FM functions. In total ten value adding criteria underpinning effective FM function were identified under this subcategory. Developing facilities to meet business objectives and ensure business continuity is the most important set of criteria underpinning value-added strategic management FM function. This is evident from the mean rating value of this criterion which is 4.67. Overall, this criterion tops the list with 66.7% of the very highly suitable (VHS) and 33.3% of highly suitable (HS) ratings in adding value to the organization.

This finding is in agreement with that of Massey University's Strategic Facilities Management Section (SFMS, 2006), which opines that, "Facilities Management (FM) is an integrated approach to maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of the organization". Besides, this finding also accords with similar results obtained by Becker (1990), who argues that in order to enhance the organization's ability to compete successfully and achieve corporate strategic objectives in this rapidly changing and busy FM world, FM profession accentuates on the coordination of all efforts pertaining to planning, designing and managing buildings and their systems, equipment and furniture. Furthermore, FM is the essential revenue in managing and developing facility resources, support services and working environment in meeting both the short and long term business objectives with the aim to recognize the best value for the business entity (Chotipanich, 2004; Alexander, 1996).

Table 14: Strategic management FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS 5	HS 4	MS 3	SS 2	NS 1				
	Criteria for value-adding strategic FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Developing facilities to meet business objectives and ensure business continuity.	66.7	33.3	0	0	0	60	4.67	0.11	1
2	Ensure that a coherent view of property is fed into the overall strategy of the organization.	80.0	6.67	13.3	0	0	60	4.67	0.11	2
3	Provide economically and efficiently for the present and future need of clients, either by arranging for reallocation of space within existing estate or by building, purchasing or leasing additional property.	73.3	20.0	6.67	0	0	60	4.67	0.11	3
4	Offering strategic advice based on knowledge of client's business.	53.3	40.0	6.67	0	0	60	4.47	0.11	4
5	Planning and designing for continuous improvement of service quality.	53.3	33.3	13.3	0	0	60	4.40	0.11	5
6	Enhance manageability, flexibility, sustainability of new, existing and adapted facility.	33.3	46.7	13.3	0	6.7	60	4.00	0.10	6
7	Identifying business needs and user requirements.	46.7	26.7	13.3	6.7	6.7	60	4.00	0.10	7
8	Enhancing the competitiveness of core business.	26.7	40.0	20.0	6.7	6.7	60	3.73	0.09	8
9	Offer downsizing, consolidation of units, acquisition or disposition of properties.	13.3	60.0	13.3	6.7	6.7	60	3.67	0.09	9
10	Enhancing corporate values through formulating and communicating strategic facilities policy.	6.67	33.3	46.7	6.7	6.7	60	3.27	0.08	10

Criteria underpinning operational management FM services

Table 15 presents the value adding criteria underpinning operational management FM function. In total twelve key criteria were identified. Results reveal that providing excellent, safe, secure and healthy working environment was perceived to be the most significant operational FM function. The next in importance is establishing budgets to achieve best value over the longer term. This lends credence to the observations of British Institute of Facilities Management (BIFM) (1999) that the provision of a safe and efficient working environment is the key to the world class performance and quality of any business, regardless its size and shapes.

This finding is also in agreement with Alexander's (1996) opinion that one of the key factors promoting the growth of facilities management and design of the workplace ecology is the consideration of the physical, social, environmental and administrative setting for productive activity in which all needs can be satisfied and objectives fulfilled. Overall, FM is an integrated management of the workplace that leads to economical facilities management, positive improvement of employee's quality of work and company's business performance as well as sustainability of cost effectiveness (Salonen, 2006; Tay & Ooi, 2001).

Table 15: Operational management FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS	HS	MS	SS	NS				
		5	4	3	2	1				
	Criteria for value-adding operational FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Provide excellent, safe, secure and healthy working environment.	86.7	13.3	0	0	0	60	4.87	0.09	1
2	Establish budgets to achieve best value over the longer term.	86.7	13.3	0	0	0	60	4.87	0.09	1
3	Maintain the operational fitness and value of the estate by timely and adequate maintenance and reduction of facility deterioration and obsolescence.	80.0	20.0	0	0	0	60	4.8	0.09	3
4	Minimize equipment and structural failures.	73.3	26.7	0	0	0	60	4.73	0.09	4
5	Meet the standard needs and quality of the performance.	53.3	46.7	0	0	0	60	4.53	0.08	5
6	Offer service quality in support of business operations.	53.3	40.0	6.67	0	0	60	4.47	0.08	6
7	Improve facilities to enhance operational efficiencies.	60.0	26.7	13.3	0	0	60	4.47	0.08	6
8	Ensuring effective purchasing and contracting strategies.	53.3	33.3	13.3	0	0	60	4.40	0.08	8
9	Maximize trade staff productivity.	40.0	60.0	0	0	0	60	4.40	0.08	8
10	Establish productive workplace and low operating and maintenance costs.	60.0	26.7	6.67	0	6.7	60	4.33	0.08	10
11	Identify and clearly define all required services including interfaces.	26.7	66.7	6.67	0	0	60	4.20	0.08	11
12	Organize an effectual organizational structure that plans, schedules and measures work activity and productivity.	33.3	53.3	6.67	0	6.7	60	4.07	0.08	12

Criteria underpinning property development/ project management services

Criteria underpinning value added property development / project management FM functions were analyzed in Table 16. Results show that providing efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule was perceived as the most vital criterion in property development / project management FM function. This is evident from the mean rating value of 4.73 for this criterion. This finding corroborates Ilozor's (2001) argument that the focus of property development / project management is on taking a project through the design-build schedule in order to ensure that operational requirements are met within the budget and specified quality standards.

Criteria underpinning general FM services

In Table 17, criteria underpinning value adding general services FM functions were analyzed. Quality of services constitutes the most important FM function in this grouping. This result agrees with the findings of Alexander (1996) that the development of the facility as a corporate asset leads to value adding to core business activities of an organization.

Table 16: Property development / Project management FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS	HS	MS	SS	NS				
	Criteria for value-adding property development / project management FM function	5	4	3	2	1	TR	MR	RII	Rank
		%	%	%	%	%				
1	Provide efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule.	73.3	26.7	0	0	0	60	4.73	0.15	1
2	Monitor and control the integrative planning and implementation to ensure performance satisfaction.	66.7	26.7	6.67	0	0	60	4.60	0.14	2
3	Scope management.	60.0	40.0	0	0	0	60	4.60	0.14	3
4	Compliance with quality or specifications.	53.3	46.7	0	0	0	60	4.53	0.14	4
5	Appropriate balance of time, quality, cost.	53.3	46.7	0	0	0	60	4.53	0.14	4
6	Consideration of operation and maintenance needs.	53.3	46.7	0	0	0	60	4.53	0.14	4
7	Quality of project close off including asset records, maintenance information and warranties.	46.7	46.7	6.67	0	0	60	4.40	0.14	7

Table 17: General services FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS	HS	MS	SS	NS				
		5	4	3	2	1				
	Criteria for value-adding general services FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Quality of service.	73.30	26.70	0.00	0.00	0.00	60	4.73	0.14	1
2	Cost efficiency.	66.70	33.30	0.00	0.00	0.00	60	4.67	0.14	2
3	Speed of service including emergency response.	60.00	33.30	6.67	0.00	0.00	60	4.53	0.14	3
4	Provide effective space management within existing parameters and forecast efficient utilization.	53.30	33.30	6.67	6.67	0.00	60	4.33	0.13	4
5	Offer broader experience and best practice.	20.00	60.00	13.30	0.00	6.67	60	3.87	0.12	5
6	Provide support services to overall facilities management.	6.67	80.00	6.67	0.00	6.67	60	3.80	0.12	6
7	Improve corporate image.	6.67	53.30	33.30	0.00	6.67	60	3.53	0.11	7
8	Offer reorganization or relocation associated with addition or loss of staff, loss or gain of leased space, installation of new equipment, reorganization of functional units or changes in work process.	0.00	46.70	46.70	0.00	6.67	60	3.33	0.10	8

4.4 Linking the broad categories of the FM functions with the FM competencies

The linkages between the broad categories of FM functions identified in Section 4.3 and the IFMA (2006) nine competencies discussed in Section 2.5 are shown in Figure 11.

Figure 11: Linkages between broad categories of FM functions and FM competencies

The figure shows that the key competencies required for performing the strategic management functions are largely leadership management and communication. This lends credence to Alkhafaji's (2003) observations that the type of communication and leadership management available in a company plays an important role in determining the effectiveness of strategic management.

Performance of the project management functions requires the bulk of the FM competencies: planning and project management, human environmental factors, leadership management, finance, quality assessment and innovation and communication. This accord with earlier findings of Atkin and Brooks (2000) that effective communication between the organization and service providers is essential to ensure that the implementation of a strategy is both understood and acted upon.

Therefore, it is crucial that all stakeholders are involved and proactive in the discussions regarding the organization and structure; particularly, that decisions on financial resources, manpower, and coherent strategic planning culture aligns with corporate goals (Worthing, 1994).

Implementations of the operational management functions require six FM key competencies: operation and maintenance, leadership management, finance, quality assessment and innovation, communication and technology.

On the other hand, performance of the general FM services requires competencies in real estate, leadership management, quality assessment and innovation, and communication. Overall, competencies in communication and leadership management are central to the performance of five broad categories of FM function. This accord with Shah's (2007) argument that the key skills to aid and support organization in its development and to achieve its business objectives are efficient flow of information and effective leadership.

4.5 Suitability of the use of outsourcing and in-house approaches in providing FM functions

The second objective of this study is to compare outsourcing and in-house approaches in terms of their suitability of use and value-adding capabilities in delivering the key FM functions. Respondents' feedback in this regards was presented and analyzed in Tables 18, 19, 20 and 21 for strategic management, operational management, property development/project management and general services, respectively.

4.5.1 Suitability of the use of outsourcing and in-house in providing strategic FM functions

The suitability of the use of outsourcing and in-house services in providing strategic FM functions was analyzed in Table 18. From the results of the Overall Suitability Score (OSS) and the Overall Suitability Ratings (OSR), in-house approach was found to be more suited to providing the strategic FM functions than the use of outsourcing (see Table 18. This was evident from the Overall Suitability Score (OSS) of 3.09 and 4.05 for outsourcing and in-house approaches, respectively. The OSS value for in-house approach was shows a rating of 'very highly suitable' (VHS) in comparison with the OSS value for outsourcing option with a rating of 'moderately suitable' in providing this particular function.

This result is in agreement with the findings of Gilley and Rasheed (2000), that outsourcing non-core activities allows the firm to increase managerial attention and resource allocation to those tasks that it does best and to rely on managerial teams in other organizations to oversee tasks at which outsourcing firm is at a relative disadvantage. In addition, Blumberg (1998) argues that the use of outsourcing may not be economical in the long term, as short term savings may be eroded by long term expenses arising from risks inherent in the use of outsourcing. Luciani (2005, p.14) also lends credence to this result by asserting that, "by giving control and ownership of the facility management activities to someone else, the organization is able to focus management resources onto core activities, in order to improve efficiencies and concentrate on competitive advantages".

In regards to providing the most important value adding criterion under this strategic FM function, which is developing facilities to meet business objectives and ensure business continuity, in-house approach was perceived to be more suited than outsourcing approach. This is evident from the Mean Rating (MR) analysis and the Criterion Suitability Score (CSS), which show that in-house option, has a higher suitability rating compared to outsourcing option.

Table 18: Suitability Ratings of the use of outsourcing and in-house FM approaches for Strategic Management functions

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Criteria for value-adding strategic FM function	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
	VHS 5 %	HS 4 %	MS 3 %	SS 2 %	NS 1 %	TR	MR	CSS	Rank	VHS 5 %	HS 4 %	MS 3 %	SS 2 %	NS 1 %	TR	MR	CSS	Rank
1	53.3	13.3	0	13.3	20.0	60	3.67	0.41	1	66.7	33.3	0	0	0	60	4.67	0.52	1
2	20.0	13.3	20.0	20.0	26.7	60	2.80	0.31	9	53.3	20.0	20.0	6.67	0	60	4.20	0.47	4
3	36.7	6.67	20.0	20.0	16.7	60	3.27	0.37	4	40.0	46.7	13.3	0	0	60	4.27	0.48	3
4	13.3	26.7	13.3	26.7	20.0	60	2.87	0.31	8	80.0	0	13.3	6.67	0	60	4.53	0.49	2
5	26.7	40.0	0	13.3	20.0	60	3.40	0.36	2	33.3	46.7	20.0	0	0	60	4.13	0.44	5
6	33.3	13.3	26.7	6.67	20.0	60	3.33	0.32	3	13.3	46.7	26.7	6.67	6.67	60	3.53	0.34	8
7	20.0	33.3	6.67	20.0	20.0	60	3.13	0.30	5	40.0	46.7	0	6.67	6.67	60	4.07	0.39	6
8	26.7	13.3	20.0	20.0	20.0	60	3.07	0.28	6	26.7	20.0	13.3	33.3	6.67	60	3.27	0.29	10
9	33.3	6.67	13.3	20.0	26.7	60	3.00	0.26	7	26.7	20.0	33.3	13.3	6.67	60	3.47	0.31	9
10	0	13.3	20	33.3	33.3	60	2.13	0.17	10	60.0	6.67	20.0	6.67	6.67	60	4.07	0.32	6
	Overall Suitability Score					(OSS)	Σ	3.09		Overall Suitability Score					(OSS)	Σ	4.05	
	Overall Suitability Rating					(OSR)		MS		Overall Suitability Rating					(OSR)		HS	

1. *Developing facilities to meet business objectives and ensure business continuity*
2. *Ensure that a coherent view of property is fed into the overall strategy of the organization*
3. *Provide economically and efficiently for the present and future need of clients, either by arranging for reallocation of space within existing estate or by building, purchasing or leasing additional property*
4. *Offering strategic advice based on knowledge of client's business*
5. *Planning and designing for continuous improvement of service quality*
6. *Enhancing corporate values through formulating and communicating strategic facilities policy*
7. *Identifying business needs and user requirements*
8. *Enhancing the competitiveness of core business*
9. *Offer downsizing, consolidation of units, acquisition or disposition of properties*
10. *Enhance manageability, flexibility, sustainability of new, existing and adapted facility*

4.5.2 Suitability of the use of outsourcing and in-house in providing operational FM functions

The suitability of the use of outsourcing and in-house services in providing operational FM functions was analyzed in Table 19. From the results of the Overall Suitability Score (OSS) and the Overall Suitability Ratings (OSR), outsourcing approach was found to be more suited to providing the operational FM functions than the use of in-house. This was evident in the OSS values of 4.22 and 3.59 for outsourcing and in-house approaches, respectively. Both approaches were rated as 'highly suitable' in meeting this function. Nevertheless, the OSS value for outsourcing was slightly higher than in-house option. Thus, outsourcing was perceived to be more significant in delivering operational FM function.

The prioritization of the use of outsourcing over in-house approach in meeting operational FM services agrees with the observations of Luciani (2005) that when the organization is decentralized in its operations, then outsourcing the FM function allows for better control on operations, as the outsource provider can help the business survive the absence of corporate control towards the streamlining its operations.

Table 19: Suitability Ratings of the use of outsourcing and in-house FM approaches for Operational Management function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Overall Suitability ratings: OSS > 4.49 = VHS, 3.50 ≤ OSS ≤ 4.49 = HS, 2.5 ≤ OSS ≤ 3.4 = MS, 1.51 ≤ OSS ≤ 2.49 = SS, < 1.51 = NS (see Equation 4)

	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
Criteria for value-adding operational FM function	VHS 5 %	HS 4 %	MS 3 %	SS 2 %	NS 1 %	TR	MR	CSS	Rank	VHS 5 %	HS 4 %	MS 3 %	SS 2 %	NS 1 %	TR	MR	CSS	Rank
1	73.3	20.0	6.67	0	0	60	4.67	0.42	1	53.3	20.0	13.3	6.67	6.67	60	4.07	0.37	1
2	66.7	20.0	13.3	0	0	60	4.53	0.41	2	33.3	13.3	6.67	20.0	26.7	60	3.07	0.28	8
3	66.7	20.0	13.3	0	0	60	4.53	0.4	3	20.0	40.0	26.7	0	13.3	60	3.53	0.31	4
4	53.3	33.3	6.67	0	6.67	60	4.27	0.37	4	26.7	33.3	20.0	13.3	6.67	60	3.60	0.31	4
5	33.3	46.7	20.0	0	0	60	4.13	0.35	7	46.7	26.7	6.67	13.3	6.67	60	3.93	0.33	3
6	66.7	20.0	13.3	0	0	60	4.53	0.37	4	66.7	13.3	6.67	0	13.3	60	4.20	0.35	2
7	53.3	33.3	13.3	0	0	60	4.40	0.36	6	26.7	13.3	33.3	13.3	13.3	60	3.27	0.27	10
8	40.0	26.7	33.3	0	0	60	4.07	0.33	8	46.7	20.0	13.3	6.67	13.3	60	3.80	0.31	4
9	33.3	6.67	40.0	6.67	13.3	60	3.40	0.28	12	53.3	20.0	0	13.3	13.3	60	3.87	0.31	4
10	33.3	46.7	13.3	0	6.67	60	4.00	0.32	9	33.3	33.3	6.67	6.67	20.0	60	3.53	0.28	8
11	33.3	46.7	20.0	0	0	60	4.13	0.32	9	0	40.0	33.3	6.67	20.0	60	2.93	0.23	12
12	33.3	33.3	26.7	0	6.67	60	3.87	0.29	11	20.0	20.0	33.3	6.67	20.0	60	3.13	0.24	11
					Overall Suitability Score	(OSS)	Σ	4.22						Overall Suitability Score	(OSS)	Σ	3.59	
					Overall Suitability Rating		=	HS						Overall Suitability Rating		=	HS	

1. *Provide excellent, safe, secure and healthy working environment.*
2. *Establish budgets to achieve best value over the longer term.*
3. *Maintain the operational fitness and value of the estate by timely and adequate maintenance and reduction of facility deterioration and obsolescence.*
4. *Minimize equipment and structural failures.*
5. *Meet the standard needs and quality of the performance.*
6. *Offer service quality in support of business operations*
7. *Improve facilities to enhance operational efficiencies.*
8. *Organize an effectual organizational structure that plans, schedules and measures work activity and productivity.*
9. *Maximize trade staff productivity.*
10. *Establish productive workplace and low operating and maintenance costs.*
11. *Identify and clearly define all required services including interfaces.*
12. *Ensuring effective purchasing and contracting strategies.*

4.5.3 Suitability of the use of outsourcing and in-house in providing property development/project management FM functions

The suitability of the use of outsourced and in-house services in providing property development/project management FM functions was analyzed in Table 20. Through the computation of MR, CSS and OSS analyses, the results showed that outsourcing was perceived to be more suited to providing the property development / project management FM function. However, this result was out of sync with the observations of Downey (1995) on the inherent risks in the use of outsourcing for this subset of function, including loss of partial or complete control of work quality, timing and scheduling, cost escalations in long-term partnerships, professional service provider conflict of interest, overdependence on outside firms for critical functions, likelihood of loss increased by the use of poorly trained outside workers and discouragement of training and development. On the contrary, Greaver (2007) supports the use of outsourcing rather than in-house service in providing property development or project management function. These include improving management and control, operating performance and risk management, obtaining expertise, skills and technologies, receiving innovative ideas for improving business, products and services as well as enhancing credibility and image by involving superior external service providers.

Table 20: Suitability Ratings for the use of outsourcing or in-house approaches for Property development / Project management function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Overall Suitability ratings: OSS > 4.49 = VHS, 3.50 ≤ OSS ≤ 4.49 = HS, 2.5 ≤ OSS ≤ 3.4 = MS, 1.51 ≤ OSS ≤ 2.49 = SS, < 1.51 = NS (see Equation 4)

Criteria for value-adding property development / project management FM function	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
	VHS	HS	MS	SS	NS					VHS	HS	MS	SS	NS				
	5	4	3	2	1					5	4	3	2	1				
	%	%	%	%	%	TR	MR	CSS	Rank	%	%	%	%	%	TR	MR	CSS	Rank
1	40.0	46.7	13.3	0	0	60	4.27	0.49	3	40.0	33.3	13.3	0	13.3	60	3.87	0.45	1
2	46.7	26.7	20.0	6.67	0	60	4.13	0.46	4	13.3	46.7	26.7	0	13.3	60	3.47	0.39	5
3	53.3	26.7	20.0	0	0	60	4.33	0.49	2	26.7	26.7	20.0	20.0	6.67	60	3.47	0.39	3
4	60.0	26.7	13.3	0	0	60	4.47	0.49	1	46.7	26.7	6.67	6.67	13.3	60	3.87	0.43	2
5	40.0	26.7	33.3	0	0	60	4.07	0.45	6	26.7	33.3	13.3	13.3	13.3	60	3.47	0.38	3
6	40.0	33.3	26.7	0	0	60	4.13	0.46	5	0	40.0	40.0	13.3	6.67	60	3.13	0.35	6
7	40.0	20.0	40.0	0	0	60	4.00	0.43	7	20.0	13.3	40.0	13.3	13.3	60	3.13	0.34	7
						Overall Suitability Score	(OSS)	Σ	3.27						Overall Suitability Score	(OSS)	Σ	2.72
						Overall Suitability Rating		=	MS						Overall Suitability Rating		=	MS

1. *Provide efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule.*
2. *Monitor and control the integrative planning and implementation to ensure performance satisfaction.*
3. *Scope management.*
4. *Compliance with quality or specifications.*
5. *Appropriate balance of time, quality, cost.*
6. *Quality of project close off including asset records, maintenance information and warranties.*
7. *Consideration of operation and maintenance needs,*

4.5.4 Suitability of the use of outsourcing and in-house in providing general FM services

The suitability of the use of outsourcing and in-house service in providing general FM functions was analyzed in Table 21. Results based on MR, CSS and OSS analyses show that outsourcing was perceived to be more suited to providing the general services FM function. This finding lends credence to the observations of Dess et al. (1995) and Quinn (1992) that one of the non-financial benefits of outsourcing is quality improvements in the provision of general services. This gives the opportunity to the outsourcers to choose suppliers whose products or services are superior, and so obtain best quality of goods and services (Gilley and Rasheed, 2000; Kotabe & Murray, 1990). In addition, Connors (2003) argues that well-managed in-house departments frequently run up costs of facilities way above outsourced norm simply by over-providing quality of service.

Table 21: Suitability Ratings for the use of outsourcing or in-house approaches for General Services function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Overall Suitability ratings: OSS > 4.49 = VHS, 3.50 ≤ OSS ≤ 4.49 = HS, 2.5 ≤ OSS ≤ 3.4 = MS, 1.51 ≤ OSS ≤ 2.49 = SS, < 1.51 = NS (see Equation 4)

	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
	VHS	HS	MS	SS	NS					VHS	HS	MS	SS	NS				
Criteria for value-adding	5	4	3	2	1					5	4	3	2	1				
general services FM function	%	%	%	%	%	TR	MR	CSS	Rank	%	%	%	%	%	TR	MR	CSS	Rank
1	40.0	46.7	13.3	0	0	60	4.27	0.62	1	46.7	26.7	0	13.3	13.3	60	3.80	0.55	3
2	46.7	26.7	20.0	6.67	0	60	4.13	0.59	2	60.0	20.0	6.67	6.67	6.67	60	4.20	0.60	1
3	33.3	53.3	6.67	6.67	0	60	4.13	0.57	3	53.3	20.0	6.67	13.3	6.67	60	4.00	0.55	2
4	26.7	33.3	20.0	20.0	0	60	3.67	0.48	4	26.7	6.67	26.7	26.7	13.3	60	3.07	0.41	5
5	0	40.0	13.3	33.3	13.3	60	2.8	0.33	7	46.7	20.0	13.3	6.67	13.3	60	3.80	0.45	4
6	13.3	66.7	0	13.3	6.67	60	3.67	0.42	5	13.3	60.0	0	0	26.7	60	3.33	0.39	6
7	40.0	13.3	26.7	13.3	6.67	60	3.67	0.39	6	20.0	13.3	13.3	33.3	20.0	60	2.80	0.30	8
8	6.67	33.3	20.0	26.7	13.3	60	2.93	0.30	8	20.0	13.3	26.7	26.7	13.3	60	3.00	0.30	7
				Overall Suitability Score		(OSS)	Σ	3.70					Overall Suitability Score		(OSS)	Σ	3.54	
				Overall Suitability Rating			=	HS					Overall Suitability Rating			=	HS	

1. *Quality of service*
2. *Cost efficiency.*
3. *Speed of service including emergency response.*
4. *Provide effective space management within existing parameters and forecast efficient utilization.*
5. *Offer broader experience and best practice.*
6. *Provide support services to overall facilities management*
7. *Improve corporate image.*
8. *Offer reorganization or relocation associated with addition or loss of staff, loss or gain of leased space, installation of new equipment, reorganization of functional units or changes in work process.*

4.6 Framework for choosing between outsourcing and in-house FM routes

The third objective of the study is to establish a framework for choosing between outsourcing and in-house FM routes. A framework was developed in the study from three parameters formulated in Equations 1- 4. The Criterion Suitability Score (CSS) was used for assessing the level of suitability of the use of either outsourcing or in-house FM in providing each FM need within a subset. The Overall Suitability Score (OSS) was used to determine the overall suitability of the use of either outsourcing or in-house FM in meeting each subcategory of FM needs. A flow chart of the process for choosing between outsourcing and in-house approaches to meeting the FM subcategory of needs is developed for use by property and facilities managers as a decision support system (see Figure 12).

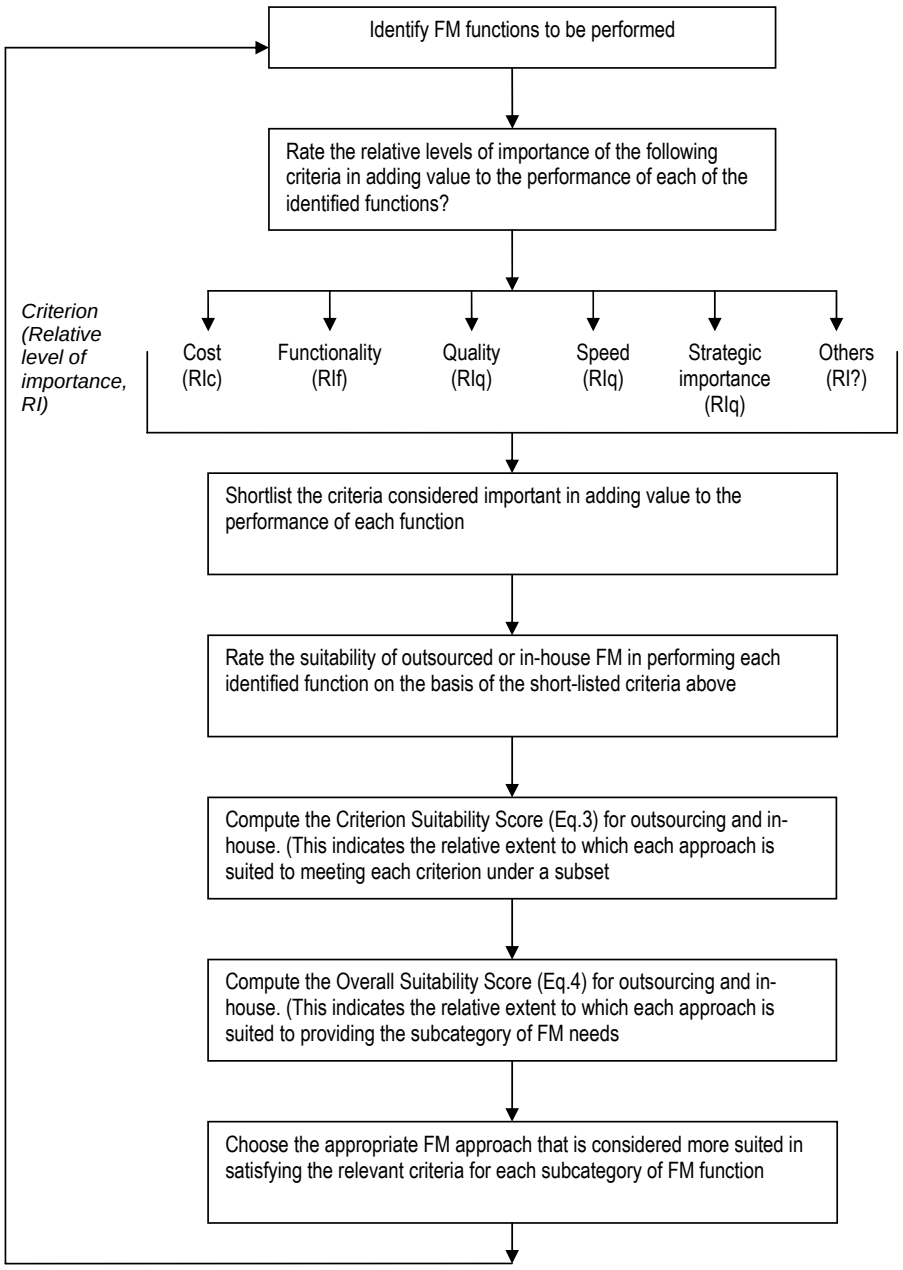


Figure 12: Flow chart process for choosing between outsourcing and in-house approaches in meeting the FM needs

Figure 12 represents the fundamental process in making rational decision in choosing between outsourcing and in-house approaches to meeting whole or part of FM needs. The process starts by comprehensively identifying vital FM functions that need to be performed in the organization. Essentially, the FM functions should encompass value adding criteria. Each criterion's level of importance in performing each identified function is determined. The recurring criteria include cost, quality, functionality, speed, strategic importance and other related features.

In this study, in order to establish the best value adding criteria in terms of their levels of importance in the value addition, Mean Ratings (MR) and the Relative Importance Indices of the criteria were analyzed. A set of value adding criteria under each FM functions was established. The criteria were prioritized and subsequently short listed in line with their capability to provide value to the FM functions.

Subsequently, the levels of suitability of the use of outsourcing and in-house approaches to meeting each criterion under each subset of FM functions were analyzed. The concepts of Criterion Suitability Score (CSS) analysis and Overall Suitability Score were used for this purpose. Essentially, the CSS analysis serves to indicate the level of suitability of both approaches for a particular variable under a given subset. Likewise, the OSS analysis is used to determine the overall suitability of both approaches in meeting the subcategory of FM function. This provides the basis for choosing the FM approach that is considered more suited to satisfying the relevant value adding criteria for each subcategory of FM function.

CHAPTER 5: TESTS OF PROPOSITIONS

5.1 Overview

This chapter presents the tests for the propositions and the discussions of the results. Figure 13 models the research propositions that were formulated from the research objectives, and the methods used in testing them, as recommended in the literature. The essence of the propositions was to direct focus on the nature of data and the requisite analyses needed to provide answers to the research objectives and the research problem.

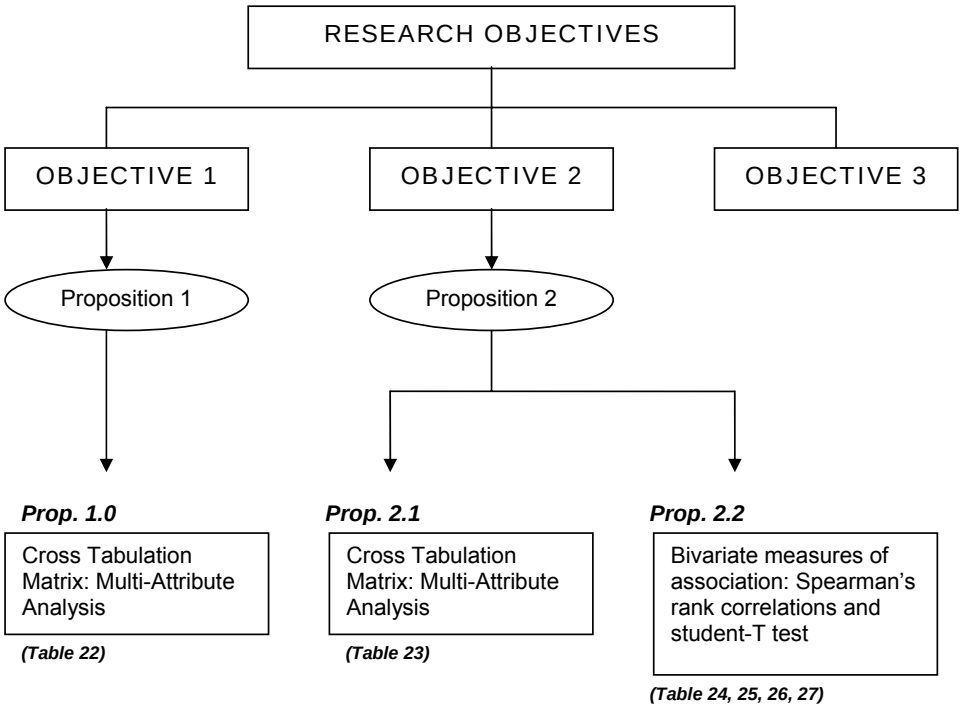


Figure 13: Snapshot of research Propositions and Methods of Analysis

5.2 Test of Proposition 1

The first objective of the study is to establish the criteria underpinning value-adding FM services. Preliminary investigations revealed four broad categories of FM services: strategic management, operational management, property development/ project management, and general services.

The first proposition aims at canvassing the opinions of the respondents on the broad categories of the FM functions and their relative levels of importance. To direct data gathering and analysis, the proposition assumes that strategic management FM service will be perceived as the most important to the organizations.

Analytical method employed

Multi-attribute analytical technique was employed in testing Proposition 1.0 in Table 22. This technique was used to analyse the mean ratings (MR) and relative importance indices (RII) of the identified criteria in adding value to the organization under each broad category of FM functional areas. MR and RII of the value adding criteria under each FM functional areas were rank-ordered with the highest MR receiving the highest rank.

The purpose of the categorization and cross tabulation is to allow assessment of differences among groups through comparisons (Cooper and Emory, 1995).

Table 22: Cross Tabulation for testing Proposition 1.0

Relative importance ratings: 5 (VI) = Very important; 4 (I) = Important; 3 (SI) = Somewhat important; 2 (LI) = Of little importance; 1 (NI) = Not important

		Relative importance of criterion in adding value to the organization								
		5	4	3	2	1				
	Functional Areas of Facilities Management	VI %	I %	SI %	LI %	NI %	TR	MR	RII	Rank
A	Strategic Management	60.00	26.67	6.67	0.00	6.67	60	4.333	0.261	1
B	Operational Management	50.00	26.67	20.00	3.33	0.00	60	4.233	0.255	2
C	Property Development / Project Management	40.00	43.33	10.00	3.33	3.33	60	4.133	0.248	3
D	General Services	13.33	66.67	20.00	0.00	0.00	60	3.933	0.236	4

Result

From the mean ratings (MRs) of the relative importance of the four broad categories of FM functions, strategic management was perceived as the most important FM services, with MR value of 4.33. This agrees with the findings of Massey University Strategic FM Services (SFMS, 2004) which opines that, strategic facilities management offers an integrated approach to maintaining, improving and adapting the buildings and other infrastructure of the organization in order to create an environment that strongly supports its primary objectives. In order of importance, the other subcategories of FM functions are: operational management, property development/ project management, and general services.

Conclusion on test of Proposition 1.0

Result of the multi-attribute analytical test (Table 22) shows that strategic management is perceived as the most important FM functional area. Proposition 1.0 is therefore supported.

5.3 Test of Proposition 2

The second objective of the study is to compare the suitability of the use of outsourcing and in-house approaches in providing the FM functions.

To realize this objective, Proposition 2 was formulated to focus on evaluations of the views of the respondents on the level of suitability of the use of both approaches in delivering the FM services. This required decomposing the proposition into two subgroups: Proposition 2.1 helps to determine the level of suitability of the use of both outsourcing and in-house approaches in efficiently performing the FM functions under each broad categories of FM services; while Proposition 2.2 examines the reliability of the findings by correlating the opinions of property and facilities managers on the use of outsourced FM services in performing the subsets of functions under the distinctive four broad categories of FM functional areas.

Proposition 2.1 assumes that the use of outsourcing is preferred to in-house in performing all FM services; while Proposition 2.2 presumes that divergence of opinions exists between the two groupings of respondents in their ratings in regards to the level of suitability of the use of outsourced FM services under each broad FM functional areas.

5.3.1 Proposition 2.1

This proposition tests whether outsourcing will be perceived as a preferred vehicle for meeting all of the broad categories of FM services.

Analytical method employed

Cross tabulation matrix was used to test this proposition in Table 23. This involves cross tabulation of the Overall Suitability Scores (OSS) for the use of both approaches in meeting each broad category of FM functions.

Table 23: Cross Tabulation Matrix for testing Proposition 2.1.

Functional areas of Facilities Management	Overall Suitability Score (OSS)		Preferred Approach
	Use of Outsourcing	Use of In-house	
Strategic Management	3.10	4.10	In-house
Operational Management	4.20	3.60	Outsourcing
Property Development / Project Management	4.20	3.40	Outsourcing
General Services	3.70	3.50	Outsourcing

Result

Table 23 shows that outsourcing was not consistently perceived as the preferred approach to meeting each broad category of FM functions as assumed in Proposition 2. The cross tabulation result shows that outsourcing was perceived to be more preferable in providing operational management, property development/project management and general services. On the other hand, in-house was perceived to be more suited to meeting the strategic management of FM functions. This is evident from its higher OSS value of 4.10 compared to the value of 3.10 for outsourcing.

However, the formulation of the proposition and the results of the test serve to provide insights into the suitability of the use of both approaches of FM service provisions in meeting each broad category of FM functions – an important lesson for all property and facilities managers.

Conclusion on Proposition 2.1

Overall, there is no empirical evidence to accept the proposition that the use of outsourcing is preferred to in-house in performing all FM services. Proposition 2.1 is therefore not supported in this case.

5.3.2 Test of Proposition 2.2

Proposition 2.2 complements Proposition 2.1 in not only seeking to achieve the second objective of the study, but also to provide multi-sources of evidence needed for triangulation and reliability test. The proposition assumed that there would be a measure of divergence between property and facilities managers' perceptions of levels of suitability of the use of outsourced FM services in performing the distinctive functions under broad categories of FM functional areas.

Thus, apart from helping to realize the second objective of the study, Proposition 2.2 serves to test the reliability of the findings by correlating the views of the two groupings of the property and facilities managers. To operationalize this, the proposition tested the extent of significant divergence or convergence in views between the sets of criterion suitability scores computed from property managers' and facilities managers' ratings.

Analytical method employed

To evaluate the level of suitability of the use of outsourcing in performing each function, the concept of Criterion Suitability Score (CSS) as defined in Equation 3 was applied. The rankings of CSS values for each function under each broad category was compared for the property managers' and the facilities managers' ratings using the Spearman's rank correlation coefficient method.

The choice of this statistical technique was based on Zikmund's (1994) recommendations since the test requires a bivariariate measure of association involving ordinal measures of two-sample matched pairs. The proposition was reformulated as a hypothesis to enable statistical test of significance. The hypothesis involved in the test is highlighted as follows:

Spearman's rank correlation test

The Spearman's rank correlation test was used to test the significance of the differences between ranks of the criterion suitability scores (CSS) for each broad category of FM services computed from property managers' and facilities managers' ratings of the level of suitability of the use or outsourcing in delivering FM routes.

Test hypotheses

H_0: $t \leq t_c$ (region of acceptance of H_0) (i.e. no significant correlation exists between both sets of paired ranks)

H_1: $t > t_c$ (region of rejection of H_0) (i.e. significant correlation exists between both sets of paired ranks)

Decision rule:

Accept Ho if $t \leq t_c$; reject H0 otherwise and accept H1 (i.e. if $t > t_c$)

Where:

t = Student T test statistic computed as a transformation of the Spearman's rank correlation coefficient correlating both sets of paired ranks of the CSS scores, as computed from property and facilities managers' ratings

t_c = Critical value of Student T test statistic for a given degree of freedom, df (i.e. n-2) corresponding to n number of pairs of ranked objects at 0.05 level of significance.

Table 24 presents a typical rank correlation and student T tests employed in testing the proposition in respect of the strategic management FM broad category of functions. Similar tests conducted for the other three categories are summarized in Table 25, 26, and 27.

Table 24: Cross Tabulation and Spearman's Rank Correlation analysis for testing Proposition 2.2

A Suitability of the use of outsourcing in meeting strategic FM functions

Criteria for value-adding strategic FM function	Facilities Managers				Property Managers			
	MR	RII	CSS	Rank	MR	RII	CSS	Rank
1	3.455	0.112	0.386	1	4.000	0.113	0.452	2
2	2.364	0.114	0.270	9	3.750	0.107	0.403	5
3	2.727	0.116	0.317	7	4.000	0.107	0.429	2
4	2.909	0.110	0.319	4	2.750	0.102	0.280	9
5	3.273	0.103	0.337	2	3.750	0.113	0.424	5
6	2.909	0.096	0.280	4	4.500	0.096	0.432	1
7	3.091	0.096	0.297	3	3.500	0.096	0.336	7
8	2.909	0.092	0.267	4	3.500	0.085	0.297	8
9	2.636	0.083	0.218	8	4.000	0.102	0.407	2
10	2.182	0.078	0.171	10	2.250	0.079	0.178	10

*(*Criteria for value-adding strategic FM function: details are given in Table 4, Chapter 4)*

Number of objects ranked, n = 10
Spearman's rank correlation coefficient, R = 0.1625
t-score = 0.465821
degree of freedom, df = n-2 = 8
t-critical (at 5% level of significant) = 1.860
Acceptance region: = $t \leq 1.860$
Result: $t_{score} \leq t_{critical}$ (i.e both sets of ranks are not significantly correlated)
Decision: Accept Ho and conclude that statistical evidence suggests that there are no correlations between the two sets of ranks.

Table 25: Cross Tabulation and Spearman's Rank Correlation analysis for testing Proposition 2.2

B Suitability of the use of outsourcing in meeting operational FM functions

Criteria for value-adding operational FM function	Facilities Managers				Property Managers			
	MR	RII	CSS	Rank	MR	RII	CSS	Rank
1	3.818	0.110	0.421	3	4.750	0.109	0.516	1
2	2.636	0.110	0.290	12	4.250	0.109	0.462	6
3	3.545	0.110	0.391	6	3.500	0.103	0.361	7
4	3.818	0.108	0.413	4	3.000	0.103	0.310	11
5	3.636	0.104	0.378	5	4.750	0.098	0.465	1
6	4.000	0.100	0.399	2	4.750	0.103	0.490	1
7	3.364	0.100	0.336	8	3.000	0.103	0.310	11
8	3.455	0.098	0.338	7	4.750	0.098	0.465	1
9	4.182	0.100	0.417	1	3.250	0.098	0.318	10
10	3.182	0.096	0.304	9	4.500	0.103	0.465	5
11	2.818	0.096	0.270	11	3.250	0.092	0.300	8
12	3.091	0.089	0.276	10	3.250	0.098	0.318	8

*(*Criteria for value-adding operational FM function: details are given in Table 5, Chapter 4)*

Number of objects ranked, n = = 12
Spearman's rank correlation coefficient,R = = 0.195591
t-score = = 0.630695
degree of freedom, df = n-2 = = 10
t-critical (at 5% level of significant) = = 1.812
Acceptance region: = t≤1.812

Result: $t_{score} \leq t_{critical}$ (i.e both sets of ranks are not significantly correlated)

Decision: Accept Ho and conclude that statistical evidence suggests that there are no correlations between the two sets of ranks.

Table 26: Cross Tabulation and Spearman's Rank Correlation analysis for testing Proposition 2.2

C Suitability of the use of outsourcing for property development/project management FM functions

Criteria for value-adding property development/project management FM function	Facilities Managers				Property Managers			
	MR	RII	CSS	Rank	MR	RII	CSS	Rank
1	3.909	0.147	0.574	1	3.750	0.156	0.584	3
2	3.273	0.141	0.462	4	3.500	0.156	0.545	4
3	3.091	0.147	0.454	7	4.500	0.139	0.627	2
4	3.545	0.144	0.521	2	4.750	0.139	0.662	1
5	3.545	0.147	0.521	2	3.000	0.131	0.393	5
6	3.091	0.144	0.445	6	3.000	0.139	0.418	5
7	3.273	0.130	0.425	4	2.500	0.139	0.348	7

*(*Criteria for value-adding operational FM function: details are given in Table 6, Chapter 4)*

Number of objects ranked, n	=	7
Spearman's rank correlation coefficient,R	=	-0.06384
t-score	=	-0.14305
degree of freedom, df = n-2	=	5
t-critical (at 5% level of significant)	=	2.015
Acceptance region:	=	t≤2.015

Result: $t_{score} \leq t_{critical}$ (i.e both sets of ranks are not significantly correlated)

Decision: Accept Ho and conclude that statistical evidence suggests that there are no correlations between the two sets of ranks.

Table 27: Cross Tabulation and Spearman's Rank Correlation analysis for testing Proposition 2.2

D Suitability of the use of outsourcing in providing general FM services/ functions

Criteria for value-adding general services FM function	Facilities Managers				Property Managers			
	MR	RII	CSS	Rank	MR	RII	CSS	Rank
1	3.818	0.142	0.541	2	3.500	0.153	0.534	5
2	3.909	0.142	0.554	3	4.750	0.145	0.689	1
3	4.182	0.136	0.569	1	3.250	0.145	0.471	7
4	2.727	0.133	0.364	8	3.750	0.130	0.487	4
5	3.364	0.117	0.392	4	4.750	0.122	0.580	1
6	3.000	0.114	0.342	5	4.000	0.122	0.489	3
7	2.909	0.114	0.331	6	2.250	0.092	0.206	8
8	2.750	0.103	0.283	7	3.500	0.092	0.321	5

*(*Criteria for value-adding operational FM function: details are given in Table 7, Chapter 4)*

Number of objects ranked, n	=	8
Spearman's rank correlation coefficient,R	=	0.114377
t-score	=	0.282017
degree of freedom, df = n-2	=	6
t-critical (at 5% level of significant)	=	1.943
Acceptance region:	=	t≤ 1.943

Result: $t_{score} \leq t_{critical}$ (i.e both sets of ranks are not significantly correlated)

Decision: Accept Ho and conclude that statistical evidence suggests that there are no correlations between the two sets of ranks.

Conclusion on test of Proposition 2.2

Table 28 shows the overall result derived from the tests of Proposition 2.2. Result of the Spearman's rank correlation test (Tables 24–27) shows that no significant correlation exists between both sets of rank-ordered mean rating values and criterion suitability scores computed from property managers' and facilities managers' ratings for each broad category of FM functional areas. The proposition (2.2) that there is divergence in views of both sets of values is therefore empirically supported at five percent level of significance.

Table 28: Overall result of tests of Proposition 2.2

	Broad category of FM services	Correlation test results: Facilities Managers versus Property Managers' views
A	Strategic Management	No correlation
B	Operational Management	No correlation
C	Property Development/ Project Management	No correlation
D	General Services	No correlation

Consequently, it could be concluded that significant differences existed in the perceptions of both facilities and property managers regarding the suitability of the use of outsourced FM services in performing subsets of functions under broad categories of FM functional areas.

5.4 Summary of the tests of Propositions

The propositions and the subsequent tests aim to direct research and to achieve the research objectives through relevant investigations and analyses.

Essentially, two out of three propositions made in this study were supported: Proposition 1.0, which states that in the broad category of FM functional areas, strategic management is perceived as most important to organizations; and Proposition 2.2, which states that there is divergence in views between property managers and facilities managers on the suitability of the use of outsourced FM services in performing subsets of functions under broad categories of FM functional areas. In contrast, Proposition 2.1 which states that the use of outsourcing is preferred to in-house in performing all FM services was not supported. Empirical evidence suggested that in-house was perceived as the preferred approach in delivering strategic FM functions.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study aimed to identify and prioritize the criteria underpinning value-adding facilities management (FM) service, compare outsourcing and in-house approaches in terms of their value-adding capabilities in providing the components and sub-categories of FM functions, and subsequently establish a conceptual framework for choosing between outsourcing and in-house FM routes.

Results of investigations and analyses into the range of FM functions reveal that holistic FM services comprise four distinctive broad categories of service. In order of significance, these are: strategic management, operational management, property development / project management, and general services. In this context, strategic management was perceived to be the most important FM functional area.

Results of investigations and analyses into the value adding criteria underlying each broad category of FM services present these criteria as follows. Strategic management: developing facilities to meet business objectives and ensure business continuity. Operational management: providing excellent, safe, secure and healthy working environment. Property development / project management: providing efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule. General services: maintaining high quality of services.

Results of the comparison between outsourcing and in-house approaches in terms of their value-adding capabilities in providing the components and sub-categories of FM functions showed that outsourcing was perceived to be more suited to providing the following FM functional areas; operational, property development / project management and general services. In contrast, in-house approach was perceived to be more suited to providing strategic FM functions.

A framework was developed, which provides strategic guidance in choosing between outsourcing and in-house approaches to providing part or whole of FM services. This ensures taking into consideration a wider range of key variables underpinning value-adding selection – a marked departure from the current practice of concentrating only

on financials to the exclusion of other equally important variables that add value. In addition, the concept of Overall Suitability Score (OSS) was developed, which helps to assess the relative extent to which the use of outsourcing and in-house approaches deliver value for the organization, hence provide the basis for making the optimum value adding selection.

The study recommends the use of the framework in making strategic choices between in-house and outsourcing in providing part or whole of the FM services by the facilities managers, property managers and other stakeholders who may be faced with the dilemma of choosing between outsourcing and in-house approaches to providing FM services.

6.2 Implications of the findings to FM industry and practice

In today's global competitive and ever changing business landscape, managers are increasingly required to seek for "best value" business solutions amongst competitive alternatives. Selecting the right approach to providing FM services will ensure the delivery of satisfactory outcomes and therefore optimize value addition. The developed framework adds value to the FM industry and organizations by introducing a broader range of value adding variables in the set of parameters for strategic decision making involving a strategic choice between outsourcing and in-house approaches to the provision of FM services on the basis of superior value addition, as against the current practice of basing selection only on cost.

The established relative importance of the criteria underpinning each broad category of FM service will guide property and facilities managers in budgeting and disbursing resources for the execution of the FM functions in line with the relative levels of importance of the underlying criteria, such that more funds will be made available for the provision of the high priority FM functions and less resources for less important functions.

Overall, the developed holistic framework could provide the facilities and property managers, as well as other stakeholders with valuable insights to improve the overall FM service delivery at “best value for money”.

In addition, the methodology developed in this study could be replicated in related contexts to solving strategic decision dilemma involving making choices amongst competing alternatives. One such area that is worthy of the replication of the methodology is subcontractor selection in the construction industry, vis-à-vis the use of in-house skills in certain trades.

6.3 Recommendations for further studies

As established in the demographic analysis of the respondents in Section 4.2.4, the respondents were largely involved with five distinctive purpose groups of building/facilities: Office/ commercial (40%), institutional (30%), sports/entertainment/ leisure (10%) and others (20%), which comprise residential buildings. None of the respondents were involved with the management of tourism/catering or hotel facilities. Overall, this result indicates that the findings and conclusions reached in relation to outsourcing / in-house decisions are mainly applicable to office/ commercial and institutional facilities, and may not be applicable to facilities for tourism/ hotel/ catering. Further studies may be needed to canvass the opinions of facilities and property managers in these property classes.

It is also recommended that the methodology developed in this study should be applied in making value added selection of subcontractors in the construction industry, vis-à-vis the use of in-house skills in certain trades. As encountered in this study, selection of subcontractors in the construction industry is largely based on cost consideration, to the exclusion of other equally important variables that add value. The future study should explore value adding criteria and use these to establish a decision framework for use by main contractors in deciding to subcontract (i.e. outsource) or to develop and use in-house skills for the execution of certain trades that are critical to the successful execution of contracts.

6.4 Summary of key research findings

Research Objectives 1

To identify and prioritize the criteria underpinning value-adding facilities management (FM) services

Findings

Current thinking on the subject reveals that holistic FM services comprise four distinctive broad categories: strategic, operational, property development/ project management, and general services. The most important value adding criterion under each category is listed as follows. Strategic management: developing facilities to meet business objectives and ensure business continuity. Operational management: providing excellent, safe, secure and healthy working environment. Property development / project management: providing efficient and effective project management in order to ensure that operational requirements are met within specified budget and schedule. General services: maintaining high quality of services. Table 14-17 present the priority criteria underlying value-adding FM functions under the broad categories of FM services.

Research Objective 2:

To compare outsourcing and in-house approaches in terms of their value-adding capabilities in providing the broad and subcategories of FM functions

Findings

Results of the comparison between outsourcing and in-house approaches in terms of their value-adding capabilities in providing the components and sub-categories of FM functions showed that outsourcing was perceived to be more suited to providing the following FM functions; operational, property development / project management and general services. In contrast, in-house approach was perceived to be more suited to providing strategic FM functions. Table 18-21 present the relative levels of suitability of use of both approaches in delivering FM functions.

Research Objective 3:

To establish a framework for choosing between outsourcing and in-house FM routes

Findings

A process chart was developed for use by property and facilities managers in making a strategic choice between outsourcing and in-house approaches to providing part or whole of FM services. The process chart ensures that wider criteria, other than costs, are considered, which underpin value addition in the provision of FM services. Figure depicts the conceptual framework for choosing between outsourcing and in-house FM routes.

Recommendations

A framework was developed, which provides strategic guidance in choosing between outsourcing and in-house approaches to part or whole of FM services. This ensures taking into consideration a wider range of key variables underpinning value-adding selection – a marked departure from the current practice of concentrating on financials to the exclusion of other equally important variables that add value.

In order to be globally competitive in this challenging and rapidly developing FM industry, the study recommends the use of the framework in making value adding selection to facilities managers, property managers and other stakeholders who may be faced with the dilemma of choosing between outsourcing and in-house approaches to providing FM services.

REFERENCES

Alkhafaji, A.F. (2003). *Strategic Management: Formulation, Implementation, and Control in a Dynamic Environment*. London, New York: The Haworth Press.

Amaratunga, D., Baldry, D. & Sashar, M. (2000). Assessment of facilities management performance – what next? *Facilities*, 18 (1/2), pp.66-75.

Alexander, K. (1996). *Facilities Management: Theory and Practice.* London, New York: E&FN Spoon.

Alexander, K. (1999). *Editorial in Euro FM Practice: Facilities Management*. Nieuwegein: ARKO Publishers.

Atkin, B. (2003). Contracting Out or Managing Services In-house*. Nordic Journal of Surveying and Real Estate Research: Special Series*, 1.

Atkin, B. & Brooks, A. (2000). *Total Facilities Management*. Oxford: Blackwell Publishing Ltd.

Atkin, B. & Brooks, A. (2005). *Total Facilities Management* (2nd ed.). Oxford: Blackwell Publishing Ltd.

Barrett, P. (1995). *Facilities Management: Towards Best Practice*. Oxford: Blackwell Science Ltd.

Barrett, P. & Baldry, D. (2003). *Facilities Management: Towards Best Practice (*2nd ed.). Oxford: Blackwell Publishing Ltd.

Becker, F. (1990). *Total Workplace: Facilities Management and the Elastic Organization*. New York: Van Nostrand Reinhold Company.

Behara, R.S., Gundersen, D.E., & Capozzoli, E.A. (1995). Trends in Information Systems Outsourcing. *International Journal of Purchasing*, 31(2), pp. 46-51.

Beitz, D. (1998). *Successful outsourcing - How to achieve the best advantage for your organization.* Keynote Address presented at the QUT Research Conference: Measuring and Managing Contractor Performance, Brisbane, 26-27 November, pp20-30.

Bernard Williams Associates (1999). *Facilities Economics: Incorporating Premises Audits.* Chippenham: BEB

Bettis, R., Bradley, S., & Hamel, G. (1992). *Outsourcing and Industrial decline*. Academy of Management Executive, 6 (1): 7-22.

Beulen, E.J.J., Ribbers, P.M.A, & Roos, J. (1994). *Outsourcing van IT-dienstverlening:een make or buy beslissing*, Kluwer.

Binder (1989). *Corporate Facility Planning: An Inside view for designers and managers,* New York: McGraw Hill Book Company.

Blumberg, D.F (1998). Strategic assessment of outsourcing and downsizing in the service market*. Managing Service Quality,* Vol.8, No.1, pp 5-18.

British Institute of Facilities Management (BIFM) (1999). Survey of facilities managers' responsibilities*. BIFM Members Survey, BIFM,* London.

Centre for Facilities Management (1992a). *An Overview of the Facilities Management Industry (Part 1).* Strathclyde Graduate Business School, Glasgow.

Centre for Facilities Management (1992b). *An Overview of the Facilities Management Industry (Part 2).* Strathclyde Graduate Business School, Glasgow.

Chang, C. & Ive, G. (2002). Rethinking the multi-attribute utility approach based procurement route selection technique. *Construction Management & Economics*, 20 (3), pp.275-284.

Chotipanich, S. (2004). Positioning facilities management. *Facilities,* 22 (13/14), pp. 364-372.

Collings, T. (2007). *Building and Operations Management*. Paper presented at the NZPI CPD Seminar 2007, Wellington, April 2007.

Connors, P. (2003). *Innovation Process and Innovativeness in Facility Management Organizations – Comparative Case Study*, Wageningen University, Netherlands. Accessed on 26/07/2006 from: http://www.strategic-rsb.nl/pdf

Cooper, D. R. & Emory, C. W. (1995). *Business Research Methods* (5th ed.). Chicago, USA: Richard D. Irwin Inc.

Davies, M. (1995). Outsourcing the transport. *Director*, 49 (1), p. 41.

D'Aveni, R., & Ravenscraft, D. (1994). Economies of integration versus bureaucracy costs: Does vertical integration improve performance? *Academy of Management Journal*, 37(5), pp.1167–1206.

Dess, G.G., Rasheed, A., Mclaughlin, K., & Priem, R. (1995). *The new corporate architecture*, Academy of Management Executive, 9(3), pp. 7-20.

Downey, J.M (1995.) Risk of outsourcing – applying risk management techniques to staffing methods. *Facilities,* Vol.13, No.9/10, pp 38-44.

El-Haram, M.A and Agapiou, A. (2002). The role of facility manager in new procurement routes*. Journal of Quality in Maintenance Engineering*, 8 (2), pp. 124-34.

Fill, C. & Visser, E. (2000). The outsourcing dilemma: a composite approach to the make or buy decision*. Management Decision*, 38(1), pp 43-50.

Gilley, K.M. & Rasheed, A. (2000). Making More by Doing Less: An Analysis of Outsourcing and its Effects on Firm Performance. *Journal of Management*, 26(4), pp. 763-790.

Greaver, M. (2007) *Strategic Outsourcing*. The Outsourcing Institute. Accessed on 15 June 2007 from: http://www.outsourcing.com/content.asp?page=02i/articles/intelligence/greaver interview.html&nonav=true

Hamel, G. & C.K.Prahalad (2002). Competing for the future. In Henry J. & D. Mayle (Ed.), *Managing innovation and change*. London, UK: The Open University & SAGE Publications.

Hamer, J.M. (1988). *Facility Management Systems*. New York: Van Nostrand Reinhold Company.

Hamilton, B. (2004). *Recent Trend in Facilities Management*. Paper presented at the International Construction Conference 2004.

Harkins, J. (1996). Why buy outside design? *Machine Design*, 68(10), p. 126.

Harrigan, K.R. (1985). Exit barriers and vertical integration. *Academy of Management Journal*, 28(3), pp. 686-697.

Hiemstra, G. & Van Tilburg, J.J. (1993). *Inzicht in uitbesteding: ondernemingsstrategie en besturing.* Assen: Van Gorcum.

Hinks, J. (1998). *Realising the Strategic Potential of Facilities Management: A Framework for Discussion.* Research Workshop of the 1998 BIFM Annual Conference, Cambridge, 21-23 September 1998.

HRO Today (2003). *Human resource outsourcing today*. Accessed on 22 July 2006 from: www.hrotoday.com.

Huff, S. (1991). Outsourcing of information systems. *Business Quarterly*, 55(4), pp. 62-5.

Ilozor, B (2001). Facilities Management Lecture Series, Deakin University, Australia.

International Facilities Management Association (IFMA) (2006), Accessed on 25/07/2006 from: (http://www.ifma.org)

Jan van Ree, H. and McLennan, P. (2006) FM service quality indicators – benefiting supplier and customer. *Proceedings of the 2nd International Conference of the CRC for Construction Innovation: Clients Driving Innovation - Moving Ideas into Practice*, 12-14 March, Gold Coast Australia.

Jones, O. (2000). Facility Management: future opportunities, scope and impact. *Facilities*, 18(3/4), pp133-7.

Kelly, J., Morledge, R. & Wilkinson, S. (2002) *Best Value in Construction*. Oxford: Blackwell Science Ltd.

Kincaid, D. (1996). *An Overview of Facilities Management Development*. Paper written for the RICS Conference, "*Switching to Facilities Management*".

Kotabe, M. & Murray, J. (1990*).* Linking product and process innovations and modes of international sourcing in global competition: A case of foreign multinational firms. *Journal of International Business Studies*, 3, pp. 383-408.

Kotabe, M. (1992). *Global sourcing strategy: R&D, manufacturing and marketing interfaces*, New York: Quorum.

Lankford, W.M & Parsa, F. (1999). Out-sourcing: a primer*. Management Decision,* 37 (4), pp. 310-316.

Luciani, P (2005.) Outsourcing or in-house Facilities Management? *Facilities Management*, February / March, pp 016-021.

Markides, C., & Berg, N. (1988). Manufacturing offshore is bad business. *Harvard Business Review,* September-October: 113-120.

Massey University (2006). Accessed on 31/08/2006 from: (http://humanethics.massey.ac.nz/massey/research/ethics/human-ethics/code/principle-appl.cfm)

McCarthy, E. (1996). *To outsource or not to outsource-what's right for you? Pension Management,* 32(4), pp12-17.

McDougall, G. (1999). *The aspects and purposes of facilities management performance measurement*. Unpublished paper, Heriot-Watt University.

Moran, M. & Taylor, J. (1998). Managing Risk and Outsourcing*. FMA News*, Australia.

Mudrak, T., Wagenberg, A.V., & Wubben, E. (2004). Assessing he innovative ability of FM teams: a review*. Facilities,* 22(11/12), pp. 290-295.

Naoum, S.G. (2003). *Dissertation research and writing for construction students.* UK: Elsevier.

Nutt, B. (1997). Adapting and Reusing Buildings. *International Journal of FM*, 1(3), pp. 113-121.

Nutt, B. (1999). Linking FM practice and research*. Facilities,* 17(1/2), pp.11-17.

Nutt, B. (2004). Infrastructure and facilities: forging alignments between supply and demand: cited in Chotipanich, S. (2004) Positioning facilities Management*. Facilities*, 22(13/14), pp. 364-372.

Practical Facilities Management (2006). Outsourcing, a variable practice – FMs have their say in 3rd PHS Survey. *PHS Quarterly FM Survey*. Assessed on 4 June 2007 from http://www.practicalfm.co.uk/

Price, I. & Akhlaghi, F. (1999). New patterns in facilities management: industry and best practice and new organizational theory*. Facilities*, 17(5/6), pp. 159-66.

Quinn, J.B. (1992). *Intelligence Enterprise: A knowledge and service based paradigm for industry*, New York: Free Press, p.37.

Roberts, P. (2001). *Corporate competence in FM: current problems and issues. Facilities*, 19(7/8), pp.269-75.

Rothery, B. & Robertson, I. (1995). *TheTruth About Outsourcing*., Aldershot: Gower Publishing.

Salonen, A. (2006). *Relational Risk and Realtionship Management in Facilities Management Partnerships.* Unpublished Doctoral Dissertation, Helsinki University of Technology.

Shah, S. (2007). *Sustainable Practice for the Facilities Manager*. Oxford: Blackwell Publishing.

Spedding, A. & Holmes, R. (1994*). Facilities Management*, *CIOB Handbook of Facilities Management.* England: Longman Scientific and Technical.

Strategic Facilities Management Section (SFMS) (2006), Strategic Facilities Management. Palmerston North: Massey University.
Accessed on 13 December 2006 from:
http://www.massey.ac.nz/massey/depart/admin/sfm/strategic-facilities-management_home.cfm

Tan, W. (2002). *Practical Research Methods*. Singapore: Pearson Education Asia Pte Ltd.

Tay,L. & Ooi, J.T.L. (2001). Facilities management: a 'Jack of all trades'? *Facilities,* 19 (10), pp. 357-62.

Teece, D. (1987). *Capturing value from technological innovation: Integration, strategic partnering, and licensing decisions,* In B.Guile & H. Brooks (Eds), *Technology and global industry, pp.* 65-95, Washington: National Academy Press.

The American Library of Congress (1989).

The Outsourcing Institute (2006). Accessed on 16 June 2007 from: http://www.outsourcing.com

Then, D.S.S. & Akhlaghi, F. (1990). This paper is based on an update of an unpublished paper *"The case for proper facilities management education",* presented at the CIB W70 Plenary Seminar in Paris May 1991.

Then, D.S.S (1999). An integrated resource management view of facilities management*, Facilities,* 17(12/13), pp. 462-469.

Transfield, D. & Akhlagi, F. (1995). Performance measures: relating facilities to business indicators*. Facilities,* 13(3), March, 6-14.

Usher, N. (2004). Outsource or in-house facilities management: The Pros and Cons. *Journal of Facilities Management*, 2(4); ABI/INFORM Global; pp.351-359.

Venkatraman, N. (1989). Beyond Outsourcing: Managing IT resources as a value center, *Sloan Management Review*, 38, pp. 51-64.

Vorkurka, R. & Fleidner, G. (1995). Measuring operating performance: a specific case study. *Production and Inventory Management Journal*, 36(1), pp.38-43.

Welch, J.A. & Raganath Nayak, P. (1992). *Strategic sourcing: a progressive approach to the make-or-buy decision*. Academy of Management Executive, 6(1), pp. 23-31.

Winkleman, M., Dole D., Pinkard, L.Molloy, J. et al (1993) *"The outsourcing source book" Journal of Business Strategy*, 14(3), May/June, pp. 52-6.

Wise, D. (2007). Agility Spotlight and Leadership in Project Management. *Project Management Institute (PMI)*, pp.60-61.

Worthing, D. (1994). Strategic Property Management. In A.Spedding (Ed.), *CIOB Handbook of Facilities Management*. London: Longman Scientific & Technical.

Zikmund, W. G. (1997). *Business Research Methods* (4th ed.). New York: The Dryden Press.

Comment [ITS1]: In view of the deletions made in the body of the report, ensure that only cited references are listed in the References section above. The rest of the sources should be included in the Bibliography

BIBLIOGRAPHY

Aarts, A.A.G., Navest, L.M. & Schoenmakers, A.M.D.C. (1995). *Trends in uitbesteding: onderzoek naar de praktijk van uitbesteding in Nederland*. Rotterdam: Moret, Ernst & Young.

Beitz, D. (1998). *Successful outsourcing - How to achieve the best advantage for your organization.* Keynote Address presented at the QUT Research Conference: Measuring and Managing Contractor Performance, Brisbane, 26-27 November, pp20-30.

Bouma, G.D. & Ling, R. (2004). *The Research Process, (5th ed.)*. Australia: Oxford University Press.

Browne, C. & Wheeler, D. (2002). How your "stay back" can hold back your outsourcing efforts. *Journal of Facilities Management*, 4(2), pp. 126-133. Accessed on 5 June 2007 from http://www.fmlink.com/ProfResources/Magazines/JFM

Cotts, D.G. & M.Lee (1992). *The Facility Management Handbook*, New York, USA: AMACOM.

Cotts, D.G. (1999). *The Facility Management Hand Book (2nd ed.).* New York, USA: AMACOM.

FM World (2006). FM World Salary Survey 2006. *Facilities Management Resources*. Assessed on 18 May 2007 from http://www.fm-world.co.uk/

Gupta, U.G. & Gupta, A. (1992). *Outsourcing the IS Function: is it necessary for your organization. Information Systems Management,* pp. 44-50.

Hamer, J.M. (1991). *Facility Management Systems*. New York: Van Nostrand Reinhold Company.

Jones, O. (2000). Facility Management: Future opportunities, scope and impact. *Facilities*, 18(3/4), pp.133-137. Accessed on 25 July 2006 from http://www.emerald-library.com

Jordon, A. (1994). Facilities management and the organization. In A.Spedding (Ed). *CIOB Handbook of Facilities Management*. London: Longman Scientific & Technical.

Keller, G., Warrack, B. & Bartel, H. (1990). *Statistics for Management and Economics: A systematic approach, (2nd ed.).* Belmont: Wadsworth Publishing Company.

Leedy, P.D. (1989). *Practical Research: Planning and Design, (4th ed.).* New York: MacMillan Publishing Company.

Lind, D.A., Marchal.W.G., & Wathen, S.A. (2005). *Statistical Techniques in Business and Economics, (12th ed.)*. New York: McGraw-Hill Irwin.

Mauch, J.E., & Birch, J.W. (1998). *Guide to the successful thesis and dissertation: A handbook for student and faculty* (4th ed.). New York: Marcel Dekker.

McMillan, J. H., and Schumacher, S. (1984). *Research in education: A conceptual introduction*. Boston: Little, Brown.

Newman, I., Benz, C.R., Weis, D., McNeil, K. (1997). *Theses and dissertations: A guide to writing in the social and physical sciences.* Maryland, MA: University Press of America.

Park, A. (1994). *Facilities Management: An Explanation*. Basingstoke: Macmillan.

Spedding, A. (1994). *CIOB Handbook of Facilities Management*. London: Longman Scientific & Technical.

Springer, T. (2001). *Facilities management – an intro*duction, in Teicholz, E. (Ed), *Facility Design and Management Handbook*. New York: McGraw-Hill.

Wauters, B. (2005). The added value of facilities management: benchmarking work processes. Facilities, 23(3/4), pp.142-157.

Webster, W.G. (1998). *Developing and writing your thesis, dissertation or project: A manual of sound advice about conceptualising, organising, developing and finalising your terminal graduate research*. San Ramon, CA: Academic Scholarwrite.

APPENDICES

APPENDIX A: DOCUMENTS USED IN PLANNING AND CONDUCTING THE PILOT INTERVIEWS

APPENDIX A1: LETTER OF REQUEST FOR INTERVIEW

Department of Construction
Institute of Technology & Engineering, College of Sciences,
Private Box 756, Wellington, Fax: 04 801 2694; Tel: 021 2131293; Email: M.A.Kamarazaly@massey.ac.nz

Wayne Bradford
Transfield Services
Executive Manager
Facilities Management, Strategy & Development
Australia
Tel: 613 8823 7771

Date: 27th November 2007

Dear Mr Wayne Bradford,

RESEARCH SURVEY: OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION

Facilities management (FM) adds value to organisations in a variety of ways. Both outsourcing and in-house constitute alternate approaches to parts or whole of FM services in an organisation. However, due to lack of effective decision making framework, organisations make subjective decisions in choosing between outsourcing and in-house facilities management approaches. These decisions are usually based on one variable - cost efficiency. Consequently by leaving out other equally important variables in their decision making, organisations fail to achieve optimum value from FM functions. There is therefore the need to research the key variables underlying effective and efficient facilities management service provisions with a view to establishing a framework for selection based on optimum value addition.

This is the objective of a Masters research in the Institute of Technology and Engineering, Massey University. The outcome of the study will include a methodical framework for choosing between outsourcing and in-house FM routes to FM service delivery. The findings will benefit both service and client organizations by identifying the significant value-adding criteria underpinning effective facilities management service provisions, and assessing the suitability of the use of outsourcing and in-house approaches in delivering FM routes.

Feedback from representatives of reputable organizations, such as you, will help to achieve the objectives of the study. We would therefore be grateful if you could grant us a twenty-minute interview for this purpose. We assure that your responses will be treated with strictest confidentiality and will be used solely for the purpose of this research.

Enclosed is a schedule of possible appointment dates and times. Kindly indicate any two preferred appointments and return it by fax as indicated.

We anticipate your kind response soonest.

Sincerely yours,

Miss Myzatul Aishah Kamarazaly
(Researcher)

Dr. Jasper Mbachu
(Supervisor)

APPENDIX A2: INTERVIEWEE'S CHOICE OF DATE AND TIME SLOTS

OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION

Research survey by Miss Myzatul Aishah Kamarazaly, Department of Quantity Surveying, Institute of Technology and Engineering, Massey University, Wellington, New Zealand.

Kindly tick any two dates and time slots among the options indicated below:

PREFERRED DATE:

☐ 04/12/06 (Mon)	☐ 05/12/06 (Tue)	☐ 06/12/06 (Wed)
☐ 07/12/06 (Thurs)	☐ 08/12/06 (Fri)	☐ 11/12/06 (Mon)
☐ 12/12/06 (Tue)	☐ 13/12/06 (Wed)	☐ 14/12/06 (Thurs)
☐ 15/12/06 (Fri)	☐ 18/12/06 (Mon)	☐ 19/12/06(Tue)

TIME:

☐ 8.00am - 8.30am	☐ 9.00am - 9.30am	☐ 10.00am - 10.30am
☐ 11.00am - 11.30am	☐ 12.00noon - 12.30pm	☐ 1.00pm - 1.30pm
☐ 2.00pm - 2.30pm	☐ 3.00pm - 3.30pm	☐ 4.00pm - 4.30pm
☐ 5.00pm - 5.30pm	☐ Other (kindly specify): _____	

Please indicate your name: _____

Physical contact address
(for the interview): _____

_____

Kindly fax this sheet to: 04 801 2694. Attention: Miss Kamarazaly, M.A

Thank you!

APPENDIX A3: LETTER OF CONFIRMATION OF INTERVIEW SCHEDULE

Massey University

Department of Construction
Institute of Technology & Engineering, College of Sciences,
Private Box 756, Wellington, Fax: 04 801 2694; Tel: 021 2131293; Email: M.A.Kamarazaly@massey.ac.nz

Graham Coupland
2006
Facilities Manager
State Services Commission
Wellington
New Zealand
Tel: 04 495 6628
Fax: 04 495 6638

Date: 6th November

Dear Mr Graham Coupland,

CONFIRMATION OF INTERVIEW SCHEDULE

This is to thank you for granting my request for research interview and to notify you the exact date and time scheduled out of the two preferences you earlier indicated.

The schedule details are as follows:

1. Date: Wednesday, 13th November 2006
2. Time: 9.00am
3. Venue: 100, State Services Commission, Molesworth Street, Thorndon, Wellington, New Zealand.

Please find attached a copy of the interview questions.

If you have any reservations in respect of the above, please don't hesitate to inform us. Once again, thank you for your co-operation. I look forward to meeting with you.

Sincerely yours,

Miss Myzatul Aishah Kamarazaly
(Researcher)

Dr. Jasper Mbachu
(Supervisor)

APPENDIX 4A: INTERVIEW QUESTIONS

RESEARCH SURVEY

Outsourcing and In-house Facilities Management: Framework for Value-Adding Selection

By:
Miss Myzatul Aishah Kamarazaly
Department of Construction, Institute of Technology and Engineering, College of Sciences,
Massey University, Wellington, New Zealand

SECTION I : FACILITIES AND PROPERTY MANAGERS' PERCEPTIONS

1 Value addition is at the heart of facilities management (FM) services. For each of the following broad categories of FM services or functional areas, in what ways do you think value could be added, given the uniqueness of the functional area? Kindly add other broad service categories and their respective value adding functions, if need be.

A ***Strategic FM functions***

i

ii

iii

iv

B ***Operational FM functions***

i

ii

iii

iv

C ***Property development / Project management functions***

i

ii

iii

iv

C ***Property development / Project management functions***

i

ii

iii

iv

D ***General services***

i

ii

iii

iv

APPENDIX 4A: INTERVIEW QUESTIONS (continued)

SECTION II: DEMOGRAPHIC BACKGROUND

1 In which stream of the PINZ (Property Institute of NZ) or Facility Management Association do you primarily belong?

- ☐ Property Management
- ☐ Property Consultancy
- ☐ Property Development
- ☐ Financial Analysis
- ☐ Project Management
- ☐ Property Valuation
- ☐ Facilities Management
- ☐ Plant and Machineries Valuation
- ☐ Real Estates and Leasing
- ☐ Other (please specify): _____

2 What is the length of your experience in the property or facility management practice?

☐ <5yrs ☐ 5 - 10yrs ☐ 11 - 15 yrs ☐ > 15 yrs

3 Please indicate the purpose group of buildings or facilities you manage:

- ☐ Office / Commercial / Industrial
- ☐ Sports / Games / Entertainment / Leisure
- ☐ Tourism / Hotel / Catering
- ☐ Institutional
- ☐ Others (please specify): _____

4 What class of client best describes the owner of the facilities you manage?

- ☐ Property Developer [1]
- ☐ Owner-Occupier [2]
- ☐ Property Investor [3]
- ☐ Other (please specify): _____

[1] *Develops or refurbushes property for other client groups*
[2] *Acquires property for enchancement of business processes*
[3] *Deals in property as a business*

5 Kindly indicate your status in the organization.

- ☐ Director / Senior partner
- ☐ Supervisor
- ☐ Other (please specify): _____
- ☐ Manager
- ☐ Trainee

6 Kindly comment generally on the topic or offer any useful advice that may assist the researcher in this project.

_____

_____

APPRECIATION

Thank you for your time. Kindly fax the filled questionnaire to : +64 4 801 2694; Attention: ***Miss Myzatul Aishah Kamarazaly*** *. If you have any comments in relation to the contents, you may wish to contact the researcher on +64 21 2131293 (cell); Email: aishah_babygal@yahoo.com. Else, please state your overall comments below, if any:*

_____

_____

_____

_____

APPENDIX B: DOCUMENTS USED IN PLANNING AND CONDUCTING THE QUESTIONNAIRE SURVEYS

APPENDIX B1: COVERING LETTER FOR THE QUESTIONNAIRE ADMINISTRATION

Massey University

Department of Construction
Institute of Technology & Engineering, College of Sciences,
Private Box 756, Wellington, Fax: 04 801 2694; Tel: 021 2131293; Email: M.A.Kamarazaly@massey.ac.nz

Bruce Kenning
Director of Property Management
Private Bag 901
Upper Hutt
New Zealand
Tel: 04 527 5910
Fax: 04 527 5936

Date: 3rd January 2007

Dear Mr Bruce Kenning,

RESEARCH SURVEY: OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION

Facilities management (FM) adds value to organisations in a variety of ways. Both outsourcing and in-house constitute alternate approaches to parts or whole of FM services in an organisation. However, due to lack of effective decision making framework, organisations make subjective decisions in choosing between outsourcing and in-house facilities management approaches. These decisions are usually based on one variable - cost efficiency. Consequently by leaving out other equally important variables in their decision making, organisations fail to achieve optimum value from FM functions. There is therefore the need to research the key variables underlying effective and efficient facilities management service provisions with a view to establishing a framework for selection based on optimum value addition.

This is the objective of a Masters research in the Institute of Technology and Engineering, Massey University. The outcome of the study will include a methodical framework for choosing between outsourcing and in-house FM routes to FM service delivery. To meet the objectives of the research, the attached questionnaire has been carefully designed and pre-tested among some facilities managers and property managers and will take approximately 10 to 15 minutes to complete.

We therefore request your response to the survey, which will enhance the reliability and validity of the research findings. Your responses will be treated in strict confidence, and will be used solely for the purpose of the study. Kindly fax or email the filled questionnaire to the address indicated. If you would be interested in the key findings of this study and prefer anonymity, kindly fill the attached Summary Request Form and return it separately.

Thank you in anticipation of your helpful response.

Yours sincerely,

Miss Myzatul Aishah Kamarazaly
(Researcher)

Dr. Jasper Mbachu
(Supervisor)

APPENDIX B2: SAMPLE COPY OF QUESTIONNAIRE *(page 1 of 4)*

RESEARCH SURVEY

Outsourcing versus In-house Facilities Management: Framework for Value-Adding Selection

By:
Miss Myzatul Aishah Kamarazaly
Department of Construction, Institute of Technology and Engineering, College of Sciences,
Massey University, Wellington Campus

SECTION I : FACILITIES AND PROPERTY MANAGERS' PERCEPTIONS

1 Listed below are some of the criteria underpinning effective or value-adding facilities management function. Three sets of ratings are required. The first is on the relative importance of each criterion in adding value to the organisation; the second and third are on the suitability of the use of outsourcing and in-house FM to perform the function. Kindly rate each criterion accordingly, using the five point rating scale provided as follows:

Relative importance ratings : 5 (VI) = Very important; 4 (I) = Important; 3 (SI) = Somewhat important; 2 (LI) = Of little importance; 1 (NI) = Not important

Suitability ratings : 5 (VS) = Very suitable; 4 (JS) = Just suitable; 3 (SS) = Somewhat suitable; 2 (NSS) = Not so suitable; 1 (NAS) = Not at all suitable

		Relative importance of criterion in adding value to the organisation					Suitability ratings: Use of out-sourced FM function					Suitability ratings: Use of in-house FM function				
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
	Criteria for value-adding FM function	VI	I	SI	LI	NI	VS	JS	SS	NSS	NAS	VS	JS	SS	NSS	NAS
A	***Strategic FM functions***															
1	Offering strategic advice based on knowledge of client's business															
2	Enhancing the competitiveness of core business															
3	Enhancing corporate values through formulating and communicating strategic facilities policy															
4	Developing facilities to meet business objectives and ensure business continuity															
5	Identifying business needs and user requirements															
6	Planning and designing for continuous improvement of service quality															
7	Offer downsizing, consolidation of units, acquisition or disposition of properties															
8	Enhance manageability, flexibility, sustainability of new,existing and adapted facility															
9	Ensure that a coherent view of property is fed into the overall strategy of the organisation															
10	Provide economically and efficiently for the present and future need of clients, either by arranging for reallocation of space within existing estate or by building, purchasing or leasing additional property															
	Other criteria: Please specify:															
11																

APPENDIX B2: SAMPLE COPY OF QUESTIONNAIRE *(page 2 of 4)*

		Relative importance of criterion in adding value to the organisation					Suitability ratings: Use of out-sourced FM function					Suitability ratings: Use of in-house FM function				
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
	Criteria for value-adding FM function	VI	I	SI	LI	NI	VS	JS	SS	NSS	NAS	VS	JS	SS	NSS	NAS
B	***Operational FM functions***															
1	Offer service quality in support of business operations															
2	Ensuring effective purchasing and contracting strategies															
3	Improve facilities to enhance operational efficiencies															
4	Establish productive workplace and low operating and maintenance costs															
5	Organise an effectual organisational structure that plans, schedules and measures work activity and productivity															
6	Provide excellent, safe, secure and healthy working environment															
7	Meet the standard needs and quality of the performance															
8	Identify and clearly define all required services including interfaces															
9	Establish a budgets to achieve best value over the longer term															
10	Maintain the operational fitness and value of the estate by timely and adequate maintenance and reduction of facility deterioration and obsolesence															
11	Minimise equipment and structural failures															
12	Maximise trade staff productivity															
	Other criteria: Please specify:															
13																
C	***Property development / Project management functions***															
1	Provide efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule															
2	Scope management															
3	Compliance with quality or specifications															
4	Monitor and control the integrative planning and implementation to ensure performance satisfaction															
5	Appropriate balance of time, quality, cost															
6	Consideration of operation and maintenance needs															

APPENDIX B2: SAMPLE COPY OF QUESTIONNAIRE *(page 3 of 4)*

	Criteria for value-adding FM function	Relative importance of criterion in adding value to the organisation					Suitability ratings: Use of out-sourced FM function					Suitability ratings: Use of out-sourced FM function				
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
		VI	I	SI	LI	NI	VS	JS	SS	NSS	NAS	VS	JS	SS	NSS	NAS
C	***Property development / Project management functions (Cont'd)***															
7	Quality of project close off including asset records, maintenance information and warranties															
8	*Other criteria: Please specify:*															
D	***General services***															
1	Cost efficiency															
2	Quality of service															
3	Speed of service including emergency response															
4	Improve corporate image															
5	Provide support services to overall facilities management															
6	Offer reorganisation or relocation associated with addition or loss of staff, loss or gain of leased space, installation of new equipment, reorganisation of functional units or changes in work process															
7	Offer broader experience and best practice															
8	Provide effective space management within existing parameters and forecast efficient utilization															
9	*Other criteria: Please specify:*															

2 In your organisation, how would you rate the levels of importance of the following functional areas of Facility Management?

	Functional Areas of Facility Management	Relative importance of criterion in adding value to the organisation					Suitability ratings: Use of out-sourced FM function					Suitability ratings: Use of in-house FM function				
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
		VI	I	SI	LI	NI	VS	JS	SS	NSS	NAS	VS	JS	SS	NSS	NAS
A	Strategic Management															
B	Operational Management															
C	Property Development / Project Management															
D	General Services															

APPENDIX B2: SAMPLE COPY OF QUESTIONNAIRE *(page 4 of 4)*

SECTION II: DEMOGRAPHIC BACKGROUND

1 In which stream of the PINZ (Property Institute of NZ) or Facility Management Association or RICS Facilities Management do you primarily belong?

- ☐ Property Management
- ☐ Property Consultancy
- ☐ Property Development
- ☐ Financial Analysis
- ☐ Project Management
- ☐ Other (please specify): _____
- ☐ Property Valuation
- ☐ Facilities Management
- ☐ Plant and Machineries Valuation
- ☐ Real Estates and Leasing

2 What is the length of your experience in the Property Industry or Facility Management practice?

☐ <5yrs ☐ 5 - 10yrs ☐ 11 - 15 yrs ☐ > 15 yrs

3 Please indicate the purpose group of buildings or facilities you manage:

- ☐ Office / Commercial / Industrial
- ☐ Sports / Games / Entertainment / Leisure
- ☐ Others (please specify): _____
- ☐ Tourism / Hotel / Catering
- ☐ Institutional

4 What class of client best describes the owner of the facilities you manage?

- ☐ Property Developer [1]
- ☐ Owner-Occupier [2]
- ☐ Property Investor [3]

[1] *Develops or refurbushes property for other client groups*
[2] *Acquires property for enchancement of business processes*
[3] *Deals in property as a business*

5 Kindly indicate your status in the organization.

- ☐ Director / Senior partner
- ☐ Supervisor
- ☐ Other (please specify): _____
- ☐ Manager
- ☐ Trainee

6 Kindly comment generally on the topic or offer any useful advice that may assist the researcher in this project.

_____

_____

APPRECIATION

Thank you for your time. Kindly fax the filled questionnaire to : +64 4 801 2694; Attention: ***Miss Myzatul Aishah Kamarazaly****. If you have any comments in relation to the contents, you may wish to contact the researcher +64 21 2131293 (cell); Email: aishah_babygal@yahoo.com. Else, please state your overall comments below, if any:*

_____

_____

Disclaimer: This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Ethics & Equity), telephone 06 350 5249, e-mail humanethics@massey.ac.nz

APPENDIX B3: REQUEST FORM FOR SUMMARY OF KEY RESEARCH FINDINGS

ATTENTION: MISS MYZATUL KAMARAZALY

FAX: +64 4 801 2694

REASEARCH ON:

Outsourcing versus In-house facilities management:

Framework for value-adding selection

I would like to receive a summary of the key findings of the research. My contact details are as follows.

Name and address of company (optional): _____

_____

_____

_____

_____

Telephone: _____

Fax: _____

Attention: _____

E-mail: _____

APPENDIX B4: QUESTIONNAIRE RESPONSE REMINDER

Massey University

Department of Construction
Institute of Technology & Engineering, College of Sciences,
Private Box 756, Wellington, Fax: 04 801 2694; Tel: 021 2131293; Email: M.A.Kamarazaly@massey.ac.nz

Barry Smith
P.O.Box 558
Wellington
New Zealand
Tel: 04 471 6622
Fax: 04 471 6621

Date: 22nd January 2007

Dear Mr Barry Smith,

RE: OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION

We wish to remind you regarding the questionnaire on the above subject which was mailed to you some weeks ago.

If you have already filled and ailed back the questionnaire, then accept our appreciation for your time and participation in the research. If otherwise, kindly do so urgently. The questionnaire would take approximately 15 minutes to be completed.

Your input is very valuable for my research; I would appreciate it if you could find some 15 minutes to complete the questionnaire and return it to me by fax or mail as soon as possible. Your comments on the relevance or clarity of the questions will also be appreciated.

If you are receiving this mail for the first time, or the original questionnaire mailed to you is no longer available, please open and print the attached covering letter and questionnaire. Then kindly return the completed questionnaire using the freepost address indicated in the covering letter.

Thank you for supporting this study.

Yours faithfully,

Miss Myzatul Aishah Kamarazaly
(Researcher)

Dr. Jasper Mbachu
(Supervisor)

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES

APPENDIX C1: COVERING LETTER FOR THE SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES

Department of Construction
Institute of Technology & Engineering, College of Sciences,
Private Box 756, Wellington, Fax: 04 801 2694; Tel: 021 2131293; Email: M.A.Kamarazaly@massey.ac.nz

Dave Povey
P.O.Box 600
Wellington
New Zealand
Tel: 04 463 6604
Fax: 04 463 5242

Date: 31st July 2007

Dear Mr Povey,

SUMMARY OF THE KEY RESEARCH FINDINGS: "OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION"

Thank you very much for participating in the above research survey and for your helpful inputs that contributed to the successful completion of the project.

As promised during the survey, I am pleased to provide you with the summary of the key findings of the study (see attached documents). Your responses were treated with utmost confidence as pledged. All responses have been destroyed in line with the requirements of Massey Human Ethics Committee. The findings of the study will be presented in conferences and will be published in journals subsequently.

Once again, thank you very much!

Yours sincerely,

Miss Myzatul Aishah Kamarazaly
(Researcher)

APPENDIX C2: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES

Summary of the key research findings

Research Objectives 1

To identify and prioritize the criteria underpinning value-adding facilities management (FM) services

Findings

A current thinking on the subject reveals that holistic FM services comprise four distinctive broad categories of FM service: strategic, operational, property development/ project management, and general services. The most important value adding criterion under each category is listed as follows. Strategic management: developing facilities to meet business objectives and ensure business continuity. Operational management: providing excellent, safe, secure and healthy working environment. Property development / project management: providing efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule. General services: maintaining high quality of services. Table A1-A4 illustrates the criteria underlying value-adding FM functions for broad categories of FM services in rank-ordered, respectively.

Research Objective 2:

To compare outsourcing and in-house approaches in terms of their value-adding capabilities in providing the broad and subcategories of FM functions

Findings

Results of the comparison between outsourcing and in-house approaches in terms of their value-adding capabilities in providing the components and sub-categories of FM functions showed that outsourcing was perceived to be more suited to providing the following FM functional areas; operational, property development / project management and general services. In contrast, in-house approach was perceived to be more suited to providing strategic FM functions. Table A5-A8 illustrates the comparison of the suitability of the use of both approaches in delivering FM routes.

Research Objective 3:

To establish a framework for choosing between outsourcing and in-house FM routes

Findings

A process chart was developed for use by property and facilities managers in making a strategic choice between outsourcing and in-house approaches to providing part or whole of FM services. The process chart ensures that wider criteria, other than costs, are considered, which underpin value addition in the provision of FM services. Figure depicts the conceptual framework for choosing between outsourcing and in-house FM routes.

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES (continued)

Conclusions and Recommendations

A framework was developed, which provides strategic guideline in choosing between outsourcing and in-house approaches to part or whole of FM services. This ensures taking into consideration a wider range of key variables underpinning value-adding selection – a marked departure from the current practice of concentrating on financials to the exclusion of other equally important variables that add value.

In order to be globally competitive in this challenging and rapidly developing FM industry, the study recommends the use of the framework in making value adding selection to facilities managers, property managers and other stakeholders who may be faced with the dilemma of choosing between outsourcing and in-house approaches to providing FM services.

Table A1: Strategic Management FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS 5	HS 4	MS 3	SS 2	NS 1				
	Criteria for value-adding strategic FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Developing facilities to meet business objectives and ensure business continuity.	66.7	33.3	0	0	0	60	4.67	0.11	1
2	Ensure that a coherent view of property is fed into the overall strategy of the organization.	80.0	6.67	13.3	0	0	60	4.67	0.11	2
3	Provide economically and efficiently for the present and future need of clients, either by arranging for reallocation of space within existing estate or by building, purchasing or leasing additional property.	73.3	20.0	6.67	0	0	60	4.67	0.11	3
4	Offering strategic advice based on knowledge of client's business.	53.3	40.0	6.67	0	0	60	4.47	0.11	4
5	Planning and designing for continuous improvement of service quality.	53.3	33.3	13.3	0	0	60	4.40	0.11	5
6	Enhance manageability, flexibility, sustainability of new, existing and adapted facility.	33.3	46.7	13.3	0	6.67	60	4.00	0.10	6
7	Identifying business needs and user requirements.	46.7	26.7	13.3	6.67	6.67	60	4.00	0.10	7
8	Enhancing the competitiveness of core business.	26.7	40.0	20.0	6.67	6.67	60	3.73	0.09	8
9	Offer downsizing, consolidation of units, acquisition or disposition of properties.	13.3	60.0	13.3	6.67	6.67	60	3.67	0.09	9
10	Enhancing corporate values through formulating and communicating strategic facilities policy.	6.67	33.3	46.7	6.67	6.67	60	3.27	0.08	10

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES (continued)

Table A2: Operational Management FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS	HS	MS	SS	NS				
		5	4	3	2	1				
	Criteria for value-adding operational FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Provide excellent, safe, secure and healthy working environment.	86.7	13.3	0	0	0	60	4.87	0.09	1
2	Establish budgets to achieve best value over the longer term.	86.7	13.3	0	0	0	60	4.87	0.09	1
3	Maintain the operational fitness and value of the estate by timely and adequate maintenance and reduction of facility deterioration and obsolescence.	80.0	20.0	0	0	0	60	4.8	0.09	3
4	Minimize equipment and structural failures.	73.3	26.7	0	0	0	60	4.73	0.09	4
5	Meet the standard needs and quality of the performance.	53.3	46.7	0	0	0	60	4.53	0.08	5
6	Offer service quality in support of business operations.	53.3	40.0	6.67	0	0	60	4.47	0.08	6
7	Improve facilities to enhance operational efficiencies.	60.0	26.7	13.3	0	0	60	4.47	0.08	6
8	Ensuring effective purchasing and contracting strategies.	53.3	33.3	13.3	0	0	60	4.40	0.08	8
9	Maximize trade staff productivity.	40.0	60.0	0	0	0	60	4.40	0.08	8
10	Establish productive workplace and low operating and maintenance costs.	60.0	26.7	6.67	0	6.67	60	4.33	0.08	10
11	Identify and clearly define all required services including interfaces.	26.7	66.7	6.67	0	0	60	4.20	0.08	11
12	Organize an effectual organizational structure that plans, schedules and measures work activity and productivity.	33.3	53.3	6.67	0	6.67	60	4.07	0.08	12

Table A3: Property Development / Project Management FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS	HS	MS	SS	NS				
		5	4	3	2	1				
	Criteria for value-adding property development / project management FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Provide efficient and effective project management in order to ensure operational requirements are met within specified budget and schedule.	73.3	26.7	0	0	0	60	4.73	0.15	1
2	Monitor and control the integrative planning and implementation to ensure performance satisfaction.	66.7	26.7	6.67	0	0	60	4.60	0.14	2
3	Scope management.	60.0	40.0	0	0	0	60	4.60	0.14	3
4	Compliance with quality or specifications.	53.3	46.7	0	0	0	60	4.53	0.14	4
5	Appropriate balance of time, quality, cost.	53.3	46.7	0	0	0	60	4.53	0.14	4
6	Consideration of operation and maintenance needs.	53.3	46.7	0	0	0	60	4.53	0.14	4
7	Quality of project close off including asset records, maintenance information and warranties.	46.7	46.7	6.67	0	0	60	4.40	0.14	7

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES (continued)

Table A4: General Services FM function

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

		Relative importance of criterion in adding value to the organization								
		VHS	HS	MS	SS	NS				
		5	4	3	2	1				
	Criteria for value-adding general services FM function	%	%	%	%	%	TR	MR	RII	Rank
1	Quality of service.	73.30	26.70	0.00	0.00	0.00	60	4.73	0.14	1
2	Cost efficiency.	66.70	33.30	0.00	0.00	0.00	60	4.67	0.14	2
3	Speed of service including emergency response.	60.00	33.30	6.67	0.00	0.00	60	4.53	0.14	3
4	Provide effective space management within existing parameters and forecast efficient utilization.	53.30	33.30	6.67	6.67	0.00	60	4.33	0.13	4
5	Offer broader experience and best practice.	20.00	60.00	13.30	0.00	6.67	60	3.87	0.12	5
6	Provide support services to overall facilities management.	6.67	80.00	6.67	0.00	6.67	60	3.80	0.12	6
7	Improve corporate image.	6.67	53.30	33.30	0.00	6.67	60	3.53	0.11	7
8	Offer reorganization or relocation associated with addition or loss of staff, loss or gain of leased space, installation of new equipment, reorganization of functional units or changes in work process.	0.00	46.70	46.70	0.00	6.67	60	3.33	0.10	8

Table A5: Suitability ratings of the use of outsourcing and in-house options in providing strategic FM services

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
	VHS	HS	MS	SS	NS					VHS	HS	MS	SS	NS				
Criteria for value-adding strategic FM function	5	4	3	2	1					5	4	3	2	1				
	%	%	%	%	%	TR	MR	CSS	Rank	%	%	%	%	%	TR	MR	CSS	Rank
1	53.3	13.3	0	13.3	20.0	60	3.67	0.41	1	66.7	33.3	0	0	0	60	4.67	0.52	1
2	20.0	13.3	20.0	20.0	26.7	60	2.80	0.31	9	53.3	20.0	20.0	6.67	0	60	4.20	0.47	4
3	36.7	6.67	20.0	20.0	16.7	60	3.27	0.37	4	40.0	46.7	13.3	0	0	60	4.27	0.48	3
4	13.3	26.7	13.3	26.7	20.0	60	2.87	0.31	8	80.0	0	13.3	6.67	0	60	4.53	0.49	2
5	26.7	40.0	0	13.3	20.0	60	3.40	0.36	2	33.3	46.7	20.0	0	0	60	4.13	0.44	5
6	33.3	13.3	26.7	6.67	20.0	60	3.33	0.32	3	13.3	46.7	26.7	6.67	6.67	60	3.53	0.34	8
7	20.0	33.3	6.67	20.0	20.0	60	3.13	0.30	5	40.0	46.7	0	6.67	6.67	60	4.07	0.39	6
8	26.7	13.3	20.0	20.0	20.0	60	3.07	0.28	6	26.7	20.0	13.3	33.3	6.67	60	3.27	0.29	10
9	33.3	6.67	13.3	20.0	26.7	60	3.00	0.26	7	26.7	20.0	33.3	13.3	6.67	60	3.47	0.31	9
10	0	13.3	20	33.3	33.3	60	2.13	0.17	10	60.0	6.67	20.0	6.67	6.67	60	4.07	0.32	6
					Overall Suitability Score	(OSS)	Σ	3.09						Overall Suitability Score	(OSS)	Σ	4.05	
					Overall Suitability Rating	(OSR)		MS						Overall Suitability Rating	(OSR)		HS	

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES (continued)

Table A6: Suitability ratings for the use of outsourcing and in-house options in providing operational FM services

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Overall Suitability ratings: OSS > 4.49 = VHS, 3.50 ≤ OSS ≤ 4.49 = HS, 2.5 ≤ OSS ≤ 3.4 = MS, 1.51 ≤ OSS ≤ 2.49 = SS, < 1.51 = NS (see Equation 4)

	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
	VHS	HS	MS	SS	NS					VHS	HS	MS	SS	NS				
Criteria for value-adding operational FM function	5	4	3	2	1					5	4	3	2	1				
	%	%	%	%	%	TR	MR	CSS	Rank	%	%	%	%	%	TR	MR	CSS	Rank
1	73.3	20.0	6.67	0	0	60	4.67	0.42	1	53.3	20.0	13.3	6.67	6.67	60	4.07	0.37	1
2	66.7	20.0	13.3	0	0	60	4.53	0.41	2	33.3	13.3	6.67	20.0	26.7	60	3.07	0.28	8
3	66.7	20.0	13.3	0	0	60	4.53	0.4	3	20.0	40.0	26.7	0	13.3	60	3.53	0.31	4
4	53.3	33.3	6.67	0	6.67	60	4.27	0.37	4	26.7	33.3	20.0	13.3	6.67	60	3.60	0.31	4
5	33.3	46.7	20.0	0	0	60	4.13	0.35	7	46.7	26.7	6.67	13.3	6.67	60	3.93	0.33	3
6	66.7	20.0	13.3	0	0	60	4.53	0.37	4	66.7	13.3	6.67	0	13.3	60	4.20	0.35	2
7	53.3	33.3	13.3	0	0	60	4.40	0.36	6	26.7	13.3	33.3	13.3	13.3	60	3.27	0.27	10
8	40.0	26.7	33.3	0	0	60	4.07	0.33	8	46.7	20.0	13.3	6.67	13.3	60	3.80	0.31	4
9	33.3	6.67	40.0	6.67	13.3	60	3.40	0.28	12	53.3	20.0	0	13.3	13.3	60	3.87	0.31	4
10	33.3	46.7	13.3	0	6.67	60	4.00	0.32	9	33.3	33.3	6.67	6.67	20.0	60	3.53	0.28	8
11	33.3	46.7	20.0	0	0	60	4.13	0.32	9	0	40.0	33.3	6.67	20.0	60	2.93	0.23	12
12	33.3	33.3	26.7	0	6.67	60	3.87	0.29	11	20.0	20.0	33.3	6.67	20.0	60	3.13	0.24	11
	Overall Suitability Score					(OSS)	Σ	4.22		Overall Suitability Score					(OSS)	Σ	3.59	
	Overall Suitability Rating						=	HS		Overall Suitability Rating						=	HS	

Table A7: Suitability ratings for use of outsourcing and in-house options in providing property development / project management FM services

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Overall Suitability ratings: OSS > 4.49 = VHS, 3.50 ≤ OSS ≤ 4.49 = HS, 2.5 ≤ OSS ≤ 3.4 = MS, 1.51 ≤ OSS ≤ 2.49 = SS, < 1.51 = NS (see Equation 4)

	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
Criteria for value-adding property development / project management FM function	VHS	HS	MS	SS	NS					VHS	HS	MS	SS	NS				
	5	4	3	2	1					5	4	3	2	1				
	%	%	%	%	%	TR	MR	CSS	Rank	%	%	%	%	%	TR	MR	CSS	Rank
1	40.0	46.7	13.3	0	0	60	4.27	0.49	3	40.0	33.3	13.3	0	13.3	60	3.87	0.45	1
2	46.7	26.7	20.0	6.67	0	60	4.13	0.46	4	13.3	46.7	26.7	0	13.3	60	3.47	0.39	5
3	53.3	26.7	20.0	0	0	60	4.33	0.49	2	26.7	26.7	20.0	20.0	6.67	60	3.47	0.39	3
4	60.0	26.7	13.3	0	0	60	4.47	0.49	1	46.7	26.7	6.67	6.67	13.3	60	3.87	0.43	2
5	40.0	26.7	33.3	0	0	60	4.07	0.45	6	26.7	33.3	13.3	13.3	13.3	60	3.47	0.38	3
6	40.0	33.3	26.7	0	0	60	4.13	0.46	5	0	40.0	40.0	13.3	6.67	60	3.13	0.35	6
7	40.0	20.0	40.0	0	0	60	4.00	0.43	7	20.0	13.3	40.0	13.3	13.3	60	3.13	0.34	7
	Overall Suitability Score					(OSS)	Σ	3.27		Overall Suitability Score					(OSS)	Σ	2.72	
	Overall Suitability Rating						=	MS		Overall Suitability Rating						=	MS	

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES (continued)

TableA8: Suitability ratings for the use of outsourcing and in-house options in providing general services

Suitability ratings: 5 (VHS) = Very highly suitable; 4 (HS) = Highly suitable; 3 (MS) = Moderately suitable; 2 (SS) = Somewhat suitable; 1 (NS) = Not at all suitable; SI = Criterion Suitability Score (see Equation 3)

Overall Suitability ratings: OSS > 4.49 = VHS, 3.50 ≤ OSS ≤ 4.49 = HS, 2.5 ≤ OSS ≤ 3.4 = MS, 1.51 ≤ OSS ≤ 2.49 = SS, < 1.51 = NS (see Equation 4)

	Suitability ratings																	
	Use of out-sourced FM function									Use of in-house FM function								
	VHS	HS	MS	SS	NS					VHS	HS	MS	SS	NS				
Criteria for value-adding	5	4	3	2	1					5	4	3	2	1				
general services FM function	%	%	%	%	%	TR	MR	CSS	Rank	%	%	%	%	%	TR	MR	CSS	Rank
1	40.0	46.7	13.3	0	0	60	4.27	0.62	1	46.7	26.7	0	13.3	13.3	60	3.80	0.55	3
2	46.7	26.7	20.0	6.67	0	60	4.13	0.59	2	60.0	20.0	6.67	6.67	6.67	60	4.20	0.60	1
3	33.3	53.3	6.67	6.67	0	60	4.13	0.57	3	53.3	20.0	6.67	13.3	6.67	60	4.00	0.55	2
4	26.7	33.3	20.0	20.0	0	60	3.67	0.48	4	26.7	6.67	26.7	26.7	13.3	60	3.07	0.41	5
5	0	40.0	13.3	33.3	13.3	60	2.8	0.33	7	46.7	20.0	13.3	6.67	13.3	60	3.80	0.45	4
6	13.3	66.7	0	13.3	6.67	60	3.67	0.42	5	13.3	60.0	0	0	26.7	60	3.33	0.39	6
7	40.0	13.3	26.7	13.3	6.67	60	3.67	0.39	6	20.0	13.3	13.3	33.3	20.0	60	2.80	0.30	8
8	6.67	33.3	20.0	26.7	13.3	60	2.93	0.30	8	20.0	13.3	26.7	26.7	13.3	60	3.00	0.30	7
	Overall Suitability Score (OSS) Σ = 3.70									Overall Suitability Score (OSS) Σ = 3.54								
	Overall Suitability Rating = HS									Overall Suitability Rating = HS								

APPENDIX C: SUMMARY OF KEY RESEARCH FINDINGS AND SUPPORTING CHARTS AND TABLES (continued)

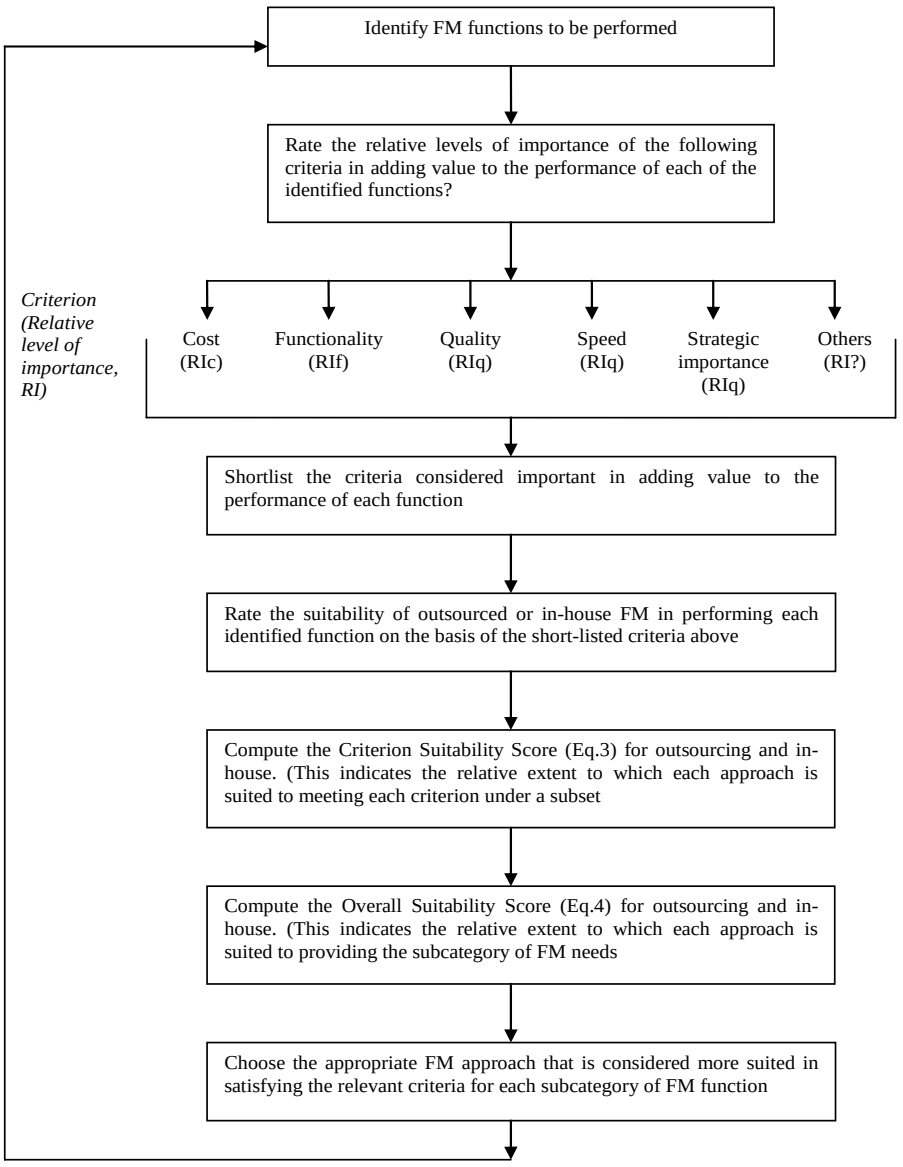
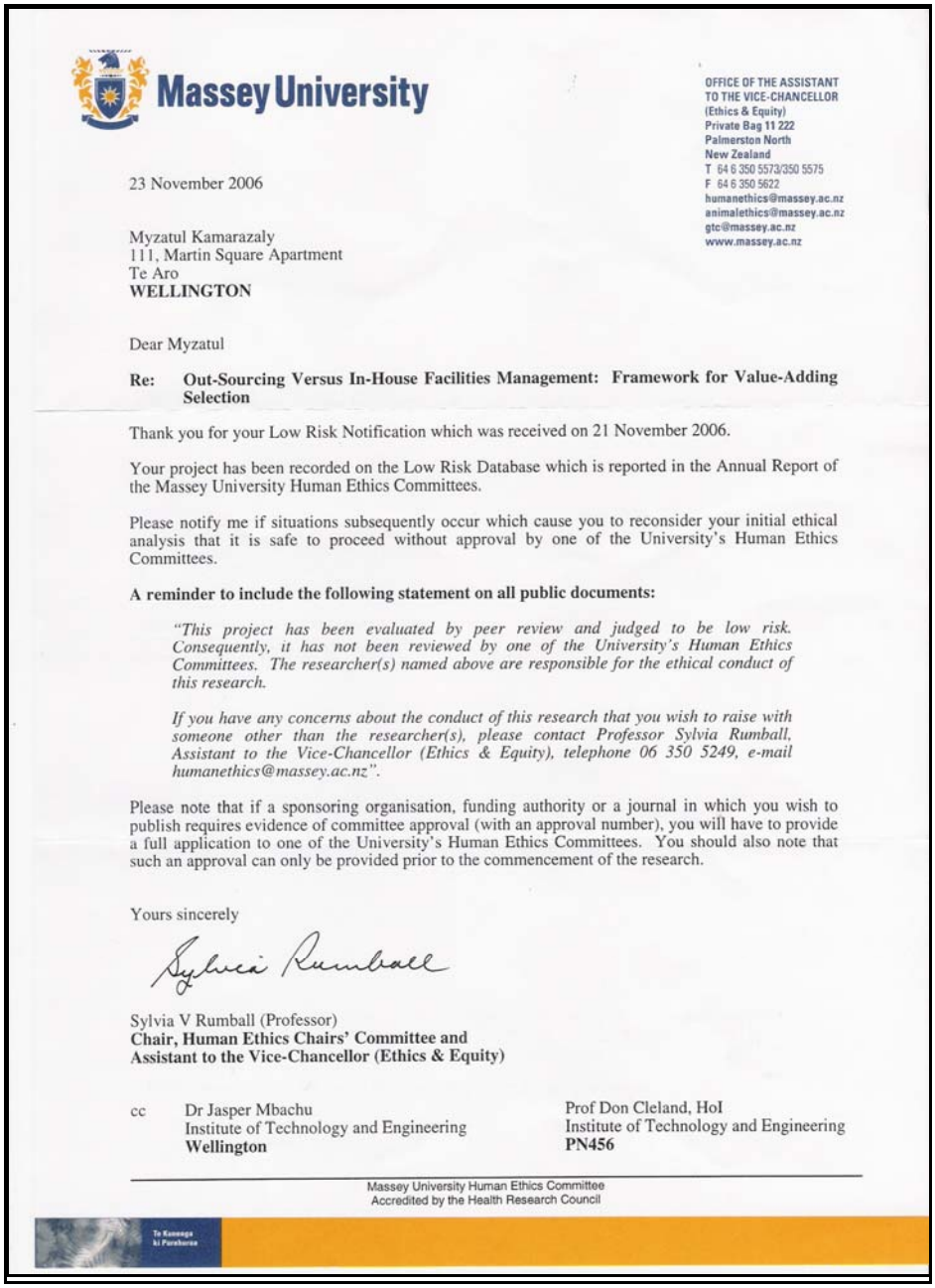


Figure A1: Conceptual framework / flow chart process for choosing between outsourcing and in-house approaches in meeting the FM needs

APPENDIX D: APPROVAL FOR MUHEC LOW RISK NOTIFICATION

APPENDIX D1: LETTER OF APPROVAL FOR MUHEC LOW RISK NOTIFICATION



Massey University

OFFICE OF THE ASSISTANT
TO THE VICE-CHANCELLOR
(Ethics & Equity)
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 350 5573/350 5575
F 64 6 350 5622
humanethics@massey.ac.nz
animalethics@massey.ac.nz
gtc@massey.ac.nz
www.massey.ac.nz

23 November 2006

Myzatul Kamarazaly
111, Martin Square Apartment
Te Aro
WELLINGTON

Dear Myzatul

Re: Out-Sourcing Versus In-House Facilities Management: Framework for Value-Adding Selection

Thank you for your Low Risk Notification which was received on 21 November 2006.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Ethics & Equity), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Sylvia Rumball

Sylvia V Rumball (Professor)
Chair, Human Ethics Chairs' Committee and
Assistant to the Vice-Chancellor (Ethics & Equity)

cc Dr Jasper Mbachu
Institute of Technology and Engineering
Wellington

Prof Don Cleland, HoI
Institute of Technology and Engineering
PN456

Massey University Human Ethics Committee
Accredited by the Health Research Council

APPENDIX D2: FORM FOR NOTIFICATION OF LOW RISK RESEARCH INVOLVING PARTICIPANTS

Massey University
Te Kunenga ki Pürehuroa

NOTIFICATION OF LOW RISK RESEARCH/EVALUATION INVOLVING HUMAN PARTICIPANTS

(All notifications are to be typed)

SECTION A:

1. **Project Title** OUT-SOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION

Projected start date for data collection 15 December 2006 **Projected end date** 31 January 2007

2. **Applicant Details** *(Select the appropriate box and complete details)*

ACADEMIC STAFF NOTIFICATION

Full Name of Staff Applicant/s

School/Department/Institute

Region *(mark one only)* **Albany** [ ] **Palmerston North** [ ] **Wellington** [ ]

Telephone **Email Address**

STUDENT NOTIFICATION

Full Name of Student Applicant MYZATUL AISHAH KAMARAZALY

Postal Address 111, MARTIN SQUARE APARTMENT, TE ARO, WELLINGTON 6001, NEW ZEALAND

Telephone +64 212131293 **Email Address** M.A.Kamarazaly@massey.ac.nz

Employer (if applicable)

Full Name of Supervisor(s) DR JASPER IKEOKWU MBACHU

School/Department/Institute CONSTRUCTION,INST.OF TECH & ENGINEERING, COLLEGE OF SCIENCES

Region *(mark one only)* **Albany** [ ] **Palmerston North** [ ] **Wellington** [X]

Telephone X 6442 **Email Address** J.I.Mbachu@massey.ac.nz

GENERAL STAFF NOTIFICATION

Full Name of Applicant

Section

Region *(mark one only)* **Albany** [ ] **Palmerston North** [ ] **Wellington** [ ]

Telephone **Email Address**

Full Name of Line Manager

Section

Telephone **Email Address**

APPENDIX D2: FORM FOR NOTIFICATION OF LOW RISK RESEARCH INVOLVING PARTICIPANTS (continued)

3. Type of Project *(mark one only)*

STAFF RESEARCH/EVALUATION:		STUDENT RESEARCH:	X	IF OTHER, PLEASE SPECIFY:
ACADEMIC STAFF		QUALIFICATION (MPHIL-SCIENCES)		
GENERAL STAFF		POINTS VALUE OF RESEARCH	100	

4. Describe the peer review process used in assessing the ethical issues present in this project.

Supervisor assessment and approval
MUHEC "Screening Questionnaire"

5. Summary of Project
Please outline in no more than 200 words in lay language why you have chosen this project, what you intend to do and the methods you will use.
(Note: all the information provided in the notification is potentially available if a request is made under the Official Information Act. In the event that a request is made, the University, in the first instance, would endeavor to satisfy that request by providing this summary. Please ensure that the language used is comprehensible to all)

My research is entitled, "Out-sourcing versus In-house Facility Management: Framework for Value-Adding Selection". I have chosen this research project because it is concerned with a topical issue in the FM profession – which I intend to pursue as my future career. The research aims to investigate the key variables underlying effective and efficient facilities management functions with a view to establishing a framework for selection based on optimum value addition. The outcome of the study will include a methodical framework for choosing between outsourcing and in-house facilities management routes.

Descriptive survey method will be used, which will involve questionnaire survey of the registered members of the New Zealand Property Institute – the target population. The sampling frame will comprise the registered members who operate as facility and property managers. The questionnaires will be self-administered; participation is voluntary. Questionnaire forms will be distributed by posts. Completed questionnaires will be returned using enclosed stamped and self-addressed envelopes. For participating, respondents will be assured of anonymity and their responses will be used solely for statistical analysis. In addition, they would be provided with the key findings of the study, if interest is signified by filling out an enclosed form for requesting summary of key findings.

Please submit this Low Risk Notification (with the completed Screening Questionnaire) to:

The Ethics Administrator
Research Ethics Office
Old Main Building, PN221
Massey University
Private Bag 11 222
Palmerston North

APPENDIX D2: FORM FOR NOTIFICATION OF LOW RISK RESEARCH INVOLVING PARTICIPANTS (continued)

SECTION B: DECLARATION (*Complete appropriate box)*

ACADEMIC STAFF RESEARCH

Declaration for Academic Staff Applicant

I have read the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants. I understand my obligations and the rights of the participants. I agree to undertake the research as set out in the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants. My Head of Department/School/Institute knows that I am undertaking this research. The information contained in this notification is to the very best of my knowledge accurate and not misleading.

Staff Applicant's Signature _____ Date: _____

STUDENT RESEARCH

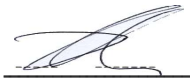
Declaration for Student Applicant

I have read the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants and discussed the ethical analysis with my Supervisor. I understand my obligations and the rights of the participants. I agree to undertake the research as set out in the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants. The information contained in this notification is to the very best of my knowledge accurate and not misleading.

Student Applicant's Signature _____ Date: 13/11/2006

Declaration for Supervisor

I have assisted the student in the ethical analysis of this project. As supervisor of this research I will ensure that the research is carried out according to the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants.

Supervisor's Signature  Date: 14/11/06

Print Name Jasper Mbachu

GENERAL STAFF RESEARCH/EVALUATIONS

Declaration for General Staff Applicant

I have read the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants and discussed the ethical analysis with my Supervisor. I understand my obligations and the rights of the participants. I agree to undertake the research as set out in the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants. The information contained in this notification is to the very best of my knowledge accurate and not misleading.

General Staff Applicant's Signature _____ Date: _____

Declaration for Line Manager

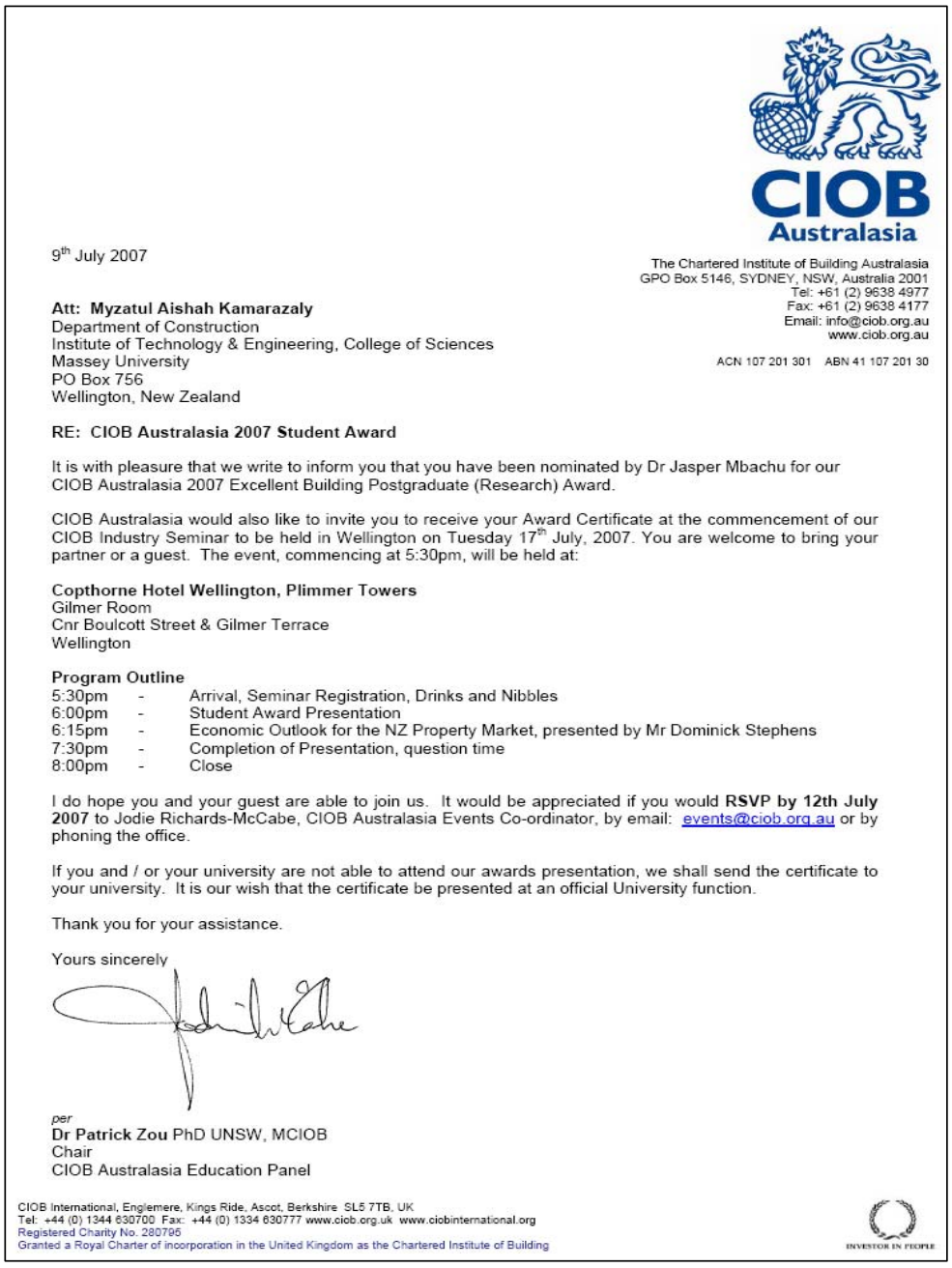
I declare that to the best of my knowledge, this notification complies with the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants and that I have approved its content and agreed that it can be submitted.

Line Manager's Signature _____ Date: _____

Print Name _____

APPENDIX E: RESEARCH AWARDS

APPENDIX E1: INVITATION LETTER TO THE PRESENTATION OF CIOB AUSTRALASIA STUDENT AWARD 2007



CIOB Australasia

9th July 2007

The Chartered Institute of Building Australasia
GPO Box 5146, SYDNEY, NSW, Australia 2001
Tel: +61 (2) 9638 4977
Fax: +61 (2) 9638 4177
Email: info@ciob.org.au
www.ciob.org.au

ACN 107 201 301 ABN 41 107 201 30

Att: Myzatul Aishah Kamarazaly
Department of Construction
Institute of Technology & Engineering, College of Sciences
Massey University
PO Box 756
Wellington, New Zealand

RE: CIOB Australasia 2007 Student Award

It is with pleasure that we write to inform you that you have been nominated by Dr Jasper Mbachu for our CIOB Australasia 2007 Excellent Building Postgraduate (Research) Award.

CIOB Australasia would also like to invite you to receive your Award Certificate at the commencement of our CIOB Industry Seminar to be held in Wellington on Tuesday 17th July, 2007. You are welcome to bring your partner or a guest. The event, commencing at 5:30pm, will be held at:

Copthorne Hotel Wellington, Plimmer Towers
Gilmer Room
Cnr Boulcott Street & Gilmer Terrace
Wellington

Program Outline

5:30pm	-	Arrival, Seminar Registration, Drinks and Nibbles
6:00pm	-	Student Award Presentation
6:15pm	-	Economic Outlook for the NZ Property Market, presented by Mr Dominick Stephens
7:30pm	-	Completion of Presentation, question time
8:00pm	-	Close

I do hope you and your guest are able to join us. It would be appreciated if you would **RSVP by 12th July 2007** to Jodie Richards-McCabe, CIOB Australasia Events Co-ordinator, by email: events@ciob.org.au or by phoning the office.

If you and / or your university are not able to attend our awards presentation, we shall send the certificate to your university. It is our wish that the certificate be presented at an official University function.

Thank you for your assistance.

Yours sincerely

per
Dr Patrick Zou PhD UNSW, MCIOB
Chair
CIOB Australasia Education Panel

APPENDIX E2: CIOB AUSTRALASIA EXCELLENT BUILDING POSTGRADUATE (RESEARCH) AWARD CERTIFICATE

CIOB
Australasia

Certificate of Excellence

This is to certify that

Myazatul Aishah Kamarazaly

has satisfied the requirements for the
CIOB Australasia award of

Excellent Building
Postgraduate (Research)

whilst studying at

Massey University

Signed on behalf of
The Chartered Institute
of Building Australasia

This 1st day of May 20 07

APPENDIX F: ACCEPTANCE LETTER FOR THE PUBLICATION OF THE RESEARCH RESULTS IN A CONFERENCE PROCEEDING

APPENDIX F1: LETTER OF ACCEPTANCE FOR REFEREED TECHNICAL PAPERS OF PAQS CONFERENCE 2007

CONSTRUCTION FROM A DIFFERENT PERSPECTIVE

PAQS

WELCOME TO PAQS 2007 | Auckland, New Zealand 9 - 13 June 2007

Miss Myzatul Aishah Kamarazaly
Department of Construction
Massey University
Wellington

Dear Myzatul

PAQS Conference 2007

I am please to inform you that your paper "Outsourcing versus in-house for FM: framework for value adding selection" has been accepted for inclusion in the Refereed Technical Papers section of the PAQS Conference 2007.

Please submit the full text of your paper to paqs2007papers@nziqs.co.nz no later than 16th April. Please submit any Powerpoint or similar presentation material that you wish to use at the conference by 21st May. Your paper will be refereed by two academic referees before finalisation. You will be allocated twenty minutes to present your paper.

Acceptance of your paper is conditional on you registering for and attending the conference.

We look forward to the receipt of your paper and your presentation at the conference.

Kind regards

John Boon
Technical Papers Co-ordinator
PAQS Conference 2007

APPENDIX F2: LETTER OF ACCEPTANCE FOR REFEREED TECHNICAL PAPERS OF PAQS CONFERENCE 2007 – WITH REFERREES REPORTS

CONSTRUCTION FROM A DIFFERENT PERSPECTIVE

PAQS

WELCOME TO PAQS 2007 | Auckland, New Zealand 9 - 13 June 2007

Miss Myzatul Aishah Kamarazaly
Department of Construction
Massey University
Wellington

Dear Myzatul

PAQS Conference 2007

I am please to inform you that your paper "Outsourcing versus in-house for FM: framework for value adding selection" has been accepted for inclusion in the Refereed Technical Papers section of the PAQS Conference 2007 proceedings with only minor amendment. The referees reports are attached. You will see that one referee requires no changes whilst the other referee has suggested some changes. The second referee has left it to my discretion as to whether I require you to make these changes. I suggest that you only do minor amendments to attempt to address her suggestions.

Please also submit your final paper and any Powerpoint or similar presentation material that you wish to use at the conference by 21st May. You will be allocated twenty minutes to present your paper.

Acceptance of your paper is conditional on you registering for and attending the conference.

We look forward to your presentation at the conference.

Kind regards

John Boon
Technical Papers Co-ordinator
PAQS Conference 2007

APPENDIX F3: REFEREES REPORTS FOR REFEREED TECHNICAL PAPERS OF PAQS CONFERENCE 2007 – FIRST REFEREE

CONSTRUCTION FROM A DIFFERENT PERSPECTIVE

PAQS

WELCOME TO PAQS 2007 | Auckland, New Zealand 9 - 13 June 2007

Form 2 to be returned to the Authors

Ref: **42 A**

Title: **Outsourcing versus in-house facilities management: framework for value-adding selection**

Comments to be returned to author(s)

Suggestions

The decision framework (fig. 2) should be discussed earlier rather than towards the end of the paper. Explain this framework in terms of decision theories. Examine the relevance of the FM approach, e.g., what do you mean by the “appropriate FM approach” and “subcategory of FM function” in fig. 2?

APPENDIX F4: REFEREES REPORTS FOR REFEREED TECHNICAL PAPERS OF PAQS CONFERENCE 2007 – SECOND REFEREE

CONSTRUCTION FROM A DIFFERENT PERSPECTIVE

PAQS

WELCOME TO PAQS 2007 | Auckland, New Zealand 9 - 13 June 2007

Form 2 to be returned to the Authors

Ref: **42**

Title: **Outsourcing versus in-house facilities management: framework for value adding selection**

Comments to be returned to author(s)

The paper is very well written. The research is scientifically done. The authors are encouraged to develop the paper for publication in an international refereed journal.

APPENDIX G: PUBLICATIONS OF RESEARCH FINDINGS

APPENDIX GI(a): PAPER PUBLISHED IN THE PROCEEDINGS OF THE PAQS CONFERENCE 2007

Kamarazaly, M. & Mbachu, J. (2007A) *Outsourcing versus in-house facilities management: framework for value-adding selection*. Proceedings of the 11th PAQS Conference, Auckland, 9 - 13 June

OUTSOURCING VERSUS IN-HOUSE FACILITIES MANAGEMENT: FRAMEWORK FOR VALUE-ADDING SELECTION

Myzatul Kamarazaly[1] and Jasper Mbachu [2]

[1,2]*Department of Construction, College of Science, Massey University, PO Box 756, Wellington 6001, New Zealand.*

[1]*Author for correspondence: Email: M.A.Kamarazaly@massey.ac.nz*

ABSTRACT

Investment in the physical infrastructure and the provision of facilities management (FM) services should be geared toward achieving the strategic objectives of an organisation. Sole focus on the financials while choosing between outsourcing and in-house FM options excludes other non-financial measures such as the extent to which the FM route contributes to improving internal business processes and the overall strategic health of the organisation. A holistic perspective on the key variables to consider in choosing between outsourcing and in-house FM is explored using a descriptive survey method. This involved canvassing and analysing the views of property and facilities managers registered with the Property Institute of New Zealand and the Facilities Management Association of Australia. The results include a process chart developed for use by property and facilities managers in making a strategic choice between outsourcing and in-house FM service provisions. The pros and cons of both approaches, from a strategic perspective, are also presented.

Keywords: Facility management; in-house FM, outsourcing, property management, strategic management.

APPENDIX G1(b): REFEREES REPORTS FOR REFEREED TECHNICAL PAPERS OF PAQS CONFERENCE 2007 – FIRST REFEREE

CONSTRUCTION FROM A DIFFERENT PERSPECTIVE

PAQS

WELCOME TO PAQS 2007 | Auckland, New Zealand 9 - 13 June 2007

Form 2 to be returned to the Authors

Ref: **42 A**

Title: **Outsourcing versus in-house facilities management: framework for value-adding selection**

Comments to be returned to author(s)

Suggestions

The decision framework (fig. 2) should be discussed earlier rather than towards the end of the paper. Explain this framework in terms of decision theories. Examine the relevance of the FM approach, e.g., what do you mean by the “appropriate FM approach” and “subcategory of FM function” in fig. 2?

APPENDIX G1(c): REFEREES REPORTS FOR REFEREED TECHNICAL PAPERS OF PAQS CONFERENCE 2007 – SECOND REFEREE

CONSTRUCTION FROM A DIFFERENT PERSPECTIVE

PAQS

WELCOME TO PAQS 2007 | Auckland, New Zealand 9 - 13 June 2007

Form 2 to be returned to the Authors

Ref: **42**

Title: **Outsourcing versus in-house facilities management: framework for value adding selection**

Comments to be returned to author(s)

The paper is very well written. The research is scientifically done. The authors are encouraged to develop the paper for publication in an international refereed journal.

APPENDIX G2(a): PAPER ACCEPTED FOR PUBLICATION IN THE PROCEEDINGS OF THE MICRA UITM CONFERENCE, KUALAR LUMPUR, 28-29 AUGUST 2007

Kamarazaly, M. & Mbachu,J. (2007b) *Facilities management function as a strategy for improving organisational performance: Perceptions of property and facilities managers*. Paper accepted for publication in the proceedings of the MICRA UiTM Conference, Kualar Lumpur, 28-29 August 2007

Facilities management function as a strategy for improving organisational performance: Perceptions of property and facilities managers

Myzatul Kamarazaly [1] and **Jasper Mbachu**
Department of Construction, Institute of Technology & Engineering, College of Sciences, Massey University, PO Box 756, Wellington, New Zealand

ABSTRACT

To survive and remain competitive, organisations are expected to have clearly defined strategic goals and deliver on some established performance dimensions. Strategic facilities management offers an integrated approach to maintaining, improving and adapting the buildings and other infrastructure of the organization in order to create an environment that strongly supports its primary objectives. This paper presents preliminary findings on how effective and efficient facilities management function can be deployed as a strategy for improving organisational performance on the balanced scorecard perspectives of financial, customer, internal business processes, and learning and growth.

The study adopted the descriptive survey method to survey the views of a convenience sample of fifteen facilities and property managers registered with the Property Institute of New Zealand Property and the Facilities Management Association of Australia. Multi-attribute method and content analysis were used in the data analysis.

Results showed that facilities management function can be successfully leveraged to support organisations in delivering on the balanced scorecards comprising short-term financial and the long-term non-financial perspectives of customer, internal business processes, and learning and growth. Comparative analysis of the use of outsourcing and in-house facilities management routes to delivering on the four perspectives will be explored in the next phase of the study.

Keywords: Balanced scorecard, in-house facilities management, organizational performance, outsourcing, strategic facilities management.

APPENDIX G3(a): WORK-IN-PROGRESS – JOURNAL PAPER TARGETED FOR PUBLICATION IN THE JOURNAL OF FACILITIES MANAGEMENT

Kamarazaly, M. & Mbachu,J. (2007c) *Improving organisational performance through strategic facilities management: A balanced scorecard approach.*

Title: *Improving organisational performance through strategic facilities management: A balanced scorecard approach.*
Author(s): Kamarazaly, M. & Mbachu,J
Journal: Journal of Facilities Management
ISSN:
Year: Volume: Issue: Page:
DOI:
Publisher: Emerald Group Publishing Limited
Abstract: Purpose – The aim of this paper is to demonstrate how organizational performance as defined in the balanced scorecard can be improved through efficient and effective implementation of the strategic facilities management functions in an organization.

Design/methodology/approach – The study adopted the descriptive survey method to survey the views of representative samples of facilities and property managers registered with the Property Institute of New Zealand Property and the Facilities Management Association of Australia. Responses were on the extent to which facilities management department can contribute to the achievement of the strategic objectives set under the balanced scorecard perspectives of financials, customer, learning and growth and internal business processes. Multi-attribute method and content analysis were used in the data analysis.

Findings – Results showed that facilities management services can be successfully leveraged to support organisations in delivering on the balanced scorecards comprising short-term financial and the long-term non-financial perspectives of customer, internal business processes, and learning and growth. Comparative analysis of the use of outsourcing and in-house facilities management routes to delivering on the four perspectives show that outsourcing is a more effective and efficient medium to delivering on the financials and improvement of the internal business processes, while in-house is better suited for delivering on customer propositions and for improving organizational learning and growth.

Originality/value – This paper establishes that to ensure achievement of corporate strategies, the role of the facilities management department needs to be reconsidered as a key component of the organizational strategic formulation, rather than as a mere support function.

Keywords: Balanced scorecard, in-house facilities management, organizational performance, outsourcing, strategic facilities management.

APPENDIX G4(a): WORK-IN-PROGRESS – JOURNAL PAPER TARGETED FOR PUBLICATION IN THE JOURNAL OF FACILITIES MANAGEMENT

Kamarazaly, M. & Mbachu,J. (2007d) *Conceptual framework for making a strategic choice between outsourced and in-house FM service.*

Title: *Conceptual framework for making a strategic choice between outsourced and in-house FM service*
Author(s): Kamarazaly, M. & Mbachu,J
Journal: Journal of Facilities Management
ISSN:
Year: Volume: Issue: Page:
DOI:
Publisher: Emerald Group Publishing Limited
Abstract: Purpose – The aim of this paper is to develop and apply a conceptual framework for making a strategic choice between the use of outsourcing and in-house facilities management routes to meeting whole or part of the FM functions in an organization, on the basis of a holistic set of value adding criteria.

Design/methodology/approach – The study adopted the descriptive survey method to survey the views of representative samples of facilities and property managers registered with the Property Institute of New Zealand Property and the Facilities Management Association of Australia. Responses were on the relative importance of value adding criteria underlying the broad categories of FM functions, and the extent to which outsourcing and in-house FM routes are suitable in meeting the identified FM needs. Multi-attribute method, content analysis and correlation tests were used in the data analysis.

Findings – Results showed that four broad categories constitute the holistic FM functional areas: strategic, operational, property development/project management and general services. Outsourcing was perceived to be more suited than in-house for providing operational, property development/ project management and general services; in-house was more suited for the provision of strategic FM functions. The relative importance of the value adding criteria underlying the broad categories of FM services, as well as the suitability of the use of outsourcing and in-house approaches in meeting each criterion were established.

Originality/value – Using the concept of Overall Suitability Score, a process chart was developed for use in making a strategic choice between outsourcing and in-house FM service provisions. The use of this chart is recommended to property and facilities managers, and other stakeholders who may be faced with the dilemma of choosing between outsourcing and in-house approaches to providing FM services. The methodology developed in this study could be replicated in related contexts to resolving strategic decision dilemma involving making choices amongst competing alternatives.

Keywords: Facilities management; in-house FM, outsourcing, property management, strategic management