TRANSFORMATION STRATEGIES FOR FACILITIES MANAGEMENT IN MALAYSIA

MASZUWITA ABDUL WAHAB

FACULTY OF BUILT ENVIRONMENT
UNIVERSITY OF MALAYA
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MASZUWITA ABDUL WAHAB

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ABSTRAK

Integrasi dalam peringkat strategik, taktikal dan operasi adalah tujuan utama dalam Pengurusan Fasiliti di Malaysia. Unsur-unsur Pengurusan Fasiliti seperti tenaga kerja, perniagaan, harta dan maklumat adalah sangat penting bagi mencapai integrasi tersebut. Dengan itu, kajian strategi transformasi dalam Pengurusan Fasiliti untuk kejayaan perniagaan dijalankan dengan mengguna pakai kriteria- kriteria Kelakuan Organisasi untuk memperbaiki dan meningkatkan sistem semasa demi prestasi yang lebih baik. Objektif kajian ini adalah untuk mengenal pasti elemen-elemen penting integrasi Pengurusan Fasiliti, menganalisa faktor-faktor kejayaan kritikal Pengurusan Fasiliti dan Kelakuan Organisasi, menganalisa hubungan antara tenaga kerja, sistem sokongan dan kemudahan untuk strategi serta kerjasama untuk membangunkan strategi transformasi dalam Pengurusan Fasiliti. Bagi mencapai objektif ini, "Sequential Explanatory Design" yang merangkumi kaedah kuantitatif dan kualitatif telah digunakan. Bagi kaedah kuantitatif, soal selidik telah diedarkan kepada responden Alam Bina dan dianalisa dengan menggunakan perisian SPSS. Kedua-dua model pengukuran dan model struktur telah dibangunkan untuk menjangka hubungan antara pembolehubah bagi pembangunan rangka kerja strategi transformasi. Sementara itu, bagi kaedah kualitatif, lima belas (15) responden yang pakar dalam bidang Pengurusan Fasiliti telah ditemubual untuk validasi data kuantitatif dan pengesahan ini telah dibentangkan dalam bentuk jadual. Tujuan pengesahan ini adalah untuk menyokong data kuantitatif dengan memaparkan komen daripada responden untuk kesinambungan Pengurusan Fasiliti. Secara kesimpulannya, langkah-langkah Kelakuan Organisasi yang terdiri daripada persekitaran organisasi dan kemahiran kompetitif sangat penting ke arah meningkatkan prestasi Pengurusan Fasiliti. Strategi transformasi bertindak sebagai sumbangan ilmu dan sebagai mantra kejayaan kepada industri Pengurusan Fasiliti di Malaysia untuk memperbaiki keadaan semasa ke arah penambahbaikan Pengurusan Fasiliti yang berterusan.

ABSTRACT

The integration within strategic, tactical and operational level is the main aim in the Facilities Management (FM) industry in Malaysia. In achieving this integration, FM trails such as people, business, property and information are very significant. Therefore, a study of transformation strategies in FM for business success is carried out by adopting the Organizational Behaviour (OB) to improve and upgrade the current system for a better performance. The objectives of this study are to identify the essential elements for FM integration, to analyse the critical success factors of OB and FM to achieve optimum level of performance, to analyse closer relationship within people, facility support and facilitation for a collaborative strategy and to develop the transformation strategies for FM in Malaysia. In order to achieve these objectives, Sequential Explanatory Design was applied that comprises the quantitative and qualitative methods. For the quantitative method, questionnaires were distributed to the built environment respondents which the sample size is approximately 341 from the overall population. By using the SPSS software, the quantitative data were analysed. Both measurement model and structural model were developed to foresee the relationship among the variables for the development of the transformation strategies framework. Meanwhile for the qualitative method, a semi structured interview within fifteen (15) FM expertise were carried out to validate the quantitative data and were presented in a tabular form. The purpose of this validation is to support the data by featuring the comments from the expertise for FM continuity. As a conclusion, the OB measures that consist of organizational environment and competitive skills provided insights that affect the FM performance. Aforementioned, the transformation strategies framework were developed in order to act as a knowledge contribution and as a mantra of success for the FM industry in Malaysia to improve the current situation towards FM continuous improvement.

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LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness of Fit Index
AIC	Akaik Information Criterion
AVE	Average Variance Extracted
BIFM	British Institute of Facilities Management
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CIDB	Construction Industry Development Board Malaysia
CMIN	Minimum Value of C
CC	Contemporary Challenges
CS	Competitive Skills
CSI	Customer Satisfaction Index
CSR	Corporate Social Responsibility
CR	Construct Reliability
DS	Decisional Skills
DF	Degree of Freedom
DV	Dependent Variable
EM	Expected Maximisation
FE	Foundation of Employee
FM	Facilities Management
FMP	Facilities Management Performance
GFI	Goodness of Fit Index
GFI	Goodness of Fit Index
GOF	Goodness of Fit
HPWP	High Performance Work Practices

HR	Human Resource
HVAC	Heating, Ventilation and Air Conditioning
IFI	Incremental Fit Index
IFMA	International Facility Management Association
IPS	Interpersonal Skills
INS	Informational Skills
IT	Information Technology
IV	Independent Variable
LAN	Local Area Network
M	Moderator Variable
MAFM	Malaysian Association of Facility Management
MI	Multiple Imputation
MLE	Maximum Likelihood Estimation
NFI	Normed Fit Index
OB	Organizational Behaviour
OE	Organization Environment
OP	Organizational Process
PEPS	Association of Valuers, Property Managers and Estate Agents
PNFI	Parsimionous Normed Fit Index
PD	Program Development
RICS	Royal Institute of Chartered Surveyors
ROI	Return of Investment
RMSEA	Root Mean Square Error of Approximation
SEA	South – East Asian
SEM	Structural Equation Modelling
SFP	Strategic Facility Planning

SPSS	Statistical Package for Social Science
SWOT	Strength Weakness Opportunities Threats
TD	Team Dynamics
TLI	Tucker Lewis Index
UK	United Kingdom

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CHAPTER 1

INTRODUCTION

1.1 General

Facilities Management (FM) is a multidisciplinary field that is increasingly popular and has been broadly applied in the United Kingdom, the United States and other developed countries. FM practices in the United Kingdom and the United States are very well focused to achieve core business objectives by producing quality products and services which provide value for money, increase customer satisfaction index, increase work productivity, increase the stability of the business environment and also increase the profit margin of an organization. FM focuses on four important components consisting of place, people, process and technology (IFMA, 2010).

These components integrate within one another to achieve the goals and objectives to meet strategy needs and to increase the level of productivity of FM organization. Nutt (2000) defined the role of FM as follows, "to provide appropriate and logistic support to business and this is to sustain the organization's core business, operations, groups, individuals, project teams, suppliers and customers." It is clear that FM can be applied at every level of management, including strategic level, tactical level and operational level, to strengthen the effectiveness and efficiency of the organization to come up with a good business decision. Hard skills and soft skills of FM teams need to be establish to integrate the management level as whole. Prior to this, Organizational Behaviour (OB) will be adapted in this study to foresee the improvement in the FM role more precisely.

Therefore, there is a need for transformation strategies in FM for business globalization in Malaysia to expand the competences of FM organization in the global marketplace. There are associations such as British Institute of Facilities Management (BIFM), International Facility Management Association (IFMA), and Malaysian Association of Facility Management (MAFM) that contribute to FM and work to upgrade and improve the current situation in this field.

1.1.1 British Institute of Facilities Management (BIFM)

In the United Kingdom, FM was initiated in the 1970's with a focus on outsourcing of services. BIFM (2010) stated that "Facilities Management is the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities". BIFM emphasize that at corporate level, FM contributes towards strategic and operational objectives. It is also essential in providing a safe and efficient working environment which leads to improved business performance;

(a) The Foundation of FM

Cost-cutting initiatives of the 1970s and 1980s, under which organizations began to outsource 'non-core' services. Integration of the planning and management of a wide range of services, both 'hard' (e.g. building fabric) and 'soft' (e.g. catering, cleaning, security, mailroom, and health and safety) to achieve better quality and economies of scale. Formation of the BIFM in 1993, followed by the development of specialized training and qualifications. FM becoming an integral part of large-scale projects to manage, replaces, and upgrades the country's infrastructure and public service facilities in the UK. This new approach was swiftly followed in the private sector and abroad.

(b) FM Today

The FM sector is now large and complex, comprising a mix of in-house departments, specialist contractors, large multi-service companies, and delivering the full range of design, build, finance and management. The FM profession has come of age. Its practitioners require skill and knowledge. The sector definition continues to expand to include the management of an increasingly broad range of tangible assets, support services and people skills.

(c) Looking To the Future

The aim of excellent FM derived from BIFM (2010) is toDeliver effective management of an organization's assets. Enhance the skills of people within the FM sector. Enable new working styles and processes, which are necessary in this technology-driven age. Enhance and project an organization's identity and image. Help the integration processes associated with change, post-merger or acquisition. Deliver business continuity and workforce protection in an era of heightened security threats.

1.1.2 International Facility Management Association (IFMA)

IFMA is a professional body for facility managers that were established in the United States in October 1980 by David Armstrong. FM is defined by IFMA as a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology. IFMA is active in conducting research on improving facility management field, providing educational programs and assisting the world workplace. IFMA also emphasizes the skills and knowledge that need to be adopted by facility managers to upgrade and provide effective and efficient services to increase customer satisfaction as well as value for money.

1.1.3 Malaysian Association of Facility Management (MAFM)

MAFM was established in May 2001 by FM practitioners who were pursuing their postgraduate studies at the University of Technology Malaysia. The purpose of the formation of MAFM is to facilitate collaboration among FM academicians and FM practitioners in order to establish the FM profession and enhance awareness about the FM industry in Malaysia.

1.2 Background of the Research

Many researchers have contributed to the effectiveness and efficiency of FM in increasing the level of performance and profit margins globally. This research supports the efforts of FM practitioners to upgrade them. Previous research has produced methodologies for ongoing learning, but there is a need to continuously improve FM to meet the challenges of the new era which is competitive. A survey by Moore and Finch (2004) mentioned that FM is well-established in South-east Asian (SEA) countries such as Hong Kong and Singapore and also in Malaysia where there is evidence of the progress of FM Industry that is shown in Figure 1.1. Moore and Finch's study was based on a restricted sample range and it has been emphasized that further research and investigation towards the findings need to be done in order to enlighten the FM industry (Moore & Finch 2004). To identify the FM growth in SEA, the authors focused on important factors such as general factors and regional factors that contribute to FM continuity. General factors consist of globalization, information technology, high cost of space, employee expectations and cost of mistakes. Meanwhile, regional factors consist of regional economy, property market, market maturity, procurement system and general business environment. These factors have an impact on FM performance and the development of FM in South-east Asian.

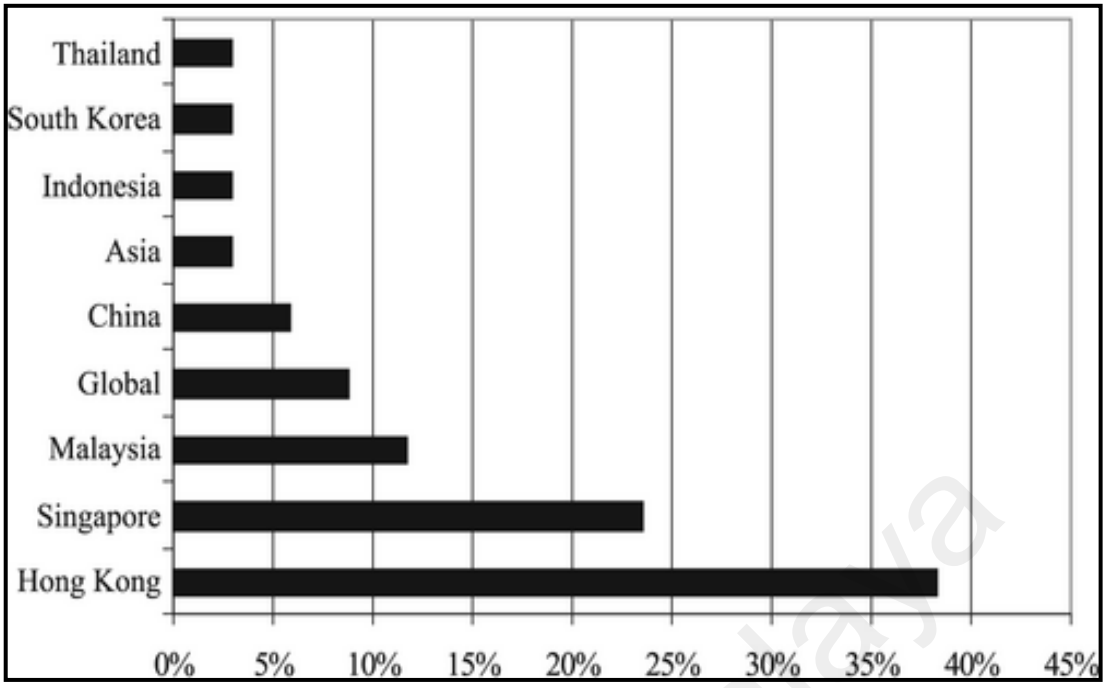


Figure 1.1: The Development of FM in South-east Asian

Source: Moore & Finch (2004)

In the study done by Moore and Finch (2004), the majority of respondents were from Hong Kong, Singapore and Malaysia and the percentage shows the maturity level of FM. Prior to this, FM in Malaysia was assessed to be at the infancy level and required a quality provision to upgrade the FM field in the future. On the other hand, Pillay (2002) which was summarised in Kamaruzaman et al. (2010) briefly discussed the history of FM in Malaysia. The FM field started in the 1990s with the support given by government sector and was established in 1996. This was the stepping stone for Malaysia to develop FM more broadly. It is known that earlier, FM had less collaboration with the real estate, architecture, and construction professions, but now FM has a new level of thinking and collaborates with all these fields in order to strengthen the efficiencies of organizations that focus on people and process, as well as the FM indicators of time, cost and quality (Kamaruzaman et al. 2010). In addition, in the 1990's, FM was recognized as an outsourcing service.

This continues till today where it is implemented in government buildings where FM is the "one-stop centre" that will focus on service level and customers' requirements, respectively (CIDB, 2010). Kamaruzzaman et al. (2010) stated that the Prime Minister of Malaysia had, in 2001, emphasized that, "unless Malaysians change their mentality to become more aware of the need to provide good services and improve upkeep of buildings, we will forever be a Third World country with First World Infrastructure". This statement focused mainly on the assets and FM in Malaysia in order to create awareness about FM as a means of providing quality facilities, services, and best practices. Currently, FM in Malaysia can be said to be at the infancy stage with limited knowledge about its practices in general, and still lacking in importance and recognition from industry (Noor, 2010).

IFMA recognizes the need for a paradigm shift, and innovation and expertise in business installations and facilities. The biggest challenge is how to demonstrate that the built environment can affect an organization's ability to achieve desired business results. Thus, the FM field in Malaysia should be upgraded and focus on the skills and knowledge needed to enhance the identity and image of this industry. This would lead to continuous improvement by increasing the level of satisfaction of customers, which in turn will make organizations more successful. Therefore, it is important that strategies for FM be spread throughout every organization that practices FM in Malaysia. This will help the organization to focus at each management level, including strategic, tactical and operational levels.

1.3 Problem Statement

FM is a prominent field with practitioners in many countries. In Malaysia, FM is still at an early stage of development, and there is a need for greater awareness of the complementary role FM can play in supporting the core business of organizations. To achieve the objectives of core business, FM managers need to have broad knowledge and skills such as interpersonal, informational and decisional skills at every level of management. The integration of this management is very important to generate the transformation strategies for organizations in the future. According to Kaya et al. (2004), FM is often included at the operational level rather than at the strategic level, and there are misperceptions about FM practice as well as poor links between FM managers and top level managers. It is important that FM be focused at the strategic level within organizations. This would enable FM to have closer relationships with clients, facilities support and facilitation in order to bring about changes in the organization to achieve effectiveness and greater efficiency (Price & Akhlaghi, 1999).

As Ong (2009) has stated: "FM is not only about operation and maintenance; other non-technical aspects are equally important to ensure proper functioning of the built environment". At the present time, FM in Malaysia focuses more at the operational level where activities such as cleaning, maintenance and other technical task are concentrated rather than at the strategic level. Furthermore, these operational tasks overlap with the activities of property management (CIDB, 2010). In a formal interview carried out with former FM Manager of Glenn Cruise Terminal, Vasanthakumar (2011) highlighted that there is little attention paid to best practices, people, skills and other aspects that contribute towards the organization's core business, and there are no appropriate guidelines or FM strategic framework in Malaysia to contribute to improving the overall business needs.

Hinks et al. (1998), quoted by Featherstone et al. (2000) stated that, "FM as a whole needs to be strategic about its business future, FM has to establish its strategic effectiveness by demonstrating its potential relevance to overall business". This highlights the need for FM to be strategically based to create the significant aspects that can help guide an organization towards quality performance and business success. It is apparent that FM is expanding as a profession within the business environment and there is a need for collaborative strategy to develop systems and people and to strengthen best practices to ensure organizational success and economic growth (Alexander, 2003).

Alexander (1996) suggested that FM managers should be placed at the strategic level to foresee the effect of changes and potential contributions of FM towards overall business practices. It is important to stress that FM's influence goes beyond operational activities; it should be introduced at an early stage of organization's core business to create collaborations within strategic, tactical and operational levels. In this way, FM could make a more substantial contribution to the organization's performance and to the overall success of the organization's core business, which will be reflected in profit margins. There is therefore a need for transformation strategies for FM in Malaysia for better business outcomes and as a tool for FM business success.

1.4 Research Questions

Research questions were developed to have a clearer strategy to solve the issues and gaps involve in this study. Therefore, the research questions are as below:

- What does FM currently contribute to the industry?
- What is the necessity for a successful collaborative strategy between Facilities Management and Organizational Behaviour?

- What measures are needed to achieve cooperation between Facilities Management and Organizational Behaviour?
- What actions are needed to restructure the current situation?

1.5 Research Objectives

The research is designed to study on the Facilities Management performance that focuses on the human capital by adopting the Organizational Behavior to foresee the future trends as well as to develop the transformational strategies for FM industry in Malaysia. In order to achieve the aim of this study, the objectives are specified as below:

- To identify the essential elements required for FM integration
- To analyse the critical success factors of Facilities Management and Organizational Behaviour to achieve optimum levels of performance.
- To analyse closer relationships among people, facility support and facilitation for a collaborative strategy
- To develop transformational strategies framework for FM in Malaysia.

1.6 Research Scope and Limitation

The focus of this research is on the FM industry in Malaysia which is becoming increasingly common within the public and private sectors. This research focuses mainly on the hard and soft elements that constitute the perceptive measures to achieve the research objectives. The respondents were chosen from disciplines in the built environment throughout Malaysia in order to receive relevant data.

1.7 Significance of the Research

By conducting this research it is hoped that people involved will take into consideration the importance and awareness of FM industry to ensure successful achievement of business goals. It is also hoped that the various elements involved in FM, such as people, place, process and technology, will collaborate together to achieve continuous improvement. The findings of this research will contribute knowledge in that an innovative framework will be developed to improve and upgrade the current practice of FM in Malaysia.

a) Benefits to Organizations

With the development of the framework, it is hoped that organizations will have a clearer understanding of the need to incorporate FM more prominently in the decision making process and in best practices at every level of management, from the strategic level through the tactical level to the operational level. In addition, organizations need to exceed customer expectations and satisfaction, and this will influence the achievement and the success of their business.

b) Benefits to Senior Management and Middle Management

The research will also benefit managers by upgrading the monitoring steps and activities to provide well-organized management skills. This will also ensure that they develop the leadership skills and other characteristic such as interpersonal, informational and decisional characteristics. The significance of the transformation framework will enhance managers' awareness and be a knowledge contribution that increases work productivity and the profit margin of an organization.

c) Benefits to Internal and External Customers

A more comprehensive implementation of FM will provide a safe, healthy, secure, comfortable work space, facilities, and building performance and other requirements to strengthen the productivity of the core business as well as to upgrade the supporting activities as a means to achieve business goals.

d) Benefits to Academia / Academicians

It is hoped that the output of this research will benefit educational institutions and encourage them to revise their FM syllabus and to produce quality professionals in the future.

1.8 Research Methodology

Research methodology is the systematic workflow that is used to achieve research objectives and to produce desired results. There are four main phases involved in this research. These phases are summarized in Figure 1.2.

1.8.1 Phase 1: Early Research Phase

Scanning the literature of case studies helps in identifying the gaps involved. Moreover, the literature review is the basis for guiding the research successfully to its completion. This is to gain ideas and knowledge to understand the latest issues, framework, guidelines, policies that are involved in the study to gain a clearer understanding about the current practice of FM in Malaysia. The initial planning of this research was carried out through face-to-face interviews with experts in FM, Property Management and Construction Management

1.8.2 Phase 2: Data Collection Phase

The focus of this research is to identify the need for transformation strategies in FM to remedy the current situation, as well as to contribute knowledge to upgrade and improve the FM field in Malaysia. Quantitative and qualitative methods were used to gain the data for this research.

a) Quantitative method

The quantitative method focuses on the distribution of questionnaires to obtain data and gather information on this research topic. The questionnaires were distributed to the respondents to identify the significance of FM. These questionnaires were constructed according to the variables that have been identified through the review of literature.

b) Qualitative method

The qualitative method focused on identification of gaps occurring in the current situation, in the early phase. In-depth interview were carried out to verify the framework created from the quantitative data analysis. From the perspectives obtained from interviewees and respondents, the framework was revised and upgraded to form an innovative strategy framework.

1.8.3 Phase 3: Data Analysis Phase

Data analysis is an important phase in every research. The data gathered were analyzed in order to answer the research questions and achieve the objectives of the research. A pre-evaluation form was used to collect the data which was then analyzed using the Statistical Package for Social Science (SPSS) Version 21 and Analysis of Moment Structure (AMOS). A structural framework was designed from the data

analyzed to predict the trend of the results and to foresee the important variable in developing the transformation strategies. The combination of both qualitative and quantitative methods was considered necessary and useful in producing the results.

1.8.4 Phase 4: Conclusion and Recommendation

Phase 4 is the final phase in the development of a transformational framework as a knowledge contribution to many parties involved in FM. Concrete recommendations have been suggested to close the gaps apparent in the current situation. Limitation of study as well as the overall conclusion towards knowledge contribution will be discussed in this phase.

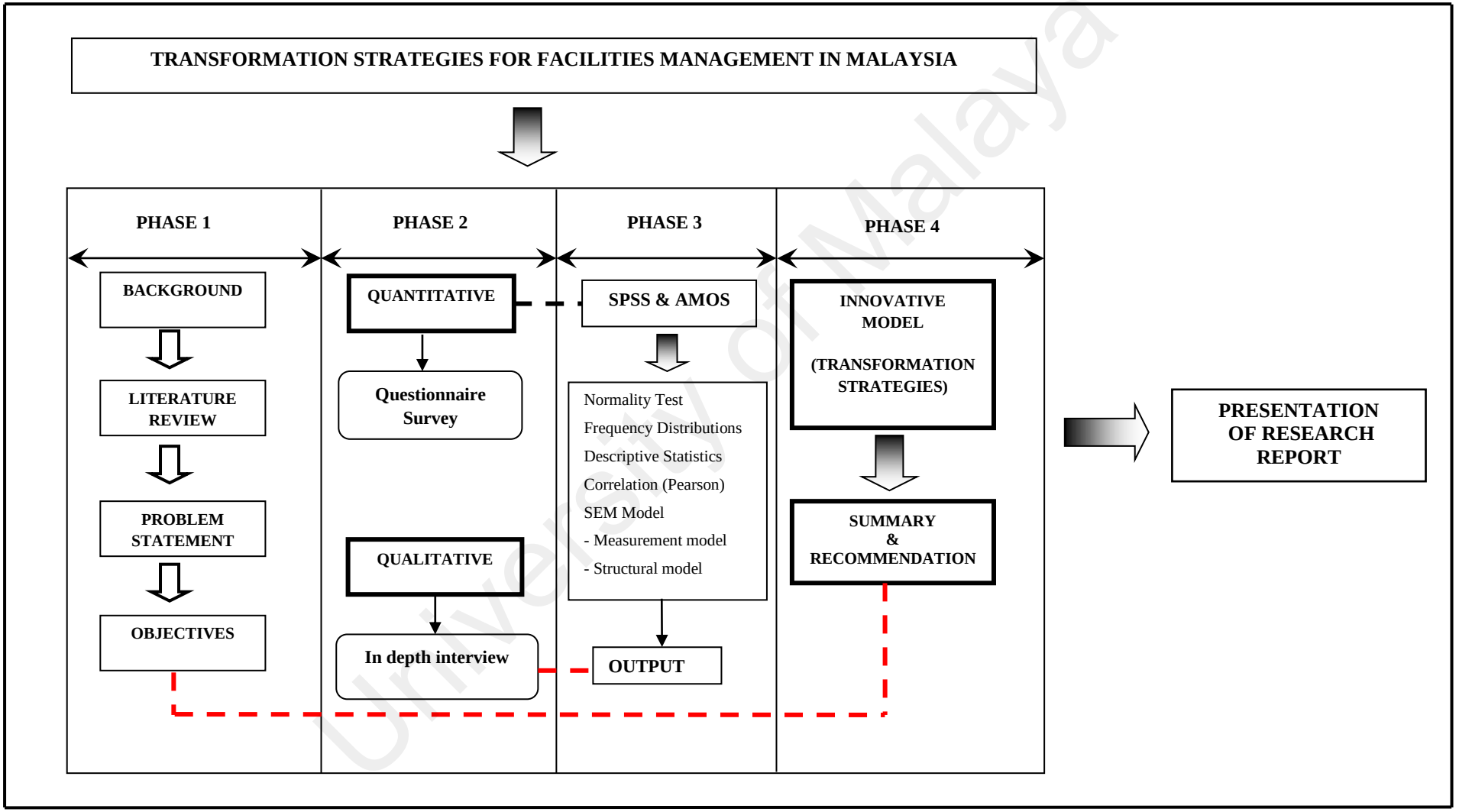


Figure 1.2: Presentation of Research

Figure 1.2 shows the overall presentation of this study and as guidance to the researcher to conduct the research towards a systematic approach. Therefore, the main aim of this research to develop an innovative framework that constitute of transformation strategies for the FM efficiencies as well as to improve the level of FM performance and to achieve continuous improvement in the FM industry.

1.9 Summary

As a summary, this chapter focuses on the overall research that highlights on the research background and research gaps that relates to the FM field. Research questions, research objectives, research scope and research methodology were formulated to indicate the benefits of the study and as a foundation to carry out this research successfully.

CHAPTER 2

FACILITIES MANAGEMENT

2.1 Introduction

Facilities Management (FM) is a form of management involving various disciplines that contributes to the core business of organizations by providing quality services. It sustains the support services of organizations to enable them to achieve continuous improvement in business. FM is an important profession nowadays that highlights business strategies, innovation, finances, and people (human resources) to upgrade the recognition of the identity and image of FM field (Maszuwita and Kamaruzzaman, 2014). BIFM (2010) defined FM as "the integration of process within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities".

BIFM (2010) has pointed out that "FM today requires its practitioner's skills and knowledge and to expand the management of an increasingly broad range of tangible assets, support services and people skills". Meanwhile, the largest global association for FM professionals, IFMA (2010) defined FM "as a profession that encompasses multi disciplines to ensure functionality of the built environment by integrating people, place, process, and technology". There are numerous definitions of FM that have been contributed by researchers in their studies to upgrade and improve the FM organization for a better performance. In this literature review chapter, the discussion will be more focused on the significance of FM, and the concepts and models that have been developed and used by previous researchers.

Table 2.1: Definitions of Facilities Management

Organization	Definitions of FM
Chotipanich (2004)	The support function coordinating physical resources and workplace, and support services to user, and process of works to support the core business of the organization
Pitt and Tucker (2008)	The integration and alignment of the non-core services, including those relating to premises required to operate and maintain a business to fully support the core objectives of the organization
Noor and Pitt (2009)	Creating an environment that is cohesive to carry out an organization's primary operations, taking an integrated view of the infrastructure services and using it to give customer satisfaction and value for money through support for an enhancement of the core business
RICS (2009)	A discipline that improves and supports the productivity of an organization by delivering all needed appropriate services, infrastructures, etc that are needed to achieve business objectives
Kamaruzaman and Zawawi (2010)	A balance between technical, managerial and business acumen that may be related to operational, tactical and strategic decision making processes
IFMA (2010)	Facility management is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology
BIFM (2010)	Facilities management is the integration of process within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities

Source: Noor & Pitt (2010)

Table 2.1 sets out various definitions of FM that reinforce each other, and highlights the FM functions. This can guide organizations towards creating good business strategies that emphasize the decision making process, management actions and continuous improvement which can lead to increasing the profit margin of the organization and achieving the objectives of the organization's core business. It is clear that FM can be applied at every management level to provide the right services at the right time, which is essential to the organizational business performance. It will also contribute towards the success of organizations by offering a competitive advantage to strategize business positions and to strengthen the business environment of the future. Figure 2.1 and Figure 2.2 illustrate the integration of people, process and place that contributes to core business and non-core business in an organization.

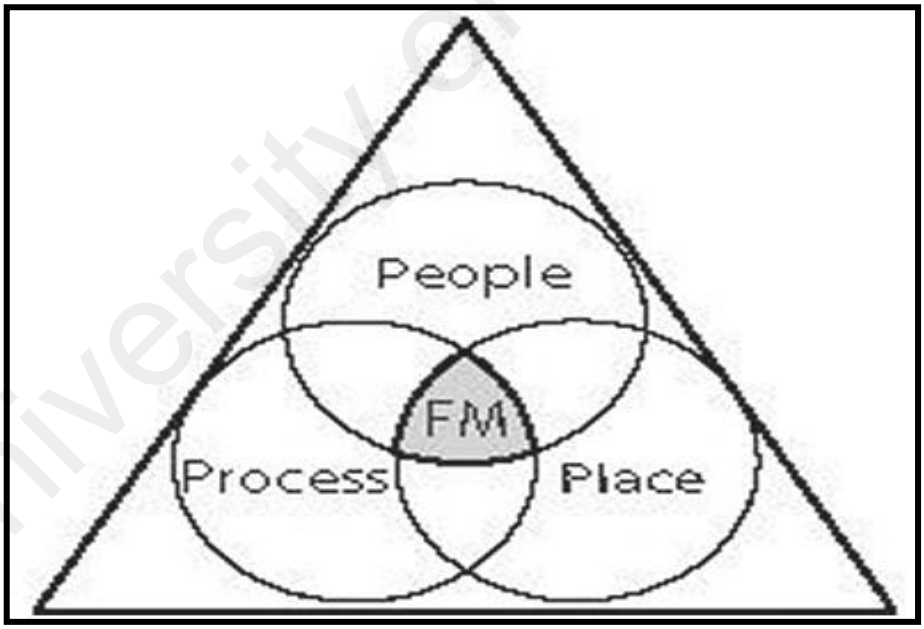


Figure 2.1: Triangle of "Ps" and FM
Source: IFMA (2010)

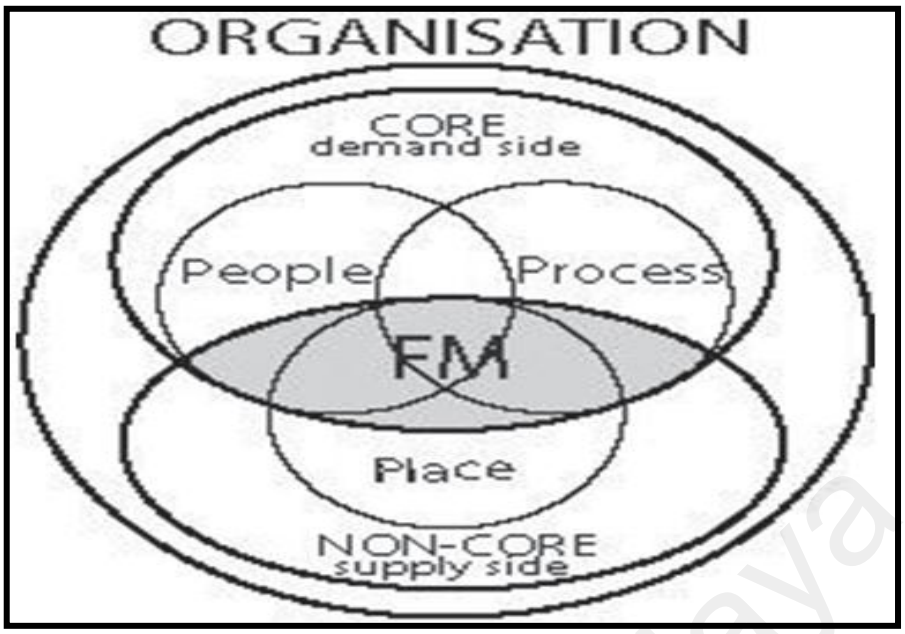


Figure 2.2: Relationships among Place, People, Processes and FM

Source: IFMA (2010)

According to Rondeau et al. (2006), FM became recognized in the past thirty years and at the same time it has expanded resources for people, their work environment and the ways they work. Rondeau et al. (2006) described FM as "a practice and profession that is continuing to evolve to provide management services that meet strategic long range and short term corporate requirements"(page 2). According to Rondeau et al. (2006), these business practices combine proven and innovative methods and techniques with the most current technical knowledge to achieve human skills, productivity and cost effective work environments. The FM profession continuously evolved and during 1990s and early 2000s FM had limited career opportunities and lack of expertise in FM industry. In order to remain in the FM business and to excel, Rondeau et al. (2006) mentioned that, "we must have informed and knowledgeable partners in the FM process who are trained, educated and prepared to address the challenges and opportunities that await them"(page 2).

2.2 Facilities Management: Opportunities, Scope and Impact

FM has wide opportunities, scope and impact in every organization to come up with good business decisions and to provide a broad range of satisfactions to internal and external customers. The evolution of Facilities Management needs to be identified in order to look into the integration of strategic, tactical and operational level. Besides, it is also focuses on how to keep the business successful by looking into the essential elements for continuous improvement.

2.2.1 Explorations in Facilities Management

Becker (1990) in his exploration of FM, identified the important factors in effecting changes within organizations that are driving FM forward and towards achieving the continuous improvement of an organization. Figure 2.3 shows the five factors stimulating the growth of FM.

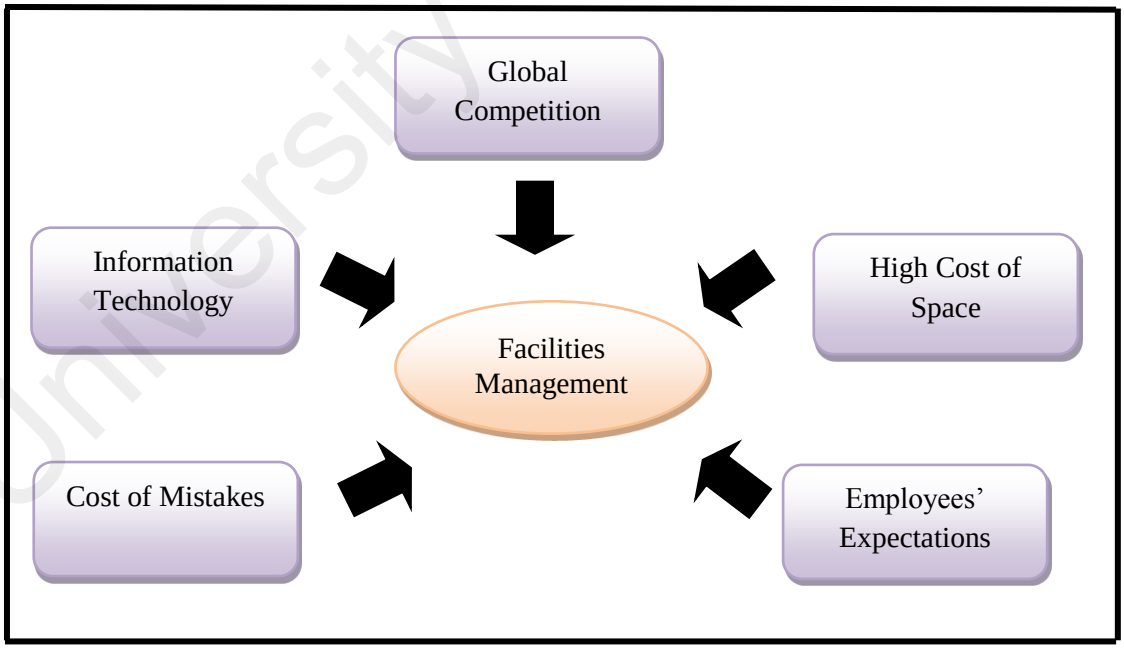


Figure 2.3: Becker's Five Factors for Stimulating the Growth of Facilities Management
Source: Becker (1990)

Becker (1990) acknowledged that each of these factors has its own characteristics that will facilitate the FM's ability to provide quality services and achieve the objectives of the core business. These factors play a significant role in the changes within organizations, and the technical basis where Becker (1990) focused on the building performance that will affect the design and space of a building. According to Becker (1990), information technology is an optimal requirement and its implementation has become a technical discipline for modern organizations. In addition, global competition is another of Becker's five factors that influence the enlargement of the market place, leading the organization towards the business arena as well as using their resources more efficiently and focusing attention on buildings, furniture and building system to support the changing business practice. The next factor, according to Becker (1990) is the high cost of space. The cost of modern building space has continually risen but old buildings cannot accommodate the advanced technology; they are inefficient and become a liability.

Becker (1990) suggested that desk sharing could increase occupancy levels to improve the effectiveness and efficiency of the organization. The fourth factor is rising employee expectations, which focuses on the working environment that will influence the productivity of employees and improve the skill of the workers. The final factor is minimizing errors. This is an important factor introduced by Becker (1990); he emphasizes that organizations need to avoid errors while dealing with facilities planning that can cause financial breakdown. This should also emphasize saving the organization's time and money; therefore proper analysis and planning are essential to lead the organization in the right direction.

In 1993, Regterschot (cited in Fleming, 1998), mentioned that "it would take approximately seven years for FM to reach a level of maturity level in an organization" (page 7). Figure 2.4 and Table 2.2 below show the stages to maturity.

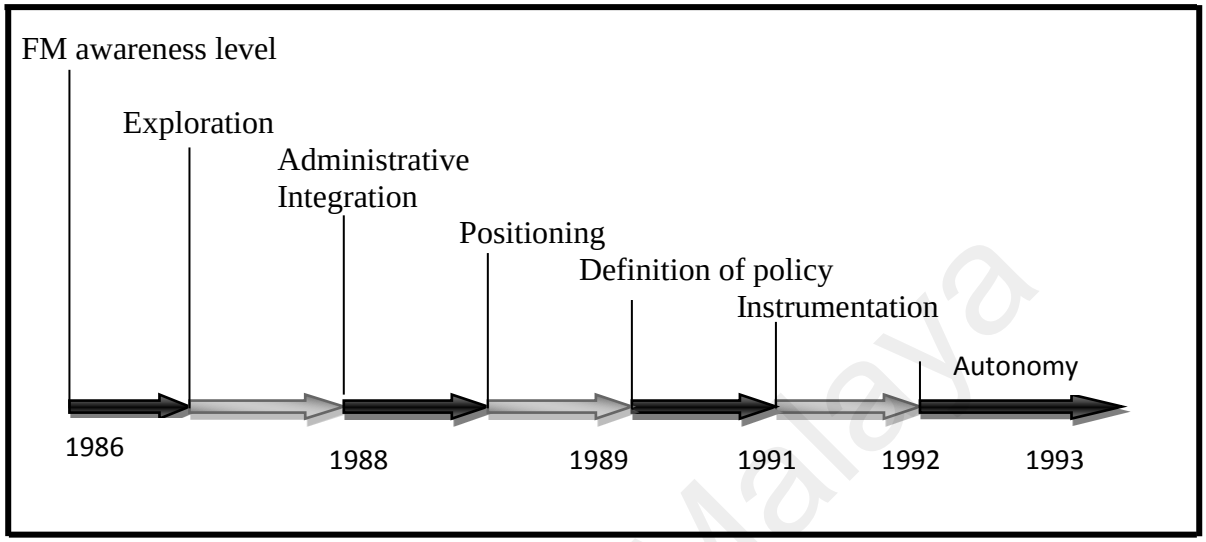


Figure 2.4: FM Life Cycle

Sources: Regterschot (1993), quoted by Fleming (1998)

Table 2.2: FM Life Cycle

FM Level	Description
FM awareness level	Is identified as being able to improve an organization's competitiveness
Exploration	An FM audit and feasibility study are carried out, producing a blueprint for a renewed integrated organization
Administrative	New positions are filled and new operating procedures are set up
Positioning	Staff are required to alter their working attitudes towards service and co-operation
Definition of policy	Standards and policies are defined. The decision to outsource and in-house
Instrumentation	The instruments help to support the organization, information system, help desk etc.
Autonomy	Either an autonomous facility department functioning outside the company or an autonomous limited company working within organization

Source: Regterschot (1993), quoted by Fleming (1998)

Fleming (1998) reviewed the work of other researchers on the level of maturity of an organization to achieve success and the improvements that can be made. According to Fleming (1998), Barrett (1995), analysed two types of management level, which are the operational level and the strategic level:

(a) The operational level basically focuses on:

- FM department interacts with operatives
- FM department communicates with core business to identify requirements
- FM department benchmarks the existing facilities

(b) The significant elements of the strategic level are:

- FM interacts with core areas to ascertain future trends
- FM interacts with the field of FM to study future changes within FM
- Interaction between strategic and operational facilities

From these two levels of management, Barrett (2000) upgraded a study on achieving strategic facilities management through strong relationships that has been originally been proposed by Barrett in 1995, with interaction from industry partners and also incorporating theoretical modeling. In this model, Barrett (2000) drew upon the work of Ashby (1963) and Beer (1985) as a knowledge contribution towards the generic model. The ideas developed by Beer (1985) from the work of Ashby (1963) were quoted by Barrett (2000). An organization's environment can be divided according to time scale, ranging from immediate to very long term and the organization has to respond appropriately to inputs from each zone of the scale. These inputs will vary considerably in their characteristics with very broad conceptual data related to the long term, in contrast to many short term issues.

Each interaction between the organization and its environment will be in balance and the interaction between different parts of the organization. In addition, the linkages between FM and the organization are very significant in leading the organization towards a quality business environment. This can occur by providing quality services and increasing customer satisfaction that will enlarge the route to success and lead to continuous improvement in an organization. Barrett (2000) emphasizes that FM needs to have effective interaction within the organization, and to recognize the differences between operational FM and strategic FM and the responsibility of strategy in balancing these two levels appropriately.

According to Barrett (2000), the current and future business environment can be illustrated in the generic model (Figure 2.5) that can be a knowledge contribution to the FM organization in the future. These scales focus on the organization's core business and FM is a key to the organization's success. In Figure 2.5, it can be seen that there are six principal linkages created by Barrett (2000). These linkages are divided between the operational level and strategic level of the generic model. The linkages will be described as below; linkages (1)-(3) occur in the operational level, while linkages (4)-(6) occur in the strategic level.

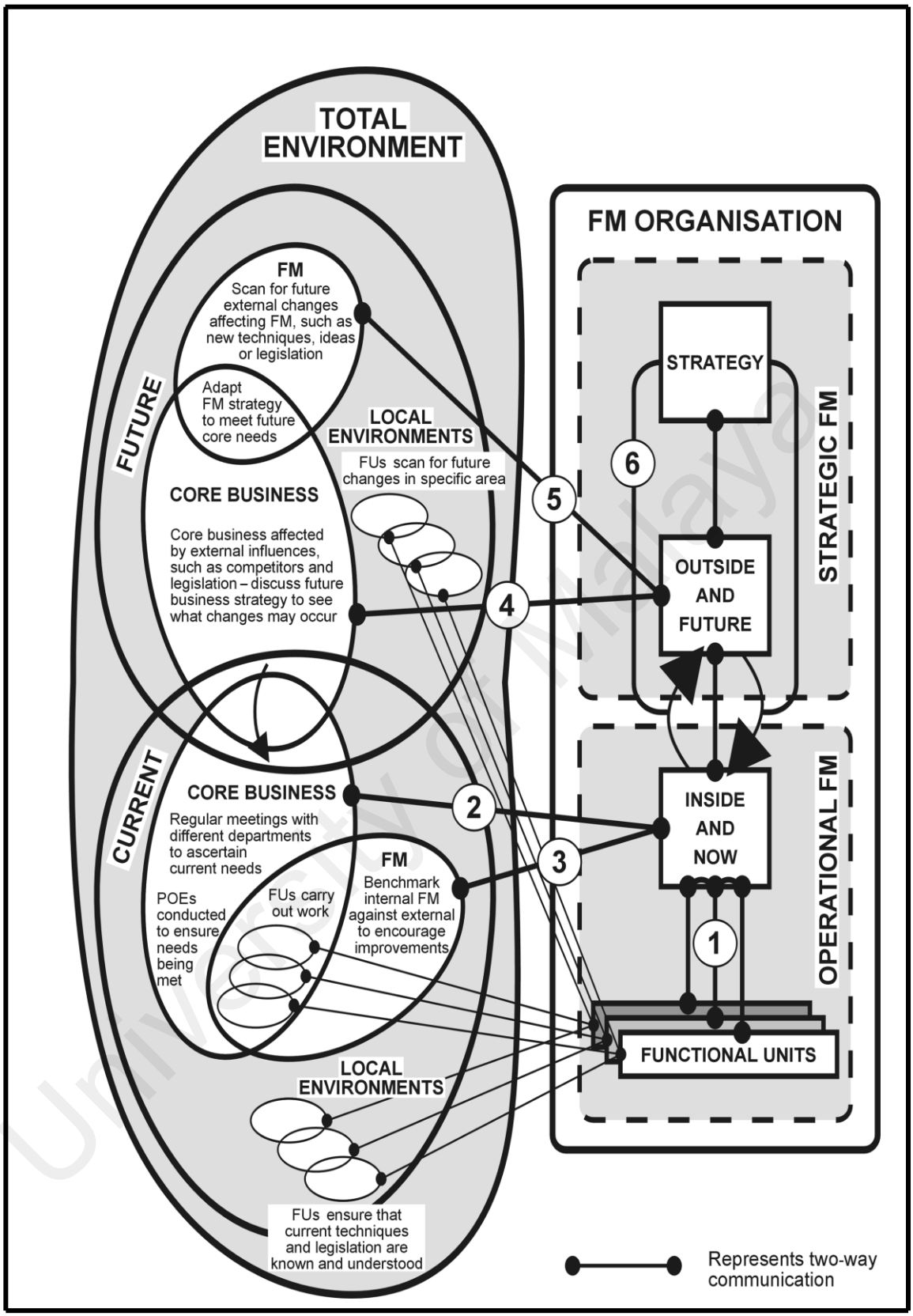


Figure 2.5: A Generic FM Model

Source: Barrett (2000)

(a) Linkage (1)

Interaction within the facilities management organization, the facilities manager and the various functional units. The facilities manager's function here is as coordinator rather than implementer. Ideally the functional units are competent to carry out their duties as directed and should scan for future developments in their specific areas so that they can feed these to the facilities manager, who otherwise should be left with time to handle the other interactions.

(b) Linkage (2)

Interaction with the core business on a regular basis to identify current facilities requirements. This can be achieved in a variety of ways with the level of formality depending primarily on the scale of the operation. Audits and post-occupancy evaluations can be conducted to ensure that these needs are actually being met and to identify areas for improvement.

(c) Linkage (3)

Benchmarking existing internal facilities provision against other facilities management organizations so that areas for improvement can be identified.

(d) Linkage (4)

Interaction with the core business again (see (2)), but this time in order to ascertain and understand future changes faced by the core business owing to external factors such as competitors' plans.

(e) Linkage (5)

Scanning the specialist field of facilities management (see (3)), but this time for possible longer-term developments in thinking.

(f) Linkage (6)

Creating strategy, which is a policy framework that provides a clear context for decision making within the FM organization, but is fully informed by external factors affecting the core business and in the field of facilities management generally. Interaction occurs between the strategic and operational parts of the FM organization with the aim of synergistically balancing current operations with the needs of the future.

Overall, the generic model is a contribution by Barrett (1995) to field-specific knowledge to upgrade the FM organization to be more effective and efficient in the future. Barrett (2000) emphasized that FM needs to be continuously providing high level operational support for the core business, and is a significant development that links the core business and FM strategies for organization to balance long term and short term perspectives.

Barrett (2000) also highlighted that FM managers are the main agents who need to be active in the strategic consciousness and to think strategically in order to achieve the organization's mission and vision as well as creating a quality FM image and identity that will be have a global influence.

2.2.2 Integrated FM Practice

In an article entitled "Facilities Value Management", Alexander (1992), recommended some important tools that can assist the process of FM. The main reason for this suggestion was to control cost whenever facilities are seen as overheads on the business operations. Prior to this, FM managers should identify the importance of facilities and also during delivery of the support services. Alexander (1992) highlighted that managers are the key people driving the business of an organization, who provide value and cost effectiveness by implementing value management as an approach in the business.

Alexander (1992) further mentioned that FM is a field of study and practice which helps organizations achieve their goals by focusing on the financial terms and monetary values that contribute to organizational effectiveness. Alexander (1992) created a matrix (Table 2.3) that shows the relationships among different management levels (strategic, tactical and operational) and adding value through FM that should be focused as a continual process of planning, monitoring and delivery that will enable the business to achieve continuous improvement as well as contributing to the significance of FM.

On the other hand, in his research Kincaid (1994) explored the role of FM, the purpose and the potential of FM that are illustrated in the matrix shown in Figure 2.6. Kincaid mentioned that, in the early stage, FM is a form of management that manages the infrastructure of an organization to support the core business.

Table 2.3: Adding Value through Facilities Management

Management Level	Organizations
Strategic (Adding value in Facilities Management)	• Facilities management organization • Facilities management policy, planning and • procedures • Quality-managed facilities • Management accounting • Purchasing policies • Information management systems
Tactical	• Property management • Space management • Environmental management • Maintenance management • Design-in-use
Operational	• Improved service quality • Improved communications with users • Building management systems • Labour management

Source: Alexander (1992), quoted by Alexander (2003)

Moreover, it integrates with Property Management (real estate), Property Operations and Maintenance, and Office Administration. These three fields make the basic contribution to support the core business, (Kincaid, 1994). In this situation, FM acts as a guide for the organization for the long term and must have the expected requirements such as leadership, skills, knowledge, and other management aspects that will enable it to support the organization at every level of management, as illustrated in Figure 2.7.

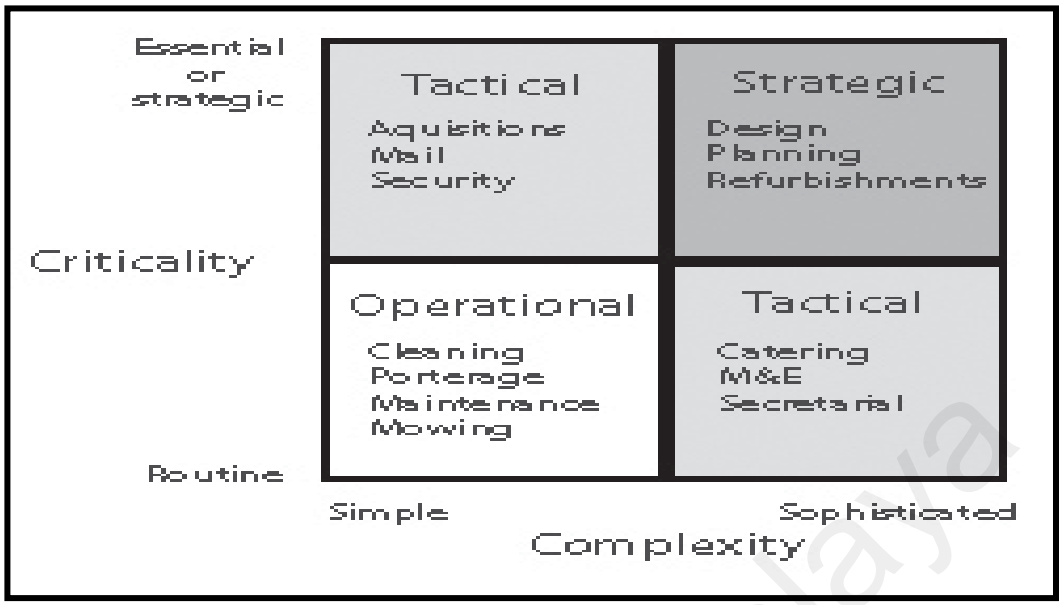


Figure 2.6: The Types of Tasks and Activities Categorized by Function and FM Task Characteristics

Source: Kincaid (1994)

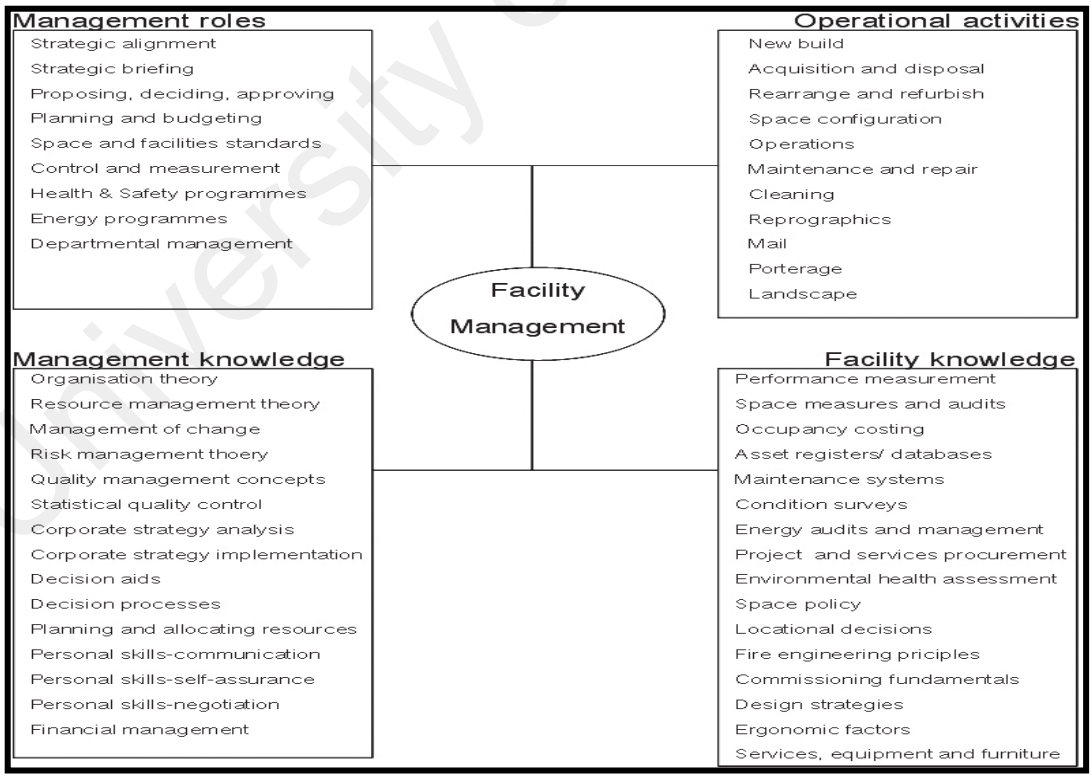


Figure 2.7: Integrated FM in Practice, Four Components

Source: Kincaid (1994)

Kincaid (1994), created a framework to show the integrated facilities management in a simplified manner. The framework consisted of four major aspects which are: management roles, operational activities, management knowledge and facility knowledge. From this framework Kincaid summarized the position of FM as "a support role within an organization, that must link strategically, tactically and operationally, and finally managers should be equipped with knowledge of FM to carry out their integrated support role"(page 23). Meanwhile, Nutt (2000) focused on the strategic view of FM that will add value to increase and achieve the potential outcomes. He stated that the strategic objective of FM "is to provide better infrastructure and logistic support to business and public endeavors of all kinds and across all sectors" (page 124). Nutt (2000) introduced a model entitled the "generic trails" to the future that consist of four competing futures for FM, focused on business, people, property and information. Figure 2.8 below shows the generic trails that contribute to productivity, human effectiveness and facilitating business success (Nutt, 2000).

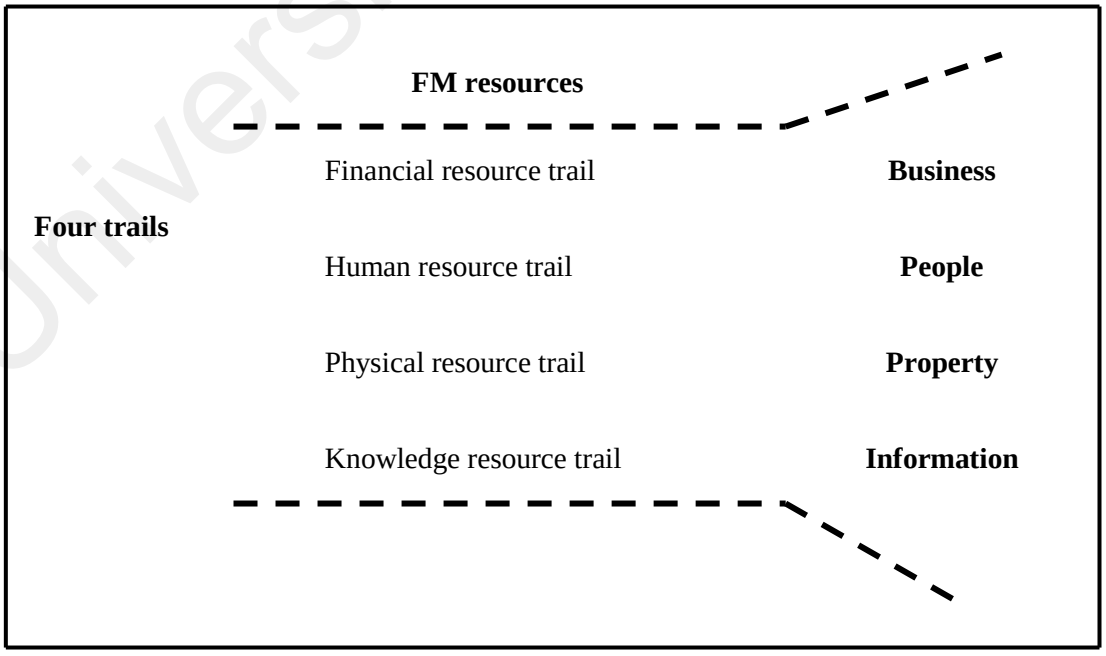


Figure 2.8: Generic Trails to the Future

Source: Nutt (2000)

2.2.2.1 The Financial Resource Trail (Business)

The financial resource trail is part of an organization's significant elements that involve risk and opportunity to achieve objectives, as well as opportunities to increase the profit margin of the organization. Financial resources, in simple terms, refer to how a business or company is being financed for investment purpose. Nutt (2000) highlighted that FM is part of cost cutting in every organization for both the short term and the long term, and discussed three pathways to efficient financial control as follows:

a) To property investment decisions

b) To the management of property assets

c) To the management of facility operating cost

2.2.2.2 The Human Resource Trail (People)

Human resources (HR) are the term used to define the individuals who support the workforce of the organization. Essentially, characteristics such as informational, interpersonal and decision-making skills are needed to contribute knowledge towards the success of the organization. HR is also responsible for other tasks such as training, motivation, assessment, rewards to create smooth relationships at every level of management. Nutt (2000) pointed out that HR is part of FM objectives, in that FM productivity and performance is very much related to the performance of internal customers to come up with good decision-making to support the core business. HR is focused on skills, knowledge, and experience at the organizational, section, team and individual level for deployment in place, space and time. It is therefore needs to have the flexibility to generate FM support on a long term basis and is essential for the achievement of business strategies (Nutt, 2000).

Table 2.4: FM Accountability

FM Accountability	Description
Operational capability	In delivering facility capacity(size), availability (time) and flexibility (change) of the types and locations (variety) of facility supports that are required
Contingency provision	Planning 'what-if' arrangements for response to unexpected events, should they occur
Operational performance	Monitoring the impacts of facility and service support systems, both positive and negative, on people, their operations and performance
Operational effectiveness	Evaluating the effect of facilities and support services on work output, personnel satisfaction and organizational success

Source: Nutt (2000)

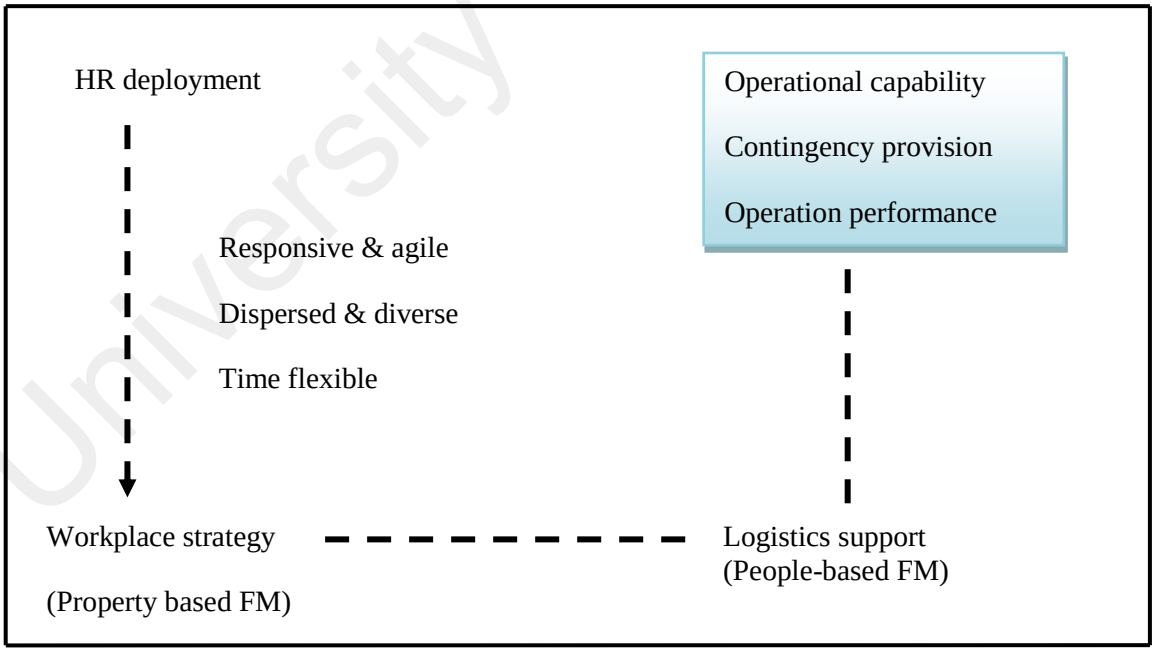


Figure 2.9: The People Trail

Sources: Nutt, (2000)

Figure 2.9 shows the people trail that has been developed by Nutt (2000) whereby, there is integration within HR deployment, logistic support and workplace strategy with the FM accountability (Table 2.4). It has a combination of 'hard' and 'soft' management approaches at every level in order to be effective in the future for a long term basis (Nutt, 2000).

2.2.2.3 The Physical Resource Trail (Property)

Following Nutt's (2000) model, the property trail is the third important trail that emphasizes the building stocks. This trail has control over facility support and innovative design for the overall business performance. Therefore, Nutt (2000) introduced three management measures to coordinate the property trail, as set out in Table 2.5.

Table 2.5: Management Measures

Strategies	Measures
Utilization strategies	Greater emphasis on the intensive use of property and facilities, both in space and time, requiring expert procedures for utilization management
Rationalization and disposal strategies	Further efficiency gains from workplace rationalization and innovation, the introduction of building performance regimes, more effective FM arrangements and the strategic disposal of property and parts of the buildings that are no longer required
Flexible tenure strategies	Responding to the needs of business for highly flexible and shorter tenure arrangements, providing choice and opportunity through mixed tenure combinations

Source: Nutt (2000)

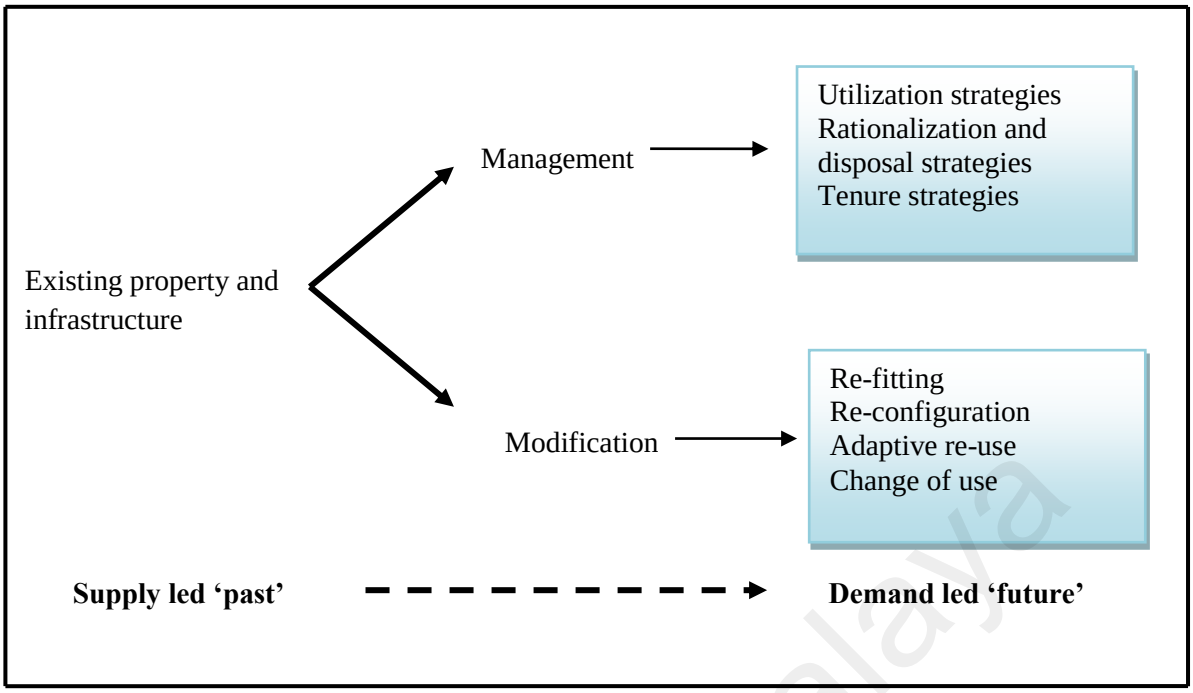


Figure 2.10: The Property Trail

Source: Nutt (2000)

Figure 2.10 shows the influence of demand and supply in the property trail that can be divided into two sub-trails: management and modification. The property trail plays an important role in achieving the investment purpose of receiving a higher return in the future, in that innovative design will impact on business performance. Furthermore, it also focuses on aspects of construction at an initial or modification stage.

Nutt (2000) provided examples of seven improvement target in the construction industry in the UK where the target was to "reduce construction time, capital cost, construction defects and site accidents and to improve 'on time' completion rates, productivity and construction industry profitability." Thus, the property trail has a wide range of benefits that can have an impact on and improve technological changes, as well produce quality and intelligent buildings for the future to increase the investment returns.

2.2.2.4 The Knowledge Resource Trail (Information)

The final trail that was identified by Nutt (2000) was the knowledge recourse trail. In this trail, knowledge and skills related to FM are very important to sustain the relevance of the FM profession in the future. Both technical and non-technical skills are needed to ensure continuous improvement in FM. Nutt mentioned that "FM has knowledge trail covers an extremely wide territory; it has three main origins which are knowledge of property, general management knowledge and knowledge of facility design and FM" (page 129). Nutt (2000) emphasized that the first two origins are in a secure position, while the third origin is undeveloped and needs to be focused at the strategic level in order to make sure FM is aligned with the objectives, goals and vision to upgrade the efficiencies of the core business, organization, FM managers and FM department in the future.

2.3 The Significance of the Business Trail and the People Trail

FM is an important sector in every organization to achieve the goals and objectives of the core business. As Nutt (1999) noted, "FM is part of strategic agenda of most business organization" (page 12). There is a link between FM performance and business performance in that it FM will influence the best practice of every organization. Nutt (1999) identified the significant contributions of FM to business performances as the following:

- Its contribution to objectives of an organization and to business success
- Its support to business strategy and operations
- Its contribution to improving productivity of the business
- Its management of the assets of an organization's property portfolio

- Its impact on facility operating cost
- The effectiveness of its own FM policies and procedures
- The quality of the working environment
- The delivery and quality of out-sourced, part-sourced and in-sourced services
- The support it provides to the employee and end user
- The quality of services as received by the customer or consumer

Nutt (2000) went on to list the significance and contributions of FM to business when he stated its purpose to be "downsizing and cost cutting to improve competitiveness, corporate business performance and shareholder benefits" that will give an impact to the organization as well as increase the profit margin of the core business. Grimshaw (2003) pointed out that the business trail formulated by Nutt (2000) is concerned with long term investment which is mainly focused on property. It is about managing the property in order to have a higher ROI (Return of Investment) in the future. Meanwhile, the people trail, according to Grimshaw, is mainly concerned with the effective deployment of people who need to be focused on knowledge and skills, especially at this point of time when there are business changes globally.

Grimshaw (2003) also emphasized that the people trail involves networking and good communication skills in order to ensure continuous improvement in every organization. Grimshaw (2003) also identified a professional interface between the business trail and the people trail to focus on the FM profession that will be at a new level of thinking to upgrade the effectiveness and efficiencies of the FM field in the future.

Grimshaw (2003) mentioned that a professional interface is an important element in the design of FM for the future purpose and the changes taking place in the workplace. Figure 2.11, the resources model of strategic FM, was created by Nutt (2000). In this model the collaboration among the four trails that are very significant for the success of FM companies can be seen clearly. This model has become a point of reference for the FM field to measure their performance and upgrade their business perspective in order to achieve continuous improvement and productivity.

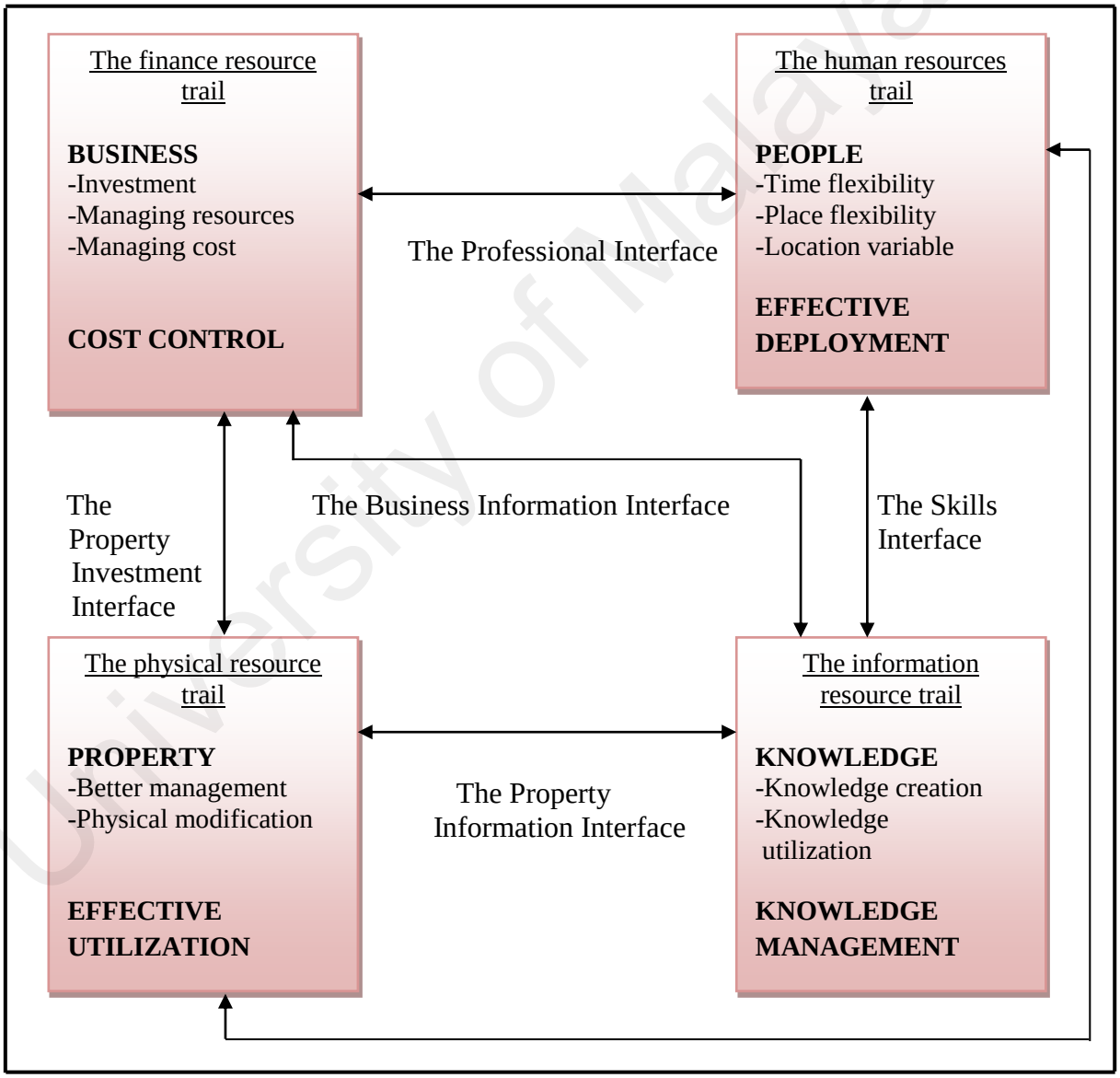


Figure 2.11: The Resource Model of Strategic FM

Source: Nutt (2000)

Figure 2.11 emphasizes the connections between the four trails: the professional interface, the business information interface, the property information interface and the task interface that were reinforced by Grimshaw (2003), in order to gain a better perspective for the FM profession in the future. These interfaces are significant to guide FM managers to become quality professionals and focus on the characteristics such as interpersonal, informational and decision-making skills that support the business objectives.

Alexander (2003) said that FM contributes to a business environment that needs a collaborative strategy among leaders to develop the knowledge and understanding as well as the experience that will lead to the upgrading of the FM industry. Additionally, Alexander (2003), emphasized that strong leadership is needed for the FM industry to flourish, especially in improving customer satisfaction and re-engineering business processes.

Table 2.6: Contribution from Several Research to foresee the evolution and exploration of Facilities Management field

Author	Year	Topic/ Contributions
Becker, F	1990	**Topic**: The Total Workplace **Contributions**: Five Factors that stimulates the FM growth.
Regterschot, adapted from Fleming, A	1993/1998	**Topic**: Facilities Management Process **Contributions**: FM Life Cycle to identify the FM maturity level in an organization
Barret, P.	1995/2000	**Topic**: Strategic Facilities Management **Contributions**: A Generic FM Model that has the linkage between operational and strategic level
Alexander, K	1992/1996	**Topic**: Facilities Management **Contributions**: Created a strategy that shows the relationship within strategic, tactical, and operational.
Kincaid, D	1994	**Topic**: Integrated Facilities Management **Contributions**: Four components that contributed to integrated FM practice
Nutt, B	2000	**Topic**: The Strategic Brief **Contributions**: Generic FM Trails to support the FM organization
Grimshaw, R.,W	2003	**Topic**: Facilities Management -The Professional Interface **Contributions**: Professional Interface to achieve goals and increase the productivity

2.4 Outline (1)

Table 2.6 illustrates the contribution from several researches to foresee the evolution and exploration of Facilities Management field. The outline for this subtopic is focusing on the overall FM exploration. Becker (1990) identified the five stimulating components for the growth of FM and emphasized enhancing performances at the operational level. Alexander (1992, 1996, and 2003) focused on a business perspective of FM in which financial impacts and human capital are the main criteria in driving the business. FM can be said to be an integrated process including roles, activities, knowledge and skills, as mentioned by Kincaid (1994) who emphasized that FM has three characteristics as a support system for the FM organization and these must be strategically, tactically and operationally linked with each other to upgrade the FM field and achieve continuous improvement.

Meanwhile, in 1995, Barrett in his research analyzed the operational and strategic levels and produced a generic model which emphasized the significance of FM focusing on core business as well as non-core business with the collaboration of operational and strategic level FM. In order to operate successfully at these levels, FM managers must have the knowledge and a range of skills such as interpersonal, informational and decision-making skills to carry out the FM tasks that will contribute to productivity and competitive advantage in the future.

The four trails that have been identified by Nutt (2000) and expanded by Grimshaw (2003) provide a stepping stone for the FM field to develop a quality strategic framework that can guide FM managers to achieve FM goals and objectives in achieving organizational success as well as enhancing the identity of FM globally.

2.5 Facilities Management Strategies: The Significance for Strategic Planning and Management

2.5.1 Introduction to Strategy

Strategy is important to create a systematic organization that lead to continuous improvement and, as well, achieve the objectives for the longer term. Pugh (2011) mentioned that strategy is a way of thinking to monitor strengths and weaknesses in order to ensure the ongoing growth of a business. Pugh also highlighted that strategy is about the processes of learning, discovering and inventing that support the organization's best practice when facing competitive advantage.

Meanwhile, Johnson et al. (1999) defined strategy as the "direction and scope of an organization over the long term which achieves advantage for the organization through its configuration of resources within a challenging environment, to meet the needs of markets and to fulfill expectations" (page 1).

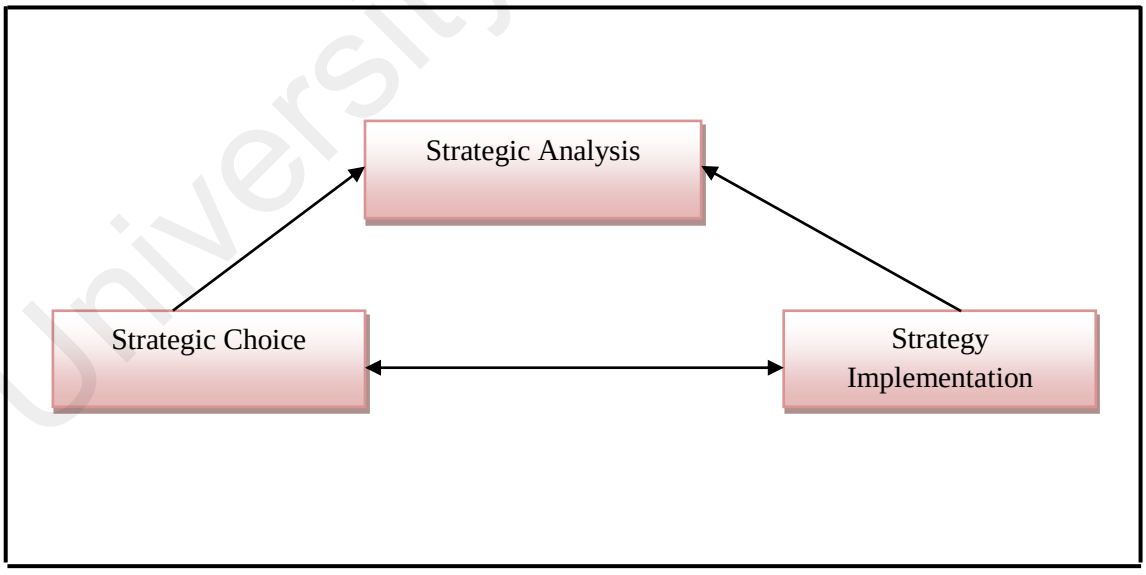


Figure 2.12: The Basic Model of the Strategic Management Process

Source: Johnson & Scholes (1999)

Figure 2.12 shows the three main areas of strategic planning as identified by Johnson and Scholes (1999) that, in combination, form a strategic approach. Strategy is needed to come up with good decision making, and to upgrade the best practices which will influence quality, time and cost. It is also a way that helps managers to come up with good business decisions for the long term and as well as managing activities and best practices that contribute to the organization and to business performances (Adcroft et al., 2008).

Strategy and operational effectiveness can lead to superior performance and thus contribute to the achievement of primary goals. It is based on customers' needs, accessibility and the variety of products and services, and strategy can also be said to be about being different and choosing to perform activities which are the basic units of competitive advantage (Porter, 2008). Furthermore, strategy is the management's focus needed to understand the significance of the organization's positions to achieve its goals, mission and vision globally (Porter, 2008). Strategic planning is therefore central in an organization to produce a quality environment, reduce costs, and focus on psychology and behavior of people in making decisions to upgrade the organizational performance.

2.5.2 The Significance of Strategic Facilities Management by IFMA

Several FM strategies' frameworks developed by IFMA (2009) demonstrate the importance of incorporating global aspects to provide an overall view of an organization's strategic priorities. There are a few examples of strategic guidelines that have broadly focused on Strategic Facility Planning (SFP).

This is a good start for FM managers and FM organizations in countries where FM is growing in strength, such as Hong Kong, Singapore and Malaysia and provides them with opportunities to upgrade their knowledge and skills as FM professionals. SFP is described below.

2.5.2.1Strategic Facility Planning (SFP)

Strategic Facilities Planning (SFP) was put forward by IFMA during the Project Benchmark Survey carried out in 2002 to link strategies and the organization in order to develop future achievements (IFMA 2009). SFP is defined as "a two to five year facilities plan encompassing an entire portfolio of owned and or leased space that sets strategic facilities goals based on the organization's strategic (business) objectives. The strategic facilities goals, in turn determine short term tactical plans, including prioritization of and funding for annual facilities related projects" (IFMA, 2009) (page 5). SFP is significant where it has a direct impact on an organization's real estate assets and needs. Four main components of SFP are the focus in order to develop a flexible and implemented plan for an organization.

The components identified by IFMA 2009 are as below:

- **Understanding** – thoroughly understand the organization's mission, vision, values and goals. Many organizations follow a balanced scorecard of four key measurements: financial performance, customer knowledge, internal business process, and learning and growth
- **Analyzing** – use analytical techniques, such as SWOT analysis to explore the range of possible futures and the triggers used to analyze an organization's facility needs.

- **Planning** – develop plans that meet the long range needs of the organization. At minimum, the SFP should be reviewed annually and further updated periodically as conditions require.
- **Acting** – take actions as planned and implement the SFP. Feedback from actions taken can be incorporated into the next plan and projects to provide continuous improvement for future SFPs. The cyclical nature of constant planning for the changing future and adopting plans along the way are normal events. These changes and updates must be managed to ensure they are achievable

IFMA (2009) highlighted that facilities planning consists of three components which are the SFP, the Master Plan and the Annual Facilities Plan (tactical plan or approved budget). This division is needed to avoid confusion in terminology and to provide standard regulations for FM to move forwards. An understanding of the organization's culture and core values and analysis of existing and new facilities to have a clear observation of the culture and core value of the physical space, or to support their change.

An in-depth analysis of existing facilities – including location, capability, utilization, and condition. An achievable and affordable plan that translates the goals of the business plan into an appropriate facility response. IFMA (2009) noted that many companies at the time were undergoing rapid technological change and more detailed information was needed compared to the earlier business environment in which, traditionally, companies merely needed a reasonable understanding of the location, capacity and general condition of their facilities.

SFP can be used as a guide to identify the types of facilities needed in order to achieve business goals. Other components of SFP may include:

- Facility portfolio analysis and documentation
- Condition survey
- Building and site usage
- Capacity analysis
- Industry benchmark study
- Staff and technology projections, over time
- Project identification
- Cost projections
- Presentation materials for board approval
- Facility development schedule

Apart from the SFP, the Master Plan provides a framework of the physical environment of the building, which includes components such as infrastructure and transportation planning, amenities and support planning, corporate image, security strategies, cost projections and environmental design (IFMA, 2009). Meanwhile the tactical plan consists of maintenance issues, operating budget, and other best practices involved in maintaining a building. The matrix in Table 2.7 compares the features of the SFP, the Master Plan and the tactical plan. It can be seen that the important additional consideration for SFPs is the financial impact, which affects long term costs and has an impact on facility decisions. It will help FM managers to make decisions, focus on the cash flow and achieve the organizations' mission, vision and goals that strive for continuous improvement.

Table 2.7: Comparison Table for SFP, Master Plan and Tactical Plan

SFP	Master Plan	Tactical Plan
Existing condition analysis	Site specific physical plan for buildings	Maintenance schedule/ plans
Organizational needs statement (linking FM to strategy)	Infrastructure and systems within the site	Operational plans
Gap analysis	Aesthetics of buildings and grounds	Building floor plans
Recommendations for new spaces / buildings	Phasing plans for building	Architectural design/ configurations
Facility cost projections/ life cycle cost analysis	Construction estimates	Operating budget
Capacity analysis and use recommendations	Engineering assessments	Floor plans or occupancy charts

Source: IFMA (2009)

2.5.3 Techniques Used in Developing Strategies for FM

FM is an important profession which not only focuses on economic capabilities, but also looks carefully at social and environment benefits (Alexander et al., 2006). Focusing FM at a strategic level is basically about the excellence of leadership that drives towards the strategic path. At the same time, effective learning and innovation will help to add value to the FM organization (Alexander, 2003). Furthermore, Alexander (2003) highlighted that FM needs to be seen from a broad perspective and strategies need to be revised to develop new processes that can contribute to community, purpose and environment.

According to Atkin and Brooks (2005), developing strategies for FM plays an important role in contributing to organizations business objectives and needs. It is mentioned that, there are three levels need to be focused in developing the FM strategies. They are: the analysis stage, the solution stage and the implementation stage. These are shown in Table 2.8.

Table 2.8: The Stages in Developing FM Strategies

Stages	Actions
Analysis Stage	Relevant facts, including the organization's objectives, need and policies; a review of resources, process, system and the physical assets together with the attributes in terms of space, function and utilization
Solution Stage	The criteria for judging options; evaluating these against the objectives of the organization, and developing the facilities management strategy
Implementation Stage	Completes the strategy development process through the establishment of an implementation plan that incorporates the key elements of procurement, training and communication

Source: Atkin & Brooks (2005)

Table 2.8 shows the stages involved in developing FM strategies that will be relevant to the organization's strategic and operation plan and that contribute to the organization's core business. Atkin et al. (2005) introduced a framework (shown in Table 2.9) outlining the process of developing FM strategies in order to have a better understanding of the current situation and the relationship between core business and FM.

Meanwhile, (Nutt, 2000) highlighted the four competing trails in the development of FM strategies, comprised of business, people, process and technology, that act as supports contributing directly to productivity and human effectiveness, and hence to continuous organizational improvement.

Table 2.9: Techniques and Tools to Support Development of FM Strategy

Development stage	Phase	Technique or Tool
Strategic Analysis	Services audit/ review Assessment of expectations and objectives Portfolio audit Resource Audit Market Audit	• Benchmarking • SWOT analysis • Space analysis, maintenance plan, risk audit • People/skills audit • Service provider • Audit service providers • (external) • Supply of real estate etc
Developing Solutions	Generations of options Evaluation of options Selection of strategy	• Outsource modeling • BPR • Maintenance plan • Risk analysis • Cost benefit analysis • Optimizing model
Strategic implementations	People and systems	• Change management through the application of rigorous project management (plan, monitor and control) • Training and development BPR

Source: Atkin & Brooks (2005)

Strategies play an important role in every organization: they potentially influence profit margins, customer satisfaction as well as the recognition of FM within the organization.

Effective strategies provide good delivery on quality, cost and time that meet the customers' requirements as well as increase the customers' expectations about products and services (Alexander, 2003). Alexander (2003), mentioned that "strategic planners need to predict future business conditions in order to make the appropriate decisions about the balance facilities needed, the way in which to organize their operation and management and the best way of providing them" (page 271). FM organizations need to improve the quality of FM by producing good business strategies and increasing the level of professionalism in the field, especially to incorporate innovation and awareness of the business environment. According to Timm (2010), FM managers play an important role in developing strategies that contribute to business productivity by understanding the business, structuring the operations with new way of thinking, and supporting the customers' needs, in order to achieve the corporate recognition.

2.5.4 The Significance of Innovation in Developing FM Strategies

Innovation is said to be a degree of intervention that can be radical or a transformation (Mudrak et al., 2004). It is impossible for innovation to stand by itself because systematic management tools, skills and most importantly critical thinking are needed in the innovation process (Hackett, 2009). The innovation process needs to be focused on understanding how customers perceive the organization's business and it is important to understand the customers' requirement and needs in developing innovation in an organization (Kumar, 2009). Meanwhile, Goyal et al. (2007) highlighted that innovation consists of the changes towards new management thinking and marketing strategies in an organization. Innovation is an important element that contributes to creating the organizations' strategies that will lead to competitive advantage and continuous improvement.

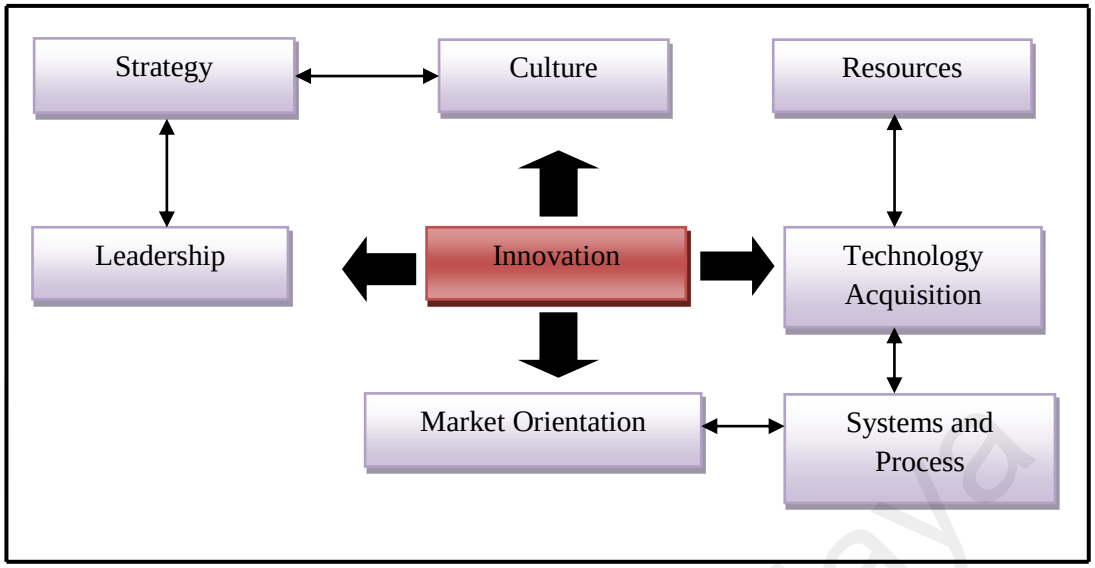


Figure 2.13: Set of Processes That Result in Innovation

Source: Doyle and Bridgewater (1988), quoted by Goyal and Pitt, (2007)

Figure 2.13 is the framework introduced by Dyle and Brigewater (1988) which was adapted by Goyal et al. (2007). From a survey carried out by Goyal et al. (2007), it was found that FM involvement needs to be adapted in the innovation management to produce good business decisions. The survey showed that there is scope for innovation in FM in that FM is not only about reducing the cost or maintenance work because it is also relevant beyond the operational level. Goyal et al. (2007) also highlighted that good FM needs to have the flow in the changes involved in an organization as well as focusing on people and processes at the strategic level.

FM innovations need to be pay more attention to new skills and new ways of communication with clients, customers and staff (Price & Akhlagi, 1999). This is very much related to managers' ability to enhance customers' perceptions of products and services that will increase the profit margin of organizations.

Performance indicators are important to monitor the process of innovation towards developing strategies which relate to quality, time and cost, and that need to be differentiated between long term and short term strategies (Mudrak et al., 2004). It is justified from the definition of innovation, that innovation is vital when creating strategies for FM organizations, as well as other organization, in order to strengthen the core business of the organization.

2.5.5 The Significance of the Business Environment in Developing Facilities Management Strategies towards Business Globalization

In the management context, business environment concerns human economic activities such as production, extraction or purchase of goods which are performed to earn profits. It can be divided into two types of environment, which are the internal environment and the external environment. According to Riley (2004) the internal environment includes the "five Ms" which are manpower, material, money, machinery and method, which are within the control of the business itself. Meanwhile, the main factor of external environment is degree of competition and followed by other factors such as government policies and legal regulations, and physical, political, socio-cultural and demographical considerations (Riley, 2012).

This will expand to the micro environment and the macro environment that focuses on suppliers, customers, market intermediaries, competitors, public and other elements. The business environment covers a broad scope that needs to be taken care of in order to achieve the organizations' objectives. FM needs to be seen from the business perspective rather than viewing it as a technical base, so that the scope may encompass business services, legal, financial and administrative matters, as well as space, environment, information and other support activities (Alexander, 2003).

Alexander (2003) emphasized that the business environment is a strategic space for an organization to develop policy, contribute to strategic planning in order to deliver quality facilities, and can be focus for investment purposes by providing quality services as well as attracting customers by fulfilling the customers' requirements, wants and needs. A survey carried out by Goyal and Pitt (2007) highlighted that FM contributes to business success and the achievement of the organization's goals. In addition, business environment encompasses a broad scope that relates to the organization overall and contributes to boosting the profit margin. Therefore, strategies in FM are very important to make sure the business environment is sufficiently stable, proactive and adaptive to be able to contribute to the profit margin of FM organizations.

Strategies are significant in every organization to improve effectiveness and efficiency in the provision of quality services and to amplify the profit margin by satisfying customers' requirements as well as contributing the appropriate functions and services that will satisfy customers. To create FM strategies, organizations need to have a strong leadership that covers interpersonal, informational and decisional characteristics that will sustain the FM industry. It is also hoped that the FM strategies can collaborate with the strategic, tactical and operational levels respectively to achieve optimum organizational performance. Meanwhile, other non technical aspects need to be given priority to improve the soft skills and hard skills of every FM organization in order to benefit the FM industry in upgrading its level of performance in the future.

Table 2.10: Selected Studies on FM Strategies and Their Contributions in the Development of FM Strategies

Author	Year	Topic/ Contributions
Nutt, B	1993	**Topic**: The Strategic Brief **Contributions**: The Total Briefing Cycle contributes to productivity, decision making, and greater adaptability, is manageable and supports the management.
Barret, P	2000	**Topic**: Achieving Strategic FM Through Strong Relationships **Contributions**: Generic FM Model, contributes to knowledge and skills for FM managers to think and act strategically
Featherstone,P., Baldry, D.	2000	**Topic**: Public Sector FM Strategy **Contributions**: Strategic Characteristics of the UK public sector organizations. To control the formation of facilities management strategies within the market sector
Alexander, K	2003	**Topic**: A strategy for FM **Contributions**: Collaborative strategy involves developing business, systems and people
King, B	2006	**Topic**: Why do you need to strategize the FM role? **Contributions**: leadership role that contributes to support organizational goals and corporate culture that maximize company's overall performance
IFMA	2009	**Topic**: Strategic facility planning, A white paper **Contributions**: Strategic Facility Planning (SFP), Strategic Layout Planning (SLP) contributes to be more proactive delivery of services from FM organization to stakeholders
Timm, R	2011	**Topic**: Facilities Management- Earning the right to drive strategy **Contributions**: Re-positioning of the brand; FM managers need to demonstrate their strategic importance to achieve corporate recognition
Chotipanich, S., Lertariyanun, V.	2011	**Topic**: A Study of FM Strategy: The Case of commercial banks in Thailand **Contributions**: Four types of FM strategies were identified. Basically contributes to FM practices and core operations

2.6 Outline (2)

Table 2.10 lists several studies in the literature and research that have contributed to the development of FM strategies.FM is recognized globally and awareness of FM needs to be focus upon in order to understand its significance so that it can play a bigger role, technically and non-technically, in the success of an organization. Maszuwita et al. (2012) highlighted that FM can be applied at every level of organization and the strategies are important to guide the organization to achieve the objectives of its core business as well as to increase the profit margin by increasing the customer satisfaction index (CSI).

Innovation and an appreciation of the business environment are necessary when creating the strategies for an FM organization to achieve competitive advantage and organizational performance. According to a survey carried out by Chotipanich et al. (2011) there is a lack of research in the FM strategy area, so that there are large gaps in knowledge when identifying the characteristics of FM strategies in practice. More characteristics and typologies of FM strategy need to be introduced within the theoretical grounds and more method of studying FM strategies that will act as a guide for FM organizations in the future. Prior to this, FM strategies are significant in creating value and adding value in business, and for upgrading the performance at each level of management that will lead to innovation and business success, and ultimately to a transformational environment.

2.7 Facilities Management Performance

FM performance is the heart of the organization and contributes to various insights that support efforts for higher achievement and continuous improvement of the organization. In order to have a proper flow of performance, it is necessary to recognize the customers' and stakeholders' requirements as well as to understand the business and services that need to be provided. Burkhalter (2011) mentioned that evaluating the workflow process is part of identifying the level of performance that can benefit the organization.

With such an evaluation, the probability of identifying strengths and weaknesses are very high, and in this way the effectiveness and efficiency of the organization can be improved. According to Amaratunga et al. (2001), "FM performance is the identification and translation of the organization's objectives and requirement into the optimum firm to meet current and future needs" (page 98). FM performance contributes particularly to strategic development, and Amaratunga (2000) also mentioned the significance of FM in relation to both manufacturing and service organizational competitiveness and effectiveness. Barret (1994), quoted by Amaratunga, 2000) stated that there are three principals that lead to FM quality functions which are:

- It supports management functions at the core business of an organization.
- It concentrates on the area of interface between the physical workplace and people.
- It requires a multi-skilled approach.

Therefore, it can be said that FM is a process that delivers quality services and meets the best financial requirements to achieve core business objectives. Performance measurement in FM focuses on two categories which are: first, the 'critical success factor' in the strategic development process; and second, the learning process within the FM organization (Amaratunga, 2000). In addition, FM performance will also support FM best practices in order to understand the significance of the FM field and understand the business, globally.

Amaratunga (2000) also emphasized that FM and organizational performance are seen to be determined by the relevance of facilities to the core business operations. Therefore it is important to understand the theory and practice of performance measurement, which has been described as a "process of assessing progress towards achieving predetermined goals, including information on the efficiency by which resources are transformed into goods and services, quality outputs and the achievement of organizational objectives" (page 98).

In addition, Amaratunga (2000) also mentioned that FM is seen to be able to contribute to the performance of an organization in many ways including strategy, culture, control of resources, service delivery, supply chain management and the management of change. In order to contribute to FM performance, quality services need to be establish according to customers requirement. Therefore, FM managers need to focus on the level of performance in producing the right services for the customers by looking into FM competency areas, FM quality and FM continuity for continuous improvement.

2.7.1 FM Competency Areas

FM managers need to focus on FM competency areas to increase their level of knowledge and skills in particular areas. By having great knowledge and expertise in the competency areas, it will definitely improve the FM performance towards business globalization. Construction Industry Development Board Malaysia (CIDB) (2011) has categorized the FM competency areas in their implementation manual. The competency areas are as below:

- Operation and Maintenance
- Health, Safety & Environment
- Asset Management
- Productivity Management
- Project Management
- Resource Management
- Contract Management
- Risk Management
- Energy Management
- Leadership
- Procurement Management
- Business Management
- Crisis Management
- Quality Management

The CIDB workshop that has been carried out on 2009 was to create the implementation manual identified competency areas which are relevant for the development of FM industry. Therefore, FM expertise in these competency areas needs

to establish their skills and knowledge to integrate within FM to contribute to FM performance globally. These areas can be categorized into three component which comprise of technical, financial and management aspect to lead the FM field respectively.

2.7.2 FM Quality

Integrating quality into FM is to produce quality facilities, quality process, quality employees, and quality leaders to enhance the level of FM performance. According to Goetsch et.al (2003) highlighted that quality involves meeting or exceeding the customers' requirement, and providing the right services and products ant the right time according to customers' expectations. Aldrich et.al (2012) mentioned that quality is a management system consisting of core and supporting processes and elements whose prime purpose is to deliver high quality products and services that meet or exceed customer expectations. Prior to this, it is important for FM to focus on quality because FM comprises of people, place, process and technology.

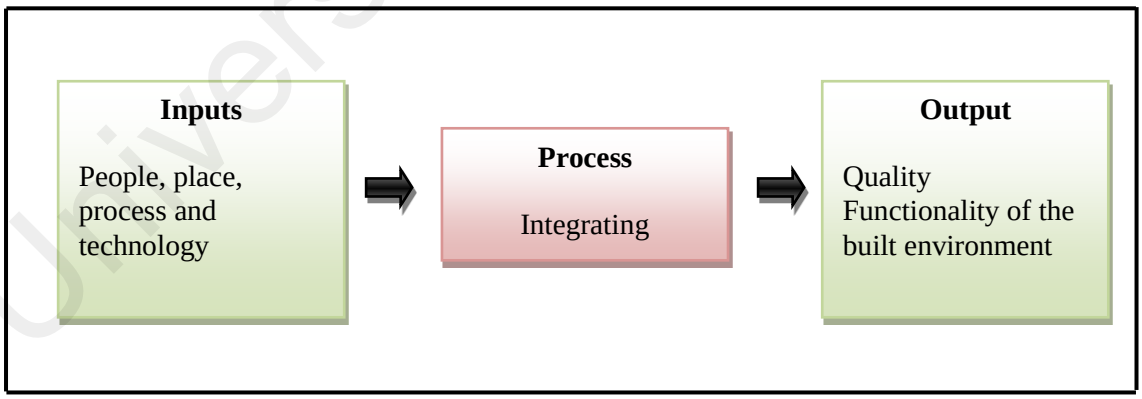


Figure 2.14: FM Quality

Source: Aldrich & Dawkins (2012)

Figure 2.14 shows the necessity of integrating quality into FM. Therefore in order to obtain quality FM, quality control, quality assurance and quality improvement need to take into consideration to upgrade the level of FM performance.

Below are the descriptions of components in Quality Management:

a) Quality Control

Positive change and growth of product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer (Taomina, 1999).

b) Quality Assurance

The customer's specifications set the standard and the quality of the product is its degree of conformance to them, (Groocock, 2000). Set of procedures intended to ensure that a product or service meets specified requirements.

c) Quality Improvement

For a long term purpose, persisting for many years or decades of never-ending improvement. However, it also emphasises the importance of quality improvement that can have benefit anywhere in a business but it is important to give priority to the quality and safety of the products sold to customers (Groocock, 2000).

There are a few new ways of doing business recommended by Rondeau et al. (2006) to produce an enhanced FM quality:

- Globalization of real estate portfolios and associated facility management strategies
- Total energy management – addressing supply, demand and operational energy management issues as an integrated solution
- Performance-based contracts – partnership designed to create incentives and reward innovation

- Focus on workplace management rather than only asset management and implement a six sigma program as a measure of quality that strives for near perfection

According to Rondeau et al. (2006) today's FM practice addresses diverse technological and economic changes, as below:

- Increasing use and reliance on technology, including more and more computers, telecommunications devices and their support requirements.
- Continuing significant cost of leased or owned facilities, materials, human resources, benefits, costs of capital, taxes and fixed operating costs.
- Evolution of the closed office concept to the needs, flexibility and cost effectiveness of the open plan / open office concept.
- Increasingly complex telecommunications, computer cabling, power, backup power, heating , ventilating, and air conditioning, lighting, life safety, security systems, environmental and ergonomic requirements.
- Higher worker expectations for pleasant, secure and cost effective environments coupled with limited time, space, staff and funds.
- Competitive and economic pressures to reduce or hold the line on expenditures, increase profits, reduce staff and buy out, merge with or take over competition
- Pressure to engage personnel and facility requirements with long range regional, national and international business issues as well as to develop an integrated strategic corporate business and facility plan.

2.7.3 FM Continuity

In order to have continuity in FM performance, FM balances four essential elements which consist of workforce learning and performance (organizational culture), forecasting renewal cost and managed service partnership (business process), technical process, and facilities asset management (Heroux, 2007).

Table 2.11: Four Essential Elements for Continuity of FM Performance

Element 1	Element 2	Element 3	Element 4
Workforce Learning and Performance	Forecasting Renewal Cost	Technical process	Facilities Asset Management
• Knowledge • Management • Cross utilization • Reliability and • sustainability • Accountability • integrity, creativity and flexibility • Environmental sensitivity	• Organizational development • Contracting for products and services • Quality assurance • Budgeting and procurement • Best practice process and procurement • Benchmarking	• Scheduling • Use of facilities automation technology • System operation and maintenance • Quality control • Facility condition assessment • Engineering and construction • Project management	• Personnel • Knowledge asset • Building and grounds • Utilities and infrastructure • Vehicle, equipment, tools, supplies, materials • Communications and network equipment • Facilities automation hardware and software.
	Managed service partnership		
	• Compliance monitoring • Utility and energy monitor		

Source: Heroux (2007)

Table 2.11 shows the four essential elements for continuity of FM performance which are very significant in achieving continuous improvement. It also lists elements that contribute to the development of the FM industry, and provide quality FM services that improve the profit margin globally.

2.8 The Progress Performance Report of Facilities Management by IFMA From Year 2000- 2010

2.8.1 Executive Summary on Facilities Management 2005: A Proactive Exploration into the Facilities Manager's Future (2000)

Participants in this study were industry experts who were chosen by IFMA. In this study both qualitative and quantitative methods were used to analyze the findings and provide recommendations for facility managers to improve and upgrade themselves for future trends, needs and outcomes. IFMA summarized five insights from the findings regarding the future of Facility Management. They are as below:

- Management's expectations of Facility Management's contribution to the enterprise are increasing.
- Technology will continue to drive change in Facility Management practices.
- The increasingly global business environment will spur facility managers to find new ways to support their organizations' employees, partners, suppliers and customers. Long term success means creating and using knowledge management systems.
- Performance-based job evaluation and the growing value added should focus on equipping facility managers with the skills to succeed in a rigorous, asset-oriented future.

In this survey, IFMA (2000) identified the major changes in Facilities Management in the 10 years before year 2000. These included components such as technology, economic conditions, redefining the FM managers' job, competition, changes in the workforce, and finally regulations. The survey focused on the broad trends that affect all areas of the economy. It was emphasized that FM managers need to integrate with other functional areas such as human resources and IT. Panels made up of experts from industry made numerous suggestions for how FM managers could stay competitive in the future, by preparing themselves to be more effective and efficient in the facilities management field. For facility managers to be competitive they need the following skills and attributes:

- Have vision
- Be an innovator
- Have insights into financial issues
- Be able to understand the major functions in the business and how facility management interrelates with these functions
- Be solution oriented and be a humanist
- Be Information literate and be value oriented
- Be able to negotiate and be able to think strategically
- Be a good manager, not necessarily an expert in all aspects of the facilities
- Be a self-promoter who creates supporters through a strong focus on customers and client satisfaction
- Be a resourceful and collaborative person who communicates effectively
- Have prior real estate experience and possess the ability to present well
- Have self confidence in personal skills and confidence in their own facility management team and protocols they have established

Other recommendations to upgrade and improve the facilities management team included:

- Build up an understanding of technology and finance
- Develop the ability and strategies to use knowledge and to solve problems
- Leadership training to teach FM managers how to create and promote change
- Embrace change: be entrepreneurial, innovative, risk taking
- Measure customer satisfaction and respond to needs
- Demonstrate the value created by facility management initiatives.
- Leadership, involvement of employee, total commitment within internal and external customers
- Focus on customer demand and satisfaction
- Performance measurement, systematic approach, teamwork and benchmarking to improve the FM industry

2.8.2 Executive Summary on an Exploration into the Future of Facilities Management (2001)

In this study, sixteen industry experts participated in a forecasting workshop to provide insights to help IFMA explore the future of FM. Both qualitative and quantitative methods were used to analyze the findings and provide recommendations for facility managers to improve and upgrade themselves for future trends, needs and outcomes. FMA summarized four insights from the findings which it predicted would influence the future of Facilities Management. It is stated as below:

- Technology as an integral role in FM; applying technology in business planning and management and

- FM managers will need to create value for organizations, expand their roles and responsibilities (soft skills – motivational training and team building; develop expertise in productivity measurement and real estate to support strategic initiatives)
- Changes in workplace will transform the role of the facilities manager
- FM managers translate corporate requirements into operations. "FM is a key not a core"

IFMA (2001) made the following important recommendations to help their members to be well prepared in the future:

- Lead the profession by creating a clear definition of facility management. IFMA can start with a list of responsibilities and roles, but also include a career path.
- Increase awareness and enthusiasm for the profession
- Partner with organizations that offer depth in specific areas of interest to the facility manager of the future (energy, finance, etc)
- Offer specialized, focused certifications to those on the periphery of the profession – (real estate, financial analysis, etc)
- Provide global leadership in the area of benchmarking and best practices

IFMA (2001) also listed the skills that facility managers will need to stay competitive in the future. This was derived from the expert panels that came up with a set of ideal qualifications for the facility manager. It is stated as below:

- Be flexible and have high tolerance for ambiguity and uncertainty; be able to perform multiple tasks simultaneously

- Have a background and understanding of technology and finance
- Process staff management experience and have good communications skills
- Be solution oriented and visionary
- Possess project planning and organizational skills
- Education – MBA, business background or with IT or finance skills
- Be dynamic- ability to learn quickly, having varied interest- adaptability, credibility
- Be able to organize and complete multiple tasks
- Be able to provide leadership, management staff, outside vendors and knowledge workers and possess communication and people skills

The experts also identified some important trends and areas of uncertainty that have an impact on Facilities Management. The trends identified are as follows:

a) Business

Faster pace of business and response as well as faster communications

b) Energy/environment

Natural resources depletion and increased importance of environmentally friendly systems.

c) Workplace

This is an important trend that will influence the ROI and productivity of a company. The workplace contributes to more hours and greater flexibility; an increase in the blend between home and work lives; an increasingly global workplace.

d) Human capital

Human capital has become very significant in every organization to have a greater bonding between top management and internal customers. This focuses on increasing a dynamic workforce, interdependence of roles and people and activities.

e) Facilities Management

All these trends influence FM in its efforts to provide a better quality of services. IFMA (2002) made the following suggestions on ways to increase the effectiveness and efficiency of FM:

- More relationship management
- Shift to serving employees as internal customers
- Specialization by project hiring one or two consultants
- Increase in performance-based consultants
- FM has to be more generalist
- Increase in outsourcing
- Decrease in the use of the term "FM"
- Increase in role providing security to company
- Increased need for education

2.8.3 Executive Summary on Facilities Management Forecast 2002: Exploring the Facilities Manager's Future (2002)

The main purpose of IFMA carrying out the study presented in this study was to guide the progress of the facilities management profession by identifying future trends, needs and outcomes that would drive facilities management over the following five years.

In order to achieve the objectives of the study, 11 industry experts were selected by IFMA to represent the facilities management profession. A qualitative method was used, and the conclusions can be validated through both a trend analysis of published information and quantitative research among facility management professionals.

2.8.3.1 Insights on the Future of Facilities Management Derived from IFMA (2002)

First, is the response to the changing nature of the work, in which distributed work involves proper tools and space to carry out the task, relationships between workers and the corporation in order to achieve objectives of the organization. The changing nature of work also means that physical facilities have an impact on the workers' productivity and work quality. Second, is the role of facilities management: wiring the organization highlights that leadership is an important basis for FM managers as the force that keeps the organization supported by creating and adding value to the core business. This strategy requires a convergence of corporate real estate, information technology, human resources and facilities management infrastructure.

Third, are the emerging issues that will occupy an increasing amount of attention for facilities managers. These will include energy management, security, business continuity, recycling the workplace and re-use of facilities because of improvements in technology. Furthermore, FM can be regarded as a business opportunity where changes in the workforce and economic globalization offer new opportunities for alternative facilities. IFMA (2002) also mentioned that the financial impact of FM as management continues to focus on the bottom line; that facilities managers can enhance their performance by identifying and investing in FM specific technologies for knowledge management.

2.8.4 Executive Summary on Facilities Management Forecast 2005: Current Trends and Future Outlook for Facilities Management

The main purpose of the forecast in year 2005 was to understand the emerging trends and issues that impact the profession in order to educate facility managers to better perform in their roles. Four important trends were identified in this forecast. First, are the real estate trends, whereby FM can be applied to commercial real estate market as business demands increase. In America, industries such as financial services and telecommunications impact facility managers significantly in terms of commercial real estate. Meanwhile, public and private partnerships were mentioned as being an important trend for facilities managers in the coming years. Real estate trends also focus on security and terrorism; in particular, FM managers must practice good skills to overcome the terrorism issue. FM managers must also develop greater strategic as well as tactical knowledge of security challenges.

Second, are the trends in intelligent buildings and building automation systems. These concentrate on energy efficiency buildings and building technologies to produce an environment which is flexible, effective, comfortable and secure. The benefits to facilities and to facility managers who grasp the potential of energy savings through intelligent building technology are potentially enormous. This will require effective communication from the facility manager to top management about the potential of technology to save money. Third, are environmental trends, where sustainability and green movements have captured the imagination of many organizations and professionals in a variety of industries in the last several years. Lately, many companies and state initiatives have been trying to achieve environmental objectives.

The Interface Model consists of "Seven Fronts" in moving towards sustainability, which is listed below:

- Eliminate waste
- Eliminate harmful emissions
- Use only renewable energy
- Create closed loop processes
- Use resource efficient transportation
- Integrate sustainability into the culture

Pioneer new business models for sustainability. Expert panelists for this study predicted that sustainability would become an ever more important issue for facility managers, and that there is a paradigm shift towards Life Cycle Cost Analysis. The fourth and final trend concerns organizational and workplace trends. These refer to FM as a productivity tool that affects workers' performance, satisfaction, retention and the long term success of the business, as indicated by the findings by multiple research studies over the previous 20 years (IFMA, 2005). Facilities design and operations should respond to business goals by supporting employees' work behaviors to improve productivity and satisfaction. According to IFMA (2005), lack of space, insufficient privacy, technology problems, poor location relative to coworkers are a few examples. IFMA (2005) also mentioned that good FM is multi-dimensional. It knits together facilities design, furniture, operations, technology in the context of organizational culture, work activities, workplace issues, urban context, political and technology changes.

2.8.5 Executive Summary on Facilities Management Forecast 2007: Exploring the Current Trends and Future Outlook for Facilities Management Professionals

IFMA (2007) reported a study carried out to explore the various areas of concern to facilities managers today. IFMA (2007) forecast that many challenges await the facilities management profession in the coming years. The increasing pace of business and the continued materialization of the global marketplace ensure that the overall size of FM professionals is growing. Among the issues that are significant and relevant to the FM field are changing technology, building automation, security issues and sustainability. Additional concerns are the importance of linking facilities with business strategies, developing approaches to deal with aging building stock and the importance of advance planning for disaster preparation and recovery. The executive summary of IFMA's 2007 report mentions that the increasing diversity of the workforce will present another significant challenge to the facilities management profession. UNPFA (2007, cited in IFMA 2007) stated that in developed countries, one fifth of the population is currently 60 years or older; by 2050, that proportion is expected to rise to almost a third.

Meanwhile in developing countries, the proportion of the older population is expected to rise from eight percent to almost twenty percent by 2050. In the light of these statistics, IFMA predicted that ergonomics will become a greater concern for facility management professionals as they will be required to accommodate a wider range of ages and physical abilities. Besides that, cultural differences, general preferences and distinctive working styles will become increasingly important to facilities management professionals (IFMA, 2007).

IFMA (2007) identified nine key areas that constitute career essentials for facility management professionals: operations and management, facility function, real estate, finance, human and environmental factors, quality assessment and innovation, planning and project management, communication and technology. The rapid pace of change will require facilities management professionals to develop skill sets that cover variety areas, such as Security, Strategic Planning, Energy Management, Productivity Management Negotiation Strategies, Sourced Service Management, Project Team, Building Innovation and Adaptability, Motivational training, Cultural Diversity, Entrepreneurial Value and Multilingual Capabilities.

According to the forecasting workshop held by IFMA (2007), facilities management professionals should carefully assess their current competencies in the top issues that emerged from the discussions, notably: linking facilities management to strategy; emergency preparedness; change management; sustainability; emerging technology; globalization; broadening diversity in the workforce; and aging buildings. Table 2.12 shows the trends and issues that were forecast by IFMA (2007). According to IFMA (2007), trend number 3 (Change Management) has always been an inevitable force that added a new level of complexity whereas operational (process) change in an organization's core business may require significant and rapid facility response.

Table 2.12: The Top Trends and Decision Drivers Impacting Facility Management Professionals

Trend / Issues	Demands on FM Profession	Learning challenges/ opportunities
Trend 1 Linking FM to strategy • Including workplace culture and branding	Ensure that facilities support the business culture and brand • Provide a sufficient and measurable return on investment • Help differentiate the organization to recruit and retain the best people • Have a clear vision and understanding of long term corporate business strategy rather than short term focus and tactics	Importance of linking facilities with core business strategy • It is sometimes difficult to prove and communicate the value of facilities • Speaking the language of the C-Suite (highest level executives e.g. chief executive officer, chief operations officer, chief financial officer • A shift in the belief that facilities are an effective component of business strategy and more than just the cost of doing business is required • Understand the complexities associated with strategic facilities planning / budgeting
Trend 2 Emergency preparedness • Including basic safety and security, acts of terrorism, natural disasters, workplace violence, chemical/ biological incidents, pandemic crises, data protection	Advance planning and preparation are important in minimizing the disruption. • Analyze vulnerabilities • Develop and implement protection strategies • Develop response plans in advance and communicate them to all stakeholders • Leverage recourses (both monetary and people) • Implement training and practice drills	• Difficult to quantify value of advance planning to core business (to justify expenditures) • Must plan for core business as well as failures of other supporting infrastructure

Continuation		
Trend 3 Change management • Including changes in operations, construction escalation, continued demand to increase efficiency, regulatory changes.	• Work closely with tenants/users to anticipate changes and ferret out "stealth growth" as early as possible • Develop timely and cost effective facility responses and options • Provide proactive analysis and strategies for saving time and money, both in operations and in move/ change/ adds, expansions and relocation's • Build in flexibility • Do not over customize • Recruit, train and maintain a top work force • Allow for scenario planning without tradition, emotion and legacy issues as an element of decision making	Master change management best practices to foster smooth and orderly changes. Keeping pace with rapid pace of change • Speed of change creates a moving target: inherent resistance • Examine existing building stock and aging furniture, fixtures and equipment (FEE) for flexibility to accommodate change versus tight budget constraints • Develop/maintain prearranged strategies to effect changes quickly, such as real estate and lease option , outsourcing agreements, contracts for furniture fixtures and equipment
Trend 4 Sustainability • Including environmental responsibility, energy management, investing in high performance systems, indoor air quality issues	• Learn about LEED, ENERGY STAR and other high performance building ratings systems and initiatives - ability make a business case for sustainability • Establish programs to reduce, reuse and recycle. Develop/ maintain technical skill expertise –	Sustainability: • Industry frequently suffers from a general lack of education about technological changes and new product development • Difficult to quantify value (ROI), show business case (although the number of built projects and case studies continues to grow) • Become more aware of cultural differences

Continuation		
Trend 5 Emerging Technology	• Generally keep track of changing technology • Work closely with tenants/users to anticipate changes • Build the technical skills expertise of building operations personnel • Use technology as a hook to attract young professionals to the facility management professional role as well as to facilitate data and information sharing	• Rapid pace of change, compatibility, complexity and obsolescence • Initial investment in new methods versus maintaining old systems that work, continuing the legacy of systems that may not be efficient
Trend 6 Globalization • Increased infrastructure, the need to bridge larger physical operating distances, facilitate productive work across various geographic locales, address different mobility, communication tools, culture, language, laws, regulations, measurements, education,	• Utilize the resources of IFMA which is represented in 65 countries and is engaged in a number of collaborations • Evaluate and understand who the competitors are in the global marketplace • Use your facility to differentiate your organization to avoid becoming a commodity • Be proactive in establishing performance/measurement standards	• Lack of experience with cultures, changing expectations of other cultures (especially Asia), • Current issues include geographic barriers, cultural differences, differing workplace expectations, changing regulatory environments and significant challenges related to demographic.

Continuation		
Trend 7 Broadening diversity in the workforce	• Maintain sensitivity to variety of workers and work styles • Recognize the "flexible standards". - diverse expectations of the workforce - recent trends of loss of loyalty from younger workers, increased pressure to customize responses and loss of control and efficiency - Recruit and train skilled labor pool in key areas • Develop training programs (at local universities) to promote and maintain educational standard across the industries.	• After retirement age, more former employees are returning to the work force and often to the same company, as contractors • Limited flexibility in pension/ retirement rules will effect older workers facing the decision to work or retire • Lack of transference of skill sets will become more evident • Lack of experience to manage diverse workforce • Professional responsiveness to next generation's demand for flexibility, access to data and leadership and sustainable practices
Trend 8 Aging buildings - Maintenance and replacement issues	• Determine facility return on investment (ROI) • Determine when to reinvest or close down. • Develop ability to analyze the condition of aging buildings, including infrastructure.	• Tough to " make the decision" to scrap a building, both financially and emotionally • Determine how to value the impact of flexibility in new facilities compared to the continuation of existing facility reinvestment

Source: IFMA (2007)

For trend number 4 (Sustainability), IFMA (2007) drew attention to the fact that the rapid pace of development, especially in Asia, makes environmental depletion of resources a growing concern. It also highlighted that for facility management professionals, energy conservation remains the greatest long term method of stretching limited resources. Besides, high performance buildings can have a significant impact on facilities operations within the workplace environment and concern for indoor air quality is gaining a wider recognition.

2.8.6 Executive Summary on European Facilities Management: The Next Generation

More than 200 people from professional, educational and research backgrounds participated in the study reported in this document. The purpose of the study was to identify the future contributions of FM in three main areas, a knowledge based economy, sustainable growth and employment, and social and environmental objectives. The study was also to show how FM can be aligned to European policy and to identify forces and changes shaping the future business environment (Alexander, 2010; IFMA, 2010). The work reviewed the short history of FM and its evolution from its origins in operations to a more strategic position. From this study, five views of the future were developed, as follows:

- A desired future based on a vision of what FM can contribute
- A created future built on a strategy for EuroFM as a change agent
- A possible future based on investing in education and research
- A probable future based on widely held assumptions about the state of the industry and an unexpected future arising from discontinuity

In general, this study raised fundamental implications for practice, research and education in Europe that highlighted the opportunities and challenges faced by Facilities Management, and particularly for EuroFM. According to Alexander (2010), managers need to develop approaches to enable them to foresee future challenges, envisage the impact on the organization and communities in which they work and develop strategies and competencies to retain an advantage. The FM profession should recognize and understand the importance of future studies, of effective scenario planning and the need to develop skills and competencies to contribute to the forward planning in organizations (Alexander, 2010). As part of the study, workshops were held to explore future scenarios involving the FM field, and five futures were envisioned (IFMA, 2010; Alexander, 2010):

a) A Vision – The Desired Future

FM takes a leading role in making Europe the most dynamic and competitive knowledge-based economy in the world. FM becomes an influential partner and is able to clearly demonstrate its contribution to sustainable economic growth, the creation of better jobs and in promoting greater social cohesion, and respect for the environment.

b) A Strategy- A Created Future

EuroFM focuses on promoting open innovation and creativity in Facilities Management and realizes the power of its unique network of practitioners, researchers and educationalists for co-creating the environment in which social enterprise and individual talent can flourish.

c) Opportunities – A Possible Future

Recognizing the need of change, EuroFM member organizations combine with public, private and social partners in a European-wide initiative to manage and share knowledge and invest in FM education and research in order to build a future for professional FM.

d) Assumptions- The Probable Future

FM fails to evolve and continues to respond to an agenda focused on short term, factional interests of business and the market. Further commoditization of the products and services delivered in the name of FM become ever more efficient, meeting strict cost and performance criteria, but adding no real value.

e) Discontinuities – An Unexpected Future

In an era of slow economic growth, conventional FM practices become increasingly irrelevant to societies' needs and is replaced by a community-based approach, responsive to the personal needs of users and enabled by web-based technologies in a networked Europe.

However, IFMA (2010) emphasized that, the more difficult the economic climate, the greater the imperative to have systems which provide the organization with customer focus, the ability to differentiate itself through innovation and the processes to manage scarce resources. This evolution is very significant to expand and leverage collective knowledge and experience as well as to support the FM field by achieving FM strategic objectives and goals.

2.9 The Facility Management Professional

A facility professional is an expert in almost all aspects of a corporation's internal culture and should have unique insights into personnel, personalities, other support departments, business history and real estate / facility requirements (Rondeau et al., 2006). Facility professionals are generalists who understand the corporate business philosophy, respect it's financial, legal and quality requirements, know who the company's decision makers are and recognize those with the authority to sign legal documents.

According to Rondeau et al. (2006), FM professionals facilitate and manage budgeting, interview and hire consultants, set standards for designs, construction, furnishings, scheduling, space and office furnishings, institute capital purchasing programs and translate corporate customer facility requirements into a cost effective environmentally safe and aesthetically pleasing workplace. According to Rondeau et al. (2006), most of the facility management departments have a number of supervisory levels depending on experience, expertise, supervisory responsibilities and leadership standards. IFMA (2003) has developed five supervisory levels that encompass most job descriptions derived from a number of research projects.

2.9.1 Level 5 Management (Senior Vice President, Corporate Services)

The responsibility of level 5 management is to provide overall strategic facility management and service related planning to support the development of facilities and services to meet strategic operational business requirements. Major responsibilities are to establish, maintain and promote an ongoing work-responsive relationship with senior line organization management, to direct and ensure the coordination, scheduling, budgeting and

completion of facility and services requirements such as long range planning, real estate acquisition, management and disposal, purchasing, capital and renovation projects, maintenance, security, telecommunications, word processing, travel, food services, mail, receiving and shipping, records management and reprographics. This management also directs other support services such as human resources, computer services and public relations.

2.9.2 Level 4 Management (Supervisor, Construction Management)

The overview of level 4 management is to supervise departmental staff, oversee the delivery of quality construction on time and within budget, and to set standards for quality of construction and set and interpret departmental policy for departmental staff. The major responsibilities involve providing leadership, supervision and direction to departmental staff. This level of management is also responsible for completing the construction plan each year developing and monitoring construction documentation to ensure corporate financial protection, particularly in the area of progress payments, and general bonding; monitoring and reviewing new materials, advanced technology, construction techniques, schedules and cost; establishing, maintaining and promoting an ongoing work-responsive relationship with the line organization.

2.9.3 Level 3 Management (Supervisor, Corporate Real Estate)

The responsibility of level 3 management is to supervise departmental staff, and oversee the timely acquisition, management and disposal of real estate; to coordinate with other departments for input before formalizing decisions and to provide real estate personnel as authorized to implement approved real estate plans. The major responsibilities

are to provide leadership, supervision and direction to real estate managers and real estate coordinators; to negotiate and acquire real estate locations consistent with needed criteria as set forth by senior management; to organize, staff, train and motivate departmental staff and other outside professionals as required; to supervise the market analysis, business decisions and site selection of the real estate managers. Establish, maintain and promote and ongoing work responsive relationship with the line organization.

2.9.4 Level 2 Management (Project Manager)

The level 2 management's responsibility is to manage and coordinate the budgeting, scheduling, design, bidding, construction, furnishings and relocation requirements for renovation and new construction projects. The major responsibilities are to determine the scope of the work, prepare cost estimates, schedules, correspondence, contracts and purchase requisitions for assigned projects; to review and manage project budgets, consultants, contractors and other associated product and service providers; to inspect and coordinate construction, telecommunications, security, data processing, furniture, furnishings, signage, landscaping and move-in requirements; to prepare and issue final punch list and review all requests for payments; to ensure all punch list items are complete, lien waivers have been received, and a Certificate of Fitness has been obtained before the final request for payment is approved

2.9.5 Level 2 Management (Real Estate Manager)

The responsibility of the level 2 management is to provide corporate-wide expertise in real estate and coordinate assigned real estate activities; to provide consistent dissemination of knowledge and application of real estate policies, procedures and

practices; to assist in development, implementation and maintenance of corporate real estate policies, procedures and practices; to represent the corporation in specified real estate assignments, including real estate analysis, broker selection, site selection, coordination with legal counsel, lease negotiation and property acquisition; to provide ongoing management of existing corporate leased properties and other properties as required; to evaluate and analyze corporate real estate opportunities, including site selection and negotiation, strategic real estate planning and disposition requirements.

2.9.6 Level 1 Management (Project Coordinator)

The level 1 management is responsible to coordinate corporate construction and renovation projects and interface with in-house customers and service providers. The major responsibilities are to coordinate and follow-up on construction documentation and construction progress daily; to assist in the selection of design, construction, furnishings and other project-related service providers; to manage correspondence, project documents, contracts, change orders, project budgets and schedules as they relate to architectural, construction, furniture, furnishings, signage, relocation and landscape contracts; and to coordinate project requirements with in-house service providers.

2.9.7 Level 1 Management (Real Estate Coordinator)

The level 1 management's role is to coordinate the processing of real estate contracts, land purchase requisitions, rent and subtenant invoices and the monthly lease payments scheduled with legal counsel, landlords and sellers. The major responsibilities are assisting in the acquisition, management, and disposal of corporate real estate; to maintain, review and track leases, taxes, common area maintenance, and operating expenses; to pass

through payments and increases from and to landlords; to maintain the real estate management information system database and the monthly status reports; to review owned and leased real property documents and provide timely notice for lease expiration and option renewal to the appropriate in-house parties.

2.10 Summary

Table 2.13 lists the stages in a short history of FM that charts its evolution from the 1970s to the 2000s. It is important to see the development and the evolution in the FM industry in order to ensure continuous success in this field.

Table 2.13: Short History of FM

Year	Development	Evolution
1970s 1st Generation	Managed services, outsourcing total FM	Operational
1980s 2nd Generation	Quality Management, integrated FM processes	Tactical
1990s 3rd Generation	Partnering, re-engineering process, knowledge management, product innovation, sustainable FM	Strategic
2000s 4th Generation	Business processes, open innovation, usability service excellence, transformational	Transformational

Source: IFMA (2010)

As a summary to this chapter, it can be seen that in the field of FM is very broad and FM managers need to be aware of the knowledge chain in the field in order to produce a quality organization and deliver quality services that fulfill the customers' expectations.

Many models and frameworks have been presented in this chapter to upgrade the effectiveness and efficiencies of FM organization by assisting FM professionals to implement this knowledge in their FM practices. Quality services and changes in the FM industry can be an innovative way to achieve business continuity and improve the image of FM organization.

CHAPTER 3

MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR

3.1 Introduction

According to Jae et al. (2006), Fayol (1949) was one of the leading figures in the classical school of management and he devoted his life to promoting his theory of administration. Fayol (1949), quoted by Jae et al. (2006) categorized six significant functional groups involved in the management process, as shown below:

- Technical (production, manufacture and adaptation)
- Commercial (buying, selling, exchange and market information)
- Financial (obtaining capital and making optimum use of available funds)
- Security (safeguarding property and person)
- Accounting (information on the economic position, stocktaking, balance sheet, cost and statistics)
- Managerial (responsibilities, position of management)

The identification of these six significant groups by Fayol (1949), helps to understand how large scale business organizations function towards achieving success and continuous improvement. Drucker (1970), described management as "denoting a function as well as the people who discharge it, a social position and authority and also discipline and field of study"(page 365).

Drucker also mentioned that management is about tasks, disciplines and also about people. Management coordinates hundreds or thousands of people with different skills and knowledge to achieve common goals. According to Robbins et.al, (2010), management can be defined as "coordinating and overseeing the work activities of others so that their activities can be completed effectively and efficiently". In the other hand, Griffin (2013) mentioned that management is a "set of activities (including planning, organizing, controlling and leading) directed at an organization resources such as, human, physical, financial and information effectively and efficiently". Therefore, these researches look into management as a process to manage the organization by doing things right and to help the organization to achieve goals, objectives, vision, mission and shared values for a longer term purpose as well as using the resources wisely and in a cost effective way to increase the level of productivity.

3.2 The Process of Management

Process of management is significant to integrate the managerial levels for good quality best practices and to focus on the customers' requirements, needs and wants. This is because; customers are the main people that will measure the quality performance of an organization. Therefore, Fayol (1949), quoted by Mullins (1994) also highlighted that management activity is divided into five main fundamental techniques as follows:

- Planning - examining the future, deciding what needs to be achieved and developing a plan of action
- Organizing - providing the material and human resources and building the structure to carry out the activities of the organization

- Command - maintaining activity among personnel, getting the optimum return from employees in the interest of the whole organization
- Co-ordination - unifying and harmonizing all activities and efforts of the organization to facilitate its working and success
- Control - verifying that everything occurs in accordance with plans, instructions, and established principles and expressed commands.

Robbins et.al, (2010) and Griffin (2013) also emphasized on management functions which focuses on planning, organizing, leading and controlling that lead to managerial success. These fundamental techniques are vital to ensure the implementation of the best practices to achieve policies and objectives of every organization. The fundamental management techniques that have been discussed are equally important for effective organizational performance and achieving productivity. In order to carry out the management process productively, Mullins (1994) highlighted the fourteen principles that were created by Fayol (1949).

Jae et al. (2006) consider that the fourteen principles created by Fayol (1949) that are set out in Table 3.1 provide a general management perspective for practicing managers and also an instructional tool for academicians. The main purpose of these principles is to strengthen the organization or facilitate changes in it (Jae et al., 2006). Besides, management principle can be a guideline for all the managerial level to enhance the quality in their organization. These principles serve as a guideline for decision making and management actions as well as increase customers satisfaction that influence the profit margin of an organization.

Table 3.1: Fourteen Principles of Management

Principles	Descriptions
Division of work	The object is to produce more and better work from the same effort, and the advantages of specialization. However , there are limits to division of work which experience and a sense of proportion tell us should not be exceeded
Authority and responsibility	Responsibility is the corollary of authority. Wherever authority is exercised, responsibility arises. The application of sanctions is essential to good management and is needed to encourage useful actions and to discourage their opposite. The best safeguard against abuse of authority is the personal integrity of the manager
Discipline	Is essential for the efficient operation of the organization. Discipline is in essence the outward mark of respect for agreements between the organization and its members. The manager must decide on the most appropriate form of sanction in cases of offenses against discipline.
Unity of command	In any action, an employee should receive orders from one superior only; if not authority is undermined and discipline, order and stability threatened.
Unity of direction	In order to provide for unity of action, co-ordination and focusing of effort, there should be one head and one plan for any group of activities with the same objective
Subordination of individual interest to general interest	The interest of the organization should dominate individual or group interests.
Remuneration of personnel	Satisfy both employer and employee. Methods of payment can influence organizational performance and the method should be fair, encourage keenness by rewarding well-directed effort, but not lead to over-payment.

Continuation	
Scalar chain	The chain of superiors from the ultimate authority to the lowest ranks. Respect for line authority must be reconciled with activities which require urgent action, to provide a measure of initiative at all levels
Order	Includes material order and social order. The object of material order is avoidance of loss. Social order involves an appointed place for each employee. Social order requires good organization and good selection.
Equity	The desire for equity and for equality of treatment are aspirations to be taken into account in dealing with employees throughout all levels of the scalar chain
Stability of tenure of personnel	Generally, prosperous organizations have stable managerial personnel.
Initiative	Represents a source of strength for the organization and should be encouraged and developed. Tact and integrity are required to promote initiative and to retain respect for authority and discipline
Esprit de corps	Should be fostered, as harmony and unity among members of the organization is a great strength in the organization. The principle of unity of command should be observed
Centralization	Is always present to some extent in any organization. The degree of centralization is a question of proportion and will vary in any particular organization

Source: Fayol (1949), quoted by Mullins (1994)

3.3 Management by Objectives

Management by objectives is significant in every organization to foresee the integration of management and employees in order to achieve the organization's goals. The essence of management by objectives is to help the employees to look into the right decision making that involves the goal setting as well as to fulfil their responsibilities. Walling (2012) mentioned that management by objectives is a "process begins by reviewing and setting the overarching goals for the organization as a whole". This statement tells us on how to carry out the best practices effectively and efficiently by looking into the management task as overall and to analyse the organization performance for a continuous success. To justify this statement, Figure 3.1 shows the role of management as an integrating activity, where management needs to create the right balance between the interrelated elements which make up the total organization to be focused as management by objectives.

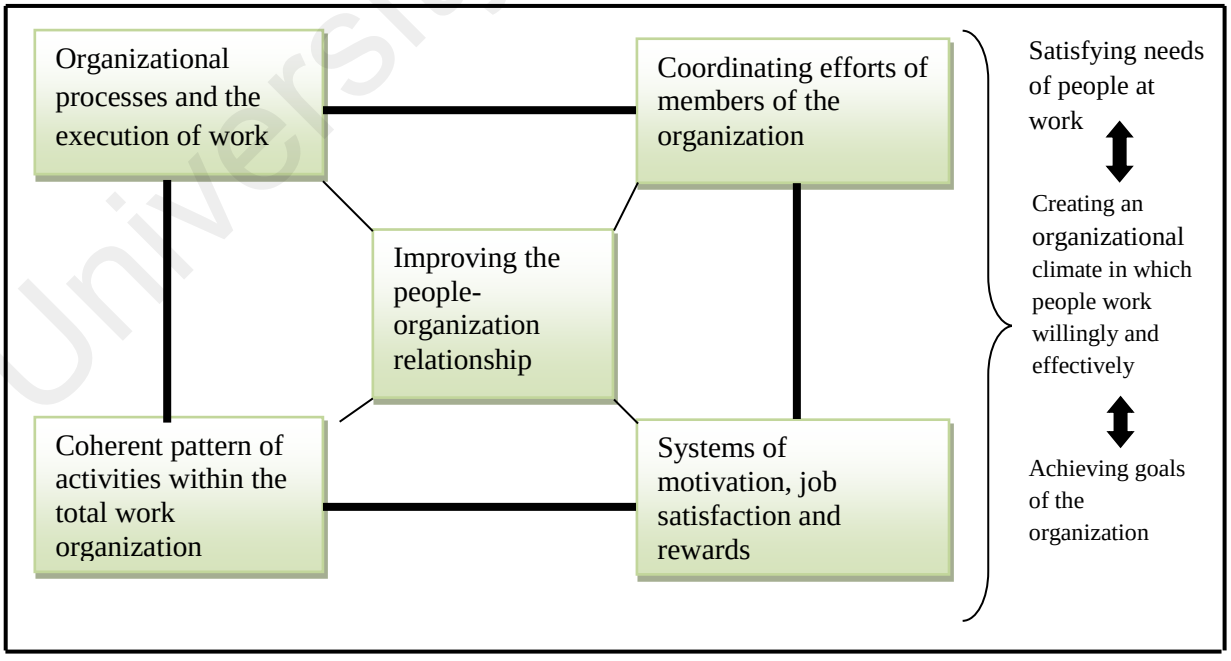


Figure 3.1: The Role of Management as an Integrating Activity

Source: Mullins (1994)

In order to achieve the management by objectives, integration of management activities is significant for developing a quality strategy link that creates the direct link between top level strategy and its implementation towards the supervisory level. Walling (2012) emphasized that to keep the whole process on track, progress towards objectives has to be monitored regularly and the employees performance need to be evaluated for a better quality.

It is important to have an effective management that will manage using the best practices and be responsible to get things done, because organizations can only achieve their aims and objectives through the coordinated efforts of their members. Besides, organizations need to have the proper management tasks to guide managers to be productive as well as to contribute to the organization's business. This will lead to continuous improvement that will focus on the productivity, profit margin, and characteristic of managers, innovation, skills and other components that will focus on the success of every organization.

3.4 Managerial Roles

Mintzberg (1973), quoted by Pearson et al. (2003) presented a new outlook about the role of managers. Findings from his research emphasized that interpersonal, informational and decisional roles are very significant in every organization to control the managerial work. This can be achieved through communication and coordination of the best practices. The activities that represent the vital functions of a top manager's job into three groups, which are: interpersonal roles, informational roles, decisional roles. These competitive skills are discussed in more detail as follows.

3.4.1 Interpersonal roles

Interpersonal roles are relations with other people arising from the manager's status and authority and maintain relationships with colleagues and subordinates. The significant characteristics are set out in Table 3.2.

3.4.2 Informational roles

The second category of roles, according to Mintzberg, is the informational role in which the manager acts as a medium to transmit knowledge both within the organization as well as to outside bodies. Informational roles also relate to resources and communication of information arising from the manager's interpersonal roles.

The significant elements are shown in Table 3.3. The informational role is an important role that every manager needs to carry out the managerial work of an organization. Accurate and quality information are significant to reach the external customers and fulfil their requirement as well as to satisfy them and ensure the organization's objectives are met.

3.4.3 Decisional roles

Decisional roles involve the making of strategic organizational decisions on the basis of the manager's status and authority, and access to information. The significant elements are described in Table 3.4.

Table 3.2: The Interpersonal Role

Elements	Description
Figurehead role	Symbolic head; obliged to perform a number of routine duties of a legal or social nature. Greeting visitors; signing legal documents
Leader role	Responsible for the motivation of subordinates responsible for staffing, training, and associated duties. Performing virtually all activities that involve subordinates
Liaison role	Maintains self-developed network of outside contacts and informers who provide favours and information Acknowledging mail; doing external board work; performing other activities that involve outsiders

Source: Robins et al. (2010)

Table 3.3: The Informational Role

Elements	Description
Monitor role	Seeks and receives wide variety of internal and external information to develop thorough understanding of organization and environment. Reading periodicals and reports; maintaining personal contacts
Disseminator role	Transmits information received from outsiders or from subordinates to members of the organization. Holding informational meetings; making phone calls to relay information
Spokesperson role	Transmits information to outsiders on organization's plans, policies, actions, results, etc. Holding board meetings; giving information to the media

Source: Robins et al. (2010)

Table 3.4: The Decisional Role

Elements	Description
Entrepreneurial role	Searches organization and its environment for opportunities and initiates "improvement projects" to bring about changes Organizing strategy and review sessions to develop new programs.
Disturbance handler role	Responsible for corrective action when organization faces important, unexpected disturbances. Organizing strategy and review sessions that involves disturbances and crises.
Resources allocator role	Responsible for the allocation of organizational resources of all kinds—making or approving all significant organizational decisions. Scheduling; requesting authorization; performing any activity that involves budgeting and the programming of subordinates' work.
Negotiator role	Responsible for representing the organization at major Negotiations Participating in union contract negotiations

Source: Robins et al. (2010)

Mintzberg (1973) stressed that the ten roles (in Tables 3.2-3.4, above) affect the effectiveness of a manager's overall performance, and represent a positive attempt to provide a realistic approach to classify the actual activities management. However, he added that specialists require a particular set of specialized roles. Mintzberg also suggested six basic purposes of the manager, or reasons for the importance of a manager in an organization:

- To ensure the organization serves its basic purpose and the efficient production of goods and services
- To design and maintain the stability of the operations of the organizations
- To take charge of strategy making and adapt the organization in a controlled way to changes in its environment
- To ensure the organization serves the ends of those people who control it

- To serve as the key informational link between the organization and the environment
- As a formal authority to operate the organization's status system

According to Mintzberg (1994), quoted by Leslie et al. (2002), managers do not perform the same roles in the same manner, even though they perform a series of roles. He suggested four sets of variables that influence managerial behaviour as shown in Table 3.5.

Table 3.5: Four Sets of Variables that Influence Managerial Behaviour

Variables	Descriptions
Environment	Difference in background, the specific industry and the organization
Job	Differences in job level, such as middle or top management, and function such as marketing or sales
Person	Differences in personality and style characteristics of the manager
Situational	Differences in temporal and contextual features-seasonal variations or temporary crisis

Source: Leslie et al. (2002)

For example, in terms of job functions, line managers are expected to spend more time in action roles (e.g. negotiator, decision maker). Similarly, a human resource specialist will probably pay more attention to the informational roles (monitor disseminator), while a team manager will emphasize relational roles (leader liaison). Relational roles are also part of managerial behaviour, in that managers need to coach, motivate, and supervise the work of others and network to coordinate (Leslie et al. 2002).

3.5 The Attributes of a Manager

It is important to identify the attributes of a manager because the process of management and the execution of work require a combination of attributes that are reflected at all levels of management (Mullins, 1994). Besides, attributes of a manager contribute to the success of an organization and constantly upgrade their skills and take on extra work outside their own specific job area. Robbins et al. (2010) mentioned that technical skills include knowledge of and proficiency in a certain specialized field, such as engineering, computers, accounting, or manufacturing.

These skills are more important at lower levels of management since these managers are dealing directly with employees doing the organization's work. Besides, human skills involve the ability to work well with other people both individually and in a group. Finally is conceptual skills are the skills managers must have to think and to conceptualize about abstract and complex situations. Using these skills, managers must be able to see the organization as a whole, understand the relationships among various subunits, and visualize how the organization fits into its broader environment (Robbins et al. 2010).

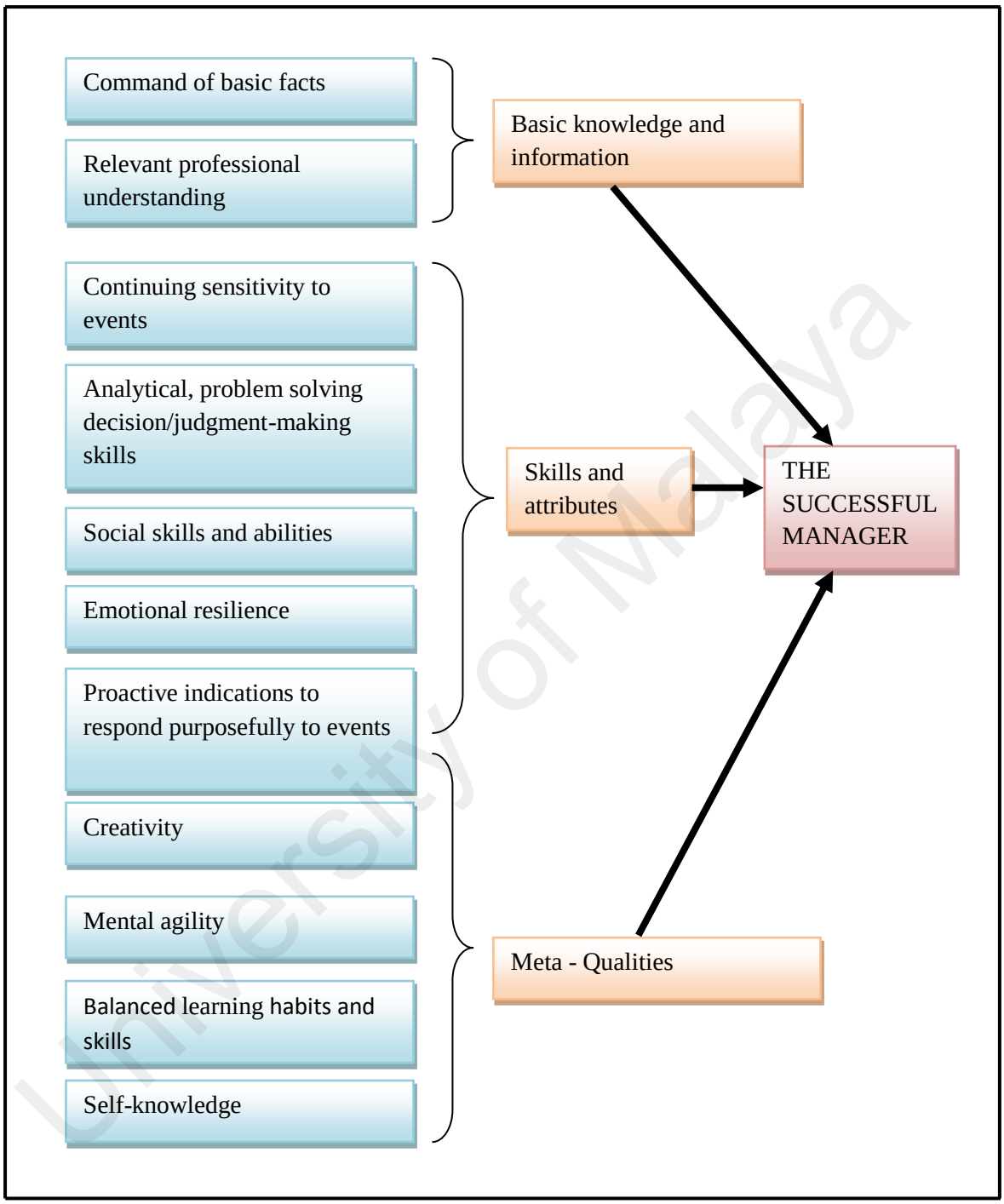


Figure 3.2: Sets Out the Eleven Important Qualities of a Successful Manager.

Source: Pedler (1991)

Pedler (1991) listed the qualities of a successful manager based on their experience of the nature of management work and their research. They categorised the qualities into three groups:

- Basic knowledge and information –needed by the manager in making decisions and taking action. This is the foundation level.
- Specific skills and attributes – directly affect behaviour and performance. The skills or quality of continuing sensitivity to events allows managers to acquire basic knowledge and information.
- The 'Meta Qualities' – allow managers to develop and deploy skills and resources and to develop the situation-specific skills needed in particular circumstances.

Figure 3.2 illustrate eleven important qualities of a manager. Quality managers improve the level of performance of an organization and increase the customer satisfaction by providing quality services and products. In order to be effective, managers need to have a solid grasp of the fundamental techniques of management (clarification of objectives, planning, direction and control). According to Leslie et al. (2002), managerial effectiveness can be achieved by focusing on managerial roles, personality traits, experience and managerial capabilities. Therefore to achieve managerial effectiveness, attributes of a manager plays an important role to increase the level of organization performance and managing an organization will assure its strength and success, as well as increasing the profit margin.

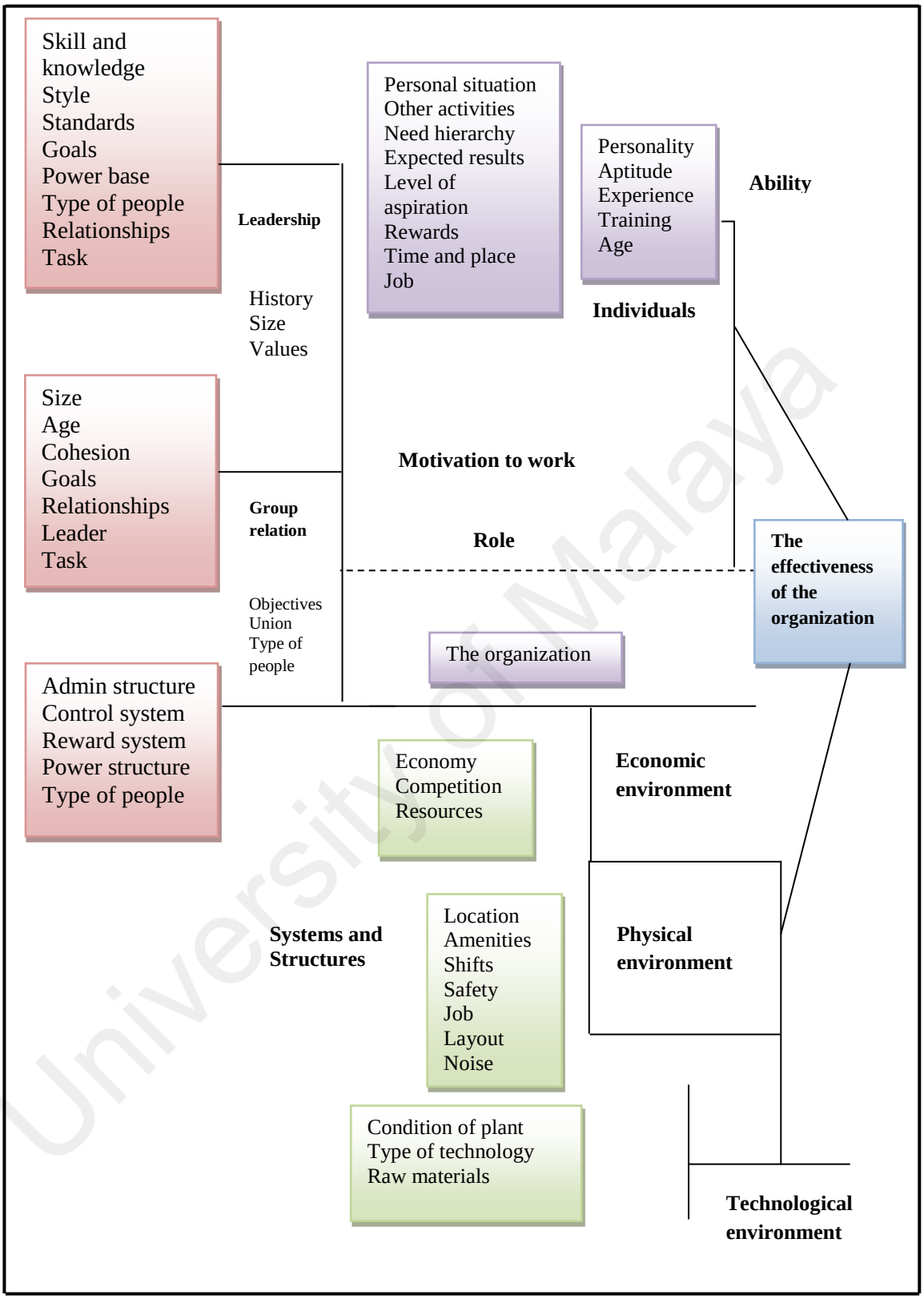


Figure 3.3: Factors Effecting Organizational Effectiveness

Source: Handy (1985), quoted by Mullins (1994)

Figure 3.3 illustrates the parameters – the individual, the group, the organization and the environment – which will constantly influence the work in an organization. According to Mullins (1994), individuals create an organization in that they influence the expectations of an organization and at the same time achieve the organization's goals, mission and vision. Meanwhile, a group of individuals is essential for the working and performance of every organization. Groups of people focus on social needs and influence the behaviour and performance of every member in the group (page: 431 and 432).

The combination of individuals and groups communicate between each other to establish an organization that will focus on goal seeking activities and will also affect the patterns of organizational structure, technology styles of leadership and systems of management in which the best practices are planned, directed and controlled. Lastly, the environment affects the organization through technological and scientific development, economic activity, social and cultural influences and governmental actions. Mullins (1994) mentioned that the increasing rate of change in environmental factors has highlighted the need to study the total organization and the processes by which the organization attempts to adapt to external demands.

Therefore, organizational effectiveness can be developed by looking into factors such as leadership, group relations, ability, individual, motivation to work within the integration of system, structures, economic environment, physical environment and technological environment. These factors help an organization to foresee the level of importance in best practices that can achieve the objectives and goals.

3.6 The Historical Foundations of Organizational Behaviour (OB)

McShane *et al.* (2013) have reviewed the history of organizational behaviour. They noted that OB emerged as a distinct field around the early 1940s, but the organization has been studied by experts in other fields for many centuries. The Greek philosopher Plato wrote about the essence of leadership.

At about the same time, the Chinese philosopher Confucius extolled the virtues of ethics and leadership. In 1776, Adam Smith discussed the benefits of job specialization and the division of labour, and one hundred years later the German sociologist Max Weber wrote about rational organizations, the work ethic and charismatic leadership, industrial engineer Frederick Winslow Taylor proposed systematic ways to organize work processes and motivate employees through goal setting and rewards.

From the 1920s to the 1940s, Harvard professor Elton Mayo and his colleagues established the human relations school of management, which emphasized the study of employee attitudes and informal group dynamics in the workplace (McShane et al, 2013). Also during that time, political philosopher and social worker Mary Parker Follet advocated new ways of thinking about several OB topics, including constructive conflict, team dynamics, organizational democracy, power and leadership and in the late 1930s, Chester Barnard wrote about regarding organizational communication, coordination, leadership and authority, organizations as open systems and team dynamics (McShane *et al.*, 2013)(page 5).

3.6.1 Organizational Behaviour (OB)

Organizational behaviour is the actions or attitude of people in an organization that manages their management. It helps the managers to identify the problems, determine how to correct them and establish whether the changes would make a difference (Sims, 2003). Besides, Sims also mentioned that organizational behaviour is important for every management. Understanding it can create quality managers, leaders, employees as well as consumers. OB plays a major role in producing a large scale business profit. Its focus is on achieving organizational objectives and goals, as well as attaining continuous improvement. According to Mullins (1994), organizational behaviour is very significant; it understands how organizations function and the pervasive influences which they exercise over the behaviour of people. Mullins (1994) created a basic framework to illustration the relationships among the variables of the organizational behaviour.

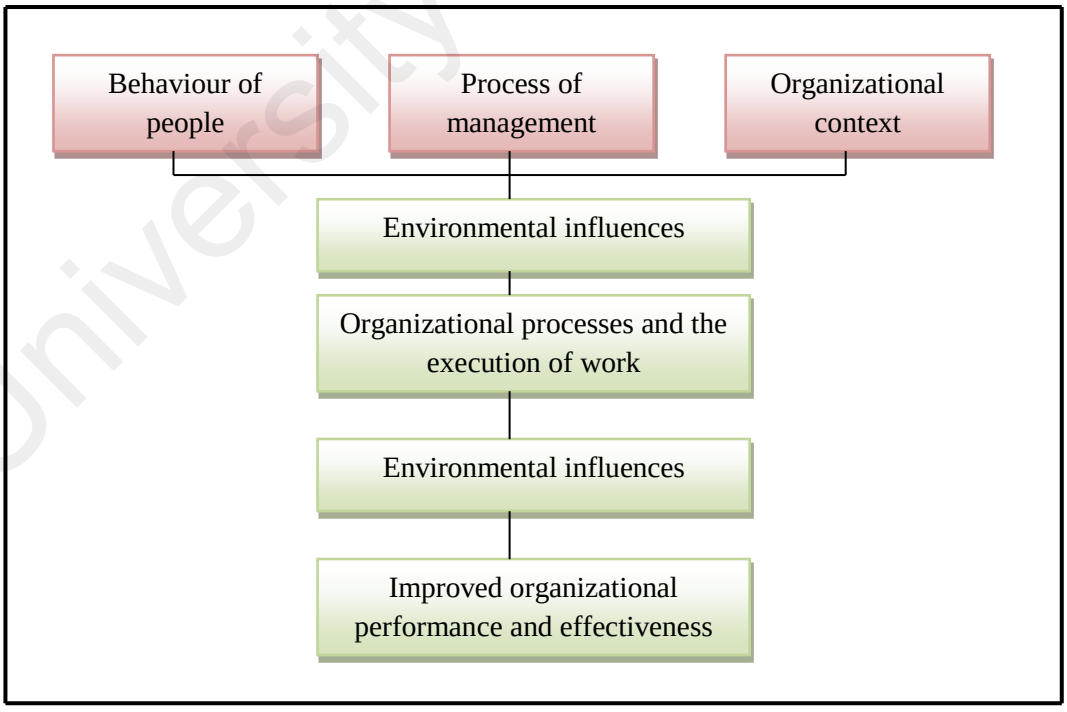


Figure 3.4: A Basic Framework of Organizational Behaviour

Source: Mullins (1994)

Four main approaches to organization, structure and management in developing management and organizational behaviour can be identified; namely: classical, human relations, systems, and contingency approaches (Mullins, 1994). These main approaches create a quality internal and external environment for the organization to increase in their productivity. Whereby, the integration of these elements focuses on both soft and hard elements to achieve the efficiencies and effectiveness of an organization. Besides, these approaches play an important role to upgrade the business as well as to achieve continuous improvement for long term success. These approaches have different implications and potentials for developing an effective organization.

- Classical – Emphasis on purpose, formal structure, hierarchy of management, technical requirements and common principles of organization.
- Human relations – Attention to social factors at work, groups, leadership, the informal organization and behaviour of people.
- Systems – Integration of the classical and human relations approaches. Importance of the socio technical system. The organization within its external environment.
- Contingency – No one best design of the organization. Structure, management and success of the organization are dependent upon a range of situational variables.

3.7 Organizational Performance

Khan et al. (2011) mentioned that human resource is significant and the backbone of every organization and therefore, performance is a major multidimensional construct to achieve strategic goals of an organization. The significance of organizational performance is to ensure that the best practices of organizations are well

monitored and there is a systematic approach to enhance performance. Organizational performance can be identified in many ways such as benchmarking the competitors, measuring the past performance or outcome and also identifying the important indicators to improve performance. In order to improve performance, the significance of organizational impacts that relate to organizational behaviour, and organizational development must first be understood.

3.7.1 Improving Organizational Performance

Improving organizational performance is important for every organization to achieve the targeted results and objectives. The first component in improving organizational performance is organizational culture, which helps to explain how things are performed in different organization. Meanwhile, organizational climate is based on the perception of members towards the organization and can be seen as the state of mutual trust and understanding among members of the organization.

According to Mullins (1994), a healthy climate is one in which staff morale is high and employees have a sense of commitment to the organization. Meanwhile, organizational conflict concerns reality management and organizational behaviour. There are many potential sources of organizational conflict related to individuals, groups, and organizational and environment factors.

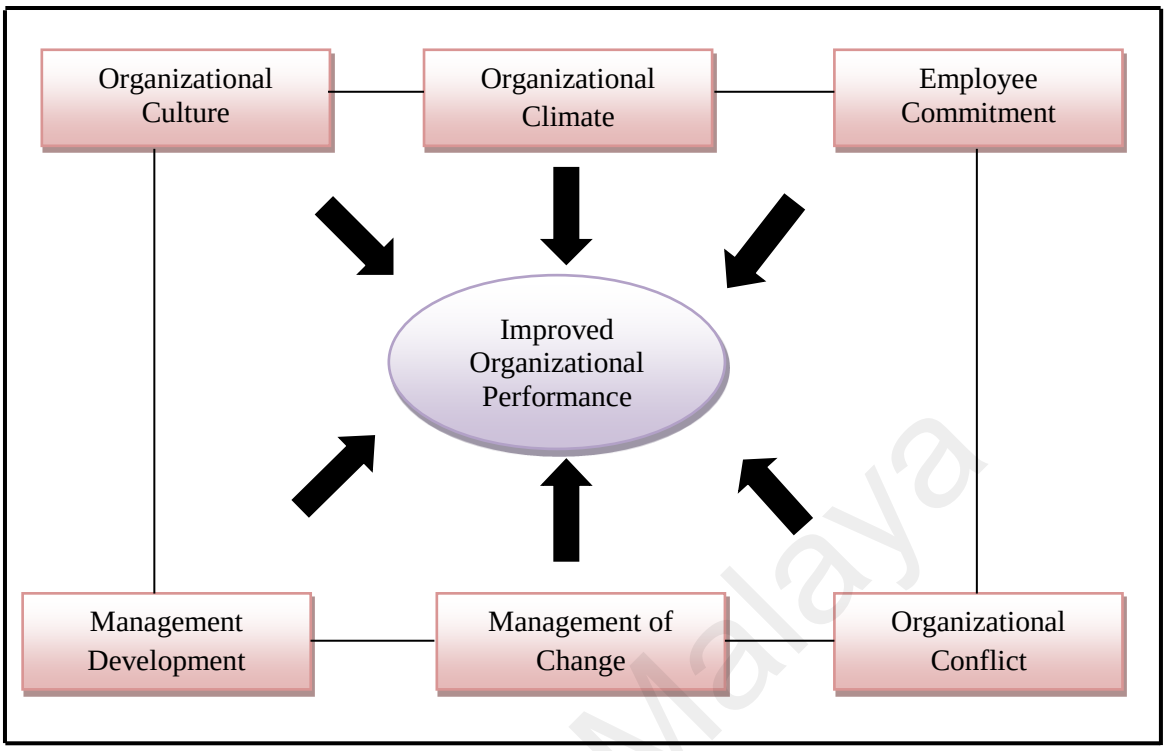


Figure 3.5: Major Components in Improving Organizational Performance

Source: Mullins (1994)

As Mullins (1994) mentioned, management needs to adopt appropriate strategies for dealing with harmful effects and conflicts. Management of change is also important because change is a pervasive influence and an inescapable part of social and organizational life. One strategy of change is through the adoption of a systems approach because, despite the potential positive outcomes, change is often resisted at both the individual and the organizational level. Consequently, it is important for management to adopt a clearly defined strategy for the initiation of change, including paying attention to the human, social factors of change. Managers play an important role in improving organizational performance: for example, a recent study by Santos and Stewart (2003) found that, 64% of managers returned to their previous work styles after training and they were even less likely than other employees to immediately apply training, especially developmental or soft skills training, at work.

Thus, to improve organizational performance, it is necessary to look beyond the skills, knowledge and behavioural gaps of managers. Managers must work hand in hand as partners with clients to identify holistically the root causes affecting the current performance of managers and come up with proper interventions (McShane 2013).

3.8 Perspectives of Organizational Effectiveness

Organizational effectiveness is considered to be the ultimate dependent variable in OB. Organizational effectiveness is a broad concept represented by several perspectives, including the organization's fit with the external environment, the configuration of internal subsystems for high performance, an emphasis on organizational learning, and an ability to satisfy the needs of key stakeholders(McShane *et al.*, 2013). According to McShane *et al.*, organizational effectiveness has four main perspectives, which are described below.

3.8.1 Open System Perspectives

The open system is a perspective which holds the organizations consist of internal subsystems that transform inputs and outputs; they depend on the external environment for resources, and they affect that environment through their output. The external environment consists of rules and expectations such as laws and cultural norms that place demands on how organizations should operate. Some environmental resources (e.g. raw materials) are transformed into outputs that are exported to the external environment, whereas other resources (e.g. job applicants, equipment) become subsystems in the transformation process.

3.8.2 Organizational Learning Perspective

The organizational learning perspective is one which holds that organizational effectiveness depends on the organization's capacity to acquire, share, use and store valuable knowledge. It is also called "knowledge management" in that it views knowledge as the main driver of competitive advantage. In this perspective, knowledge is a resource as illustrated in Figure 3.6. This stock of knowledge possessed by the company is intellectual capital, which exists in three forms; human capital, structural capital and relationship capital. Human capital is the stock of knowledge, skills and abilities, among employees that provides economic value to the organization. Structural capital is knowledge embedded in an organization's system and structures. Finally, relationship capital is the value derived from an organization's relationship with its customers, suppliers and others.

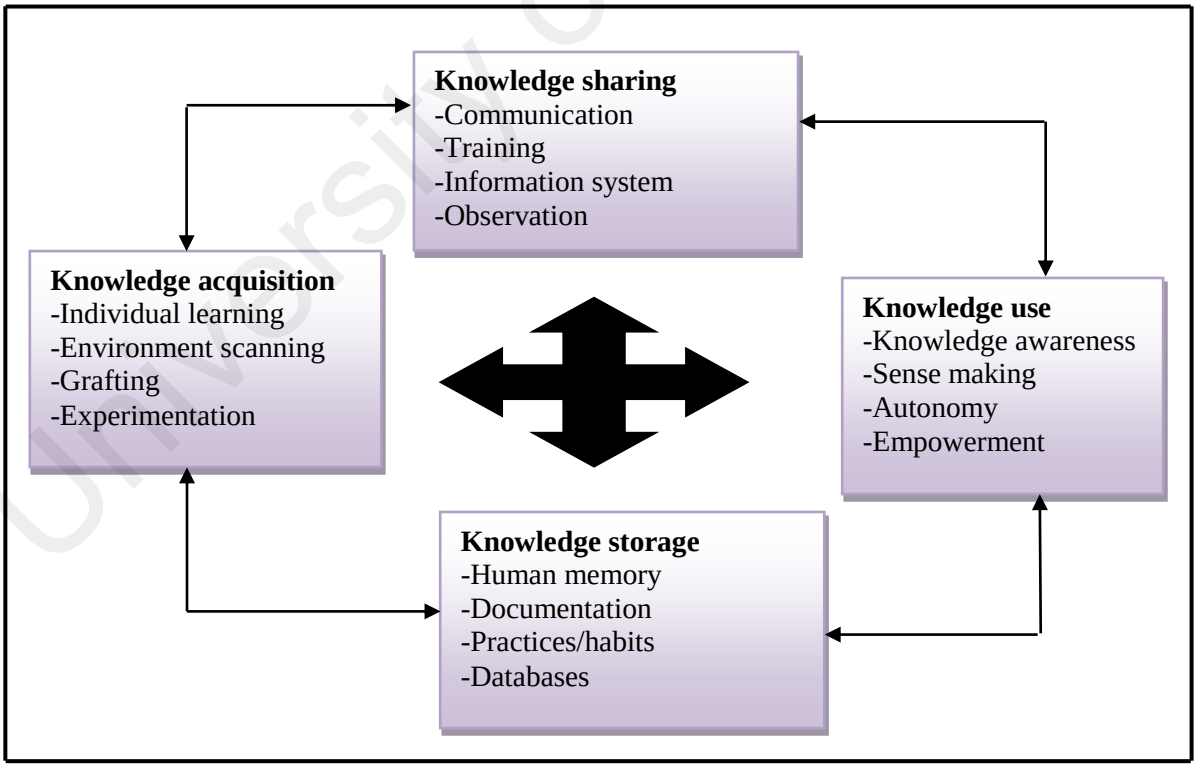


Figure 3.6: Four Organizational Learning Processes

Source: McShane et al (2013)

3.8.3 High Performance Work Practices (HPWP) Perspective

This perspective holds that effective organizations incorporate several workplace practices that leverage the potential of human capital. It tries to identify a specific bundle of systems and structures that generate the most value from this human capital. HPWP focuses on employee involvement, job autonomy, competency development and rewards for performance and competency development. All of these practices are designed to improve customer services, employees' decision making, strengthen employee motivation, among others.

3.8.4 Stakeholder Perspectives

Stakeholders include anyone with a stake in the company – employees, shareholders, suppliers, labour unions, government, communities, consumers and environmental interest groups. In other words, organizations are more effective when they consider the needs and expectations of any individual group or other entity that affects or is affected by the organization's objectives and actions. This approach requires organizational leaders and employees to understand, manage and satisfy the interests of their stakeholders. Understanding, managing and satisfying the interests of stakeholders is challenging because stakeholders have conflicting interests and organizations do not have the resources to satisfy every stakeholder to the fullest. Therefore organization leaders need to decide how much priority to give to each group. Values, ethics and corporate social responsibility raise the question of the strength of stakeholder perspectives. According to McShane et al. (2013), values are relatively stable; they are the evaluative beliefs that guide a person's preferences for outcomes or courses of action in a variety of situations.

Meanwhile ethics refers to the study of moral principles or values that determine whether actions are right or wrong, whether outcomes are good or bad. On the other hand, Corporate Social Responsibility (CSR) consists of organizational activities intended to benefit society and the environment beyond the companies' immediate financial interest or legal obligations.

3.9 Anchors of Organization Behaviour Knowledge

According to McShane et al. (2013), conceptual anchors represent the principles on which OB knowledge is developed and refined. The authors identified four anchors of OB knowledge which are: systematic research anchor, multidisciplinary anchor, contingency anchor, and multiple level of analysis anchor.

3.9.1 Systematic Research Anchor

McShane et al. (2013) mentioned that a key feature of OB knowledge is that it should be based on systematic research, which typically involves forming research questions, systematically collecting data and testing hypotheses against those data. McShane et al. (2013) said that systematic research investigation produces evidence-based management, which involves making decisions and taking actions based on this research evidence.

3.9.2 The Multidisciplinary Anchor

Sociologists have contributed to the knowledge of organizational behaviourists about team dynamics, organizational socialization, organizational power and other aspects of the social system. OB knowledge has also benefited from knowledge in emerging fields such as communication, marketing and information systems (McShane et al., 2013). Organizations have central roles in society, so they are the subject of many

branches of social science. Furthermore, organizations consist of people who interact with each other, so there is an inherent intersection between OB and most disciplines that study human beings.

3.9.3 The Contingency Anchor

According to McShane et al. (2013), people and their work environments are complex, and field of organizational behaviour recognizes this by stating that particular action may have different consequences in different situations. OB experts continue to search for simpler theories, but they also remain sceptical about recommendations that suggest certainty, because it is always possible to find an exception. Thus, when faced with a particular problem of opportunity, some experts believe it is wiser to understand and diagnose the situation and select the strategy that is most appropriate under those conditions.

3.9.4 The Multiple Levels of Analysis Anchor

The individual level includes the characteristic and behaviours of employees as well as the thought process that are attributed to them, such as motivation, perceptions, personalities, attitudes and values. The *team* level of analysis looks at the way people interact. This includes team dynamic, decisions, power, organizational politics, conflict and leadership. At the organizational level, we focus on how people structure their working relationship and how organizations interact with their environments (McShane et al., 2013)

3.10 Organizational Environment – Fit

Organization environment relates to internal and external environment that has been discussed in earlier subtopics. According to McShane (2013), a good organization environment fit exist when the organization puts resources where they are the most useful to adapt and to align with the needs of external environment. He also stressed that organization that maintain a good fit anticipating change in the environment and be consistent with the environment. In this study, there are few components categorized to improve the organizational environment –fit consist of organizational process, team dynamics, foundation of employee, contemporary challenges and program development.

3.10.1 Organizational Process

Organization process focuses on the best practices of management. Mullins (1994) highlighted that organization can only be achieved through the combined efforts of its members. McShane (2013) mentioned that, organizational process is focused on the growth of strategy, customer focus and resources to provide effective organization. Organization process can relate to organizational culture, organizational design, organizational resources, organizational change and organizational effectiveness.

a) Organizational Culture

Organization culture is an significant element that helps an organization to think globally. Organization culture reduces complexity and uncertainty as well as provides reliability in position and values and process of decision making, coordination and control. More detailed definition from Mullins (1994) on organization culture is “the collection of traditions, values, policies, belief and attitude that constitute a pervasive context for everything we do and think in an organization” (page 649).

b) Organizational Design

Organization design is the creation of roles and process. Galbraith et al.(2002) said that "organization design is the liberal process of configuring structures, process, reward system and people practices and policies to create an effective organization as well as achieving the business strategy" (page 2).

c) Organizational Resources

Resources that focuses on human, monetary, raw material and capital to produce products. According to Manas (2015), organization resources can imply hardware, software, equipment, supplies, finances, people and any number of element, but the most important and unique resources is the people to maximize the value of an organization.

d) Organizational Change

Organizational change can be initiated deliberately by managers, it can develop slowly within a department, it can impose by specific changes in policy or procedures and change also can affect all aspects of the operation and functioning of the organization (Mullins, 1994).

e) Organizational Effectiveness

Is the heart of organization development and improved performance. It is the role of management to act as an integrating activity to co-ordinate, direct and guide the efforts of the members towards achievement of goals and objectives (Mullins, 1994)

3.10.2 Team Dynamics

McShane (2013) said that, team "are groups of two or more people who interact with influence each other, are mutually accountable for achieving common goals associated with organizational objectives and perceive themselves as a social entity within an organization" (page 254). In this study, there are few components categorized to upgrade the team dynamics that consist of organizational climate, organizational strategy, organizational power and politics and organizational conflict.

a) Organizational Climate

Organizational climate is a relatively enduring quality of the internal environment of an organization that experienced by its members, influences their behaviour, and can be described in terms of the values of particular sets of characteristic of the organization (Mullins, 1994).

b) Organizational Strategy

Mullins (1994) mentioned that, developing a statement of strategy demands a creative effort that requires various methods of behaviour and requires harmonious relationship within employees to achieve the strategy.

c) Organizational Power and Politics

McShane (2013) mentioned that power is the capacity of a person, team or organization to influence others. It also focuses on the commitment of members and creating social network to increase the productivity.

c) Organizational Conflict

Can b**e** said as behaviour intended to obstruct the achievement of some other person's goals (Mullins, 1994). It can be divided into conflict situation and competition. Mullins (1994) described conflict situation as one or both of the parties forced into the confrontation. Whereas competition is only involve limited opposing behaviour.

3.10.3 Foundation of Employee

Foundation of employee is a significant component in organizational behaviour. This focuses on the employees responsibilities to carry out their task efficiently. To have a great direction to achieve organizational effectiveness, foundation of employee were categorized into employee commitment, employee satisfaction, employee engagement and management development.

a) Employee Commitment

To provide healthy organization, commitment within employees is very important to increase the organization's productivity. Mullins (1994) highlighted that employee commitment is the strength of the employees identification and involvement that corporate goals of the organization

b) Employee Satisfaction

To gain highest productivity and influence company's profitability, employee satisfaction is one the important element that needs to be focused on. According to McShane et.al (2013), employee satisfaction has a favourable evaluation of their jobs based on their observation and emotional experiences.

c) Employee Engagement

McShane et al.(2013) highlighted that employee engagement as " an individual emotional and rational motivation, self-efficacy to perform the job, perceived clarity of the organizations vision and his or her specific role in that vision and belief he or she has the resources to get the job done" (page 138). Therefore, business leaders need to be aware of employee engagement because it is a strong predictor of employee and work performance (McShane et al. (2013)

d) Management Development

Mullins (1994) defined management development as "not only improvements in the effectiveness of individual managers, it is also concerned with improvement in management performance as a whole" (page 682). Management development involves combination of knowledge and varied experience for achievement of effective performance.

3.10.4 Contemporary Challenges for Organizations

McShane et al. (2013) highlighted three major challenges facing modern organizations, which are: globalization, increasing workforce diversity, and emerging employment relationship to maintain a good organization environment-fit. Programs of management development should be designed according to the culture and specific requirements and should focus on clear management development policy and together with individual performance and career progression.

a) Globalization

Globalization refers to economic, social and cultural connectivity with people in other parts of the world. Organizations globalize when they actively participate in other countries and cultures. Globalization is now well entrenched, so the most important issue in organizational behaviour is how corporate leaders and employees can lead and work effectively in this emerging reality.

b) Increase Workforce Diversity

According to McShane et al. (2013), increased workforce diversity must be considered at two different levels. The observable demographic or physiological differences in people, such as their race, ethnicity, gender age as well as personalities, beliefs, values and attitudes.

c) Emerging Employment Relationship

The third major challenge is emerging employment relationships. These can be divided into two: work-life balance, and virtual work. According to McShane et al. (2013), work-life balance is the degree to which a person minimizes conflict between work and non-work demands. Most employees lack this balance because they spend too many hours at work, or performing or thinking about their job, whether at the workplace or at home. Meanwhile the second trend is virtual work, where employees use information technology to perform their jobs away from the traditional physical workplace (McShane et al., 2013).

It is clearly observed that FM and Organizational Behaviour are very important to develop the best practices and to achieve the organization's goals of success and continuous improvement. Managers need to be responsible and practice management theory to influence the behaviour and performance of managers, and accept the needs for individuals to manage according to situational demands. Mullins (1994) also explained the need for organizational effectiveness and the role of management as an integrating activity, where organizational effectiveness is affected by a multiplicity of variables. According to McShane et al. (2013), organizational effectiveness is important for 'goal attainment' and high performance work practices, and it satisfies the needs of the stakeholders. Therefore, FM managers need to establish their skills and knowledge to achieve organization effectiveness and the collaboration within strategic, tactical and operational level. Every organization needs to create a chain of knowledge that will enable it to achieve success in its core business, fulfil customers' requirements and increase the customer satisfaction index that will influence the company's profitability.

3.11 The Development of Theoretical Framework

The theoretical framework in this study provides a grounding base, for the literature review, and most importantly, the techniques and exploration that incorporate with the conceptual framework (Figure 4.6). As focused in Figure 3.7 the variables have been identified as Independent Variables (IV) which focuses on Organizational Behavior that give and impact on Dependent Variable (DV) which is the Facilities Management Performance as well as Moderating Variables (MV) that co-operate the IV and DV in order to foresee the knowledge contribution to develop the transformation strategies.

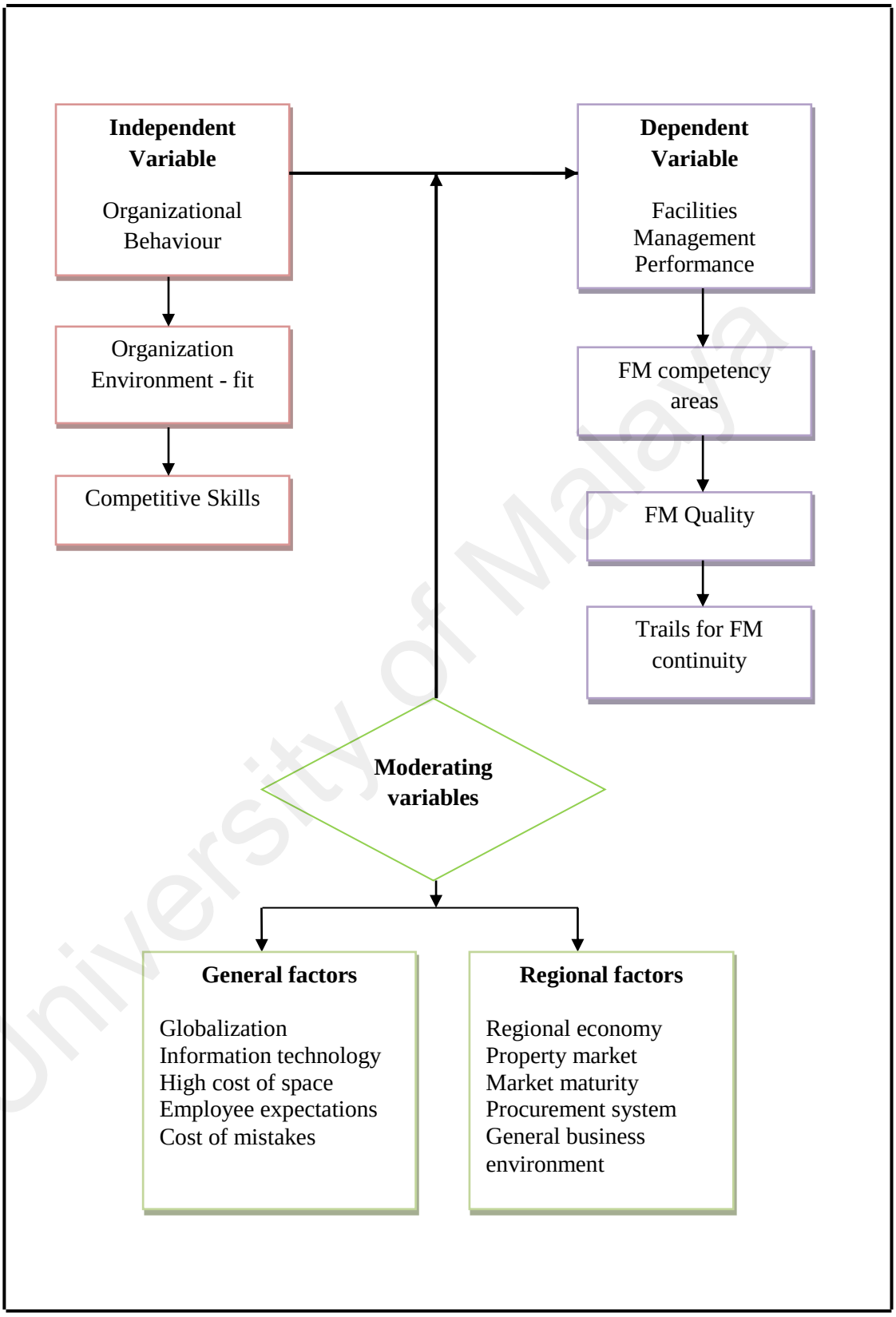


Figure 3.7: Theoretical Framework

The theoretical framework was identified through general theories from the literature review and a representation of relationship within variables. Therefore, to recognize the variables more precisely construct measures were created according to first order construct, second order construct and third order construct respectively as below:

Table 3.6: List of Constructs and Measurement Items

Third-Order Construct	Second-Order Construct	First-Order Construct	Number of Items **(114)**
Organizational Behaviour (OB)	Organization Environment **(OE)**	Organizational Process **(OP)**	5
		Team Dynamics **(TD)**	4
		Foundation Of Employee **(FE)**	4
		Contemporary Challenges **(CC)**	3
		Program Development **(PD)**	7
	Competitive Skills **(CS)**	Interpersonal Skills **(IPS)**	5
		Informational Skills **(INS)**	5
		Decisional Skills **(DS)**	5
Facilities Management Performance (FMP)	FM Competency Areas **(FMP1)**	Technical **(TC)**	4
		Financial **(FN)**	5
		Management **(MN)**	5
	FM Quality **(FMP2)**	Quality Control **(QC)**	11
		Quality Improvement **(QI)**	10
		Quality Assurance **(QA)**	11
	Trails for FM Continuity **(FMP3)**	Workforce Learning **(WL)**	5
		Forecasting Renewal Cost **(FR)**	5
		Technical Process **(TP)**	5
		Facilities Asset Management **(FM)**	5
	Management Support to stimulate the growth of FM **(MS)**	General Factors **(GF)**	5
		Regional Factors **(RF)**	5

The construct measures are important to develop the research hypotheses to create the relevant structural model that contributes to the development of FM transformation strategies. Therefore, in this study, thirty three (33) hypotheses were identified to achieve the research objectives and to upgrade FM in Malaysia towards business success.

Table 3.7: Research Hypotheses and Relevant Structural Models

Structural Model (SM)	Code	Hypothesis Description
SM1	H1	Organizational Behaviour has a positive influence on Facilities Management Performance
	H2	Management Support has a positive influence on Facilities Management Performance
SM2	H3-1	Organization Environment has a positive influence on FM Competency Areas
	H3-2	Organization Environment has a positive influence on FM Quality
	H3-3	Organization Environment has a positive influence on Trails for FM Continuity
	H4-1	Competitive Skills has a positive influence on FM Competency Areas
	H4-2	Competitive Skills has a positive influence on FM Quality
	H4-3	Competitive Skills has a positive influence on Trails for FM Continuity
SM3	H5-1	Organizational Process has a positive influence on FM Competency Areas
	H5-2	Organizational Process has a positive influence on FM Quality
	H5-3	Organizational Process has a positive influence on Trails for FM Continuity
	H6-1	Team Dynamics has a positive influence on FM Competency Areas
	H6-2	Team Dynamics has a positive influence on FM Quality
	H6-3	Team Dynamics has a positive influence on Trails for FM Continuity
	H7-1	Foundation of Employee has a positive influence on FM Competency Areas
	H7-2	Foundation of Employee has a positive influence on FM Quality
	H7-3	Foundation of Employee has a positive influence on Trails for FM Continuity
	H8-1	Contemporary Challenges has a positive influence on FM Competency Areas
	H8-2	Contemporary Challenges has a positive influence on FM Quality
	H8-3	Contemporary Challenges has a positive influence on Trails for FM Continuity
	H9-1	Program Development has a positive influence on FM Competency Areas
	H9-2	Program Development has a positive influence on FM Quality
	H9-3	Program Development has a positive influence on Trails for FM Continuity
	H10-1	Interpersonal Skills has a positive influence on FM Competency Areas
	H10-2	Interpersonal Skills has a positive influence on FM Quality
	H10-3	Interpersonal Skills has a positive influence on Trails for FM Continuity
	H11-1	Informational Skills has a positive influence on FM Competency Areas
	H11-2	Informational Skills has a positive influence on FM Quality
	H11-3	Informational Skills has a positive influence on Trails for FM Continuity
	H12-1	Decisional Skills has a positive influence on FM Competency Areas
	H12-2	Decisional Skills has a positive influence on FM Quality
	H12-3	Decisional Skills has a positive influence on Trails for FM Continuity
SM4	H13	Management Support moderates the relationship between Organizational Behaviour and Facilities Management Performance

3.12 Summary

As a summary, a critical review of Facilities Management and Organizational Behaviour assisted in developing the theoretical framework, construct measures and research hypotheses to achieve the research objectives towards developing the transformation strategies. Basically it shows the ideas that relate to one another within the theoretical framework for FM business success by collaborating the management aspect into FM field as a knowledge contribution.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

In general, research can be described as a precise investigation into materials and sources to create facts and new conclusions as a knowledge contribution chain in the particular field. Grinnell (1993) defined research as a "structured inquiry that utilizes acceptable scientific methodology to solve problems and to create new knowledge that is generally applicable". According to Sekaran (2003), research is a "process of finding solutions to a problem after a thorough study and analysis", whereas Richardson (1996) defined research as the "methodical search for knowledge by discovery of facts and insights and the demonstration of their relevance to existing knowledge".

The purpose of conducting research is to seek truth by identifying the issues and problems; to discover new knowledge that will contribute to the body of knowledge and literature; to describe, explain, and predict the population or phenomenon under study, such as who, what, where, when and how; to provide solutions to a problem (which is the ultimate objective of any applied research) and finally to help in the decision making process (Pandiyan et al., 2011). The authors emphasized the importance of carrying out research systematically with creative approaches and, furthermore, they pointed out that business research is a "systematic and objective process of gathering recording, and analyzing data to aid in making business decisions or a systematic inquiry that provides information to guide business decisions".

According to this definition provided by Pandiyan et al. (2011), business research is part of social science research that aims to provide efficient output that will help create quality decisions and contribute knowledge for future application. This chapter describes the methodology used to achieve the research objectives of the present study, including explanations of each step in the research process. Following this, hypotheses are generated as a basis to finding answers for all the research objectives.

4.1.1 Classifying Research

Collis and Hussey (2009) described research as a methodical process of enquiry and a solid investigation to increase knowledge. It is important to know the classifying of research to identify and examine the similarities and differences of different approaches to undertaking research. Collis and Hussey (2009) classified research according to the answers to the following enquiries:

a) Purpose of the research – the reason why it was conducted

b) Process of the research – the way in which data were collected and analyzed

c) Outcome of the research – whether the expected outcome was the solution to a particular problem or a more general contribution to knowledge

d) Logic of the research – whether the research logic moves from the general to the specific, or from the specific to the general.

Table 4.1 shows the classification of the main types of research derived from the above enquiries.

Table 4.1: Classification of research

Type of research	Basic of classification
Exploratory, descriptive, analytical, or predictive research	Purpose of the research
Quantitative or qualitative research	Process of the research
Applied research or basic research	Outcome of the research
Deductive or inductive research	Logic of the research

Source: Collis & Hussey (2009)

4.1.1.1 Purpose of the Research

In this study, analytical research (or explanatory research) was conducted in an attempt to identify relationships among the variables studied. According to Collis and Hussey (2009), explanatory research is a continuation of descriptive research and the significant feature of this type of research is controlling the variables in the research task. It is also important to understand and discover the causal relations among the variables (Collis & Hussey, 2009).

4.1.1.2 Process of the Research

A mixed method approach was adopted to conduct this research, to collect data which is numeric information as well as text information. According to Creswell (2003), the mixed method approach is a pragmatic knowledge claim, in which both qualitative and quantitative data are collected sequentially.

4.1.1.3 Outcome of the Research

This research is classified as basic or pure research. Basic research focuses on problem solving. It may not resolve an immediate problem or issue, but it will contribute to knowledge to assist the future situation (Collis & Hussey, 2009).

4.1.1.4 Logic of the Research

In this study, both deductive and inductive approaches were used. Deductive approaches are adopted in the quantitative method in order to test a theory or variables (Bryman & Bell, 2011). According to Collis and Hussey (2009), deductive research is a carried out in a study in which a conceptual and theoretical framework has been developed and then it is tested by empirical observations. On the other hand, inductive approaches are adopted in qualitative methods, when the theory is developed from the observation of empirical reality (Collis & Hussey, 2009).

4.2 Research Process

In every study, each stage in the research process is linked to those before and after, and the linkages ensure a logical research output. Figure 4.1 shows the stages involved in this research that combine to achieve the objectives and aims of this research. According to Neumann (2011), the research process contributes to producing a quality and efficient piece of research, and in social science research it relies on people carefully studying experience, events, and facts in social reality. It is important for researchers to know the steps in the research process as guide for good research.

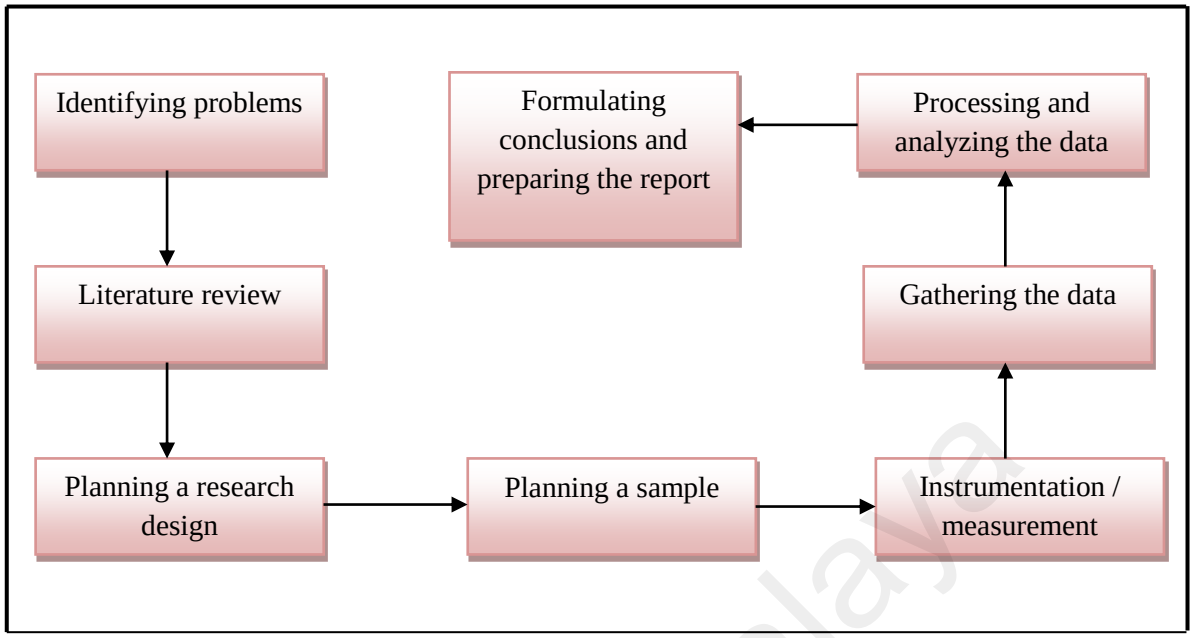


Figure 4.1: Stages in the Research Process

Source: Pandiyan et al. (2011)

In the initial stage of the present study, semi-structured interviews were carried out within a number of experienced facilities managers, property managers and academicians to identify and verify the issues involved in the FM field, and the impact of incorporating Organizational Behaviour (OB) as preliminary data to develop guidance for the overall research, as well as to identify the current issues. The significance of the semi-structured interviews with experts in the field at the initial stage was an important approach, because many FM issues were discussed and it became apparent that a framework would be needed to guide improvements in the present situation. The experts also mentioned that the development of transformation strategies in FM will help to lead to a quality organization and to accomplish success by achieving continuous improvement in every organization. Prior to conducting interviews, a thorough review of the literature is needed to assist the researcher to develop the framework and the research design.

In order to achieve the research objectives, the research task was divided into four phases to help to reinforce the strength of the research.

4.2.1 Phase One (Early Research Phase)

Phase one of research process is focused on the literature review. This phase focuses on achieving the first objective of the study which is to identify and review the existing practices and identify gaps involved in the current provision of Facilities Management.

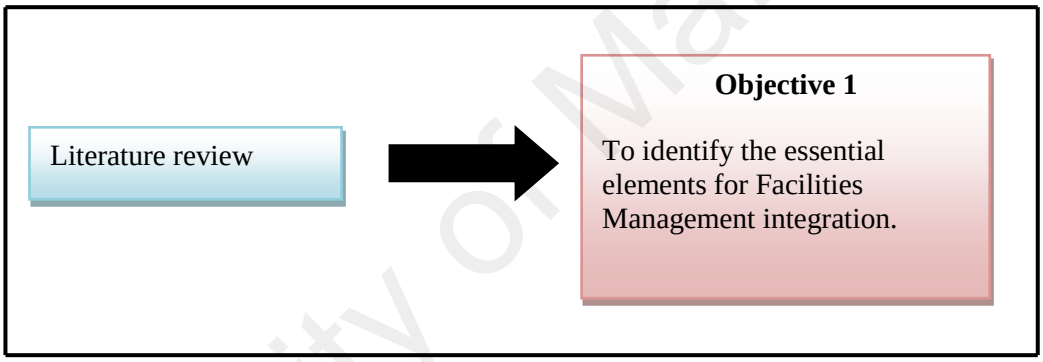


Figure 4.2: Phase One

4.2.1.1 Literature review

The purpose of the literature review is to become familiar with the field of interest, by interpreting and taking a perceptive view of the literature to construct research questions and design the research study. According to Bryman et al. (2011), the literature review also informs how to collect data and enables the researcher to analyse the data in an informed way. Neuman (2011) stated that literature review is an early vital step in carry out a study to review collected knowledge on the research questions and build ideas to create knowledge that contributes to achieve the objectives of study.

In this research, two literature reviews were carried out; the first focused on the Facilities Management (Chapter 2) followed a second literature review that focused on Organizational Behaviour (Chapter 3). Through this review of the literature and previous research, a broad knowledge of the field and, more specifically, the issues related to the fields of Facilities Management and Organizational Behaviour were obtained. These included: opportunities, scope, impact and framework on generic models, generic trails for the future, the resource model, strategic planning and management, and these were reviewed accordingly. A theoretical framework was developed from these both literatures and independent and dependent variables were identified to design the questionnaires.

4.2.2 Phase Two (Data Collection Phase)

Phase two of the methodology involved the collection of data to achieve objectives 1, 2, 3, and 4. In this phase, mixed methods were used. Firstly the quantitative method was applied, which involved the distribution of the questionnaire. This was followed by the qualitative method, which involved in-depth interviews for data validation to help towards developing the transformational framework. Integration such as this between different methods of data collection has been called the Sequential Explanatory Strategy by Creswell (2003). In figure 4.3, Creswell explained that this strategy is characterized by the analysis of quantitative data followed by the analysis of qualitative data, in order to interpret the entire data set. Creswell also mentioned that the qualitative results assist or verify the findings of the quantitative study.

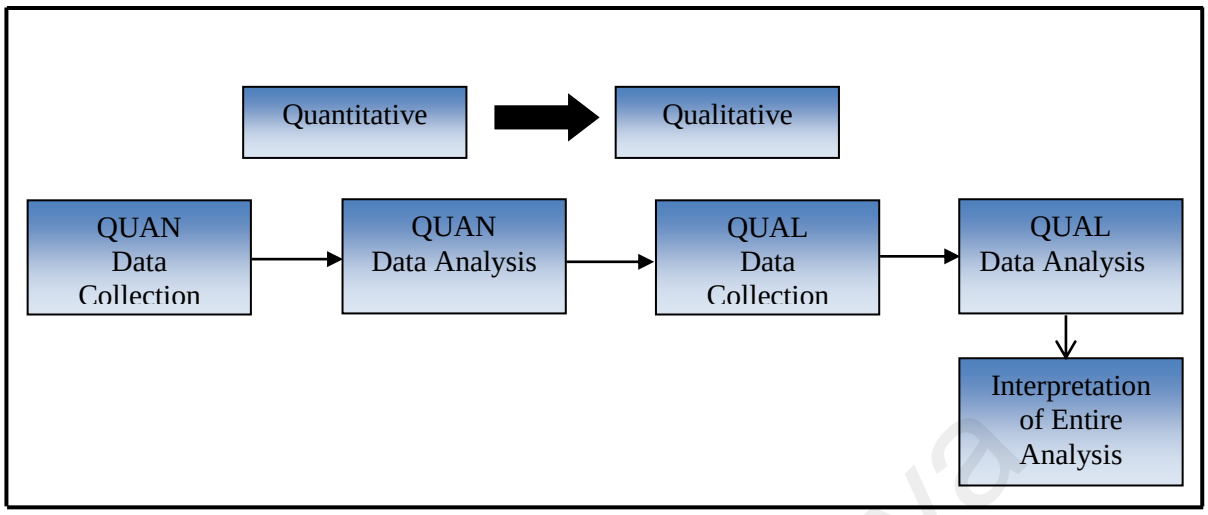


Figure 4.3: Sequential Explanatory Design

Source: Creswell (2003)

In order to create a quality quantitative method, Neumann (2011), suggested following the steps as follows:

- Step 1- Develop hypotheses or research questions, decide type of survey, write survey questions, decide response categories, design layout
- Step 2- Plan how to record data, pilot test survey instrument
- Step 3- Decide on target population, get sampling frame, decide on sample size, select sample
- Step 4- Locate respondents, distribute questionnaires, and perform statistical analysis on data
- Step 5- Conduct interviews, carefully record data
- Step6- Describe methods and findings in research reports

Phase two of the methods is explained in Figure 4.4. There are 5 main elements in this primary data collection, which are: questionnaire preparation, pilot study, questionnaire validity, final questionnaire and sample selection. It is very useful when conducting a survey deductively to have appropriate guidelines to conduct the tasks.

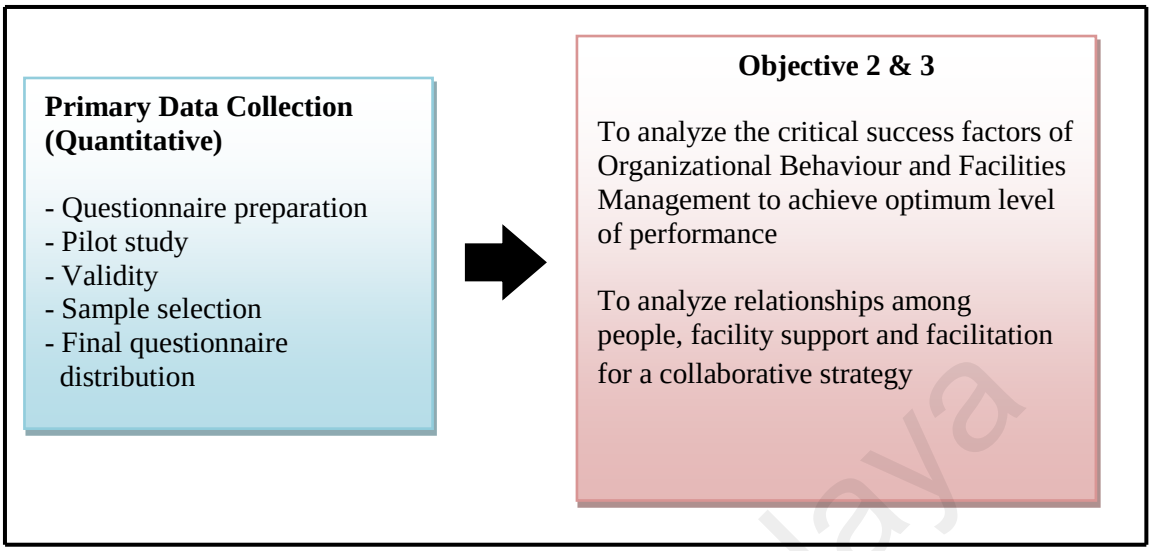


Figure 4.4: Phase Two

4.2.2.1 Questionnaire Preparation

A questionnaire is designed to facilitate data collection and to receive the desired information it must be precise, well-structured and easy for the respondents to understand and respond to (Pandiyan et al. 2011). For this study, a questionnaire was designed which consisted of several sections. Section A requested the background information of respondents and it consisted of 9 questions. Sections B and C concerned Facilities Management. Section B consisted of statements describing Facilities Management involving definitions of FM, perceptions towards FM, and factors that stimulate the growth of FM. Meanwhile, Section C focused on FM performance especially on the competency areas, quality driven elements, actions for the effective performance of the FM team and essential elements for the continuity of FM performance.

Section D related to Organizational Behaviour (OB) and the questions covered three main areas: the criteria for a good organizational environment – fit, skills for managers to be competitive, and finally interventions for effective OB. Questions in sections B, C and D consisted of Likert scale questions, with a 5-point scale. Respondents were required to select their answer from *strongly disagree* (1), *disagree* (2), *neutral* (3), *agree* (4) and *strongly agree* (5). Likert scaling measuring either positive or negative responses to a statement.

4.2.2.2 Pilot Study

A pilot study needs to be conducted in order to warn the researcher of problems that might occur in the actual research. Chua (2012, p.307) has listed some of the benefits of conducting a pilot study, which are:

- To establish the reliability and validity of the research instrument
- To evaluate the effectiveness of the research framework and sampling techniques
- To estimate the sample size
- To train the researcher to manage the actual research effectively and smoothly
- To estimate the possibilities of the research results
- To determine the cost and financial resources involved
- To evaluate the feasibility and suitability of the actual research

In the present research, a pilot study was carried out. Following Chua's (2013) guideline, 30 respondents (experts experienced in the field) were selected for the pilot study. Descriptive Statistics were used to analyse the data and the pilot study was applied to foresee the results trend and the pattern of the analysis.

4.2.2.3 Validity

A validation process was carried out in order to validate the questionnaire, from the perspective of the expert respondents. According to Neuman (2011), there are seven types of validity which are: face validity or content validity, criterion validity, concurrent validity, predictive validity, construct validity and convergent validity. In this early phase of research, face validity or content validity is applied to ensure that the measure reflects the content of the concept in question, and thus to validate the content in the questionnaire. Questionnaires were distributed to ten experts from built environment disciplines and ten experts from the management field, respectively in order to have consistency balance in the validation. The final questionnaire was approved after the validation by the experts.

4.2.2.4 Sample Selection

Sampling is the process of selecting a number of subjects from a population as research respondents (Chua, 2012). Neumann (2011) defined a sample as a small set of cases a researcher selects from a large pool and generalizes to the population. As Chua points out, selecting an unsuitable sample will reduce the validity and reliability of the research. The population for this research consisted of the professionals involved in the built environment disciplines. As an initial step, a number of companies in built environment field throughout Malaysia had been identified through their registration with the various professional bodies and there were no overlapping of registration that was tabled in Table 4.2.

Table 4.2: List of Total Population

Professional Involved in the Built Environment Discipline	Total
Board of Valuers, Appraisers and Estate Agents (BOVEA)	881
Board of Quantity Surveyors	339
Construction Industry Development Board	40
Malaysian Institute of Architects	500
Association of Valuers, Property Managers and Estate Agency (PEPS)	314
Malaysian Association of Facilities Management (MAFM)	300
Institute Surveyors of Malaysia (ISM)	400
Building Surveyors (ISM)	440
Total	**3214**

(a) Sampling Strategies

Sampling strategies are important to create sample data that represent many other cases that the researcher cannot directly examine. According to Bryman and Bell (2007), a sample is the segment of the population that is selected for investigation, and it is a subset of a population. Sampling procedures are divided into two broad categories: nonprobability sampling techniques, and probability sampling techniques (Chua, 2012). In this research, probability sampling is used, with simple random sampling. According Chua (2012), simple random sampling is when every unit or subject in the population has the same chance of being selected as respondent. The result would be a representative sample, and the aim is to keep sampling error to a minimum (Bryman and Bell, 2007).

Random sampling begins with the construction of a sample frame, which lists all units in the population from which the sample will be selected.

Table 4.3: Determining the Sample Size from a Given Population

Population	Sample Size
10	10
100	80
200	132
300	169
400	196
500	217
700	248
1000	278
2000	322
3000	**341**
4000	351
5000	357
7000	364
10000	370
20000	377
50000	381
75000	382
>1000000	384

Source: (Collin & Hussey, 2009)

In order to determine the sample for this research, Table 4.3 sets out a table for determining sample size from a given population provided by Collin and Hussey (2009). According to Table 4.2, the total population was found to be 3214. Therefore, according to the Table 4.3, the sample size for this research was 341 respondents.

4.2.2.5 Final Questionnaire Distribution

The questionnaire was finalized after validation by the expert panel and was revised for the data collection. The questionnaires were circulated by email, letter and personally to the target respondents. Response of questionnaire survey as stated in Table 4.4.

Table 4.4: Respondents response

Description	Frequency	Percentage
Sample size	341	100
Sent out questionnaire	341	100
Returned questionnaire	155	45.5
Valid questionnaire	155	45.5

Table 4.4 explains the response of questionnaires in this study. As shown, the total sample size identified in the sampling strategies was 341 respondents, and 341 questionnaires were distributed. According to Hoxley (2008), quoted by Au Yong (2013) the minimal response rate of a study should be about 30 percent. In this study, the total returned, valid questionnaires were 155 questionnaires, or 45.5 percent of those distributed. Thus, this is higher than the minimal response rate specified by Hoxley.

4.2.2.6 Semi Structured Interviews

Figure 4.5 shows the primary data collection using the qualitative method necessary to obtain data to achieve objective 4, for further development. According to Chua (2012), a semi-structured interview focuses on the formal questions posed by the interviewer, but also gives the interviewer the freedom to explore in greater depth the answers given by the respondents. FM experts were chosen to verify the quantitative findings. Each of them was given the same stimuli, so that the information collected from them can be differentiated accurately.

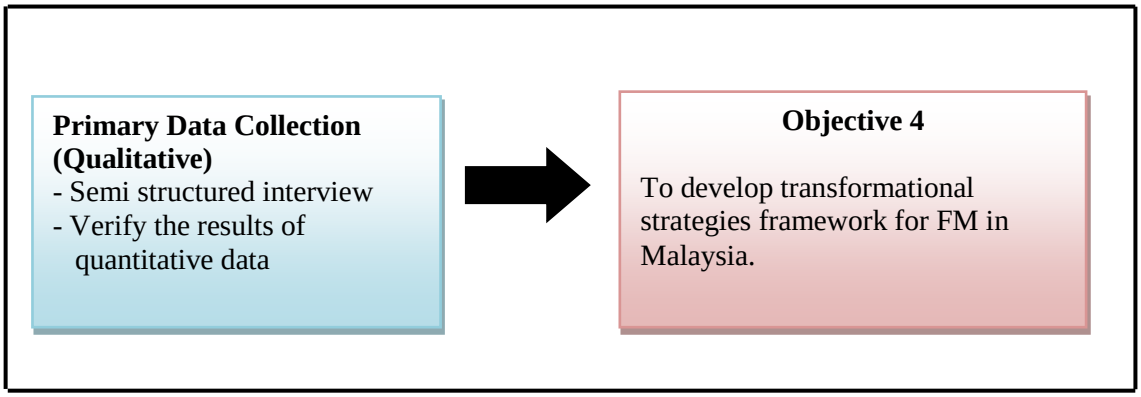


Figure 4.5: Phase Two

4.2.3 Phase Three (Data Analysis Phase)

The data analysis phase is an important phase in every research study. The data gathered is analysed in order to achieve the objectives and to gain optimal results that will lead to a successful piece of research. For the quantitative method, a pre-evaluation form was used to collect the data, which was then analysed using the Statistical Package for Social Science (SPSS) and Analysis of Moment Structures (AMOS) as an add on module for SPSS. AMOS is used to model and analyse the inter-relationship among latent constructs accurately and efficiently (Zainudin, 2012).

Sekaran (2003) highlighted that data analysis involves three significant objectives; "getting a feel for the collected data", "testing the goodness of data", and testing the hypotheses used in the study. To achieve the objectives and hypotheses of this study, several techniques were used to develop the transformational strategies for this study.

4.2.3.1 Data Screening

Data screening is necessary to ensure that data are correctly entered, free from missing values and outliers, and to confirm that the distribution of variables is normal. Appendix B depicts all the exogenous and endogenous variables, together with their relative estimation errors in this study.

a) Replacing Missing Values

Missing data occurs when respondents have failed to answer one or more items in the survey. The screening of the current data set indicates that there is a minimal amount of missing data (less than 5%). Cohen and Cohen (1983) claim that missing data up to 10% may not cause any serious problem in the interpretation of the findings. As for the treatment of missing data, Graham et al., 1997, suggests that Expected Maximisation (EM) is a better method to be adopted in treating missing data compared to other methods, such as list-wise deletion and mean substitution.

However, since there was minimal missing data, the choice of method may not have any significant influence on the results because each method has its own advantages and disadvantages (Hair et al. 1998). Therefore, in this study missing data were replaced with the variable mean responses for each variable. This method is deemed the most appropriate because mean substitution is the most widely used method to treat missing data as it is based on valid responses, so the mean is the best replacement for missing data (Hair et al. 1998; Schwab, 2005).

b) Removing Outliers

Outliers refer to observations with a unique combination of characteristics identifiable as distinctly different from the other observations (Hair et al. 1998). Outliers were identified using univariate detections (histograms, box-plots and standardised z score) and multivariate detections (Mahalanobis D^2 distance). Checking for outliers is important as outliers could affect the normality of the data which could then distort the statistical results (Hair et al. 1998; Tabachnick and Fidell 2001).

For univariate detection, besides examining histograms and box-plots, each variable was examined for the standardised (z) score. According to Hair (1998) for a large sample size, Absolut (z) > 4 is evidence of an extreme observation. Analysis of the questionnaire data showed that the standardised (z) scores of 8 observations (i.e. case numbers: 1, 2, 15, 16, 156, 157, 148, and 151) were out of the ±4 range, and therefore these observations were eliminated from the analysis. As the result, the sample size of this study decreased from the initial 155 observations to 147 observations.

The standardised (z) scores of the remainder observations for the research variables ranged from -3.80 to 3.43, indicating that none of the variables exceeded the recommended threshold. The data were further examined by applying multivariate detection. Mahalanobis D-squared distances were generated for each case using AMOS regression, with case number as the dependent variable and all non-demographic measures as independent variables. High D^2 / df value greater than 3.5 represents a potential multivariate outlier (Hair et al. 1998). As depicted in Appendix C-1, the results showed that the largest D^2 value is 131.30.

Regarding the 281 exogenous and endogenous variables together with their relative estimation errors in this study (Appendix B), the maximum D^2 / df was equal to 0.467 (131.30 / 281) which was far below the cut-off 3.5. Therefore, it could be concluded that examination of D^2 values for all cases did not indicate the presence of multivariate outliers; thus all observations were retained for analysis.

4.2.3.2 Normality Test

This study focuses on a parametric test. According to Neumann (2013), parametric test is a test that requires data from one large catalogue of distributions and therefore, parametric test requires basic assumptions that are based on the normal distribution. The normality test, using the Kolmogrov-Smirnov (K.S) statistic, is used to ascertain whether the data set of the items of a construct were well-modelled by the normal distribution or not. A p-value higher than 0.05 indicates a normal distribution of data (Neumann, 2013).

However, in the condition where the p-value is lower than the 0.05 level, the general rule is that the data may be assumed to be normally distributed if skew and kurtosis is within the range of -1 to +1, or -1.5 to +1.5, or even 2.0 (Schumacker & Lomax 2004). Byrne (2013), on the other hand, suggested using a cut-off point of less than 7 as an acceptable value for kurtosis, and that data which is skewed within the range of +2 to -2 could be considered as being normally distributed. The normality test was conducted as the main pre-assumption of Maximum Likelihood Estimation to assess the normal distribution of the data of constructs. Appendix C demonstrates the results of the normality test for all 114 items in the model.

The results of assessing normality showed that the skew and kurtosis of all items lay between -2 and +2. As shown in Appendix C, the skew ranged from -1.04 to 1.15 and the kurtosis ranged from -1.98 to 3.12. Therefore, it can be concluded that the data set of all items were well-modelled by a normal distribution.

4.2.3.3 Frequency Distributions

According to Field (2013), frequency distributions are useful for assessing the distribution of scores. A frequency distribution is a table that shows the dispersion of cases into the categories of one variable; that is, the number of cases in each category (Neumann, 2011). In this study, frequency distribution was applied to nominal and ordinal data to summarize the information of respondents' profile.

4.2.3.4 Descriptive Statistics

Neumann (2011) explained that descriptive statistics are a general type of simple statistics used by researchers to describe basic patterns in numerical data. In this study, descriptive analysis was applied to analyse first order construct, second order construct and third order construct to foresee the mean, standard deviation and standard error.

4.2.3.5 Pearson's Correlation

According to Neuman (2011), the purpose of correlation is to show how much two variables covary. In this study Pearson correlation was applied to see the level of relationship between the exogenous variables and to establish the importance of variables within the exogenous variables that focuses on organization environment and competitive skills. This correlation can be only used for data measured at interval or ratio level (Neuman,2011).

4.2.3.6 Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) analyses encompass two major stages: the measurement model or Confirmatory Factor Analysis (CFA), and the structural model. SEM is "a collection of statistical techniques that allow a set of relationships between one or more independent variables and one or more dependent variables to be examined" Tabachnick and Fidell (2001), adapted from Ahmad Bahjat, (2007). The significant purpose of SEM is to explain the pattern of series of inter-related dependence relationship simultaneously between a set of latent or unobserved construct. SEM has the ability to assess the unidimensionality, reliability and validity for each individual constructs (Hair et.al, 2006). Analysis of Moments Structures (AMOS) is used to develop the SEM accurately and effectively.

4.2.3.6.1Measurement Model (Stage 1)

The measurement model (CFA model) is used to detect the links between manifest or observed variables and latent or unobserved variables. The measurement model could therefore be said to define the manner in which latent or unobserved variables are assessed in terms of the manifest variables (Ho, 2006). Operationalization of constructs is a very important step in the process of ensuring accuracy (Hair, 2006). Researchers have a choice of several established scales when attempting to ensure theoretical accuracy. Nevertheless, despite the availability of a number of scales, researchers are often plagued by the problem of a lack of established scales and are thus driven to develop new measurement scales or to greatly modify existing scales in order to accommodate a new context.

Given all these considerations, the basis for the SEM analysis is in the selection of items to measure the constructs (Hair, et al., 2006). This study comprised three individual CFA models, and an overall measurement model based upon the individual ones. As suggested by Hair et al. (2006), individual CFA was performed for each of the constructs, followed by the measurement model of the study. As mentioned earlier, one of the main advantages of SEM is its ability to assess construct validity of measurements. In this instance, construct validity refers to the accuracy of measurements (Hair, et al., 2006). These provided specifics and evaluation based on the Goodness-of-Fit (GOF) indices and evidence of construct validity.

Convergent validity and discriminant validity are the two subtypes of validity that make up construct validity. This study employed the Maximum Likelihood Estimation (MLE) as the extraction technique. This is one of the most widely used estimation methods that allow testing of individual direct effects and error term correlation.

a) Goodness of Fit

The SEM is distinguished by the ability of its overall model fit and its ability to assess the construct validity of a proposed measurement theory (Hair et al., 2006; Ho, 2006). A number of Goodness-of-Fit (GOF) indices exist for the assessment of the overall fit of the individual construct CFA, measurements of overall CFA and hypothesised structural models. The GOF indices provide the factors to investigate the level of coincidences in the covariance matrix of the proposed model against the sample covariance matrix (Kline, 2010). In general, there are three categories of GOF indices, which are described as follows.

(i) Absolute fit measures such as Chi-square statistic, Goodness-Of-Fit Index (GFI), and Root Mean Square Error of Approximation (RMSEA)

The Chi-square ($\chi 2$) statistic, generally considered as one of the most important absolute fit indexes, is the tool for researchers seeking a non-significant value in support of their proposed model being able to significantly reproduce the sample covariance matrix. However, when the sample size increases, the $\chi 2$ statistic shows a significant p-value (Schumacker & Lomax, 2010). When the $\chi 2$ model fit index shows a significant p-value it does not mean that the proposed model cannot be interpreted or that it is completely unacceptable. The researcher can resort to using other GOF indices. A Goodness-of-Fit Index (GFI) is a non-statistical index ranging from 0 (poor fit) to 1(perfect fit) (Ho, 2006). GFI values of over 0.90 indicate a good fit (Hoyle, 1995). Root Mean Square Error of Approximation (RMSEA) is another absolute fit index: the RMSEA value should be lower than 0.1 to indicate a good fit (Schumacker & Lomax, 2010). However, other researchers contend that RMSEA values of between 0.03 and 0.08 show a better fit model (Hair et al., 2006; Ho, 2006).

(ii) Incremental fit measures such as Tucker-Lewis Index (TLI), Normed Fit Index (NFI), Incremental Fit Index (IFI), and Comparative Fit Index (CFI)

For incremental fit indices such as TLI, NFI, IFI, and CFI, values range between 0 (poor fit) to 1 (perfect fit). The values of 0.90 and above show that there is a good fit between the model and the data (Bagozzi & Yi., 1988; Byrne, 1998; Hair et al., 2006; Ho, 2006).

(iii) Parsimonious fit measures such as Akaik Information Criterion (AIC) and Parsimonious Normed Fit Index (PNFI).

Akaik Information Criterion (AIC) and the Parsimonious Normed Fit Index (PNFI) are normally used where comparison of the models with lower AIC values (near to 0) and higher value PNFI indicates a better fit and better parsimony (Ho, 2006). Hair et al. (2006) proposed the use of three to four fit indices for adequate evidence of model fit, that these should ideally include one incremental index, one absolute fit measure, and the Chi-square value and associated degrees of freedom.

Table 4.5: Summary of Goodness of Fit Indices

Name of the Index	Level of acceptance	Comments
Absolute Fit Indices		
Chi-square (x2)	P > 0.05	This measure is sensitive to large sample
Goodness-of-Fit (GFI)	0.90 or greater	Value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit
Root Mean Square Error of Approximation (RMSEA)	Between .05 and .08	Value up to 1.0 and less than .05 is considered acceptable
Incremental fit indices		
Adjusted Goodness-of-Fit (AGFI) Tuker-Lewis Index (TLI) Normed Fit Index (NFI) Comparative Fit Index (CFI)	0.90 or greater	Value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit
Parsimonious fit indices		
Normed Chi-square (x2 /df)	1.0 ≤ x2 /df ≤ 5	Lower limit is 1.0, upper limit is 3.0 or as high as 5

Source: Ahmad Bahjat (2007)

Therefore, in the present study, absolute fit measures including Chi-square statistic, Relative Chi-square ($\chi 2/df$), GFI, and RMSEA were used, and among the incremental fit indices TLI, IFI, and CFI were used to measure the level of model fit.

(b) Convergent validity

Refers to the similarity in degree of variance between the items which are the indicators of a specific construct. The convergent validity could be measured by considering the size of factor loading (standardised regression weights), Average Variance Extracted (AVE), and Composite Reliability (CR) among sets of items in the construct. The factor loading estimates with values of 0.5 or greater and extracted average variance of 0.5 or higher show adequate convergence among the items in the construct (Hair et al., 2006). The AVE can be calculated by dividing the sum square of the standardised factor loading by the factor loading number. CR should be 0.6 or higher to show adequate internal consistency (Bagozzi & Yi., 1988). The CR is computed from the square sum of factor loading and sum of error variance terms for a construct (Hair et al., 2006)

(c) Discriminant validity

Discriminant validity refers to the issue of how truly distinct a construct is from other constructs. Discriminant validity can be assessed by comparing the square root of the AVE for two constructs and their square correlations. Evidence of discriminant validity is when the correlation between the two constructs is smaller than the square root of the AVE for each construct (Fornell & Larcker, 1981; Hair et al., 2006). In addition, correlations between the factors should not exceed 0.85 (Kline 2005).

(d) Reliability Analysis

The measurement items that represent each individual variable should also be verified through internal reliability analysis. Reliability is the degree to which a measure is error-free. To ensure that the items produce a reliable scale, Cronbach's Alpha Coefficient of internal consistency should be examined, (Nunnally and Bernstein,1994). A higher value of Cronbach's Alpha represents higher reliability, with a range from 0 to 1. Nunnally and Bernstein (1994) suggest that for a reliable scale, Cronbach's Alpha should not be lower than 0.7.

(e) Multicollinearity

According to Field (2013), multicollinearity exists when there is a strong correlation between two or more predictors. Multicollinearity between predictors makes it difficult to assess the individual importance of a predictor and one way to identify multicollinearity is to scan the correlation matrix (Field, 2013). It is important to note that the regression technique is sensitive to multicollinearity. A two-part process was used to diagnose multicollinearity. Hair et al. (2006) suggested the two-part process as follows:

- Identify all condition indices above the 30 threshold, and
- For all condition indices exceeding the threshold, identify variables with variance proportion above 90% (Hair, Anderson, Tatham, & Black, 1998).

4.2.3.6.2 Structural Model (Stage 2)

The structural equation model is the second main process of SEM analysis. Once the measurement model is validated, representation of the structural model can be made by specifying the relationships among the constructs. The structural model provides details on the links between the variables.

It shows the specific details of the relationship between the independent or exogenous variables and dependent or endogenous variables (Hair et al., 2006; Ho, 2006). Evaluation of the structural model focuses firstly on the overall model fit, followed by the size, direction and significance of the hypothesized parameter estimates, as shown by the one- headed arrows in the path diagrams (Hair et al., 2006). The final part involved the confirmation of the structural model of the study, which was based on the proposed relationship between the variables identified and assessed.

4.2.3.6.3Hierarchical Multiple Regression

Hierarchical multiple regression analysis (Cohen & Cohen, 1983) was conducted to test the moderating effect of Management Support on the relationships between Organizational Behaviour and Facilities Management Performance. Hierarchical Multiple Regression is advocated as a more appropriate method for determining whether a variable has a moderating effect on the relationship between two other variables.

This method of analysis is used to determine what proportion of variance in a particular variable is explained by other variables when these variables are entered into the regression analysis in a certain order, and whether these proportions are significantly greater than would be expected by chance (Baron & Kenny 1986). In order to confirm a third variable having a moderation effect on the relationship between the two variables (IV and DV), the nature of this relationship should be changed as the values of the moderating variable, M, change.

This is achieved by including an interaction effect in the model and checking to see if indeed such an interaction is significant; it also helps explain the variation in the response variable better than before. In applying this analysis, all predictors need to be standardised or centred to make later interpretations easier and to avoid the problem of multicollinearity (Aiken & West 1991).

4.2.3.7 Qualitative Data Analysis

In this study, interview data were reported in a tabular format to show the respondents' perceptions towards the quantitative findings. Chua (2012) mentioned that interview data can be arranged in a tabular format as a means of organizing the data systematically. Furthermore, this format facilitates the detection of patterns in the respondents' answers.

4.2.4 Phase 4: Conclusion and Recommendation

Phase 4 is the final phase in the development of a suitable transformation model for FM that contributes to the field of Built Environment studies. There is an explicit balance among strategic, tactical and operational levels to produce an innovative model which contributes knowledge to many parties involved.

4.3 Conceptualization of Research Design

This study focuses on explanatory research and therefore it is important to create the conceptual framework to carry out the research systematically and explains the summary of the overall research and the benefits towards various scopes and elements as well as the measurements techniques that is used in this research.

Besides, the output of this research is the development of the transformation strategies that has the knowledge contribution towards the FM industry and achieves the objectives and aims of this research. It is focused on both quantitative and qualitative method. The main purpose of the conceptual framework is how the research problems will be best explored in this study as well to foresee the relationship between the different variables as an assumption to guide the research plan.

Therefore, this conceptual framework explains the gaps involved in FM current situation and to remedy this situation, measurement techniques such as observation, questionnaires and in-depth interview were carried out. AMOS is applied to create the Structural Equation Modeling (SEM) to foresee the relationship among independent variable, dependent variable and moderating variable as explained in the theoretical framework (Figure 3.7) to achieve the research objectives. By testing the research hypotheses it is hope that the managerial elements will give an impact towards FM performance that contributes to effective building performance, sustainability, investment, customer satisfaction, increase organization identity and image, innovation, work productivity, health and safety and business environment.

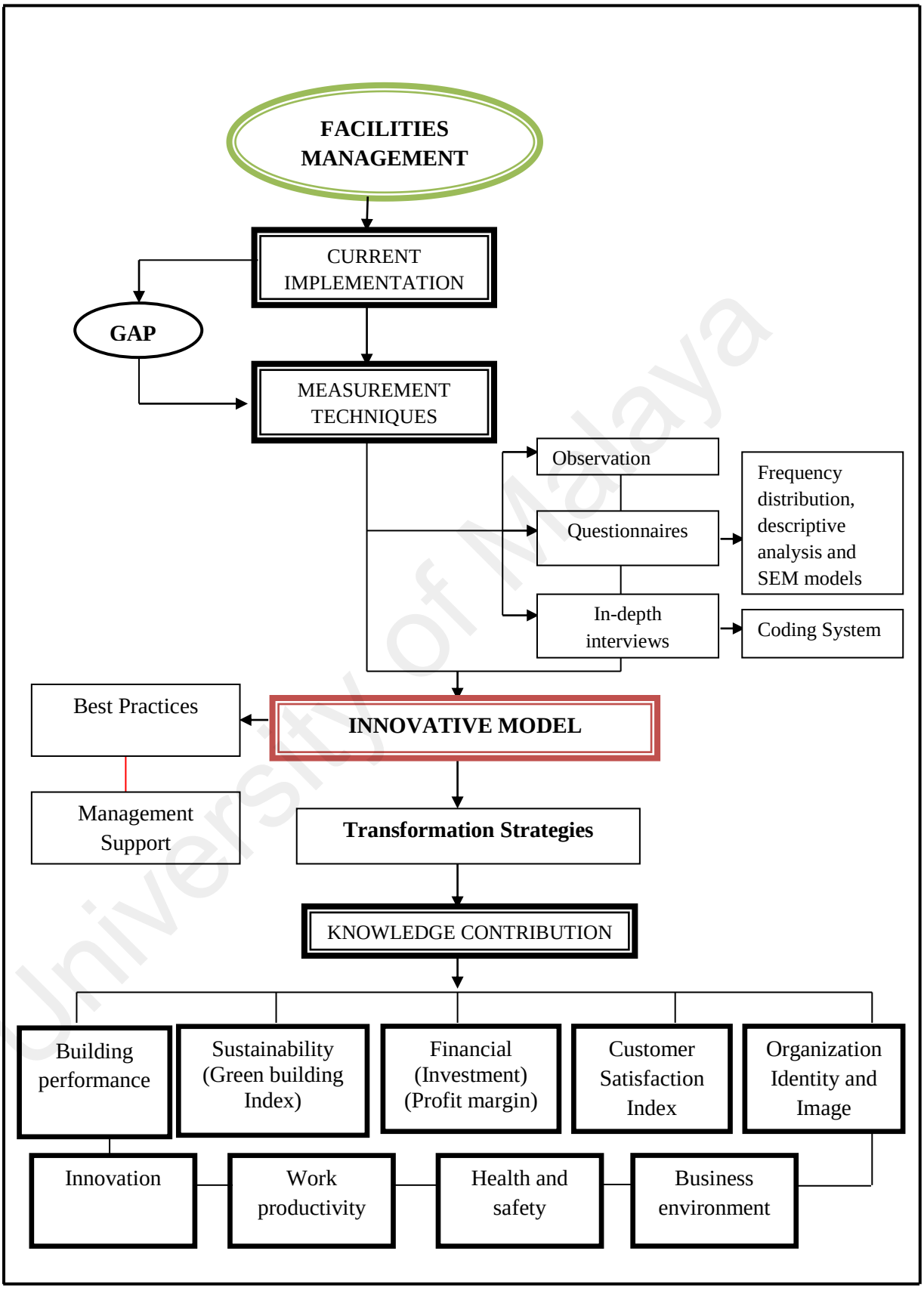


Figure 4.6: Conceptual Framework for FM Transformation Strategies

4.4 Summary

This chapter explains how the study was conducted to achieve the objectives and to test the hypotheses. The four phases in this study had been described. The phases are: the Early Research Phase, the Data Collection Phase, the Data Analysis Phase, and the Conclusion and Recommendation Phase. It is hope that the findings of the data analyses described will contribute towards developing relevant transformational strategies to remedy the FM current situation in Malaysia.

CHAPTER 5

FINDINGS AND DISCUSSION

5.1 Introduction

This chapter presents the findings and triangulation discussion towards the development of FM transformation strategies to achieve the research objectives respectively. It reports the results from both quantitative and qualitative methods that have been derived by applying the Sequential Explanatory Design created by Creswell (2003). The quantitative data were obtained from questionnaire survey distributed to respondents from the field of built environment that practice Facilities Management in their organization as a support business. For the quantitative results, frequency distributions, descriptive analysis as well as Structural Equation Modelling (SEM) were applied to analyse the samples to obtain an optimum results.

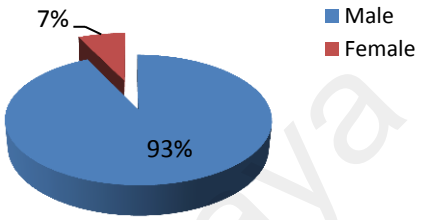
Furthermore, SEM is a statistical technique for testing causal relations where it allows both confirmatory and exploratory modelling; meaning it is suited to both theory testing and theory development. Finally, semi-structured interviews were held with experts from Facilities Management to verify the quantitative results and identify the trend of analysis towards developing the transformation strategies for Facilities Management in Malaysia.

5.2 Results and Discussion

5.2.1 Demographical Information

Table 5.1: Gender of Sample Profile

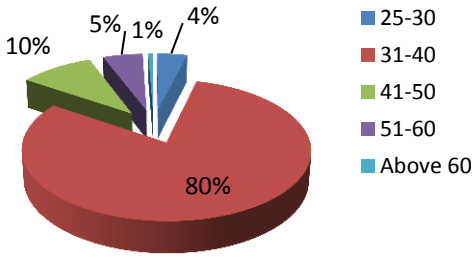
Group	Frequency (N)	Percentage (%)
Male	144	92.9
Female	11	7.1



From 155 questionnaires distributed, 144 useful responses were received: the majority of respondents were male (93%), while only 11 were female (7%). Therefore, the sample for this study is dominated by males.

Table 5.2: Age Group of Sample Profile

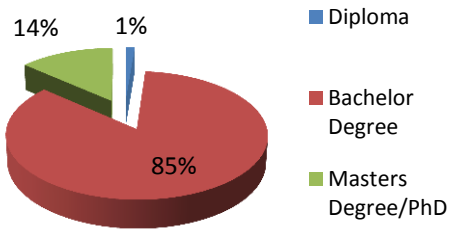
Group	Frequency (N)	Percentage (%)
25-30	6	3.9
31-40	125	80.6
41-50	15	9.7
51-60	8	5.2
>60	1	0.6



Most of the respondents (80%) were 31 to 40 years old, 10% were aged from 41 to 50 years old, 4% were from 25 to 30 years old and the remainder were 51 and above years old. Thus, the sample of this study consists mainly of respondents aged between 31 to 40 years old.

Table 5.3: Educational Level of Sample Profile

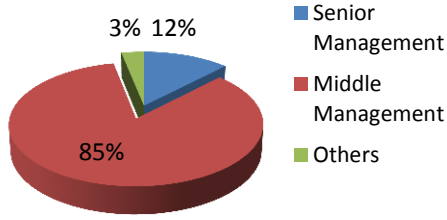
Group	Frequency (N)	Percentage (%)
Diploma	2	1.3
Bachelor	132	85.2
Master's Degree/PhD	21	13.5



The respondents were also asked to specify their educational qualification. The majority of the respondents (85%) have a Bachelor degree, followed by Master degree/PhD (14%) and Diploma (1%). Educational level is important in this study to categorize the managerial levels which consist of senior management and middle management.

Table 5.4: Current Post of Sample Profile

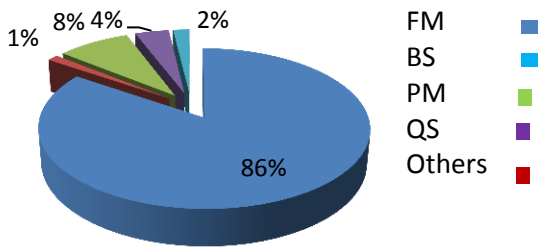
Group	Frequency (N)	Percentage (%)
Senior Management	19	12.3
Middle Management	131	84.5
Others	5	3.2



In specifying the current post of the respondents, 85% of the respondents hold posts in middle management; 12% are from senior management and the remainder are in other positions (3%). The respondents in this study are, therefore, predominantly from middle management positions.

Table 5.5: Field of Work of Sample Profile

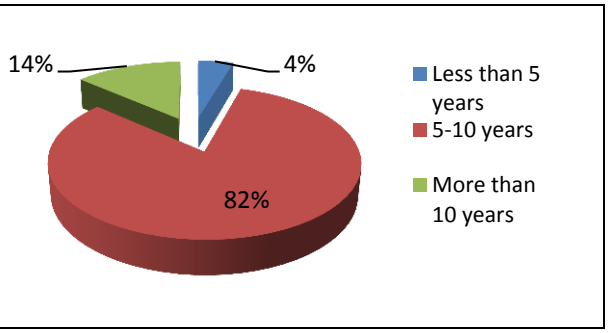
Group	Frequency (N)	Percentage (%)
FM	131	84.5
BS	2	1.3
PM	13	8.4
QS	6	3.9
Others	3	1.9



In specifying the field of work of the respondents, most of them (86%) are practicing in Facilities Management; 8% of respondents are in Property Management, Valuation and Estate Agency, 4% of respondents are in Quantity Surveying and 4% of respondents are in Building Surveying and other fields. Thus, the sample of this study is mostly dominated by respondents in Facilities Management field. Therefore, the responses on the questionnaire are reliable.

Table 5.6: Years of Experience in Current Organization of Sample Profile

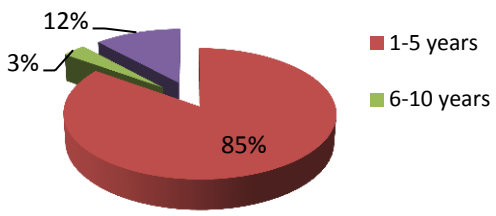
Group	Frequency (N)	Percentage (%)
Less than 5 years	7	4.5
5-10 years	127	81.9
More than 10 years	21	13.5



The respondents were also asked about the length of experience in their current organization. Most of the respondents (82%) stated that they have 5 to 10 years of experience in their current organization; 14% have more than 10 years of experience and approximately (4%) have fewer than 5 years' experience in their current organization. Therefore, the sample is dominated by respondents with 5 to 10 years of experience in their current organizations.

Table 5.7: Experience in Managing Assets or Facilities of Sample Profile

Group	Frequency (N)	Percentage (%)
1-5 years	132	85.2
6-10 years	5	3.2
More than 10 years	18	11.6



Respondents were also asked to specify their experience in managing assets or facilities. The majority of respondents (85%) stated that they have 1 to 5 years of experience in managing assets or facilities; 12% have more than 10 years of experience; 3% have 6 to 10 years of experience; therefore, the sample of this study is dominated by respondents with 1 to 5 years of experience in managing asset or facilities.

Table 5.8: Category of Company of Sample Profile

Group	Frequency (N)	Percentage (%)
Private L.C	130	83.9
Public L.C	4	2.6
G.A	18	11.6
G.L.C	1	0.6
Others	2	1.3

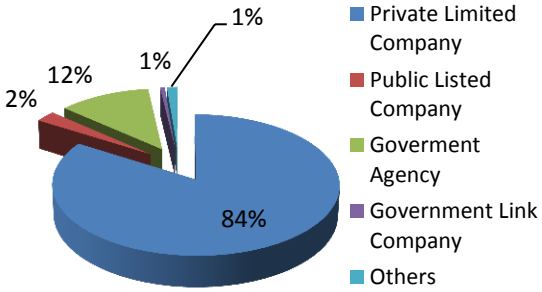
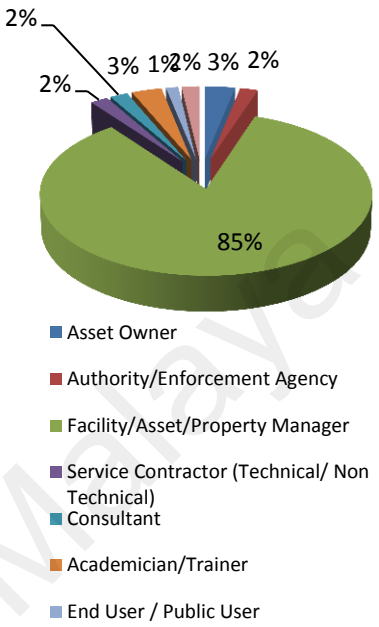


Table 5.8 shows the category of company. From 155 distributed questionnaires, 130 useful responses were received from private limited companies (84%) and an additional 18 from government agencies (12%). The remaining responses were received from public listed companies (3%), government linked companies (0.6%) and other companies (1%). Thus, the sample is dominated by respondents from private limited companies.

Table 5.9: Involvement in Managing Assets or Facilities of Sample Profile

Group	Frequency (N)	Percentage (%)
Asset Owner	5	3.2
Authority/ E.A	3	1.9
FM/PM/AM	131	84.5
Service Contractor	3	1.9
Consultant	3	1.9
Academician/ Trainer	5	3.2
End User / Public User	2	1.3
Others	3	1.9



Finally, respondents were asked to specify their involvement in managing assets or facilities. As can be seen in Table 5.9, 85% of them are involved in facility/asset/property management. Meanwhile, 3% of respondents are asset owners, 3% are academicians/trainers and 2% of respondents are involved in managing other assets or facilities. Therefore, most respondents are involved in facility/asset/property management. The frequency analysis identified that most respondents were from a FM background. This helped ensure the capture of effective responses and quality data.

5.2.2 Statement Describing Facilities Management

Table 5.10: Facilities Management in the Malaysian Context

Statement	Mean Score
A strategic and integrated management of facilities	4.026
A multi- discipline profession ensuring continual satisfactory functionality of assets	4.090
An integration of multi-disciplinary activities	3.890
The managing of multi-disciplinary activities to ensure continuous functionality	4.039

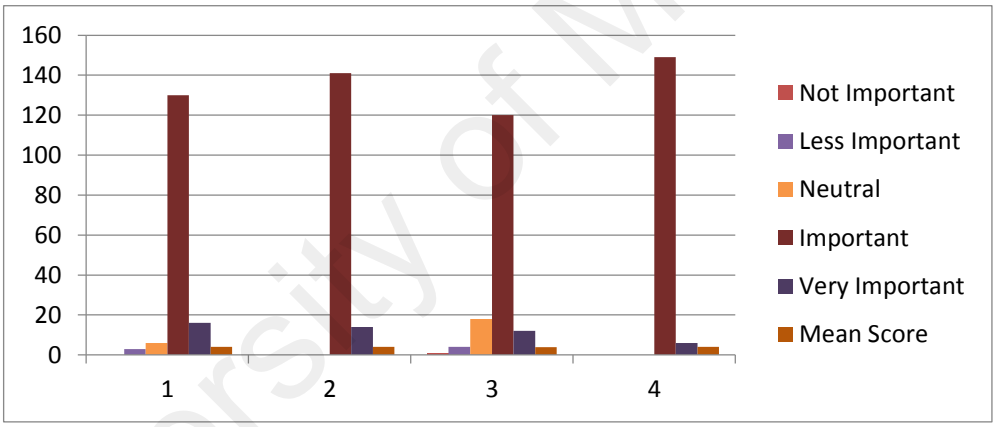


Figure 5.1: Facilities Management in the Malaysian Context

Table 5.10 and Figure 5.1 show the mean score for each statement. This statement has been adopted from CIDB (2010) that focuses only on Construction Management perception. Whereas, in this study, respondents from multi-disciplinary in built environment have participated to foresee the FM in the Malaysian context in detail. As we can see the highest mean score is 4.039 which focus on the multi-disciplinary activities to ensure continuous functionality of the built environment by linking and integrating people, place, process and technology.

Table 5.11: Respondents Perceptions towards FM Field

Perception	Mean Score
FM has to establish its strategic effectiveness.	4.161
FM managers should be placed at the strategic level to foresee the effect of changes in the organization.	4.019
There is a need in FM for collaborative strategy in developing the system and people within organization.	4.232
FM is not only about operation and maintenance but others non-technical aspects are equally important too.	4.077
There is an overlook on FM best practices, people, skills and others aspects.	4.032
We are lacking of appropriate guidelines or FM strategic framework in Malaysia	4.284
There is a lack of knowledge in FM results in term of poor performance of properties	4.013
There is a need for transformation strategies for FM in Malaysia	4.129

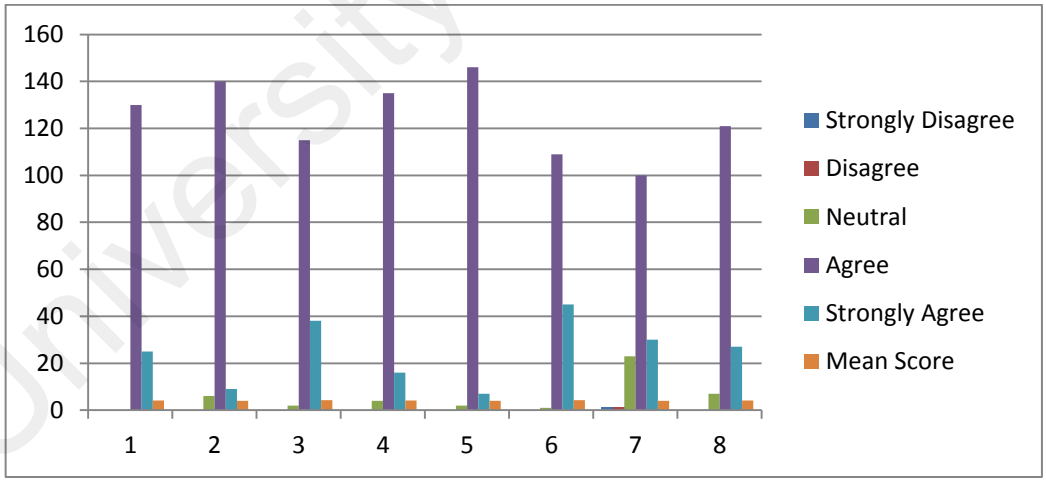


Figure 5.2: Respondents Perception towards FM Field

Table 5.11 and Figure 5.2 show the perception towards FM field. The highest mean score is 4.284 which focus on lacking of appropriate guidelines of FM strategic framework in Malaysia. Therefore, there is a need to develop transformation strategies for FM in Malaysia.

Table 5.12: Factors which Stimulate the Growth of FM

Factor	Attributes	Mean Score
General Factors	Global Competition	4.084
	Information Technology	4.077
	High Cost of Space	4.045
	Employee Expectations	3.994
	Cost of Mistakes	4.019
Regional Factors	Regional Economy	4.116
	Property Market	4.071
	Market Maturity	3.968
	Procurement System	4.032
	General Business Environment	4.032

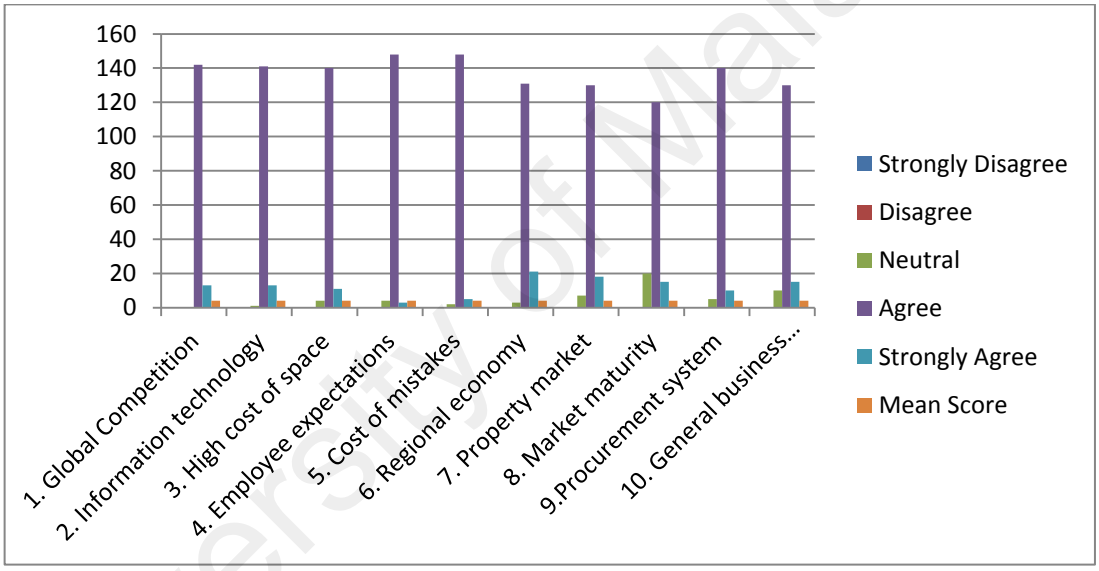


Figure 5.3: Factors which Stimulate the Growth of FM

Table 5.12 and Figure 5.3 show the factors stimulate the growth of FM. The factors are divided into general factors and regional factors that have been identified by Becker (1990) and Moore et.al (2004) implemented these factors to see the development of FM in South – East Asian countries. In this study, the factors were adopted as moderating variable between Organizational Behaviour and FM performance. The highest mean score is 4.116 which focus towards the regional economy. This creates the stimulus for companies to consider business efficiency as well as outsourcing to achieve business goals and objectives for a greater profit margin.

5.2.3 Descriptive Statistics for First-order Constructs

Table 5.13: Results of Descriptive Statistics for First-Order Constructs

Variable	Mean (M)	Std. Deviation (SD)	Std. Error of (SEM)
Organizational Process (OP)	4.45	0.39	0.03
Team Dynamics (TD)	4.77	0.44	0.04
Foundation of Employee (FE)	3.63	0.30	0.02
Contemporary Challenges (CC)	4.16	0.34	0.03
Program Development (PD)	3.97	0.36	0.03
Interpersonal Skills (IPS)	3.86	0.34	0.03
Informational Skills (INS)	4.10	0.34	0.03
Decisional Skills (DS)	4.43	0.37	0.03
Technical (TC)	4.59	0.45	0.04
Financial (FN)	3.04	0.31	0.03
Management (MN)	4.20	0.44	0.04
Quality Control (QC)	4.27	0.48	0.04
Quality Improvement (QI)	3.32	0.33	0.03
Quality Assurance (QA)	3.78	0.46	0.04
Workforce Learning (WL)	4.50	0.42	0.03
Forecasting Renewal Cost (FR)	3.63	0.35	0.03
Technical Process (TP)	4.10	0.39	0.03
Facilities Asset Management (FM)	3.57	0.39	0.03
General Factors (GF)	3.56	0.33	0.03
Regional Factors (RF)	4.05	0.39	0.03

The standard deviation was applied as a dispersion index to indicate the degree to which individuals within each variable differed from the variable mean as shown is Table 5.13. Among the studied variables, the variable Quality Control deviated most from the mean (SD = 0.48).

This standard deviation suggested a reasonably high variability in respondents' perceptions towards Quality Control. In other words, the survey respondents varied more widely among each other for this variable than for any other variable. On the other hand, Foundation of Employee was the variable with the lowest deviation from the mean with a standard deviation of 0.30.

The standard error was applied as the other dispersion index to indicate the degree to which each variable mean deviates from its relative population mean. Among the studied variables, the mean of Foundation of Employee deviated the least from its population mean (SEM = 0.02). Figure 5.4 illustrates the means of all first-order constructs together with their standard deviations. Table 5.13 indicates that the means of some variables were below the midpoint level (3) on the 5-point scale, while others were above it.

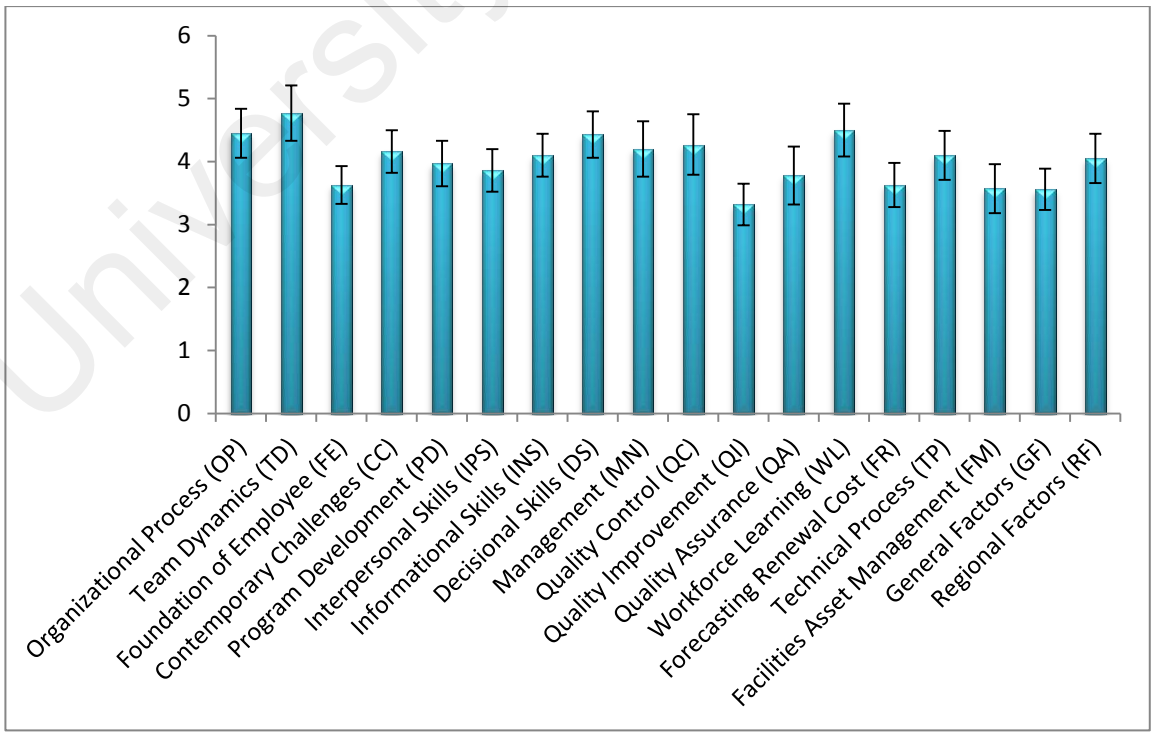


Figure 5.4: Means and Standard Variations of First-Order Constructs

The highest mean rating was achieved by Team Dynamics (M = 4.77). Respondents chose team dynamics as an important component that will collaborate the strategic, tactical, and operational level. Team dynamics is essential to integrate Facilities Management for optimum level of performance. Followed by technical (M = 4.59) which focuses on the Facilities Management competency areas where technical capabilities is needed to increase the productivity as well as achieve the Facilities Management business objectives. Respondents chose financial as least important because other measures were more significant to increase the profit margin that will boost the financial of Facilities Management organization.

5.2.4 Descriptive Statistics for Second – Order Constructs

Table 5.14: Results of Descriptive Statistics for Second-Order Constructs

Variable	Mean (M)	Std. Deviation (SD)	Std. Error of (SEM)
Organization Environment (OE)	4.18	0.28	0.02
Competitive Skills (CS)	2.86	0.19	0.02
FM Competency Areas (FMP1)	2.71	0.21	0.02
FM Quality (FMP2)	2.89	0.24	0.02
Trails for FM Continuity (FMP3)	3.62	0.29	0.02
Management Support to stimulate the growth of FM (MS)	3.43	0.29	0.02

The standard deviation was applied as a dispersion index to indicate the degree to which individuals within each variable differ from the variable mean as shown in Table 5.14. Among the studied variables, the individual values of Trails for FM Continuity and Management Support to stimulate the growth of FM deviated the most from their means (SD = 0.29).

In contrast, the lowest deviation from mean was for Competitive Skills, with a standard deviation of 0.19. Finally the standard error was applied as the other dispersion index to indicate the degree to which each variable mean deviate from its relative population mean. The standard error of mean of all variables was 0.02.

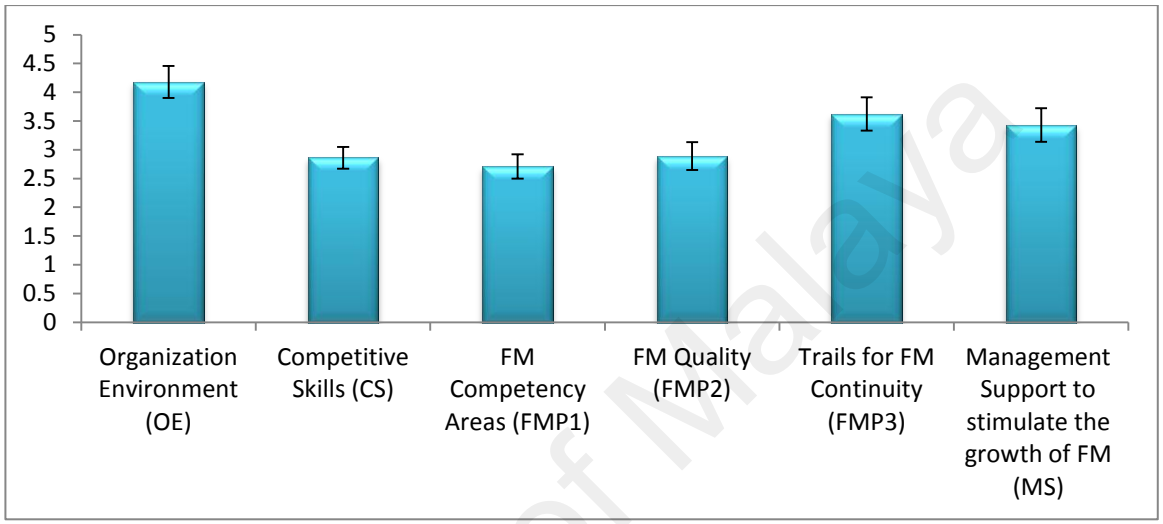


Figure 5.5: Means and Standard Variations of Second-Order Constructs

Figure 5.5 illustrates the means of all second-order constructs together with their standard deviations Using the mean as a measure of central tendency, it was apparent that, with the exception of the three variables Competitive Skills, FM Competency Areas and FM Quality, the other variables were above their midpoint level (3). The highest mean rating was achieved by Organizational Environment (M = 4.18) which consisted of Organizational Process, Team Dynamics, Foundation of Employee, Contemporary Challenges and Interventions. Organizational Environment is a significant component that will influence the overall organization to be more productive and to help to develop quality FM business strategies. The lowest mean rating was FM competency areas with mean value 2.71. Among all the variables in second - order constructs respondents feel that the contribution of FM competency areas is slightly low compare to other variables that have gave great impact on FM performance.

5.2.5 Descriptive Statistics for Third – Order Constructs

Table 5.15: Results of Descriptive Statistics for Third-Order Constructs

Variable	Mean (M)	Std. Deviation (SD)	Std. Error of (SEM)
Organizational Behaviour (OB)	2.67	0.17	0.01
Facilities Management Performance (FMP)	2.60	0.19	0.02

As shown in Table 5.15, the means of both variables were below the midpoint level (3). The standard deviations were 0.17 and 0.19 for Organizational Behaviour and Facilities Management Performance, respectively. The standard of errors was relatively small for the variables, at 0.01 for Organizational Behaviour and 0.02 for Facilities Management Performance.

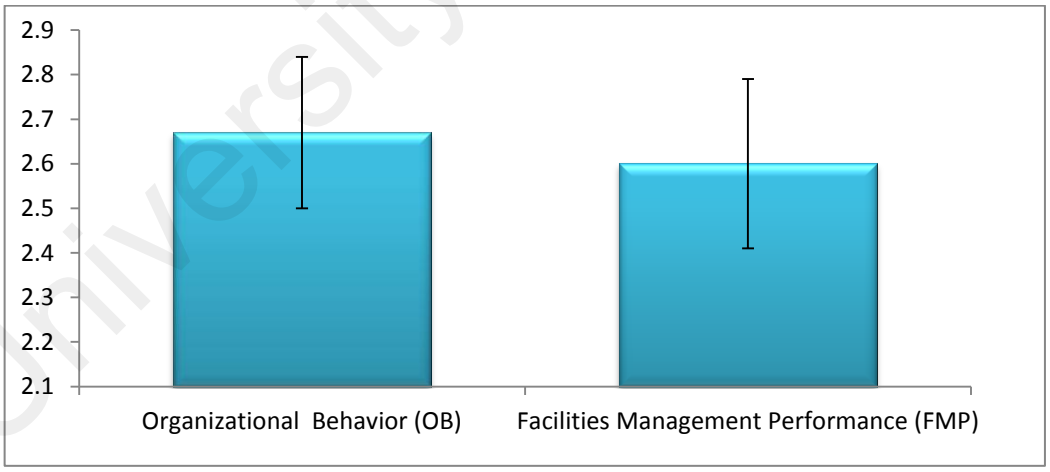


Figure 5.6: Means and Standard Variations of Third-Order Constructs

Figure 5.6 shows the means of all third order constructs together with standard deviations. The mean for Organizational Behaviour is 2.67 and the mean for Facilities Management Performance is 2.60 respectively.

5.2.6 Correlation Test within Exogenous Variables

The Pearson correlation was deployed to examine the importance, strength and direction of the inter-relationships between the exogenous variables that has been categorized in the theoretical framework. Table 5.16 shows the correlations between these variables.

Table 5.16: Correlation Coefficients between Exogenous Variables

	OP	TD	FE	CC	PD	IPS	INS	DS
Organizational Process (OP)	1							
Team Dynamics (TD)	.50*	1						
Foundation of Employee (FE)	.57*	.38*	1					
Contemporary Challenges (CC)	.55*	.55*	.50*	1				
Program Development (PD)	.64*	.63*	.55*	.52*	1			
Interpersonal Skills (IPS)	.39*	.29*	.28*	.28*	.40*	1		
Informational Skills (INS)	.50*	.41*	.36*	.31*	.53*	.53*	1	
Decisional Skills (DS)	.58*	.41*	.34*	.41*	.56*	.56*	.65*	1

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

The results indicate that the relationships between all eight exogenous variables were statistically significant at the 0.01 level. The sign of the Pearson Correlation Coefficient (r) represents the direction of the correlation. Based on the results, all the variables exhibited positive relationships with each other; thus, an increase in one of the variables will be matched with a corresponding increase in the other variables, and vice versa. Table 5.16 shows that of 28 correlations between the 8 exogenous variables, 3 correlations were "strong" (pink zone), 17 correlations were "moderate" (green zone) and 8 remaining correlations were "weak" (yellow zone). The strongest correlation occurred between Informational Skills and Decisional Skills, with a correlation coefficient of 0.65. Interpersonal Skills had the lowest correlations when paired with Foundation of Employees and Contemporary Challenges, both producing correlation coefficients of 0.28.

5.3 Structural Equation Modelling (SEM)

5.3.1 Measurement Model (CFA) – Stage 1

The three individual CFA models are:

- A CFA model for **Organizational Behaviour,** which comprises two second-order constructs eight first-order constructs and a total of 38 measurement items (see Table 3.6).
- A CFA model for **Facilities Management Performance,** which comprises three second-order constructs ten first-order constructs and a total of 66 measurement items (see Table3.6).
- A CFA model for **Management Support to stimulate the growth of FM,** which comprises two first-order constructs and a total of 10 measurement items (see Table3.6).

To test the construct validity of each individual construct in this study, the CFA model was used. The results of assessment of the individual CFA for the three aforementioned models are reported follows.

5.3.1.1 A CFA Model for Organizational Behaviour

This model was constructed from 38 items used to measure eight first-order constructs (i.e., OP, TD, FE, CC, PD, IPS, INS and DS) and two second-order constructs (i.e., Organization Environment and Competitive Skills). The initial Organizational Behaviour model with all 38 items can be seen in Appendix D-1.

(i) Standardized Loadings of the Model's Items

Given the normal distribution of the data, the CFA model was run for the constructs in Organizational Behaviour variable. The results of assessing the standardized loadings of the model's items showed that the factor loadings of three items (OP5, PD7 and DS3) were below the cut-off value of 0.5 (0.17, 0.14 and 0.18 respectively). Therefore, these items were removed from their related constructs. The revised model with 35 items was again tested to ensure that the factor structure remained stable (Appendix D-3). As a result, the second standardised factor loading for all items and constructs registered more than 0.5, ranging from 0.61 to 0.82. Appendix D-2 shows the deleted items from the model and also displays the recalculated factor loadings for the remaining items.

(ii) Goodness of Fit Indices

The measurement model for Organizational Behaviour provided a poor fit for the second measurement model with 35 remaining items (Appendix D-3). The chi-square was significant (χ^2 = 812.742, df = 551, p=.000). However, the GFI was 0.785, which was below the cut-off of 0.9; the AGFI was 0.754 which was also below the cut-off of 0.8. The other fit indices were satisfactory; CFI= 0.886, IFI= 0.888, TLI = 0.877, RMSEA = 0.057 and χ^2 / df = 1.475. Therefore the model needed to be modified through examining the modification indices and standardized residual covariance. Consequently, three items (OP5, PD7 and DS3) with insufficient factor loadings below the cut-off value (0.05), were removed from the model. Some items still showed a high discrepancy of covariance between their related errors (M.I. above 15), indicating the presence of redundant items in the model.

For instance, the Modification Indices (MI) value of covariance between the errors of 'TD1' and 'TD2' was 17.76. This means, if the analysis were repeated, treating the covariance between the error of these two items as a free parameter would result in the discrepancy falling by at least 17.76, since both items loaded on the same construct. Thus the covariance between their errors refers to within-construct error covariance. The measurement model indicated that five more coupled items (i.e. OP3&4, FE1&2, FE3&4, PD4&6 and IPS2&5) showed high within-construct error covariance. Such within-construct error covariance terms are threats to construct validity (DeVellis, 2011). Drawing correlation paths between these errors and allowing these paths to be estimated (freeing them) will reduce the χ^2 and improve the model fit (Hair, Anderson, Tatham, & Black, 1995). Therefore, it was decided to modify the model by drawing a correlation path between these items' errors. Furthermore, the model indicated covariance between the error terms of indicator variables' loading on different constructs.

Here, the high M.I covariance values of the errors of (IPS3 and TD3) with the item errors of other constructs refer to between-construct error covariance. Therefore, the decision was taken to modify the model by eliminating these two items from the model rather than drawing a correlation path between their items' errors (Zainudin, A. 2012). The examination of standardized residual covariance indicated that one item (i.e. PD5) had an unacceptably high absolute value above 2.58, compared to other items in the model. Thus, it was decided to modify the model by discarding this item from the model. After iteratively removing these items, the CFA model with 32 remaining items was applied once again. The results of the goodness of fit indices of the modified measurement model are reported in Table 5.17.

Table 5.17: GOF Indices of Modified Measurement Model for Organizational Behaviour

Fit index	Modified Model	Recommended values	Source
Df	449		
CMIN (χ^2)	545.021		
p-value	**0.001**	> 0.05	
χ^2/df	1.214	≤ 3.00	Bagozzi and Yi (1988)
GFI	**0.878**	≥ 0.90	Hoyle (1995)
AGFI	0.802	≥ 0.80	Chau and Hu (2001)
CFI	0.951	≥ 0.90	Bagozzi and Yi (1988); Byrne, 1998
TLI	0.946	≥ 0.90	Hair et al., (2006); Ho, (2006)
IFI	0.952	≥ 0.90	Hair et al., (2006); Ho, (2006)
RMSEA	0.038	≤ 0.10 (.03 to .08)	Schumacker and Lomax, 2010

The results of the GOF showed that the chi-square is significant at the 0.001 level. The GFI was 0.878, which was slightly lower than the cut-off 0.9 but still above 0.85. Normally, GFI is more heavily impacted by a relatively small sample size (below 200, as in this study), the GFI is more appropriate when the sample size is small. Further, the value for GFI must lie between 0.85 and 0.9. Therefore, the obtained GFI was satisfactory. After adjustment for the degrees of freedom relative to the number of variables, the adjusted GFI (AGFI) was 0.802 which was above the cut-off point of 0.80. It indicated that the model predicts 80% of the variances and covariance in the survey data. Based on the CFI, TLI, and IFI indices with values more than the cut off value of 0.9, the model had good fit of data. Further, the root-mean-square error of approximation (RMSEA) was 0.038 which was within the perfect fit range. Additionally, the Relative CMIN/df (1.214) was less than 3, showing the good fit of the model. Given that the modified model for Organizational Behaviour fits the data adequately, no further adjustments were required.

(iii) Reliability and Convergent Validity

Once the uni-dimensionality of the constructs was achieved, each of the constructs was assessed for their reliability and validity. The number of six (6) deleted items is not high compared to the total number of items in the constructs which is 38 items. Furthermore, their removal does not significantly change the content of the constructs as they are conceptualized. As shown in Appendix D-4, the remaining indicators have high factor loadings ranging from 0.6 to 0.85, indicating that the meaning of the factors has been preserved by these indicators.

Appendix D-4 also shows that the AVE, which reflects the overall amount of variance in the indicators accounted for by the latent construct, was above the cut-off 0.5 and for all constructs values ranged from 0.500 to 0.602. The only exception was for Organization Environment, which registered an AVE of 0.482, slightly below the cut-off 0.5 but still above 0.45.

Therefore the decision was to optimistically accept this value. The Composite Reliability values, which depict the degree to which the construct indicators indicate the latent construct, exceeded the value of 0.7 and for all construct which ranged from 0.752 to 0.853. The Cronbach's Alpha values, which describe the degree to which a measure is error-free, ranged from 0.778 to 0.849, which were above the threshold of 0.7. Therefore, the achieved Cronbach's Alpha for all constructs was considered as sufficiently error-free.

(iv) Discriminant Validity

Table 5.18 represents the discriminant validity of the modified measurement model for Organizational Behaviour. The inter-correlation between the two second-order constructs in the Organizational Behaviour construct (i.e., Organization Environment and Competitive Skills) was 0.75, below the threshold of 0.85, which was satisfactory (see Figure 5.7). Further, as shown in Table 5.18, the square correlation is less than the square root of the average variance extracted by the indicators, demonstrating good discriminant validity between these factors.

Table 5.18: Discriminant Validity of Modified Measurement Model for Organizational Behaviour

	Organization Environment	**Competitive Skills**
Organization Environment	**0.694**	
Competitive Skills	0.563	**0.711**

Note: Diagonals represent the square root of the average variance extracted while the other entries represent the square correlations.

Upon examining goodness of fit of data, convergent validity and discriminant validity of the modified measurement model, it can be concluded that the final modified measurement scale to assess the constructs and their relative items in Organizational Behaviour construct was reliable and valid. Figure 5.7 depicts the modified and final measurement model for Organizational Behaviour, with standardized factor loadings for the 32 remaining items.

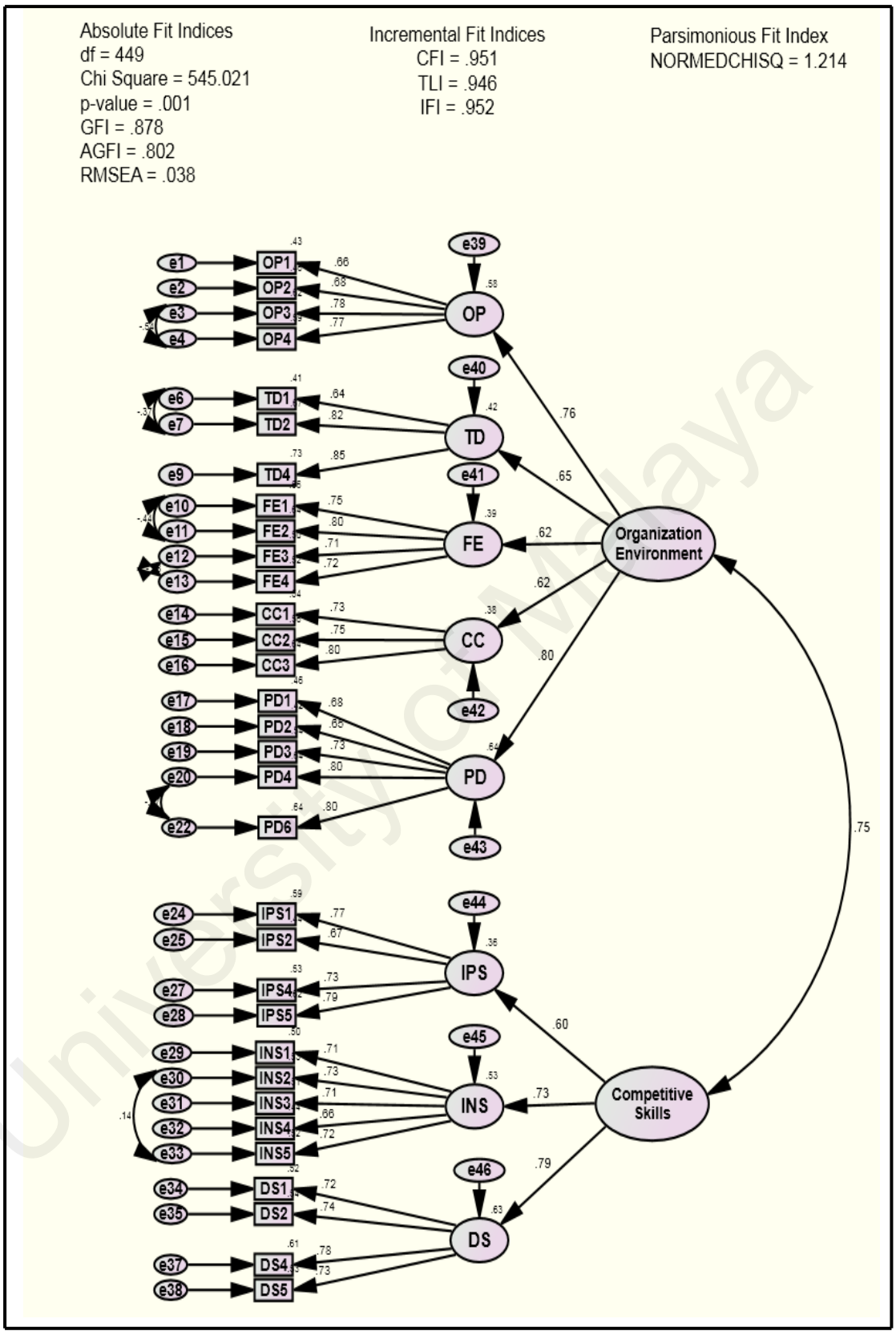


Figure 5.7: Modified Measurement Model for Organizational Behaviour with Remaining 32 Items

5.3.1.2 A CFA Model for Facilities Management Performance

This model was made up of 66 items to measure ten first-order constructs (i.e. TC, FN, MN, QC, QI, QA, WL, FR, TP and FM) and three second-order constructs (i.e. FM Competency Areas, FM Quality and Trails for FM Continuity). The initial Facilities Management Performance model with all 66 items can be seen in Appendix E-1.

(i) Standardized Loadings of the Model's Items

With confirmation of the normal distribution of the data, the CFA model was carried out to evaluate the constructs in the Facilities Management Performance construct. The results of assessing the standardized loadings of the model's items showed that the factor loadings of 17 items (FN1, QC5, QC7, QC11, QI1, QI3, QI5, QI8, QA3, QA6, QA7, QA9, QA11, WI2, FR2, FR5 and FM5) were below the cut-off 0.5. Therefore, these items were removed from their related constructs. The revised model with 49 items was re-tested to determine whether the factor structure remained stable (Appendix E-3). In the re-test, the factor loading for all items and constructs was more than 0.5; it ranged from 0.53 to 0.91. Appendix E-2 shows the deleted items from the model and also presents the recalculated factor loadings for the remaining items.

(ii) Goodness of Fit Indices

The measurement model for Facilities Management Performance provided a poor fit for the second measurement model with the 49 remaining items (Appendix E-3). The chi-square was significant (χ^2 = 1508.842, df = 1114, p=.000), and the GFI was 0.732, less than the cut-off value of 0.9. The AGFI was 0.705, also below the cut-off value of 0.8.

However, the other fit indices were satisfactory: CFI= 0.884, IFI= 0.886, TLI = 0.878, RMSEA = 0.049 and χ^2 / df = 1.354. Therefore the model needed to be modified by examining the modification indices and standardized residual covariance. Although 17 items with insufficient factor loadings below the cut-off 0.05 had already been removed from the model, some items still showed a high discrepancy in covariance between their related errors (M.I. above 15), indicating the presence of redundant items in the model.

For example, the Multiple Imputation (M.I) value of covariance between the errors of 'FM3' and 'FM4' was 20.26. This means that if the analysis is repeated, treating the covariance between the errors of these two items as a free parameter, the discrepancy will fall by at least 20.26. Both items loaded on the same construct. Thus the covariance between their errors refers to within-construct error covariance. The measurement model indicated that three more coupled items (i.e., TC3&4, MN4&5 and TP1&2) showed high within-construct error covariance. The within-construct error covariance terms are threats to construct validity (DeVellis, 2011). Drawing correlation paths between these errors and allowing these paths to be estimated (freeing them) would reduce the χ^2 and improve the model fit (Hair, Anderson, Tatham, & Black, 1995).

Therefore, it was decided to modify the model by drawing a correlation path between these items' errors. Furthermore, the model indicated covariance between the error terms of indicator variables loading on different constructs. Here the high M.I covariance values of the errors of (QC8, TC1 and FM2) with the items' errors of other constructs refer to between-construct error covariance.

Therefore, it was decided to modify the model by eliminating these three items from the model, rather than drawing correlation path between their items' errors (Zainudin, A. 2012). The examination of standardized residual covariance indicated that two items (i.e. MN3 and WI5) had unacceptably high absolute values (above 2.58) with other items in the model. Therefore, the model was further modified by discarding these two items from the model. After iteratively removing these items, the CFA model with 44 remaining items (Figure 5.8) was tested once again. The results of the goodness of fit indices of the modified measurement model are represented in Table 5.19.

Table 5.19: GOF Indices of Modified Measurement Model for Facilities Management Performance

Fit index	Modified Model	Recommended values	Source
Df	885		
CMIN (χ^2)	1028.206		
p-value	**0.001**	> 0.05	
χ^2/df	1.162	≤ 3.00	Bagozzi and Yi (1988)
GFI	**0.851**	≥ 0.90	Hoyle (1995)
AGFI	0.801	≥ 0.80	Chau and Hu (2001)
CFI	0.952	≥ 0.90	Bagozzi and Yi (1988); Byrne, 1998
TLI	0.949	≥ 0.90	Hair et al., (2006); Ho, (2006)
IFI	0.953	≥ 0.90	Hair et al., (2006); Ho, (2006)
RMSEA	0.033	≤ 0.10 (.03 to .08)	Schumacker and Lomax, 2004

The results of the GOF showed that the chi-square was significant at 0.001 level. The GFI was 0.851, which was slightly lower than the cut-off 0.9 but still above 0.85. the value for GFI must lie between 0.85 and 0.9. Therefore, the obtained GFI was satisfactory. After adjustment for the degrees of freedom relative to the number of variables, the adjusted GFI (AGFI) was 0.801, which was above the cut-off point of 0.80. This indicates that the model predicts 80% of the variances and covariances in the survey data.

Based on the CFI, TLI, and IFI indices with values more than the cut-off value of 0.9, the model had good fit of data. Further, the root-mean-square error of approximation (RMSEA) was 0.033, which was within the perfect fit range. Additionally, the Relative CMIN/df (1.162) was less than 3, showing the good fit of the model. Given that the modified model for Facilities Management Performance fit the data adequately, no further adjustments were required.

(iii) Reliability and Convergent Validity

Appendix E-4 sets out the results of the test for Cronbach's Alpha and convergent validity for the modified measurement model for Facilities Management Performance, with 44 remaining items. Although the number of twenty –two (22) deleted items (is relatively high compared to the total number of items in the construct which is 66 items, their removal does not significantly change the content of the constructs as they are conceptualized.

As shown in Appendix E-4, the remaining indicators have high factor loadings, ranging from 0.62 to 0.91, indicating that the denotation of the factors has been preserved by these indicators. Appendix E-4 also shows that the AVE, which reflects the overall amount of variance in the indicators accounted for by the latent construct, was above the cut-off value of 0.5 for all but one of the constructs, whose values ranged from 0.503 to 0.634. An exception was Quality Improvement (QI) which produced an AVE of 0.492, slightly below the cut-off 0.5, but still above 0.45. Therefore the decision was to optimistically accept this value.

The Composite Reliability values, which depict the degree to which the construct indicators indicate the latent construct, exceeded the recommended value of 0.7 for all constructs, which ranged from 0.764 to 0.901. The Cronbach's Alpha values, which describe the degree to which a measure is error-free, ranged from 0.76 to 0.9; thus all were above the threshold value of 0.7. Therefore, the achieved Cronbach's Alpha for all constructs was considered to be sufficiently error-free.

(iv) Discriminant Validity

Table 5.20 represents the discriminant validity of the modified measurement model for Facilities Management Performance**.** The inter-correlation between the three second-order constructs in Facilities Management Performance construct (i.e. FM Competency Areas, FM Quality and Trails for FM Continuity) were below the threshold 0.85, which was satisfactory (see Figure 5.8). Further, as shown in Table 5.20, the square correlation is less than the square root of the average variance extracted by the indicators, demonstrating good discriminant validity between these factors

Table 5.20: Discriminant Validity of Modified Measurement Model for Facilities Management Performance

	FM Competency Areas	FM Quality	Trails for FM Continuity
FM Competency Areas	**0.721**		
FM Quality	0.533	**0.760**	
Trails for FM Continuity	0.578	0.624	**0.751**

Note: Diagonals represent the square root of the average variance extracted, while the other entries represent the square correlations.

Upon examining goodness of fit of data for convergent validity and discriminant validity of the modified measurement model, it can be concluded that the final modified measurement scale to assess the constructs and their relative items in Facilities Management Performance construct was reliable and valid. Figure 5.8 depicts the modified and final measurement model for Facilities Management Performance with standardized factor loadings for the 44 remaining items (construct measures).

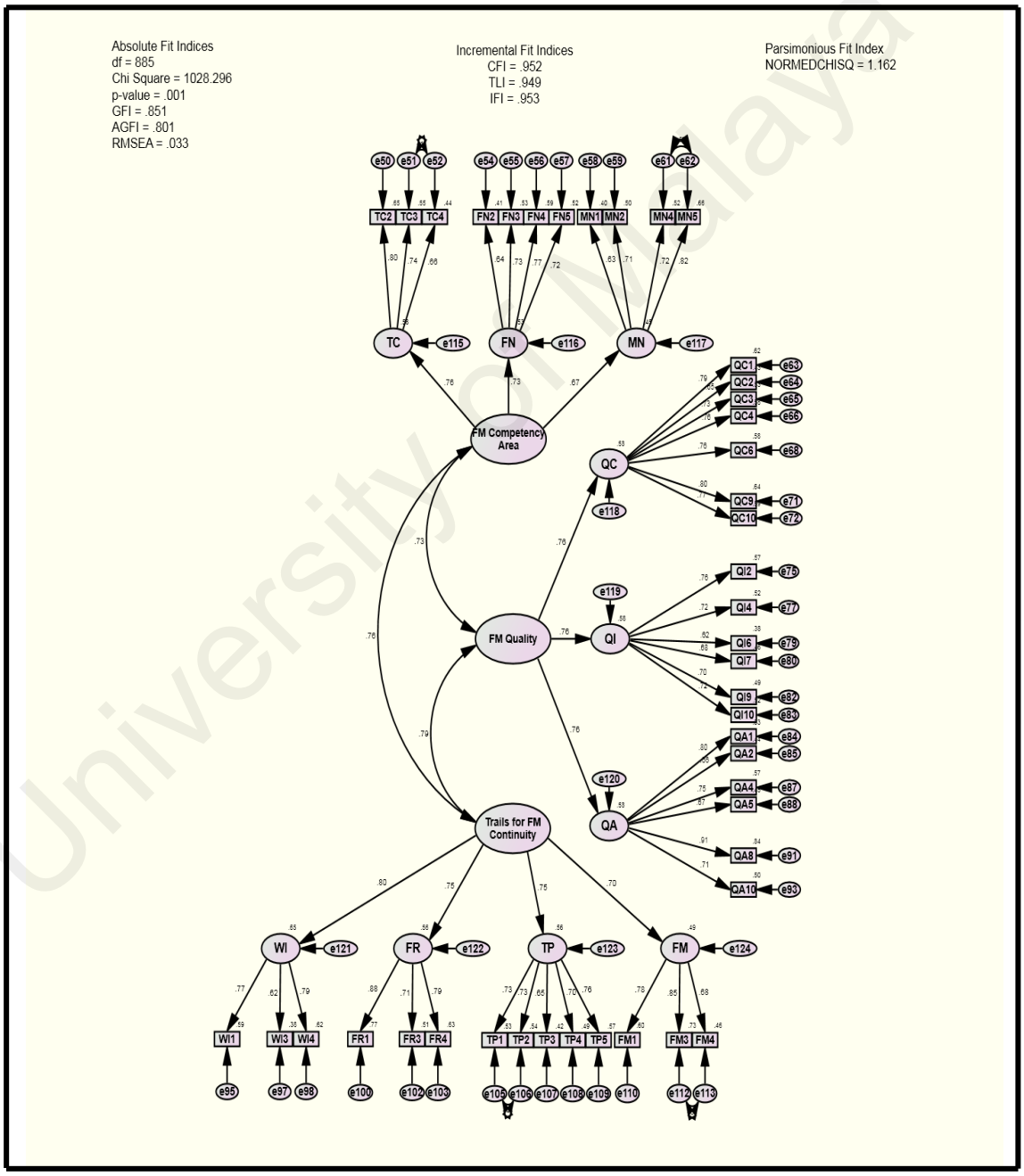


Figure 5.8: Modified Measurement Model for Facilities Management Performance with Remaining 44 Items

5.3.1.3 A CFA Model for Management Support (Factors Stimulating the Growth of FM Performance)

This model was constructed from 10 items that were used to measure two first-order constructs: General Factors (GF) and Regional Factors (RF). The initial Management Support model with all 10 items can be viewed in Appendix F-1.

(i) Standardized Loadings of the Model's Items

Upon confirmation of the normal distribution of the data, the CFA model was conducted for the sub-constructs in the Management Support construct. The results of assessing the standardized loadings of the model's items showed that the factor loadings of one item (GF5) was -0.09, which was well below the cut-off value of 0.5. Therefore, this item was removed from the construct. The revised model with 9 items (Appendix F-3) was again tested to ensure whether the factor structure remained stable. In this re-test, the second standardised factor loading for all items and constructs was more than 0.5, ranging from 0.69 to 0.79. Appendix F-2 shows the items deleted from the model and also represents the recalculated factor loadings for the remainder items.

(ii) Goodness of Fit Indices

The measurement model for Management Support provided a poor fit for the second measurement model with 9 remaining items (Appendix F-3). The chi-square was significant (χ^2 = 75.745, df = 26, p=.000). However, the TLI was 0.883, below the cut-off value of 0.9; However, the other fit indices were satisfactory: GFI= 0.907, AGFI=0.839, CFI= 0.916, IFI= 0.917, RMSEA = 0.057 and χ^2 / df = 2.913. Therefore the model needed to be modified through examining the modification indices and standardized residual covariance.

Although one item (GF5) with insufficient factor loading (below the cut-off 0.05) had already been removed from the model, some of the items still showed a high discrepancy of covariance between their related errors (M.I. above 15), indicating the presence of redundant items in the model. For instance, the M.I value of covariance between the errors of (GF3 and GF4) was 15.77. This means that if the analysis were repeated, treating the covariance between the error of these two items as a free parameter, the discrepancy would fall by at least 15.77.

Both items loaded on a same construct. Thus the covariance between their errors refers to within-construct error covariance. The measurement model indicated that one more coupled item (i.e., GF1&2) showed high within-construct error covariance. The within-construct error covariance terms are threats to construct validity (DeVellis, 2011). Drawing correlation paths between these errors and allowing these paths to be estimated (freeing them) will reduce the χ^2 and improve the model fit (Hair, Anderson, Tatham, & Black, 1995). Therefore, the decision of modifying the model was to draw a correlation path between these items' errors.

The model did not show any covariance between the error terms of indicator variables loading on different constructs. Further, the examination of standardized residual covariance indicated that no item had an unacceptably high absolute value above 2.58 in comparison to other items in the model. Therefore, the decision of modifying the model was to retain all remainder items. After linking within-construct error covariance by correlation path, the CFA model with 9 remaining items was performed once again. The results of the goodness of fit indices of the modified measurement model are represented in Table 5.21.

Table 5.21: GOF Indices of Modified Measurement Model for Management Support

Fit index	Modified Model	Recommended values	Source
Df	24		
CMIN (χ^2)	42.148		
p-value	**0.012**	> 0.05	
χ^2/df	1.756	≤ 3.00	Bagozzi and Yi (1988)
GFI	**0.940**	≥ 0.90	Hoyle (1995)
AGFI	0.888	≥ 0.80	Chau and Hu (2001)
CFI	0.969	≥ 0.90	Bagozzi and Yi (1988); Byrne, 1998
TLI	0.954	≥ 0.90	Hair et al., (2006); Ho, (2006)
IFI	0.970	≥ 0.90	Hair et al., (2006); Ho, (2006)
RMSEA	0.072	≤ 0.10 (.03 to .08)	Schumacker and Lomax, 2004

The results of the GOF showed that the chi-square was significant at the 0.01 level. The GFI was 0.940, which was above the cut-off value of 0.9. After adjustment for the degrees of freedom relative to the number of variables, the adjusted GFI (AGFI) was 0.888, which was above the cut-off point of 0.80. This indicates that the model predicts 89% of the variances and covariances in the survey data. Based on the CFI, TLI, and IFI indices with values more than the cut off value of 0.9, the model had good fit of data. Further, the root-mean-square error of approximation (RMSEA) was 0.072, which was within the perfect fit range. Additionally, the Relative CMIN/df (1.756) was less than 3, indicating the good fit of the model. Given that the modified model for Management Support fit the data adequately, no further adjustments were required.

(iii) Reliability and Convergent Validity

Appendix F-4 sets out the results of tests for Cronbach's Alpha and convergent validity for the modified measurement model for Management Support with the 9 reminder items. The number of deleted items (1 deleted item) is not high compared to the total items in the constructs (10 items).

Furthermore, their removal does not significantly change the content of the constructs as they are conceptualized. As shown in Appendix F-4, the remaining indicators have high factor loadings, ranging from 0.69 to 0.84, indicating that the meaning of the factors has been preserved by these indicators. Appendix F-4 also shows that the AVE, which reflects the overall amount of variance in the indicators accounted for by the latent construct, was 0.614 and 0.516 for General Factors (GF) and Regional Factors (RF), respectively. Both values were above the cut-off value of 0.5.

The Composite Reliability values, which depict the degree to which the construct indicators indicate the latent construct, exceeded the value of 0.7 for both constructs, with values of 0.864 and 0.842 for General Factors (GF) and Regional Factors (RF), respectively. The Cronbach's Alpha values, which describe the degree to which a measure is error-free, were 0.837 for General Factors (GF) and 0.840 for Regional Factors (RF). Both values were above the threshold of 0.7. Therefore, the achieved Cronbach's Alpha for all constructs was considered to be sufficiently error-free.

(iv) Discriminant Validity

Table 5.22 represents the discriminant validity of the modified measurement model for Management Support. The inter-correlation between the two second-order constructs in Management Support construct (i.e., General Factors and Regional Factors) was 0.71, below the threshold 0.85 which was satisfactory. Further, as shown in Table 5.22 the square correlation is less than the square root of the average variance extracted by the indicators, demonstrating good discriminant validity between these factors.

Table 5.22: Discriminant Validity of Modified Measurement Model for Management Support

	General Factors (GF)	Regional Factors (RF)
General Factors (GF)	**0.784**	
Regional Factors (RF)	0.504	**0.718**

Note: Diagonals represent the square root of the average variance extracted while the other entries represent the square correlations.

Upon examining goodness of fit of data, convergent validity and discriminant validity of the modified measurement model, it can be concluded that the final modified measurement scale to assess the constructs and their relative items in Management Support construct was reliable and valid. Figure 5.9 depicts the modified and final measurement model for Management Support with standardized factor loadings for the 9 remaining items.

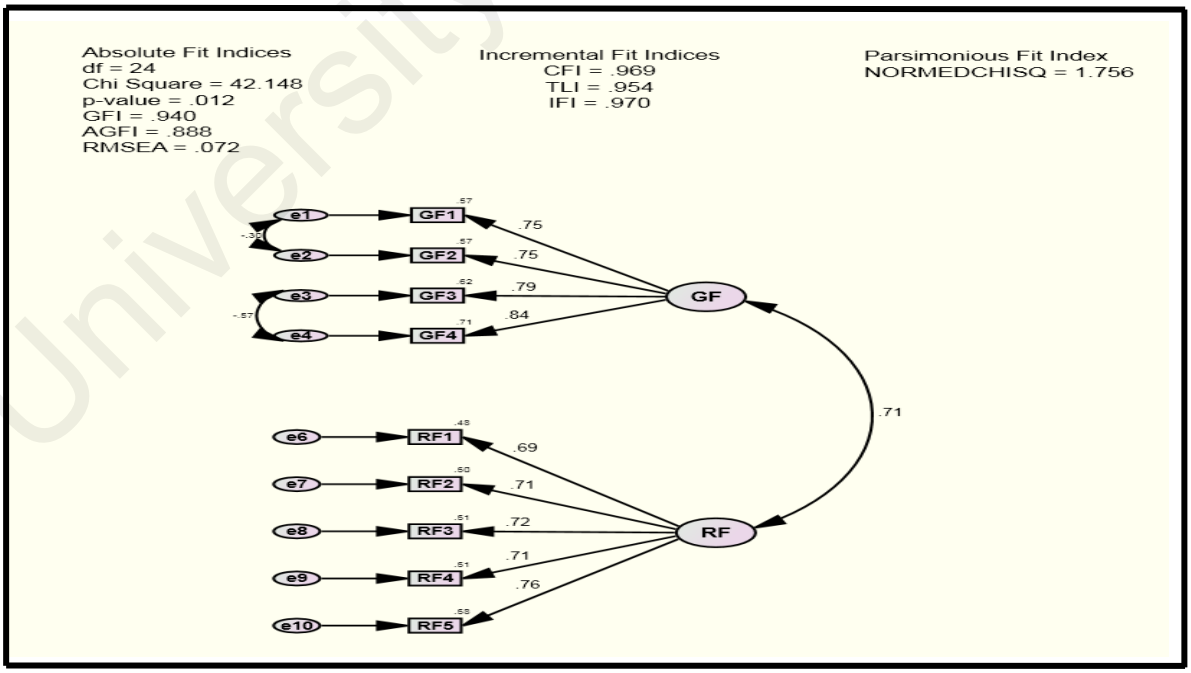


Figure 5.9: Modified Measurement Model for Management Support with 9 Remaining Items

5.3.2 The Overall Measurement Model

In the second step after specification of the items of the scales, the measurement model in this study needed to be specified and assessed. Confirmatory Factor Analysis was used to assess the overall measurement model. The overall measurement model included all latent constructs with their respective measured indicators specified in the individual CFA models. To further improve the model fit in the overall measurement model, parcels were used as indicators of latent variables of constructs (i.e. Organizational Behaviour, Facilities Management Performance, and Management Support to stimulate the growth of FM). Parcels are sums or averages of several individual indicators or items (Coffman & MacCallum, 2005; Hair, et al., 2006). Parcelling enables researchers to handle an unmanageable number of items per construct (Hair et al., 2006). By reducing the complexity of the measurement model, parcelling has potential to produce better reliability and to improve model fit.

Therefore, in this step, for the latent constructs with many dimensions, in order to reduce the complexity of the measurement model, the parcelling method was applied. It should be noted that for the parcelled variables based on the original items in the earlier individual CFA models (Figure 5.7, Figure 5.8 and Figure 5.9) validity and reliability were calculated. The overall measurement model of this study, incorporating parcelling, is depicted in Figure 5.10.

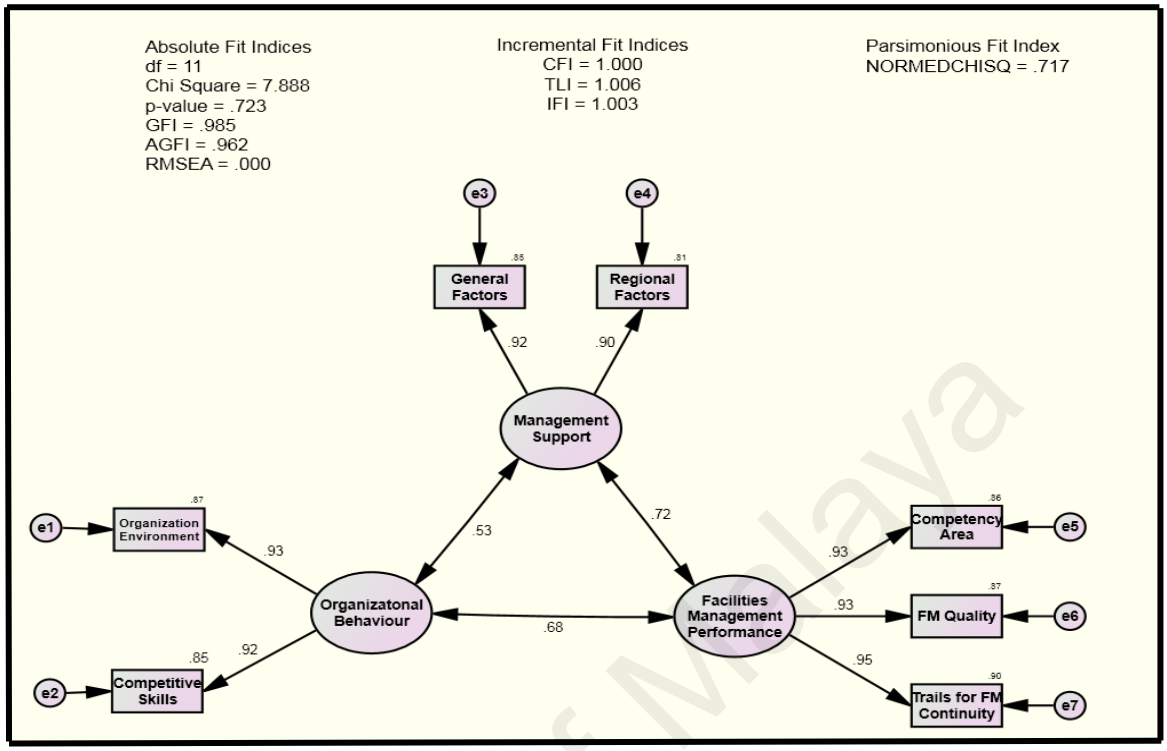


Figure 5.10: The Overall Measurement Model with Standardized Factor Loadings

The results of the GOF showed that the chi-square was significant at the 0.000 level. The GFI was 0.985 which was above the cut-off value of 0.9. After adjustment for the degrees of freedom relative to the number of variables, the adjusted GFI (AGFI) was 0.962 which was above the cut-off value of 0.80. This indicates that the model predicts 96% of the variances and covariance in the survey data. Based on the CFI, TLI, and IFI indices with values more than the cut off value of 0.9, the model had good fit of data. Further, the root-mean-square error of approximation (RMSEA) was 0.000. Below the 0.10 value. Additionally, the Relative CMIN/df (0.717) was less than the 3.0 maximum values, showing the good fit of the model. Given that the overall measurement model fit the data adequately, no further adjustments were required. The results of convergent validity and reliability analysis of the overall measurement model are shown in Table 5.23.

Table 5.23: Results of Cronbach's Alpha and Convergent Validity for Overall Measurement Model

Construct	Item /Construct	Internal Reliability Cronbach Alpha	Convergent validity		
			Final Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]
Organizational Behaviour	Organization Environment	0.890	0.93	0.856	0.922
	Competitive Skills		0.92		
Facilities Management Performance	FM Competency Areas	0.948	0.93	0.877	0.956
	FM Quality		0.93		
	Trails for FM Continuity		0.95		
Management Support to stimulate growth of FM	General Factors (GF)	0.897	0.92	0.828	0.906
	Regional Factors (RF)		0.90		

As shown in Table 5.23, the AVE was above the cut-off value of 0.5 for all constructs, ranging from 0.828 to 0.877. The Composite Reliability values exceeded the recommended value of 0.7 for all constructs, ranging from 0.906 to 0.956. The Cronbach's Alpha values ranged from 0.8906 to 0.948, which were above the threshold of 0.7. Meanwhile, the discriminant validity of the overall measurement mode was checked and is shown in Table.5.24.

Table 5.24: Discriminant Validity of Overall Measurement Model

	Organizational Behaviour	Facilities Management Performance	Management Support to stimulate growth of FM
Organizational Behaviour	**0.925**		
Facilities Management Performance	0.462	**0.936**	
Management Support to stimulate growth of FM	0.281	.0518	**0.910**

Note: Diagonals represent the square root of the average variance extracted while the other entries represent the square correlations.

The inter-correlation between FMP and MS (0.72), inter-correlation between MS and OB (0.53) and inter- correlation between OB and FMP (0.68). The inter-correlation between the three main constructs in the overall measurement model was below the threshold 0.85 which was satisfactory (see Figure 5.10). Further, as shown in Table 5.24, the square correlation is less than the square root of the average variance extracted by the indicators, demonstrating good discriminant validity between these factors. Upon examining goodness of fit of data, convergent validity and discriminant validity of the overall measurement model, it can be concluded that the overall measurement scale to assess the constructs and their relative items in this study was reliable and valid.

5.3.3 Structural Model –Stage 2

The structural equation model is the second main process of SEM analysis. Once the measurement model is validated, representation of the structural model can be made by specifying the relationships among the constructs. The structural model provides details on the links between the variables. It shows the specific details of the relationship between the independent (or exogenous) variables and the dependent (or endogenous) variables. Evaluation of the structural model focuses first on the overall model fit and significance of the hypothesized parameter estimates, as shown by the one- headed arrows in the path diagrams. The final part involves the confirmation of the structural model of the study, which was based on the proposed relationship between the variables identified and assessed.

5.3.3.1 Multi-collinearity Test

As shown in Table 5.25, all predictors in the structural models presented a condition index above the threshold 30. Nevertheless, since no variance proportion above 0.90 was reported for these high values of condition index, no support for the existence of multi-collinearity in the predictors could be found in any of the structural models. Apart from the absence of multi-collinearity, the regression assumptions of linearity, normality and independence of residuals were all satisfied in the regression models. The summary of the collinearity diagnostics among the predictors of each structural model are shown in Table 5.25

Table 5.25: Results of Collinearity Diagnostics

SM	Predictors	Condition index	Variance Proportion											
			OB	MS	OE	CS	OP	TD	EE	CC	PD	IPS	INS	DS
1	Organizational Behaviour (OB)	33.675	.00	.76										
	Management Support (MS)	39.813	.89	.24										
2	Organization Environment (OE)	32.852			.07	.07								
	Competitive Skills (CS)	69.836			.73	.83								
3	Organizational Process (OP)	34.188					.01	.09	.04	.06	.02	.20	.06	.05
	Team Dynamics (TD)	42.069					.00	.27	.24	.02	.06	.01	.02	.03
	Foundation Of Employee (FE)	44.982					.17	.19	.06	.06	.07	.08	.02	.03
	Contemporary Challenges (CC)	52.096					.13	.04	.15	.36	.05	.03	.13	.09
	Program Development (PD)	52.479					.00	.01	.05	.02	.08	.65	.17	.09
	Interpersonal Skills (IPS)	61.296					.65	.12	.03	.25	.18	.01	.00	.09
	Informational Skills (INS)	62.209					.00	.05	.10	.09	.31	.01	.41	.08
	Decisional Skills (DS)	68.390					.04	.23	.34	.15	.23	.01	.19	.56

5.3.3.2 Structural Models and Examined Hypothesis

The structural equation model in this study was broken up into several models. Table 3.7 describes the pertinent hypotheses examined in each regression model derived from the structural model.

The structural model that were considered separately:

- The **first structural model** tested the regression effects of Organizational Behaviour and Management Support on Facilities Management Performance. Therefore the research hypotheses H1 and H2 were examined through this structural model.

- The **second structural model** tested the regression effects of Organization Environment and Competitive Skills on FM Competency Areas, FM Quality and Trails for FM Continuity. Thus this model examined the hypotheses: H3-1, H3-2, H3-3, H4-1, H4-2 and H4-3.

- The **third structural model** tested the regression effects of Organizational Process, Team Dynamics, Foundation of Employee, Contemporary Challenges, Program Development, Interpersonal Skills, Informational Skills and Decisional Skills on FM Competency Areas, FM Quality and Trails for FM Continuity. Thus this model examined the hypotheses: H5-1, H5-2, H5-3, H6-1, H6-2, H6-3, H7-1, H7-2, H7-3, H8-1, H8-2, H8-3, H9-1, H9-2, H9-3, H10-1, H10-2, H10-3, H11-1, H11-2, H11-3, H12-1, H12-2 and H12-3.

- The **fourth structural model** tested the moderation effects of Management Support on the relationship between Organizational Behaviour and Facilities Management Performance. Therefore the research hypothesis H13 was examined through this structural model.

5.3.3.3 Structural Model 1

The R^2 value of the regression was 0.63 for the first structural model. Overall findings show that all scores of R^2 value satisfy the requirement for the 0.10 cut off value (Quaddus & Hofmeyer, 2007). This means that Organizational Behaviour and Management Support predicted 63 percent of variations in Facilities Management Performance. In other words, the error variance of Facilities Management Performance is approximately 63 percent of the variance of Facilities Management Performance itself. The first structural model of this study is shown in Figure 5.11.

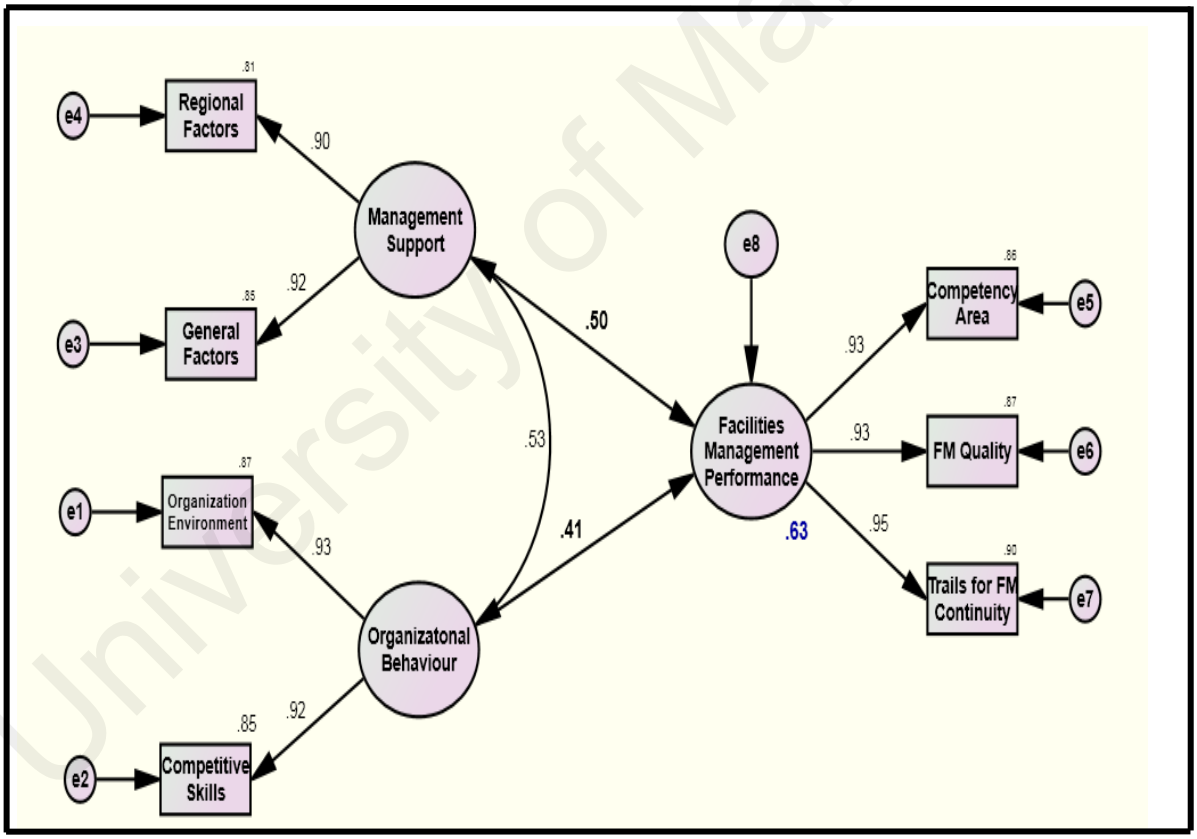


Figure 5.11: Structural Model 1 with Standardized Estimates

Table 5.26: Regression Weights in Structural Model 1

Dependent Variable	Predictor	Unstandardized Estimate		Standardized Estimate	C.R.	P-value	Hypothesis Result
		Estimate	S.E.	Beta			
Facilities Management Performance	Organizational Behaviour	.46	.08	0.41***	5.52	0.00	H1)Supported
	Management Support	.33	.05	0.50***	6.47	0.00	H2)Supported

***Contribution is significant at the 0.001 level (2-tailed).

Table 5.26 shows the unstandardized and the standardized regression weight for the first structural model. Both regression paths in the first structural model were statistically significant. Thus, hypotheses H1 and H2 were supported. The following section discusses the results of path analysis in relation to the relative hypotheses in the first structural model.

H1) Organizational Behaviour has a positive influence on Facilities Management Performance

As shown in Table 5.26, the C.R and p-value of Organizational Behaviour in predicting the Facilities Management Performance were 5.52 and 0.00, respectively. This means that the probability of getting a critical ratio as large as 5.52 in absolute value is zero. In other words, the regression weight for Organizational Behaviour in predicting the Facilities Management Performance is significantly different from zero at the 0.001 level (two-tailed). Thus, H1 was supported. Further, the standardized estimate of Beta was 0.41, indicating a positive relationship. This means that when Organizational Behaviour goes up by 1 standard deviation, Facilities Management Performance goes up by 0.41 standard deviations.

H2) Management Support has a positive influence on Facilities Management Performance

As shown in Table 5.26, the C.R and p-value of Management Support in predicting the Facilities Management Performance were 6.47 and 0.00 respectively. This means that the probability of getting a critical ratio as large as 6.47 in absolute value is zero. In other words, the regression weight for Management Support in predicting the Facilities Management Performance is significantly different from zero at the 0.001 level (two-tailed). Thus, H2 was supported. Further, the standardized estimate of Beta was 0.50, indicating a positive relationship. This means that when Management Support goes up by 1 standard deviation, Facilities Management Performance goes up by 0.50 standard deviations.

5.3.3.4 Structural Model 2

The R^2 values for the three regressions in the second structural model ranged between 0.35 and 0.41. Overall findings show that all scores of R^2 values satisfy the requirement for the 0.10 cut off value. For instance, 41 percent of variation in the Competency Area was predicted by its predictors (i.e. Organization Environment and Competitive Skills). The second structural model of this study is shown in Figure 5.12

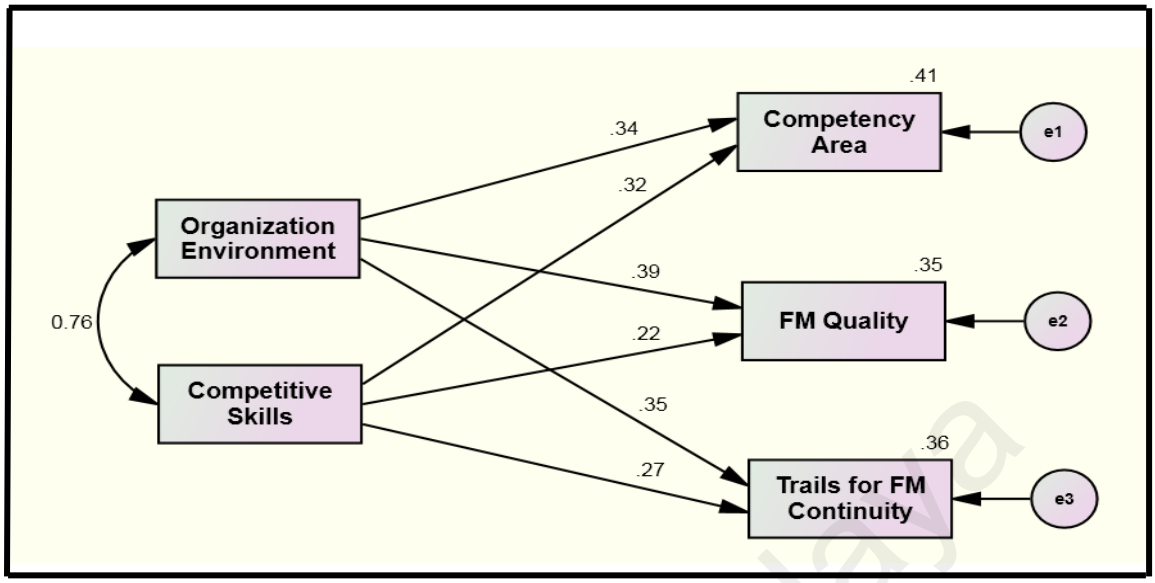


Figure 5.12: Structural Model 2 with Standardized Estimates

Table 5.27: Regression Weights in Structural Model 2

Dependent Variable	Predictor	Unstandardized Estimate		Standardized Estimate	C.R.	P-value	Hypothesis Result
		Estimate	S.E.	Beta			
FM Competency Areas	Organizational Environment	.26	.10	.34**	2.74	.01	H3-1) Supported
	Competitive Skills	.35	.14	.32**	2.52	.01	H4-1) Supported
FM Quality	Organizational Environment	.34	.11	.39***	2.98	.00	H3-2) Supported
	Competitive Skills	.28	.17	.22	1.66	.10	H4-2) Rejected
FM Continuity	Organizational Environment	.35	.13	.35**	2.68	.01	H3-3) Supported
	Competitive Skills	.41	.19	.27*	2.10	.04	H4-3) Supported

*Contribution is significant at the 0.05 level (2-tailed); ** Contribution is significant at the 0.01 level (2-tailed); ***Contribution is significant at the 0.001 level (2-tailed).

Table 5.27 shows the unstandardized and standardized regression weight for the second structural model. All paths in the second structural model were statistically significant except for the path from Competitive Skills to FM Quality, which was not statistically significant (p-value = 0.1). Thus, the hypotheses H3-1, H3-2, H3-3, H4-2 and H4-3 were supported, while hypothesis H4-1 was rejected. The following section discusses the results of path analysis in relation to the relative hypotheses in the second structural model.

H3-1) Organizational Environment has a positive influence on FM Competency Areas

As shown in Table 5.27 the C.R and p-value of Organizational Environment in predicting the FM Competency Areas were 2.74 and 0.01, respectively. This means that the probability of getting a critical ratio as large as 2.74 in absolute value is 0.01. In other words, the regression weight for Organizational Environment in predicting the FM Competency Areas is significantly different from zero at the 0.01 level (two-tailed). Thus, H3-1 was supported. Further, the standardized estimate of Beta was 0.34, indicating a positive relationship. Thus, when Organizational Environment goes up by 1 standard deviation, FM Competency Areas goes up by 0.34 standard deviations.

H3-2) Organizational Environment has a positive influence on FM Quality

As shown in Table 5.27, the C.R and p-value of Organizational Environment in predicting the FM Quality were 2.98 and 0.00 respectively. This means that the probability of getting a critical ratio as large as 2.98 in absolute value is zero. In other words, the regression weight for Organizational Environment in predicting the FM Quality is significantly different from zero at the 0.001 level (two-tailed). Thus, H3-2 was supported.

Further, the standardized estimate of Beta was 0.39, indicating a positive relationship. In other words, when Organization Environment goes up by 1 standard deviation, FM Quality goes up by 0.39 standard deviations.

H3-3) Organizational Environment has a positive influence on Trails for FM Continuity

As shown in Table 5.27, the C.R and p-value of Organizational Environment in predicting the FM Continuity were 2.68 and 0.01 respectively. This means that the probability of getting a critical ratio as large as 2.68 in absolute value is 0.01. In other words, the regression weight for Organizational Environment in predicting the FM Continuity is significantly different from zero at the 0.01 level (two-tailed). Thus, H3-3 was supported. Further, the standardized estimate of Beta was 0.35, indicating a positive relationship. It means that when Organizational Environment goes up by 1 standard deviation, FM Continuity goes up by 0.35 standard deviations.

H4-1) Competitive Skills has a positive influence on FM Competency Areas

As shown in Table 5.27, the C.R and p-value of Competitive Skills in predicting the FM Competency Areas were 2.52 and 0.01 respectively. This means that the probability of getting a critical ratio as large as 2.52 in absolute value is 0.01. In other words, the regression weight for Competitive Skills in predicting the FM Competency Areas is significantly different from zero at the 0.01 level (two-tailed). Thus, H4-1 was supported. Further, the standardized estimate of Beta was 0.32, indicating a positive relationship. Therefore, when Competitive Skills goes up by 1 standard deviation, FM Competency Areas goes up by 0.32 standard deviations.

H4-2) Competitive Skills has a positive influence on FM Quality

As shown in Table 5.27 the results of the second regression model showed that there was no significant relationship between Competitive Skills and FM Quality. (β = 0.22, C.R. = 1.66, p= 0.10). Thus, H4-2 was rejected.

H4-3) Competitive Skills has a positive influence on Trails for FM Continuity

As shown in Table 5.27, the C.R and p-value of Competitive Skills in predicting the FM Continuity were 2.10 and 0.04 respectively. It means that the probability of getting a critical ratio as large as 2.10 in absolute value is 0.04. In other words, the regression weight for Competitive Skills in predicting the FM Continuity is significantly different from zero at the 0.05 level (two-tailed). Thus, H4-3 was supported. Further, the standardized estimate of Beta was 0.27, indicating a positive relationship. Thus, when Competitive Skills increases by 1 standard deviation, FM Continuity increases by 0.27 standard deviations.

5.3.3.5 Structural Model 3

The R^2 values for the three regressions in structural model 3 ranged from 0.39 to 0.44. Overall findings show that all scores of R^2 value satisfied the requirement for the 0.10 cut off value. For example, 44 percent of variation in Competency Area was predicted by its predictors (i.e. OP, TD, FE, CC, PD, IPS, INS and DS). The third structural model of this study is shown in Figure 5.13. As shown in this figure, three paths to FM Competency Areas (i.e. TD, IPS and INS), two paths to FM Quality (i.e. TD and IPS) and two paths to FM Continuity (i.e. TD and IPS) in the third structural model were statistically significant, while the other 17 paths were not significant. Thus, hypotheses H6-1, H10-1, H11-1, H6-2, H10-2, H6-3 and H10-2 were supported while the remaining hypotheses were rejected.

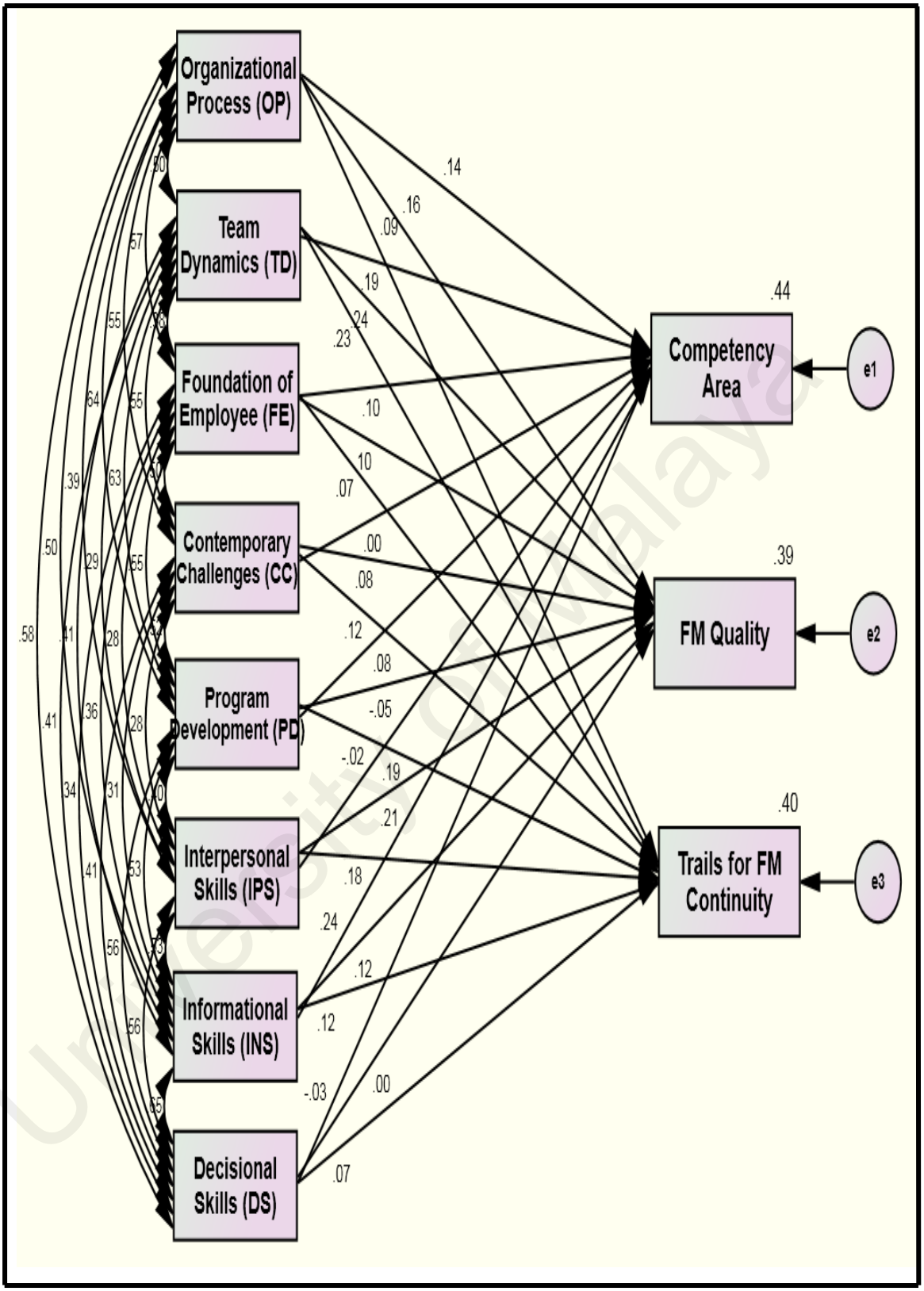


Figure 5.13: Structural Model 3 with Standardized Estimates

Table5.28: Regression Weights in Structural Model 3

Dependent Variable	Predictor	Unstandardized Estimate		Standardised Estimate	C.R.	P-value	Hypothesis Result
		Estimate	S.E.	Beta			
FM Competency Areas	Organizational Process (OP)	.08	.05	.14	1.48	.14	H5-1) Rejected
	Team Dynamics (TD)	.09	.04	.19*	2.19	.03	H6-1) Supported
	Foundation of Employee (FE)	.07	.06	.10	1.17	.24	H7-1) Rejected
	Contemporary Challenges (CC)	.00	.05	.00	.04	.97	H8-1) Rejected
	Program Development (PD)	.05	.06	.08	.79	.43	H9-1) Rejected
	Interpersonal Skills (IPS)	.12	.05	.19**	2.46	.01	H10-1) Supported
	Informational Skills (INS)	.15	.06	.24**	2.66	.01	H11-1) Supported
	Decisional Skills (DS)	-.02	.05	-.03	-.34	.73	H12-1) Rejected
FM Quality	Organizational Process (OP)	.10	.06	.16	1.63	.10	H5-2) Rejected
	Team Dynamics (TD)	.13	.05	.24**	2.73	.01	H6-2) Supported
	Foundation of Employee (FE)	.08	.07	.10	1.14	.25	H7-2) Rejected
	Contemporary Challenges (CC)	.06	.06	.08	.97	.33	H8-2) Rejected
	Program Development (PD)	-.03	.07	-.05	-.46	.64	H9-2) Rejected
	Interpersonal Skills (IPS)	.16	.06	.21**	2.66	.01	H10-2) Supported
	Informational Skills (INS)	.08	.07	.12	1.27	.20	H11-2) Rejected
	Decisional Skills (DS)	.00	.06	.00	-.01	.99	H12-2) Rejected
FM Continuity	Organizational Process (OP)	.07	.07	.09	.92	.36	H5-3) Rejected
	Team Dynamics (TD)	.15	.06	.23**	2.64	.01	H6-3) Supported
	Foundation of Employee (FE)	.07	.08	.07	.84	.40	H7-3) Rejected
	Contemporary Challenges (CC)	.10	.07	.12	1.42	.15	H8-3) Rejected
	Program Development (PD)	-.02	.08	-.02	-.20	.84	H9-3) Rejected
	Interpersonal Skills (IPS)	.15	.07	.18*	2.24	.02	H10-3) Supported
	Informational Skills (INS)	.10	.08	.12	1.28	.20	H11-3) Rejected
	Decisional Skills (DS)	.06	.08	.07	.75	.45	H12-3) Rejected

*. Contribution is significant at the 0.05 level (2-tailed); **Contribution is significant at the 0.01 level (2-tailed);
***Contribution is significant at the 0.001 level (2-tailed).

H5-1) Organizational Process has a positive influence on FM Competency Areas

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Organizational Process and FM Competency Areas. ($\beta = 0.14$, C.R. = 1.48, p= 0.14). Thus, H5-1 was rejected.

H5-2) Organizational Process has a positive influence on FM Quality

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Organizational Process and FM Quality. ($\beta = 0.16$, C.R. = 1.63, p= 0.10). Thus, H5-2 was rejected.

H5-3) Organizational Process has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Organizational Process and FM Continuity. ($\beta = 0.09$, C.R. = 0.92, p= 0.36). Thus, H5-3 was rejected.

H6-1) Team Dynamics have a positive influence on FM Competency Areas

As shown in Table 5.28, the C.R and p-value of Team Dynamics in predicting the FM Competency Areas were 2.19 and 0.03, respectively. This means that the probability of getting a critical ratio as large as 2.19 in absolute value is 0.03. In other words, the regression weight for Team Dynamics in predicting the FM Competency Areas is significantly different from zero at the 0.05 level (two-tailed). Thus, H6-1 was supported. Further, the standardized estimate of Beta was 0.19, indicating a positive relationship, meaning that when Team Dynamics goes up by 1 standard deviation, FM Competency Areas goes up by 0.19 standard deviations.

H6-2) Team Dynamics have a positive influence on FM Quality

As shown in Table 5.28, the C.R and p-value of Team Dynamics in predicting the FM Quality were 2.73 and 0.01, respectively. This means that the probability of getting a critical ratio as large as 2.73 in absolute value is 0.01. In other words, the regression weight for Team Dynamics in predicting the FM Quality is significantly different from zero at the 0.01 level (two-tailed). Thus, H6-2 was supported. Further, the standardized estimate of Beta was 0.24, indicating a positive relationship, so that when Team Dynamics goes up by 1 standard deviation, FM Quality goes up by 0.24 standard deviations.

H6-3) Team Dynamics have a positive influence on Trails for FM Continuity

As shown in Table 5.28, the C.R and p-value of Team Dynamics in predicting the FM Continuity were 2.64 and 0.01, respectively. It means that the probability of getting a critical ratio as large as 2.64 in absolute value is 0.01. In other words, the regression weight for Team Dynamics in predicting the FM Continuity is significantly different from zero at the 0.01 level (two-tailed). Thus, H6-3 was supported. Further, the standardized estimate of Beta was 0.23, indicating a positive relationship. It means, when Team Dynamics goes up by 1 standard deviation, FM Continuity goes up by 0.23 standard deviations.

H7-1) Foundation of Employee has a positive influence on FM Competency Areas

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Foundation of Employee and FM Competency Areas. ($\beta = 0.10$, C.R. = 1.17, p= 0.24). Thus, H7-1 was rejected.

H7-2) Foundation of Employee has a positive influence on FM Quality

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Foundation of Employee and FM Quality. (β = 0.10, C.R. = 1.14, p= 0.25). Thus, H7-2 was rejected.

H7-3) Foundation of Employee has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Foundation of Employee and FM Continuity. (β = 0.07, C.R. = 0.84, p= 0.40). Thus, H7-3 was rejected.

H8-1) Contemporary Challenges has a positive influence on FM Competency Areas

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Contemporary Challenges and FM Competency Areas. (β = 0.00, C.R. = 0.04, p= 0.97). Thus, H8-1 was rejected.

H8-2) Contemporary Challenges has a positive influence on FM Quality

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Contemporary Challenges and FM Quality. (β = 0.08, C.R. = 0.97, p= 0.33). Thus, H8-2 was rejected

H8-3) Contemporary Challenges has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Contemporary Challenges and FM Continuity. ($\beta = 0.12$, C.R. = 1.42, p= 0.15). Thus, H8-3 was rejected.

H9-1) Program Development has a positive influence on FM Competency Areas

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Program Development and FM Competency Areas. ($\beta = 0.08$, C.R. = 0.79, p= 0.43). Thus, H9-1 was rejected.

H9-2) Program Development has a positive influence on FM Quality

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Program Development and FM Quality. ($\beta = -0.05$, C.R. = -0.46, p= 0.64). Thus, H9-2 was rejected.

H9-3) Program Development has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Program Development and FM Continuity. ($\beta = -0.02$, C.R. = -0.20, p= 0.84). Thus, H9-3 was rejected.

H10-1) Interpersonal Skills has a positive influence on FM Competency Areas

As shown in Table 5.28, the C.R and p-value of Interpersonal Skills in predicting the FM Competency Areas were 2.46 and 0.01, respectively. This means that the probability of getting a critical ratio as large as 2.46 in absolute value is 0.01.

In other words, the regression weight for Interpersonal Skills in predicting the FM Competency Areas is significantly different from zero at the 0.01 level (two-tailed). Thus, H10-1 was supported. Further, the standardized estimate of Beta was 0.19, indicating a positive relationship. It means that when Interpersonal Skills goes up by 1 standard deviation, FM Competency Areas goes up by 0.19 standard deviations.

H10-2) Interpersonal Skills has a positive influence on FM Quality

As shown in Table 5.28, the C.R and p-value of Interpersonal Skills in predicting the FM Quality were 2.66 and 0.01, respectively. This means that the probability of getting a critical ratio as large as 2.66 in absolute value is 0.01. In other words, the regression weight for Interpersonal Skills in predicting the FM Quality is significantly different from zero at the 0.01 level (two-tailed). Thus, H10-2 was supported. Further, the standardized estimate of Beta was 0.21, indicating a positive relationship. Therefore, when Interpersonal Skills goes up by 1 standard deviation, FM Quality goes up by 0.21 standard deviations.

H10-3) Interpersonal Skills has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the C.R and p-value of Interpersonal Skills in predicting the FM Continuity were 2.24 and 0.02, respectively. This means that the probability of getting a critical ratio as large as 2.24 in absolute value is 0.02. In other words, the regression weight for Interpersonal Skills in predicting the FM Continuity is significantly different from zero at the 0.05 level (two-tailed). Thus, H10-3 was supported. Further, the standardized estimate of Beta was 0.18, indicating a positive relationship. It means that when Interpersonal Skills goes up by 1 standard deviation, FM Continuity goes up by 0.18 standard deviations.

H11-1) Informational Skills has a positive influence on FM Competency Areas

As shown in Table 5.28, the C.R and p-value of Informational Skills in predicting the FM Competency Areas were 2.66 and 0.01, respectively. This means that the probability of getting a critical ratio as large as 2.66 in absolute value is 0.01. In other words, the regression weight for Informational Skills in predicting the FM Competency Areas is significantly different from zero at the 0.01 level (two-tailed). Thus, H11-1 was supported. Further, the standardized estimate of Beta was 0.24, indicating a positive relationship. It means that when Informational Skills goes up by 1 standard deviation, FM Competency Areas goes up by 0.24 standard deviations.

H11-2) Informational Skills has a positive influence on FM Quality

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Informational Skills and FM Quality. ($\beta = 0.12$, C.R. = 1.27, p= 0.20). Thus, H11-2 was rejected.

H11-3) Informational Skills has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Informational Skills and FM Continuity. ($\beta = 0.12$, C.R. = 1.28, p= 0.20). Thus, H11-3 was rejected.

H12-1) Decisional Skills has a positive influence on FM Competency Areas

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Decisional Skills and FM Competency Areas. ($\beta = -0.03$, C.R. = -0.34, p= 0.73). Thus, H12-1 was rejected.

H12-2) Decisional Skills has a positive influence on FM Quality

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Decisional Skills and FM Quality. (β = 0.00, C.R. = -0.01, p= 0.99). Thus, H12-2 was rejected.

H12-3) Decisional Skills has a positive influence on Trails for FM Continuity

As shown in Table 5.28, the results of the third regression model showed that no significant relationship existed between Decisional Skills and FM Continuity. (β = 0.07, C.R. = 0.75, p= 0.75). Thus, H12-3 was rejected.

5.3.3.6 Structural Model 4 (A Model for Moderating the Effect of Management Support)

According to Holmbeck (1997), a moderator variable is one that affects the relationship between two variables, so that the nature of the impact of the predictor on the criterion varies according to the level or value of the moderator. The moderator explains 'when' a DV and IV are related. Moderation implies an interaction effect, where introducing a moderating variable changes the direction or magnitude of the relationship between two other variables. Figure 5.14 illustrates the interaction of Management Support (moderator variable) with Organizational Behaviour (independent variable), which behaves in such a way as to have an impact on the level of Facilities Management Performance (dependent variable).

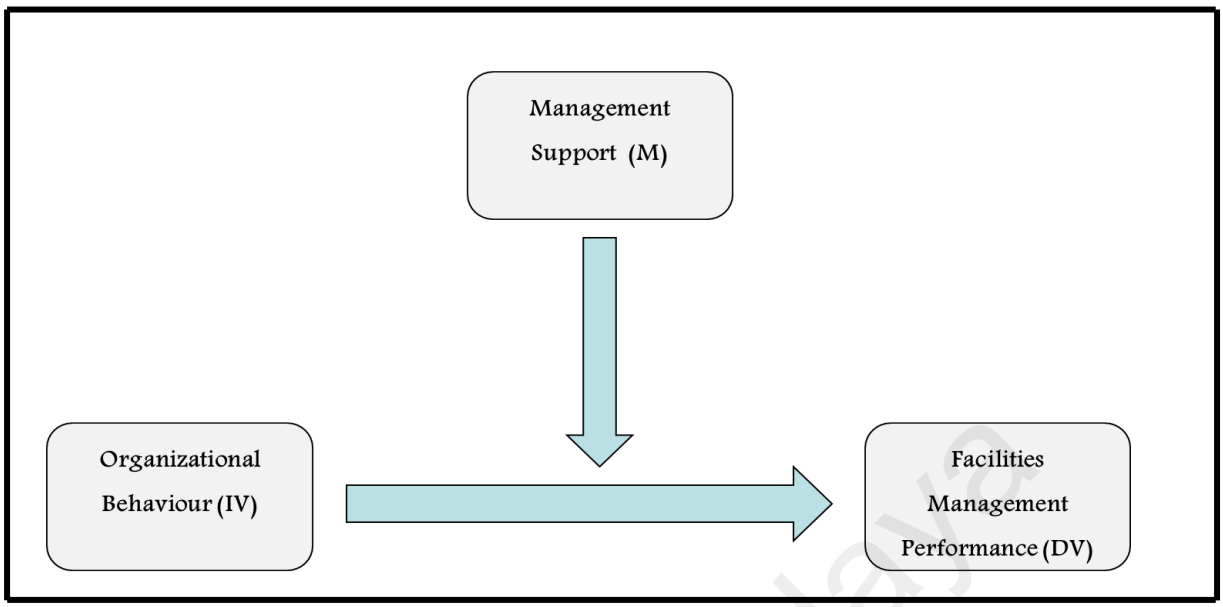


Figure 5.14: Illustration of a Moderation Design, IV Effect on DV Changes with Different Level of M

Table 5.29: Examined Hypothesis and Associated Paths in Structural Model 4,

Hypothesis	**Hypothesized Path** Predictor→ Mediator → Outcome
H13) Management Support MODERATES the relationship between Organizational Behaviour and Facilities Management Performance	Management Support Organizational Behaviour → Facilities Management Performance

The moderation hypothesis and relative path in structural model 4 is depicted in Table 5.29. The moderating effect of Management Support on the influence of Organizational Behaviour on Facilities Management Performance was assessed separately. To determine whether the moderator effect was significant, a two-step hierarchical regression was conducted. In the first step, the effects of the standardized independent variable (e.g. Z - Organizational Behaviour) and standardized moderating variable (Z - Management Support) were estimated after predicting the standardized dependent variable (Z - Facilities Management Performance).

Both effects, as well as the model in general (R^2), should be significant. In the second model, the interaction effect (Z - Organizational Behaviour * Z - Management Support) was added to the previous model. To confirm that a moderator effect is present, the final step (step two) must show a significant R^2 increase as well as a significant effect by the new interaction variable.

The fourth structural model is to study the moderation effect of Management Support on the relationship between Organizational Behaviour and Facilities Management Performance is portrayed in Figure 5.15. The degree of moderation effect of Management Support on the relationships between Organizational Behaviour and Facilities Management Performance was examined as presented in Table 5.29. The beta coefficient (β) was used to evaluate the contribution of each of the predictor variables in both steps of the hierarchical regression that was performed.

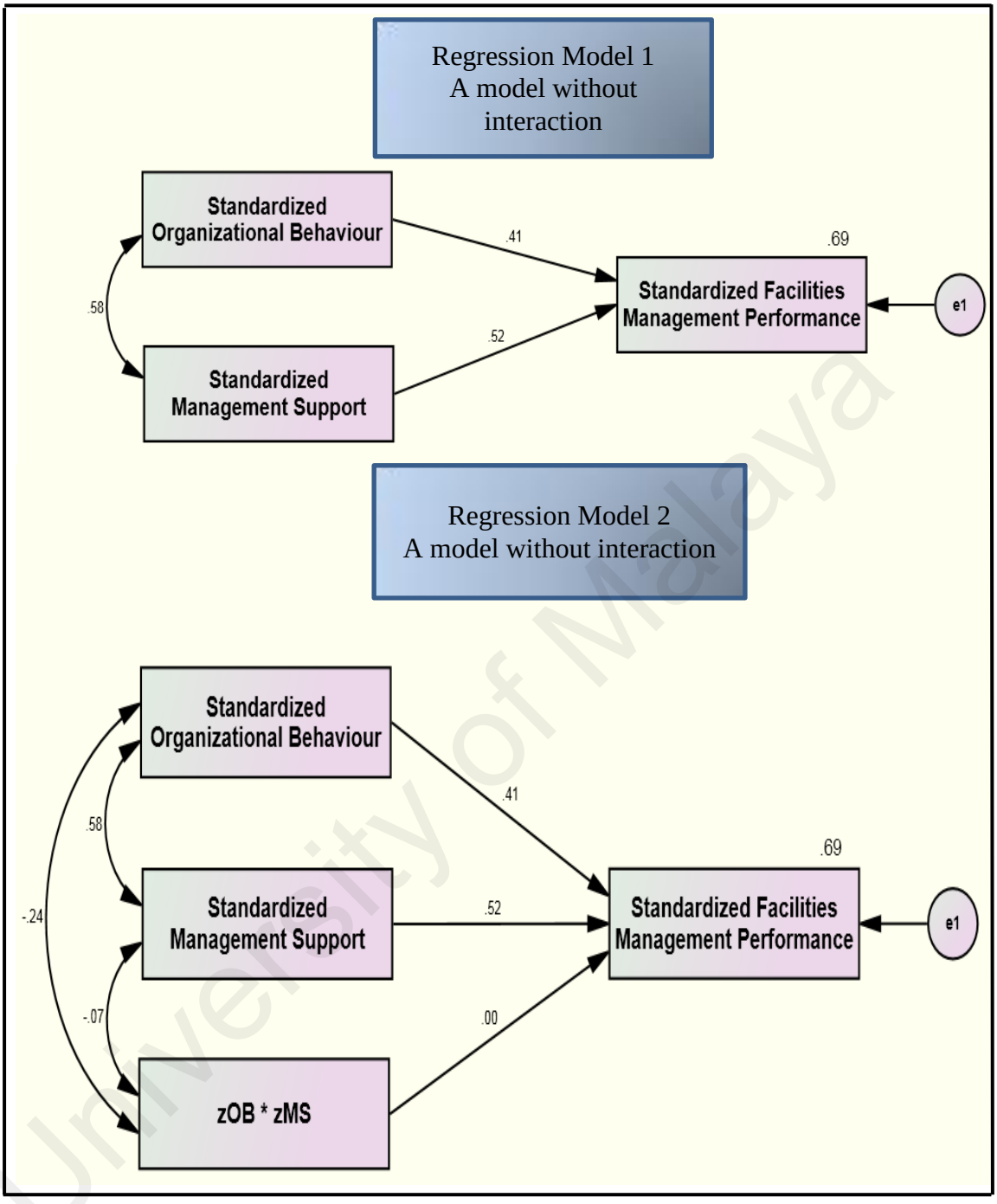


Figure 5.15: Structural Model 4, A Model for Moderation Effect of Management Support on the relationships between Organizational Behaviour and Facilities Management Performance

Table 5.30: Moderation Effect of Management Support on the Relationships between Organizational Behaviour and Facilities Management Performance

		Regression Model 1 (Step1)	Regression Model 2 (Step2)
Predictors	Standardized Organizational Behaviour (z-OB)	0.41***	0.41***
	Standardized Management Support (z-MS)	0.52***	0.52***
	z-OB * z_MS	-----	0.00
Model Fit	Df	2, 144	3, 143
	F	159.313***	105.471***
	P-value	0.00	0.00
R^2 Changed	R^2	0.684	0.682
	ΔR^2	----	0.002
	FΔ	----	53.842
	P-value	----	0.998
Moderation Degree	No Moderation		
Hypothesis Result	H13) Rejected		

*** Contribution is significant at the 0.001 level (2-tailed)

The results of testing the moderation effect of Management Support on the relationships between Organizational Behaviour and Facilities Management Performance depicted in Table 5.30 are discussed in relation to the related hypothesis (H13).

H13) Management Support MODERATES the Relationship between Organizational Behaviour and Facilities Management Performance

As shown in Table 5.30, in the first step of hierarchical regression, the two predictors (Standardized Organizational Behaviour and Standardized Management Support) were found to be statistically significant influential factors (p-values < 0.001) and also accounted for a significant amount of variance in Facilities Management Performance, $R^2 = 0.684$, $F(2, 144) = 159.313$, P-value = 0.00.

In the second step, the interaction term between Standardized Organizational Behaviour and Standardized Management Support was found to not have significant effect on Facilities Management Performance ($\beta = 0.00$, P-value < 0.05). The moderating predictor in the second step (Standardized Management Support) was also not significant. Further, the regression model in the second step did not show a significant increase in R^2 value compared to the first step; $\Delta R^2 = 0.002$, $F\Delta = 53.842$, P-value = 0.998.

These results indicated that the moderating effect of Management Support on the relationships between Organizational Behaviour and Facilities Management Performance was not statistically significant. Thus, the hypothesis H13 was rejected. The significance of the moderating effect of Management Support on the relationships between Organizational Behaviour and Facilities Management Performance was further evaluated by means of a graph.

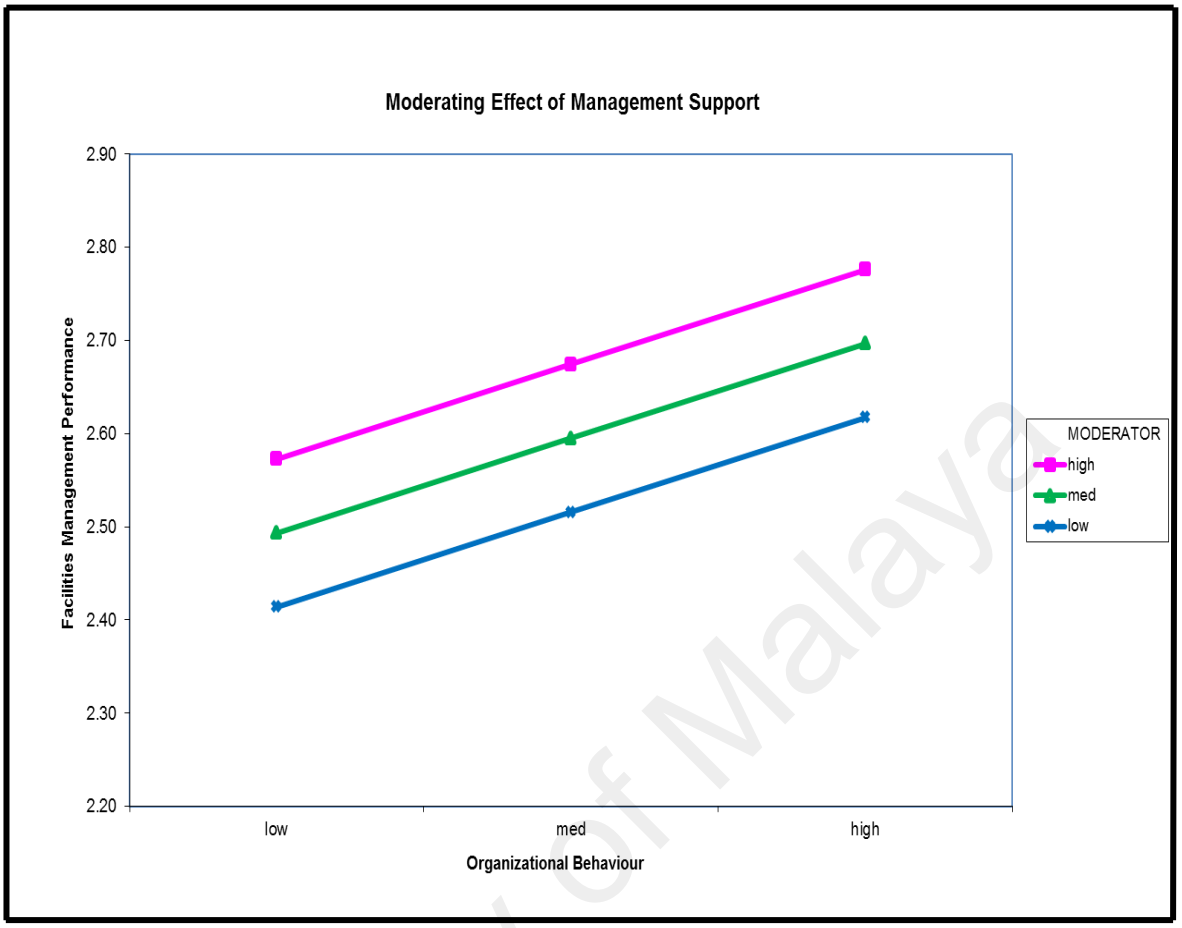


Figure 5.16: Moderation Effect of Management Support on the Relationships between Organizational Behaviour and Facilities Management Performance

As shown in Figure 5.16, the three lines indicated a positive relationship between Organizational Behaviour and Facilities Management Performance. The three lines were almost parallel, which implied that the effect of Organizational Behaviour on Facilities Management Performance did not differ at different levels of Management Support. Therefore, as discussed before, Management Support did not moderate the relationship between Organizational Behaviour and Facilities Management Performance. In a statistical point of view, the supported hypotheses are applied to develop the transformation strategies and whereas the non-supported hypotheses has a great impact in the FM field but it will not contribute towards the development of transformation strategies in this study.

5.4 Results of Semi -Structured Interviews

The purpose of the semi structured interviews was to validate the quantitative findings. Hence, the qualitative results are estimated to match the quantitative results to achieve the research objectives. This survey was constructed by illustrating the structural models that were obtained from the Structural Equation Modelling (SEM). Statements and recommendations made by experts in Facilities Management where the years of experience is more than five years will also be quoted in this discussion, to support the interview results. In this section, ten (10) participants from senior and middle management were coded as S1 to S5, and participants from middle management were coded M1 to M5 to validate the supported hypotheses. Re-validation was conducted among five (5) FM expertise which coded as R1 to R5 to strengthen the validation results for an optimum output.

5.4.1 Data Validation for Facilities Management Performance

Table 5.31: Characteristics of Facilities Management Performance

Characteristic	Number of Participants (Data Validation)	Descriptions by participants
FM Competency Area	15	• Produce essential skills • FM will be practiced accordingly without any misperception in FM task • Integration within people and process
FM Quality	15	• Ensure the FM quality by producing quality services • Managing and maintaining support system to increase the FM profit
Trails for FM Continuity	15	• Increase knowledge and human skills • Prevent error for better FM

Table 5.31 shows the interview results of Facilities Management Performance data validation. Fifteen (15) participants from senior and middle management validated the characteristics of FMP that consist of FM competency area (FMP1), FM quality (FMP2) and FM continuity (FMP3). All the participants agreed that FMP characteristic is important to achieve the optimum level of performance that leads to effective and efficient FM.

a) FM competency area

This relates to the necessity to ensure that technical, financial and management areas be practiced in FM for business globalization. Participant S2 mentioned that:

"…..Skills and knowledge in competency areas need to be widely exposed to have the integration within process and people, as well as to avoid misperception of task in FM field."

b) FM quality

In implementing the quality strategies such as quality control, quality improvement and quality assurance will increase the level of FM performance. Participant S1 explained that:

"…..Providing quality services and managing the support system will increase the profit margin in FM business."

c) Trails for FM Continuity

Skills, knowledge, and practical experience are important for a long term commitment. Participant M1 explained that:

"…. FM managers need to enhance their strategic, tactical and operational skills to achieve the continuous improvement in their business."

5.4.2 Data Validation for Organizational Behaviour

Table 5.32: Characteristics of Organizational Behaviour

Characteristic	Number of Participants (Data Validation)	Descriptions by participants
Organization Environment	15	• Growing realization that people either make or break an organization • There is a need for leaders to understand their people better • Ready for a long term commitment • Increase organizational effectiveness
Competitive Skills	15	• Produce skilled FM personnel • FM staff should be able to complete multiple tasks • Increase in FM performance

Table 5.32 shows the interview results of Organizational Behaviour (OB) data validation. In this section, fifteen (15) participants from senior and middle management validated the characteristics of OB that consist of Organizational Environment (OE) and Competitive Skills (CS).

a) Organizational Environment

The organizational environment is needed to ensure that the magnitudes of challenges in workplace are managed effectively. Therefore, organizational process, team dynamics, foundation of employees, contemporary challenges and program development need to be considered for organizational growth.

Participant S4 stated that:

"…..Development of organization should include various initiatives as reference to their benchmarked success. However, strategic thinking and strategic direction will help to assess the competencies in organizational environment."

b) Competitive skills

Competitive skills refer to the level of efficiencies in FM needed to produce skilled personnel who are able to complete multiple tasks. FM managers should focus on interpersonal, informational and decisional skills to support the organization development. Participant M2 mentioned that:

"….Choosing FM employees based on their results or performance appraisal itself is insufficient. FM employees need to be talented and ideal for steady growth environment and require commitment in terms of time, process, people, resources and financial."

5.4.3 Data Validation for Management Support

Table 5.33: Characteristics of Management Support

Characteristic	Number of Participants (Data Validation)	Descriptions by participants
General Factors - Global Competition - IT - High cost of space - Employee expectations - Cost of mistakes	15	• To ensure work productivity of employees • To avoid unnecessary cost • To succeed the modern FM organization
Regional Factors - Regional economy - Property market - Market maturity - Procurement system - General business environment	15	• To ensure business efficiency and effectiveness • Contribute to successful FM development

Table 5.33 shows the interview results of Management Support (MS) data validation. In this section, fifteen (15) participants from senior and middle management validated the characteristics of Management Support that consist of general factors and regional factors. These factors are considered necessary to stimulate the growth of FM and to create the modern FM organization. Participants S5 and M5 mentioned that:

"….To achieve FM business success, Management Support is significant to lead the organization productively by contributing the right resources (people, financial, raw materials, etc.). Besides, we need to control the cash flows to avoid unnecessary costs that will give a negative perspective in the business. Therefore proper planning needs to be established to contribute to a successful FM."

5.4.4 Data Validation for Statistically Supported Hypotheses

Table 5.34: Statistically Supported Hypotheses

Statistically supported hypothesis	Number of Participants (Data Validation)	Descriptions by participants
OB has a positive influence on FMP	15	People's behaviour will give a positive impact on organization's success.
MS has a positive influence on FMP	15	Managerial support of an organization will help to interact with their external environment.
OE has a positive influence on FMP1	15	Good fit of resources aligned with overall competencies will have optimistic changes in their production.
OE has a positive influence on FMP2	15	Good fit of resources will increase the level of performance by anticipating change in the environment.
OE has a positive influence on FMP3	15	Good fit of resources will strengthen the overall business and indicates an efficient transformation process for future inputs.
CS has a positive influence on FMP1	15	Human capital is the main resource to discover organization opportunities and minimize threats
CS has a positive influence on FMP3	15	Knowledge, skills and abilities will provide high levels of efficiency and quality as added value for an organization.

Continuation		
TD has a positive influence on FMP1	15	Multi-skilled employees who have diverse capabilities will help achieve the common goals of an organization
TD has a positive influence on FMP2	15	Ensures a high performance work culture and employees who are responsible for managing their day-to-day work.
TD has a positive influence on FMP3	15	Ensures positive relationship among employees and provides support for organizational development.
IPS has a positive influence on FMP1	15	Talented employees will create better strategies that improve the organization environment.
IPS has a positive influence on FMP2	15	Talented and skilled employees will upgrade the business quality
IPS has a positive influence on FMP3	15	Personal characteristics are significant to ensure the ability to pursue the goals and move forward to achieve continuous improvement
INS has a positive influence on FMP1	15	Information power has the ability to manage the organization environment and ensure that information is distributed precisely to avoid uncertainties.

Table 5.34 show the data validation for the statistically supported hypotheses and the descriptions of the participants. The discussion on the statistically supported hypotheses continues below.

a) Organizational Behaviour (OB) and Management Support (MS) has a positive influence on FMP

Both variables, OB and MS, have a positive influence on FMP. Thus, OB and MS are strong influences to increase the level of FM performance. Participant S3 and M3 mentioned that:

"…… People's behaviour and managerial support plays an important role in every organization's success by producing high quality services and products to achieve a prominent level of performance. Besides, OB is not only important for managers but also for anyone who works in an organization in order to manage themselves, and to work effectively with each other to gain business goals."

b) Organization Environment (OE) has a positive influence on FMP1, FMP2, FMP3

Ten (10) participants validated and supported the hypothesis that OE has a positive influence on FMP1, FMP2 and FMP3. OE focuses on the internal and external environments of an organization towards business continuity. Furthermore, organization effectiveness is concentrated on having good fit of resources that align with their external environment. Participant M4 highlighted that: "……OE is significant to create the changes that produce quality services and products as well as to create an efficient transformation process for future inputs."

c) Competitive Skills (CS) has a positive influence on FMP1, FMP3

CS is significant in every organization to discover opportunities for business best practices. Participant S5 commented that:

"……CS helps to minimize threats and as an added value for organization effectiveness. Besides, human capital is important to deliver financial values to the organization system and provide relationships among internal customers, external customers, suppliers and others.

d) Team Dynamics (TD) has a positive influence on FMP1, FMP2 and FMP3

All participants agreed that TD has a significant value in FMP1, FMP2 and FMP3. The benefits of TD are that people will be motivated to solve organizational gaps, increase performance, and accomplish tasks in a short period. It is also a powerful force to achieve competitive advantage, and to provide efficiencies and effectiveness to organization. Participant S1 highlighted that:

"……TD encompasses multi-skilled personnel in a team that provides a high performance work culture. Therefore, good leaders and a positive team environment is needed to achieve the optimal success."

e) Interpersonal Skills (IPS) has a positive influence on FMP1, FMP2 and FMP3

All participants agreed that IPS has a significant value in FMP1, FMP2 and FMP3. Every FM manager and all employees in an organization need to be solution-oriented, to have the ability to communicate, be self-promoters, self-confident and able to organize and complete multiple tasks.

Participant S3 stated that:

"……IPS can ensure best strategies that benefit the organization's environment and provide effective performance towards continuous improvement in every organization for a quality business."

f) Informational Skills (INS) has a positive influence on FMP1

All fifteen (15) participants validated and supported that INS has a significant value on FMP1. INS is an important skill that creates a knowledge chain among people. Therefore, FM managers and all employees need to possess informational skills to achieve business globalization. Participant S5 mentioned that:

"……To achieve global work experience, each of us had to be information literate and provide information precisely to avoid uncertainties that will decrease the efficiency and effectiveness of the organization."

5.5 The Triangulation Outcome

The main purpose of the triangulation outcome in this study is to explain on the mixing data that collaborates the data sources, methodology and findings. To achieve the research objectives, Structural Equation Modelling (SEM) were applied through Analysis of Moment Structures (AMOS) to foresee the relationship among variables to develop the transformation strategies in order to remedy the current practice of FM in Malaysia. Therefore, through SEM, measurement models and structural models were developed to provide insights in the collaboration of management aspects in FM field. Confirmatory Factor Analysis (CFA) is the first stage of SEM and was applied to test the validity and reliability of the models and it is justified that the measurement models for Organizational Behaviour, Facilities Management Performance and Management Support are reliable and valid for the second stage of analysis.

The second phase of analysis in this study is to develop the structural models and it is divided into four models. The main purpose of the structural models is to test the hypotheses that have been stated in Table 3.7 and to specify the relationship among the constructs that has been illustrated in Figure 3.7. To determine the hypotheses results, the interpretation of regression were very important to identify the statistical supported hypotheses and non-statistical supported hypotheses. The statistical supported hypotheses are the main elements in constructing the transformation strategies and this was validated by fifteen (15) FM experts to justify the quantitative results. The statistically supported hypotheses are as below:

Table 5.35: Statistically supported hypotheses

Hypotheses	**Results**
Organizational Behaviour has a positive influence on FM performance	***Supported***
Management support has a positive influence on FM performance	***Supported***
Organization environment has a positive influence on FM competency area	***Supported***
Organization environment has a positive influence on FM Quality	***Supported***
Organization environment has a positive influence on FM trails for continuity	***Supported***
Competitive skills has a positive influence on FM competency area	***Supported***
Competitive skills has a positive influence on FM trails for continuity	***Supported***
Team Dynamics has a positive influence on FM competency area	***Supported***
Team Dynamics has a positive influence on FM Quality	***Supported***
Team Dynamics has a positive influence on FM trails for continuity	***Supported***
Interpersonal skills has a positive influence on FM competency area	***Supported***
Interpersonal skills has a positive influence on FM Quality	***Supported***
Interpersonal skills has a positive influence on FM trails for continuity	***Supported***
Informational skills has a positive influence on FM competency area	***Supported***

The statistically supported hypotheses determine the collaboration of managerial elements and Facilities Management for a better organization growth and to implement quality best practices for continuous improvement. According to Leslie et.al (2002), variables that influence the managerial behaviour is divided into four which is environment, job, person and situational for organizational improvement. Besides, Mullins (1994) also mentioned that to improve management practice, integrating activity is very significant for a collaborative strategy. Therefore, in this study, Organizational Behaviour and Management Support (third order constructs) have a positive influence on Facilities Management that will help to increase the performance level by upgrading the soft skills and to achieve business success in the global marketplace.

Organizational Behaviour need to be supported by organization environment and competitive skills (second order constructs) towards developing a quality organization that aligns with the external sources. It is to maintain a good environment fit and to provide growth of strategy as mentioned by McShane (2013). The hypotheses results in this study justified that organization environment and competitive skills have a positive influence towards Facilities Management performance. This will also produce a long term commitment within business resources as well as to produce skilled FM personnel to increase the reputation and image of FM field. Besides, variables from the first order construct that is statistically supported were team dynamics, interpersonal skills and informational skills. These variables are considered as soft skills that need to be adopted by FM managers to achieve common goals of FM organization. It is important to adopt team dynamics in FM organization to collaborate ideas and will also develop multidisciplinary skills to upgrade the core business for a longer term success.

Team dynamics is also focus on positive relationships among employees for organizational development and increase high performance of work culture as mentioned by the FM experts during the interview session. In the other hand, Robins et.al (2010) mentioned that managers should be aware of skills such as interpersonal, informational and decisional skills for technical and conceptual ability and this was justified earlier in this study. Personal ability will influence the organization development and avoid uncertainties that can cause risk to the organization. FM managers need to understand their important attributes whereby, human resources are the most important resources in a business that involves the ability in increasing the work productivity and broader the business environment.

As an overall, this study justified that adopting Organizational Behaviour is significant in FM field for a collaborative strategy that focuses on human skills at every managerial level consist of strategic level, tactical and operational level. Prior to this, the transformation strategies illustrated in Figure 5.17 will be a tool and a guideline for Facilities Management business in Malaysia to improve and upgrade their best practices for continuous improvement towards business success. It is hope that the transformation strategies as an integrated process will be a knowledge contribution to the FM field as well as benefit the FM organization, management level and the academia for Facilities Management continuity.

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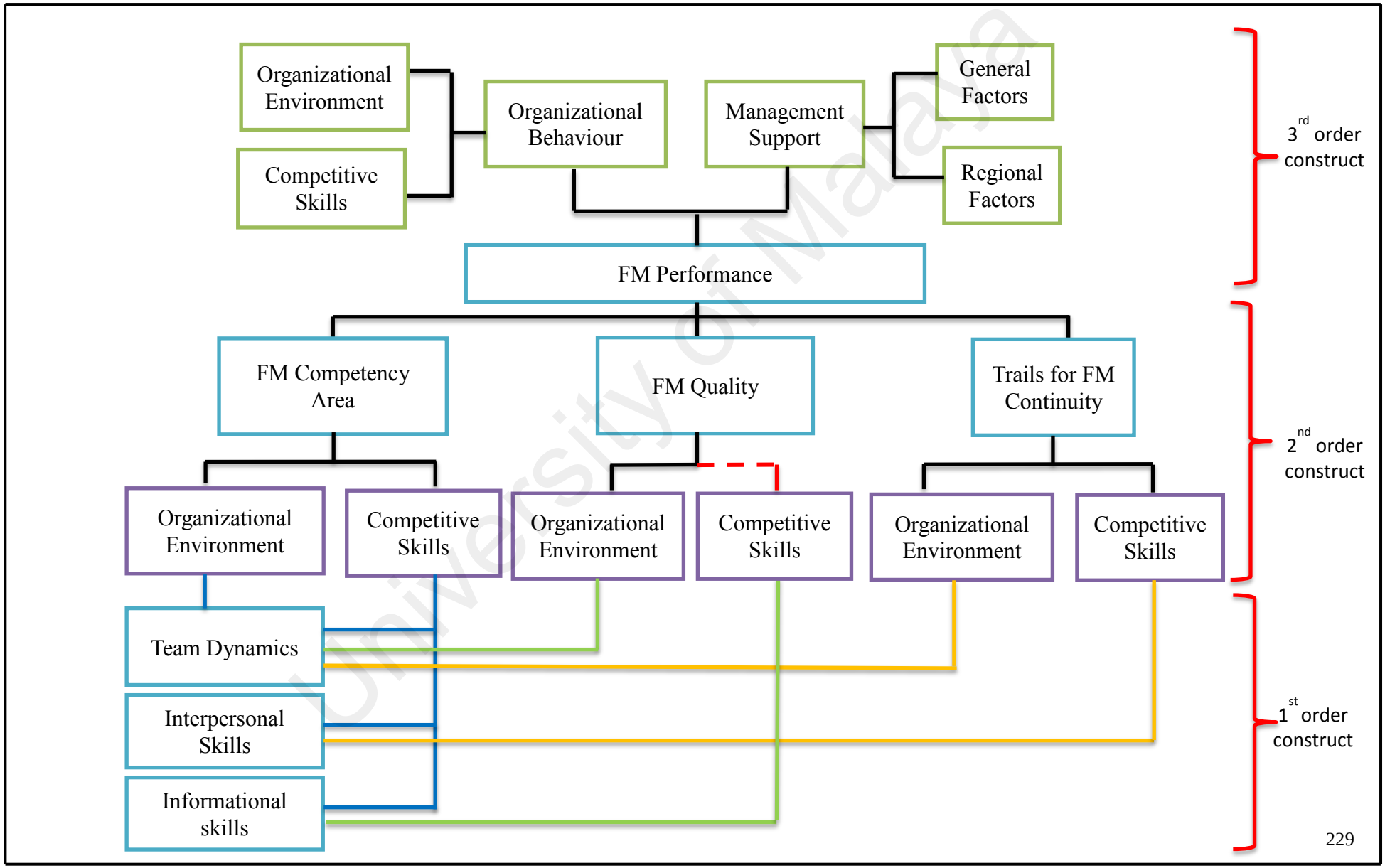

Figure 5.17: The Transformation Strategies for FM in Malaysia

5.6 Summary

As a summary, this research implemented the Sequential Explanatory Design and in this approach, quantitative results were obtained from the SEM model, and were followed by qualitative results as data validation to strengthen the findings and meet the research objectives. Data validation was shown in a tabular form with the descriptions or reasons highlighted by the participants. The construct measures and the hypotheses of this study were validated and supported by participants, in order to create the transformation strategies. As illustrated in Figure 4.6, the conceptual framework explains the knowledge contribution from the development of the transformation strategies that focuses on many elements such as improving the building performance, increasing in investments, increase in customer satisfaction index that can comply with the FM performance and etc. Prior to this, triangulation analysis for the overall findings was presented to foresee the integration of Organizational Behaviour in Facilities Management that provides excellence in business environment. The transformations strategies (Figure 5.17) were developed for a greater quality of professionalism and management practice in FM organization towards business success.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

Chapter 6 presents the conclusions that focus on generalizations drawn from this study by reviewing the findings, which successfully achieved the research objectives. The contribution of knowledge to the FM industry will be highlighted as well as how it can act as a tool towards promoting FM business success. Recommendations for future research in the field of FM are proposed.

6.2 Limitation of the Study

This study was conducted throughout Malaysia to foresee the issues involves in FM field as well as to achieve the objectives and goals of the study. To conduct this study data was collected through questionnaire (Quantitative Method) and the distributed questionnaire was 341. The returned questionnaire was 155 which are approximately 45% beyond the minimal response rate and this is because; some respondents did not give information due to their busy working schedule. The main obstacles faced during this study is lack of information on registered FM companies in Malaysia and therefore, the respondents were chosen from various disciplines throughout built environment that have FM background to support the study. Finally, the data was analysed through SEM model and were validated by FM expertise to develop the transformational framework to remedy the current situation in Malaysia.

6.3 Conclusion of the Study

The main aim of this research was to close the gaps between the strategic level and the operational level of FM. This was initiated by reviewing the literature that focused on several situations that occur in the FM industry. In order to gather information on these situations, interviews were carried out, and these revealed that there are issues related to best practices, people, skills, knowledge and other aspects that contribute to FM business performance. Prior to this, it had been decided to include OB as measures to improve the FM performance. To analyse these measures, data from a questionnaire survey and semi-structured interviews were collected to obtain first-hand knowledge of these situations. In conclusion, a transformation strategies framework was developed to strengthen effectiveness and efficiency in FM to facilitate the business environment. It is hoped that the integration of OB within FM will increase the level of FM performance and contribute to continuous improvement within the industry.

6.3.1 Objective 1: To identify the essential elements for Facilities Management integration

The existing practices and gaps involved within FM industry were identified through a thorough review of literature, and semi-structured interviews were carried out to supplement the findings from the literature. Several issues were revealed, such as FM is often enlisted at the operational level, rather than earlier at the strategic level, misperception of FM practices and poor links between FM managers, overlooking the best practices, people and skills, FM is still in an early stage of development in Malaysia and Lack of awareness and knowledge contribution.

In order to investigate the FM issues with a view to improving them, a conceptual framework and a theoretical framework was developed derived from the literature review that acted as a guideline to carry out this study with a collaborative strategy incorporating strategic, tactical and operational levels. The significant characteristics were derived from the literature review to identify the essential elements of FM. The elements are as below:

(i) Organizational Behaviour (OB)

- Organizational Environment
- Competitive Skills

(ii) Facilities Management Performance

- FM Competency Areas
- FM Quality
- Trails for FM Continuity

(iii) Management support to stimulate the growth of FM

- General factors
- Regional factors

These elements acted as significant predictors to investigate the issues in the FM industry and as a key for FM integration, in order to reflect the core business as well as the human skills needed to add value in FM businesses, globally.

6.3.2 Objective 2: To analyse the critical success factors of Facilities Management (FM) and Organizational Behaviour (OB) to achieve optimum levels of performance

Critical success factors are factors that will contribute to achieve organizations' missions. To support this statement, Amaratunga (2000) mentioned that performance measurement in Facilities Management will be perceived in two ways; the first is the critical success factors for strategic development process, and the second is the learning process within the FM organization.

The factors of FM and OB that were obtained via the questionnaire and analysed using SPSS software to indicate the current state and trends in FM performance. The highest mean obtained from among all these variables was Team Dynamics (M= 4.77), followed by Technical (M=4.59), and Organizational Process (M=4.45). These factors were chosen by the respondents according to the level of importance that they perceived them contributing towards the FM field.

Meanwhile, correlation analysis was applied to identify the relationships between the exogenous variables. All the exogenous variables correlated well and the outcome is to improve the Facilities Management practices for optimum level of performance. As a conclusion all these factors have positive influences among each another and contribution significantly to the creation of transformational strategies for FM in Malaysia.

6.3.3 Objective 3: To analyse closer relationships among people, facility support and facilitation for a collaborative strategy.

To achieve the third objective, thirty three hypotheses were developed to identify the relationships among first, second and third order constructs, and moderating effects on Facilities Management performance. The hypotheses were allocated among four structural models. The statistically supported hypotheses are as follows:

(i) FM Performance

- Organizational Behaviour has a positive influence on Facilities Management Performance
- Management Support has a positive influence on Facilities Management Performance

(ii) FM Competency Area

- Organizational Environment has a positive influence on FM Competency Areas
- Competitive skills has a positive influence on FM Competency Areas
- Team Dynamics has a positive influence on FM Competency Areas
- Interpersonal Skills has a positive influence on FM Competency Areas
- Informational Skills has a positive influence on FM Competency Areas

(iii) FM Quality

- Organizational Environment has a positive influence on FM Quality
- Team Dynamics has a positive influence on FM Quality
- Interpersonal Skills has a positive influence on FM Quality

(iv) Trails for FM Continuity

- Organizational Environment has a positive influence on Trails for FM Continuity
- Competitive Skills has a positive influence on Trails for FM Continuity
- Team Dynamics has a positive influence on Trails for FM Continuity
- Interpersonal Skills has a positive influence on Trails for FM Continuity

These statistically supported hypotheses act as key factors to show the integration among people, facility support and facilitation that will contribute to better FM performance and the ability to achieve business goals.

6.3.4 Objective 4: To develop transformational strategies framework for FM in Malaysia.

The measurement model and the structural model were developed to predict the essential elements and the relationships among people, facility support and facilitation. To develop the transformational strategies framework, the quantitative data from the structural model were validated through semi-structured interviews in order to predict the most important components. The level of significance and extent of positive influence were revealed by the groups of experts, providing evidence to strengthen the competencies of all components that contribute to FM industry. Therefore, as a conclusion, the significant elements of Organizational Behavior provided an important impact on FM performance for FM continuous improvement, FM effectiveness, FM efficiency and FM integration, thereby contributing to FM business success in Malaysia.

6.4 Contribution to the Knowledge

This study focused on how to improve the FM field in Malaysia and to add value to the industry for competitive advantage. For this reason, Organizational Behaviour was included to support future improved FM performance and contribute to changes in the industry. Lack of strategic credibility will affect corporate knowledge and, therefore, business outcomes. Hence, FM managers should focus on human skills in order to be competent within global FM companies for long term development. Meanwhile, the transformation strategies highlighted in this research act as a set of tools to achieve higher competency levels and as a clear intangible component in managing their FM business.

6.5 Recommendations for Future Research

This study covers the mechanism of Organizational Behaviour and its effect on FM performance, and the objectives of the research have been achieved. However, FM is still in its early stages in Malaysia and there are areas that can be focused on in future research. The recommended areas are:

(i) A Study to Develop a Framework of FM Knowledge Management

Knowledge Management plays an important role in every field. Since FM in Malaysia is not yet a mature industry, it needs to be more focused in order to give a greater impact, provide more opportunities and evolve for continuous improvement. Therefore, a study of knowledge management is of vital importance for the development of greater efficiency and effectiveness among FM organizations.

(ii) An In-Depth Study on the Internal Processes of FM for Financial Success

Internal processes can be related to organizations' core skills, procedures, processed and other components that add value to the business. Hence, a study on internal processes will help create a new level of thinking among management that will contribute towards financial success in FM organizations in the longer term.

(iii) A Study on Total Quality Management (TQM) for FM Business in Malaysia.

TQM is a process that focuses on quality within an organization. There are many aspects involved in TQM that help to improve an organization's core business and support services. This study could be carried out to contribute quality knowledge within the FM field and thereby increase the level of productivity and enhanced business success.

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Published Articles

Maszuwita Abdul Wahab, Syahrul-Nizam Kamaruzzaman & Mohd-Khairolden Ghani (2012). Facilities Management in Malaysia: The Significance of Strategic Planning and Management. Journal of Institute Surveyors Malaysia.

Mohd Khairoldeen Ghani, ZUhairi Abd Hamid, Ihfasuziella Ibrahim, Syahrul Nizam Kamaruzzaman, Zairul Nisham Musa& Maszuwita Abdul Wahab (2014). Enhancing Service Delivery in Facilities Management : Case Study of a Malaysian Healthcare Facilities Directorate. Malaysian Construction Research Journal

Maszuwita Abdul Wahab & Syahrul-Nizam Kamaruzzaman (2014). A Preliminary Review: Knowledge Chain for the effective Facilities Management Strategies. Journal of Society for Development of Teaching and Business Processes in New Net Environment in B & H

Proceeding

Maszuwita Abdul Wahab & Syahrul-Nizam Kamaruzzaman. Building Performance and Evaluation Methods: A Preliminary Review (2011). International Conference of Project and Facilities Management, University of Malaya

Maszuwita Abdul Wahab & Syahrul-Nizam Kamaruzzaman. Facilities Management Strategies: A Preliminary Review (2012). Asean Post Graduate Seminar, University of Malaya

LIST OF PRESENTATIONS

Building Performance and Evaluation Methods: A Preliminary Review (2011). International Conference of Project and Facilities Management, University of Malaya. (International)

Facilities Management Strategies: A Preliminary Review (2012). Asian Post Graduate Seminar, University of Malaya. (National)

A Comparative Study on Criteria of Performance Management for Hard FM in Malaysian Healthcare (2013). The 38th Australian Universities Building Education Association Conference. (International)

APPENDIX A

Respondent No:

QUESTIONNAIRE FOR PhD RESEARCH

Department of Building Surveying
Faculty of Built Environment
University of Malaya

PhD CANDIDATE : SR. MASZUWITA ABDUL WAHAB

PhD SUPERVISOR : PROF MADYA SR. DR. SYAHRULNIZAM KAMARUZZAMAN

Dear Respondents,

The purpose of this questionnaire is to identify the perception of practitioners in the built environment that relates to Facilities Management towards business globalization. This survey is part of the methodologies for PhD research. All information shall be used solely for this research and will be confidentiality of your response and your individual information are assured and will not be revealed. The researcher appreciates your opinion and response for the purpose of creating knowledge contribution and achieving the mantra of success in the Facilities Management field in Malaysia for the future.

Yours truly,

SR. MASZUWITA ABDUL WAHAB

GENERAL INSTRUCTIONS AND INFORMATION

1. This survey will only take approximately **25 minutes** to complete
2. Please answer all questions by ticking the best answer
3. If you have any comments, please write on the blank space provided
4. Your co-operation is highly appreciated

Your answer will be kept strictly confidential therefore will not be used otherwise for academic purpose only. If you would like to have a summary of the results, please provide your email address below.

Email: _____

SECTION A: BACKGROUND INFORMATION

A1. Gender

( ) Male
( ) Female

A2. Age Group

( ) 25-30
( ) 31-40
( ) 41-50
( ) 51-60
( ) Above 60

A3. Qualification

( ) Diploma
( ) Bachelor Degree
( ) Masters Degree / PhD
( ) Others. Please specify : _____

A4. Field of work

( ) Facilities Management
( ) Building Surveying
( ) Geomatic & Land Surveying
( ) Property Management, Valuation & Estate Agency Surveying
( ) Quantity Surveying
( ) Architecture
( ) Others. Please specify : _____

A5. Please indicate your years of experience in your current organization (in years)

( ) Less than 5 years
( ) 5 – 10 years
( ) More than 10 years

A6. Category of company

( ) Private Limited Company
( ) Public Listed Company
( ) Government Agency
( ) Government Link Company
( ) Others. Please specify: _____

A7. Current Post

( ) Senior Management
( ) Middle Management
( ) Others. Please specify : _____

A8. Years of experience in managing assets or facilities

( ) No experience
( ) 1 – 5 years
( ) 6 – 10 years
( ) More than 10 years

A9. Please indicate your involvement in managing asset or facilities. You may tick (√) **more than one**

( ) Asset Owner
( ) Authority /Enforcement Agency
( ) Insurer
( ) Facility /Asset / Property Manager
( ) Service Contractor (technical / non technical)
( ) Consultant
( ) Academia / Trainer
( ) Finance Institution / Bank
( ) End User / Public user
( ) Others. Please specify: _____

SECTION B : STATEMENT DESCRIBING FACILITIES MANAGEMENT

Please tick the most preferred answer by selecting the best rating according to the scale provided

---

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

---

B1. Construction Industry Development Board (CIDB, 2011) enclosed few statements in their review. What do you think of the following statement of Facilities Management in the Malaysian context?

Statement	1	2	3	4	5
1. A strategic and integrated management of facilities to continuously meet the requirements and performance standards of stakeholders.	○	○	○	○	○
2. A Multi-discipline profession ensuring continual satisfactory functionality of asset by integrating people, process, workplace, technologies and environment.	○	○	○	○	○
3. An integration of multi-disciplinary activities to develop, maintain and sustain the agreed services of facilities.	○	○	○	○	○
4. The managing of multi-disciplinary activities to ensure continuous functionality of the built environment by linking and integrating people, place, process and technology.	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

B2. What is your perception towards Facilities Management (FM) field?

Perception	1	2	3	4	5
1. FM has to establish its strategic effectiveness.	○	○	○	○	○
2. FM managers should be placed at the strategic level to foresee the effect of changes in the organization.	○	○	○	○	○
3. There is a need in FM for collaborative strategy in developing the system and people within organization.	○	○	○	○	○
4. FM is not only about operation and maintenance but other non-technical aspects are equally important too.	○	○	○	○	○
5. There is an overlook on FM best practices, people, skills and other aspects.	○	○	○	○	○
6. We are lacking of appropriate guidelines or FM strategic framework in Malaysia.	○	○	○	○	○
7. There is a lack of knowledge in FM results in terms of poor performance of properties.	○	○	○	○	○
8. There is a need for transformation strategies for FM in Malaysia.	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

B3. Below are the factors which stimulate the growth of Facilities Management. Please tick your response by selecting the best rating.

Factors	Attribute	Description	1	2	3	4	5
General Factors	1. Global competition	Magnification of the market place leads the organization towards the business arena	○	○	○	○	○
	2. Information technology	Technical discipline for modern organization	○	○	○	○	○
	3. High cost of space	Cost of modern building space had continually risen	○	○	○	○	○
	4. Employee expectations	The working environment that will influence the productivity and skills of employees	○	○	○	○	○
	5. Cost of mistakes	Organization need to avoid errors while dealing with facilities planning that can cause financial breakdown	○	○	○	○	○
Regional factors	6. Regional economy	It may create the stimulus for companies to consider business efficiency and outsourcing	○	○	○	○	○
	7. Property market	Increase competition and escalating maintenance cost to view strategic role of FM	○	○	○	○	○
	8. Market maturity	The availability of specialist subcontractors and suppliers	○	○	○	○	○
	9. Procurement system	System which embrace FM for contributing successful development of FM	○	○	○	○	○
	10. General business environment	Economic, legal, and social circumstances that generally effect everyone in an industry	○	○	○	○	○

SECTION C: FACILITIES MANAGEMENT PERFORMANCE

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

C1. The rapid pace of change will require the Facilities Management professionals develop skills that cover a variety areas. In your opinion, which area gives the most impact towards achieving the performance? Please tick accordingly.

Competency areas	1	2	3	4	5
1. Operation and Maintenance (e.g. buildings and system)	○	○	○	○	○
2. Health, Safety & Environment(e.g. occupational health and safety at work & security)	○	○	○	○	○
3. Asset Management (e.g. strategic planning, financial)	○	○	○	○	○
4. Productivity Management (e.g. finance, budget)	○	○	○	○	○
5. Project Management (e.g. planning, organizing, motivating & controlling)	○	○	○	○	○
6. Resource Management (e.g. financial, inventory, human skills & production)	○	○	○	○	○
7. Contract Management (e.g. statutory requirement)	○	○	○	○	○
8. Risk Management (e.g. identification, assessment, and prioritization of risks)	○	○	○	○	○
9. Energy Management (e.g. Environmental sustainability)	○	○	○	○	○
10. Leadership (e.g. adaptability, , innovation, multi-lingual capabilities, entrepreneurial value)	○	○	○	○	○
11. Procurement Management (e.g. the purchase of goods and services & negotiation strategies)	○	○	○	○	○
12. Business Management (e.g. business continuity planning, the client business process)	○	○	○	○	○
13. Crisis Management (e.g. art of making decisions to head off or mitigate the effects	○	○	○	○	○
14. Quality Management (e.g. Total Quality Management)	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

C2. Below are the quality driven elements for Facilities Management performance. Please tick accordingly.

Competency areas	1	2	3	4	5
1. Globalization of real estate portfolios and associated facilities management strategies	○	○	○	○	○
2. Total energy management (e.g. addressing supply, demand and operational energy management issues as an integrated solution)	○	○	○	○	○
3. Performance based contracts (e.g. partnership designed to create incentive and reward innovation)	○	○	○	○	○
4. Focus on workplace management rather than asset management only	○	○	○	○	○
5. Implementing a quality management method as a measure of quality that strives for near perfection	○	○	○	○	○
6. A commitment to fundamental improvement through knowledge, skills, problem solving and teamwork	○	○	○	○	○
7. A total commitment to continually increasing value for customers, investors, employees, stakeholders and suppliers	○	○	○	○	○
8. A recognition that sustained growth requires the simultaneous achievement	○	○	○	○	○
9. A commitment to lead people for continuous improvement and communication	○	○	○	○	○
10. Focus on customer demand and satisfaction	○	○	○	○	○
11. Leadership	○	○	○	○	○
12. Resource Management	○	○	○	○	○
13. Involvement of employees	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

Competency areas	**1**	**2**	**3**	**4**	**5**
14. Performance measurement	O	O	O	O	O
15. Process and systematic approach	O	O	O	O	O
16. Teamwork	O	O	O	O	O
17. Benchmark (KPI)	O	O	O	O	O

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree	**2.** Disagree	**3.** Neutral	**4.** Agree	**5.** Strongly Agree

C3. Actions for the effective performance of the Facilities Management team. Please tick accordingly.

Actions	1	2	3	4	5
1. More relationship management	○	○	○	○	○
2. Shift to serving employees as internal customers	○	○	○	○	○
3. Specialization by project hiring 1 or 2 consultants	○	○	○	○	○
4. Increase in performance based consultants and employees	○	○	○	○	○
5. FM has to be more generalized encompasses strategic management and organizational behaviour	○	○	○	○	○
6. Increase in outsourcing	○	○	○	○	○
7. Decrease in the use of FM term	○	○	○	○	○
8. Increase in role providing security to company	○	○	○	○	○
9. Increase need for education and training	○	○	○	○	○
10. Building up an understanding of technology and finance	○	○	○	○	○
11. Developing the ability and strategies to use knowledge and to solve problems	○	○	○	○	○
12. Leadership development to train FM managers on how to create and promote change	○	○	○	○	○
13. Embracing change: be entrepreneurial, innovative, risk taking	○	○	○	○	○
14. Measuring customer satisfaction and responds to needs	○	○	○	○	○
15. Demonstrating the value created by facilities management initiates	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree	**2.** Disagree	**3.** Neutral	**4.** Agree	**5.** Strongly Agree

C4. The following are the four essential elements for the continuity of Facilities Management performance. Please tick accordingly.

Elements	Attribute	1	2	3	4	5
Workforce Learning and Performance	1. Knowledge Management	○	○	○	○	○
	2. Cross utilization (e.g. method for improving productivity in service organization)	○	○	○	○	○
	3. Reliability and sustainability	○	○	○	○	○
	4. Accountability, integrity, creativity, innovation and flexibility	○	○	○	○	○
	5. Environmental sensitivity (e.g. environment related management)	○	○	○	○	○
Forecasting Renewal Cost	6. Organizational development	○	○	○	○	○
	7. Contracting for products and services	○	○	○	○	○
	8. Quality assurance	○	○	○	○	○
	9. Budgeting and procurement	○	○	○	○	○
	10. Best practices and benchmarking	○	○	○	○	○
Technical Process	11. Scheduling and quality control	○	○	○	○	○
	12. Use of facilities automation technologies	○	○	○	○	○
	13. System operation and maintenance	○	○	○	○	○
	14. Facility condition assessment	○	○	○	○	○
	15. Engineering and construction	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree	**2.** Disagree	**3.** Neutral	**4.** Agree	**5.** Strongly Agree

Elements	Attribute	1	2	3	4	5
Facilities Asset Management	16. Personnel	○	○	○	○	○
	17. Knowledge asset	○	○	○	○	○
	18. Communication and network equipment	○	○	○	○	○
	19. Facilities automation hardware and software	○	○	○	○	○
	20. Vehicle, equipment, tools, supplies, materials	○	○	○	○	○

SECTION D : ORGANIZATIONAL BEHAVIOR

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree	**2.** Disagree	**3.** Neutral	**4.** Agree	**5.** Strongly Agree

D1. These are the criteria of organizational behaviour for improving organizational performance and to maintain a good organization – environment fit. Please tick accordingly.

Criteria	Description	1	2	3	4	5
1. Organizational culture	Values, visions, working language, systems, and beliefs	○	○	○	○	○
2. Organization climate	The perception of members towards the organization	○	○	○	○	○
3. Organizational design	The creation of roles, processes and formal reporting relationships	○	○	○	○	○
4. Organizational strategy	To evolve over time to meet the organization objectives	○	○	○	○	○
5. Organizational resources	Include human, monetary, raw materials and capital to produce products	○	○	○	○	○
6. Organizational power and politics	Interpersonal communications and is an essential of all actions	○	○	○	○	○
7. Employee commitment	Work related attitudes	○	○	○	○	○
8. Employee satisfaction	Terminology to describe for contented and fulfilling their desires at work	○	○	○	○	○
9. Employee engagement	Commitment to, involvement with and satisfaction with work	○	○	○	○	○
10. Organizational conflict	Adopt appropriate strategies for dealing with the harmful effects and conflict	○	○	○	○	○
11. Change Management	It is important for management to adopt a clearly defined strategy for the initiation of change	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree **2.** Disagree **3.** Neutral **4.** Agree **5.** Strongly Agree

Criteria	Description	1	2	3	4	5
12. Management development	Help employees the develop their personal and organizational skills	○	○	○	○	○
13. Organizational effectiveness	The achievement of the outcomes which the organization intends to produce	○	○	○	○	○
14. Globalization	Economic, social and cultural connectivity	○	○	○	○	○
15. Increase workforce diversity	Demographic or physiological differences in people	○	○	○	○	○
16. Emerging employment relationships	Minimizes conflict between work and non-work demands	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree	**2.** Disagree	**3.** Neutral	**4.** Agree	**5.** Strongly Agree

D2. Skills for managers to be competitive. Please tick accordingly.

Skills	1	2	3	4	5
1. Visionary	○	○	○	○	○
2. Innovator	○	○	○	○	○
3. Insights into financial issues	○	○	○	○	○
4. Solution oriented	○	○	○	○	○
5. Credibility	○	○	○	○	○
6. Information literate and high tech knowledge	○	○	○	○	○
7. Value oriented	○	○	○	○	○
8. Strategic thinker	○	○	○	○	○
9. Communication and people skills	○	○	○	○	○
10. Project planning and organizational skills	○	○	○	○	○
11. Able to organize and complete multiple tasks	○	○	○	○	○
12. Self-promoter	○	○	○	○	○
13. Self confidence in personal skills	○	○	○	○	○
14. Global work experience	○	○	○	○	○
15. Entrepreneurship skills	○	○	○	○	○

Please tick the most preferred answer by selecting the best rating according to the scale provided

1. Strongly Disagree	**2.** Disagree	**3.** Neutral	**4.** Agree	**5.** Strongly Agree

D3. Below are the interventions for the effective organizational behaviour. Please tick accordingly.

Interventions	1	2	3	4	5
1. Alignment with organizational strategy	○	○	○	○	○
2. Career development plans	○	○	○	○	○
3. Electronic performance support tools and system	○	○	○	○	○
4. Elimination of interfering task	○	○	○	○	○
5. Leadership development	○	○	○	○	○
6. Performance management	○	○	○	○	○
7. Job aids	○	○	○	○	○

Based on your knowledge and experience, what is your recommendation for the Facilities Management field in Malaysia towards business and innovation?

Thank you for your valuable time to complete this questionnaire. Your assistance in providing this information is very much appreciated. If there is anything else you would like to tell us about this survey or other comments you wish to make, please do so in the space provided below.

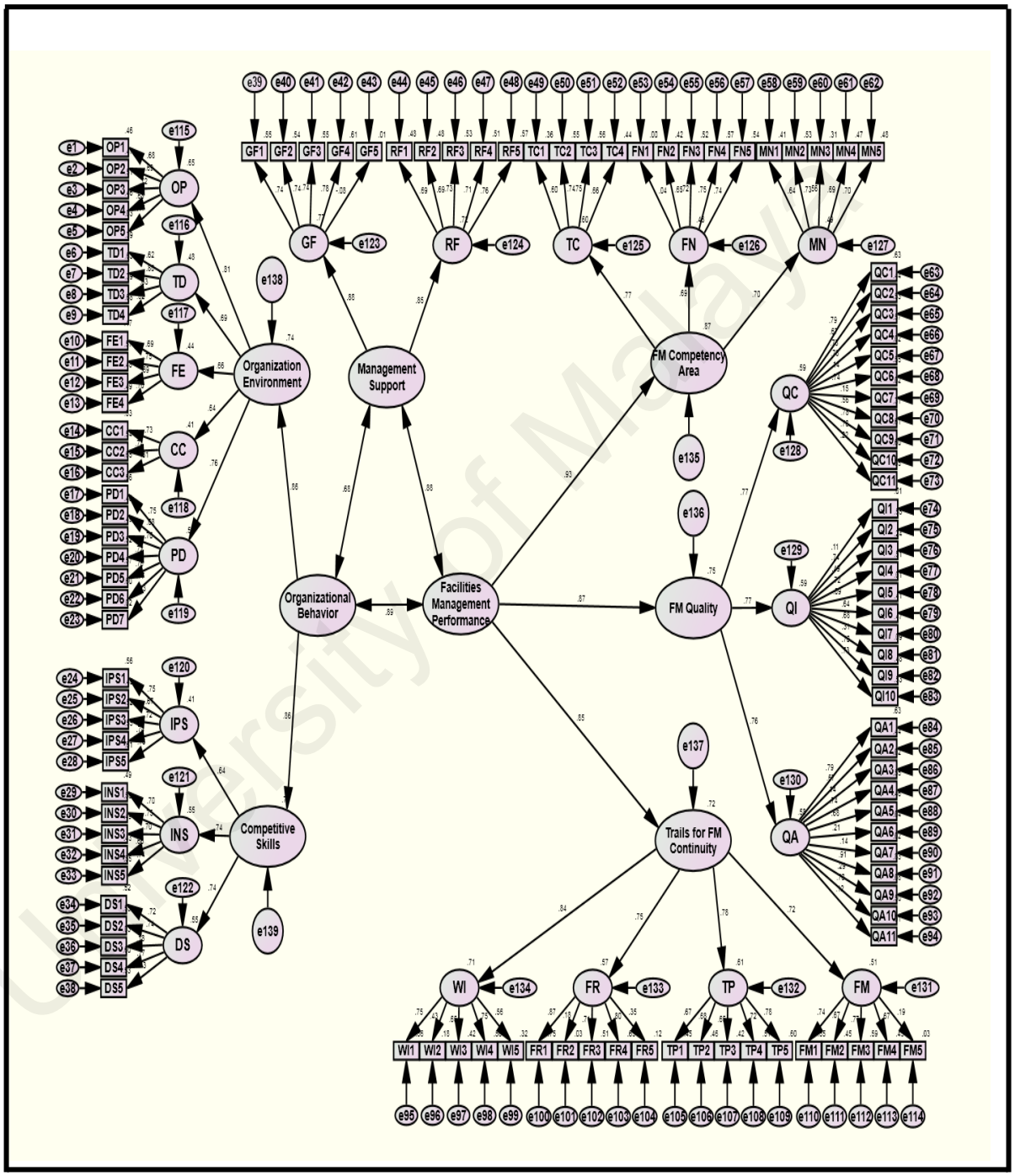
Please return your completed questionnaire in the envelope provided to:

Sr. Maszuwita Abdul Wahab
PhD Researcher
Department of Estate Management
Faculty of Architecture, Planning & Surveying
University Teknologi MARA (UiTM)
40450 Shah Alam, Selangor.

Tel : 012-4313579
Email :
rehna_19@yahoo.co.uk
maszuwitawahab@yahoo.co.uk

APPENDIX B

All exogenous and endogenous variables together with their relative estimation errors.



APPENDIX C – Asessment of data normality

Construct	Item	*Skewness*	c.r.	Kurtosis	c.r.	Distribution Status
Organizational Process (OP)	OP1	*0.35*	1.74	-0.8	-1.99	Normal
	OP2	*0.18*	0.92	-0.79	-1.96	Normal
	OP3	*0.17*	0.83	-1.03	-2.54	Normal
	OP4	*0.18*	0.92	-0.79	-1.96	Normal
	OP5	*0.15*	0.74	-1.98	-4.89	Normal
Team Dynamics (TD)	TD1	*0.78*	3.84	0.25	0.62	Normal
	TD2	*0.21*	1.02	-0.56	-1.39	Normal
	TD3	*0.76*	3.77	-0.35	-0.86	Normal
	TD4	*0*	0	-0.68	-1.69	Normal
Foundation Of Employee (FE)	FE1	*0.86*	4.25	-0.07	-0.18	Normal
	FE2	*0.54*	2.69	-0.44	-1.08	Normal
	FE3	*0.93*	4.59	0.14	0.35	Normal
	FE4	*0.88*	4.37	-0.61	-1.52	Normal
Contemporary Challenges (CC)	CC1	*0.67*	3.3	-0.58	-1.42	Normal
	CC2	*1.15*	5.68	1	2.47	Normal
	CC3	*0.69*	3.4	-0.05	-0.12	Normal
Program Development (PD)	PD1	*0.16*	0.79	-0.82	-2.03	Normal
	PD2	*0.44*	2.2	0	0.01	Normal
	PD3	*0.29*	1.46	-0.17	-0.41	Normal
	PD4	*0.32*	1.57	0.43	1.07	Normal
	PD5	*0.06*	0.31	-0.75	-1.86	Normal
	PD6	*-0.12*	-0.58	-0.62	-1.55	Normal
	PD7	*0.36*	1.79	0.04	0.09	Normal
Interpersonal Skills (IPS)	IPS1	*0.33*	1.61	-0.84	-2.09	Normal
	IPS2	*0.6*	2.97	-0.3	-0.73	Normal
	IPS3	*0.63*	3.11	-0.22	-0.54	Normal
	IPS4	*0.34*	1.68	-0.04	-0.09	Normal
	IPS5	*0.32*	1.61	-0.33	-0.8	Normal
Informational Skills (INS)	INS1	*0.37*	1.84	-0.21	-0.51	Normal
	INS2	*-0.14*	-0.68	-0.78	-1.93	Normal
	INS3	*0.23*	1.16	-0.72	-1.79	Normal
	INS4	*0.64*	3.15	-0.64	-1.59	Normal
	INS5	*0.33*	1.61	-0.84	-2.09	Normal
Decisional Skills (DS)	DS1	*0.41*	2.04	-0.4	-0.98	Normal
	DS2	*0.35*	1.73	-0.27	-0.66	Normal
	DS3	*0.88*	4.37	-0.61	-1.52	Normal
	DS4	*0.25*	1.25	-0.48	-1.18	Normal
	DS5	*0.41*	2.04	-0.4	-0.98	Normal
Technical (TC)	TC1	*0.03*	0.13	-0.37	-0.91	Normal
	TC2	*-0.2*	-0.98	-0.58	-1.43	Normal
	TC3	*-0.04*	-0.18	-0.33	-0.82	Normal
	TC4	*0.08*	0.39	-0.16	-0.39	Normal
Financial (FN)	FN1	*-0.59*	-2.91	-0.6	-1.49	Normal
	FN2	*0.21*	1.03	-0.02	-0.05	Normal
	FN3	*-0.12*	-0.61	-0.49	-1.21	Normal
	FN4	*-0.29*	-1.44	-0.77	-1.91	Normal
	FN5	*-0.07*	-0.37	-0.39	-0.97	Normal
Management (MN)	MN1	*0.23*	1.13	-0.14	-0.36	Normal
	MN2	*-0.27*	-1.34	-0.73	-1.79	Normal
	MN3	*-0.22*	-1.1	-0.63	-1.56	Normal
	MN4	*-0.03*	-0.15	-0.22	-0.54	Normal
	MN5	*-0.12*	-0.62	-0.49	-1.21	Normal
Quality Control (QC)	QC1	*-0.5*	-2.45	-0.77	-1.9	Normal
	QC2	*-0.04*	-0.18	-0.32	-0.8	Normal
	QC3	*-0.21*	-1.05	-0.69	-1.7	Normal

	QC4	*-0.22*	-1.07	-0.64	-1.59	Normal
	QC5	*-0.11*	-0.55	-0.59	-1.46	Normal
	QC6	*-0.35*	-1.73	-0.75	-1.86	Normal
	QC7	*0.12*	0.61	-0.87	-2.14	Normal
	QC8	*-0.29*	-1.45	-0.65	-1.6	Normal
	QC9	*-0.34*	-1.7	-0.72	-1.79	Normal
	QC10	*-0.21*	-1.02	-0.61	-1.51	Normal
	QC11	*-0.17*	-0.85	-0.65	-1.62	Normal
Quality Improvement (QI)	QI1	*0.16*	0.77	1.29	3.19	Normal
	QI2	*-0.14*	-0.69	-0.52	-1.28	Normal
	QI3	*0.03*	0.14	-0.16	-0.39	Normal
	QI4	*-0.2*	-0.99	-0.62	-1.54	Normal
	QI5	*-0.42*	-2.1	-0.8	-1.98	Normal
	QI6	*-0.01*	-0.07	-0.24	-0.58	Normal
	QI7	*-0.11*	-0.56	-0.45	-1.12	Normal
	QI8	*0.15*	0.73	-0.66	-1.64	Normal
	QI9	*-0.09*	-0.47	-0.42	-1.05	Normal
	QI10	*-0.16*	-0.77	-0.55	-1.36	Normal
Quality Assurance (QA)	QA1	*-0.2*	-0.99	-0.7	-1.73	Normal
	QA2	*0.07*	0.32	0.4	0.99	Normal
	QA3	*0.08*	0.4	0.39	0.97	Normal
	QA4	*-0.08*	-0.39	-0.57	-1.41	Normal
	QA5	*0.07*	0.34	0.16	0.39	Normal
	QA6	*0.34*	1.68	1.02	2.53	Normal
	QA7	*0.91*	4.52	1.82	4.51	Normal
	QA8	*-0.4*	-1.98	-1.25	-3.09	Normal
	QA9	*0.17*	0.84	0.6	1.48	Normal
	QA10	*0.01*	0.06	-0.07	-0.18	Normal
	QA11	*-0.67*	-3.3	-1.1	-2.73	Normal
Workforce Learning (WL)	WL1	*-0.13*	-0.67	-0.59	-1.46	Normal
	WL2	*0.25*	1.25	-0.48	-1.18	Normal
	WL3	*-0.04*	-0.22	-0.38	-0.95	Normal
	WL4	*-0.23*	-1.13	-0.63	-1.55	Normal
	WL5	*0.2*	1.01	-0.38	-0.94	Normal
Forecasting Renewal Cost (FR)	FR1	*0.05*	0.22	-0.33	-0.81	Normal
	FR2	*0.69*	3.42	3.12	7.71	Normal
	FR3	*0.26*	1.31	0.19	0.46	Normal
	FR4	*0.54*	2.69	-0.05	-0.12	Normal
	FR5	*0.71*	3.53	-0.96	-2.39	Normal
Technical Process (TP)	TP1	*-0.05*	-0.27	-0.56	-1.39	Normal
	TP2	*-0.07*	-0.35	-0.4	-0.99	Normal
	TP3	*-0.13*	-0.64	-0.48	-1.2	Normal
	TP4	*-0.16*	-0.77	-0.55	-1.36	Normal
	TP5	*-0.1*	-0.49	-0.48	-1.18	Normal
Facilities Asset Management (FM)	FM1	*-0.18*	-0.9	-0.67	-1.66	Normal
	FM2	*-0.03*	-0.15	-0.41	-1	Normal
	FM3	*-0.33*	-1.65	-0.66	-1.64	Normal
	FM4	*0.16*	0.78	-0.03	-0.08	Normal
	FM5	*0.75*	3.69	0.14	0.36	Normal
General Factors (GF)	GF1	*0.33*	1.62	0.9	2.23	Normal
	GF2	*0.43*	2.14	1.37	3.4	Normal
	GF3	*0.33*	1.62	0.9	2.23	Normal
	GF4	*0.27*	1.33	-0.02	-0.05	Normal
	GF5	*-1.04*	-5.15	0.57	1.4	Normal
Regional Factors (RF)	RF1	*0.34*	1.66	0.53	1.3	Normal
	RF2	*0.01*	0.03	-0.13	-0.33	Normal
	RF3	*-0.15*	-0.73	-0.56	-1.4	Normal
	RF4	*-0.19*	-0.96	-0.59	-1.45	Normal
	RF5	*0.16*	0.78	-0.03	-0.08	Normal

APPENDIX C-1

Removing Outliers (Mahalanobis distance)

Number of variables in the model = 281

Max (D^2) / (no. variables) = 131.30 / 281 = 0.467 which is < 3.5 → No Multivariate Outliers

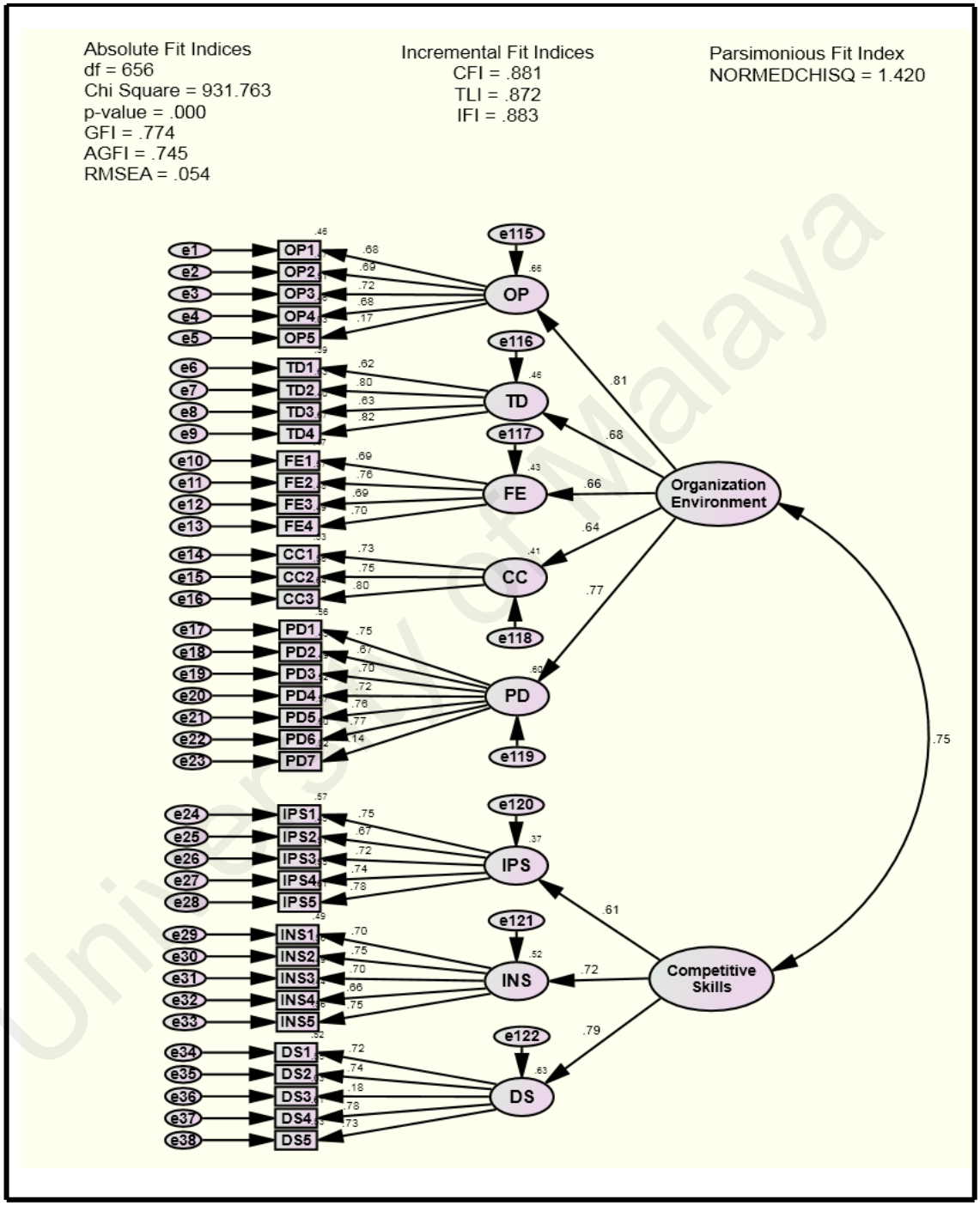
Observation number	Mahalanobis d-squared	p1	p2
99	131.30	.13	1.00
25	129.35	.15	1.00
117	129.00	.16	1.00
35	128.47	.17	1.00
76	126.87	.19	1.00
101	126.10	.21	1.00
147	126.05	.21	1.00
114	126.03	.21	1.00
70	125.89	.21	1.00
1	125.54	.22	1.00
96	125.38	.22	1.00
26	125.37	.22	1.00
91	125.11	.22	1.00
2	124.93	.23	1.00
79	124.46	.24	1.00
126	124.39	.24	1.00
34	124.29	.24	1.00
19	123.43	.26	1.00
104	123.41	.26	1.00
22	123.12	.26	1.00
81	123.06	.26	1.00
95	122.99	.27	1.00
16	122.67	.27	1.00
67	122.65	.27	1.00
66	122.36	.28	1.00
116	122.35	.28	1.00
30	122.27	.28	1.00
32	121.99	.29	1.00
24	121.96	.29	1.00
49	121.81	.29	.99
69	121.59	.30	.99
146	121.37	.30	.99
89	121.25	.30	.99
64	121.11	.31	.98
7	121.08	.31	.97
142	121.04	.31	.96
10	121.01	.31	.95
37	120.80	.31	.94
6	120.79	.31	.91
53	120.66	.32	.90
23	120.50	.32	.88
140	120.38	.32	.86
103	120.37	.32	.81
15	120.34	.32	.77
65	120.34	.32	.71
80	120.31	.32	.65
17	120.17	.33	.61
61	120.04	.33	.58
141	119.98	.33	.52
27	119.74	.34	.51
43	119.71	.34	.45
136	119.43	.35	.45

137	119.28	.35	.41
87	119.16	.35	.37
33	118.97	.36	.35
97	118.84	.36	.32
125	118.78	.36	.27
62	118.74	.36	.23
134	118.57	.37	.21
124	118.28	.37	.21
139	118.22	.37	.18
12	118.15	.38	.15
50	117.99	.38	.13
112	117.84	.38	.11
133	117.74	.39	.10
135	117.64	.39	.08
21	117.61	.39	.06
39	117.47	.39	.05
20	117.44	.39	.04
143	116.85	.41	.06
60	116.82	.41	.04
57	116.69	.41	.04
121	116.30	.42	.04
105	116.27	.42	.03
90	116.24	.42	.02
88	116.18	.43	.02
8	116.12	.43	.01
113	116.05	.43	.01
48	115.70	.44	.01
59	115.13	.45	.02
83	114.99	.46	.01
14	114.54	.47	.02
45	114.41	.47	.01
108	114.10	.48	.02
75	113.81	.49	.02
42	113.72	.49	.01
86	113.48	.50	.01
36	113.43	.50	.01
44	113.18	.50	.01
93	113.02	.51	.01
46	112.75	.52	.01
111	112.23	.53	.01
41	112.15	.53	.01
131	111.96	.54	.01
130	111.94	.54	.00
77	111.46	.55	.01
31	111.45	.55	.00
18	111.24	.56	.00
9	110.92	.56	.00
115	110.65	.57	.00

A CFA Model for OB

APPENDIX D-1

First Organizational Behaviour model with all 38 items



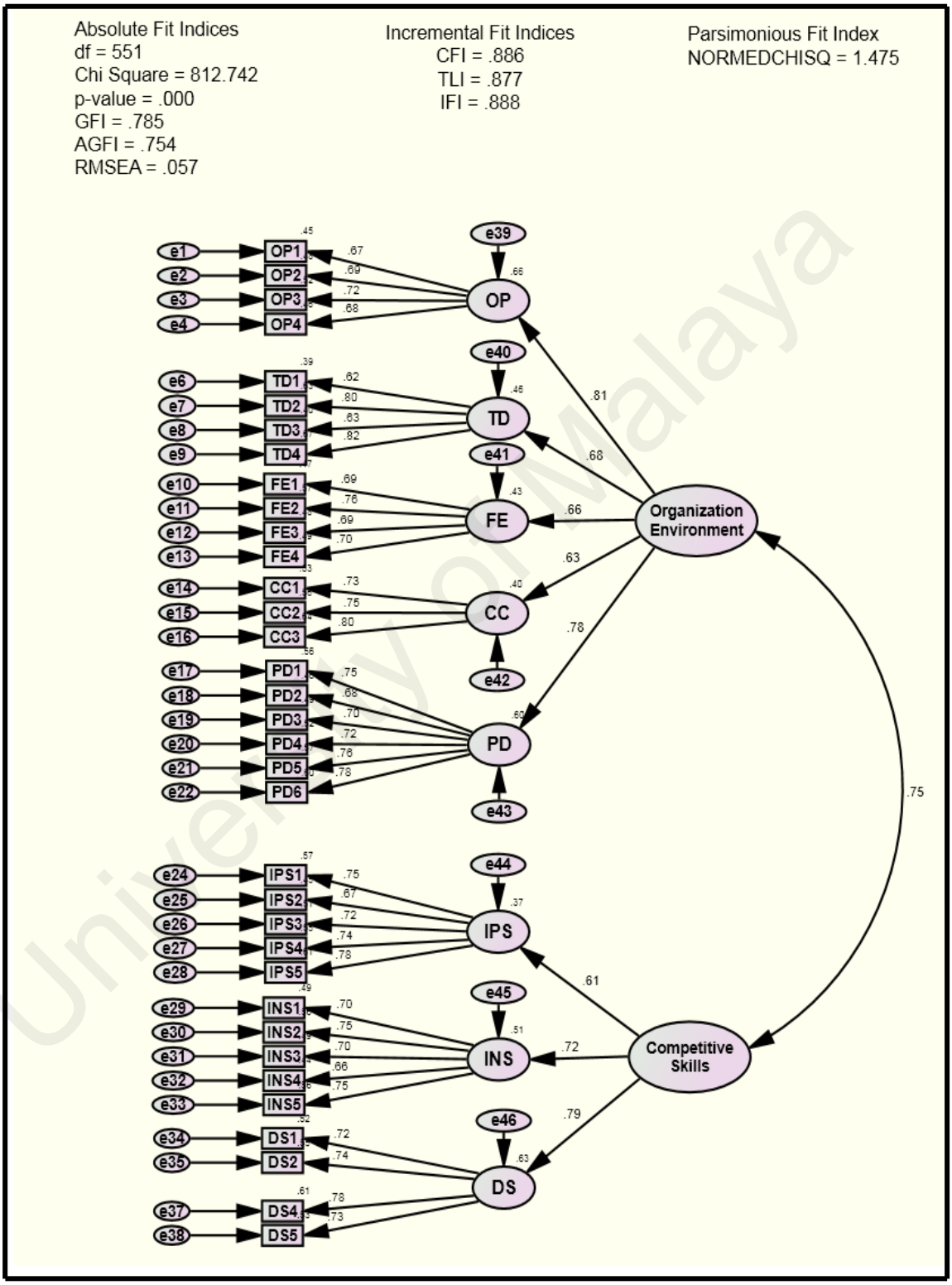
APPENDIX D-2

Discarded Items Due to Insufficient Factor Loadings in Organizational Behaviour CFA Model

Construct	Item /Construct	First Factor Loading	Item Deleted	Second Factor Loading
Organizational Process (OP)	OP1	0.68		0.67
	OP2	0.69		0.69
	OP3	0.72		0.72
	OP4	0.68		0.68
	OP5	0.17	Deleted	
Team Dynamics (TD)	TD1	0.62		0.62
	TD2	0.8		0.8
	TD3	0.63		0.63
	TD4	0.82		0.82
Foundation Of Employee (FE)	FE1	0.69		0.69
	FE2	0.76		0.76
	FE3	0.69		0.69
	FE4	0.7		0.7
Contemporary Challenges (CC)	CC1	0.73		0.73
	CC2	0.75		0.75
	CC3	0.8		0.8
Program Development (PD)	PD1	0.75		0.75
	PD2	0.67		0.68
	PD3	0.7		0.7
	PD4	0.72		0.72
	PD5	0.76		0.76
	PD6	0.77		0.78
	PD7	0.14	Deleted	
Organization Environment	OP	0.81		0.81
	TD	0.68		0.68
	FE	0.66		0.66
	CC	0.64		0.63
	PD	0.77		0.78
Interpersonal Skills (IPS)	IPS1	0.75		0.75
	IPS2	0.67		0.67
	IPS3	0.72		0.72
	IPS4	0.74		0.74
	IPS5	0.78		0.78
Informational Skills (INS)	INS1	0.7		0.7
	INS2	0.75		0.75
	INS3	0.7		0.7
	INS4	0.66		0.66
	INS5	0.75		0.75
Decisional Skills (DS)	DS1	0.72		0.72
	DS2	0.74		0.74
	DS3	0.18	Deleted	
	DS4	0.78		0.78
	DS5	0.73		0.73
Competitive Skills	IPS	0.61		0.61
	INS	0.72		0.72
	DS	0.79		0.79

APPENDIX D-3

Second Organizational Behaviour model with remainder 35 items



Appendix D-4

Results of Cronbach Alpha and Convergent Validity for Organizational Behaviour CFA Model

Construct	**Item /Construct**	**Internal Reliability Cronbach Alpha**	**Convergent validity**		
			Final Factor Loading	**Average Variance Extracted (AVE)[a]**	**Composite Reliability (CR)[b]**
Organizational Process (OP)	OP1	0.784	0.66	0.525	0.815
	OP2		0.68		
	OP3		0.78		
	OP4		0.77		
	OP5		0.17 [c]		
Team Dynamics (TD)	TD1	0.778	0.64	0.602	0.817
	TD2		0.82		
	TD3		0.63 [d]		
	TD4		0.85		
Foundation Of Employee (FE)	FE1	0.801	0.75	0.556	0.833
	FE2		0.8		
	FE3		0.71		
	FE4		0.72		
Contemporary Challenges (CC)	CC1	0.801	0.73	0.578	0.804
	CC2		0.75		
	CC3		0.8		
Program Development (PD)	PD1	0.844	0.68	0.540	0.853
	PD2		0.65		
	PD3		0.73		
	PD4		0.8		
	PD5		0.76 [e]		
	PD6		0.8		
	PD7		0.14 [c]		
Organization Environment	OP	0.849	0.76	0.482	0.821
	TD		0.65		
	FE		0.62		
	CC		0.62		
	PD		0.8		
Interpersonal Skills (IPS)	IPS1	0.825	0.77	0.550	0.829
	IPS2		0.67		
	IPS3		0.72 [d]		
	IPS4		0.73		
	IPS5		0.79		
Informational Skills (INS)	INS1	0.836	0.71	0.500	0.833
	INS2		0.73		
	INS3		0.71		
	INS4		0.66		
	INS5		0.72		

Decisional Skills (DS)	DS1	0.831	0.72	0.552	0.831
	DS2		0.74		
	DS3		0.18 [c]		
	DS4		0.78		
	DS5		0.73		
Competitive Skills	IPS	0.805	0.6	0.506	0.752
	INS		0.73		
	DS		0.79		

[a]: Average Variance Extracted = (summation of the square of the factor loadings)/{(summation of the square of the factor loadings) + (summation of the error variances)}.

[b]: Composite reliability = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

[c]: Denotes for discarded item due to insufficient factor loading below the cut-off 0.5

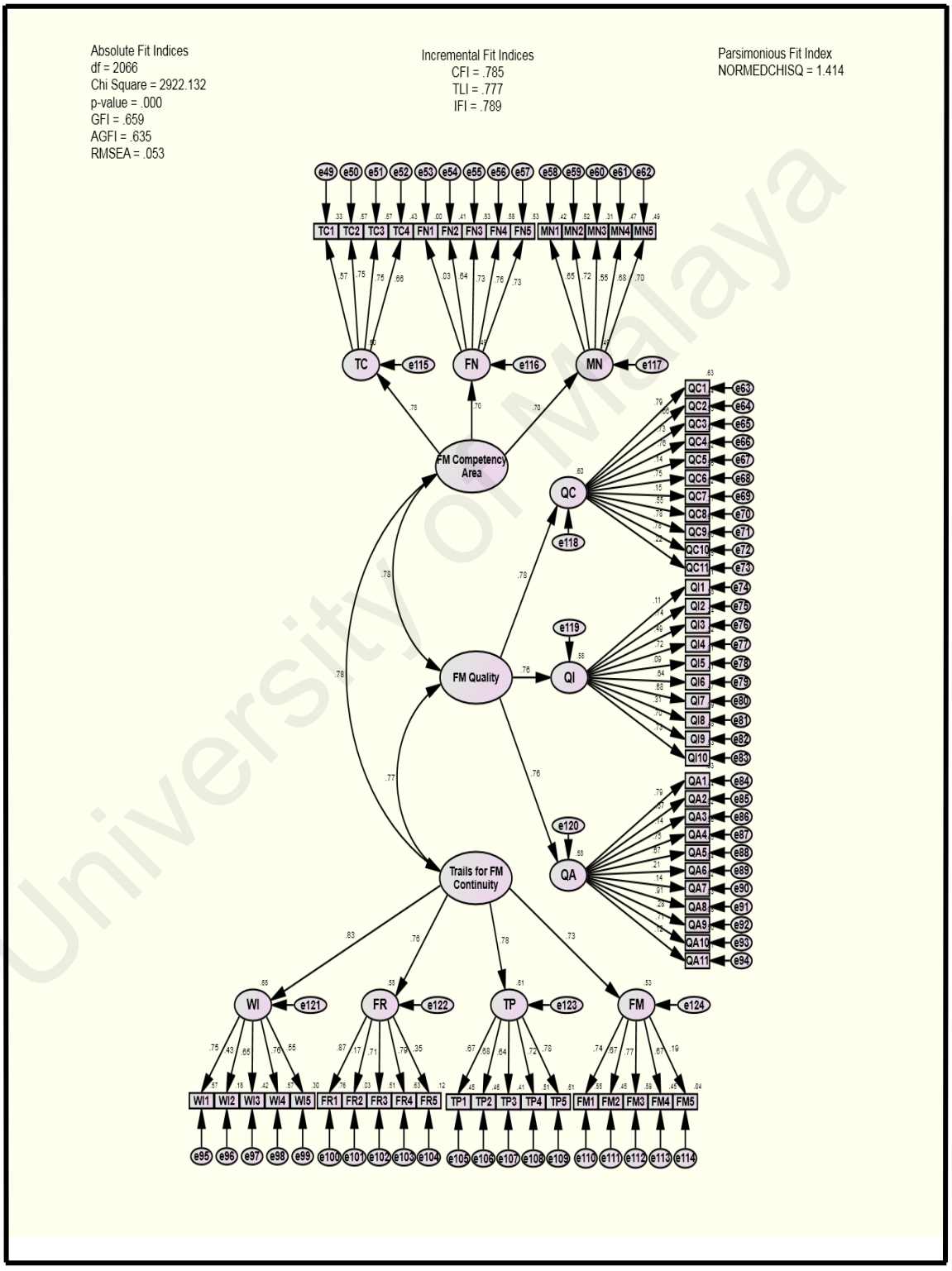
[d]: Denotes for discarded item due to high M.I. value of error covariance (above 15)

e: Denotes for discarded item due to high Standardize Residual covariance (above 2.58)

CFA Model for FMP

APPENDIX E-1

First Facilities Management Performance model with all 66 items



APPENDIX E-2

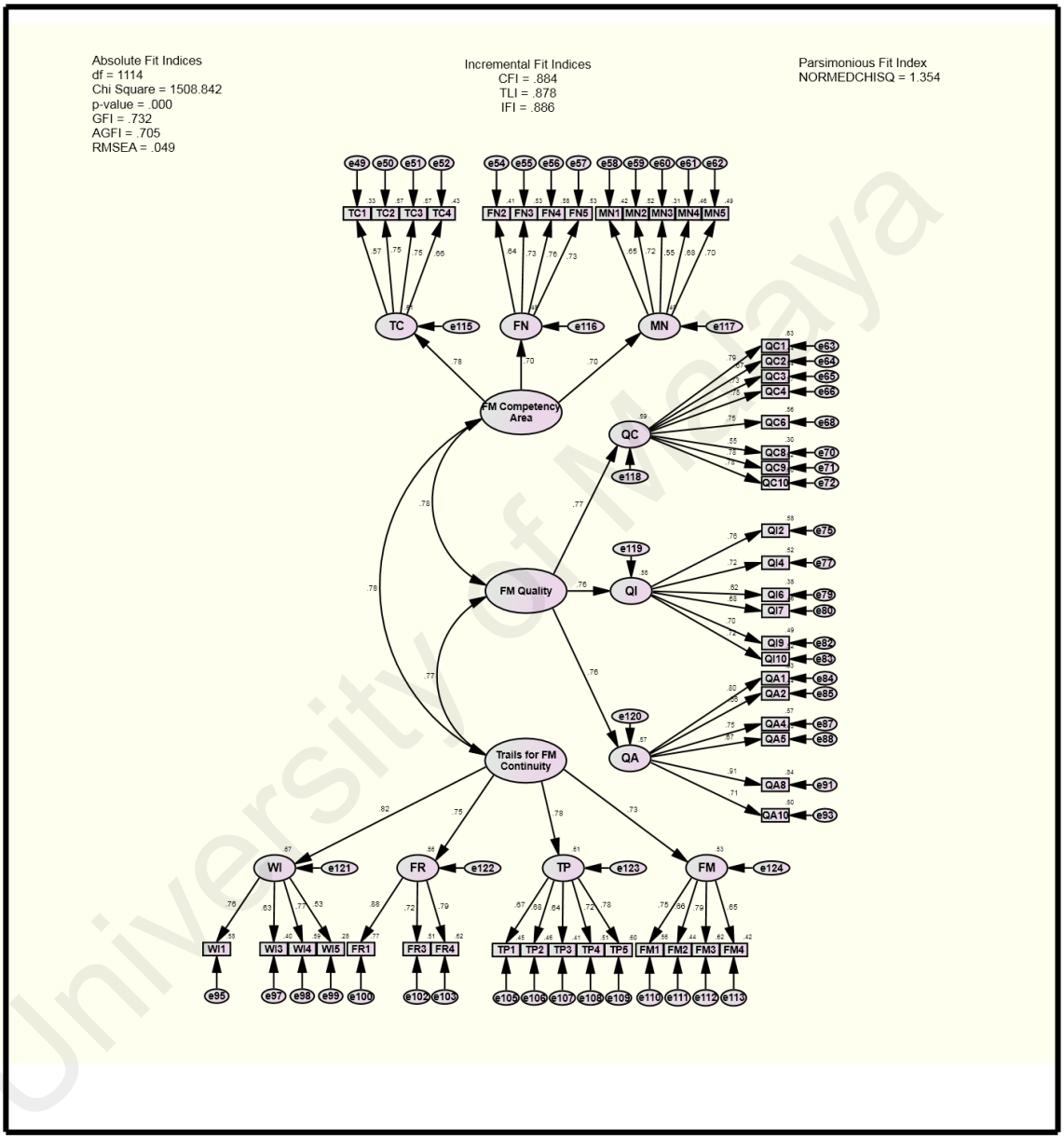
Discarded Items Due to Insufficient Factor Loadings in Facilities Management Performance CFA Model

Construct	Item /Construct	First Factor Loading	Item Deleted	Second Factor Loading
Technical (TC)	TC1	0.57		0.57
	TC2	0.75		0.75
	TC3	0.75		0.75
	TC4	0.66		0.66
Financial (FN)	FN1	0.03	Deleted	
	FN2	0.64		0.64
	FN3	0.73		0.73
	FN4	0.76		0.76
	FN5	0.73		0.73
Management (MN)	MN1	0.65		0.65
	MN2	0.72		0.72
	MN3	0.55		0.55
	MN4	0.68		0.68
	MN5	0.7		0.7
FM Competency Areas	TC	0.78		0.78
	FN	0.7		0.7
	MN	0.7		0.7
Quality Control (QC)	QC1	0.79		0.79
	QC2	0.66		0.67
	QC3	0.73		0.73
	QC4	0.76		0.75
	QC5	0.14	Deleted	
	QC6	0.75		0.75
	QC7	0.15	Deleted	
	QC8	0.55		0.55
	QC9	0.78		0.78
	QC10	0.78		0.78
	QC11	0.22	Deleted	
Quality Improvement (QI)	QI1	0.11	Deleted	
	QI2	0.74		0.76
	QI3	0.49	Deleted	
	QI4	0.72		0.72
	QI5	0.09	Deleted	
	QI6	0.64		0.62
	QI7	0.68		0.68
	QI8	0.31	Deleted	
	QI9	0.7		0.7
	QI10	0.73		0.72
Quality Assurance (QA)	QA1	0.79		0.8
	QA2	0.67		0.66
	QA3	0.14	Deleted	
	QA4	0.75		0.75
	QA5	0.67		0.67
	QA6	0.21	Deleted	

	QA7	0.14	Deleted	
	QA8	0.91		0.91
	QA10	0.71		0.71
	QA11	0.12	Deleted	
FM Quality	QC	0.78		0.77
	QI	0.76		0.76
	QA	0.76		0.76
Workforce Learning (WL)	WL1	0.75		0.76
	WL2	0.43	Deleted	
	WL3	0.65		0.63
	WL4	0.76		0.77
	WL5	0.55		0.53
Forecasting Renewal Cost (FR)	FR1	0.87		0.88
	FR2	0.17	Deleted	
	FR3	0.71		0.72
	FR4	0.79		0.79
	FR5	0.35	Deleted	
Technical Process (TP)	TP1	0.67		0.67
	TP2	0.68		0.68
	TP3	0.64		0.64
	TP4	0.72		0.72
	TP5	0.78		0.78
Facilities Asset Management (FM)	FM1	0.74		0.75
	FM2	0.67		0.66
	FM3	0.77		0.79
	FM4	0.67		0.65
	FM5	0.19	Deleted	
Trails for FM Continuity	WL	0.83		0.82
	FR	0.76		0.75
	TP	0.78		0.78
	FM	0.73		0.73

APPENDIX E-3

Second Facilities Management Performance model with remainder 49 items



APPENDIX E-4

Results of Cronbach's Alpha and Convergent Validity for Facilities Management Performance CFA Model

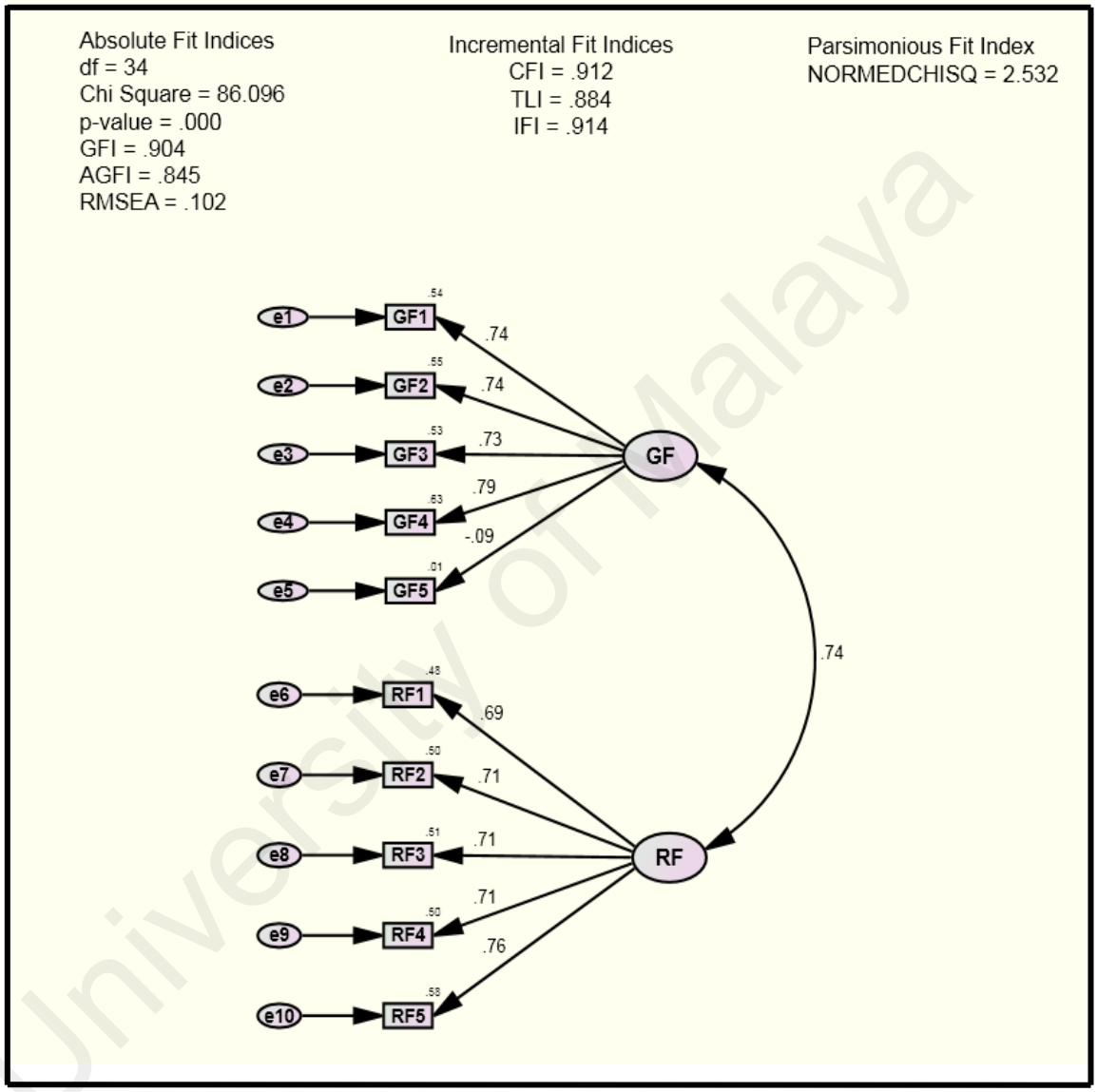
Construct	Item /Construct	Internal Reliability Cronbach Alpha	Convergent validity		
			Final Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]
Technical (TC)	TC1	0.760	0.57 [d]	0.541	0.779
	TC2		0.8		
	TC3		0.74		
	TC4		0.66		
Financial (FN)	FN1	0.805	0.03 [c]	0.513	0.808
	FN2		0.64		
	FN3		0.73		
	FN4		0.77		
	FN5		0.72		
Management (MN)	MN1	0.781	0.63	0.503	0.801
	MN2		0.71		
	MN3		0.55 [e]		
	MN4		0.72		
	MN5		0.82		
FM Competency Areas	TC	0.799	0.76	0.520	0.764
	FN		0.73		
	MN		0.67		
Quality Control (QC)	QC1	0.900	0.79	0.567	0.901
	QC2		0.65		
	QC3		0.73		
	QC4		0.76		
	QC5		0.14 [c]		
	QC6		0.76		
	QC7		0.15 [c]		
	QC8		0.55 [d]		
	QC9		0.8		
	QC10		0.77		
	QC11		0.22 [c]		
Quality Improvement (QI)	QI1	0.852	0.11 [c]	0.492	0.853
	QI2		0.76		
	QI3		0.49 [c]		
	QI4		0.72		
	QI5		0.09 [c]		
	QI6		0.62		
	QI7		0.68		
	QI8		0.31 [c]		
	QI9		0.7		
	QI10		0.72		
Quality Assurance (QA)	QA1	0.887	0.8	0.570	0.887
	QA2		0.66		
	QA3		0.14 [c]		
	QA4		0.75		
	QA5		0.67		
	QA6		0.21 [c]		
	QA7		0.14 [c]		
	QA8		0.91		
	QA9		0.28 [c]		

	QA10		0.71		
	QA11		0.12 [c]		
FM Quality	QC	0.828	0.76	0.578	0.804
	QI		0.76		
	QA		0.76		
Workforce Learning (WL)	WL1	0.761	0.77	0.534	0.773
	WL2		0.43 [c]		
	WL3		0.62		
	WL4		0.79		
	WL5		0.53 [e]		
Forecasting Renewal Cost (FR)	FR1	0.833	0.88	0.634	0.838
	FR2		0.17 [c]		
	FR3		0.71		
	FR4		0.79		
	FR5		0.35 [c]		
Technical Process (TP)	TP1	0.824	0.73	0.511	0.839
	TP2		0.73		
	TP3		0.65		
	TP4		0.7		
	TP5		0.76		
Facilities Asset Management (FM)	FM1	0.762	0.78	0.598	0.816
	FM2		0.66 [d]		
	FM3		0.85		
	FM4		0.68		
	FM5		0.19 [c]		
Trails for FM Continuity	WL	0.863	0.8	0.564	0.838
	FR		0.75		
	TP		0.75		
	FM		0.7		

CFA Model Management Support

APPENDIX F-1

First Management Support model with all 10 items



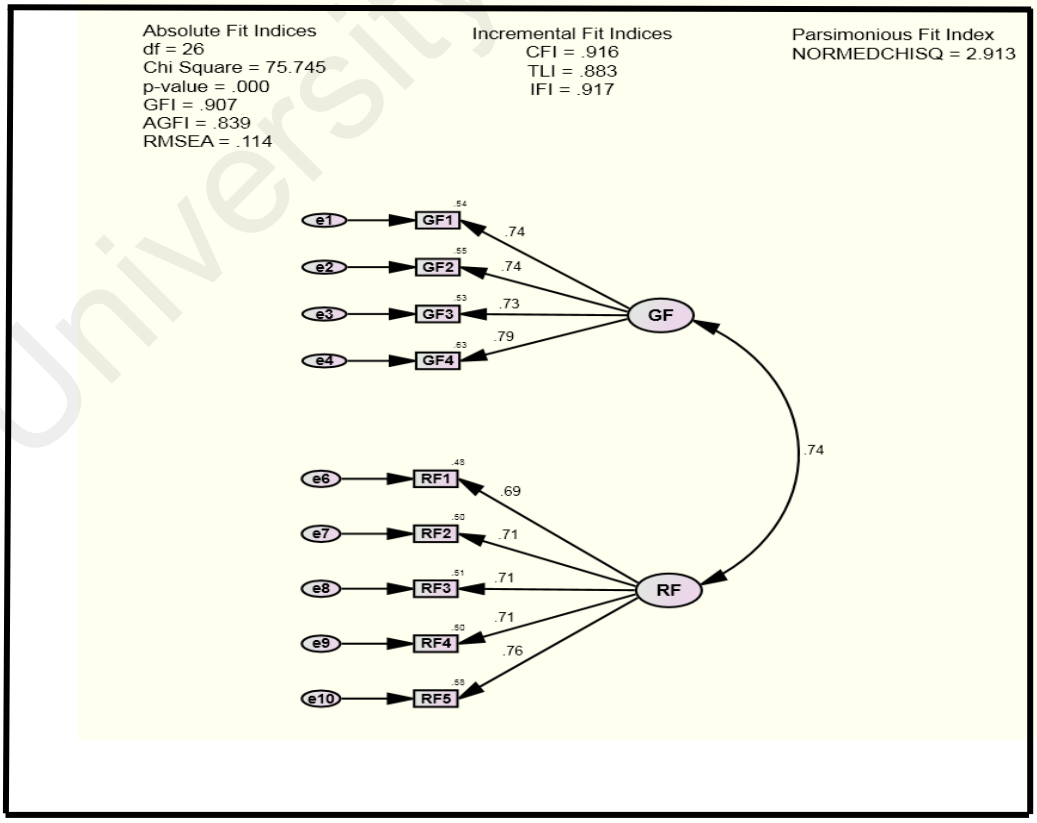
APPENDIX F-2

Discarded Items Due to Insufficient Factor Loadings in Management Support CFA Model

Construct	Item /Construct	First Factor Loading	Item Deleted	Second Factor Loading
General Factors (GF)	GF1	0.74		0.74
	GF2	0.74		0.74
	GF3	0.73		0.73
	GF4	0.79		0.79
	GF5	-0.09	Deleted	
Regional Factors (RF)	RF1	0.69		0.69
	RF2	0.71		0.71
	RF3	0.71		0.71
	RF4	0.71		0.71
	RF5	0.76		0.76

APPENDIX F-3

Second Management Support model with remainder 9 items



APPENDIX F-4

Results of Cronbach's Alpha and Convergent Validity for Management Support CFA Model

Construct	Item /Construct	Internal Reliability Cronbach Alpha	Convergent validity		
			Final Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]
General Factors (GF)	GF1	0.837	0.75	0.614	0.864
	GF2		0.75		
	GF3		0.79		
	GF4		0.84		
	GF5		-0.09 [c]		
Regional Factors (RF)	RF1	0.840	0.69	0.516	0.842
	RF2		0.71		
	RF3		0.72		
	RF4		0.71		
	RF5		0.76		

APPENDIX G

Semi- Structured Interview

Interviewer's Information

Research Title	: The Transformation Strategies in Facilities Management for Business Globalization
Researcher	: Maszuwita Binti Abdul Wahab (BHA100015)
Supervisor	: Prof.Madya. Dr.Sr.Syahrulnizam Kamaruzzaman
Department	: Department of Building Surveying, Faculty of Built Environment, University of Malaya

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General:

This study is conducted to develop the transformation strategies in Facilities Management for business globalization. The characteristic towards Facilities Management is studied to see the relationship within Facilities Management, Organizational Behaviour and Management Support. This semi structured interview is a discussion within the Facilities Management expertise at the managerial level to validate the results that have been gathered through questionnaire survey and to foresee the improvement method that can be applied in Facilities Management field. Prior to this, a transformation framework will be developed to achieve the Facilities Management Integration for continuous improvement.

Objectives of the study:

- To identify the essential elements for Facilities Management integration
- To analyse the critical success factors of Organizational Behaviour and Facilities Management to achieve optimum level of performance.
- To analyse closer relationship within people, facility support and facilitation for a collaborative strategy
- To develop the transformational strategies for Facilities Management business globalization

Confidentiality:

Discussion is confidential and identity of respondents will be abstracted in the thesis

Respondent's Information Form

Name : _____

Company : _____

Job Title : _____

Signature : _____

Date : _____

Section A: Speciality

1. What factors have influenced you to choose Facilities Management as a speciality area?
2. How do you maintain your Facilities Management practice?
3. Are there any Facilities Management strategies or guidelines applied in your company?
4. How do you see Facilities Management developing in the next five years?
5. What do you consider to be your training needs over the next few years?
6. What has been your personal involvement in Facilities Management field?
7. Describe a difficult problem that you have faced in Facilities Management practice and how you have overcome it?
8. Describe a situation that shows you have started to develop leadership qualities and managerial skills
9. What are the challenges facing this Facilities Management field?

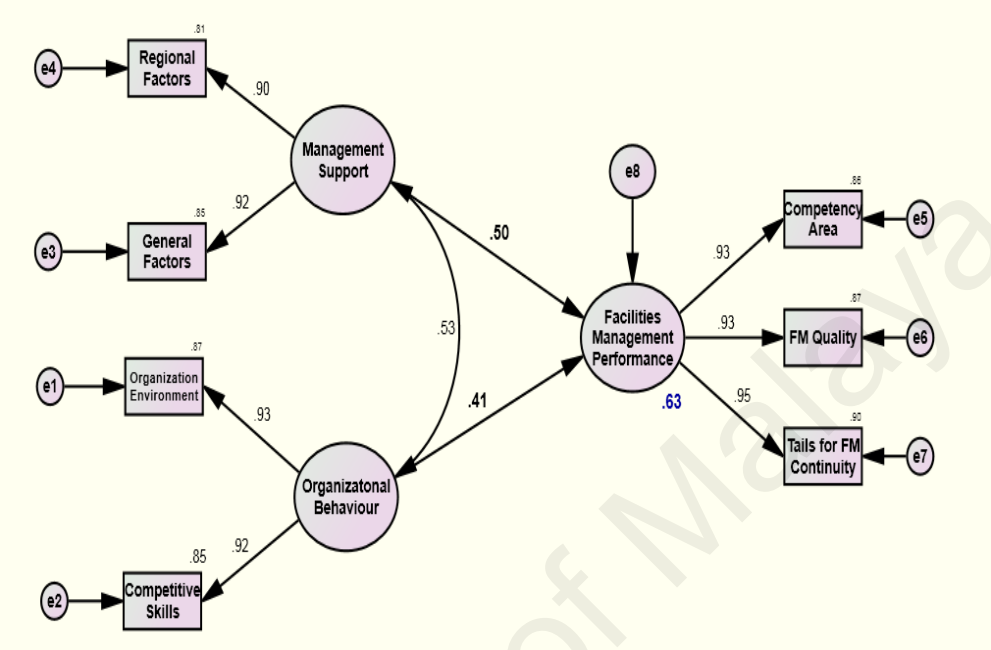
Section B: Facilities Management Strategies

1. What are the significant elements in generating the Facilities Management strategies?
2. Do the elements that you mentioned will influence the Facilities Management performance?
3. Do you think the issues below are important in constructing the Facilities Management strategies? If there are any other issues, please suggest.

Issues	Yes	No
Teamwork		
Management		
Organizational		
Communication		
Marketing		
Financial		
Quality		

Section C: Validation of Structural Model

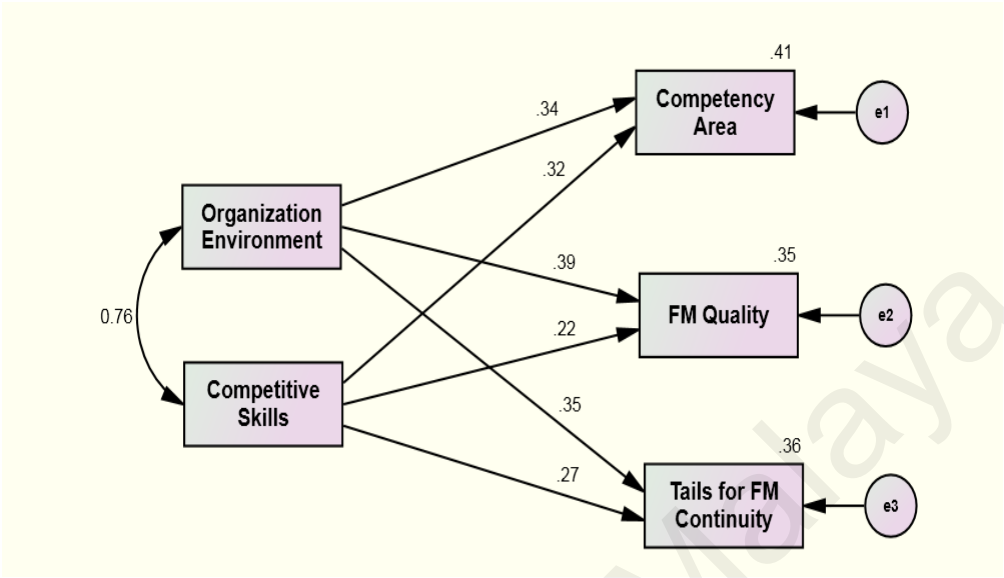
Structural Model 1



1. Figure above shows the relationship within Organizational Behaviour, Management Support and Facilities Management Performance. Please indicate your answer by selecting 'Agree' or 'Disagree'.

Hypothesis	Hypothesis Result	Agree	Disagree
OB has positive influence on FM performance	Supported		
Management Support has positive influence on FM performance	Supported		

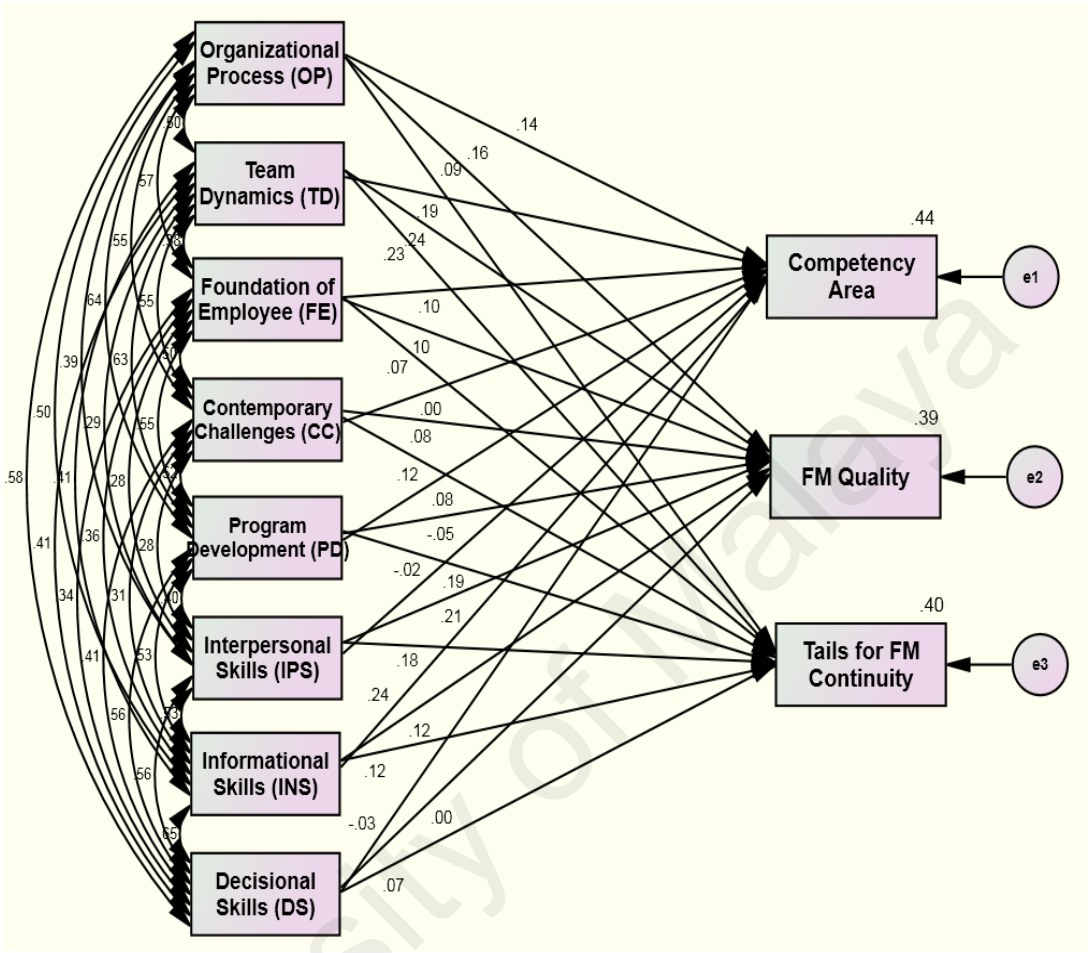
Structural Model 2



2. Figure above shows the relationship on Organization Environment and Competitive Skills towards Competency Areas, FM Quality and FM Continuity. Please indicate your answer by selecting 'Agree' or 'Disagree'

Hypothesis	Hypothesis Result	Agree	Disagree
Organization Environment has positive influence on FM Competency Area	Supported		
Organization Environment has positive influence on FM Quality	Supported		
Organization Environment has positive influence on FM Continuity	Supported		
Competitive Skills has positive influence on FM Competency Area	Supported		
Competitive Skills has positive influence on FM Continuity	Supported		

Structural Model 3



3. Figure above shows the relationship on Organization Behaviour and Facilities Management Performance. Please indicate your answer by selecting 'Agree' or 'Disagree'

a) Team Dynamics

Hypothesis	Hypothesis Result	Agree	Disagree
Team Dynamics has positive influence on FM Competency Area	Supported		
Team Dynamics has positive influence on FM Quality	Supported		
Team Dynamics has positive influence on FM Continuity	Supported		

b) Interpersonal Skills

Hypothesis	Hypothesis Result	Agree	Disagree
Interpersonal Skills has positive influence on FM Competency Area	Supported		
Interpersonal Skills has positive influence on FM Quality	Supported		
Interpersonal Skills has positive influence on FM Continuity	Supported		

c) Informational Skills

Hypothesis	Hypothesis Result	Agree	Disagree
Informational Skills has positive influence on FM Competency Area	Supported		

Section D: Suggestion and Recommendation

Based on your knowledge and experience, what are your recommendations for the Facilities Management field in Malaysia towards business globalization?