

EFFECTIVE FACILITIES MANAGEMENT ESTIMATION  
FOR BUSINESS CONTINUITY

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**To my parents,** Noor Khamar bin Md. Saad and Noor Adida binti Hassan for being very understanding and supportive in keeping me going, enduring the ups and downs during the completion of this project report.

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## ABSTRACT

The migration from conventional maintenance to facility management is an on-going process for all high-rise buildings in Malaysia, especially for government-owned buildings. For a government-linked company (GLC), the situation is different as the budget for the maintenance is allocated internally and the internal maintenance staff overheads will be borne by the GLC. Nowadays, organisations will focus on their core business to maximise their profits and will leave the building maintenance to their maintenance contractor to provide such services for their buildings. The decision to carry out the maintenance internally or to outsource to a Facilities Management (FM) service provider will depend on the amount of budget allocated. The qualitative technique is used in this research to source the information by interviewing experienced managers who are experienced in FM. Internal data from companies applying for direct negotiation works is also a source of information. Findings show that there is a direct correlation between FM cost and the scope of work (as defined in JKR FM2008) required for the building. Selecting such services is critical as the cost per square foot will vary from RM0.12 to RM1.20; such cost will run into millions as the FM contract duration is around 3 years. This study will give an indicator and guidelines to organizations to estimate the need for FM service provider for their business continuity. The guidelines will also help owners of the buildings on how to derive a budget, tender, evaluation procedures and the award process. Without these guidelines, the organizations embarking on FM will have to employ an experienced FM manager to limit the mistakes that an inexperienced FM manager will make. The FM Pilot Project presented is a good example on what not to do if you are embarking on FM.

## ABSTRAK

Penghijrahan dari penyelenggaraan konvensional kepada pengurusan fasiliti adalah satu proses yang berterusan untuk semua bangunan-bangunan tinggi di Malaysia terutamanya bagi bangunan milik kerajaan. Bagi kerajaan pautan-syarikat (GLC) keadaan adalah berbeza kerana bajet untuk penyelenggaraan diperuntukkan secara dalaman, manakala overhead pasukan penyelenggaraan dalaman akan menjadi tanggungan oleh GLC. Pada masa kini, organisasi akan memberi tumpuan kepada perniagaan teras mereka untuk memaksimumkan keuntungan mereka dan akan meninggalkan penyelenggaraan bangunan kepada kontraktor penyelenggaraan bagi menyediakan perkhidmatan bagi bangunan mereka. Keputusan untuk menjalankan penyelenggaraan secara dalaman atau sumber luar kepada Pengurusan Fasiliti (FM) pemberi perkhidmatan akan bergantung kepada jumlah bajet yang diperuntukkan. Teknik kualitatif digunakan dalam kajian ini untuk mendapatkan sumber maklumat dengan menemu bual pengurus yang mempunyai pengalaman dalam FM. Data dalaman dari syarikat yang memohon untuk kerja-kerja rundingan terus juga merupakan sumber maklumat untuk kajian ini. Hasil kajian menunjukkan bahawa terdapat hubungan langsung antara kos FM dan skop kerja (seperti yang ditakrifkan di JKR FM2008) yang diperlukan bagi bangunan. Pemilihan perkhidmatan adalah penting kerana kos bagi satu kaki persegi akan berbeza-beza dari julat harga RM0.12 kepada RM1.20, kos itu akan mencecah jutaan ringgit sebagai tempoh kontrak FM dalam tempoh 3 tahun. Kajian ini akan memberi petunjuk dan garis panduan kepada organisasi untuk menganggarkan keperluan kepada pembekal perkhidmatan FM bagi kesinambungan perniagaan mereka. Garis panduan ini juga akan membantu pemilik bangunan mengetahui cara untuk memperolehi anggaran, tender, prosedur penilaian dan proses pelantikan. Tanpa garis panduan ini, organisasi akan melantik pengurus yang mempunyai pengalaman dalam FM bagi menghadkan kesilapan yang akan berlaku dalam membuat keputusan sekiranya ditadbir oleh pengurus yang tidak mempunyai pengalaman. Projek perintis FM ini merupakan contoh yang bagus sebagai garis panduan sekiranya untuk memulakan FM.

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## LIST OF ABBREVIATIONS

FM	-	Facilities Management
JKR/ PWD	-	Jabatan Kerja Raya/ Public Work Department
CEN	-	European Committee for Standard
BCA	-	Business Case Analysis
AM	-	Asset Management
IRBM	-	Inland Revenue Board of Malaysia
BPPF	-	<i>Bahagian Pembangunan dan Pengurusan Fasiliti</i>
CPSF	-	Cost Per Square Foot
EPF	-	Employee Provident Fund
SOCSSO	-	Social Security Organization
GLC	-	Government-Linked Company
LHDNM	-	<i>Lembaga Hasil Dalam Negeri Malaysia</i>
COC	-	Condition of Contract
SLA	-	Service Level Agreement
CMMS	-	Computerised Maintenance Management System
GFA	-	Gross Floor Area
RM	-	Ringgit Malaysia
ft <sup>2</sup>	-	feet square
M&E	-	Mechanical & Electrical
BIFM	-	British Institute of Facilities Management
IT	-	Information Technology
IFMA	-	International Facilities Management Association
MAFM	-	Malaysia Association of Facilities Management
PM	-	Performance Management
R&D	-	Research and Development
B2B	-	Business to Business
B2C	-	Business to Consumer
HQ	-	Headquarters

GFM	-	Global Facilities Management Sdn. Bhd.
IFM	-	Integrated Facilities Management
PJ	-	Petaling Jaya
PPM	-	<i>Pusat Pemprosesan Maklumat</i>
CFM	-	Comprehensive Facilities Management
CEO	-	Chief Executive Officer
CIDB	-	Construction Industry Development Board
SPKK	-	<i>Sijil Perolehan Kerja Kerajaan</i>
OT	-	Overtime
LED	-	Lighting Emitting Diode
DLP	-	Defect Liability Period

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

In Malaysia, there is no specific standard that an organisation can adopt to implement Facilities Management (FM), in-house or otherwise. The current process is normally to secure an FM service provider. This is usually done through a tender exercise. Experienced organisations that have been employing FM services through tender could tailor the specifications, manpower requirements and special services according to their needs and budget. By doing this, they are able to maximise the FM efficiency and profitability. For Government buildings which are administered by *Jabatan Kerja Raya* (JKR), there is a tendency to include all the scope of services in their FM tender document. If an organization use the JKR FM document as a guide to implement FM, there will be an increase in cost. Selecting the right scope of services could lead to substantial savings for the client as some of the services in the scope are quite redundant.

For new organisations which need to embrace FM due to the shift of higher expectations and requirements from their core service people, they need to transform their way of doing the conventional maintenance to a new area called FM. With a maze of information available or sometimes none at all, and coupled with inexperienced staff, how does one estimate the budget for the FM services? Further to this, how does one decide which services give the value for money or can these services be outsourced to other company to balance the budget availability. The wrong choice of services

made here could run into millions of ringgits being paid to the FM contractor during the duration of the contract when they are not required at all in the first place.

It is hoped that this study will provide some insights of FM and also as a guide for new organizations which are going to migrate from conventional maintenance to FM. It will also show the method to estimate the budget for the FM required and advice on what is the basic service that FM should have to get the value for money.

In the FM domain, value is mostly based on economic principles. Value is created when financial value is added, for example lower costs or higher revenue for the client organization. Due to the cost-driven and technical approach of FM, the discipline appears to still be largely driven by the budget allocation available. A potential cause for this practitioners' bias might be a lack of understanding of the added value of FM. Quality and customer service are difficult to separate, information on the price becomes stronger in determining value (Dodds, 1999). However, this also implicitly assumes that FM can add value. The value topic recently has earned substantial attention in the FM research field (Wauters, 2005; Lindholm and Leväinen, 2006; Jensen, 2010; Kok et al., 2011; Alexander, 2012; Jensen et al., 2012), focusing on various aspects of value, especially quality, productivity, time, risk, and relationship quality. FM is based on value, Porter (1985) informed that its activities are used as inputs into the client's resource-integrating and value-creating activities FM is part of the organisations' infrastructure.

To date, FM has mostly been considered as a discipline in which aspects of the built environment play a key role for increasing efficiency and reducing costs. This applies to both research and practice of FM. Research into FM terminology has attempted to express the meaning of the term "facilities management", and a common European norm was established in 2006 by the European Committee for Standardisation (CEN) to create a terminological foundation for this field of management. This norm defines FM as the "integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its principal activities" (CEN, 2006, p. 5). Additionally, facility services are defined as the provision of support to the principal activities of an



organization, delivered by an internal or external provider. CEN (2006, p.6) said that they are services related to “space and infrastructure” and to “people and organizations”.

The reason owners maintain their buildings at the highest level is mainly to minimise disruption and downtimes, and to keep the asset in the state of good repairs for the sake of the occupants’ health and safety. There is also the need for aesthetic preservation to keep the asset from deteriorating in appearance and becomes unsightly. Maintenance ensure that the assets achieve their full potential service life. Then there are the duty of care and the duty to mitigate as legislated upon the owners, occupants and guests on the properties.

The Toolkit for Engineers (2007) states that the reason building needs maintenance is because the wear and tear will set in upon the completion of the project. By carrying out maintenance it can prolong the life span of the building. Regular maintenance which are attended to when defects are still minor will be the most cost-effective strategy for providing well-functioning buildings and will reduce operating costs. Proper maintenance of buildings can prolong their useful life almost indefinitely. Replacements will be required less often, resources will be conserved and environment will be protected. A well-maintained building creates a good working environment and ultimately increase the staff job motivation. Maintenance creates a comfortable working environment essential for an efficient and satisfying working environment.

Maintenance will also ensure that the buildings are safe and profitable at an acceptable standard. Additionally, it will helps maintain the quality and the physical asset of the building to ensure that the building comply with all the statutory requirements and will be fit for use and its services are in good condition.

## **1.2 Statement of Problems**

FM requirement is very complex and can be problematic if it is not handled properly. The organizations need to know which scope of services is really needed and

applicable to their buildings. The organisations should have a complete team of staff to handle the FM contractor and its related issues.

In this case, The Inland Revenue Board of Malaysia (IRBM) should have the following elements which consist of an organizational structure, function and scope of work, policy, system and work process, financial administration, budget, procurement and outsourcing, normal daily problems and any other information related to the study.

On 19<sup>th</sup> September 2012, the IRBM management has decided to proceed with the implementation of comprehensive Facilities Management in all IRBM-owned buildings (Minit Bebas, 2012). The IRBM management decided to study the effectiveness of FM against the conventional method of maintenance and has selected IRBM headquarters in Cyberjaya to be their Pilot Project. The management has also agreed that the comprehensive Facilities Management was to be implemented through an open tender. The process owner for this project was *Bahagian Pembangunan dan Pengurusan Fasiliti* (BPPF).

The original budget requested for a year was RM7,916,026.20 based on cost per square foot (CPSF). This was based on RM0.85 per square foot with a gross floor area (GFA) of 776,081 squares foot. Due to financial constraint, BPPF was instructed to review the budget to enable the project to be implemented (Minit Bebas, 2015).

On 16 February 2015, BPPF contacted the Employee Provident Fund (EPF) and SOCSO to secure detailed information on EPF management's approach in managing their building FM (Minit Bebas, 2015). The aim of this exercise was to reduce their original estimated CPSF of RM0.85 per square foot to implement FM in their headquarters building in Cyberjaya. From the study, they estimated the EPF and SOCSO CPSF for these buildings. They then compared the IRBM proposed CPSF value for FM against these corporations' CPSF value of RM0.12. Upon reviewing these values, IRBM revised their CPSF to RM0.58. This task was given to an inexperienced officer with no FM background but with some conventional maintenance experience. The recommendation of this officer was accepted by IRBM management. The substantial difference between EPF and SOCSO's CPSF of RM0.12

against the IRBM's CPSF of RM0.58 to secure the FM requires close examination of the issues involved. This study is about making sense of the decision and reasons which could be repeated in any other organizations which will subsequently pay the penalty on the FM cost employed.

On September 2015, BPPF had issued a tender for comprehensive FM on Mechanical and Electrical services for 3 years' duration (BPPF, 2015). Thirteen (13) tenderers participated in the tender. Only five (5) tenderers made it to the final list. The tender was awarded to a tenderer who submitted a tender price of RM10,549,800.00 as tender number 10/13.

All other tenders were disqualified for mainly not submitting various documentations. This study will revisit the tender evaluation methodology and the reasons for disqualification of these contractors.

It is also suspected that in this tender, a consortium of tenderers had participated in the tender thus influencing a higher tender price being awarded.

Finally, a recommendation will be made to IRBM that the selection of an FM service provider should be based on cost per square foot as highlighted by this study. Data for this study will be based on the Pilot Project FM implementation, proposal that was submitted by the FM contractor for direct negotiation, various information available and interviews from various owners of buildings under FM.

The evaluation method practices by IRBM is based on the estimated tender price e.g. RM 0.80 per square foot. A variance of -30% for tender is still acceptable and above 20% is deemed expensive and should not be considered. So, using the cost per square foot is very important because if this figure is high then even the most capable FM contractor could be omitted from the shortlist at the final stage if his tender does not fall within this range.

It is highly important to review the evaluation report to determine the right price when preparing the tender budget and recommending the most competitive price

for the Pilot Project to be successful. We can also deduce why some Government-Linked Companies (GLC), for example EPF and SOCSO, are very selective in determining what are the additional services to be included in their tenders. All these additional services will carry additional cost to the contract. These experienced GLCs who have been maintaining their buildings through FM contracts have enough experience to make a judgment on the criticality of services to be included and to be omitted from their tender exercise.

With all the above information and data available, how does an inexperienced Project Manager on the client side process them and ensure that the budget and the estimate are near accurate to be used in future tender exercise. The ability to process these information and data is very important as there are no guidelines readily available and the CPSF value can varies according to the tender specification. An error in making the CPSF will result in paying extra cost for services which are not even required in the first place or the services are redundant but still must be paid due to its inclusion in the tender and the contract duration which for FM usually run for 36 months. The specifications and the CPSF are the most crucial factors that will influence the price of the tender. A well-thought specifications tailored to IRBM needs will bring savings to IRBM. A good project manager will have to have experience in determining the scope of work, specifications, and the best CPSF value. In this study, we will look in areas BPPF can improve their decision when implementing the Pilot Project consistent to the information and data available.

Further to this, some guidelines on what are the services required to be included in the tender are necessary to the maximise value for money. These factors differentiate the quality of the FM manager.

### **1.3 Aim of Study**

The aim of the study is to apply the actual CPSF based on the performance and findings of the FM contractor undertaking the FM Pilot Project in Cyberjaya. Ensuring value for money, the FM contract was secured for IRBM by selecting the right scope

of work for services only to be included in the tender document while other services which are non-critical can be outsourced or omitted totally in the tender to save additional cost. The possibility of expanding FM to various buildings owned by IRBM all over Malaysia is based on the findings of actual CPSF for the Pilot Project and the scope of work identified.

#### **1.4 Objectives of Study**

The objectives of this study are:

1. To identify the actual cost per square foot (CPSF) based on the Pilot Project data.
2. To identify the required scope of work for services tailored to IRBM requirements for all its buildings.
3. To assess the tender's evaluation procedures at IRBM.
4. To propose effective FM estimation for IRBM business continuity.

#### **1.5 Scope of Study**

To complete this study, the scope of study will focus on the existing Pilot Project that IRBM is currently implementing at headquarters of IRBM in Cyberjaya.

This study will also look at IRBM current practice in determining the budget estimate. This budget estimate will influence the final selection of tenderer and at the end effect the budget of allocation. The study will also look at the evaluation procedure and recommendation method and will recommend solutions to award jobs competitively and at the right price to the management.

## **1.6 Limitation of Study**

It is important to note that when IRBM decided to proceed with the Pilot Project, the management has a high expectation that the project would reveal the best value for money for them to extend the FM services to their branches all over Malaysia. Thus, the main focus of this research is centred on the Pilot Project.

## **1.7 Significance of Study**

The study analysed the information of the current practice in IRBM in calculating the tender estimate which determined the outcome of the tender result. The analysis covered the strengths and weaknesses of the tender evaluation exercise procedures in the Pilot Project tender award. Three scenarios were presented whether savings, lower price tendered, or the risks involved were the factors most influenced the award.

The Pilot Project pricing was determined by comparing the services and pricing of current FM company being offered in the market. The current contract pricing was compared with the Pilot Project pricing in terms of savings should IRBM decided to implement it nationwide.

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