

## Facilities Management Relevant Competencies for Malaysian Public School

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### Abstract

The question of whether one is actually practicing Facilities Management (FM) or an FM practitioner in the Malaysian industry is very common as the definition of FM continues to be under debate. Nevertheless, FM competencies have been defined by international FM professional associations with the main purposes of professional recognition and training in this area. Two pioneer associations in the field that are of distinguished reference internationally were the first in the effort of establishing the list of competencies for FM professionals. The process of defining the competencies however was very challenging given the fact that FM itself has not been able to be unanimously defined in its practice. The fine line between FM and other disciplines in the built environment also affects FM associations and their potential members, especially on whether or not they belong to each other. Despite this uncertainty, FM as a profession and an area of management is increasingly accepted and acknowledged all over the world, including Malaysia. This study aims at identifying the position of the practice of managing Malaysian public school within the context of FM, through relevancy of the defined competencies for FM by the international FM associations to the required competencies in the management of Malaysian school building and facilities. A survey was carried out amongst the school administrators from all parts of Malaysia and the data was analysed with factor analysis. The findings indicate that although by definition the management practice carried out by the school administrators does fall under the FM, less than half of the competency list proposed by FM organizations was found to be significant as far as Malaysian school facilities management is concerned.

*Keywords:* Facilities Management; Malaysian public school; competency

### Abstrak

Sama ada sesuatu pihak sebenarnya mengamalkan Pengurusan Fasiliti (FM) atau merupakan ahli ikhtisas FM di Malaysia adalah satu persoalan yang sering timbul, sepertimana definisi FM itu sendiri yang masih diperdebatkan. Walaupun demikian, kompetensi FM telah didefinisikan oleh persatuan-persatuan profesional antarabangsa FM dengan tujuan untuk memberi pengiktirafan dan latihan kepada ahli dalam bidang ini. Dua badan terawal dalam bidang ini yang terkenal di seluruh dunia sebagai rujukan adalah antara yang memulakan usaha menghasilkan senarai kompetensi bagi pengamal profesional FM. Proses pendefinisian kompetensi ini bagaimanapun adalah amat mencabar kerana definisi FM itu sendiri belum dapat disimpulkan sebulat suara. Sempadan yang nipis di antara FM dan profesion-profesio lain dalam bidang alam bina juga memberi kesan kepada persatuan FM dan mereka yang berpotensi sebagai ahli; terutamanya dalam memastikan kesesuaian ahli dan persatuan itu sendiri. Di sebalik keadaan ini, FM sebagai profesion dan bidang dalam pengurusan semakin diterima dan diiktiraf di seluruh dunia termasuk Malaysia. Kajian ini bertujuan untuk mengenalpasti pelaksanaan amalan FM dalam pengurusan sekolah awam di Malaysia dalam konteks FM, melalui relevansi kompetensi pengurusan fasiliti yang telah didefinisikan oleh persatuan FM di peringkat antarabangsa berbanding kompetensi yang diperlukan dalam pengurusan bangunan dan fasiliti. Kaji selidik telah dijalankan di kalangan pentadbir sekolah di seluruh Malaysia dan data dianalisis dengan kaedah analisis faktor. Dapatan kajian menunjukkan hanya kurang daripada separuh senarai kompetensi yang dicadangkan oleh kesatuan-kesatuan FM antarabangsa adalah signifikan dalam pengurusan fasiliti sekolah di Malaysia.

*Kata kunci:* Pengurusan fasiliti; sekolah Malaysia; kompetensi

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## 1.0 INTRODUCTION

The importance of facilities management in organisational performance is undebatable. The relationship of the profession to physical properties have been signified by many before (Barret, 1994; Pitt, 2009; Wyatt, 2000; Baldry & Amaratunga, 2002; Powell, 1991). The benefits, importance and contributions of FM have long been acknowledged by players of developed countries in many industries; manufacturing, education, healthcare, construction and so forth. In Malaysia however, at present the concept of FM requires elaborations to promote its implementation although, the practice of FM may have been around for many years, only in different names and in fragments (Ong *et al.*, 2009; Hassan, 2008).

There have been many attempts to define the areas of competencies in FM over the last decade. The ‘jack of all trade’ and ‘cinderella’ have been placed in many positions in organisations; from the most strategic to the technical supervisory, or even janitorial levels. Tay and Ooi (2001) first made the debate on the FM definitions by summarising the meanings of FM proposed by various organisations and individuals. Mohd Nazali Mohd Noor and Pitt (2010) extended the summary, seeing the paradigm of FM has inclined towards a significant value added elements rather than just merely coordinating of activities.

The changing definition of FM resulted in the effort of establishing an exhaustive list of FM competencies challenging. Further, the boundary of the areas that should be covered by FM has also been unclear (Amaratunga, 2000). Nevertheless, the need to acknowledge FM as a distinguished profession continues to press for a steady and certain definition.

This study attempts to identify the relevant FM competencies for managing public schools in Malaysia in the opinion of their facilities managers from the FM competencies as defined by international FM associations. Then, a comparison is made so as to see how relevant is FM in the management of one of the country’s largest asset and property. The competencies proposed by these associations were used as the basis of competency identification in the study as they have been acknowledged to represent the practicing FM community, globally.

## 2.0 LITERATURE REVIEW

### 2.1 FM Competencies

There are currently a number of active Facilities Management associations worldwide. To name some, they include BIFM (British Institute of Facilities Management UK), IFMA (International Facility Management Association US), JFMA (Japan Facility Management Association), FMAA (Facility Management Association of Australia) and SAFMA (South African Facilities Management Association). Three of them have come together, forming an international group of FM - the Global FM, under an international Memorandum of Understanding “*to promote international collaboration between the three bodies in the interests of their members and the global FM community*” (FMAA Ltd, 2006a). The Global FM is currently joined by FM associations from other countries, including SAFMA, Arseg (Association des Directeurset Responsables de Services Generaux, France), ABRAFAC (Associacao Brasileira de Facilities, Brazil), HFMS (Hungarian Facility Management Society) and FM Arena (Zurich).

The definitions of FM competencies differ from one association to another. The establishment of FM competencies

list is tagged as critical by each one of them since certification of a competent FM practitioner in their area of authority becomes one of their major responsibilities. The preparation of the list took each association’s hard work and resources, and they completed their definition of competent FM at different times. By 2009, only the BIFM and IFMA were found to have explicitly defined the core competencies of the profession (BIFM, 2009; IFMA, 2009) with 20 areas of competency and 11 core competencies identified, respectively. The FMAA published theirs in 2012 identifying 90 competencies covering 7 categories.

The variety of lists or requirements provided by the FM associations to certify a practicing facility manager as ‘effective’ or ‘competent’ reflects the ambiguous nature of FM. To add another complication, the views on ‘competence’ and ‘competency’ are also known to be on uncertain ground (Berge *et al.*, 2002; Parry, 1998; Dalton, 1997). As unclear as it may be, actions must be taken regardless as the need for the practice is vital in managing valuable organisations physical assets performance.

### 2.3 FM in Malaysia

Frost and Sullivan (2007) revealed that the third party integrated FM services market in Malaysia earned revenue of \$268.1 million in the year 2006. The amount increases each year alongside with the drive by Malaysian government’s policy promoting on outsourcing contracts of support functions in government agencies. The FM functions and practices grow at a significant rate since then, but many have not been able to identify themselves as a practicing FM in the industry. The FM in Malaysia today is comparatively far behind as compared to the UK or USA as far as the profession and body of knowledge are concerned. Extensive study by Mohd Nazali Mohd Noor and Pitt (2010) on FM evolution in the country revealed that FM has not been well defined in the Malaysian context against similar practices in managing the built environment. This lead to conflicts between professional disciplines, as to which one should be recognised as licensed proprietor (Kamaruzzaman and Zawawi, 2010). Although FM is recognised to exist in Malaysia since 1990s (Ong *et al.*, 2007), the practice was never paid much attention to until almost twenty years later. Earlier, Moore and Finch (2004) viewed Malaysians as ‘confused’ over FM identity and the majority of them perceive FM as a subset of property management profession. Mohd Nazali Mohd Noor and Pitt (2010) observed four posts/designations related to FM and briefly described them as in the Table 1.

**Table 1** FM related professions and their responsibilities in Malaysia

Title	Responsibilities
Property Manager	Building operations which involves space management, maintenance management, security management, property valuation, acquisition and disposal
Maintenance Manager	Operation and maintenance of engineering equipment or installations within the physical built-up of a facility or building
Facility Manager	Integrates the various multi-disciplinary functions at strategic, tactical and operational levels to deliver the required services as defined by the asset owner or the end-users
Asset Manager	Systematic approach of maintaining, upgrading and operating physical assets cost-effectively by combining engineering principles with sound business practices and economic theories as a tool to deliver logical decision by the asset owners

## 2.4 Malaysian Public Schools' Facilities Manager

Each school facilities are managed by the school's appointed personnel. There are 10,101 public schools in Malaysia (MoE Malaysia, 2012), making it as a major part of total public assets in the country. This in turn makes school managers as major composition of facilities managers in public sector. But as significant as they are, a significant portion of all the school facilities managers are all without related technical knowledge on maintenance management (Mohd Nurfadzli *et al.*, 2012). Despite the report by Hasnan Abdullah (1993), almost all school administrators responsible for building and facilities are not properly recruited in line with the roles and tasks needed to be shouldered. There has been no guideline for selecting a facilities manager for schools since; the responsibilities are more than often conveniently included in the job description of a school principal or his vice principal, which is also commonly elected through traditional promotion method; based on seniority mechanism.

The result of this traditional appointment method of school facilities managers is the unceasing report of building and facilities failures, and the increasing stress level amongst teachers and students who are struggling to focus on teaching and learning in challenging surroundings. The teachers, who are trained in universities about teaching and learning only as their main competency, are shoved with maintenance and facilities management tasks without the necessary knowledge or skills required to perform them. This resulted in their inability to focus on their core business, compromised teaching and learning efficiency and at the same time, poor conditions of school buildings and facilities.

The finding of this study is hoped to be of use not only to identify a position of facilities management in Malaysian public school in the realm of FM but also, by defining the FM relevant competencies required for managing the school facilities, a proper selection or recruitment process for the position can be initiated. In addition to it, it can also be the basis for providing necessary training to properly equip the chosen managers, as well as a systematic valuation or assessment of their performance.

## 3.0 THE STUDY

### 3.1 Survey

For this study, the FM competency lists were derived from two associations; BIFM (UK) and IFMA (USA) and then developed into a survey instrument which was pilot-tested, and then distributed to 550 public school administrators (facilities managers) around Malaysia as respondents. The variables were set with 5 attributes, with 1 being not important at all and 5 being extremely important. The respondents were to rate the importance of each competency to the needs of its application in managing school facilities, based on their experience. In the last part of the questionnaire, the respondents were requested to add any other needed competencies if there was any unlisted in the survey form. The sampling process was multi-staged. In the first stage, the population was stratified into six main zones (North, South, East, Centre, Sabah and Sarawak). In the second stage, clusters were set in each zone based on geographical boundaries where only 5 clusters were selected in each zone. The return rate was approximately 32%, which was adequate for statistical analysis purpose (Sekaran, 2006; Marican, 2005). The data was analysed with SPSS Statistics for descriptive analysis of frequency and exploratory factor analysis.

## 4.0 RESULTS AND DISCUSSION

### 4.1 Distribution of Respondents

The survey involved respondents sampled from a wide geographical area. The respondents were initially stratified into six zones as described in para 3.1. This stratification was needed to ensure balanced participation of respondents from all zones, as the population density varies from one to another. Table 2 below shows the number of responses received from the survey conducted according to their geographical locations. Although a total of 551 questionnaires were distributed, only 32% or 175 completed questionnaires were returned.

Table 2 Distribution of respondents

Zone	Number of Questionnaires		Return Rate (%)
	Sent	Received	
North	106	40	38%
South	108	35	32%
East	93	44	47%
Centre	115	31	27%
Sabah	65	14	22%
Sarawak	64	11	17%
OVERALL (%)	551	175	32%

### 3.2 Significant FM Competencies

The survey data contains responses from 175 Malaysian school administrators on the FM competencies that are highly relevant to their needs in managing school facilities based on their experience in dealing with FM matters. Descriptive analysis revealed that out of 43 listed competencies (by the BIFM and IFMA combined), only 19 were rated as extremely significant. The limitation of this study to the competencies that are rated as 'extremely significant' only was to identify the most critical competencies among others that may also be perceived as important. There will be various possible combination of skills and knowledge possessed by a possible school facilities manager candidate, but at least these critical competencies must be there to meet the minimum requirement as 'competent' for managing Malaysian public schools' facilities. The following list of competencies in Table 3 shows only the 19 competencies; derived from both FM associations' list of FM competencies.

From the Table 3, it can be seen that some competencies are classified under certain category or domain, in both associations' list of competencies. For the purpose of proposing a new list or a model of a competent facilities manager for the Malaysian public school, all the identified competencies need to be combined and regroup for common theme. Therefore, factor analysis was chosen as the most suitable analysis to identify common factors among the competencies. After several conduct of factor analysis and review of literature, considerations needed to be made and it has been decided that it was best to remove the variable "Effective Communication" from the list for the test outcome to be conclusive. Therefore, only 18 out of 19 most significant competencies were selected to be tested with factor analysis for classification into significant factors. The result of the factor analysis; principal factoring test was interpreted as follows;

**Table 3** Extremely significant FM competencies for school facilities management

BIFM	IFMA
Understanding Business Organisation	Competency Area: Operations And Maintenance
1. Understanding the Structure and Behaviour of Organisations	1. Oversee acquisition, installation, operation, maintenance and disposition of building systems
2. Understanding Business and Organisational Strategy	2. Manage The Maintenance Of Building Structures And Permanent Interiors
3. Developing FM Strategy	
Managing People	Competency Area: Human And Environmental Factors
4. People Management	3. Develop and implement practices that promote and protect health, safety, and security, the quality of work life, the environment and organizational effectiveness.
5. Communication	
Managing Premises	Competency Area: Leadership And Management
6. Building Fabric Maintenance	4. Manage personnel assigned to the facility function.
Managing Services	Competency Area: Finance
7. Managing Building Services	5. Manage the finances of the facility function.
8. Managing Support Services	
9. Managing Customer Service	Competency Area: Quality Assessment And Innovation
	6. Manage audit activities.
Managing Resources	Competency Area: Communication
10. Financial Management	7. Communicate effectively.
11. Quality Management	
12. Information Management	

**4.2.1 Multicollinearity and Singularity Tests**

The values in the correlation matrix revealed that none exceeded 0.9. The determinant value is 4.76E-015 (0.000476) which is greater than the necessary value of 0.00001. Therefore, multicollinearity and singularity does not exist in this set of variables. Consistent with Field (2005), this shows that the variables correlate fairly well and none of the correlation coefficients are particularly large. Therefore, there is no need to eliminate any variable.

**4.2.2 Kaiser-Meyer-Olkin (KMO) and Bartlett’s Test**

The KMO value obtained for this study is 0.846, which as recommended by Kaiser (1974)’s falls in the range of being great. Therefore, factor analysis is appropriate for these data. Bartlett’s Test of sphericity in summary aims to prove that there is some relationship between the variables (Field, 2005). As it is a test of null hypothesis then the significance value of less than 0.05 needs to be achieved for this test to be significant. For these data,

Bartlett’s Test is highly significant ( $p < 0.001$ ) and therefore, it can be certain that there are some relationships between the variables.

**4.2.3 Factor Extraction**

The principal component extraction (of Principal Component Analysis) method with rotation has been selected for the analysis, based on the eigenvalue of more than 0.1. There was no number of factors being set for the SPSS to extract. Therefore the SPSS produced a number of components based on the overall coefficient values obtained in the analysis. The method of rotation selected was varimax, where the variables were expected to be independent. The coefficient values of less than 0.4 were suppressed to simplify analysis.

Before extraction, there were 18 linear components (as there are 18 variables). The eigenvalue for each factor represents the variance explained by that particular linear component in terms of percentage. The first few factors explain relatively large amounts of variance, whereas subsequent factors explain only small amounts of variance.

Then, only factors with eigenvalues greater than 1 was extracted as per Kaiser’s recommendation (Field, 2005) which leaves four factors. They are displayed in the Extraction Sums of Squared Loadings column while the factors with eigenvalue less than 1 are omitted from the table. In the final columns i.e. Rotation Sums of Squared Loadings the eigenvalues after rotation are displayed. Rotation optimised the factor structure and as a result the relative importance of the four factors is equalized. The following Table 4 shows the Extraction Sum of Squared Loadings and Rotation Sums of Squared Loadings for the data. The number of factors extracted is concluded to be acceptable as based on the scree plot, a stable plateau begins to form at the value of four (Field, 2005).

**Table 4** Extraction sum of squared loadings and rotation sums of squared loadings for the data

Componen t	Total Variance Explained					
	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Tota l	% of Varianc e	Cumulativ e %	Tota l	% of Varianc e	Cumulativ e %
1	6.033	33.516	33.516	4.440	24.664	24.664
2	2.181	12.118	45.634	2.439	13.549	38.213
3	1.453	8.075	53.709	2.043	11.350	49.563
4	1.116	6.198	59.907	1.862	10.344	59.907

Extraction Method: Principal Component Analysis.

The following Table 5 is the Rotated Component Matrix which is a matrix of factor loading onto each factor. Based on this table, the contents of variables that load on the same factor are analysed to identify common themes (Field, 2005). The key character of each variable is highlighted in the table and the elaborations for each variable in the previous study have been referred to in the process of common theme identification.

Table 5 Rotated component matrix

Rotated Component Matrix <sup>a</sup>		Component			
		1	2	3	4
Managing Building Services		.794			
Manage the maintenance of building structure		.781			
Building Elements Maintenance		.774			
Oversee acquisition, installation, operation, maintenance and disposition of building systems		.727			
Manage the finances of the facility function		.709			
Manage audit activities		.673			
Manage personnel assigned to the facility function		.623			
Managing Support Services		.505			
Develop and implement practices that promote and protect health, safety, security, the quality of work life, the environment and organisational effectiveness		.493			
Quality Management			.846		
Financial Management			.812		
Information Management			.799		
Understanding the organisation Structure and Administration of Organisations				.854	
Understanding Organisational Aim and Strategy				.845	
Developing FM strategy in Line with organisation's strategy				.568	.459
Communicate effectively					.708
People Management in FM Business					.631
Managing Customer Service					.580
Extraction Method: Varimax with Kaiser Normalization.	Principal		Component		Analysis.

a. Rotation converged in 5 iterations.

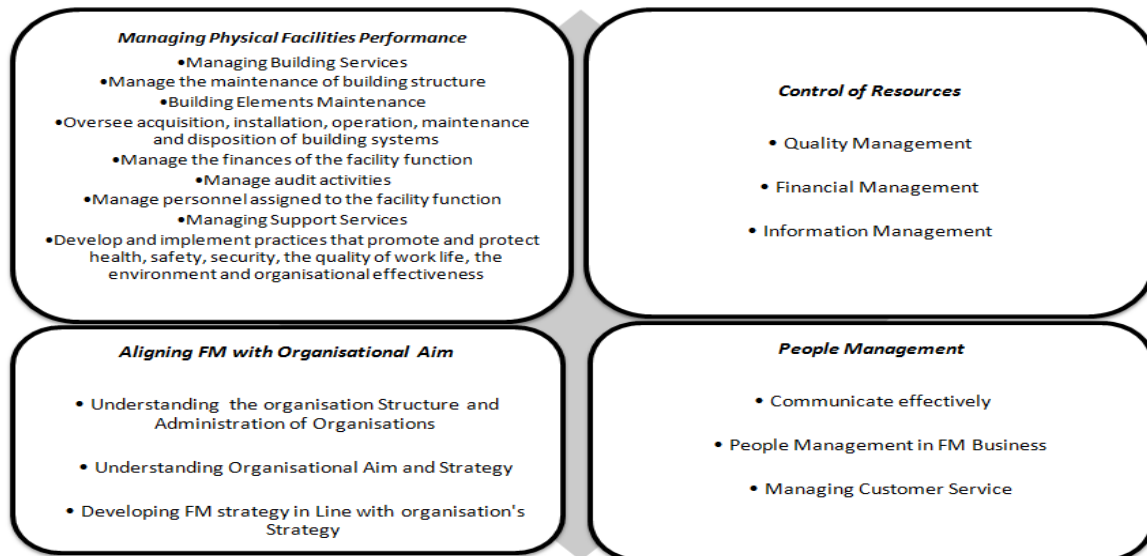


Figure 1 FM competencies for managing Malaysian public schools' facilities

Based on the results of the analysis, it can be seen that the critical FM competencies identified by the respondents are the elements of four key components/factors. They are;

1. Component 1: consists of competencies relating to the performance of physical facilities
2. Component 2: consists of competencies relating to the control of resources and management (quality, financial, and information)
3. Component 3: consists of competencies relating to the relevancy of FM to its organisation, and
4. Component 4: consists of competencies relating to people.

#### 4.0 CONCLUSION

It has been established that the long debate on FM definition and competencies challenges the formation of definitive conclusion on FM areas of responsibilities and competencies. In a way this creates the issue of FM identity; including on how people identify themselves as FM practitioners. This study attempts to define the management of Malaysian public school's facilities in the context of FM; based on the relevancy of FM competencies proposed by the international FM associations, to the competencies significantly required for managing the schools' facilities. Based on the result of the study, less than half of the competencies listed by the FM associations was found to be highly significant in the Malaysian public school's facilities management. In other words,

someone who may be accepted to be competent as a school's facilities manager (by meeting all the significant competencies for school management) may not actually be fulfilling all the competencies laid out the international FM associations as a fully competent FM.

From the analysis Figure 1 is proposed to represent the significant FM competencies for managing Malaysian public schools facilities. By most given definitions, the practice of managing the school facilities by school administrators in Malaysia is seen as fitting to the description of FM. However, on a similar note to the point highlighted by Mohd Nazali Mohd Noor and Pitt (2010) the support arrangements offered by FM in the Malaysian public schools may be unique to the requirement of the organisation. In fact, as far as managing Malaysia's public schools is concerned, it may also be highly dependable on and limited to the competency of the school administrators.

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