

A Review of Facilities Management Performance within Private Finance Initiatives (PFI) at Malaysia Public University

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Abstract

This paper aims to assess the facilities management (FM) practices and performance at Malaysian private finance initiatives (PFI) university campus. This paper critically analysed the current FM practices and performance of the FM company. The single case study approach is a research method used in this research to analyse a single case or phenomenon in depth. In this approach, a single unit of analysis, such as, a case study of PFI campus of a public university in Malaysia is studied in detail to gain a deep understanding of the case and its context.

The findings of this paper revealed that the state of FM practices and performance is based on the Concessionaire Agreement (CA) within the appointed FM Company and the University. The extent of its implementation and understanding are significantly important to the university management. The FM Company performance increased towards the year and recorded high level performance with Key Performance Indicators (KPI's) average score within 9 years around 98.45%. However, the FM company received a total of 773 demerit points and incurred a deduction of maintenance charges amounting to RM319,153.23 suggesting that there were some areas of improvement can be made. This paper reached out to address the FM practices and performance under the Private Finance Initiatives (PFI) at Malaysia Public University after 9 years of its implementation. It gives a better understanding of PFI concept and FM practices in the country. The review also helps to identify practices and measures to the performance impact to the university operations.

Keywords: Facilities Management, Key Performance Indicators (KPIs), Private Finance Initiatives (PFI), University

Introduction

Private Funding Initiatives (PFI) is a type of public-private partnership where private sector companies are contracted to deliver and manage public infrastructure projects, such as government buildings, universities, hospitals, schools, and transportation systems. Many countries have adopted Public Private Partnership (PPP) or Private Finance Initiatives (PFI) (or other term used in the respective country) for their infrastructure development projects. Private Finance Initiatives (PFI) projects came into being because of continued budget constraints of the government and the quick delivery of projects that required by organizations. In Malaysia, the Private Finance Initiatives (PFI) program was announced in the Ninth Malaysia Plan in March 2006. In 2009, a new unit under the Prime Minister's Department known as Privatization and Private Finance Initiative Unit – PFI (currently known as Public Private Partnership Unit - 3PU) was established.

The Public Private Partnership involves the transfer to the private sector the responsibility to finance and manage a package of capital investment and services including the construction, management, maintenance, refurbishment, and replacement of public sector assets such as buildings, infrastructure, equipment, and other facilities, which creates a standalone business (Public-Private Partnership Unit, 2009). Under the Tenth Malaysia Plan (10th MP, 2011–2015) the government plans to intensify the implementation of PPP projects whereby it has identified 52 projects worth RM62.7 billion. Projects identified include infrastructure projects, Integrated Transport Terminal, port, five branch campuses of a public university, redevelopment of Angkasapuri Complex and other projects (Government of Malaysia, 2009). This paper analysed the facilities management practices and performance of one of the completed PFI campus of a public university under the Tenth Malaysia Plan.

Facilities management in a university is a critical function that supports the core mission and vision of the institution by ensuring that the physical assets and operations of the university are effectively managed and maintained to support teaching, learning, research, and other activities (Hamid, 2009). With the pace of change in society increasing, university needs to keep up with that pace and even innovate ahead of it. The institutions must respond to the new demands of the stakeholders while maintaining and improving the existing purpose of research, teaching and learning. To keep pace with the need to provide on-going quality higher education to the public, it is crucial that the physical state of the facilities is appropriately maintained to fully support the basic needs of the growing student's population (Hamid et al., 2007). A good clean, well-lit classroom with comfortable chairs, good audio-visual facilities, comfortable temperatures, and ventilation should be available and fully satisfactory to meet educational needs. The roles and responsibilities of facilities management in managing assets, managing occupancy, supporting the business, supporting the organisational transformation and enabling communities are becoming more complex and changing widely (Alexander, 2007). The facilities management profession should understand the nature and culture of the university organisation, understand the complete functioning of higher education, its economics, its processes, and its purposes. Therefore, this paper focused on the implementation of facilities management practices and analysed the performance of the FM Company within a Malaysian PFI university campus. The present study aims to make a significant contribution to the field of facilities management and PFI in the context of Malaysia's public universities. This research will provide valuable insights and

practical recommendations for university administrators, facilities managers, policymakers, and other stakeholders involved in managing higher education facilities.

Furthermore, the research outcomes will contribute to the existing body of knowledge in the field of facilities management, specifically in the context of PFI projects at Malaysia public universities. Overall, this study's motivation lies in the significance of understanding and optimizing facilities management performance within PFI projects in Malaysia's public universities, and its contribution will be valuable in informing decision-makers and advancing the field of facilities management in the higher education sector.

Overview of Facilities Management practices and initiatives in Private Finance Initiatives (PFI)

Malaysia has implemented Public Private Partnership (PPP) since its inception in 1983 with 513 total projects signed between 1983-2010 (EPU, 2006). The implementation of PPP projects has led to economic growth through greater investment and output was produced using less resource (Rashid, 2012). The PPP project will only be considered if there is a need of the Government after taking account the benefits of the project considering socio-economic impacts, value for money and cost savings to the Government, quick delivery of the project and service enhancement. The increased level of accountability, efficiency and effectiveness of project delivery will also consider (UKAS, 2009). The PPP approach, emphasis is given on delivery of services (output driven) and private sector innovation and skills in maintaining the assets and facilities throughout the concession period (Rashid K.A., 2014). The main characteristics that differentiate PPP with other procurement methods are shown in Table 1.

Table 1

Difference between Conventional, PPP/PFI and Privatization Approaches

Item	Conventional	PPP/PFI	Privatization
Funding	Procurements are funded directly via public budget.	Funding via private financial resources without public sector's explicit guarantee.	Funding via private financial resources without implicit or explicit public sector guarantee.
Financial Impact	Immediate impact on public sector financial position.	Impact on public budget spreads over the duration of the concession.	No impact on the level of public sector expenditure.
Risks	Risks are entirely borne by public sector.	Risks are allocated to parties which can manage them most efficiently.	Risks are entirely borne by the private sector.
Public Sector Involvement	Extensive public sector involvement at all stages of project life.	Public sector's involvement is through enforcement of pre-agreed KPIs.	Government acts as regulator.
Relationship	Relationship with private contractor is short term.	Long duration of relationship with private contractors	Long duration of relationship with private contractors
Applicability	Applicable for projects with high socio-economic returns and those justified on strategic considerations.	Applicable for projects with commercial viability.	Applicable for projects with high commercial viability.

Sources: Public-Private Partnership Unit, Prime Minister Department, 2009

The main parties involved in a PPP project would include the Special Purpose Vehicle (SPV) created specifically for the project, the financiers, construction contractor, facilities management operator and the public sector. The typical PPP project structure will ensure commitment from the relevant parties, better control, management, and supervision of the project (Public-Private Partnership Unit, 2009).

The 9th Malaysia Plan defined Private Funding Initiative (PFI) as involving the transfer of the responsibility to finance and manage capital investment and services in relation to public sector assets to the private sector in return for lease charges that commensurate with the quality of services and an amount sufficient to ensure return on investment (Government of Malaysia, 2006). Private Finance Initiative in Malaysia involves the design, building, finance

and operation of the project, which are contracted out to a consortium of private firms for a long period of time, usually 20-25 years. The Concessionaire company includes a construction company and Facilities Management company, and it is responsible for planning, design, development, construction, landscaping, equipping, installation, completion, testing and commissioning of the facilities and infrastructure and to carry out the maintenance works. Facilities management practices and initiatives in PFI projects are crucial to ensuring that these public assets are effectively maintained and operated throughout their lifecycle. In a long-term relationship, facilities management need to evolve to a higher strategic level in compliance with the organisation's strategy (Rahmat et.al., 2021). The FM company accepts the grant of the concession at its own risk, cost, and expenses. The government shall pay to the Concessionaire and FM Company the availability charges and maintenance charges by way of monthly payment as specified agreed in the agreement. The FM Company throughout the maintenance period to be responsible to carry out the maintenance works in accordance with acceptable current building practices and the Building Maintenance Manual. Here is an overview of some common facilities management practices and initiatives in PFI projects:

Operation and Maintenance

Facilities management practices encompass a wide range of activities, from maintenance and repair to space management, event management and security. FM Company will be expected to manage and maintain the facilities and services throughout the duration of concession and consider the concept of Whole Life Cycle-costing to the projects. This is a methodology that considers the total cost of owning and operating an asset over its entire life cycle. This approach encourages the private sector partner to design and build assets that are efficient and durable, and to implement maintenance programs that prioritize cost-effective solutions that extend the asset's lifespan (UKAS, 2009). In addition, the operation and maintenance of PFI projects granted to the FM Company throughout the concession periods will subject to the following requirement as listed in the contract document as follows:

- i. **Asset Management**
PFI projects typically require the development of an asset management plan, which outlines how the asset will be maintained and operated throughout its life cycle. This includes preventative maintenance schedules, condition assessments, and investment strategies that ensure the asset remains in good condition and delivers the required services over time.
- ii. **Maintenance Service Level**
Throughout the maintenance period, the FM Company shall carry out the maintenance works according to the service description, frequency, parameter value and within the relevant periods set out in the Building Maintenance Manual.
In the event the FM Company fails or neglect to carry out any maintenance work or not accordance with the maintenance service level the Government will impose the relevant demerit value penalty and deduct such amount of maintenance charges.
- iii. **Maintenance Reserve Fund**
The Government and the Concession Company shall establish a sinking fund to be known as the Maintenance Reserve Fund (MRF) for major maintenance work, upgrading and future maintenance work that required replacement, refurbishment, remedial works or making good to architectural, civil and structural of the facilities and infrastructure.
- iv. **Maintenance culture**

The FM Company shall promote maintenance culture where the concessionaires will be responsible for the long-term maintenance of the assets throughout the operational tenure agreed upon.

v. Maintenance Charges

In consideration of the FM Company undertaking the obligation to provide the maintenance works throughout the maintenance period the government will pay the maintenance charges as specified in the contract agreement.

vi. Project Monitoring Committee

The Project Monitoring Committee (PMC) consist of Government representatives and Concessionaire Company to provide a means of resolving issues and joint strategic discussion for more efficient performance of the operation and maintenance during the concession periods.

vii. Concept Value for Money

The private's sector proposals must offer better value for money than those that the public sector could have offered. Generally, value for money is achieved through:

- a. Risk transfer which allocates risks optimally between the public and private sectors
- b. Long term nature of contracts which embodies whole life cycle costing.
- c. The use of output specification which allows bidders to innovate.
- d. Competition that provides fair value of the project.
- e. Performance-based payment mechanism.
- f. Private sector management expertise and skills

viii. Risk Distribution

The private sectors need to assume the major risks involved in design, construction, operation and maintenance. The FM Company will have to ensure that the facilities built are functional and must also deliver the services for the duration of the concession periods.

ix. Capacity Building

The effective training program developed to provide the public sector officers the technical knowledge in project evaluation and performance building.

x. Reward and Penalty System

Payment to the privatized entities or FM Company will be linked to their performance and deductions will be made to penalize the entities that fail to meet the target. For facilities management companies, a system been implemented to encourage good performance, promote efficiency, and discourage poor performance or behaviour.

xi. Technology and Innovation

PFI contracts encourage the of technology and innovation by the private sector partner, such as the development and implementation of new technologies or processes that improve the performance, efficiency, and sustainability of the asset. This can lead to improved service delivery and cost savings over time.

xii. Sustainability

PFI projects incorporate sustainability initiatives that aim to reduce the environmental impact of the asset, such as energy efficiency upgrades, renewable energy installations, and waste reduction programs.

Key Performance Indicators (KPIs)

PFI contracts incorporate performance-based contracting, where the private sector partner is incentivized to meet or exceed certain performance targets related to the quality of service,

availability, reliability, and safety of the asset. The involvement of the customer and the service provider in identifying and developing performance indicators is particularly important, to ensure that the indicators are relevant and robust. Performance indicators should be both qualitative and quantitative. All the privatized projects will have output specifications and Key Performance Indicators (KPIs) to set performance targets of the FM Company. In the event of the FM Company fails or neglect to carry out any maintenance work or not accordance with the maintenance service level, the Government or the government representative will impose the relevant demerit value penalty and deduct such amount of maintenance charges. These indicators are essential metrics that can be used to measure the success of FM practices. Example of the KPIs set for FM practices within the PFI projects as follows:

- i. KPI's for respond time and action time for service requests.
- ii. KPI's for compliance rate that measures the degree to which a facility complies with relevant regulations and standards.
- iii. KPI's for energy efficiency that measures the amount of energy consumed by a facility relative to its output or occupancy.
- iv. KPI's for customer satisfaction that measures the satisfaction of facility occupants or tenants with the services provided by the facilities management team. It can be used to assess the effectiveness of service delivery and identify areas for improvement.
- v. KPI's for safety incidents that measures the number and severity of safety incidents that occur within a premises.
- vi. KPI's for asset utilization that measures the utilization of facility assets, such as equipment and space.

Overall, facilities management practices and initiatives in PFI projects are designed to ensure that public assets are properly maintained and operated over their life cycle, while delivering high-quality services to the public. The FM approach is a comprehensive and integrated approach to managing the physical assets and operation of a university facilities. By aligning facilities management initiatives with the organization's long-term goals and objectives, facilities management can contribute to improved performance, efficiency, and sustainability.

Despite the tremendous growth of the PFI projects implementation in Malaysia, the PFI arrangement have been constantly reviewed and revised by the Public Private Partnership Unit to improve the present practice of PFI implementation to ensure the achievement of the ultimate objective. Hence, this paper presents the study on the implementation of FM practices by FM Company at one selected PFI project based on the above-mentioned criteria and the principles laid under the 9th Malaysia Plan for PFI Program.

Research Methodology

A case study is conducted in one PFI University in Malaysia to assess the application of facilities management practices. Data are collected through documentation review and retrieval, archival records review, and direct observations. The single case study approach is a research method used in social science research to analyse a single case or phenomenon in depth (Yin, 2003). In this approach, a single unit of analysis, such as an individual, organization, or community, is studied in detail to gain a deep understanding of the case and its context. In this research, it involves several steps such as defining the case, selecting data sources, collecting data, analysing data, and drawing conclusions.

Case Study Background

The Private Funding Initiative (PFI) project for this Public University Campus was implemented through a concessionaire agreement between the Government of Malaysia which represent by the University management and the granted Concessionaire Company for design and construction and operation and maintenance. The project construction started in 2011 and was completed in 2014. The duration of concessionaire period for operation and maintenance is for 20 years and awarded to FM Company. For the sake of confidentiality, the University will be referred to as University A and the FM Company as FM Company A. The project using the concept Design, Build, Operate and Transfer (DBOT) whereby the university campus is designed, financed, and constructed by the Concessionaire Company and operated and maintained by FM Company A. The University campus will expect to transfer the ownership to the university management in year 2034. The development and facilities provided within the campus included administrative blocks, academic blocks, library, student accommodations, laboratories, lecture hall, Islamic center, sports and recreational facilities and major infrastructures and infostructures. Scope of work covered under this concessionaire's agreement include:

- i. Building services management elements such as housekeeping, sanitary and rest room equipment, air conditioning and ventilation, hot and cool water dispenser, water supply, lift, electrical power supply, electrical equipment, PABX and telecommunication, sewerage, grease trap, fire fighting equipment, LPG equipment, roofing, and others.
- ii. Waste management including hard waste, domestic waste, hazardous waste, sanitary dressing and clinical waste.
- iii. Campus health and safety management.
- iv. Warranty management for asset, equipment, and furniture.
- v. Traffic and parking management including signage and street furniture and parking space.
- vi. Security management
- vii. Equipment management including office equipment, learning equipment, audio visual equipment and laboratory equipment.
- viii. Move management for furniture and equipment.
- ix. Event management including space and time tabling and event equipment.
- x. Asset and inventory management including inventory tagging, plant inventory, building inventory, asset inventory and equipment inventory.
- xi. Power quality and energy saving management.
- xii. Infrastructure, slope and groundwork management including monsoon drain, street and compound lighting, road and pavement, pedestrian (walkway), slope, drainage, fencing and rainwater.
- xiii. Park and amenities management including field, sport and recreation facilities, playground, soft and hard landscape.
- xiv. Document management for ISO documentation, drawing and historical data.
- xv. Pest control management.
- xvi. Building Automation System (BAS) management.
- xvii. Building inspection and audit management including space audit, facilities condition index, building performance index and evaluation.
- xviii. Customer relation management including customer complaints, customer feedback and customer satisfaction survey.
- xix. Information, Communication and Technology (ICT) management.

The concession agreement is attached with Appendix E which is the Building Maintenance Manual that become a general guideline document based on University A need statement. The Building Maintenance Manual consists of general requirements, scope of works, work specification, key performance indicators (KPIs), renovation and upgrading works and facilities management system. After the certificate of acceptance is issued maintenance works including corrective and preventive maintenance shall be carried out by the FM Company. Computerized facilities management system is a system used to manage building space, facilities, operational works, and infrastructure based on University A facilities management policy and set KPIs. This will benefit the management in term of online monitoring, real time data and providing comprehensive report including work order status and its achievement.

Discussion of Findings

The discussion of findings focused on the data of user request and work order closed for maintenance work and analysis of Company A performance based on key performance indicators (KPIs), demerit points and amount deduction of maintenance charges.

User Request and Work Order for Maintenance Works

User request for maintenance works is extracted from Computerised Maintenance Management System (CMMS) at University A. Each of the user request will generate into work order number and will be monitor by the system. The report will be generated from the system and presented during monthly concessionaire and University meeting. The performance of the FM Company depends on how many works order has been completed or closed within the month.

The demerit points and deduction of maintenance charges will be calculated based on work order that not been completed. Table 2 provides information on the number of user requests and work order closed for maintenance works at University A over a nine-year period, from 2014 to 2022.

Table 2

Analysis of user request and work order closed for maintenance works (2014-2022)

Year	User Request (number)	Work order Closed
2014	2405	2405
2015	4384	4384
2016	3149	3149
2017	2462	2462
2018	5147	4107
2019	3276	3276
2020	1396	1566
2021	1566	1373
2022	2890	2890
Total	26675	25612

Sources: Annual Report of Facilities Management Performance, Facilities Management Department, University A.

From the table, we can see that there was a total of 26,675 user requests for maintenance works between 2014 and 2022. Out of these requests, 25,612 work orders were closed. In

2014, there were 2,405 user requests for maintenance works and all of them were closed. Similarly, in 2015, all 4,384 user requests were closed. In 2016 and 2017, all user requests were also closed. However, in 2018, out of 5,147 user requests, only 4,107 work orders were closed. This suggests that there have been some backlog or delay in completing the maintenance works requested by users. In 2019, all 3,276 user requests were closed, indicating that the backlog may have been resolved. In 2020, there were 1,396 user requests and 1,566 work orders were closed, suggesting that there may have been some delay in closing all work orders. In 2021, there were 1,566 user requests, but only 1,373 work orders were closed, indicating a backlog or delay in completing the requested maintenance works. Finally, in 2022, all 2,890 user requests were closed. Overall, it seems that the maintenance team may have struggled with a backlog or delay in completing all user requests in some years, but this was resolved in subsequent years.

Analysis on FM Company 'A' Performance

Table 3 provides an analysis of the performance of FM Company 'A' over a period of nine years, from 2014 to 2022.

Table 3

Analysis of FM Company 'A' Performance (2014-2022)

Year	Average Key Performance indicators (%)	Demerit points	Deduction of Maintenance Charges (RM)
2014	98.15	130	22,437.42
2015	96.98	355	193,152.73
2016	97.31	92	48,265.92
2017	98.62	78	18,875.86
2018	98.27	63	35,615.10
2019	99.45	28	189.41
2020	98.22	5	153.27
2021	99.26	0	0.00
2022	99.81	22	463.52
Total	98.45	773	319,153.23

Sources: Annual Report of Facilities Management Performance, Facilities Management Department, University A.

The table includes data on the average key performance indicators (KPIs), demerit points, and the deduction of maintenance charges in Malaysian ringgit (RM). The second column provides the average KPIs for that year, expressed as a percentage. The KPIs included measures of customer satisfaction, response time, completion rates, and other relevant performance indicators. The third column provides the number of demerit points assigned to the company during each year. Demerit points are typically assigned for poor performance or violations of contractual obligations. The demerit points column refers to the number of demerits points that FM Company A received for each year based on their performance against a set of predetermined criteria. The higher the number of demerit points, the poorer the performance of the company. The fourth column shows the amount of maintenance charges deducted from the company's payment because of demerit points or poor performance. The amounts are expressed in Malaysian ringgit (RM). According to the table, the company's performance was generally strong during the period, with an average KPI of 98.45%. However,

the company did experience some challenges, as evidenced by the demerit points and deduction of maintenance charges. In particular, the year 2015 was a difficult year for the FM Company A, with the highest number of demerit points (355) and the largest deduction of maintenance charges (RM 193,152.73). This is due to service request that not been completed within the time frame given by the University management. However, the FM Company A was able to improve its performance in subsequent years, with lower numbers of demerit points and deductions of maintenance charges. Overall, the table provides a useful overview of the company's performance over time and can be used to identify trends and areas for improvement.

Conclusion and Recommendation

Based on the discussions of the result of this research work, it was found that all the facilities management supplied by private sector were meets Key Performance Indicators (KPIs), by meant it also need to improvise their services provision. In a conclusion, facilities management in University A Campus are still in developing process, whereby the facilities supplied by private sector, Company A are in the phase of success. The main factors on how it builds, maintain, and operate as stated in PFI contract will become a major strategy for improving competitiveness. It gave benefit in management of facilities in PFI, both of government and private sector and some findings will contribute to the growing field in facilities management in Malaysia. In the future, it is recommended for future researchers to measure and analyse the customer satisfaction of the FM service provider within this PFI project and measure the service quality of a university towards student's satisfaction.

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