

Service Quality in Planned Preventive Maintenance: A Preliminary Study at UiTM Campuses

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ABSTRACT

Planned Preventive Maintenance (PPM) is an essential component under facilities management (FM) carried out to ensure the functionality, effectiveness, reliability and safety of the asset and facilities. Poor service quality, lack of monitoring and performance assessment, low level customer satisfaction are among issues arises and has gained a lot of attention, especially among interested parties. In Universiti Teknologi Mara (UiTM) campuses context, FM normally outsourced to third parties namely concessionaires under Private Finance Initiative (PFI) campuses and contractors for conventional campuses. The main objective of this preliminary study was to investigate current practices in terms of service quality aspect of PPM works delivered by concessionaires and contractors in UiTM. A questionnaire was distributed to 27 respondents consist of 12 engineers and 15 assistant engineers from Office of Facilities Management UiTM and analysed using descriptive analysis. Based on the results, current practice to measure PPM work performance is by the number of works completed. Apart from that, there is no defined standard method available to be used as performance measurement in the aspect of service quality of PPM works delivered by concessionaires and contractors in UiTM. In addition, all the respondents agreed that there is indeed a necessity to develop a standard performance measurement in the aspect of service quality of PPM works delivered by concessionaires and contractors. The impact of this finding is to the Office of Facilities Management UiTM, in which they can focus and start to develop standard performance measurement in the aspect of service quality of PPM works delivered by concessionaires and contractors, so the services provided commensurate with the payment made and satisfy customer needs.

Keywords: Facilities management; planned preventive maintenance; service quality

INTRODUCTION

In practice, the role of facility management fully begins after completion of construction of a building (Zakaria et al. 2011). According to Wiggins (2010), maintenance operations are expected to comply with the output specifications using a variety of maintenance service regimes, (i.e., planned, and unplanned maintenance services). Planned maintenance consists of Planned Preventive Maintenance (PPM) and Planned and

Unscheduled Maintenance. PPM refers to schedule maintenance aimed at repairing assets before it fails. PPM is one of the maintenance strategies that aims to increase the reliability or lifespan of equipment as time-based or condition-based; it refers to a proactive approach to maintenance in which maintenance work is scheduled to take place regularly (Doyen et al. 2011). In public universities, maintenance is considered as one of the critical elements that needs attention and detail. One of the key components in campus planning is facilities management

and maintenance (Abd-Razak et al. 2014). Therefore, this study focused on PPM scenario in Universiti Teknologi Mara (UiTM). UiTM has both campuses developed through Private Finance Initiative (PFI) and traditional procurement. UiTM campuses have been identified as the project that fulfills most of the PFI characteristics as PFI campuses (Ismail 2012). Better management of facilities of institutions of higher learning is a matter of urgency, as they are meant to support the core objective of teaching, learning and research (Odediran et al. 2014). In addition, maintenance is required for all facilities to ensure they are safe and able to provide a conducive environment to assist learning (Abd-Razak et al. 2014). In UiTM, PPM was outsourced to third parties namely concessionaires under Private Finance Initiative (PFI) procurement for PFI campuses and contractors under traditional procurement for conventional campuses. This third party carried a variety of PPM works towards the equipment, systems and physical infrastructure aimed at ensuring the efficient and effective operation of facilities to support teaching, learning, research and administrative functions.

However, based on interviews conducted by Lop (2019) with UiTM engineers found that concessionaires failed to successfully carry out the PPM work according to the PPM routine. In addition, they received complaints from users on poor facilities and services provided (Universiti Teknologi MARA 2015) and low level end-user satisfaction (Universiti Teknologi MARA 2016). According to Ruslan (2007), poor quality of the services provided is the biggest problem in Malaysia. Jaini et al. (2022) stated that awareness of building maintenance is seen as lacking by the building manager, and the research conducted shows that the manager evaluates the maintenance work as unimportant. Meanwhile, Lavy (2008) indicates that there is a need to improve communication between the university level facility maintenance and individual facility maintenance managers to track and implement programs, reduce redundancy, and strategically plan for the building as part of the overall campus. Lack of a study exploring the status of PPM in the campus-scale higher education institutions is the primary barrier towards effective facility management (Pampana et al. 2022). As indicate in audit report by National Audit Department (2012) stated that there are several weaknesses in the implementation of Private Finance Initiative (PFI) projects in Malaysia include lack of monitoring and lack of project performance assessment. Therefore, this preliminary study is to explore

current performance measurement in terms of service quality of PPM work delivered by concessionaires and contractors in UiTM.

TABLE 1. Finding on issue related to PPM performance measurement

No	Author/Year	Findings
1.	Ruslan (2007)	Poor quality of the services provided is the biggest problem in Malaysia
2.	Lavy (2008)	Need to improve communication between the university level facility maintenance and individual facility maintenance managers
3.	National Audit Department (2012)	Lack of monitoring and lack of project performance assessment
4.	UiTM (2015)	Complaints from users on poor facilities and services provided
5.	UiTM (2016)	Low level end-user satisfaction
6.	Lop (2019)	Concessionaires failed to successfully carry out the PPM work according to the PPM routine
7.	Jaini et al. (2022)	Building manager lack of awareness about building maintenance and evaluates the maintenance work as unimportant
8.	Pampana et al. (2022)	Lack of a study exploring the status of PPM in the campus-scale higher education institutions is the primary barrier towards effective facility management

METHODOLOGY

Figure 1 presents the survey overview of performance measurement in terms of service quality in Planned Preventive Maintenance (PPM) delivered by concessionaires and contractors in UiTM.

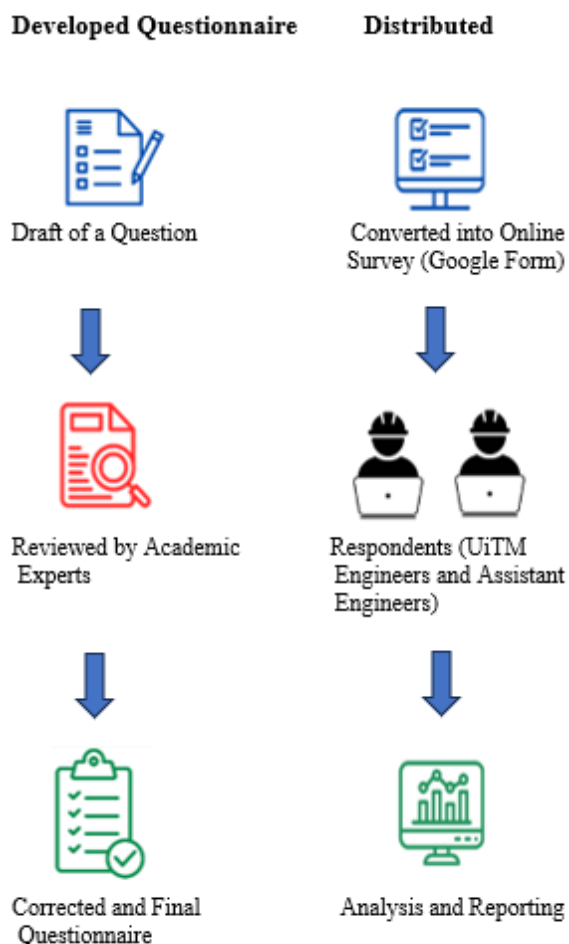


FIGURE 1. Overview of overall process

First, a series of questions are constructed as a preliminary survey questionnaire to explore current practice in UiTM in measuring service quality of PPM work delivered by concessionaires and contractors. The questionnaire consists of two (2) sections namely section A and section B. Section A is the demographic profile of the respondent (gender, age, position and working experience) while Section B consists of (8) questions/items related to information regarding PPM and performance measurement. Then, the preliminary survey questionnaire reviewed by the two (2) academic experts and minor adjustment was made. Next, the questionnaire was converted into an online survey via Google form and distributed to the selected engineer and assistant engineer from Office of Facilities Management UiTM.

A total of 27 respondents contributed to this study consist of 12 engineers and 15 assistant engineers. The questionnaire was distributed to engineers and assistant engineers from both campuses namely UiTM Puncak Alam (1 engineer and 2 assistant engineer), UiTM Dengkil (1 engineer and 1 assistant engineer), UiTM Seremban 3 (1 engineer), UiTM Kuala Pilah (1 engineer and 1 assistant engineer), UiTM Raub (1 engineer and 2 assistant engineer), UiTM Jengka (1 engineer and 3 assistant engineer), UiTM Samarahan 2 (1 engineer and 1 assistant engineer), UiTM Mukah (1 engineer and 1 assistant engineer), UiTM Tapah (1 engineer and 3 assistant engineer), UiTM Segamat (2 engineer and 1 assistant engineer) and UiTM Pasir Gudang (1 engineer). All the responses were collected and analyzed with descriptive analysis.

RESULTS AND DISCUSSION

This section presented the findings from the preliminary survey conducted on performance measurement for service quality in PPM delivered by concessionaires and contractors in UiTM.

WORK EXPERIENCE

The survey has been given to personnel who are directly involved with facilities management and maintenance, namely engineers and assistant engineers from the Office of Facilities Management of both campuses. Table 2 presented the demography of the respondents. A total of 27 respondents were involved in this study consist of 22 (81.5%) male and 5 (18.5%) female. By position, it comprised of 12 (44.4%) engineers and 15 (55.6%) assistant engineers. As for work experience, most of the respondents have extensive work experience where 11 (40.7%) respondents have been working in the field for more than 16 years, 5 (18.5%) respondents have more than 10 years of working experience and 6 (22.2%) have more than 5 years of working experience in the field of facilities management. Respondents for this study are well equipped with knowledge and experience since this study requires extensive experience in facility management, especially in overseeing the services provided by concessionaires and contractors. One of the reasons on the low level of maintenance competence in Malaysia is due to less knowledgeable and expertise maintainers (Ahmad Zawawi et al. 2010).

TABLE 2. Demography of respondents

Item	Criteria	<i>n</i>	(%)
Gender	Male	22	81.5
	Female	5	18.5
Age	20 - 29	4	14.8
	30 – 39	9	33.3
	40 – 49	10	37
	50 – 60	4	14.8
Position	Engineer	12	44.4
	Assistant Engineer	15	55.6
Work Experience In FM	≤ 3 Years	3	11.1
	≤ 5 Years	2	7.4
	≤ 10 Years	6	22.2
	≤ 15 Years	5	18.5
	> 16 Years	11	40.7

CURRENT PRACTICE

Table 3 shows the current practice in performance measurement of PPM work delivered by concessionaires and contractors in UiTM.

TABLE 3. Current practices in PPM performance measurement

Item	<i>R</i> Respondent	(%)
Number of work order completed	24	88.9
Measurement of service quality aspect	23	85.2
Availability of standard method in measuring service quality of PPM	14	51.9

As we can see, 88.9% respondents consist of 8 engineers and 9 assistant engineers from PFI campuses and 3 engineers and 4 assistant engineers from conventional campuses make the total of 24 respondents agreed that current practices in performance measurement of the concessionaires and contractors is by the number of works completed in that month. For example, if 1000 PPM work order issued to be carried out, the performance of concessionaires and contractors is measured based on how many work orders have been successfully carried out and close in the system.

Then, based on existing practices 85.2% respondents consist of 8 engineers and 8 assistant engineers from PFI campuses and 3 engineers and 4 assistant engineers from conventional campuses make the total of 23 respondents agreed that they monitor and measured service quality of the PPM work delivered by concessionaires and contractors.

However, a variety of answers were given when asked about the methods used to monitor and measure quality aspects of PPM works as presented in Table 4.

TABLE 4. Various method in measuring service quality of PPM works

No.	Open-Ended Response	Summary
1	“Berdasarkan Checklist PPM”	PPM checklist
2	“Semakan pelaporan bulanan”	Monthly report
3	“Pada checklist dinyatakan catatan dengan lampiran bergambar beserta catatan serta bacaan yang dapat diambil/ diukur secara quantitative”	Checklist and picture
4	“Kualiti & Tempoh kerja disiapkan”	Duration
5	“Semakan dan pemantauan”	Monitoring
6	“Melalui KPI”	Key performance Indicator
7	“Melalui kajian aduan pelanggan”	Customer complaint
8	“Berdasarkan kefaan fizikal & efficiency equipment/item yang diselenggara”	Physical condition

It is evident that performance measurement in service quality aspect of PPM work is differ for each campus. It depends on the way of each PPF team (engineer and assistant engineer) from respective campus works and what method they used to monitor and evaluate the quality of PPM work carried out by concessionaires and contractors. Although can clearly be seen that the PPM work delivered by concessionaires are measured based on numbers and percentage of work completed, the service quality of work is equally important and must be considered as one of the criteria in performance measurement. The biggest problem with maintenance management in Malaysia is how poorly the quality services are supplied (Kamaruzzaman et al. 2010). Then, based on respondents experienced and observation, 51.9% respondents consist of 5 engineers and 5 assistant engineers from PFI campuses and 1 engineer and 3 assistant engineers from conventional campuses make the total of 14 respondents indicates that there is no standard method available to be used as performance measurement in the aspect of service quality of PPM works delivered by concessionaires and contractors. The findings are evidence that there is no standard method that can be used as performance measurement by engineers and assistant engineers at PPF UiTM in measuring service quality of PPM works delivered by concessionaires and contractors. This is consistent with the findings in Table 2

where the respondent given a variety of answers about current method in monitoring and measuring service quality of PPM works delivered by concessionaires and contractors.

IMPROVEMENT

Result presented in Table 5 indicates that all the respondents 100% agreed that service quality aspect of the PPM work provided by the concessionaires and contractors are important and should be given attention especially during operation and maintenance of the campuses. Good and quality maintenance work can lower the risk of building damage and deterioration. Insufficient PPM have accelerated facility deterioration at most campus-sized institutions in the United States (Yoon et al. 2021). Furthermore, quality maintenance practices can also save on maintenance costs of the building. Building management works, especially maintenance costs require relatively high costs (Yusoff et al. 2011).

Lop et al. (2017) stated that the operation and maintenance phase is a critical phase because it is the longest period in the life cycle of a project. This phase will involve customers as end users consisting of lecturers, administrative staff, and students. They will use the buildings and infrastructure facilities that have been provided and maintained. Therefore, level of customer satisfaction with the quality of the service provided is an important criterion need to be considered since satisfy customers with the quality of services provided indicates that concessionaires and contractors has successfully carried out its responsibilities and provide maintenance routine with good service quality. Customer satisfaction is considered as a basic performance standard and a standard of excellence for any business organization (Mihelis et al. 2001).

TABLE 5. Importance of service quality of PPM work

Item	R Respondent	(%)
Importance of service quality aspect	27	100
Importance to develop standard performance measurement	27	100

In addition, all the respondents (100%) agreed it is also important to develop a standard method in measuring service quality of PPM works delivered by concessionaires and contractors. It will help and facilitate Office of Facilities Management UiTM in monitoring and measuring the performance of concessionaires and contractors in a more systematic, fair, and transparent manner because all campuses use the same measurement methods and criteria.

CONCLUSION

As for conclusion, there is no standard performance measurement such as a model or framework to evaluate service quality of PPM work delivered by concessionaires and contractors in UiTM. Findings show that each campus uses different methods and numbers and percentage of PPM works completed has been used as main criteria in performance measurement of concessionaire and contractors. Service quality of PPM works is very important so that the services provided by concessionaires and contractors are commensurate with the value of money paid by the Government and UiTM in particular. In addition, good maintenance work quality will bring many benefits such as increased building longevity, a decrease in repair-related damage, and cost savings. The findings in this paper can provide knowledge to the management of campus facilities on the importance of service quality of PPM works delivered by concessionaires and contractors. Besides, it also provide insight for future studies especially in establishing a standard performance measurement to measure service quality of PPM works provided by concessionaires and contractors.

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DECLARATION OF COMPETING INTEREST

None

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