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SEMINAR ON BUILT
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ENVIRONMENT**

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USER SATISFACTION UPON MAINTENANCE MANAGEMENT PERFORMANCE IN COMMERCIAL BUILDING

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ABSTRACT

Maintenance management is a crucial issue in the building nowadays. Additionally, it enables users to make proactive decisions that consider both their objective and subjective needs in order to contribute to the success of business environments. However, there are several problems, and they have an impact on the performance level of maintenance tasks. The research establishes to improving the building performance of maintenance management in commercial building. The objectives to find out importance of maintenance management in building to perform. Approaches of data collection include literature review, observation, and online survey. From survey, it was discovered that users are satisfied with maintenance management performance in commercial buildings. Furthermore, recommendation for improvement strategies in building to maintain were agreed by users with 100% rating. To sum up, maintenance management play crucial roles to maintain condition, provide safe, comfortable and functional environment in every building. Technology system in building should be explore because it crucial to ensure building system run smoothly. Besides, effectiveness of maintenance effect efficiency of equipment/system.

Keywords: *User satisfaction, maintenance management, commercial building, building facilities, building maintenance*

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INTRODUCTION

Building maintenance is a global issue that has to do with customer satisfaction. The organization is dealing with a few problems and challenges that are the cause of the bad building condition. The problems also indicate that the existing maintenance procedures are being applied inefficiently and at a level that is much below maintenance best practices. They have an impact on the performance level of maintenance tasks (Sarhini et al., 2021). When a small amount of damage occurs at first, but later increases to the point where it can endanger the lives of those inside the commercial building, a structure's weakness will only get worse (Nawi et al., 2017). Occupants' complaints that aren't satisfied frequently result in higher maintenance costs. Users' contentment with their accommodations and facility maintenance interact as a result of the impact of users' satisfaction on maintenance (Adejuyigbe et al., 2022).

Users satisfaction is a more sophisticated concept than simply expressing a satisfied customer. Customer satisfaction is characterised as a customer's total assessment of an offering's performance up to that point. Users satisfaction is defined as the emotional reaction to experiences related to the level of goods and services, timeliness, effectiveness, accessibility, environment, and other facilities, as well as the attitude and behaviour of service providers in relation to the customer's expectations (Adhikari et al., 2014).

Poor workmanship and poor building care can contribute to accidents, injuries, and fatalities. Maintaining a system or piece of equipment is crucial for its long life as well as for avoiding accidents and illnesses. Building upkeep, including that of commercial structures, should include the overall building security includes both the exposed and concealed areas of the building. Security concerns and health problems can develop into societal problems in the commercial management of building maintenance (Nawi et al., 2017), safety and health refers to the safeguarding of building occupants and guests against the risk of illness and harm. According to Lewis et al. (2010), asserts that building maintenance management is in charge of monitoring the health and safety of facility operations and maintenance.

In circumstances where inadequate and inefficient maintenance architecture is used to manage the building services, the result compromises the intent behind the construction of such a facility, leaving the users dissatisfaction (occupants). Occupants' complaints that aren't satisfied frequently result in higher maintenance costs. Users' contentment with their accommodations and facility maintenance interact as a result of the impact of users' satisfaction on maintenance (Adejuyigbe et al., 2022). According to Sui & Wee (2001), accidents and injuries may result from inadequate maintenance of public facilities and infrastructure.

For the proper administration of such a structure to live up to expectations and withstand any potential difficulties that may arise from its use, several plans, procedures, and guidelines are necessary. The result of applying insufficient and incorrect maintenance strategy in the management of the building services compromises the aim of the construction of such a facility, leaving the users (occupants) unsatisfied. Occupants' complaints are frequently the result of their discontent, which raises the expense of upkeep (Adejuyigbe et al., 2022).

Additionally, indirect maintenance costs include performance inefficiency costs due to brief stoppages and reduced speed, poor quality costs due to maintenance deficiencies, idle fixed cost resources, such as idle machine and idle worker costs during breakdowns, delivery delays penalty costs due to unplanned downtime, assurance claim from dissatisfied customers due to maintenance-related poor quality, and more (Obamwonyi et al., 2010).

Planning, organising, monitoring, and assessing maintenance tasks will be done using a systematic way. This also implies that employing good maintenance management requires careful attention to both financial factors and methods. An office block can be preserved in its first state as much as is practical so that it can continue to serve its purpose. To stop the decaying process that will cause a harmful situation, systematic management and ongoing maintenance efforts are required (Hamid et al., 2014).

LITERATURE REVIEW

Maintenance - "The combination of all technical and administrative actions, including supervision actions, intended to retain an item in or restore it to a state in which it can perform a required function" is the definition of maintenance (BS 3811:1993). "ensuring the continuous, cost-effective fitness for the use of buildings at a specified performance level" is the definition provided by Shohet et al. (2004).

The main types of commercial buildings including offices, hospitals, schools, and healthcare facilities were once constructed in such a way as to provide its occupants with needs like water, electricity, and gas. Thus, it is necessary to monitor, control, and manage a building's inhabitants, components, appliances, systems, environment, and health in real-time (Lawal et al., 2022).

Maintenance Classification

Corrective maintenance and preventive maintenance are the two forms of maintenance management that commercial industries commonly employ.

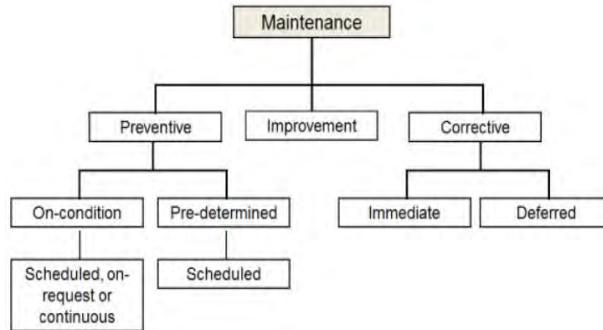


Figure 1: Classification of Maintenance (Mungani et al., 2013)

Corrective Maintenance - This basic management style is known as "fix it when it breaks" (Mobley, 2004), meaning that problems are resolved immediately following or concurrent with failure (Moubray, 1997). This sort of maintenance includes unscheduled, remedial, and emergency tasks (Mobley, 2004). The corrective technique waits until equipment failure before performing any maintenance.

Preventive Maintenance - Preventive maintenance (PM) refers to building maintenance that is proactive and centred on avoiding problems. Preventive maintenance aims to extend equipment life span and avoid equipment failure and lowering total maintenance costs by fixing problems as soon as they are discovered and before they become major issues (CCPIA, 2020).

Factor Contributes to User Satisfaction in Maintenance Management in Commercial Buildings.

Building condition - Buildings continuously deteriorate from being used, exposure to various weather conditions, and maintenance. According to Puķīte & Geipele (2017), effective building maintenance enables a building to continue serving its function and to preserve a beautiful design, both of which are essential components. **Maintenance Management Organizations** - Technical and control problems may be addressed widely under the terms of "maintenance management," which can include more than just the control operations related to each equipment component (BS 8210).

Procedure of Complaint - Customer satisfaction is influenced by professional complaint handling. The best approach to learn about the level of services provided is to file a complaint. Customer satisfaction, customer retention, and profitability are all depending on complaint behaviour. (Forbes et al., 2005).

Service Quality - The attention and ability of the building management to regularly evaluate the performance of the building operations with the objective of providing satisfaction to the users (Woon, 2016). To maintain, support, and sustain the building

operation and strategy, the service quality in building management primarily depends on the professional qualified building management (Chang, 2010).

RESEARCH METHODOLOGY

The various research methods that are frequently employed to gather and analyze the different types of data produced by the investigations are available for each sort of research design. A quantitative research methods are employed in this study to improve the maintenance management performance at commercial buildings meanwhile quantitative methods will be used also to examine situations or events that have an impact on people.

Residents of Klang, Selangor, who live close to commercial buildings make up the study's population. Customers and workers will make up the population, which will also comprise people from various socioeconomic backgrounds. A questionnaire sampling method will be used to choose the sample for this investigation. A non-probability sampling technique called convenience sampling involves choosing people who are readily available and willing to participate (Creswell, 2014). The selection of participants will consider their closeness to the case study.

According to the suggested sample size for cross-sectional studies, 51 people will be chosen as the sample size for this study. The sample will have 46 question representatives of the population, encompassing customers and worker with a range of socioeconomic statuses, level of satisfaction, key factors influencing to user satisfaction with maintenance management, and propose effective improvement strategies in maintenance management to enhance performance and condition of building.

There will be users for sampling purposes included in the buildings. The data will be obtained by questionnaire survey. A questionnaire is distributed to obtain the information and statistics. There are two basic methods for evaluating data which is and Customer Satisfaction Rating (CSAT) analysis and score frequency and percentage analysis. There are several limitations encountered while conducting this study: This research focused on Klang areas and shopping mall building only. There are limited responses by users in each commercial building.

RESULTS AND FINDING

According to questionnaire survey that share in online platform, there are 4 Section provided for respondents to answer. Klang area are selected case studies for this research. Information survey about research is gathered via online platform. There are four (4) sections of the online questionnaires, section A, section B, and section C.

Section A are discussed about demography of respondents. Distribution of respondents in commercial building while doing survey from various gender, age, status, frequency of come, and their opinion about maintenance management in building.

Section B:

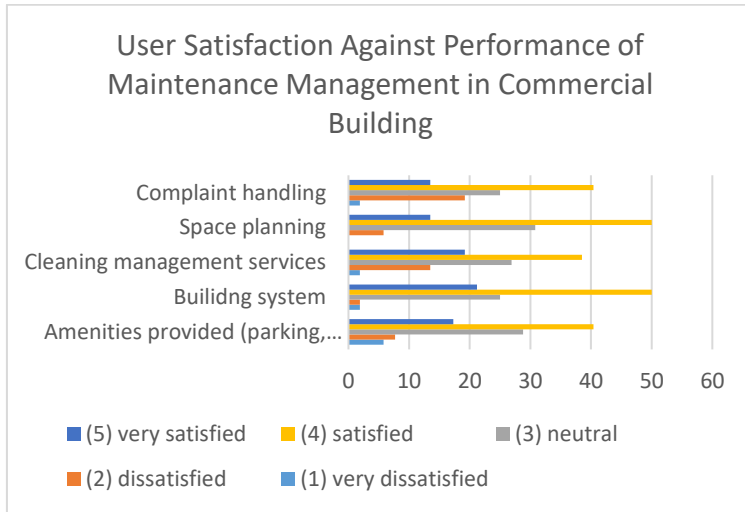


Figure 2: Level of User Satisfaction against Performance of Maintenance Management

Section C:

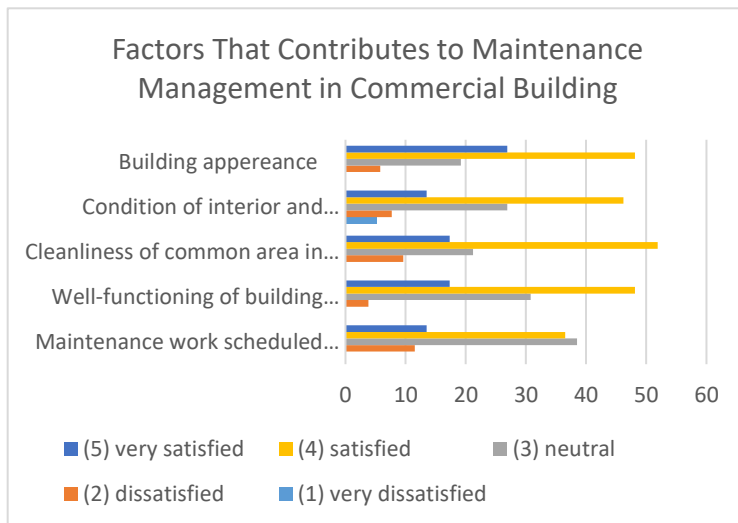


Figure 3: Factors That Contributes to Maintenance Management

Section D:

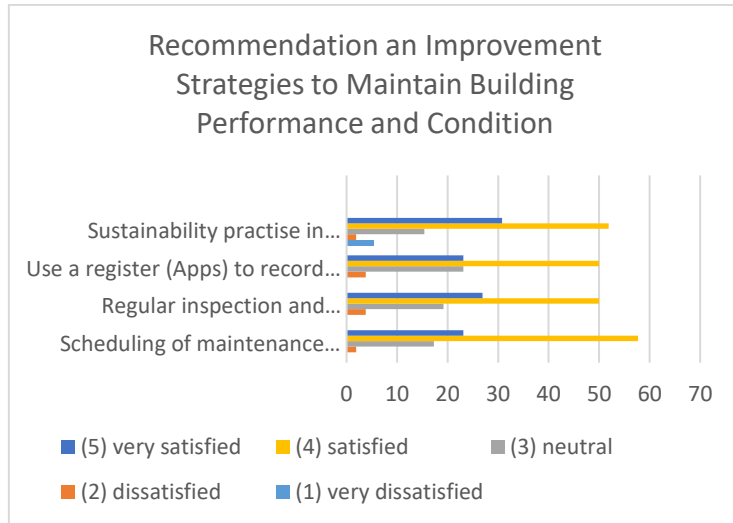


Figure 4: Recommendation an Improvement Strategies

Based on Figure 2, this section related to performance of maintenance management in commercial building. Based on survey, level of users' satisfaction with building are good rate which they satisfied with the building performance followed by very satisfied and neutral. Information of types of facilities and maintenance help more to rate.

Based on Figure 3, there are several factors that contributes to how maintenance management organizations in building doing their work. About how performance of building maintenance can give impact users' satisfaction. Data collected from survey show factors that mentioned in this section is mostly satisfied followed by very satisfied. Respondents have a good knowledge by know about building maintenance either management in building are doing their work proper or not.

Based on Figure 4, recommendation are provided by each types of improvement to maintain building performance and condition. Respondents are highly recommended to maintenance organizations improve inspection, scheduling, planning, and execution in building.

According to data that obtained from secondary data which literature review, journal, and observation in related topic/field. Based on finding of secondary data, maintenance management are crucial in building to perform operation, equipment, and facilities and services. By doing maintenance activities followed scheduled on time, risk for damage can reduce. About facilities and services provided in building also maintenance and management of building. As a result, users are satisfied with facilities and services, and maintenance management in building.

Factors are completely founded by user satisfaction that contribute to it. Through questionnaire survey, shows maintenance management providing all component in every aspect well-functioning without minor damaged. This is proved that maintenance management organizations have a benchmark to ensure all component in good condition and run smoothly. Respondents are mostly satisfied by the factors mentioned.

About a recommendation for improvement strategies in maintenance management which strategies in maintenance include preventive maintenance, corrective maintenance, and condition-based maintenance. All types of strategies have their own features and application according to problem occurs in building. Besides that, to minimizing asset failures and improve life cycle. This section divided into two point which is planning and execution, and scheduling and inspection. From option give, respondents are all agree to improve maintenance management in buildings.

Therefore, the result of the findings and analysis can be used by management bodies to learn more about the current situation that the users and management team in the study area face. The strategies for the maintenance plan are created by the management team with the goals of increasing the building's value and making maintenance work more effective. Besides that, during maintenance work, the strategies for maintenance can minimize all issues, thereby lowering repair costs and enhancing health and safety. Other than that, the users will be more comfortable to use the facilities that provided in the commercial building. All the report carried out by users through proper way also help to improving building management.

CONCLUSION AND RECOMMENDATION

The aim of the study is to improve the building performance of maintenance management in commercial buildings in Klang area. In literature review, it helps to identify issues in maintenance management by read and analyse every content in the articles. From the existing factors, strategies should be developed to maintain the building functions.

For future research idea, future researchers can continue research in scope of maintenance management. From this research, recommendation that can be taken is maintenance technology part. Technology system in building is crucial for ensure building system run smoothly.

Commercial building such as office building, and hospital should be taken to gain more knowledge that maintenance management play crucial roles to maintain condition, provide safe, comfortable, and functional environment in every building. In this case, every position plays their own roles and have a different perspective of work. This is due to research that focused on internal issues of building and needs expertise from position that involved.

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