

Gap Analysis for the Facilities Management Services in Malaysian Government Office Buildings

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ABSTRACT

The Malaysian Government is increasingly using Facility Management (FM), and it is becoming more widely accepted and popular within the Ministry. Implementing Facility Management (FM) in Malaysia aims to enhance the systematic maintenance of government facilities, thereby extending the lifespan of the building structure. Implementing Facility Management ensures the property's maintenance and prolongs the asset's lifespan. However, the extent to which this service has met the end user's needs is still yet to be determined. Ensuring that the service provider's performance reaches the necessary standard is essential. An enhancement can be executed. This article examines the quality of FM services in government office buildings in Malaysia. This research aims to discover discrepancies between end-user expectations and perceptions of facilities management services using the five elements of the SERVQUAL model: reliability, responsiveness, assurance, empathy, and tangibles. 152 end-users from government office buildings took part in this study. The survey results revealed that service quality gaps in facilities management services are indeed occurring. Therefore, it can be concluded that perceptions of the service are below user expectations, highlighting the need for significant improvements to boost service quality. This study will benefit all parties involved in creating documentation and overseeing the implementation of the FM contract.

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INTRODUCTION

Government buildings in Malaysia require constant care to ensure that they are in good condition and functioning properly. The cost of building management and maintenance requires a large expenditure. The expenditure allocations from 2020 to 2024, as depicted in Table 1, clearly demonstrates the budget allocation expansion in many sectors, such as school buildings, Islamic educational institutions, government quarters, youth facilities, and sports facilities. When examining the Federal Expenditures from 2021 to the present, Examining the assigned national budget reveals a substantial sum dedicated to the upkeep of structures, with the aim of ensuring the well-being of the population residing in those buildings.

Table 1. Federal Expenditure Allocation for Building Maintenance From 2021 to 2034

Year	RM (Billion)
2021	1.813
2022	5.027
2023	3.655
2024	3.470

Source: Ministry of Finance (n.d)

The Government Asset Management Committee's statistics for the first quarter of January to March 2023 reveal that the government possesses a grand total of 25,160 buildings, covering an approximate area of 17,270,521,927.08 square meters. The lease or rental category includes 10,367 units of government buildings, with an estimated total area of 13,514,248.97 square meters. This structure must be ensured to offer optimal comfort to its users. Hence, it is imperative to uphold the maintenance of this Government building. Following the National Asset and Facility Management Convention (NAFAM) 2007 outbreak, the maintenance of Government buildings has become systematic through the use of Facility Management (FM). One of the emphasised ways is the satisfaction of end-users. This item is one of the Performance Indicators that are assessed according to the efficiency and effectiveness of FM Services. The importance of gap analysis is in its ability to enhance efficiency and effectiveness in the execution of FM services by understanding the specific demands of end-users. Existing methods for evaluating the performance of service providers in order to enhance facilities management efficiency and effectiveness may not fully and practically meet the requirements of end-users. The objective of the study article is to identify disparities between the expectations and perceptions of end-users about facilities management services, utilising the five components of the SERVQUAL model: reliability, responsiveness, assurance, empathy, and tangibles. The SERVQUAL paradigm is extensively employed for assessing service quality. In the execution of FM, the ultimate user will be content if the service obtained fulfils the specified criteria and thereafter demonstrates its level of excellence.

Literature Review

FM practices were defined by various professional bodies globally; among them are the International Facility Management Association (IFMA) and the British Institute of Facilities Management (BIFM), currently known as Institute Of Workplace And Facilities Management (IWFM), However, all use general definitions based on ISO 41011:2017 as an organisational function which integrates people, places and processes within the built environment with the purpose of improving the quality of life of people and the productivity of the core business. Table 2 shows the various definitions of facilities management.

Table 2. Definition of FM Based on Professional Bodies

Organisation	Definition/Description
RICS (2018)	organisational function which integrates people, place and process within the built environment, with the purpose of improving the quality of life of people and the productivity of the core business' (ISO 4101).
IFMA (2023)	FM is an organisational function that integrates people, places, and processes within the built environment to improve people's quality of life and the productivity of the core business.
BIFM (2018), now known as	(An) organisational function, which integrates people, place, and processes within the built environment to improve the quality of life of people and the productivity of the core business (ISO & BIFM).
IWFM (n.d)	Organisational function integrates people, places, and processes within the built environment to improve people's quality of life and the core business's productivity.
EuroFMConference (n.d)	(The) integration of processes within an organisation to maintain and develop the agreed services that support and improve the effectiveness of its primary activities.

Source: Authors (2024)

Facilities Management Practices in Malaysia

Facilities management is an emerging industry with international recognition in numerous nations. This domain also encompasses organisations operating in the public or private sectors. As previously stated, facility management is concerned with personnel, the work environment, and procedures. In addition, a recently concluded government initiative has been implemented in several cases. By ensuring that all personnel fulfil their designated responsibilities effectively, it is possible to avert incidents that result in property damage. The government has invested billions of Malaysian Ringgit in advancing the asset management industry and the nation's sustainable growth by delivering profitable returns, managing risks, and ensuring the overall sustainability of infrastructure development. All installations must receive sufficient maintenance to ensure that national installations function correctly and reach the end of their useful lives. As a result, specific expenditures are considered essential for the upkeep and operation of a facility within an organisation to mitigate the risk of redundant and unused public funds or avoidable incidents. In addition to physical and non-physical installations of equipment and assets, management entails identifying investment and industry requirements. The services above encompass professional consultation, construction oversight, building upkeep, building cleaning, car parking, telecommunications, firefighting, landscaping, air conditioning, rental arrangements, and more. August 2007 marked the inaugural National Asset and Facility Management Convention (NAFAM), which aimed to discuss present and forthcoming challenges in administering national assets and facilities. This convention demonstrated how the FM profession has adapted and developed to meet the demands of the built and human environment industries, which are rapidly expanding. The prime minister at the time, Datuk Seri Abdullah Ahmad Badawi, agreed to an annual NAFAM and urged both the private and public sectors to develop a more effective and efficient procedural framework to continuously improve the administration of national assets and facilities. This convention significantly altered the future perception of FM professions and practices in Malaysia. Table 3 displays the list of NAFAMs implemented up to this point. Each NAFAM implementation has a different objective. It is intended to ensure that FM is implemented in accordance with current developments.

Table 3. The Objectives of the National Asset and Facility Management Convention (NAFAM)

Description	Objectives
NAFAM 2007	Create awareness of current issues and challenges in managing Government

	Assess the strengths and weaknesses of the current System, its effectiveness, and Explore ways to maximise and improve the quality of government assets. Formulate a blueprint/master plan for centralised national assets and facilities.
NAFAM 2009 "Enhancing Values through Total Asset Management in the Tenth Malaysia Plan"	To explore innovative ideas for effectively engaging Total Asset Management in the Tenth Malaysia Plan. To create a platform for sharing of experience in achieving high value return on asset To formulate sustainable integration of asset planning, lifecycle costing, monetisation, performance monitoring, good governance and best- practices in managing the Malaysian built environment.
NAFAM 2018 "High-Performance Asset: Forging Ahead".	establish a platform for knowledge and experience sharing to drive the direction of national asset management development. formulate a more sustainable and high-performing strategic plan for the development of the national asset and facility industry. explore innovative technologies and the sophistication of asset management in the era of the Industrial Revolution 4.0 and explore new opportunities in the asset and facility management industry globally.

Source: NAFAM (n.d)

Facilities Management Practice for Government Buildings

Government buildings are buildings built by the Government or rented by the Government. These buildings are typically utilised at the local, regional, or national level to accommodate a range of administrative, legislative, judicial, and public service activities. These buildings function as administrative centres for governmental agencies and departments tasked with delivering vital services to the populace and overseeing public affairs. Government buildings play a crucial role in facilitating the operation of a democratic society, serving as central focal points for public administration, governance, and civic participation. They are essential to providing indispensable services to individuals and maintaining legal principles. Hence, the government has many office buildings to accommodate various administrative tasks by government agencies. These buildings provide office spaces where employees can carry out daily tasks, collaborate on projects, and conduct government operations. Office buildings are a fundamental component of urban and suburban landscapes, catering to the needs of businesses and facilitating economic activities. The maintenance of government buildings is commonly undertaken through a collaborative effort involving internal facility management personnel and external contractors as service providers. The maintenance activities include regular maintenance, repairs, inspections, cleaning, security measures, energy management, and adherence to health and safety regulations. The allocation of duties and the organisational framework for the upkeep of government facilities can exhibit significant variation contingent upon the respective government entity's scale, administrative configuration, and policies. The objective is to ensure that the maintenance of government buildings achieves their optimal condition, provides secure and functional environments, and facilitates the effective delivery of public services. Peng et al. (2024) mentioned that the strategies to improve the effectiveness of maintenance are drafting a scheduled maintenance plan, providing training staff and effective spare parts. The proficient administration of buildings and infrastructure is crucial to Malaysia's economic development. According to a report by Aziz et al. (2016), the advancement of facility management in Malaysia was still in its early stages. The facilities management industry in Malaysia is experiencing growth, which can be attributed to the impact of governmental policies. The nation of Malaysia has adopted internationally recognised standards for the management of facilities, resulting in enhancements to the calibre of services provided, the optimisation of resource allocation, and the promotion of safety.

The significance of facilities management in Malaysia cannot be emphasised enough, as it plays a pivotal part in the process of modernisation and development. In order to achieve this objective, the Malaysian Government has created the Facilities Management Division and the Public Works Department

(PWD) to carry out efficient approaches. The service provider must deliver FM services as specified in the PWD Facilities Management and Maintenance Form (2016) in accordance with the terms and conditions stated in Clause 11 of the Standard Form of Contract for Facilities Management and Maintenance. The contractor is obligated to comply with the performance objectives outlined by the government (PWD, 2016). The Table 4 exhibits the Key Performance Indicators (KPIs), showcasing the implementation of Facility Management (FM) in government facilities. The system consists of four key performance indicators (KPIs): FMM Service Delivery, which focuses on the primary business operations; Asset Performance, which measures the effectiveness of assets; Building Energy Efficiency and Safety, which evaluates the energy efficiency and safety of buildings; and Statutory Compliance, which ensures adherence to legal requirements. Furthermore, the customer satisfaction survey serves as one of the performance metrics.

The optimal weight is five (5), while the disadvantage is one. The implementation of a merit point system is to address inconsistent of performance issues. It acts as a collective measure of the overall performance of the service provider during the contract period (Department of Public Works, N.D.).

Table 4. The list of PI and the Relations with KPI for the Facilities Management and Maintenance Contract (2016)

No.	Key Performance Indicators * (KPI)	PI No.	Performance Indicator * (PI)
1	FMM Service Delivery related to Core Business	1A	Customer Satisfaction Survey rating > 80%
		1B	Customer Rating in Work Order sheet > 70%
		1C	Response Time 100% met
		1D	Execution Time >95%
		1E	Pending/Backlog Work Order Completion 100% (refer to Schedule B)
		1F	Self-Finding Work Order >80% of total Work Order
		1G	Cleaning Performance >85%
		1H	Pest Control Performance >95%
		1I	Critical Services >95% available
		1J	Normal Services >85% available
2	Asset Performance	2A	PPM for Architecture and C&S assets 100% implemented
		2B	PPM for Mechanical assets 100% implemented
		2C	PPM for Electrical assets 100% implemented
		2D	Engineering Reports & Recommendation action 100% taken
		2E	Work done as specification and asset quality meet standards
3	Building Energy Efficiency	3A	Energy Conservation programs are 100% implemented
		3B	Building Energy Index (BEI) target 100% met (target to be set after energy audit)
		3C	Utility consumption 100% No wastage
4	Safety & Statutory Compliance	4A	Relevant Acts & Regulations 100% Comply
		4B	HSE programs are 100% implemented
		4C	Reports submitted 100% on time with sufficient content

Source: Public Work Department (n.d.)

Service Quality and Gap Model

McConnell (2002) defines service quality as the act of surpassing customers' expectations or the discrepancy between customers anticipated and actual service encounters. Zeithaml and Bitner (2003) proposed an alternate interpretation of service quality as a concentrated assessment that mirrors consumers' emotions. The concept of service quality is a multifaceted phrase that has attracted considerable interest and debate in research. This is mostly because of the difficulties in accurately describing and quantifying it, which highlights the necessity for greater agreement within the discipline (Wisniewski, 2001). Service quality can be characterised by multiple definitions. Service quality is commonly described as the extent to which a service meets the demands or expectations of customers, as indicated by several research (Lewis & Mitchell, 1990; Dotchin & Oakland, 1994; Asubonteng et al., 1996; Wisniewski & Donnelly, 1996). In the past, Parasuraman et al. (1985), a respected scholar in the field of service quality, put up the idea that service quality may be measured by comparing expectations and actual performance across many quality dimensions. They also created a service quality model (Fig. 1) using gap analysis.

The Gaps Model was initially introduced by Parasuraman, Zeithaml, and Berry in 1985. It was further modified and expanded in multiple publications from 1988 to 1994, as well as in 1990, 1991, and 1993. There are five gaps that affect how customers perceive the quality of service. The SERVQUAL model employs gap analysis as a crucial method to evaluate service quality by pinpointing disparities between consumers' expected expectations and actual perceptions.

- (i) Gap 1: Customer expectation-management gap. This gap addresses the difference between consumers' expectations and management's perceptions of service quality.
- (ii) Gap 2: Management perception-service quality specifications gap. This gap addresses the difference between management's perceptions of consumer expectations and service quality specifications, i.e. improper service-quality standards.
- (iii) Gap 3: Service quality specification-service delivery gap. This gap addresses the difference between service quality specifications and service delivered, i.e. the service performance gap.
- (iv) Gap 4: Service delivery communication gap. This gap addresses the difference between service delivery and the communications to consumers about service delivery, i.e. whether promises match delivery.
- (v) Gap 5: Expected service-perceived service gap. This gap addresses the difference between consumer's expectations and perceived service. This gap depends on the size and direction of the four gaps associated with the delivery of service quality on the marketer's side.

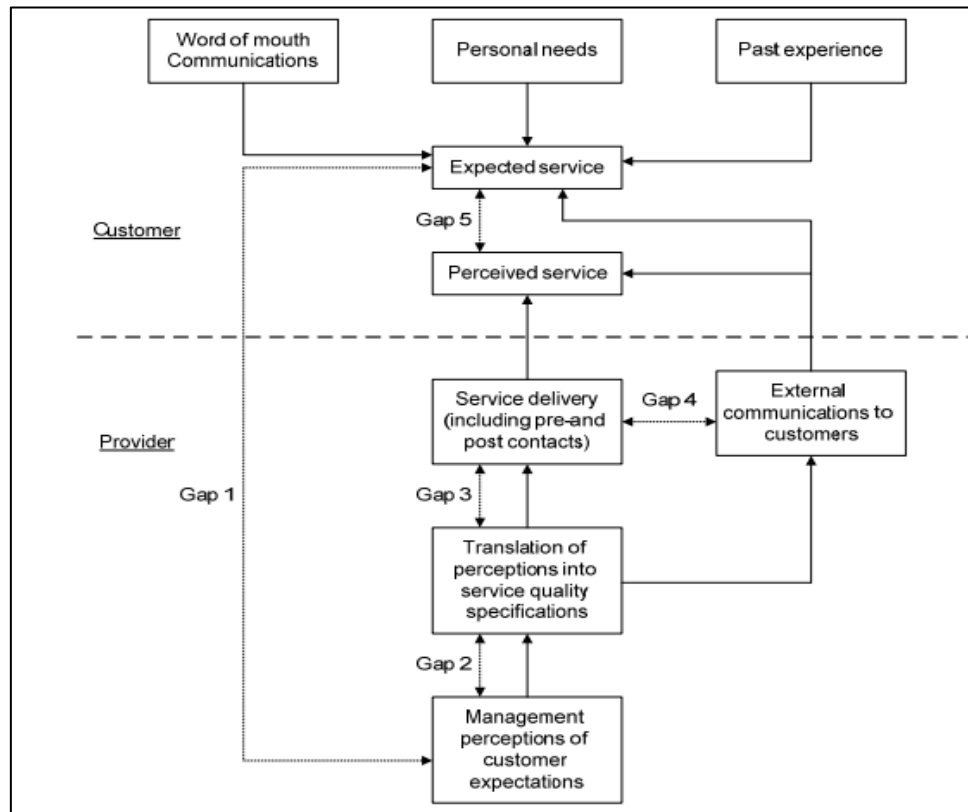


Fig. 1. Model of Service Quality Gaps

Source: Parasuraman et al. (1985)

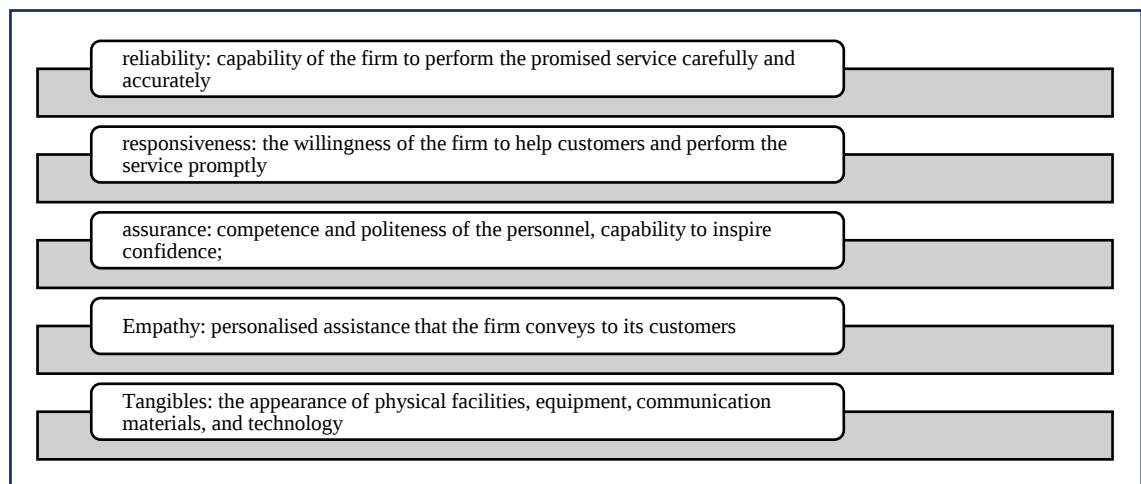


Fig. 2. The Lists of Dimension of SERVQUAL Model

Source: Parasuraman et al. (1988)

Thus, it may be inferred that the SERVQUAL scale is suitable for assessing potential discrepancies (Parasuraman et al., 1988). By contrasting customer expectations of service delivery with customer perceptions of service received, the SERVQUAL approach primarily evaluates the service quality (Parasuraman et al., 1985). Parasuraman et al. (1988) defined the perception of service quality (Q) or the gap in service quality as $(1) Q = P - E$, where P and E represent the ratings on the corresponding perceptions and expectations statements, respectively. The positive result shows that respondents are satisfied with the level of service quality; on the contrary, the negative result shows that the respondents' expectation regarding service quality in FM services is greater than what they perceive from the currently offered services.

Prior research has demonstrated that dependability in facility management is crucial for satisfying client demands, guaranteeing optimal facility functioning, and cultivating a favourable and efficient atmosphere. The process encompasses the continuous delivery, meticulous attention to detail, seamless integration of technology, comprehensive staff training, and efficient communication. According to Ali & Gaber (2022), reliability is identified as the most prominent characteristic for consumers of lodging, out of the five dimensions. According to Setiono Hidayat (2022), reliability is a crucial determinant that may effectively forecast consumer satisfaction. The order of importance for the factors mentioned is as follows: assurance, responsiveness, tangibles, and empathy (Hauashdh et al., 2020; Knutson et al., 1990). According to the study conducted by Balinado et al. (2021), there is a strong correlation between dependability and satisfaction. Mon (2023) identified a lack in the domains of assurance, responsiveness, tangibility, empathy, and reliability. Assurance is the primary distinction among the dimensions. Haji (2017) states that the living facilities service provided to students at Hamad Bin Khalifa University (HBKU) falls short of meeting the expectations of its residents in this aspect. In their study, Lai and Lai (2013) found that the factors associated with the assurance dimension had higher gap scores compared to other variables that assess the maintenance contractors' capacity to establish trust and confidence among renters through their expertise and professionalism in maintenance duties. The variables encompassed the tenants' perception of safety during maintenance activities in their unit, as well as the personnel' level of politeness and kindness. Haji (2017) argues that the living facility service at HBKU falls short of satisfying the students' expectations in every element. Lai and Lai (2013) discovered that certain variables related to empathy, such as considering tenants' best interests and offering convenient operating hours, had larger gap scores compared to other variables associated with the caring and individualised attention provided by maintenance contractors to tenants. In their study, Lai and Lai (2013) found that the dimensions of tangibility and reliability showed the most significant disparity between the anticipated level and the actual level as perceived by individuals. There are four key factors that significantly contribute to this variation: the maintenance of a comfortable and liveable work environment throughout the job, the cleanliness and organisation after repairs are done, the timely completion of the work as scheduled, and the crew fulfilling their service commitments. The four variables largely address the impact of maintenance contractors on renters during labour allocation. These findings suggest that maintenance contractors should allocate more staff resources to mitigate the adverse impacts on renters and the customer-oriented total maintenance scheme (TMS), such as tenant disturbance and inefficiency. Additionally, they should ensure the timely and accurate provision of essential information to end-users prior to commencing work.

RESEARCH METHODOLOGY

This research applied the SERVQUAL model, which first measures the gap in customer satisfaction levels in the business world. It is one of the recognised models for assessing service quality). This study assesses the perception and expectation of the facilities management services implemented in government office buildings. The SERVQUAL model's five (5) dimensions—tangibles, reliability, responsiveness, assurance, and empathy—guide the creation of the survey questionnaires (Parasuraman et al., 1988). Aspects of

service excellence represent each dimension in the question. In total, there are 20 questions designed to address each aspect of SERVQUAL. The researchers' used all the questions to understand the respondents' expectations and perspectives.

Furthermore, there needs to be more concern regarding the overall satisfaction with the facilities management services. A set of 7-point Likert scales ranging from 1 "strongly disagree" to 7 "strongly agree" was administered to 152 respondents who came from end users of government office buildings. The scale consists of 100 questions based on the five (5) components mentioned above and is given out to customers directly as questionnaires. The first 20-item group surveys customer expectations, whereas the second 20-item group deals with customer perceptions of service consumption. Customers are asked to express an evaluation for each item ranging from 1 (strongly disagree) to 7 (strongly agree). This study applies empirical research using a quantitative descriptive method based on the model of service quality (SERVQUAL), as depicted in Fig. 2. This study is focused on Gap 5 (the gap between expected service and perceived service) from the perspective of end-users of government office buildings.

Table 5. The Comparison of Service Quality Gap at Office Buildings; OBM1, OBM2 and OBM3 for Security Services

Dimensions	Item
Reliability	Respond within timeframe
	Reassuring when problem
	Service delivered at time
	Accurate Record
Responsiveness	Inform end-users when service will occur
	Prompt services from the staff
	The staff willing to help
	The staffs respond to request
Assurance	The staff are trustworthy
	The end-users feel safe in dealing
	The staffs are polite
	The staff have support to do their job well
Empathy	The service providers provide individualised attention
	The staff provide individualised
	The staff understands end-users need
	The staffs have the best interest of the end-user in minds
Tangibles	Provide correct and necessary information to end-users before work
	Work environment being still comfortable and habitable while working
	The staff are visually appealing (e.g. wear a tidy uniform, neat appearance, etc
	The cleanliness and tidiness after work associated with services

Source: Parasuraman et al. (1985)

The criteria to select the sample are based on (i) the Government's office building under the supervision of PWD, (ii) The area of buildings: 50,001-100,000 m², and (iii) a customer satisfaction survey of 80%. The customer satisfaction survey is a performance indicator (PI) used to evaluate the service provider's

capacity to achieve a level of 80% in meeting customer satisfaction. It indicates the degree of satisfaction that end-users have with the service delivered. If the percentage is 80% or lower, it signifies that the end-user is dissatisfied with the service they received. After the screening against the criteria was carried out, a letter was issued to the administrative department of the dedicated Ministry. Of the six office buildings that have been shortlisted, only three ministries agreed to be involved in this study. The unit analysis for this research is end-users for government office buildings. The workers in the building who directly benefit from the services provided by the service provider match the established standards. This is a result of their profound comprehension of the subject being examined. The sample size for this study was determined based on the formula G*Power. Furthermore, the priori power analysis applied with the aid of G*Power 3.1 software package (Faul et al., 2007) adopts Cohen's (1977) standards in this research to gauge the size of the sample. This comprises effect size ($f^2 = 0.15$); significance alpha level ($\alpha = 0.05$); anticipated statistical power ($1 - \beta = 0.80$); and a sum of 25 predictors based on SERVQUAL dimension (Reliability, Responsiveness, Tangible, Empathy and Assurance) for each FM services (repair and maintenance services, landscaping services, cleaning services, pest control services and security services). By referring to Fig. 3, the test outcome data showed that for this study to reach a data analysis of linear multiple regression, a sample size of 227 is required. The sample method employed is purposive sampling. Purposive sampling is used to gather samples that are in line with the study objectives and fulfil the requirements for information acquisition. The questionnaires are designed to be distributed. Google Forms disseminates the questionnaire to the relevant sample. Out of the total number of responses, 152 individuals, which accounts for 66.96% of the total, provided input. Google Forms disseminates the questionnaire to the relevant sample. Out of the total number of responses, 152 individuals, which accounts for 66.96% of the total, provided input.

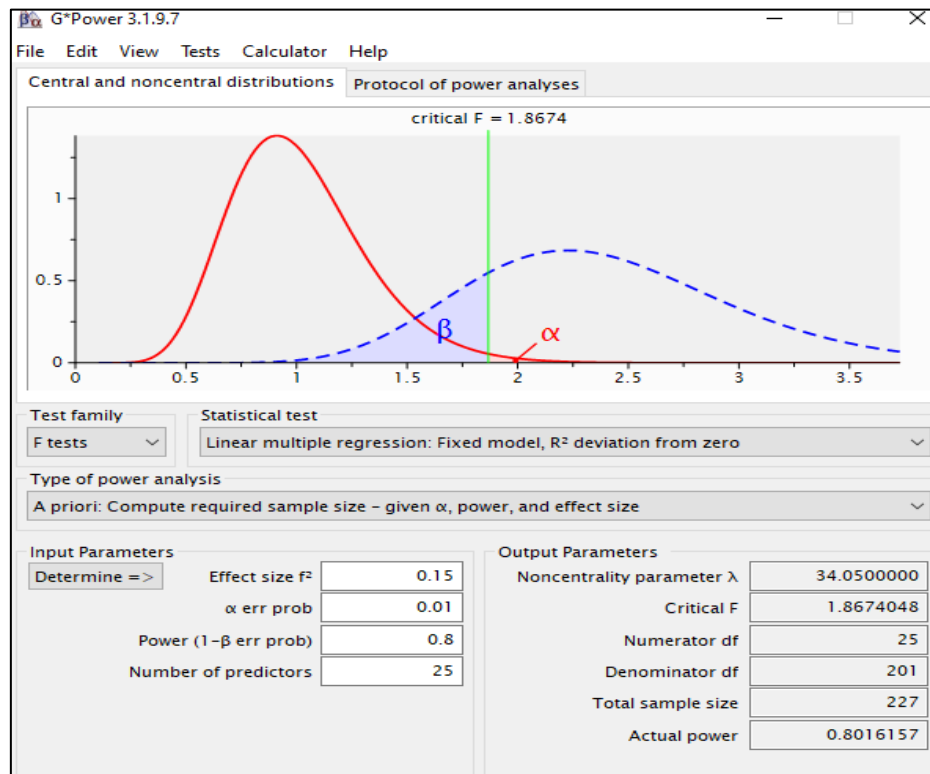


Fig. 3. Power Analysis for Medium Effect

Source: Parasuraman et al. (2024)

DATA ANALYSIS AND FINDINGS

A descriptive analysis presented fundamental details on the data obtained from the questionnaire. The data was analysed using SPSS Version 25. The SERVQUAL analysis results for end-user respondents are presented in Table 7 for repair and maintenance services, Table 8 for landscaping services, Table 9 for cleaning services, Table 10 for pest control services, and Table 11 for security services. Using end-user ratings, this study calculates each questionnaire item's mean expectation and perception. Once the gap for each question is determined, the next step is to identify the average gap for each dimension.

Table 6 shows the respondent's demographics. Item (a) refers to gender. Most respondents were male; out of the 152 respondents, 87 (57.2%) were male, while the rest were female (42.80%). The table presents the ages of the respondents. Of the 152 participants, 83 individuals, or 54.60%, fall within the age range of 31–40. Item c refers to the designation. Of the total, 96 individuals (63.2%) held middle-level management positions from Grade 41 to Grade 54. Item (d) refers to educational background; 69 respondents, representing 45.40%, had a degree-level educational background. Finally, item (e) refers to the current organisation's service duration. Of the responses, 37.5%, or 57 individuals, have worked for less than a year to 5 years in the current organisation. After that, the researcher will explain what they found in the gap analysis of the facilities management (FM) services during the implementation phase, using the answers from the questionnaires sent to the three government office buildings. A negative rating, which indicates a lack of service quality, provides valuable information about the service gap. For the purposes of this study, the researcher shall designate the designations OBM1, OBM2, and OBM3 to represent office buildings.

Table 6. Demographic Profile of the End-Users

Item	Description	Frequency	Percentage
Gender	Male	87	57.2
	Female	65	42.8
	Total	152	100
Age	21 – 30 years	27	17.8
	31 – 40 years	83	54.60
	41 – 50 years	34	22.40
	Above 51 years	8	5.3
	Total	152	100
Designation	Operational Level (Grade 1 to Grade 40)	54	35.5
	Middle-level Management (Grade 41 to Grade 54)	96	63.2
	Top Management (Grade VU7 and above)	2	1.3
	Total	152	100
Educational Background	Certificate	12	7.9
	Degree	69	45.4
	Diploma	36	23.7
	Master	35	23
	Total	152	100
Service Duration in the Current Organisation	Less a year – 5 years	57	37.5
	6 – 10 years	29	19.1

11– 15 years	48	31.6
More than 16 years	18	11.80
Total	152	100

Source: Authors (2024)

Table 7 shows the differences in service quality for the repair and maintenance services. OBM3 has the highest discrepancy, with a gap of -0.442, followed by buildings OBM1 (-0.324) and OBM2 (-0.134). Using the SERVQUAL dimensions, researchers observe discrepancies between end-user expectations and perceptions of repair and maintenance services for the government office buildings. The highest gap for Building OBM3 is in responsiveness (-0.538), followed by empathy (-0.490), assurance (-0.500), reliability (-0.362), and tangibles. (-0.096). The item quality involved in responsiveness includes informing end-users when the service will occur, prompt services from the staff, the staff's willingness to help, and the staff's response to requests. It differs from the OBM1 building, where the highest gaps are in reliability (-0.362), followed by empathy (-0.344), responsiveness (-0.301), assurance (-0.186), and tangibles. (-0.105). Next, for Building OBM2, the highest gaps are in tangibles (-0.179), followed by reliability (-0.134), empathy (-0.089), responsiveness (-0.045), and assurance. (0.036). The items involved in the reliability dimension are responding within the timeframe, providing reassurance when there is a problem, delivering service on time, and maintaining accurate records. The OBM2 building is the one with the smallest gaps. The tangible dimensions have the highest gaps (-0.179), followed by the reliability dimension (-0.134), empathy (-0.089), responsiveness (-0.045), and assurance (0.036). The tangible dimensions are providing correct and necessary information to end users before work; ensuring the work environment remains comfortable and habitable while working; having staff who are visually appealing (e.g., wearing tidy uniforms, maintaining a neat appearance, etc.); and ensuring cleanliness and tidiness after work associated with services.

Table 7. The Comparison of Service Quality Gap at Office Building Type; OBM1, OBM2 and OBM3 for Repair and Maintenance Services

Dimension	OBM1		OBM2		OBM3	
	Gap	Rank	Gap	Rank	Gap	Rank
Reliability	-0.362	1	-0.134	2	-0.442	4
Responsiveness	-0.301	3	-0.045	4	-0.538	1
Assurance	-0.186	4	0.036	5	-0.500	3
Empathy	-0.344	2	-0.089	3	-0.490	2
Tangibles	-0.105	5	-0.179	1	-0.096	5
Average GAP	-0.324		-0.134		-0.442	

Source: Authors (2024)

Table 8 shows the differences in service quality among the landscaping services. Building OBM3 has the highest gap, measuring -1.26, followed by buildings OBM2 (-0.445) and OBM1 (-0.184). Using the SERVQUAL dimensions, researchers observe discrepancies between end-user expectations and perceptions of landscaping services for the government office buildings. The highest gap for Building OBM3 is in tangibles (-0.260), followed by responsiveness, assurance, and empathy (-0.250), and reliability (-0.192). The tangible dimensions include providing correct and necessary information to end-users before work, ensuring the work environment remains comfortable and habitable while working, having visually appealing staff (e.g., wearing neat uniforms, maintaining a neat appearance, etc.), and ensuring cleanliness and tidiness after services. It differs from the OBM2 building, where the highest gaps are in reliability (-

0.259), followed by assurance (-0.169), responsiveness (-0.080), empathy (0.027), and tangibles (0.036). The items involved in the reliability dimension are responding within the timeframe, providing reassurance when there is a problem, delivering service on time, and maintaining accurate records. The OBM1 building is the one with the smallest gaps (-0.184). The tangible dimensions have the highest gaps (-0.258), followed by responsiveness (-0.196), empathy (-0.194), reliability (-0.156), and assurance (-0.117). The tangible dimensions in Building OBM1 exhibit the same large gap as those in Building OBM3. Therefore, the quality of the items involved is the same as OBM3.

Table 8. The Comparison of Service Quality Gap at Office Building Type; OBM1, OBM2 and OBM3 for Landscaping Services

Dimension	OBM1		OBM2		OBM3	
	Gap	Rank	Gap	Rank	Gap	Rank
Reliability	-0.156	4	-0.259	1	-0.192	5
Responsiveness	-0.196	2	-0.080	3	-0.250	2
Assurance	-0.117	5	-0.169	2	-0.250	3
Empathy	-0.194	3	0.027	4	-0.250	4
Tangibles	-0.258	1	0.036	5	-0.260	1
Average GAP	-0.184	3	-0.445	2	-1.260	1

Source: Authors (2024)

Table 9 shows the differences in service quality for the cleaning services. OBM3 has the highest discrepancy, with a gap of -0.290, followed by buildings OBM1 (-0.252) and OBM2 (-0.164). Using the SERVQUAL dimensions, researchers observe discrepancies between end-user expectations and perceptions of cleaning services for the government office buildings. The highest gap for Building OBM3 is in reliability (-0.404), followed by assurance (-0.394), tangibles (-0.279), responsiveness (-0.231), and empathy (-0.144). The items involved in the reliability dimension are responding within the timeframe, providing reassurance when there is a problem, delivering service on time, and maintaining accurate records. It differs from the OBM1 building, where the highest gaps are the tangibles dimension (-0.329), followed by empathy (-0.267), assurance (-0.232), responsiveness (-0.217), and reliability (-0.214). The tangible dimensions include providing correct and necessary information to end-users before work, ensuring the work environment remains comfortable and habitable while working, having visually appealing staff (e.g., wearing neat uniforms, maintaining a neat appearance, etc.), and ensuring cleanliness and tidiness after services. The OBM2 building exhibits the smallest gap, measuring -0.184. The reliability dimensions have the highest gaps (-0.241), followed by empathy (-0.179), tangibles (-0.179), responsiveness (-0.116), and assurance (-0.107). For Building OBM2, the largest gap is the same as for Building OBM3, which is the reliability dimension. Therefore, the quality of the items involved is the same as OBM3.

Table 9. The Comparison of Service Quality Gap at Office Building Type; OBM1, OBM2 and OBM3 for Cleaning Services

Dimension	OBM1		OBM2		OBM3	
	Gap	Rank	Gap	Rank	Gap	Rank
Reliability	-0.214	5	-0.241	1	-0.404	1
Responsiveness	-0.217	4	-0.116	4	-0.231	4
Assurance	-0.232	3	-0.107	5	-0.394	2
Empathy	-0.267	2	-0.179	2	-0.144	5

Tangibles	-0.329	1	-0.179	3	-0.279	3
Average GAP	-0.252	2	-0.164	3	-0.290	1

Source: Authors (2024)

Table 10 shows the differences in service quality for the pest control services. OBM3 has the highest discrepancy, with a gap of -0.308, followed by buildings OBM1 (-0.204) and OBM2 (-0.071). Using the SERVQUAL dimensions, researchers observe discrepancies between end-user expectations and perceptions of pest control services for the government office buildings. The highest gap for Building OBM3 is in tangibles (-0.308), followed by responsiveness (-0.288), reliability (-0.183), assurance (-0.144), and empathy (-0.125). The tangible dimensions include providing correct and necessary information to end-users before work, ensuring the work environment remains comfortable and habitable while working, having visually appealing staff (e.g., wearing neat uniforms, maintaining a neat appearance, etc.), and ensuring cleanliness and tidiness after services. This contrasts with the OBM1 building, where the highest gaps are found in the reliability dimension (-0.260), empathy (-0.247), tangibles (-0.214), responsiveness (-0.148), and assurance (-0.148). The items involved in the reliability dimension are responding within the timeframe, providing reassurance when there is a problem, delivering service on time, and maintaining accurate records. The OBM2 building exhibits the smallest gap, measuring -0.071. The tangibles dimensions have the highest gaps (-0.143), followed by reliability (-0.054), responsiveness (-0.045), empathy (-0.045), and assurance (0.071). The tangible dimensions include providing correct and necessary information to end-users before work, ensuring the work environment remains comfortable and habitable while working, having visually appealing staff (e.g., wearing neat uniforms, maintaining a neat appearance, etc.), and ensuring cleanliness and tidiness after services.

Table 10. The Comparison of Service Quality Gap at Office Building Type; OBM1, OBM2 and OBM3 for Pest Control Services

Dimension	OBM1		OBM2		OBM3	
	Gap	Rank	Gap	Rank	Gap	Rank
Reliability	-0.260	1	-0.054	2	-0.183	3
Responsiveness	-0.148	4	-0.045	3	-0.288	2
Assurance	-0.148	5	0.071	5	-0.144	4
Empathy	-0.247	2	-0.045	4	-0.125	5
Tangibles	-0.214	3	-0.143	1	-0.308	1
Average GAP	-0.204	2	-0.071	3	-0.210	1

Source: Authors (2024)

Table 11 shows the differences in service quality for the security services. OBM has the highest discrepancy, with a gap of -0.097, but no gap exists for the buildings OBM2 (0.148) and OBM3 (0.052). Using the SERVQUAL dimensions, researchers observe discrepancies between end-user expectations and perceptions of security services for the government office buildings. The highest gap for Building OBM1 is in empathy (-0.235), followed by the assurance (-0.204), reliability (-0.179), responsiveness (-0.173) and tangibles (0.306). The quality item under empathy dimension are the service providers provide individualised attention, the staff provide individualised, the staff understands end-users need and the staffs have the best interest of the end-user in minds. However, there is no gap between the OMB3 and OMB2 buildings. The survey feedback revealed a significant difference in responsiveness (0.027), assurance (0.063), empathy (0.179), and tangibles (0.420). (0.420). As for the OBM3 building, empathy (0.010) comes first, followed by reliability (0.019), responsiveness (0.058), and tangibles. (0.106).

Table 11. The Comparison of Service Quality Gap at Office Building Type; OBM1, OBM2 and OBM3 for Security Services

Dimension	OBM1		OBM2		OBM3	
	Gap	Rank	Gap	Rank	Gap	Rank
Reliability	-0.179	3	0.054	2	0.019	2
Responsiveness	-0.173	4	0.027	1	0.058	3
Assurance	-0.204	2	0.063	3	0.067	4
Empathy	-0.235	1	0.179	4	0.010	1
Tangibles	0.306	5	0.420	5	0.106	5
Average Gaps	-0.097	1	0.148	3	0.052	2

Source: Authors (2024)

Table 12 presents a comparison of the three office buildings included in this survey. Building OBM3 exhibits the largest gaps (-0.209), while buildings OBM1 (-0.186) and OBM2 (-0.039) follow closely behind. For the OBM3 building, the highest gaps are responsiveness (-0.250), followed by assurance (-0.244), reliability (-0.240), empathy (-0.200), and tangibles (-0.112). The quality items for responsiveness dimensions are informing end-users when service will occur, prompt services from the staff, staff willingness to help, and staff response to requests. In the context of building OBM1, the areas with the largest gaps are empathy (-0.257), reliability (-0.234), responsiveness (-0.207), assurance (-0.177), and tangibles (-0.054). The quality items for empathy consist of service providers offering individualised attention, the staff providing personalised care, the staff understanding the end-users' needs, and the staff having the best interests of the end-users in mind. Buildings OBM3 exhibit the largest gaps in empathy and assurance at (-0.021), reliability at (-0.127), responsiveness at (-0.052), and tangibles at (0.027). The quality items for OBM3 are identical to those used to build OBM1.

Table 12. The Overall Comparison of Service Quality Gap at Office Buildings; OBM1, OBM2 and OBM3

Dimension	OBM1	Rank	OBM2	Rank	OBM3	Rank
Reliability	-0.234	2	-0.127	3	-0.240	3
Responsiveness	-0.207	3	-0.052	4	-0.250	1
Assurance	-0.177	4	-0.021	2	-0.244	2
Empathy	-0.257	1	-0.021	1	-0.200	4
Tangibles	-0.054	5	0.027	5	-0.112	5
Average Gaps	-0.186		-0.039		-0.209	
Rank	2		3		1	

Source: Authors (2024)

Based on the survey results, it was found that each FM service has a different gap depending on the service and building. Tables 13, Table 14, and Table 15 present a concise overview of the notable discrepancies experienced by each participant in FM services. It is arranged according to priority. The analysis results indicate that each office building has a different gap and priority dimension according to the users in each Government buildings to enhance the FM implementation in the OMB1 Building, we must focus on the reliability and tangibility dimensions. The reliability dimension encompasses various aspects,

including It encompasses elements such as responding promptly, providing reassurance when a problem arises, delivering services on time, and maintaining accurate records. In terms of tangibility, it encompasses the provision of accurate and necessary information to end-users prior to work, the maintenance of a comfortable and habitable work environment during work, the presence of visually appealing staff (e.g., wearing a neat uniform, maintaining a neat appearance, etc.), and the maintenance of cleanliness and tidiness associated with services after work. This is due to the significant gaps in FM implementation in the OMB1 building. The priority details of the dimensions, according to the scope of services, are displayed in Table 13.

Table 13. The Ranks of Gaps Exist for FM Services at Building OMB1

Dimension	Repair and Maintenance services	Landscaping Services	Cleaning Services	Pest Control services	Security Services
	Rank	Rank	Rank	Rank	Rank
Reliability	1	4	5	2	3
Responsiveness	3	2	4	4	4
Assurance	4	5	3	5	2
Empathy	2	3	2	3	1
Tangibles	5	1	1	1	5

Source: Authors (2024)

To enhance the effectiveness of FM implementation in the OMB2 building, it is necessary to evaluate and address its dependability and tangibility aspects. This building is in alignment with the OMB1 building. Hence, it is imperative that the researcher give precedence to the excellence of things in that particular aspect in order to improve the FM implementation in the OMB2 building. Table 14 presents the priority information for the dimensions, organised according to the scope of FM services.

Table 14. The Ranks of Gaps Exist for FM Services at Building OMB2

Dimension	Repair and Maintenance services	Landscaping Services	Cleaning Services	Pest Control services	Security Services
	Rank	Rank	Rank	Rank	Rank
Reliability	2	1	1	3	2
Responsiveness	4	5	4	4	1
Assurance	5	2	5	2	3
Empathy	3	4	2	5	4
Tangibles	1	5	3	1	5

Source: Authors (2024)

Regarding the OMB3 building, improving the level of service provided to end-users encompasses the aspects of dependability, understanding, and physical presence. The criteria for improving service quality items are identical to those for the OMB1 building. However, the dimension of empathy requires improvement in several areas, including service providers supplying tailored attention, staff providing customised care, staff comprehending the demands of end-users, and staff prioritising the best interests of

the end-users. Table 15 presents the prioritised information regarding the dimensions, according to the extent of services offered.

Table 15. The Ranks of Gaps Exist for FM Services at Building OMB3

Dimension	Repair and Maintenance services	Landscaping Services	Cleaning Services	Pest Control services	Security Services
	Rank	Rank	Rank	Rank	Rank
Reliability	4	5	1	3	2
Responsiveness	2	2	4	2	3
Assurance	3	3	2	4	4
Empathy	2	4	5	5	1
Tangibles	5	1	3	1	5

Source: Authors (2024)

CONCLUSION

The survey findings indicate that there are discrepancies in the FM services, which differ based on the specific service and building in question. Tables 13, 14, and 15 present a concise summary of the notable inconsistencies observed for each individual engaged in FM services. It is arranged according to priority. The analysis findings suggest that there are varying discrepancies and priority dimensions among the office buildings, depending on the users in each government building. The findings of this study align with the claim made by Ali et al. (2022) in their previous research, highlighting the significance of reliability as the primary consideration for consumers in the lodging industry. Furthermore, Setiono Hidayat (2022) emphasised that reliability plays a crucial role in accurately forecasting consumer satisfaction. In their study, Lai and Lai (2013) found that the dimensions of tangibility and reliability exhibited the most notable disparity between the anticipated level and the actual level as perceived by participants. Next, it is necessary to analyse the outcomes regarding the spectrum of empathy in order to verify if the deficiencies in FM service provision correspond with the conclusions of Noor and Amal (2023) regarding the positive impact of empathy traits on customer satisfaction. This investigation aligns with the discoveries made by Kaengke et al. (2022). Empathy has a beneficial influence on consumer satisfaction. Setiono and Hidayat (2022) have identified physical infrastructure, reliability, and empathy as key factors that significantly influence consumer satisfaction. Hence, it is imperative for the relevant stakeholders to implement enhancements in order to elevate the quality of facility management performance in government facilities.

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CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted without any self-benefit commercial or financial conflicts and declare the absence of conflicting interests with the funders.

AUTHORS' CONTRIBUTION

Author Noor Azizah binti Majid wrote the manuscript under the consultation and supervision of authors Nor Rima Mohammad Ariff, Faridah Ismail and Siti Uzairah Mohd Tobi, who provided critical feedback and helped shape the research, analysis, and manuscript. All authors discussed the results and contributed to the final manuscript.

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