# PERFORMANCE MANAGEMENT AS A TOOL FOR PERFORMANCE IMPROVEMENT IN THE MANAGEMENT OF BUILT FACILITIES

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**ABSTRACT**

Effective operation of functional built facilities required for the performance of the core functions of an organization demands the contextual use of the principle of listening to the voice of customers, through performance assessment, leading to performance improvement. Performance improvement is a critical factor necessary for improved productivity and enhanced customer satisfaction. Many approaches have been developed to achieve this, but the most reliable is through sustained commitment to the principle and activities in the performance management loop. In this study the single case study of qualitative research was adopted; data collection and analysis were achieved using the mixed methods approach. The semi-structured questionnaire complemented with an interview was used to collect the qualitative data and was analysed following the principle of content analysis. The structured questionnaire was used to collect quantitative data from the respondents; analysis of feedback helped in identifying areas of variances, which were discussed in a focus group session before developing performance improvement strategies. The findings revealed that subjecting performance assessment results to further analysis helps to identify the areas of latent discontent, which should be resolved before developing performance improvement strategies. Successful operation of the built facilities available for the execution of the core functions of any organization requires the active collaboration between the unit responsible for the operation and maintenance and those responsible for the execution of the core functions. This synergy is required for sustained performance improvement and customer satisfaction requires commitment to the periodic repetition of the activities in the performance management loop.

**Keywords**: Built facilities, Customer satisfaction, Performance assessment, Performance improvement, Performance management loop

## 1. INTRODUCTION

During the life cycle of a built facility, the pleasure, client and end-users' satisfaction, aesthetics, and functionality of the edifice gradually begin to wane as the component parts of the structure start deteriorating (Jafari & Makin, 2015; Dziadosz & Meszek, 2015). In order to keep the built facility in a good functional state to meet the needs of the organization, a deliberate maintenance plan must be put in place (in both short and long terms) for regular maintenance of the structure and its components. Maintenance should include repair, routine, scheduled or planned maintenance, renovation and rehabilitation planned into the life cycle of the built facility (Fraser, 2014; Douglas, 2016). Unfortunately, the common practice in many organizations is breakdown maintenance, and occasional renovation and rehabilitation (Kennedy, 2008; Fraser, 2014). It is imperative therefore to sensitize the operatives in the unit responsible for the operation and maintenance of the facilities in the built environment (commonly known as a facilities management (FM) unit) of the organization to embrace the culture of performance management (Amaratunga & Baldry, 2002; Myeda & Pitt, 2012).

Effective management of the facilities in the built environment requires the use of suitable performance measurement tools, periodic performance assessment of operations, harnessing feedback from assessments and developing performance improvement strategies. The consistent commitment to and repetition of this process are commonly referred to as performance management. In the majority of situations, these phenomena are treated separately, instead of being integrated into one study or practice (Melnyk et al., 2014; Lavy et al., 2014). The terms 'performance measurement' and 'performance assessment' are sometimes used interchangeably in literature. However, there are observable differences between them; the former provides a set of standards against which actual operation is measured (Amaratunga & Baldry, 2002), while the latter evaluates the actual performance against the set standard (Myeda & Pitt, 2012). The differences in measurements are harnessed in coordinated feedback and integrated into appropriate review processes in order to develop suitable strategies for improved performance (Amaratunga & Baldry, 2002).

The activities in a typical performance management loop include identifying and use of an appropriate performance measurement tool and assessing the performance after a definite period of executing operational activities using the performance measurement tool. The outcome of performance assessment, known as feedback, should be analysed and evaluated so that suitable performance improvement strategies can be developed. The proposed improvement strategies are then implemented (Melnyk et al., 2014). The process is repeated several times until performance improvement is attained. Figure 1 shows the schematic diagram of the processes involved in performance management. Performance management is important to every FM unit as it helps the unit to develop, operate and maintain functional facilities suitable for the execution of the core function of the organization.

The exercises also assist the FM unit to know the level of customers' satisfaction with its services in order to identify area(s) of improvement.

In this regard, the objective of this research is to find answers to these two generic questions:

1. How do FM operatives assess their performance?
2. How do FM customers assess the performance of the FM unit?

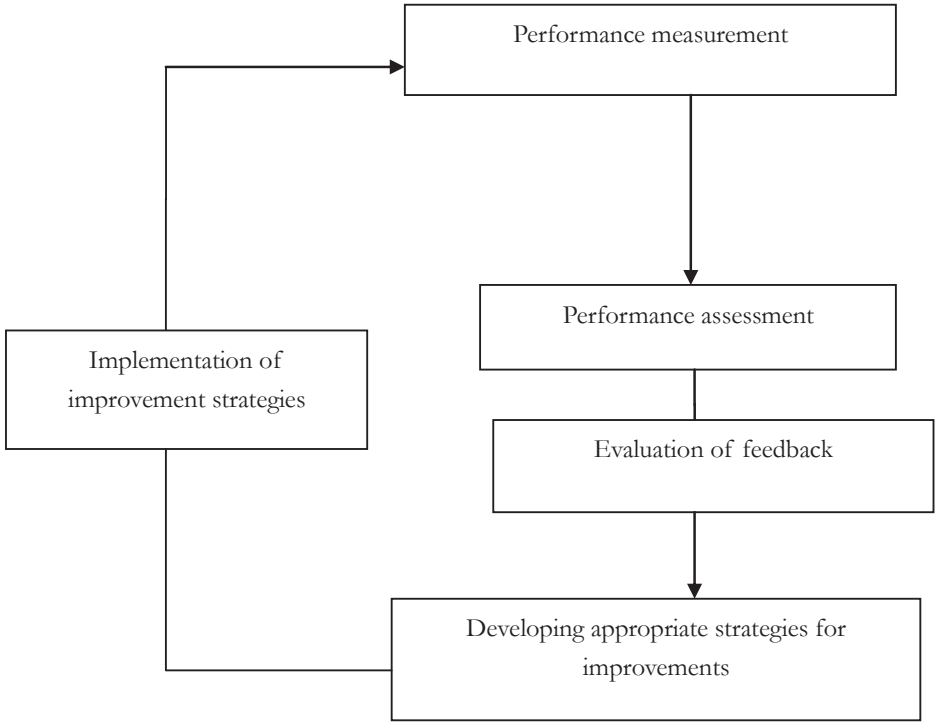


Figure 1: Schematic diagram of performance management (from typical FM operation)

The import of this research is to encourage FM operatives to embrace the concept of performance management by using a simple but effective performance measuring system. They should pay due diligence to the information harnessed from performance assessment by listening to the voice of the customers (Isa & Usmen, 2015). Performing detailed analysis on the feedback enables the FM operatives to identify area(s) requiring critical attention around which performance improvement strategies should be built for implementation. Continuous implementation of performance improvement strategies enables the FM operatives to develop functional facilities suitable for the performance of the core functions of the organisation, to allow for suitable workplace interface, and to promote improvement in customers' satisfaction, thereby adding to the value chain of the organisation and its competitive

advantages within the industry of the organisation (Porter & Miller, 1985; Kok et al., 2011; Simatupang et al., 2014).

This paper is an excerpt from a larger research effort. The institution, operational units and personnel will be referred to in generic terms. The structure of this paper begins with a literature review in order to establish the theoretical foundation for the subject of performance management. The third section discusses the research method which leverages on mixed methods for both data collection and analysis. The fourth section explores the research findings and discusses the findings in the light of appropriate literature, while section five provides conclusions gleaned from the research findings and thereafter makes recommendations for further research.

## 2. LITERATURE REVIEW

This section will provide a synthesis of literature focusing on facilities within the learning environment, performance measurement, performance assessment, and performance improvement as well as performance management in order to identify necessary gaps which this research seeks to address.

### *2.1 Customers' relationships in a learning environment*

A typical higher education (HE) institution can be likened to "Organisations that seek to optimally allocate resources to maximize educational output" (Vidalakis et al., 2013: 489). These resources can be estates and facilities, human resources, curricula, and students. The learning environment is a major factor in effective teaching and learning, whether in the physical or virtual space. The facilities available in the learning environment contribute significantly to the success of the knowledge transfer efforts of HE institutions (Uline & Tschannen-Moran, 2008; Vidalakis et al., 2013). The design and development of school facilities should integrate "…the educators' and designers' thoughts to create an intelligent combination of design elements to promote learning" (Jarman et al., 2004: 38). Uline and Tschannen-Moran (2008) contrasted the desire for rigorous curricula and highly-qualified teachers with the physical environment where learning takes place as necessary factors for effective teaching and learning. The school climate or learning environment, in the opinion of these authors, encompasses the physical and social environment. The physical environment includes the building conditions, especially the features such as age, air temperature and quality, lighting and acoustical control. In the social environment, the hygiene, orderly arrangement of school facilities, teacher behaviour and attitudes, community engagement and the leadership style of school administrators influence the learning outcome (Uline & Tschannen-Moran, 2008). In addition, well maintained facilities have the potential of added value to HE institutions, "perhaps even greater than the construction of new high-profile facilities" (Vidalakis et al., 2013: 499). Odediran et al. (2015) observe that the quality

of the education that students receive bears direct relevance to the availability or lack of physical facilities and the overall atmosphere in which learning takes place. Facilities play pivotal roles in the actualisation of the educational objectives of HE institutions by satisfying the physical and emotional needs of both staff and students. Therefore the facilities should be 'user-friendly', focusing on user needs (Vidalakis et al., 2013).

The business interests of a typical HE institution revolve around teaching, learning and research. The academics execute these core functions within and outside the physical campuses of the respective institutions, in both the physical and virtual space (Jamieson et al., 2000; Jamieson, 2003). The contribution of FM is seen in the interface between functional facilities, facilities services and the work processes of the academics (Kok et al., 2011). Furthermore, "…management of higher educational establishments is focusing attention on facilities' improvement for a number of reasons, especially in a search for competitive advantage" (Amaratunga & Baldry, 2000: 295). Thus, the FM unit that provides the requisite support facilities for the performance of the core function of the organisation it serves "…often deals with identifying relationships the humans have with their environment" (Amaratunga & Baldry, 2002: 334) and thus should be pragmatic in the management of the built facilities in the workplace interface.

### *2.2 Performance measurement and the tools*

There are a number of tools or models available for the measurement of the performance of the whole or part of the organisations' operations. A few of them will be mentioned here, such as total quality management (TQM), and the balanced scorecard (BSC) (Paranjape et al., 2006), the business excellence model (BEM), the Capability Maturity Model (CMM), the key performance indicators (KPI) (Meng & Minogue, 2011), the just-in-time (JIT) model (Bortolotti et al., 2013; Meybodi, 2015), and Six Sigma (Isa & Usmen, 2015). The objectives of each model are to improve on current performance in order to achieve the goals of the organisation (Amaratunga & Baldry, 2002). Each model has unique variables for measuring performance and standard units for the assessment of that performance. However, the following paragraphs will discuss briefly the Six Sigma (being advocated for use in service-related industries) and the JIT (the performance measurement system being used by the FM unit for this research) in order to explore their merits, demerits and ease of application.

Initially the Six Sigma and the JIT model were designed for use in the manufacturing industries; gradually they are being used in other service-related industries (Pheng et al., 2011; Isa & Usmen, 2015). The Six Sigma model is a customer-focused methodology that places emphasis on listening to the voice of the customer (VOC) in order to "…identify their needs and requirements, and converting them into specifications in the design of the product or services that can be

monitored and measured" (Isa & Usmen, 2015: 72). Isa and Usmen (2015) affirmed in their research that the Six Sigma method is best implemented by incorporating other tools. The authors used a variant of the Six Sigma (Lean Six Sigma) to measure the performance of FM in the development and execution of construction projects in an HE institution along with other tools such as the DMAIC (define, measure, analyse, improve and control) framework, Pareto analysis, voice of the customer (VOC), process mapping, cause and effect (CE) matrix, failure mode and effect analysis (FMEA) (Isa & Usmen, 2015). Furthermore, the Six Sigma tool is heavily dependent on numerical records and statistical analysis. This model is not commonly used as a model in FM operation largely because of the complex nature of data collection, heavy leaning on statistical analysis and the need to supplement the model with other tools.

On the other hand, the JIT is simple, making it easy to measure and assess performance with just two variables to measure for data collection. The core components of a typical JIT instrument are "…elimination of waste and respect for people" (Meybodi, 2015: 110) which make it suitable for use in an FM environment. In the FM scenario, the JIT is operated with two time components or variables, the T1 and T2 (Bortolotti et al., 2013). The T1 component represents the time between when a customer lodges a request with the FM unit and when the FM operative actually visits the customer to inspect the request, treat or report it for further actions. T2 is the time between inspection and when the request is eventually addressed. The FM operatives assess their performance first by focusing on T1 while the customer assesses the FM performance using the T2 threshold. Meybodi (2015) observed that improvement in customer satisfaction requires that the service provider should make deliberate efforts to reduce the length of down time for employees and the machine (T2) used for the performance of the core function of the organisation. In this regard, if the request of the customer is not addressed early, the service provider should maintain a polite and steady flow of relevant information with the customer(s), thus reducing the psychological stress of the T2 variable. However, commitment to progressive performance assessment (with accurate data for T1 and T2) and objective analysis of feedback enable FM operatives to improve on their service delivery within acceptable limits of the T1 and T2 thresholds for the different array of services (Bortolotti et al., 2013).

### *2.3 Performance assessment and analysis of result*

The objectives of performance measurement will not be achieved without adequate and periodic assessments of actual performance. Performance assessment can be seen as the comparison of performance results against the expectations of the measuring system in operation (Myeda & Pitt, 2012). The assessments should be timely, accurate and relevant. The exercise should be undertaken in ways easily understood by the actors using the performance measuring system being evaluated

(Myeda & Pitt, 2012). The differences in measurements are harnessed in coordinated feedback; this in turn is used to develop suitable strategies for improved performance. The indicators (in PM) are designed to achieve the goals of the organisation while the feedback from periodic observations (assessments) is used to improve the production or work process.

Performance measurement or its tools are not ends in themselves but road maps for more effective management (Amaratunga & Baldry, 2002). Although several performance measurements have been conducted, or their tools utilized, they are not often followed by effective analysis of results or honest attempts at improved performance (Amaratunga & Baldry, 2002). The performance assessment records obtained from the feedback information should be subjected to further investigation. Effective analysis of feedback facilitates the identification of the magnitude and source of variance. Feedback can be obtained using the instrument of an individual or group interview, a response to a questionnaire, a focus group session or through the Delphi technique (Khalil et al., 2014). The analysis of the inputs from relevant stakeholders during the feedback exercise should be followed by focus group session(s) (Breen, 2006).

### *2.4. Performance management*

Performance measurement and performance management follow one another in an iterative process; management follows measurement (Folan & Browne, 2005). The contribution of Amaratunga and Baldry (2002a) is very informative, noting that performance management is the use of performance measurement information to effect positive change in organisational culture, systems and processes by helping to set agreed-upon performance goals, and allocating and prioritising resources. It challenges managers to either confirm or change current policy or ways of doing things to meet the goals of the organisation. Performance management allows the FM unit to progressively refine and improve its operations by harnessing the information (feedback) from the assessment exercises carried out periodically to test the effectiveness of the measurement system in place. Successful performance management requires the integration of performance measurement and the feedback from assessment into planning for improvements in existing performance output. In this regard, a performance management system translates FM operation from a reactive to a proactive standpoint, helping to develop the required synergy for effective partnership with the actors executing the core functions of the HE institution.

In order to move from performance measurement to performance management, Amaratunga and Baldry (2002a) suggested four action steps which are summarised as follows:

1. After analysis of performance measurement, develop broad areas of performance targeted for improvement.

2. Continuously test the performance improvement strategies to confirm whether they are working, and if not, why not.
3. Establish the right structure which facilitates the effective use of performance measurement results.
4. Use the performance measurement results to bring about change in the organisation.

Performance management provides intelligent information for decision makers at all levels to assess the achievement of predetermined goals (Amaratunga & Baldry, 2002a). It enables facilities managers to track past progress in order to learn about the future; it provides a feedback loop that supports decisions at all levels of the FM organisation (Amaratunga & Baldry, 2002a; Buys & Nkado, 2006). Performance management challenges FM operatives to practise the art of continuous data collection, and analysis and interpretation of feedback information to facilitate the development of appropriate improvement strategies. It also encourages the use of performance management data to support oversight and compliance activities (Amaratunga & Baldry, 2002; Lindhard & Larsen, 2016). Effective performance management supports proposals for changes or requests for additional resources as it illuminates the link between strategies, measures and expected outcomes (Buys & Nkado, 2006). To ensure consistent alignment of the operation of FM in order to achieve the business interest of any organisation, it is important to embrace and practise the continuous exercise of performance measurement, assessment and management, which leads to performance improvement.

Research efforts abound and are continuous in these areas of performance measurement, assessment and management, but very limited efforts have been dedicated to the coordinated use of these discrete phenomena to implement performance improvement in one exercise. The focus of this research is to demonstrate how the progressive performance of the activities in the performance management loop can facilitate performance improvement and guarantee customer satisfaction.

## 3. RESEARCH METHOD

The subject of performance measurement and performance assessment studied along with performance improvement and performance management in one research exercise cannot be successful using any mono-research method. Therefore, a mixed method is ideal, because the mixed-methods research uses the quantitative and qualitative systems for both data collection and analysis within a single study (Johnson & Onwuegbuzie, 2004; Yin, 2014). Using the combined method has the potential for providing a better understanding of the research problems than using any of the mono-methods independently (Molina-Azorin, 2012). This method of

research is increasingly being used in different fields of study, including project management, engineering and the built environment studies (Bosch-Rekveldt, 2015; Cameron & Sankaran, 2015; Thomas & George, 2015). The focus of this research can be divided into two broad components, namely management of the relationship between customer and service provider, and performance assessment. The outcome of both phases of the research will facilitate the development of performance improvement strategies, while the continuous repetition of the exercise ensures actual performance improvements. Unearthing the latent issues affecting a smooth relationship between service providers and their customers requires the use of research instruments that will allow the respondents to volunteer information freely and in great detail. In this regard, the qualitative research method is useful. Similarly, performance assessments are usually associated with numerical figures; this aspect of the research is best accomplished through quantitative methods. Integrating both methods enhances the quality of information available for analysis and decision making. Furthermore, the Delphi technique was used to gather anonymous information; this allows respondents within the same organisation to provide independent information on the subject under reference without coercion (Ogbeifun et al., 2017).

The target population for this study were the nine deans of faculties at the strategic level of leadership, all head of departments (HODs) at the tactical level, the four directors at the strategic level of leadership in the FM unit, and nine managers at the tactical level. The participants were selected purposively to apply their knowledge to address the research questions (Hasson et al., 2000; Day & Bobeva, 2005). They were all communicated with and invited to participate in the research; seven deans, twenty HODs, four directors and eight managers participated in the research.

Although there are no strict rules on the sample size in qualitative research, the principle is to attain 'saturation' of information (Hennink et al., 2011). Nevertheless, some proposals suggest "…6-8 subject to homogeneous samples and 12-20 for maximum variation" (Zyzanski et al., 1992: 233). The goal is not achieved in the quantity of sample but in the quantity and diversity of information that effectively addresses the research questions (Hennink et al., 2011), thus ensuring efficient and effective saturation of categories "…with optimal quality data and minimum dross" (Morse et al., 2002: 18). The population and sample for this research were limited to the leaders at the strategic and tactical levels of leadership among both the academics and FM operatives because they are the key decision makers in matters affecting the development, operation and management of budget for facilities operations. Other customers (academic staff and students) have limited contact with facilities needs; usually only when there is a fault. If they require a new installation, change of use, or expansion, they will naturally go through the HODs to the deans before going to the FM unit. Table 1 shows the target population and the sample which actually

participated in the research. Although the number of participants comprise just fifty per cent (50%) of the targeted population, having 27 academics and 12 participants from the FM unit was a good mix and still satisfies the requirement for qualitative research.

The single interview guide used for data collection had both qualitative and quantitative components for ease of data collection. The interview guide was divided into four parts. The first part required generic but coded information about the respondents. It was generic in the sense that each respondent was expected to be anonymous and coded in order to differentiate the response from strategic and tactical leaders among both the academics and FM operatives. The second part required information on the level of relationship between the customers and the FM operatives. The third part was dedicated to performance assessment. Here, the customers rated their level of satisfaction on the service delivery of FM operatives in areas such as capital development, academic environment, operation and maintenance, occupational health and safety, and computerised maintenance management systems, and the FM unit rated their level of performance on service delivery to customers. The final section requested suggestions on how to improve on service delivery and customer satisfaction, as well as requesting the respondents to participate in the second phase of the research which was targeted towards the development of key performance indicators (KPIs). The research data was collected between April and October, 2014. The analysis of the qualitative responses was accomplished by adopting the principles of content analysis. The information from the customers (academics) was compared with the responses from the FM operatives in order to be able to make an informed judgement. The periodic reports from the FM unit were evaluated in terms of technical content, clarity, performance assessment and as tools for effective communication with customers.

**Table 1: Classification of participants**

| Classification | Response | | | |
|---|---|---|---|---|
| | Target | Silent | Decline | Participated |
| Academic strategic-deans | 9 | 2 | - | 7 |
| Academic tactical-HODs | 57 | 25 | 12 | 20 |
| FM strategic | 4 | - | - | 4 |
| FM tactical | 8 | - | - | 8 |
| **Total** | **78** | **27** | **12** | **39** |

The quantitative component of the interview guide provided information on the performance assessment by FM operatives and the academics. Owing to the limited number of participants, the simple arithmetic mean was used to evaluate the responses instead of the laborious statistical approach. Their responses were complementary to the information gleaned from the qualitative section of the

exercise. The graphical representation of the information after the analysis of the feedback from the assessment is discussed in detail in the findings and discussion section. The feedback from the performance assessment was subjected to further analysis in order to identify the magnitude and sources of variances (Figure 3). The variances observed were discussed in focus group sessions organized for the division responsible for maintenance operation in the FM unit. Thereafter performance improvement strategies were developed as shown in Table 2.

## 4. FINDINGS AND DISCUSSIONS

The findings are discussed simultaneously in the following sections. Section 4.1 provides the background information on the FM unit and its operation, section 4.2 discusses the FM operations and the level of customers' satisfaction, while section 4.3 provides information on the focus group session and how it was used to develop performance improvement strategies.

### *4.1 Background information*

The facilities management (FM) unit in this institution is known as the Operations Department (OD). However, the generic term 'FM' will be used in this paper instead of 'OD' to refer to the same organisation. FM in this institution, like every FM unit in other HE institutions, is responsible for the development, operation and maintenance of the built facilities, technology and services for a suitable academic environment which enhances the performance of the core functions of teaching, learning and research. An excerpt from the vision and mission statement of this FM unit indicates that it aspires "…to be a high-performing, reliable, and dependable division that manages the development, maintenance and protection of infrastructure, buildings, installations and garden in promoting the institution as a preferred academic institution to student and staff" (OD Annual Report, 2012: 1). This glowing mission statement notwithstanding, the academics are not enthusiastic about the performance of the FM unit, and this has created gaps in their relationship. An example of the area of discontent is the quality of the periodic report. Although the FM unit provides a periodic report on its operation (especially maintenance), the academics complain that the reports are too generic, economical in detail and not customer friendly. They observed that "…in the present structure of the report, no head of department can relate the report to the situation in their department in terms of the quantity of their requests addressed or otherwise or the functional state of the facilities in their portfolio". Thus the periodic reports were not serving their purpose of educating the customers and were not an effective tool for communication.

The FM operatives opined that they are making concerted efforts to "bridge the gaps in perceived areas of discontent". One of their efforts is the creation of the Campus Operations Forum (COF), where the academics and FM operatives meet

periodically to discuss facilities-related issues. As laudable as this venture is, one of the FM Directors observed that "…less than 10% of the academics – HODs – attend the quarterly COF". The majority of the academics, on their part, complain that "they do not know when such meetings are scheduled"; a few acknowledge that they sometimes get the information about the meetings but regret that they could not attend "because it clashes with other engagements". However, the academics who actively participate in the COF confirm:

> COF is a forum where the FM unit provides feedback on issues raised in previous meetings or requests sent to them from different units of the campus, explanations provided for services rendered, pending items and new issues identified for action. Each report reflects FM's action subject to budgetary constraints.

In order to reduce the widening gap in their relationship, improve on the level of service delivery of the FM operatives and achieve a higher level of customer satisfaction, an interview was used to collect relevant information from the customers and the service provider (FM operatives). The assessment was two-fold in order to answer the research question on FM's self-assessment and FM customers' assessment. The analyses of the feedback encompass capital development, academic environment, operation and maintenance, occupational health and safety, and a computerised maintenance management system, but for brevity, the information on operation and maintenance will be used to illustrate the process.

### *4.2 Operation and maintenance*

The execution of the day-to-day activities necessary for the achievement of the goals set for teaching, learning and research allows the academics to use the built facilities, fixtures, features and services continuously. The quality and functional state of these facilities influence the comfort, composure and productivity of the academics (Vidalakis et al., 2013; Odediran et al., 2015). The FM unit's commitments to the ideals of operating functional facilities can be summarised in these statements, gleaned from the FM annual report of 2013:

> To maintain all academic and support facilities and infrastructure in order for them to be readily available, accessible, functional and safe, in support of teaching, learning, student life and research. To provide an enabling environment in which academics can excel on a sustained basis through: maintenance of existing facilities; upgrading and expansion of facilities.

In order to fulfil these objectives, the FM unit practises the combination of a "planned, scheduled and breakdown maintenance" system (Hinks & McNay, 1999; Lavy, 2008). However, the majority of the interactions of the academics with FM operatives centre on breakdown or demand maintenance as well as space modifications or change of use (Amaratunga & Baldry, 2000; Hayes, 2006).

Generally, performance assessment brings to fore how the customer views the performance of the service provider (FM unit) and allows the service providers (FM unit) to see how effective and satisfactory their performances are to their customers (Myeda & Pitt, 2012). In the seven items measured, gleaned from literature and a pilot study for this research (Hinks & McNay, 1999; Lavy, 2008; Bortolotti et al., 2013; Meybodi, 2015), the FM operatives rated their performance above average in almost all of them but the academics rated FM above average in four of the items and below average in the other three. The items rated below average are more critical to the operations of the academics, namely 'response time and down time' (Bortolotti et al., 2013; Meybodi, 2015). Another component of this assessment is the contribution of the academics that are very active in the COF, their assessments being more encouraging, but these academics are in the minority. Figure 2 provides the graphical representation of the feedback from the customers and the FM operatives.

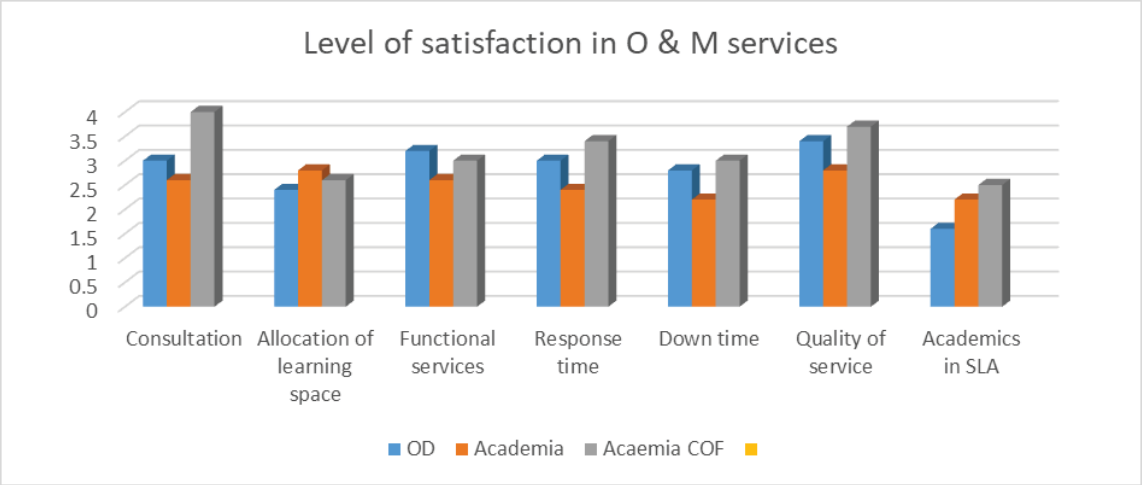


Figure 2: Level of satisfaction regarding operation and maintenance services (Ogbeifun, 2016: 121)

In the interviews with FM operatives and the academics, the response time for the T1 threshold set by this FM unit is indicated as 48 hours; that is, upon receipt of a request, its operative will visit the customer and, if possible, address the request within 48 hours. The majority of the academics observed that FM operatives may visit to inspect the request within their stipulated 48 hours, but the requests are not usually addressed immediately, or only after a long delay and sometimes after repeated requests, thus resulting in prolonged down time (T2) (Bortolotti et al., 2013; Meybodi, 2015).

The performance assessment result was subjected to further discussions and analysis with both the academics and FM operatives (Amaratunga & Baldry, 2002;

Myeda & Pitt, 2012). It was discovered that allocation of learning space was not entirely the responsibility of the FM unit; they are just members of the committee, as are the academics. In the same sense, developing a service level agreement (SLA) for service providers with the active participation of the academics was not seen as a critical issue as long as the service was rendered effectively and ensured progressive consultations. The main concerns of the academics were in the area of functional facilities and services, response and down time as well as the quality of services (Bortolotti et al., 2013; Meybodi, 2015; Ling & Wong, 2016; Atkin & Bildsten, 2017). This led to the use of another set of questionnaires by adopting the Delphi technique which helped to amplify the areas of variance. The Delphi technique is a tool used for the collection of vital information from a team of experts (Day & Bobeva, 2005; Hallowell & Gambatese, 2010) who anonymously respond to the research question and no participants can be traced to their contributions (Franklin & Hart, 2007). This system allows for objective responses without coercion or complicity (Ogbeifun et al., 2017). The analysis of the anonymous responses from both the academics and FM operatives showed that FM operatives were deficient in all the items measured (Figure 3) and required a focus group session to discuss the details in order to unearth the latent causes of these variances.

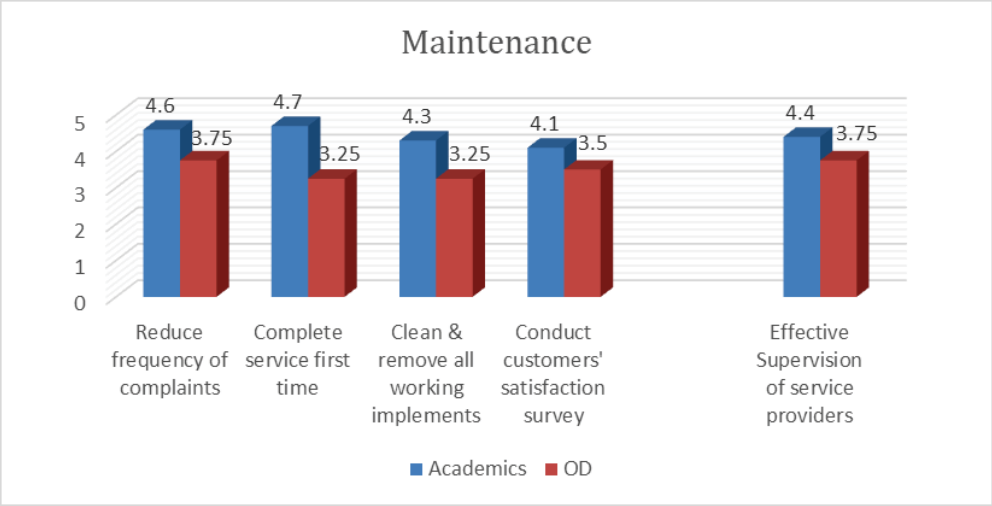

Figure 3: Areas of variance in maintenance operations (Ogbeifun, 2016: 137)

### *4.3 The focus group session*

The focus group (FG) session was made up of the leaders at the strategic and tactical levels of leadership in the FM unit; they include two campus directors and five maintenance managers. During the FG session, it was discovered that the variances observed were not necessarily due to lack of technical competence or inadequate resource of human capacity but largely to the low level of understanding of the effects of the non-functioning facility on the performance of academic services.

Furthermore, it revealed that the majority of FM operatives lack the soft skill of interpersonal relationships and effective communication with customers.

As shown in Figure 3, in order to reduce the frequency of complaints, it was suggested during the FG session that FM operatives should improve on the T1 and T2 component of the JIT threshold. The FG session identified with the assessment and challenged FM operatives to aim at completing service first time, clean and remove all working implements after each work operation, improve on effective supervision of both in-house and service providers and conduct periodic customer satisfaction surveys. In this way, the FM unit will improve on their performance on the T2 time threshold and service delivery (Bortolotti et al., 2013; Meybodi, 2015). Effective management of these items would result in the reduction of the length of down time, reduce the frequency of complaints from the academics and increase the level of customer satisfaction.

**Table 2: Performance improvement strategies**

| S/No | Identified variance | Suggested performance improvement strategies |
|---|---|---|
| 1 | Response time | 1. Ensure visit with customer within stipulated 48 hrs (T1)<br>2.Technicians should visit customers equipped with basic tools and materials to address minor complaints immediately<br>3. Equip technicians with communication tools so that they can communicate with superior officer for timely decision. |
| 2 | Reduce down time, complete service first time | 1. After assessment of customer's request, move to site with all required materials.<br>2. Keep adequate stock of basic repair materials.<br>3. Continuously train artisans and technicians in order to improve on their proficiency.<br>4. Allocate work request to external service providers according to their trade specialisation.<br>5. Give authority to campus directors to authorise expenditure on purchase of materials or commission external service providers within a specified financial threshold. |
| 3 | Improve on quality of service, clean workplace after each operation | 1. Provide effective supervision for all work process being executed by both in-house and external service providers.<br>2. Equip all supervisors with adequate communication and logistic tools, so that they can keep track of artisans and technicians.<br>3. Supervisor and other senior FM operatives should visit with the academics in order to establish cordial relationship with customers.<br>4. Conduct periodic customer satisfaction surveys. |

The FG session used the information from the two assessments to suggest performance improvement strategies, as shown in Table 2. It was agreed at the FG session that the exercise should be repeated after six months in order to determine the improvements made on the T2 threshold, which eventually will translate to improved levels of service delivery, customer satisfaction and relationships between FM operatives and the academics. This will facilitate the provision of functional facilities for the performance of the core activities of teaching, learning and research.

## 5. CONCLUSION

As shown in Figure 1 and demonstrated in this research, effective performance management requires dedicated commitment to the respective activity in the performance management loop. Although the FM operatives rated their performance as above average in the performance assessment exercices, the acid test was how the customer (academics) expressed their level of satisfaction, which were not complimentary, especially in terms of the response time for addressing their request, the management of down time, and the functional quality of the facilities in their portfolio. Furthermore, the analysis of feedback amplified the areas of variance contributed largely by FM operatives. The FG session allowed the FM operatives to identify the latent reasons for their low performance and discuss the observed variances before the development of appropriate performance improvement strategies (Table 2).

This research has shown that peformance improvement can be achieved through deliberate commitment and periodic repetition of the key activities in the performance management loop. Notably, performance assessment allows FM operatives to listen to the voice of the customers, which is essential for performance improvement. Therefore FM operatives should adopt the soft skill of interpersonal relationships and effective communication so that they can build the required synergy with the academics in the development, operation and maintenance of functional facilities suitable for the execution of the core fuctions of teaching, learning and research. Deliberate efforts should be made, at micro and mega fora, to communicate research findings to FM professionals (similar to the FG session in this research). This will facilitate performance improvement in FM, allowing the unit to contribute meaningfully to the value chain of the organisation and its competitive advantages within the industry of the organisation. Specifically in HE institutions, FM will be able to provide and maintain facilities suitable for an academic environment for internal customers and visitors as well as project the image of the institution in the proximate communities.

Since this research was conducted on a single site, further research efforts should conducted involving more HE institutions in order to enable generalisation of

conclusions.

**Acknowledgment**

The author is very grateful for the financial support from the Faculty of Engineering, University of Johannesburg, through the postdoctoral research fund.

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