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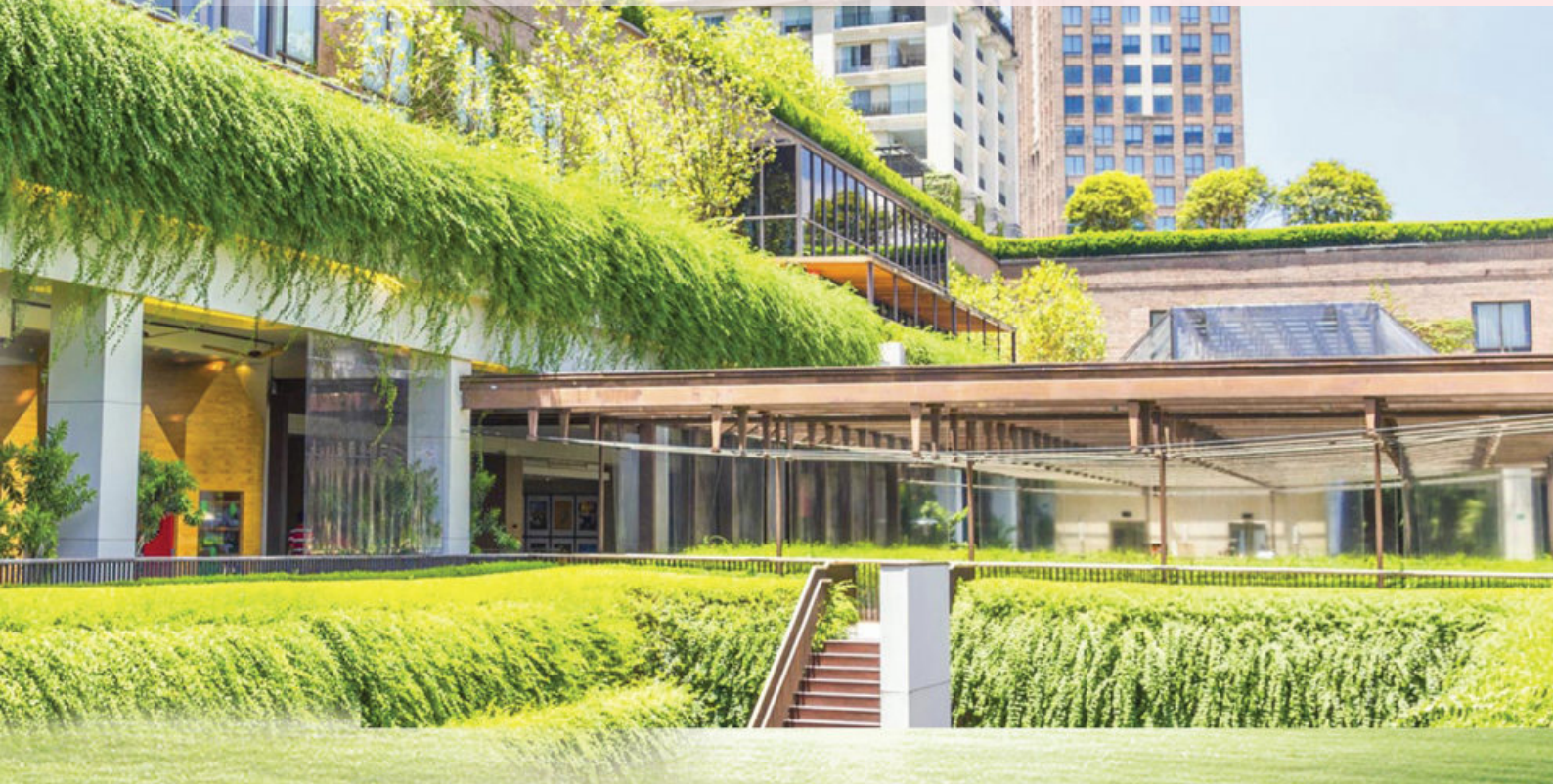
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KEY PERFORMANCE INDICATORS FOR MEASURING THE PERFORMANCE OF FACILITIES MANAGEMENT SERVICES IN HOTEL BUILDINGS: A LITERATURE REVIEW

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ABSTRACT

People travel across the world for leisure, business, and relaxation purposes and seek short term or long-term accommodation facilities. With the increase in globalisation and rapid development in technology, the hospitality industry is changing quite momentarily in order to respond to the changing needs and expectations of the travellers. Similarly, hotels as one of the main pillars of the hospitality industry, have an important role in a country's economic development. Subsequently, Facilities Management (FM) has become a demanding profession in developing and developed economies, which maximise profits while reducing operation and maintenance costs. In this context, Facilities Managers support the functionality of non-core activities of the hotel sector in line with the core objectives. However, there is an inadequate performance in building services and maintenance of hotel buildings, which lead to loss of productivity, a reduction in profitability, a loss of clients and a general negative company image. To this end, the Performance Measurement (PM) is an essential requirement in hotel sector to increase the performance of FM services. Therefore, this paper synthesises the FM performance based on Key Performance Indicators (KPIs) that indicates how well the organisation is performing in accordance with their strategic objectives and goals. Further, the paper discusses the requirement of PM for FM services in hotel sector. Ultimately, a set of KPIs have been identified based on the available literature in order to measure the performance of FM services in hotel buildings.

Keywords: Facilities Management; Hotel Sector; Key Performance Indicators; Performance Measurement.

1. INTRODUCTION

Facilities Management (FM) is a profession, which encompasses numerous disciplines in order to pursue functionality of the built environment while integrating people, place, process, and technology (International Facilities Management Association [IFMA], 2009). The scope associated with the FM typically include a wide range of functions and support services including engineering services, real estate management, space planning, waste management, safety and security, etc. (Alexander, 2009; Adnan & Farida, 2015). Due to the complex scope of FM in an organisation, positive or negative influences of FM services contribute to successful nor failure in any kind of organization (Gilleard & Yatling, 2009). When it comes to the hotel sector, FM services are critical and complex in nature (Priyangani, 2009). Hence, the prime objective of a hotel business is to satisfy needs of the guests. Subsequently, many noncore services of hotels which are under the scope of FM are directly contribute to achieve its prime objective, guest satisfaction including heating venting and air conditioning, electrical service, plumbing service, lift and escalators, information and telecommunication, safety and security service, waste management and landscaping are contributing to achieving its prime objective (Priyangani, 2009). In the meantime, a continuous PM is an essential need for facility managers to measure the performance and achieve productivity of FM services supplied (Varcoe, 2007; Favier & Paul, 2009). However, existing literature disclosed that service quality of FM services has been decreasing in hotel sector due to less focus on compliance, continual improvement, outdated technology, lack of training, inferior quality materials of FM companies (Fernando et al., 2014). All above reasons are due to

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the absence of proper KPIs for FM services. Therefore, the establishment of a comprehensive performance review system will be a reference to such hotel buildings to set performance indicators in order to upgrade the performance of FM service providers. On the other hand, it is beneficial to the FM service provider to evaluate their own performance and to deliver the service according to agreed service levels. Therefore, the aim of this paper is to develop KPIs for measuring performance of FM services in hotel buildings based on existing literature. In order to achieve the aim of the research, this paper first underlines the concepts of FM, PM and KPIs and explains the requirement of PM in FM services and finally develop a set of KPIs which can be used to measure the performance of FM services in hotel sector.

2. METHODOLOGY

A comprehensive literature review was used as research methodology for this research paper. Literature review was carried out on a broader perspective with the purpose of being familiarised with the subject areas of the research study while holding the focus on research problem. The background study took the attention of journal articles, online journals, e-books, web sites, electronic library database and other publications. KPIs for measuring performance of FM services in hotel sector developed at the end by bringing in literal arguments.

3. FM SERVICES IN HOTEL SECTOR

Most of FM definitions highlight the link between the concepts of FM, productivity, PM and Business growth (Alias et al., 2014). Eric (2004, 2008) discussed IFMA's research report in which a total of 41 FM roles and responsibilities are classified under eight major headings; real estate management, maintenance management and budgeting, space planning, service installation, building handover, architecture, building operations, Standard Operating Procedures (SOP), building service contract agreements. There are several models of FM including in-house FM, FM bundle service supplier, managing agent and total FM supplier (Kurdia et al., 2011). FM has achieved an iconic image in global building management sector through the past decade while expanding the FM market of the world (Dimyadi & Prasanezad, 2014). In addition, the establishment of professional institutions in the United Kingdom, Japan, and Australia had enhanced the value of FM profession around the world (Nascimento & Quinello, 2013). FM is widely spread throughout different types of building facilities including shopping complexes, industrial facilities, hotel facilities, hospital buildings and educational facilities (Damgaard et al., 2009). Considering about the hotel sector, FM and Engineering services are complex and critical in hotel sector (Priyangani, 2009). FM services can be divided into two main categories as hard FM services and soft FM services (Atkin & Brooks, 2009) as shown in below Figure 1.

FM Services	
Hard FM	Soft FM
<p>Mechanical systems and services: HVAC, boilers, hot/cold water systems, drainage etc.</p> <p>Electrical systems and services: main distribution system, lighting systems; emergency and critical systems; heating/cooking; IT networks/server rooms; standby systems and supplies.</p> <p>Public health services: plumbing; drainage; sanitation; water supplies</p> <p>Control systems: comfort control; alarm/fire monitoring; security – access/egress; maintenance systems; energy monitoring; energy management.</p> <p>Utility services: electricity; solar, wind, ground, coal-fired, nuclear, hydro, combined heat and power (CHP) systems; oil; gas; water; air; waste/sewerage.</p> <p>Property management; Fabric maintenance; External areas, grounds and landscaping.</p>	<p>Computing equipment and data services</p> <p>Reprographics and printing services</p> <p>Stationery and consumables purchasing</p> <p>Newspapers and publications services</p> <p>Wireless, fixed and mobile telephony and broadband services</p> <p>Information centres, common area notice boards</p> <p>Signage and legal notices</p> <p>Helpdesk services</p> <p>First-aid services</p> <p>Occupational health services</p> <p>Fabric maintenance services</p> <p>Cleaning and housekeeping services</p> <p>Vending of personal hygiene consumables</p> <p>Catering and vending services</p> <p>Security and business continuity services</p> <p>Car parking, car valet and car servicing schemes.</p> <p>Green travel plan services, e.g. shuttle buses, bicycle share schemes and car sharing services</p> <p>Company vehicles and car fleet management</p> <p>Sports, fitness and leisure facilities</p> <p>Merchandising, retail and Internet shopping services</p> <p>Personal purchases (energy, stationery, cars).</p> <p>Business travel services</p> <p>Residential accommodation services</p> <p>Landscaping and grounds maintenance</p> <p>Internal planting</p> <p>Office furniture and equipment</p> <p>Secretarial services</p> <p>Library services</p>

Figure 1: FM Services
Source: Alexander (2009) and Atkin and Brooks (2009)

4. PERFORMANCE MEASUREMENT OF FACILITIES MANAGEMENT SERVICES IN HOTEL SECTOR

In order to align with the rapidly developing tourism sector, hotels need to comply and maintain proper standards to build their image and compete with the other hotels in the sector (Jayasinghe, 2015). Kavrakov (2015) defined PM as a process which company assesses the delivery of its goals and objectives within the organisational activities. It helps to achieve customer satisfaction, monitor progress, benchmark process and activities, and drive change (Enoma & Allen, 2007; Pit & Tucker, 2008). Furthermore, Amaratunga and Haigh (2008) identified some positive effects of PM in FM and they are focus people's attention, business improvement, improve customer satisfaction, increase productivity, align operational performance with strategic objectives, improve people satisfaction, align people behaviours towards continuous improvement and improve reputation. The below Figure 2 shows the crucial need and importance of performance review of FM services and it further explains the need for measure performance to influence performance.

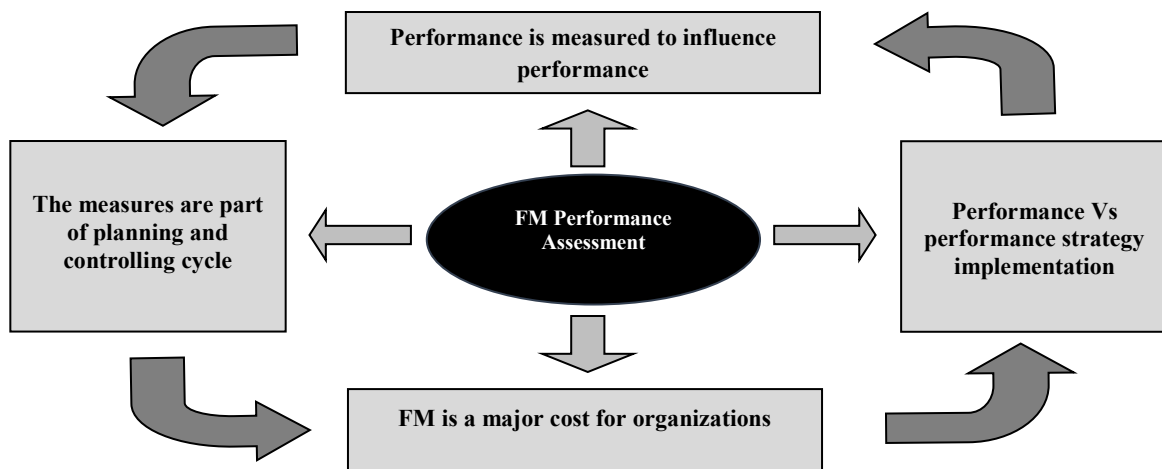


Figure 2: Performance Assessment

Source: (Amaratunga and Haigh, 2008)

India, Singapore, Dubai, and several other countries have increased their profitability of hotels by the use of PM as a strategic tool (The Travel and Tourism Competitiveness Report, 2015). Priyangani (2009), Shohet (2006); Schwarz et al. (2010) and several other researchers have developed frameworks for PM of FM services using different approaches in different industries. However, there are limited researches carried out for hotel sector with the aim of measuring performance of FM services. In this context, PM is essential as it enables to increase the performance of FM services. Generally, around 60-85% of total building life cycle cost is spent in the operation and maintenance phase, the maximum consumption of energy and cost of its life cycle (Eastman et al., 2008). The optimization of the resources could achieve by efficient performance of the buildings with efficient FM (Lewis et al., 2010). Therefore, continuous PM is required to increase the efficiency, reduce the operational cost and prolong the lifespan of the building (Jaaskelainen, et al., 2012). Facility managers require performance information to monitor and control maintenance process and results and provide indication towards possible requirements for improvements to the facility (Alsyof, 2007). Therefore, the proper performance level of FM must be carried out within hotels (Aryee, 2011). In order to carry out a proper performance level, it is necessary to measure the existing level (Jayasinghe, 2015). In that case requirement of PM in FM takes place hotel trade (Priyangani, 2009).

5. KEY PERFORMANCE INDICATORS FOR MEASURING PERFORMANCE OF FACILITIES MANAGEMENT SERVICES

5.1. DEFINING KPI

According to Kvarakov (2015), KPIs are the most valuable instruments of PM. According to British Institute of Facilities Management (BIFM, 2014), KPIs are set of financial and non-financial measures of a contractor's performance relative to the critical success factors of FM service. Further, the decisions regarding how to upgrade the performance of a facility are decided based on data analysis (Cooper, 2012; Neiger et al., 2012). Hence, well-defined KPIs can potentially contribute the determination of performance gaps, between desired and current performance, and can show an indication of progress towards eliminating the gaps (Muchiri *et al.*, 2009). In recent years, some research efforts have been made for the introduction of the KPI methodology into the FM discipline (Meng and Minogue, 2011). For example, Shohet (2006) has introduced eleven performance indicators for strategic maintenance of healthcare facilities. Further, the KPIs are accurate measures for the selection and comparison of FM service providers while communicating a clear description of desired outcomes and how they will be identified and controlled (Shohet, 2006).

In addition, KPIs are required to be linked to the organisational strategy and after mapping organisational strategy KPIs can be listed out to track progress to improve and manage performance (Liu, 2013). Further, when considering hospitality organisations and their workers, it emerges all the more crucial to establish strategic goals, determine the correct KPIs are directly dependent on an understanding of what is important to the hotel (Liu, 2013). Leavy *et al.* (2014) stated that KPIs should be initially designed to empower employees while feeding them with the relevant important information to a learning process. This facilitates to enhance the decision-making process and results in upgraded performance and the designing process of KPI's initially start with outlining the Key performance questions under each strategic objective. In the hotel industry, KPI should be facilitating employees with clear aims and objectives, coupled with a basic understanding of how they relate to the overall organisational success (Falite, 2013). Moreover, KPI and PM are good practices especially within the hotel industry and the hospitality industry to follow a series of standardized KPI to monitor, to improve and to benchmark performance (Falite, 2013).

5.2. KPIs FOR MEASURING PERFORMANCE OF FM SERVICE IN HOTEL SECTOR

Different researchers have come up with literature related to KPIs for FM services. By conducting an in-depth review of the literature, 82 KPIs were identified from fifteen (15) literature sources. The highest amounts of KPIs (16) have identified under mechanical, electrical and plumbing service and the lowest amount of KPIs (9) are for car park management. Previous studies have given more importance to preventive maintenance schedule, documentation, health and safety aspects in identification of KPIs. The identified KPIs with the respective source have been shown in Table 1.

Table 1: KPI for Facility Management Services of Hotel Buildings

KPI	Reference Source														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mechanical, electrical and plumbing service															
Planned preventive maintenance as per schedule	√			√	√	√	√		√	√	√				√
Provide operation and maintenance records	√	√			√	√	√	√	√	√	√	√			√
Provide & support a continuous helpdesk service	√				√	√		√	√	√	√	√			√
Manage and undertake reactive operations within service level agreement or SOP	√								√	√	√				

Attend management meetings & provide relevant FM information on time	√	√	√	√	√	√	√
Adherence to training & awareness		√	√	√			√
Staff attendance				√			√
Use of personal protective equipment and signage	√			√	√	√	√
Work request response rate	√			√			√
Store handling			√	√			
Breakdown rate	√	√		√	√	√	
Accurate budgeting plan	√		√	√	√	√	√
Implementation of energy management and sustainable practices				√			√
Hazardous material management	√			√			√
Acceptable operational conditions and parameters			√	√	√	√	√
Issuing of work permits for required work with risk	√					√	√
Fire detection and protection service							
Adherence to fire training and awareness				√			√
Attend management meetings and provide relevant FM information on time	√		√	√	√		√
Planned preventive maintenance as per schedule	√	√		√	√		
Provide operation and maintenance records	√	√	√	√	√		√
Acknowledge and monitor fire alarms	√			√		√	
Acceptable operational conditions and parameters of fire pumps and equipment	√	√		√	√	√	√
Refilling of fire extinguishers according to schedule				√			√
Fire incident management and reporting				√			√
Compliance with local statutory requirements	√	√		√		√	√
Complaints handling	√			√		√	√
Accurate budgeting plan			√	√	√	√	√
Health, safety and security service							
Compliance with local statutory requirements & personal grooming					√		√
Continuous service to ensure a safe physically secure environment for guests, staff, visitors and building assets			√	√		√	
Manage community violence			√			√	√

Monitor and acknowledge immediately all alarms, panic alarms, and emergency calls.					√			√	√	√	√	√
Hold and maintain administration records	√	√	√	√	√	√	√	√	√	√	√	√
The site is to be patrolled as per contract and records to be maintained					√							√
Adherence to training and awareness				√	√		√	√	√	√	√	√
Attend monthly meetings and provide relevant information on time including the monthly report to management					√		√					√
Incident management and reporting					√							√
staff attendance									√			√
Locating and reporting visually identified building issues to responsible persons or parties				√			√					√
Complaint handling						√						√
Provide accurate budgeting plan				√	√		√					√
Housekeeping and waste management												
Adherence to preventive maintenance schedule	√		√	√	√	√			√			√
Compliance with local statutory requirements	√	√		√	√	√			√			√
Provide maintenance records	√			√		√			√			√
Use of personal protective equipment and signage by staff		√			√	√			√			√
Attend monthly management meeting and provide the monthly report	√			√								√
Staff attendance				√		√						
Complaints handling	√	√							√			√
Accurate budgeting plan	√			√		√			√			√
Adherence to training and awareness				√	√	√			√			√
Use of sustainable materials and practices						√						√
Work request response rate	√			√		√						
Car park management												
Adherence to preventive maintenance schedule									√			√
Compliance with local statutory requirements									√			√
Operation and management of hotel Shuttle service	√											√
Staff attendance									√			√
Incident management and controlling						√			√			

Provide inspection reports	√					√		
Usage and good condition of signage					√			√
Complaints handling					√			√
Attend monthly management meeting and provide the monthly report			√		√			√
Cleanliness of the car park					√			√
Civil work and refurbishment								
Adherence to preventive maintenance schedule	√		√	√	√	√	√	√
Compliance with local statutory requirements	√	√		√	√	√	√	√
Provide maintenance records	√		√		√		√	√
Use of personal protective equipment and signage by staff		√			√	√	√	√
Attend monthly management meeting and provide the monthly report	√			√				√
Staff attendance			√		√			
Complaints handling	√	√					√	√
Accurate budgeting plan	√		√		√		√	√
Adherence to training and awareness						√	√	√
Use of sustainable materials and practices						√		√
Work request response rate	√			√	√			
Asset management and space planning								
Compliance with local statutory requirements	√	√			√		√	√
Availability of updated asset register	√			√	√		√	
Availability of assets labeling process							√	√
Asset life cycle planning for critical assets								√
Availability of asset management strategy and plan					√			
Availability of asset positioning indicators							√	√
Accurate budgeting plan				√	√			√
Asset data recording and reporting							√	√
Efficiency of asset utilization				√			√	
Ensure safety of assets	√				√			√

1- Muchri et al. (2009)

2- Nestic et al. (2013)

3- Nascimento and Quinello (2013)

4- Muchri et al. (2009)

5- Adnan and Farida (2015)

6- Srivastava and Maitra (2016)

7- Crick and Spencer (2010)

8- BIFM (2014)

9- Rimbalova and Vilcekova (2013)

10- Shoheit (2006)

11- Alexander (2009)

12- University of North Western (2017)

13- Kavrakov (2015)

14- IFMA (2009)

15- Lockyer (2013)

6. CONCLUSIONS AND WAY FORWARD

There is a rapid development in hotel industry in Sri Lanka. Subsequently there is a lack of performance and quality issues in hotel buildings due to unavailability of PM system for FM services. Although there is a critical requirement of PM system for FM. KPI development for FM services can be identified as a solution for above mentioned issue. Therefore, 82 KPIs have identified for FM services in hotel sector through 15 literature sources. Ultimately prioritization of above KPIs and develop a performance improvement strategy for above-mentioned KPIs can be identified as further research areas related to this research.

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