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# HOTEL MAINTENANCE MANAGEMENT

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*Strategic practices in hotel operation*

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## **DEGREE PROJECT IN BUILDING AND REAL ESTATE ECONOMICS SECOND LEVEL**

Title: HOTEL MAINTENANCE MANAGEMENT  
(Strategic practices in hotel operation)  
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### **ABSTRACT**

#### **Purpose**

The purpose is to identify responsibility of owners and operators for maintenance of assets, fixtures and fittings, to identify maintenance management strategies adopted for the efficient operation of hotels and to find out difficulties faced by operators in implementing these strategies.

#### **Methodology**

Four interviews provided supplementary data for the main data collection phase involving administration of 64 questionnaires to hotel operators and maintenance managers.

#### **Findings**

The hotel owner and operator have individual and joint responsibility for asset maintenance. Outsourcing is a maintenance strategy used to minimise operating costs, an important factor that guides this decision is time constraint required to deliver work. In house maintenance it is also influenced by the strategic value of the service and the availability of the resource in the market. In maintenance practice an important challenge is maintaining energy efficiency because of the increasing electronic equipment and high volume of lights

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Stockholm, April 2011

Susan Aryee

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## 1. Introduction

Generally, hotels are complex and costly when it comes to maintenance with various uses of spaces that have different schedules and uses for guest rooms' restaurants, health club, swimming pool, retail store and each has a functional engineering system required for its maintenance. Maintenance therefore has to be done throughout the year, requiring competent staff to undertake building services, operation and maintenance, supplemented by outsourced contractors. (Chan et al 2001; 2003). In the hospitality industry the maintenance of the engineering systems is important despite its complex processes as its effectiveness will directly affect the quality of hotel service, food, and beverage which have direct and significant effect on guests' impression of the hotel. (Chan et al 2001)

As such, the development of a suitable maintenance strategy is gaining publicity, greater reliance is placed on it to keep high system availability and achieve acceptable environmental conditions for the occupants (Chan et al 2001). Powell and Watson (2006) confirmed that most hotel rooms are accommodation led because most revenue comes from sales of these rooms. Of the three core consumer products in the hotel, accommodation, food and beverage, accommodation standard significantly affect the customer satisfaction and inclination to return.

Maintenance management also plays a main role in improving energy efficiency and keeping the total costs optimal. The costs of operating and maintaining the engineering systems, in particular the in-house manpower, out-source contractors, energy consumption and equipment deterioration, must be properly monitored and controlled. Among the commonly adopted strategy in the hotel industry is outsourcing, which managers use to squeeze operating costs in a tough business environment. The purpose of such a strategy is to improve productivity, increase revenues; lower operating costs, and reduce risk. It allows hotel to focus efforts on its core competency and strengthen its ability to adapt in the ever-changing business environment. The main operational functions that are outsourced are normally related to accounting, maintenance, security, promotion and storage (Burt and Pinkerton, 1996 cited in Lam & Han (2005).

Despite the importance of maintenance in this industry it is characterized by the personal ownership and management structure. There is a division in a hotel where one party owns the

physical assets of the hotel (the owner), and an independent second party manages the hotel (the operator) (Guilding, 2003). The writer further mentioned that it is interesting to note, that operator's need to maintain brand image can also be a source of owner/operator conflict, as brand image maintenance may compete with profit maximisation. This study therefore addresses these questions: What maintenance strategies do hotel operators adopt for efficient delivery of services and what difficulty do they encounter in implementation? What influential factors are considered in making decision on hotel maintenance?

In the light of this principal-agent problem some hotel operators have been successful at keeping standards and maintenance management strategies in their hotels and to keep up in this competitive industry. The causes of their success must be learnt and derived from answers in this study as a motivation to real estate investors and other actors who are into hotel development and management.

### **1.1 Objectives**

The realization of this aim of seeking maintenance management tools requires the pursuit of the following objectives:

- To identify emerging trends in the field of maintenance management in four and five star hotels in Stockholm
- To analyse change management procedures accompanying the acquisition and installation of fixtures.
- To identify factors that determine the adoption of outsourcing and in-house maintenance strategies
- To find out challenges faced by hotel operators whilst implementing strategies to attain efficiency.
- To make recommendations for the way forward for hotel operators in general.

### **1.2 Significance of study**

Well structured maintenance schedules in different hotels in different countries have yielded excellent results for hotel operators, which must be learnt and derived from this study as a incentive to:

- Real estate investors to go into hotel development and management.
- Hotel operators in pursuing efficient maintenance programmes.



- Private companies solely into hotel property management.

### **1.3 Methodology**

In achieving the objective of the study it was perceived to adopt a research strategy that primarily will reveal the experiences of hotel operators involved and examine the outcomes and implications for maintenance.

My sample population comprised hotel operators and maintenance managers in four (4) and five (5) star hotels, in Stockholm. This population is geographically concentrated but hotel operators are not all Swedish, they come from different countries over the world. This sample frame therefore has relevant strata and cluster, the research therefore adopted a cluster sampling technique. Selecting interviewees from a small geographic area enhanced the reliability of data collected. In view of the practical difficulties of employing a systematic random sampling technique while choosing the target samples, a non-probability purposive sampling method was used. The Sweden Hotel and Restaurant Association (SHR) webpage ([www.shr.se](http://www.shr.se)) was a guide.

#### **Interview and Questionnaire administration**

Two phases of data collection procedure was adopted, the first phase involving four interviews with hotel operators and maintenance managers in four and five star hotels in Stockholm, Sweden. These interviews were supplementary to the main data collection phase involving administration of a survey questionnaire to the same population. Four interviews with experienced people in the field of maintenance were done. Most interviewees had much experience in the hotel industry as such they frequently drew on career experiences when interviewed. The interview observations have been used to assist with proposition development, questionnaire design and interpretation of survey findings. The primary orientation of the field study here may be best characterised as exploratory because flexible semi-structured interviewing approach designed to elicit factors affecting maintenance practices were used. One interview was tape-recorded and had duration of forty-five minutes and three were captured by note taking while interviewee responded lasting about an one hour each.

The main data collection phase involved administration of a survey questionnaire to all four and five star hotels in Stockholm. The SHR website was a guide to survey sample frame

providing a sample size of 66 hotels. 54 questionnaires was emailed using a web-based questionnaire as an initial step to gather response from a population of hotel operators, general managers, maintenance managers and external contractors, while 10 were posted to hotel operators/managers. Each hotel was contacted by email prior to the submission of the questionnaires for the email address of the right persons to send the questions and the response was encouraging. The survey questionnaires were separated into two, one set of questionnaire for hotel operators and managers and the other set of questionnaire for maintenance managers. Phone contacts were also made to follow up questionnaires and upon request questionnaires were sent again to direct email address of respondents. Some hotel operators preferred that the maintenance questionnaire was sent to private outsourced contractors who are in charge of the maintenance of their facilities.

This research design is qualitative, deductive and a descriptive survey which is concern about the way hotel operators handle work orders at any point in time. Primary data collection using this design is more consistent with my research question and objective because there are different types and classes of hotels and this helped me choose the class of hotel to survey.

#### ***1.4 Disposition***

This thesis is arranged as follows: the introduction and the method used to sample and collect data for the research work as chapter one, a review of the hotel market in general in chapter two then the hotel market in Sweden in chapter three. An explanation of the main concepts of the study in chapter four followed by the analysis of results of the interview and questionnaires survey in chapter five and finally the summary and conclusion of the study.

## **2. The Hotel Market**

People who travel need hotel for different reasons, for leisure, business and for relaxation. The pace therefore at which real estate investors are going into hotel development sounds an alarm to facility management services especially in maintenance and renovation sections.

Kim & Youngmi (2002) mentioned that intense competition in today's market requires managers to attend to hotel services that retain customers and in their words the "how's and whys of patron returning and continuing repurchase" should be considered. Chan et al, (2003) observed that in the long run, hotels that are successful in delivery and maintenance of superior value are able to build customer loyalty and customer retention both of which drive up shareholder value

The hotel industry has two main category of customers, the corporate guests who patronise hotels for business and conference meetings primarily using facilities from Monday until Thursday and leisure guests who usually stay in hotels on weekends and holiday periods. The hotel market is strongly affected by new trends and technological changes and influenced by macro factors in the economy both on a country level and on international level. The development and construction of new hotels also takes a number of years and therefore developers have to forecast future occurrences in order to make the correct projection of the demand.

Due to the above reasons it is important that the stakeholders in the hotel market have an extensive knowledge of the market and trends affecting it and to understand concepts, policies and the star classification categories among others. For purposes of this study the hotel maintenance concept will be reviewed as well as the new European hotel classification criterion which specifies the quality and nature of fittings, fixtures, equipments and services in rooms and building for each category of hotel.

### **2.1 The Hotel Classification Criteria**

The different star ratings as summarized in Swedish Hotels and Restaurants web pages have the following mandatory criteria examples:

### **One Star**

Hotels in this category mainly have common area bath / toilet, towels, central heating, breakfast and timing with a possibility of wake-up call and daily cleaning of rooms. Superior status is attained by one (1) star if all the rooms must have private bath / toilet and television.

### **Two Stars**

Two (2) star hotels have in addition to requirements for one (1) at least 40% private bathroom / toilet and TV, bath towels and washbasin in rooms with soap and shower cream as well as bedside lamp. Likewise for two (2) stars to attain superior status, all the rooms have private bath / toilet and television.

### **Three Stars**

These hotels have service desk function (at least 14 hours a day), all rooms equipped with private bath / toilet, hairdryer, full-length mirror, luggage stand, desk, radio, TV, access to internet, access to the baggage service, laundry bag, shoe shine equipment, elevator.

### **Four Stars**

Four (4) star hotels have reception desk staffed at least 18 hours a day and a bar at least 6 days a week. In addition to this there should be comfortable furniture, safe, guest computer, internet connection in rooms, mini bar / room service, dinner service at least 6 days a week and room service with food for hotels that do not serve breakfast only, newspapers, sewing services, elevator. Superior status is attained if dinner restaurant is opened at least 6 nights a week.

### **Five Stars**

Hotels in the five (5) category have reception desk staffed 24 hours, suites, extra toiletries in the room, bathrobe and slippers, extra pillows, choice of pillows, comfortable seating in rooms, bar 7 days a week, lunch and dinner 7 days a week, mini bar, room service round the

clock, luggage service, ironing service, same day laundry service, second service / turndown, mystery checking, etc.

All star categories need a number of additional criteria beyond the mandatory criteria, in order to achieve star rating. In addition, the hotel is also considered as a whole in terms of maintenance standards, quality of furniture and equipment, and general impression.

However with effect from 1 January, 2010, a Single European hotels classification system has been adopted and at present Sweden, Germany, Austria, Switzerland, Holland, Hungary the Czech Republic and the Finnish islands of Åland take part in the same classification system. The hotels are assessed for 270 criteria and can be awarded between 1 and 5 stars.

The New Criteria 2010-2014 is divided into 2 categories: -

- Mandatory criteria (M) that must be met to obtain star rating.
- Additional criteria where a certain percentage of points must be achieved to obtain the star category which the mandatory criteria indicates

For every star category, it is possible to achieve a so-called superior assessment for hotels that receive a large number of extra points. The Swedish Hotel and Restaurant Association, (SHR) is responsible for the Swedish classification with its own inspectors who annually visit the hotels for inspection. ([www.hotelsinsweden.com](http://www.hotelsinsweden.com) / [www.hotelstars.se](http://www.hotelstars.se))

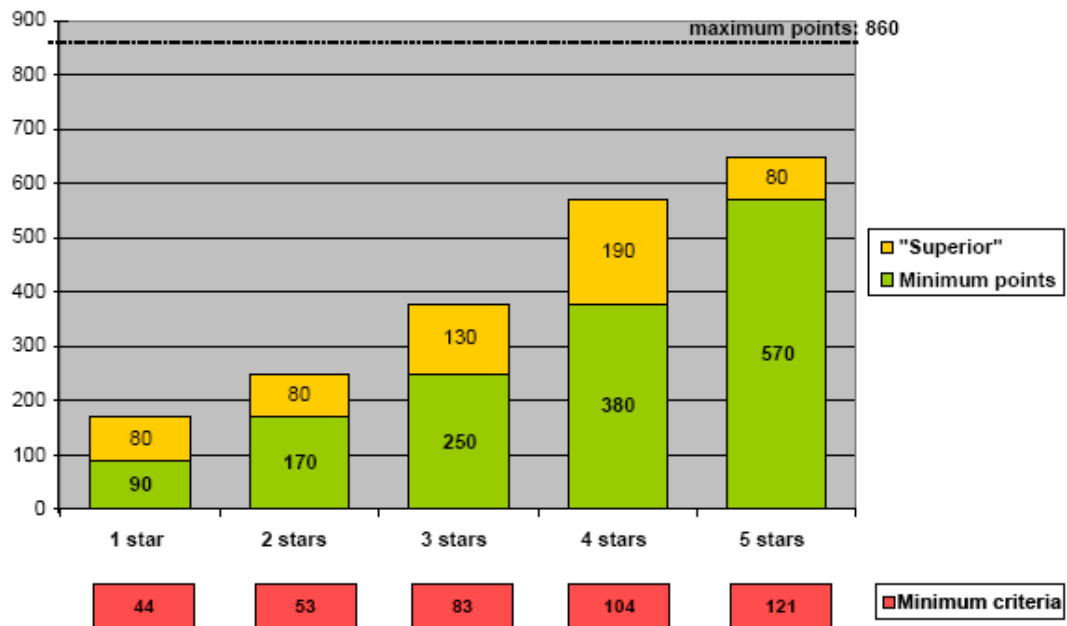
For the purpose of this study only the sections in part I and II that relate to building/rooms, furniture, equipment and part of services in the criteria was considered because maintenance management is directly associated with these category of fixtures. (Refer to Appendix 3). The furniture and equipments stated are for sanitary comfort, sleeping comfort and necessary room equipments when a guest is in occupation. For 4-5 star hotels the minimum requirement is very high and more fittings are required as well as regular inspection for maintenance, the few essential needs are mirrors, heating facility in the bathroom, tray of large scale, personal care products in falcons, bathrobe and slippers on demand for 4-star hotels, additional cosmetics products are required for 5-star category hotels and a mandatory requirement for bathrobe, slippers, possibility of blacking out the room completely, twin couches, bedside

power button. For both 4 -5 star hotels the rooms need to have a single bed of size 0.90 ×2.00m and double bed of 1.80 ×2.00m

A hotel awarded “Superior” indicate excellent hotel that have points well beyond the points that are necessary in their category and whose overall impression overtops the expected in their category and these hotels offer a high degree of service. “Superior” is accessible to all hotels and “Hotels Garnis” as well. However the criteria requires a Hotel Garni (breakfast only) to have its number of points to be reached lowered by 20 points in each category. A “Hotel Garni” cannot obtain 5 stars. (*Classification criteria 2010-2014*)

The table below shows the minimum criteria, minimum points and number points required for a hotel in each category.

**Table 1: Maximum and minimum points categorization**



Source: Classification Criteria 2010-2014 / page 22 of 22)

A sum total of the superior and minimum points are added up as the supplement superior for each hotel category in the table below. As an example the 4 star hotels obtained 570 points by

adding 380 (minimum) and 190 (superior) in table 1, likewise 5-star obtained 650 from 570+80. These points establishes that facts that the furniture, fittings and equipments required for these class of hotels are varied therefore requiring more efficient maintenance strategies in room and buildings.

**Table 2: Supplement superior points:**

Minimum points

	1 star	2 stars	3 stars	4 stars	5 stars
Hotels	90	170	250	350	570
Supplement 'Superior'	170	250	380	570	650

Source: Classification criteria 2010-2014 / page 21 of 22

## **2.2 The Owner/Operator relationship in hotels**

Turner & Guilding (2010) wrote that in spite of how a hotel's assets is owned, hotel owners face a number of choices regarding their operating structure, most of the time the party that owns the hotel does not operate the hotel. It is also globally considered that there are three main hotel operational methods which are the owner-operator, franchise agreement, and management contract (Gannon & Johnson, 1997 cited in Turner & Guilding 2010)

Despite the well-established franchising model, recent surveys show that the third main hotel operational approach, the management contract, has become the most popular of the three options. In their opinion the separation between ownership and management through the use of a hotel management contract is now widespread and is one of the driving mechanisms for the fast internationalization of hotels (Turner & Guildings 2010; Beals & Denton, 2005).

A management contract enables a hotel owner to retain legal ownership of the hotel site, building, plant and equipment, furnishings and inventories, whereas the operator assumes responsibility for managing the hotel's day-to-day business, in the name of, on behalf of, and for the account of the owner" (Guilding, 2003; Turner & Guilding, 2010).The main

characteristic of this are the property owner pays a management fee to the operator in management contract. This arrangement requires provision to be made as to whose responsibility it is for regular maintenance of buildings, fittings, furnishing, plant and equipment.

Lease structures in hotels are revenue-based contract and fixed-fee contract. Revenue-based lease are linked to the revenue generated by the hotel operation and in order to limit the risk, revenue –based leases often specify a minimum guaranteed amount of rental revenue. A fixed-fee contract is made through an index linked to the Consumer Price Index (CPI) which limits the risk to owners as they are not linked to the revenue or profit of the hotel (Bergqvist, 2006).



### 3. The Hotel Market in Sweden

The Scandinavian market is seen as a politically, socially and financially safe market, which makes it attractive for international companies (Forsgren and Franchetti 2004). The hotel market will therefore continue to grow, and one of the motives is that people from Asia and USA are interested in “countries with midnight sun” (Hullberg, (2001) cited in Forsgren and Franchetti 2004).

The hotel sector employs a large amount of young people, in countries such as Denmark, Finland, Ireland, the Netherlands, Sweden and the United Kingdom, over 50 percent are under the age of 35 (Jordhus-Lier et al, 2010). The writers also explained that workers in the hotel sector are also expected to be flexible when it comes to working hours and responsibilities. “Split shifts” are normal practice where workers only work the busy hours and have time off during their less busy hours. In high seasons workers often work longer hours than jointly agreed. Hotel rates are more flexible and the hotels in Sweden offer different rates for holidays, which further affect their profitability (Forsgren and Franchetti 2004).

Two main guest segments can be seen in this industry namely, the corporate that are the business guests and leisure guests who usually pay a low priced rate and do not use hotels in the same scope as corporate travellers leading to a lower occupancy and average room rate during weekends and holiday periods. In the Scandinavian countries the difference between weekends and weekdays are common compared to the rest of Europe. However, in recent years there have been some few changes and the occupancy on weekends has improved partly due to increased disposable income and new travel patterns. The hotel market also depends on the general trade conditions, nature of the market and the growth of the gross domestic product (GDP) in the country and on international level. (Bergqvist 2006).

From the mid 1990 Bergqvist (2006) wrote that the hotel industry in Sweden saw a number of trends due to structural changes in the Swedish market and general trends in the international market. One trend being hotel property companies became well built, having the expertise in the hotel property market to be able to achieve the cash flow required. Hotel operators therefore became more specialized and those that owned their assets started to sell out their assets but keeping the hotel operation, so called ‘sale and leaseback’. Gradually more hotels

started to join a hotel chain relationship in order to achieve the necessary competitive advantages. This led to a new structure of the hotel market with its associated new hotel chains, marketing organizations and trade names in the market.

There was a major change in the structure of the Swedish hotel market in 2001, when Hilton International Hotels bought Scandic Hotels. Before the downturn in the 1990s Sheraton Stockholm Hotels & Towers was the only hotel in Sweden which operated by an international hotel chain compared to today when approximately 40% of rooms sold belong to a hotel affiliated to an international hotel brand. The leasing contracts of hotels changed after the downturn because the previous contracts, where most of the hotels had a fixed rent adjusted yearly based on the consumer price index became revenue based leases. These leases having a minimum guarantee rent had some of the risk put on the property owner who also received part of the higher profit in a boom. Currently these leases are the most common contracts in Sweden among chain affiliated hotels were they generally specify a minimum guaranteed amount of rental revenue (Bergqvist 2006).

The Nordic market in 2005 similarly saw some major changes in the ownership structure of hotels as a new investor entered the market, Norgani Hotels ASA. In that year Norgani among other deals bought portfolios of hotels from Home Properties and Pandox. Today Norgani is listed on the stock exchange in Oslo and the company owns 64 hotels in the Nordic countries which make the company the largest hotel property owner in the Nordic countries (Bergqvist 2006).

In addition, (Jordhus-Lier et al, (2010)) stated that non-compliance with collective agreements is a persistent issue in the hotel industry in Nordic regions. The practice of hiring workers on “duty is demanded” basis and from temporary employment agencies is on the increase, as is the trend of attracting workers on a part-time basis, especially younger workers and women. The most important trend is outsourcing which has made a huge impact in the sector in the last 10 years especially in areas like housekeeping, laundry and facility services.

### **3.1 Hotel operation in Sweden**

In the Nordic countries the most common structure of hotel leases is revenue-based leases linked to sales generated by the hotel business with a minimum rental guarantee. Management contracts are not very regular in Scandinavia but much more frequent in Europe

especially among the international hotel chains like Marriott International's and Hilton Hotels (Bergqvist 2006).

Sweden is characterised by hotel properties that do not have vacancies because there is a sitting tenant who is a single person who gives out a lease usually for 15 years. In this type of lease, rents are not fixed but based on the revenue that the hotel generates.

Hotels differ from other commercial properties because they often maintain high residual value. In maintaining the value of a hotel there is usually extensive maintenance, repairs and renewal programmes for re-investment and capital expenditure (Bergqvist, 2006). Moreover the common procedure for making sure there is enough money to do so is to set aside a percentage of the hotel's revenue to a replacement reserve. This amount varies and it is proportionate to the type of hotel and characteristics of the location but a common figure is 4% of total revenue (Rouse, C. (2004) cited in Bergqvist, 2006)

Since 2003, Sweden has had an official hotel rating system handled by the Swedish Hotel- and Restaurant Association, SHR. This classification system is voluntary and not all hotels in Sweden take part in it. The hotels that take part are awarded 1 to 5 stars according to approximately 130 different criteria (now 270 criteria) both to public areas and to the actual hotel rooms. The classification of hotels is conducted through annual inspections and there is no universally accepted system for classification of the market level of hotels but the different systems are considered as a guest information service rather than a systematic and planned tool. The Swedish classification system comprises three different categories of hotel. These are:

**Hotel:** This category comprises hotels serving food over and above breakfast and they range from one to five stars.

**Hotel Superior:** Hotels who have obtained a high number of additional points within each star rating.

**Hotel Garni:** This group comprises hotels serving breakfast only. The highest rating in this category is four (4) stars (<http://shr.se/hotelsinsweden>).

### **3.2 Four and five star hotels in Stockholm**

Stockholm is concentrated with governmental and municipal administrations, as well as Sweden's financial, business and economic life. The main business sectors in Stockholm include IT & Telecom, life science, financial services, media and transport service. Stockholm is also a university city and there are approximately 20 universities and university colleges in the region, with varying educational profiles. The city has a modern transport infrastructure, allowing speedy and easy access to the rest of Europe and overseas. Arlanda Airport is situated 45 km north of the city and there is a 20 minutes high-speed train from the airport directly to the heart of the city centre. Stockholm is within reach by sea and the Port of Stockholm (Värtahamnen) is the principal port for handling freight and passengers to and from Finland, Russia and the Baltic states (Bergqvist 2006).

Furthermore, the writer stated that the proportions of international guest are important to Stockholm especially for the up-scale hotels which have a larger proportion of international guests. Some operators with a high proportion of Scandinavian guests could even see an increase in travelling, especially domestic travelling after violence and attacks in other countries as Stockholm is seen as being a 'safe' destination and people choose to travel in their own country.

The hotel market in Stockholm has had an encouraging development during the last years and this is estimated to continue in a similar way. The interest for hotel properties as an investment has increased during the last years due to low interest rates and profitability in the market (Bergqvist 2006). A combination of low interest rates and yield compression has given rise to a new interest of the hotel market as an interesting investment opportunity. There are currently plans to add approximately 2,750 new hotel rooms to the supply in Stockholm, most in the four (4) and five (5) star category. In addition approximately seventy percent (70%) of all hotels rooms in Stockholm are in the 4- and 5-star category and the forecast in the hotel industry is positive. Four (4) star hotels are the biggest categories numbering sixty (60), while five (5) star hotels are six (6). (Please refer to Appendices 1 & 2 respectively). However, according to international standards there is only one 5-star hotel in Stockholm, the Grand Hotel. The other hotels in the 5-star category would be given 4-star deluxe standard (Bergqvist 2006).

### **3.3 The Owner/Operator relationship in Sweden**

(Bergqvist 2006) wrote that there are three main types of stakeholders in the hotel market in Sweden, the owner, operator and distributor and their duties usually overlap each other. The writer further highlighted their differences as:

#### **Hotel Owners**

There are two companies who only invest in hotel properties namely the Home Properties AB (former Capona AB) and Pandox. A new company, Norgani Hotels ASA entered the market in May 2005 buying hotel portfolios from Home Properties AB as well as Pandox. Norgani is now the largest hotel property company in the Nordic countries with 64 hotels in their portfolio (Bergqvist 2006). There are also several other property companies, institutions and private owners who are owners of one or quite a lot of hotels as well as hotel operators who own the hotels they are operating.

#### **Hotel Operator**

The hotel operator is the tenant in the hotel property and this lease is different from other commercial property leases like office leases. It is common that the tenant pays a percentage of the revenue to the owner or receives different fees for operating the hotel in a management contract, when the owner and the operator is not the same company.

#### **Hotel Distributor**

The marketing tool as well as the booking system for the hotel is provided by the hotel distributing company. This distributing company can be an integrated chain or a marketing organisation. When it is an integrated chain, then the chain of operation and management of several hotels and marketing are done together, with all hotels in the chain and bookings are done in a global reservation system. Radisson SAS is an example of an integrated chain distributor.

A marketing organisation however, is a voluntary economic organisation for privately run hotels. The organisation gives remuneration of joint marketing and reservation system which is of major importance in order to be competitive in the market. There are also independent

hotels that are not part of any hotel distributing company or marketing organisation but all marketing and bookings are made by the operator (Bergqvist 2006).

## 4. The Maintenance Concept

Maintenance is “the effort in connection with different technical and administrative action to keep a physical asset, or restore it to a condition where it can perform a required function (British Standard Institute, 1993 cited in Chan et al, 2001). Lind & Muyingo (2009) also stated the meaning of maintenance as “restoring to or retain to a state in which an item can perform an initially specified function and all actions aimed towards this are maintenance activities”

Maintenance is also seen as an investment because resources are spent today to do maintenance in order to reduce cost or get higher benefits in the future as compared to if the resources are not spent. However despite this opinion maintenance is generally separated from ‘true’ investment because it is matter of restoring an old function or keeping up an old function (Lind and Muyingo 2009).

These definitions stated above according to Lind & Muyingo (2009) is related to the old historical standards, currently rational decision making on maintenance is forward looking and therefore this old definition cannot matter but is reviewed to incorporate ‘meta-strategies’. A decision maker for maintenance should think in terms of how to keep informed, how to take decision, and consideration of the fact that the future is uncertain, therefore no need for future planning. Furthermore from longer perspective the writers’ were of the view that the question is whether an object should be kept in, improved or declared unwanted.

As such from a forward looking perspective, the concept of maintenance favours minor changes and where it is possible to know in advance what is rational to do. It is also suitable for an industry characterised with more rapid changes on its specific building structure. This was confirmed by Hassanien, (2007) assertion that hotels need minor renovations because this industry is influenced by technological and societal changes.

### 4.1 Classification of Maintenance Management

In conducting a literature survey on maintenance management Garg and Deshmukh (2006) did the following categorization on maintenance management:

- Maintenance optimization models using programming and other software tools both qualitatively and quantitatively covering four areas involving description of technical

system, its function and importance; identifying possible weakening consequences for a system; the description of the available information about the system and its objective function which helps in finding the best balance

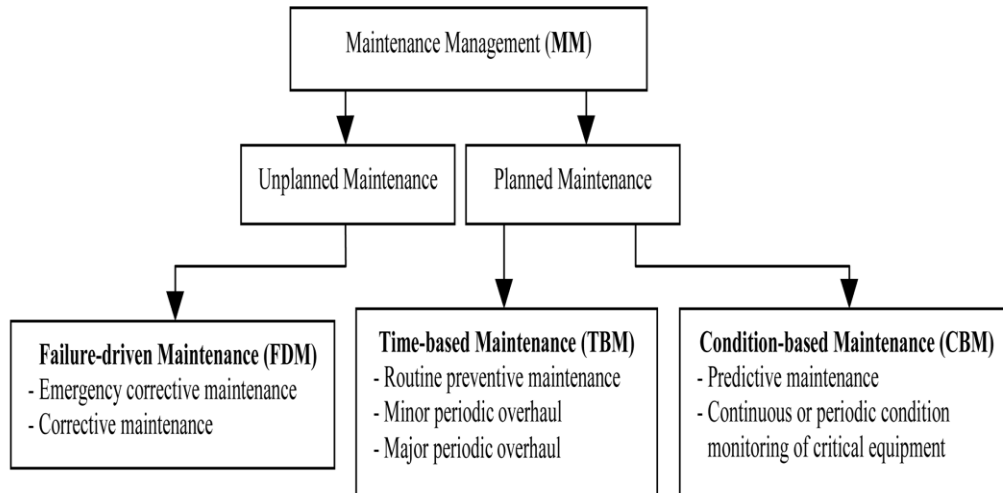
- Maintenance techniques comprising preventive, corrective, condition based, predictive and outsourcing techniques among others;
- Maintenance scheduling for maintenance personnel, repair rate assessment and wear out condition of equipment as well as scheduling for immediate and emergency job which are challenging areas in maintenance.
- Maintenance information systems which uses opportunity created by information technology and which have now become essential component of any maintenance in organizations
- Maintenance performance measurements used to assess effectiveness of equipments and other repair strategies. An effective performance measurement system is essential for effective functioning of any organization as whatever gets measured has a higher probability of its completion.
- Maintenance policies which deals with maintenance concepts and new ideas to improve management decisions. (Garg and Deshmukh, 2006)

Maintenance management has also been categorized by many writers into three maintenance procedures being corrective maintenance (unplanned) approach which is a failure-driven maintenance referring to running equipment until unexpected event breakdown of equipment or malfunctioning. Preventive maintenance (planned) which entails time-based maintenance requiring regular task of maintenance irrespective of the condition of the item and thirdly condition-based maintenance which also entails periodic inspection of equipment to check it and replace it when a faulty condition is observed before breakdown (Richard et al 2000); (Lind & Muyingo 2009).



The table below shows the various categorizations:

**Table 3: Three commonly used maintenance management approaches**

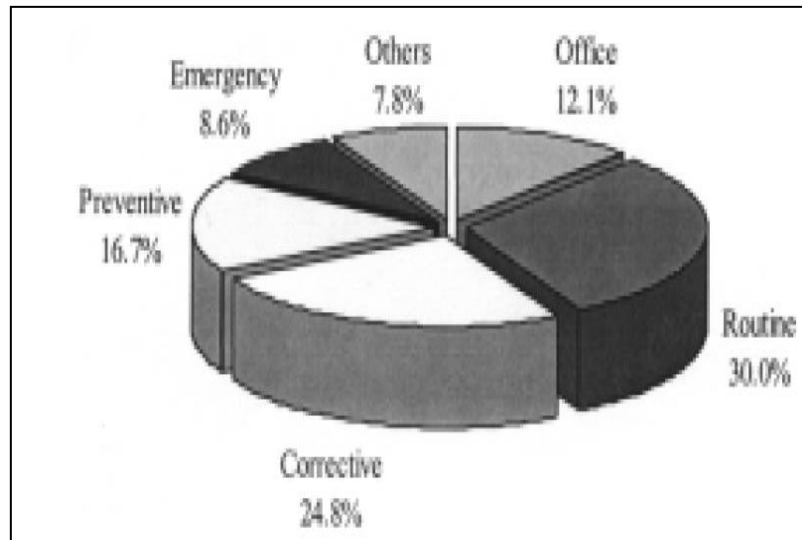


Source: Richard et al (2000)

Chan et al (2003) further classified management of maintenance activities in hotels into four main categories: routine, corrective, preventive, and emergency. Routine maintenance refers to the daily activities with repetitive nature, such as taking meter readings, lubricating, monitoring, start-up, and shut-down. Corrective maintenance works are scheduled or unscheduled activities to restore the equipment to as-built functions. Preventive maintenance includes scheduled activities of inspection, adjustment, replacement and overhaul to prevent system breakdown and extend its useful life. Emergency maintenance refers to immediate actions to avoid further equipment damage and adverse consequences, such as loss of business.

Their findings indicated that there was as much as 30 percent of the maintenance resources are spent on routine maintenance. However, the maintenance personnel often took an attitude of overlooking routine maintenance as something insignificant because they are not aware that routine maintenance and preventive maintenance, if properly carried out, would effectively reduce system breakdown. If there is no clear maintenance policy, resources spent on routine maintenance may be wasted. System operating parameters should be monitored and compared against the criteria, and follow-up actions have to be taken for non-compliance or equipment failures (Chan et al 2003).

The relative portions of the above four types of maintenance activities studied in the hotels are shown below.



**Figure 1: Percentage breakdown of Maintenance**

Source: Chan et al (2003)

Included in the figure are proportions for office works and others, which in the opinion of the writers' represent the proportion of man hours used for supervisory works, inventory control and non maintenance works which assist the actual execution of maintenance.

Preventive maintenance for power plants, require a much higher reliability. In the hotels studied one measurement of the maintenance effectiveness is the ratio of preventive maintenance to corrective maintenance actions in terms of man-hours use, called the preventive maintenance ratio (PMR). The observation is that the maintenance workforce is tied up with corrective work, which is commonly observed in hotels however in the writers' opinion for long-term improvement; management must turn their attention from corrective maintenance to preventive maintenance (Chan et al, 2003).

In addition to this observation, preventive maintenance according to Lind and Muyingo, (2011) is rational 'if the consequences of a fault are high in relation to the cost of doing something that in advance reduces the risk for a fault'. It also provides the advantage of being able to carry out actions when it is convenient to the user. The decision to carry out preventive maintenance can be based either on the age, the time between activities or on the monitored conditions of the item and depending on the specific situation. Moreover the

writers explained that despite the fact that it reduces probability of equipment failures and extends equipment life it involves a number of unnecessary tasks carried out on items that could have remained in a safe and acceptable operating condition for a much longer time.

## **4.2 Maintenance Planning**

Many property owners make 3-5 year maintenance plans, however they fail to practise this plan until about a few months. This is frustrating for property managers because they believe that maintenance plans should be followed to a larger extent and not postponed because deferment of such planned measures are irrational from an economic perspective (Lind, Muyingo, 2011).

Summarizing stylish facts about building maintenance in Sweden, Lind & Muyingo (2011) stated that a large share of maintenance was done as corrective measures, maintenance planning is also done at shorter period of time like a year and therefore there is rescheduling of maintenance actions all the time. Furthermore maintenance are opportunistic and done when tenant needs a change or corrective maintenance to be carried out. Maintenance therefore is affected by the budget situation and done when a property owner like a public authority has money left in its "investment budget", or when situations are good economically that more maintenance is carried out. This is contrary when economic situation becomes tougher because maintenance expenditure is reduced. (Hellström and Lind (2006), Muyingo 2009a, cited in Lind, Muyingo, 2011)

As such planning of building maintenance is underdeveloped and the goal is often thought to be to build up a system, resembling systems from various industrial sectors like the airline industry where more detailed plans are followed rather closely (Lind & Muyingo, 2011). The writers further stated that the attitudes (stylish facts) mentioned above are rational because of several uncertainties in the adaptation of planned maintenance.

Uncertainty about cost of specific measures compels most organizations to work within some kind of budget. In the public sector there are yearly budgets that should be kept but in private companies there are typically also a wish to show stable results and therefore an interest in smoothing costs. There are also instances when in situations of uncertainty it might be rational to wait because new information can affect the value of this option. Putting such a measure on hold when there might be policy changes in subsidies in a near future might be

rational. Economic changes according to the writers affect what is rational to do with a specific building. This requires building up a knowledge management system incorporating flexibility in planning and where continuous adjustment of the plans is a built-in part of the system. (Lind & Muyingo, (2011)

Jonsson (1997) writing on the status of Swedish manufacturing firms stated that only small amount have written maintenance strategies or computerized maintenance information systems and quite a lot of them give maintenance low status. However preventive maintenance at predetermined intervals and corrective maintenance are the most common maintenance planning techniques. Swedish firms according to the writer have not fully made maintenance a company oriented issue and centralized maintenance departments govern resources in large firms, but outsourcing has become important in small firms, despite this the writer is of the opinion that the average firm should be able to improve.

### **4.3 The similarity of the Maintenance and Renovation Concepts in hotels**

Hassasien and Baum (2001), cited in Hassanien and Loosekoot 2002), explained the word renovation as ‘the process of retaining or improving the hotel image by modifying the tangible products, due to many reasons’. This process is confirmed by Lind & Muyingo (2009) when they stated that the meaning of maintenance as “restoring it to or retain a state in which an item can perform an initially specified function and all actions. This is done through changes in the hotel layout, such changes come in the form of new extensions and /or any additions or replacement of materials and furniture, fixtures and equipment.

In addition Hassanien and Loosekoot ( 2002) mentioned that renovation incorporates replacement, restoration and redesigning. This makes it a function of facility management that deals with the physical aspects of hospitality and not ‘soft’ service element. This definition is therefore similar to maintenance because it requires inputs from many parts and levels of the organisation.

### **4.4 Maintenance Practices in hotels**

#### ***4.4.1. Strategies in hotel maintenance***

Chan et al (2001) observed that in the development of maintenance strategies and programmes, health and safety have become fundamental requirements for business success

because they depend on good maintenance practices to avoid hazards in the buildings or workplaces. A maintenance strategy sets the direction of maintenance management, whereas the maintenance programme is a comprehensive schedule of maintenance works carried out in a specified period of time. Both however involve a high level of decision making because customer perception of quality is determined by a number of factors relating to services, food, facilities and indoor environment. As regards to energy consumption, the writers' result reflected that management is willing to make every effort to improve maintenance management for energy savings. As such a sound maintenance strategy should be developed and implemented to keep the engineering systems reliable, safe, and energy efficient, satisfying customer needs and expectations. The table below summarizes the findings of the writers as the factors influencing maintenance strategy adopted.

**Table 4: Influential factors for decision making on maintenance**

Consideration Factors	Average Score	Consideration Factors	Average Score
Health and Safety	4.12	Reliability of system	3.77
Energy consumption	4.12	Criticality of system	3.65
Guest Expectation	4.12	System life cycle	3.65
Degree of influence in business activities	3.96	Annual Budget	3.58
Environmental Impact	3.85	Feedback from other departmental heads	3.42
Hotel Policy	3.85	Manufacturer recommendations	3.38
Maintenance Resources (labour, tools and materials)	3.81	Equipment history records ( failure mode, frequency and cause	3.31
Legal requirement	3.77		

Source Chan et al (2001)

In maintenance practice several factors are considered before adoption of in-house technicians, out-source contractors, or combination of both. There is no general rule for a desirable ratio of in-house to contracted-out labour force on which management decision is based but the availability of resources and a number of other factors are considered. Chan et al (2001) observed that limited skills of in-house technicians in specialized disciplines were

weighed by the chief engineers as the most significant factor driving the management to employ outsourcing labour for some maintenance and retrofitting works. Time constraints was considered as a factor since the main income of the hotels are from the rent of guest rooms and the provision of food and beverage services, including restaurants and banquet halls, therefore longer downtime of critical equipment and functional areas will lead to a serious loss of business. As a result, the management has to carefully compare the working time needed by the outsourcing contractors with the in-house staffs. The table below summarizes the considered weights as observed by the writers.

**Table 5: Influential factors for considering in house and outsourced maintenance**

Consideration Factors	Average Score	Consideration Factors	Average Score
Skills of in house technicians	4.23	Degree of system complexity	3.92
Time constraint	4.19	Financial constraint	3.88
Statutory requirements	4.15	Technical support from manufacturers	3.85
Availability of in house labour force	3.96	Use of proprietary units and parts	3.73
Use specialised tools and requirements	3.96	Historical information	3.35

Source Chan et al (2001)

In general, specialized contractors are better equipped and have flexible manpower that will ensure that tasks are completed on time. Statutory requirements were also weighted high because it is stipulated in local regulations that some activities, such as maintenance of fire protection systems, lifts and escalators, must be carried out by authorized contractors.

In hotel industry the hotel operator is often criticised for trying to wear “too many hats” and problems with poor performing hotel restaurants are often attributed to differing core competencies required in hotels and restaurants (Rowe (1993) cited in Lamminmki 2008). Outsourcing therefore represents a way to manage this diversity problem. Furthermore a second factor as stated by Lamminmki (2008) motivating the hotel sector is labour intensity which creates tension between having the incentive to outsource in order to reduce labour management however it demands monitoring subcontracted activity outcomes.

Guiding (2002) also wrote that the hotel industry experiences significant sales volatility and cited four hotel sales volatility dimensions being economic cycle-induced volatility, seasonal sales volatility, weekly sales volatility and intra-day sales volatility.

Several factors make outsourcing particularly relevant to hotels because there is a high need for hotel managers to avoid being distracted from attending to core activities (Lamminmaki 2008). Outsourcing strategy according to Donado and Nogatchewsky (2009) is the reassigning of control of an activity to a supplier and it is very different from contracting requiring challenging decision in at least three aspects. The decision to outsource is taken at a strategic level and secondly, it involves the restructuring of the organization around its core competencies. Donado and Nogatchewsky (2009) furthermore stated that outsourcing is often done for both tactical and strategic reasons. Tactical outsourcing is mainly based on a cost-cutting manoeuvre, with little consideration about risks linked to the decision. Strategic outsourcing deals with firm margins and value successive structures highlighting four specific issues which make outsourcing worth considering, these are financial issues to lower fixed costs, gain tighter control of budget through predictable costs, operational issues to get work done more efficiently or effectively by specialists outsourcing to improve quality, flexibility, and deliveries, thirdly resources and competence issues which gives the ability to focus on core assets by getting rid of minor ones. This gives access to innovation, knowledge and creates the conditions for relational capability building machinery and finally organisational issues which is outsourcing that responds to internal power issues and facilitates the diffusion of new practices and forces to expand internationally. (Donado and Nogatchewsky (2009)

Lamminmaki (2005) furthermore stressed that due to transaction cost economics (TCE) the greater the asset specificity, the more likely a transaction will be internally managed (not outsourced). Espino-Rodríguez and Padrón-Robaina (2005) also mentioned that the hotel industry is characterised by much outsourcing, however there is too much focus on economic activity and some aspects of organisational behaviour which are crucial for decision making are ignored. In their opinion if a resource has strategic value to a hotel activity and has some potential that makes it rare, valuable, imperfect, imitable and non-sustainable then it should not be outsourced because that resource must not be directly transferable in the market; this will make it easier for the firm to make profit, as it gains competitive advantage over other resources. Moreover the writers stated that the fewer the resources and capabilities employed

by the hotel, the likelihood of having them obtained from outside the hotel. If a hotel possess advantage when it comes to in-house performance it is unlikely to outsource.

Finally, the writers mentioned that when a service can be provided more efficiently by third parties, it should be outsourced and activities that that do not contribute to development of core competences and of little strategic value should be outsourced. (Espino-Rodríguez and Padrón-Robaina, 2005)

#### ***4.4.2 Significance of Maintenance in hotels***

Many hospitality writers have explained many different reasons, which make renovation essential for hotel operations. These reasons (Hassanien & Looseket, 2002; Chipkin, 1997 cited in Hasssanien, 2003; Hasssanien (2003) include:

- (a) to carry on with the competition,
- (b) to keep or increase market share by pleasing the current or impending customers;
- (c) to develop the operational competence of the hotel that will lead to an increase in both productivity and long term savings in operational expenses;
- (d) to retain corporate image and standards;
- (e) to promote the hotel to a higher class (e.g. from 4 star to 5 star);
- (f) to conform with the new trends and technology in the market (e.g. the green movement);
- (g) to handle governmental requirements like Disability Act, health and safety regulations in different countries);
- (h) to make progress from natural disasters such as hurricanes and earthquakes.

Furthermore Henley et al (2004) highlighted that maintenance is significant in hotels because room quality reflected the price paid for it. The writers' were of the view that when room rates are raised it should be based on quality because guest must be able to perceive the quality increase. In providing quality evaluation, hotels have been awarded "stars", more stars means higher quality hotels. On yearly basis the writers observed that "star" rating increase or decreases in hotels. Managers losing star should then know that the hotel is beginning to lose ground when it comes to maintenance of amenities required to retain their

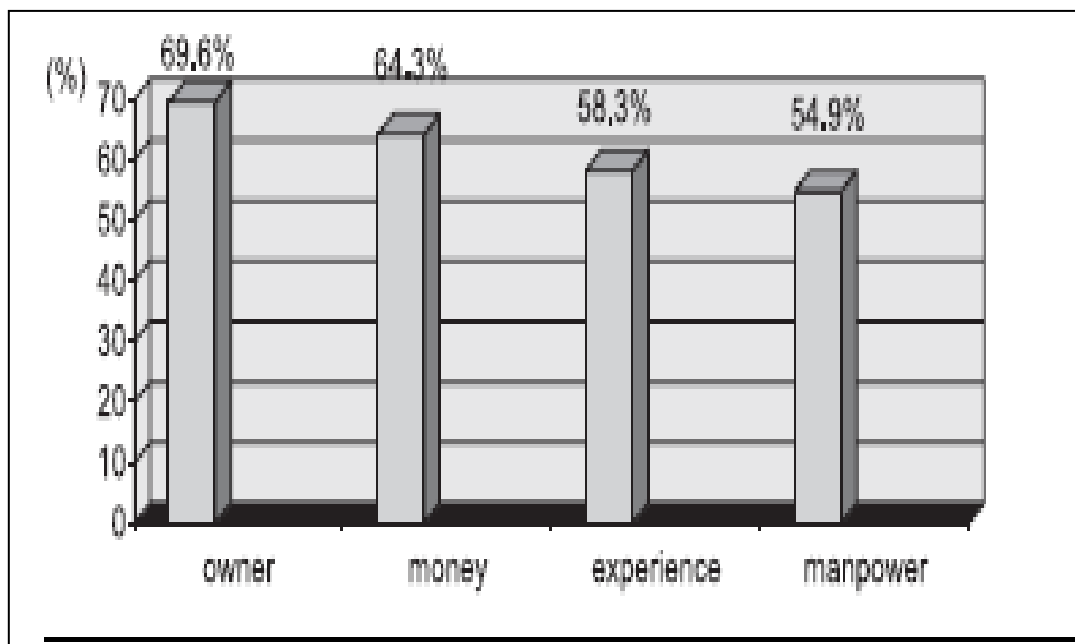


current “star” status. Potential customers also have the means to picking up this signals and messages indicating lower quality.

As such hotel managers should not fear increases in capital allocation when it comes to upgrading of the amenities of their hotels because the increased investment will bring increase revenue. The writers stated that there is much competition in this industry, so hotel management planning should be focused towards upgrading “star” rating through maintenance of hotels facilities. (Henley et al 2004)

#### **4.4.3 Obstacle to Maintenance in hotels**

Hassanien & Looseket (2002) in conducting a survey in the hotel market in Egypt observed that almost 70% of respondents stated that owners are the main barriers to renovation in both limited and full service hotels. This is followed by lack of money, lack of appropriate in house experience and lack of suitable manpower to renovate respectively. This is graphically shown in Figure 2 below:



**Figure 2: Obstacles to renovation in Egypt hotel industry**

Source: Hassanien & Looseket (2002)

Their findings further revealed that hoteliers give more attention to intangible part of the hotel product (services like offering food and beverages) because creating value in intangible products was significantly higher than in tangible products. This confirms Guilding (2003)

assertions that hotel owners pay more attention to profitability than brand image. The writers' therefore concluded that there is a need for 'greater articulation of goals and objectives' when it comes to renovation.

## 5. Results and Analysis

### 5.1 Introduction

The survey was conducted in the months of February and March 2011. The results of the two data collection phases are discussed below. 4 interviews were successfully done. 42 questionnaires were sent out to hotel operators and 22 to maintenance managers. 15 persons responded for operators and 16 responded for maintenance managers representing approximately 36% and 73% respectively. The sample size and response rate of questionnaires are depicted below:

**Table 6: The respondents of the questionnaire survey**

	Hotel Operators	Maintenance Managers
Total Sent	42	22
Respondents	15	16
Opted Out	4	3
Not Completed	22	3
% of Respondents	36%	73%

### 5.2 Presentation of Interview Answers

The results of the interviews are subdivided into maintenance contracts, acquisition of fixtures and fittings, outsourcing, in house maintenance and difficulties of hotel operators in implementation of maintenance plan. These gave the researcher a firsthand idea of work related issues and the difficulties maintenance managers are facing. This knowledge highlighted was used to formulate questionnaires for hotel operators and maintenance managers.

### ***5.2.1 Maintenance contracts***

Maintenance contracts are signed when hotel operators outsource completely to private hotel property management companies. Contracts with private companies are three years plus one (3+1) or 3 years plus two (3+2) the plus one and two refers to renewal clauses respectively. These specialized maintenance companies usually bring in their staff to form in-house maintenance department. Most 5 -star and 4 -star hotels use this maintenance arrangement.

The other alternative is that hotel operators run their own maintenance departments usually common in small hotels. An agreement between the property owner and hotel operator specifies each ones responsibility regarding maintenance. The contract is for the duration of rent paid for the hotel, 3 years at a time, however the more hotel rooms rented the higher the revenue of the owner. Both parties have a joint interest when it comes to selling hotel rooms to acquiring revenue. The hotel operator pays for cost of maintenance for all interior fixtures and fittings in hotel rooms and restaurant, whilst the owner pays for maintenance of the building, elevators etc. The hotel operator pays for all cost of maintenance when he is also the owner.

### ***5.2.2 Acquisition of fixtures and fittings***

All acquisition for items are done by hotel operators based on their available funds and the design, taste and guest impression is usually considered before consideration is given to long run maintenance strategies. Some equipment requires changing of batteries so often and therefore expensive to maintain likewise some fixtures and fittings get damaged very frequently because clients are violent and do not handle hotel items with much care as will be done in their homes. The rate of complains for repairs of damaged electronic equipments are therefore very high.

Changes in technology have led to the use of new fixtures that promote health, energy conservation however replacing them for a hotel with over 500 rooms is cost intensive and this makes operators still maintain some old designs. Secondly clients come from all over the world and have different taste and desire when it comes to services provided by new equipments. Hotel operators therefore consider various factors before fixing new equipments. Energy conservation is the priority of hotel operators however the decision as to which modern and new equipment to buy for preservation are made by owners.

For a hotel with over 500 rooms at least each room is visited once in a week to check faults for all fixtures and fittings in hotel rooms. Hotels with fewer rooms are visited more often. Air conditioners are serviced twice in a year and there is usually a contract to do servicing of these and as soon as time is due. Actual daily maintenance is done as quickly as possible depending on how important it is for the hotel and the cost. Annually there are reviews of maintenance needs, new inventory prepared and items are purchased. This process is done as part of the budget process for the coming year. Each department identifies its need to keep the hotel in a good condition and running. Some new equipment installed are modern fire alarm in hotel rooms, LED-lights all over some hotels in order to save energy, new showers introduced to reduce the amount of water being wasted. However everything done is aimed at meeting or exceeding guest expectations.

### ***5.2.3 Repair and Maintenance***

Preventive maintenance is more often used and convenient because it is not appropriate for guests to check in and complain before repairs are done, there is the need to maintain guest confidence. It is easier to have a plan for your manpower and financial resources when you work using preventive maintenance because it assists you to have a better cost control.

It is a problem interpreting the border between the responsibility of the property owner and the operator when it comes to maintenance cost because there are often different opinions on whose part it is to take the cost. The priorities of owners and operators are also different, as an example, if we need to buy a spare part for a hotel room due to a problem with air condition or something, hotel operators think that it is absolutely necessary to fix the problem the same day, whereas the owner often has another view of priority. The second difficulty is money, when problem arises, it is here and now and you have to hurry to repair and make the room available however if money is not available to purchase spare parts then in the long run it creates a lot of maintenance issues. There are always discussion on maintenance planning and cost of maintenance. In words of an interviewee 'you do not do magic if the hotel does not have money'.

Security men help with maintenance delivery at night to change locks and batteries when maintenance staffs have closed. The result revealed that in most 4-star and 5-star hotels a house keeping department is run alongside a maintenance department. The housekeeping department do the general cleaning up of rooms, changing batteries, fixing of bulbs whilst the

latter has the technicians like carpenters and plumbers. Most 4 -star and 5- star hotels have adopted this practice and only maintain a housekeeping department and outsource the maintenance department.

#### ***5.2.4 Outsourcing and In-house contractors***

Outsourced contractors are used for painting, electrical, carpet cleaning, maintenance of elevators, annual oiling of wooden floors among others which require special competence in the field of maintenance delivery therefore they are hired when need arises. These services are also not needed every day and will be expensive to have stand-by technicians not doing anything. In house technicians are usually available from 07.00am to 19.00pm and on weekends therefore supervision of technicians is better handled when maintenance service is outsourced. A combination of in- house and outsourced contractors are used by most hotels now.

#### ***5.2.5 Difficulties of hotel operators in the implementation of maintenance plans***

- Acquisition of technicians

In the hospitality industry overcoming difficulties of recruiting right technicians to work with is a challenging situation because hotels have policies on appearance so you cannot just employ anybody. Technicians' appearance with tattoos on body, long hair among others are not appealing to guest and not attractive because these technicians play dual role of repairs and meeting guests in their rooms and therefore need to appear neat and well kept. This difficulty in recruiting technicians for the hotel industry becomes even worst because craftsmen do not like this industry like other commercial properties like offices. Working in hotels requires more responsibility and much availability like from 7.00am – 19.00pm every day and even on weekends when offices are closed. Only few women technicians are also available although the hospitality industry will be much interested in such people as work crews.

- Availability of spare parts

There is difficulty in securing spare parts on time for delivery of work. Contracts to purchase spare parts only should be encouraged and handled separately by hotels. When costs of parts

are not included in maintenance contracts then cost will be on only labour charges for external providers.

- Execution of Maintenance Plan

Maintenance plans for hotels have duration of 10 years, requiring that for every 7<sup>th</sup> year you have to do redecoration but this is usually not done. There are some hotels that have not been closed down for even one day since they were built in the 17<sup>th</sup> century. Planning and implementation at most are done whilst hotel is still running and this does not promote efficiency because execution of work is accompanied by noise and during the day guest are around relaxing, whilst in the night they are sleeping. Execution of maintenance plan is also difficult because poor budgeting for cost of maintenance by hotels. Budgeting for redecoration and refurbishing in hotels is a challenge to operators, these figures should be known and planned for because budgeting for future works and meeting your set target is a difficulty in the industry. In the words of an interviewee ‘you cannot run a hotel like a restaurant where one waiter can be used for ten (10) people because elevators have to run, lights have to work among others’

All interviewees agreed that among several other factors meeting or exceeding guest expectation on maintenance is very important. The importance of close cooperation between the property owner and the hotel operator was highlighted. Furthermore the interviewees stated that it is a win-win situation considering the fact that the more the hotel sells, the higher the rent to the property owner.

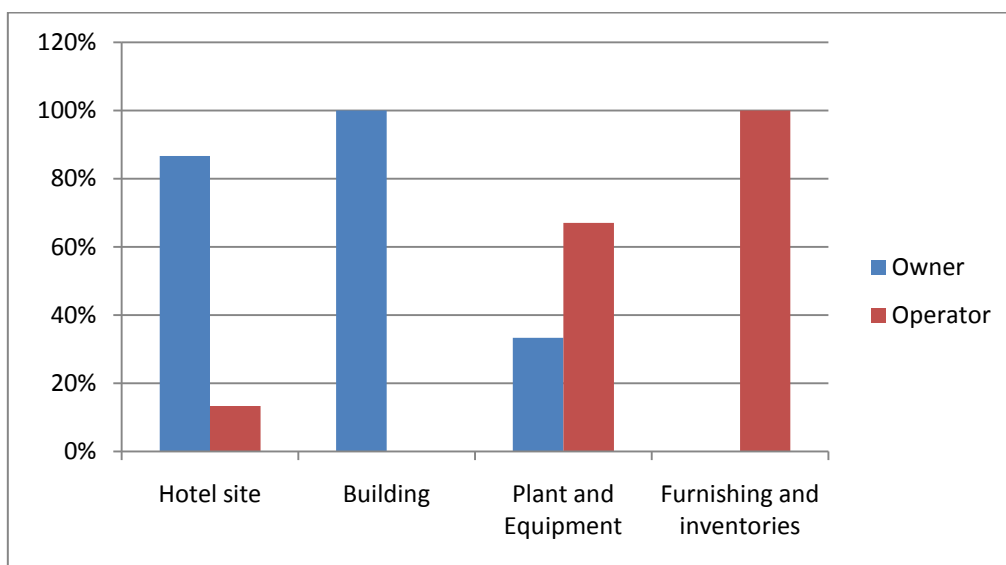
### **5.3 Presentation of Questionnaire results**

Various sub headings were adopted for the analysis of answers to questionnaires; these are owner and operator contractual responsibility in maintenance, financing maintenance, managing operational function, ensuring quality control and maintenance strategies in hotel operation among others. Most of the results have been interpreted using rating scale of 1-5 from ‘not considered’ to ‘extensively considered’ and ‘not important’ to ‘very important’ as well as ‘strongly disagree’ to ‘strongly agree’. This helped the survey to know the various degrees of opinion, attitude and views of respondents on maintenance concepts and management. Tools of statistical analysis were used to describe, summarise and compare data, it is intended that these tools will reveal facts on data collected

### 5.3.1 Owner/Operator Contractual responsibility

In the hotel industry, hotel owners and operators have contractual responsibility when it comes to maintenance, therefore provisions are made by both parties to plan, implement and finance maintenance. This survey sought to identify these responsibilities to foster efficient delivery of maintenance services.

The survey showed that maintenance on all physical buildings are the sole responsibility of owners whilst furnishing and inventories are maintained by operators. Respondents further added that there is joint responsibility when it comes to keeping hotel environments, plant and equipment in good repair.



**Figure 3: Contractual responsibility of owners and operators in maintaining assets**

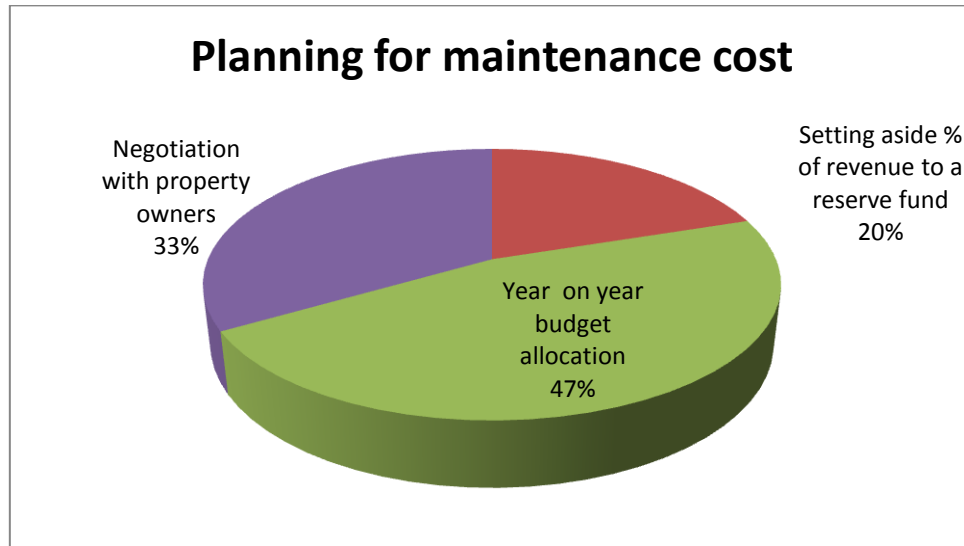
The interpretation of the results above in figure 3 is that for hotel site, owner responsibility was represented by 87 percent response and operator responsibility 13 percent. Plant and equipment is 33 percent to 67 percent for owners and operators respectively. Since plant and equipment maintenance is done more often, the operator has a higher responsibility in maintaining the hotel to the satisfaction on customers. Another interpretation is that since the hotel building is constructed and finished with variety of plants and equipments by the owner, the responsibility lies on the owner who purchased these, to see to it that these equipments are regularly maintained to achieve their life span before breakdown.

### 5.3.2 Financing maintenance

Respondents were asked to identify what provision they make for financing repair, maintenance and renewal programmes. The majority of 93 percent (an average of 47 percent)



use yearly budget allocation to finance maintenance whilst 40 percent (average of 20 percent) of respondents answered by setting aside a percentage of revenue to a reserve fund as shown in figure 4 below. 67 percent of respondents negotiate with property owners.



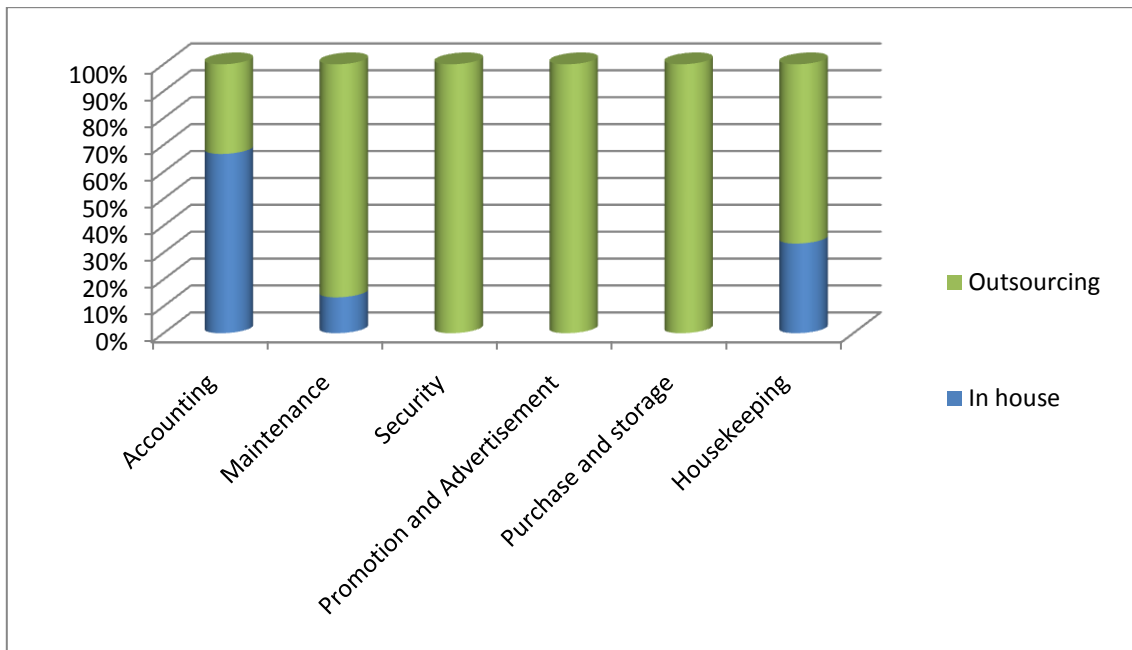
**Figure 4: Provision made to plan, implement and finance hotel maintenance**

This is an indication that most hotels make projections of their future income and expenses to estimate if they can continue to operate with these projections. Budget projections list out sources of incomes, lists out fixed expenses, utilities and other possible and variables expenses. If hotels want to use this then there will always be problems with financing maintenance because of the likelihood of budgeted funds being channelled to other priorities (Guilding 2001), which means that hotel operators need to negotiate more with owners to disburse funds for maintenance. This is contrary to Bergvist (2006) study on the hotel market where a common procedure for making sure there is funds for extensive maintenance and renewal programmes therefore 4 percent of the hotel’s total revenue is set aside to a replacement reserve, amount vary depending on the type of hotel, characteristics and location. Respondents rated this lowest which concludes that part of revenue is not set aside due high operating cost.

### ***5.3.3 Management of hotel operational functions***

Given the importance of outsourcing to this industry the survey asked respondents to indicate how operational functions are implemented. The results revealed that security is completely outsourced to external providers. Accounting services are mostly done in house instead of outsourced although some few hotels outsource. Hotel maintenance is also largely outsourced as compared to accounting and housekeeping. Regarding promotion/ advertisement and

purchase/storage the study revealed that hotels in Stockholm do not operate such departments in house but when need arises they are all outsourced.

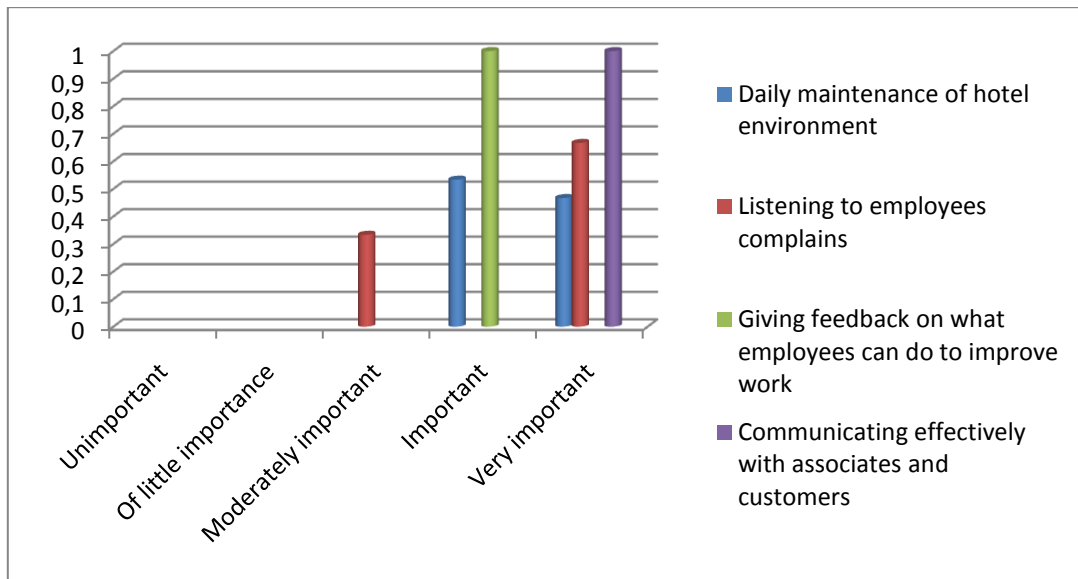


**Figure 5: Operational functions best handled in house and best outsourced**

A clear majority of hotel operators representing 87 percent outsource maintenance and 66 percent outsource housekeeping duties with only 33 percent of accounting duties outsourced. This confirms Chan et al (2001) assertion that are no desirable ratio of in-house to contracted-out labour force on which management makes a decision but the availability of resources and a number of other factors are considered including time constraint in work delivery. The results of figure 5 implies that outsourcing is an important management strategy in support of the core duty of providing accommodation, food and beverage in the hotel industry

Having identified that functional operations of hotels, the survey further decided to find out how operators relate to employees, customers and other associates in their daily maintenance duties. The survey revealed that 53 percent of operators recognise daily maintenance of environment as important and 47 percent of respondents rated it as very important. Giving feedback on what employees can do to improve work output was rank by 100 percent of respondents as important. Likewise 100 percent hotel operators are of the opinion that effective communication with associates and customers in order to know their problems and finding solution was very important. The interpretation of this result implies that the

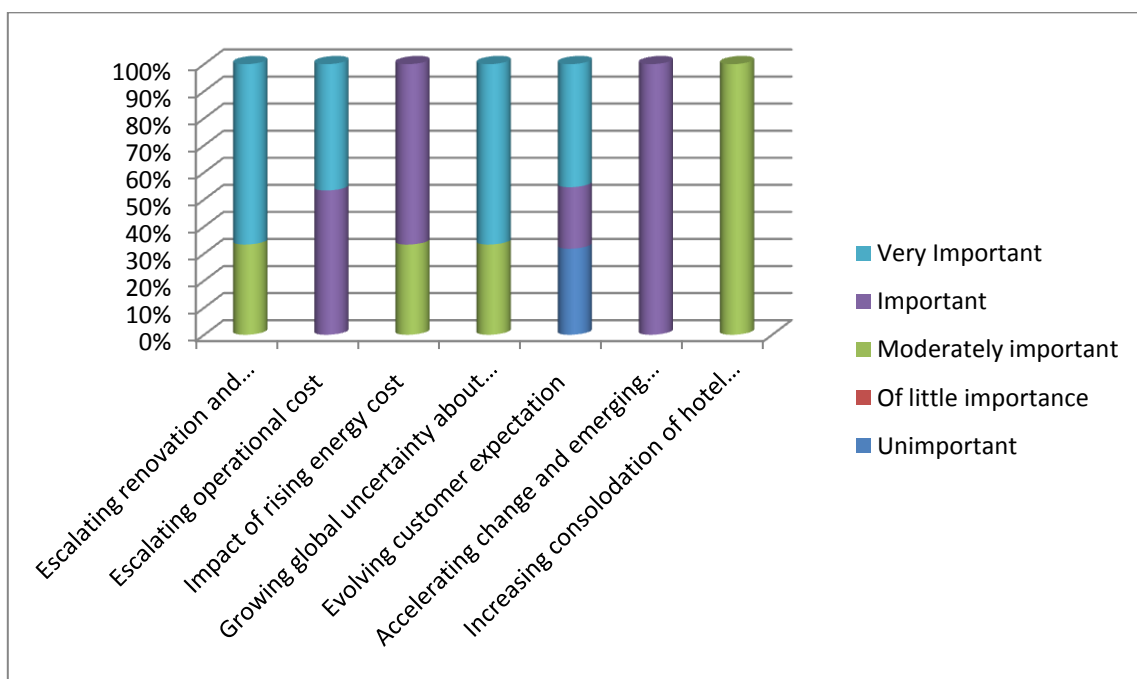
contribution of stakeholders is of importance in this industry especially in 4 star and 5 star hotels where customers are mainly corporate guests.



**Figure 6: Important considerations of operators in daily maintenance schedules**

### 5.3.4 Rating global issues that relate to hotel maintenance management

This survey investigated what hotel operators thought were worldwide issues to be given attention in hotel management. Respondents were asked to rate the importance of some internationally related maintenance issues.



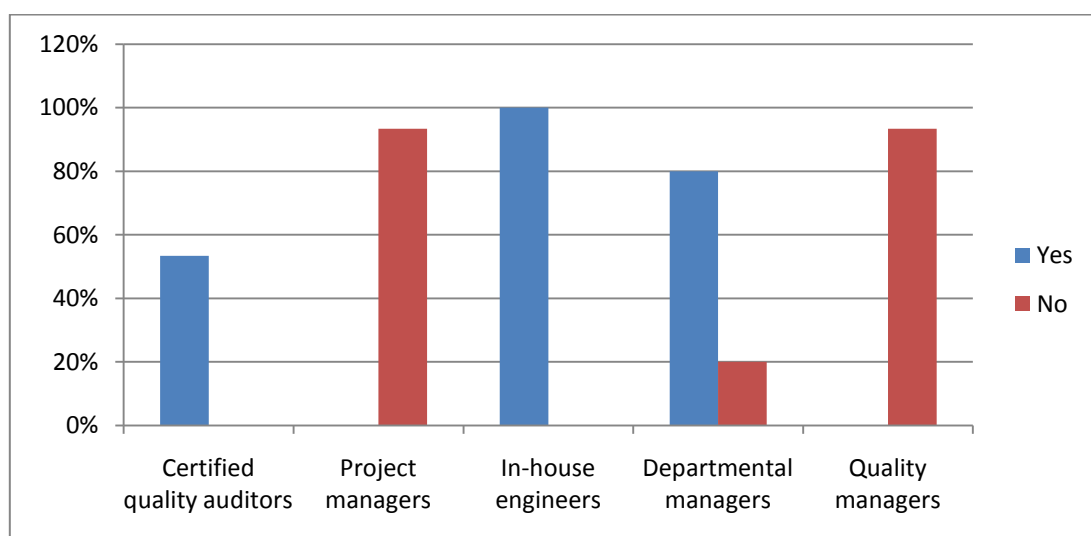
Bar 1: Escalating renovation and constructional cost, 2: escalating operational cost, 3: Impact of rising energy cost, 4: Growing global uncertainty about safety and security, 5: evolving customer expectation, 6: accelerating change and emerging technology, 7: increasing consolidation of hotel companies

**Figure 7: Rating global trends concerning maintenance**

Information highlighted in figure 7 revealed that 67 percent of respondents see escalating renovation cost as a very important global factor affecting maintenance. Escalating operational cost, impact of rising energy cost and evolving customer expectation were all ‘important’ to operators being ranked 53, 67 and 33 percent respectively. Global uncertainty about security is also a very important issue for hotels in general representing 67 percent of response, since it can affect hotel business plans. However the consolidation of hotels in recent time is of moderate importance to hotel management as revealed by the results by almost 100 percent response. It is worth mentioning that none of the respondents rated any factor listed ‘of little importance’, which implies that hotel operators have a variety of important and challenging global issues to deal with in hotel maintenance management.

### ***5.3.5 Ensuring quality control in hotel maintenance***

Regarding the approach used to ensure quality control by maintenance managers it was found that a large number (100 percent) of them use in house engineers, 53 percent used certified quality auditors and 80 percent use departmental managers. Project managers and quality managers are not used for quality control delivery.



**Figure 8: Quality control delivery**

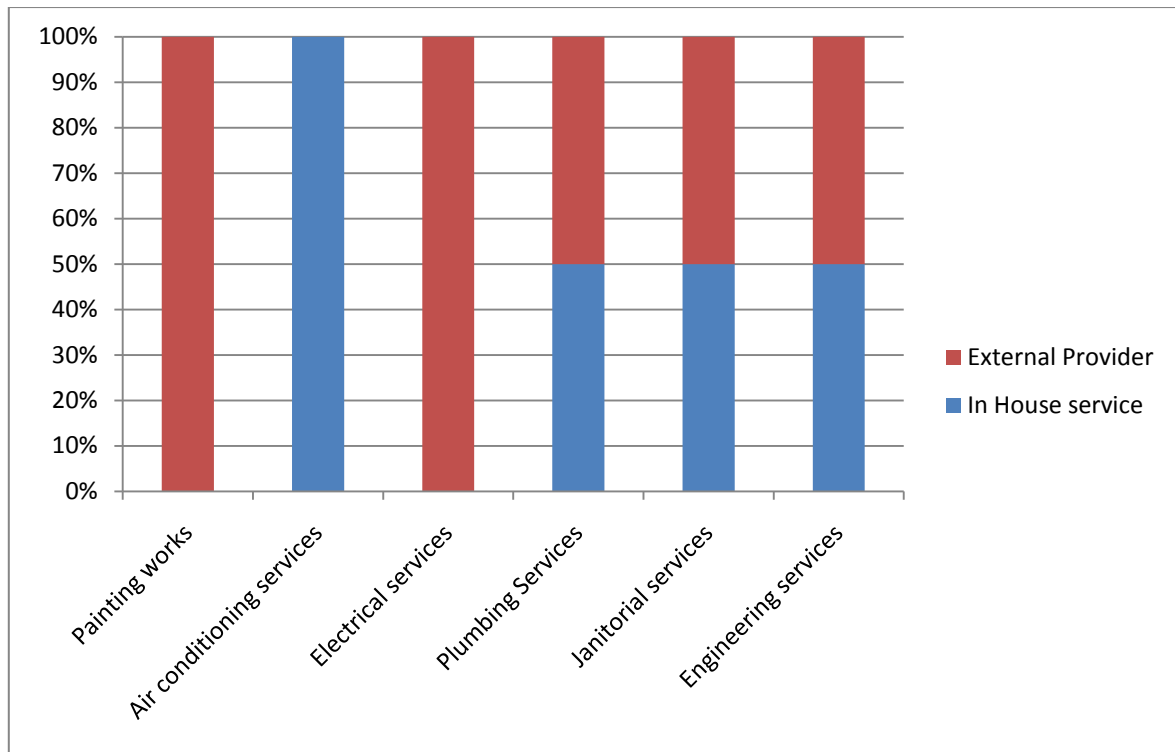
The interpretation of this result implies that an engineering department is essential to hotel maintenance for monitoring of equipments through regular inspection, detecting and correction of fault to retain the quality of services delivered to customers. Departmental managers and auditors are used in quality control delivery to supervise staff and monitor disbursement of goods and services.

Respondents had divided opinion on the performance of customer satisfaction survey because some use paper questionnaires and some send email to customers later. Usually customers are contacted after four days of checking out; however it was observed that most hotels do not give incentive to customers for giving feedback. Training of staff is done yearly basis and when new staffs are employed. Personnel who have accomplished their work well have opportunity for training and developing themselves. Monetary benefits are not usually given out as bonuses.

As a check on hotel policy there was question to find out if the hotels have 'work rules' designed to maintain orderly conduct among employees, to eliminate circumstances that interfere with efficiency, to encourage cooperation, to protect the rights of customers and staff. 50 percent of hotels have work rules and 50 percent of respondents do not have work related rules that guide the rights of customers and staff.

### ***5.3.6 Handling maintenance jobs***

Responses in this section of the survey are from maintenance managers and engineers, the results therefore revealed decision making tools they use in handling jobs in house or outsourcing, manpower recruitment, equipment acquisition, quality control and maintenance plan execution.



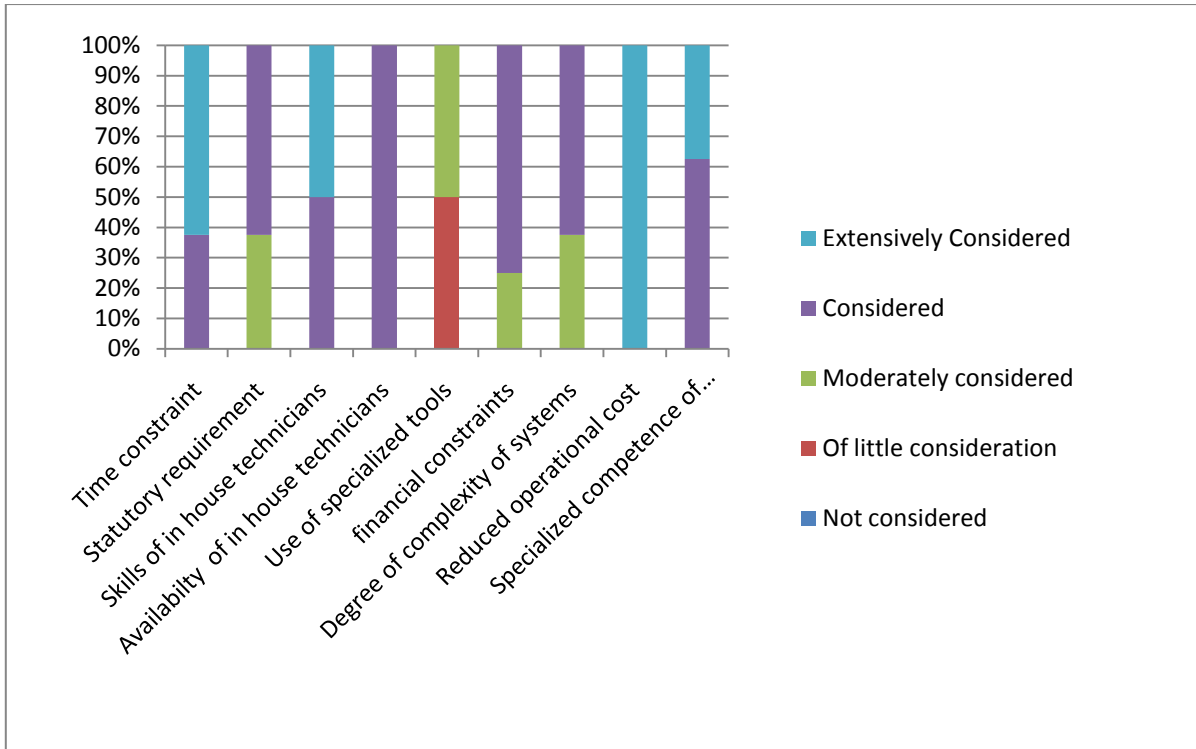
**Figure 9: Job criteria and decision tool**

Respondents were asked to identify which of the following maintenance services they perform themselves and which they outsource. The results as indicated in figure 9 clearly identify painting and electrical services as works given out totally to external providers represented by 100 percent of respondents choosing them as external services.

The results can be further interpreted as showing the importance of air conditioning services to the hotel industry therefore it handled by in house engineers and technicians. However 50 percent of respondents also keep engineering services in house and 50 percent are given out to external providers.

### ***5.3.7 Making outsourcing a main maintenance tool***

Given the importance of outsourcing to hotel maintenance delivery the survey asked respondents to indicate factors that are extensively considered during decision making. The results rated are shown in figure 10 below.



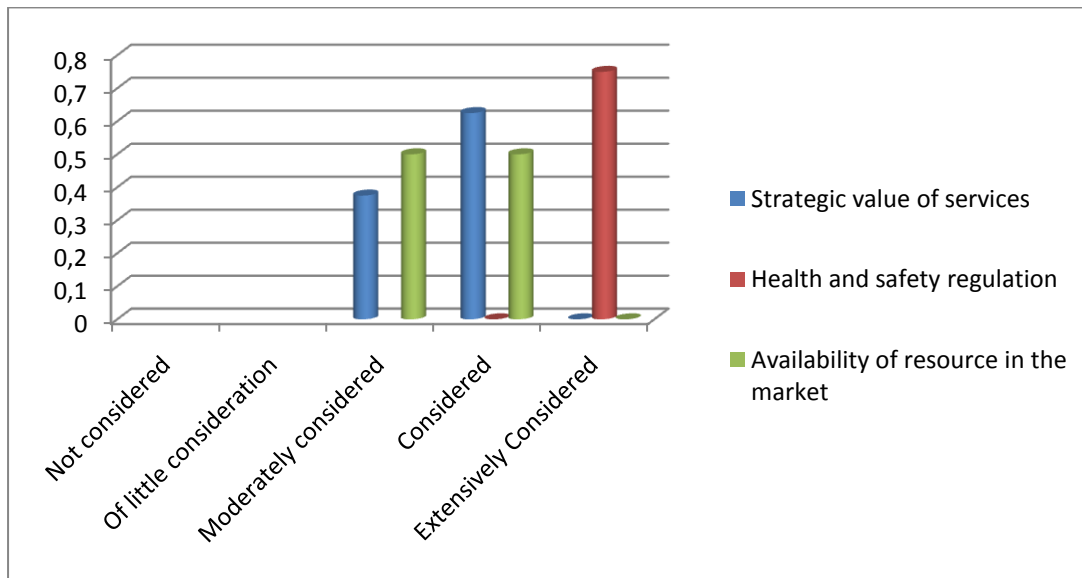
**Figure 10: Factors guiding decision to outsource**

The questionnaire listed time constraint, statutory requirements, skills of in house technicians, availability of in house technicians, use of specialized tools, financial constraints, degree of complexity of systems, reduced operational cost and specialized competence of maintenance firms. The result revealed that reduced operational cost is extensively considered (100 percent of respondents) before outsourcing. The next extensively considered factor is time constraint, revealed by 63 percent of response. 50 percent of respondent think the use of specialized tools to perform a job is ‘of little importance’ when managers are deciding to outsource. All other factors are however considered or moderately considered, no factor is indicated as ‘not considered’

The survey asked respondents the length of contracts with outsiders and to list out reasons why they will want to renew contracts with them. The results revealed the duration of contracts with external providers range between 2-4 years and maintenance managers will want to renew these contracts if providers are efficient and prompt in the delivery of their work and for continuity of service.

### 5.3.8 Making in house service a main maintenance tool

Despite the significance of outsourcing, in house provision of some services is equally important, the survey therefore sought to identify the factors that influence decision to stay in house.



**Figure 11: Factors that guide decision to do in house maintenance**

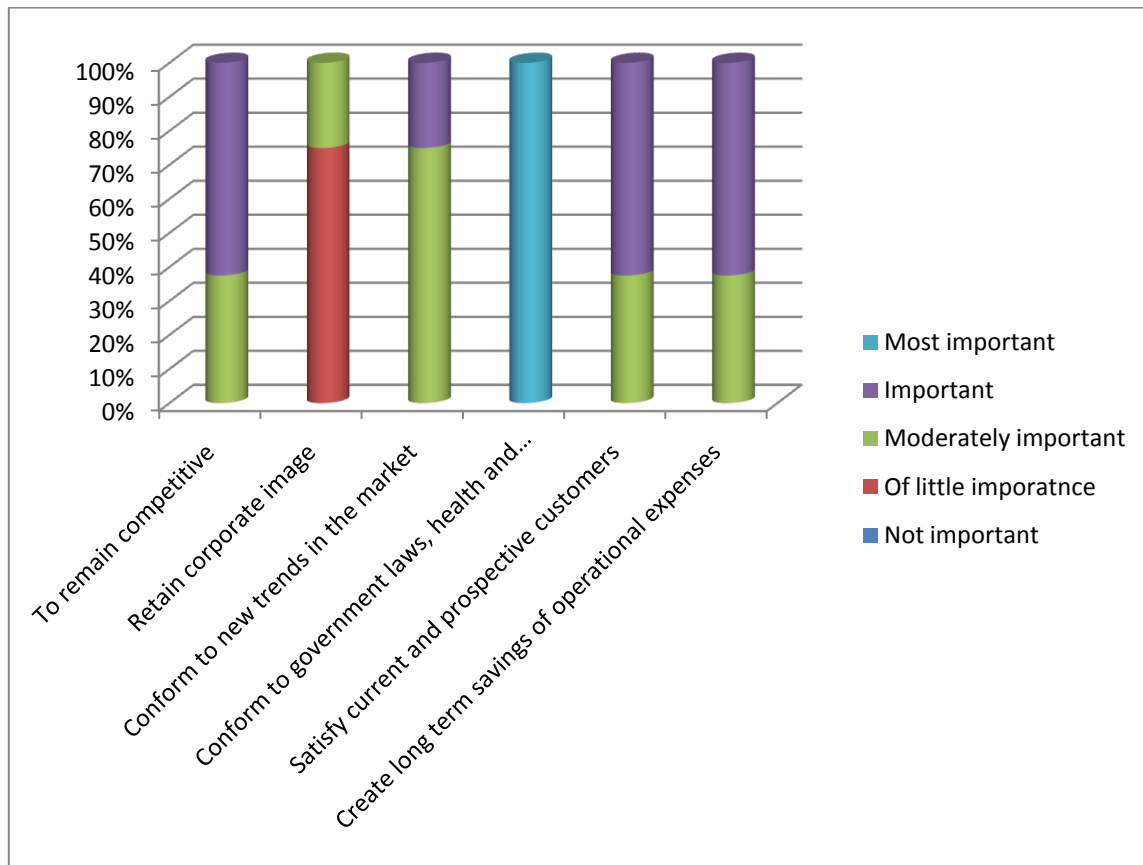
The results revealed that a factor that guide decision to do in house maintenance and therefore ‘extensively considered’ is keeping to health and safety regulation. This was revealed by 75 percent of response. This confirms Chan et al (2001) findings that good maintenance practices that avoid hazard in buildings and workplace are necessary for business success. The availability of resource in the market had approximately 50 percent response for both considered and moderately considered in taking decision to keep a service in house. Strategic value of service is considered as represented by 63 percent of respondents. This confirms Espino-Rodríguez and Padrón-Robaina (2005) assertion that in the hotel industry if a resource has strategic value to a hotel activity and has some potential that makes it valuable and rare then it should not be outsourced because that resource must not be directly transferable in the market. None of the factors were rated as of little consideration or not considered at all, implying that all the factors listed in the questionnaire are necessary consideration.



### 5.3.9 Maintenance plan execution

#### The need for maintenance

The survey asked respondents to give reasons why they carry out maintenance. Several reasons for maintenance were given by respondents and they are highlighted in the figure 12.



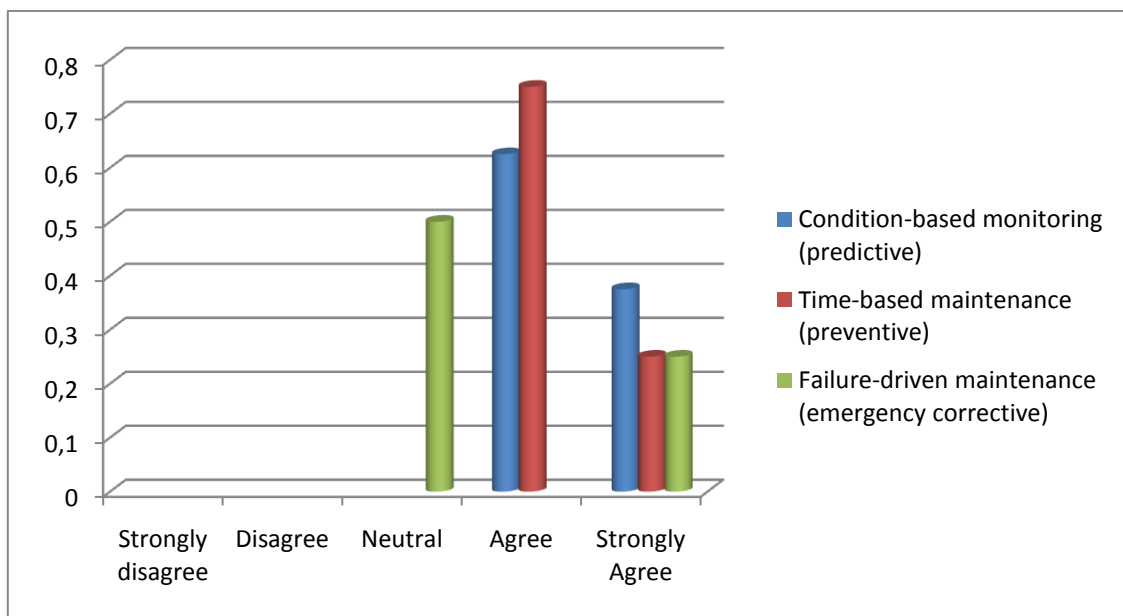
**Figure 12: Importance of maintenance**

The majority of respondents (100 percent) confirmed that conforming to government regulation for health and safety is the ‘most important’ reason why maintenance is done. All other factors like satisfying current and prospective customers, creating long term savings of operational cost are all important or moderately important except that 75 percent of maintenance managers think that retaining corporate image is of little consideration when considering the need for maintenance.

In maintenance delivery 40 percent of respondents revealed that the management of complain calls were below average whilst the rest opted for average. All respondents confirmed that accurately completed work orders very often help in the planning and scheduling of maintenance work as well as regular recording of labour and parts accurately. These allow cost projections for budget and spending justification. However there is inadequate

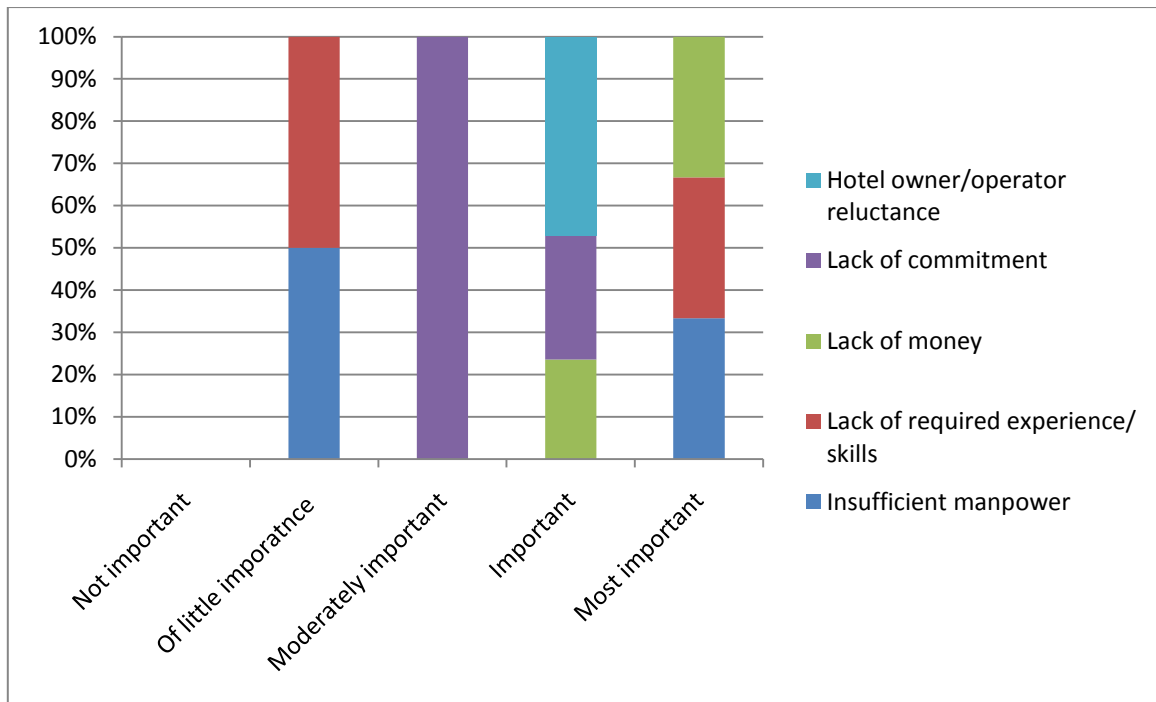
documentation of part lists, manuals and drawings, which can be used in maintenance planning. Phone calls are often used to check if work crews are at their duty post and there are no use of walkie- talkie and record sheets.

The survey further asked respondents to identify which maintenance technique their hotels have adopted to save cost. In response to this the results as shown in figure 13 below implies that respondents agree that time-based maintenance and condition- based maintenance are used to save cost, response rates being 75 percent and 63 percent respectively. Almost 50 percent of respondents were indecisive as to if they use failure- driven maintenance to save cost. However they all strongly agree that preventive, emergency corrective and predictive maintenance are used to save money.



**Figure 13: The common maintenance technique adopted to save cost**

Respondents were asked if they have difficulties in implementing plans for maintenance. All respondents confirmed that they have problems in the execution of maintenance plans. A follow up question asked for rating impediments to plan execution, respondents revealed that lack of money, insufficient manpower and lack of required experience and skills are the most important to maintenance plan execution. This is shown in figure 14 below

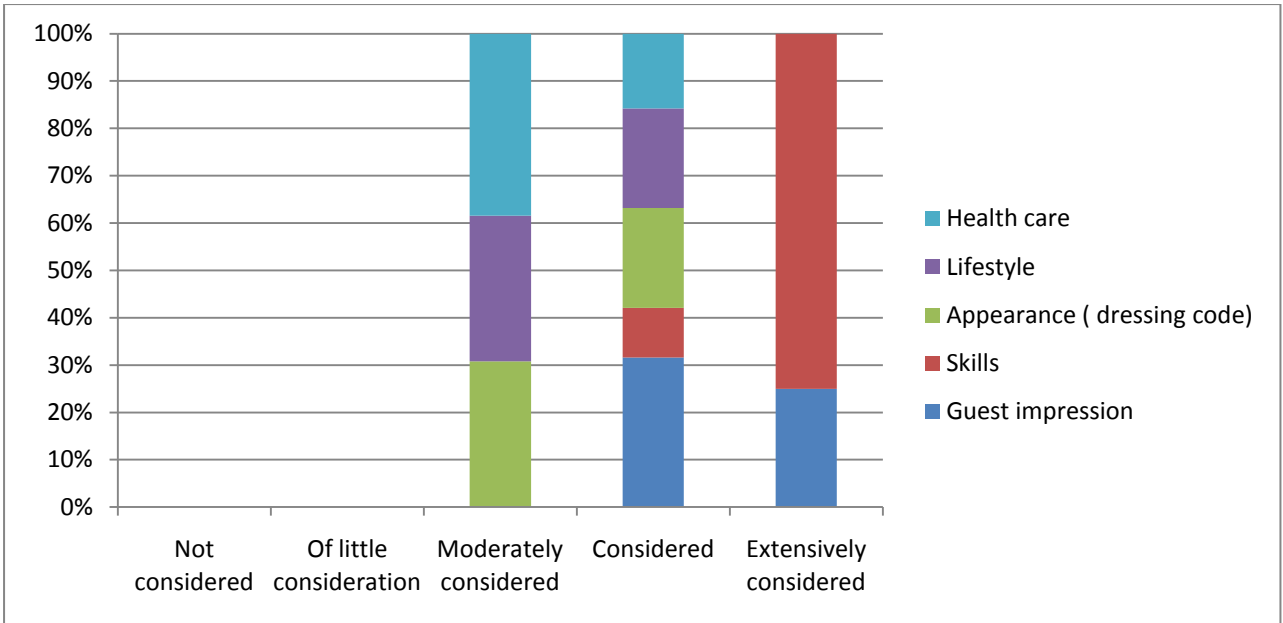


**Figure 14: Impediment to maintenance plan execution**

Lack of commitment to execution of maintenance plan was rated by 100 percent of respondents as a moderately important factor whilst 50 percent of maintenance managers think insufficient manpower is of little importance when you are considering impediments to maintenance.

### **Acquisition of manpower and equipment**

The survey also asked respondents to rate their consideration in recruiting technicians because the first phase of data collection revealed that it was not easy recruiting such persons for the hotel industry. Figure 15 shows the results of their considerations with 75 percent of respondents choosing skills of technicians as extensively considered when recruiting technicians. This is followed by guest impression which is averagely 31 percent of the total response for factors considered. Hotel policy therefore requires that technicians should put up good behavior while executing their duties to visitors who patronize their hotel.

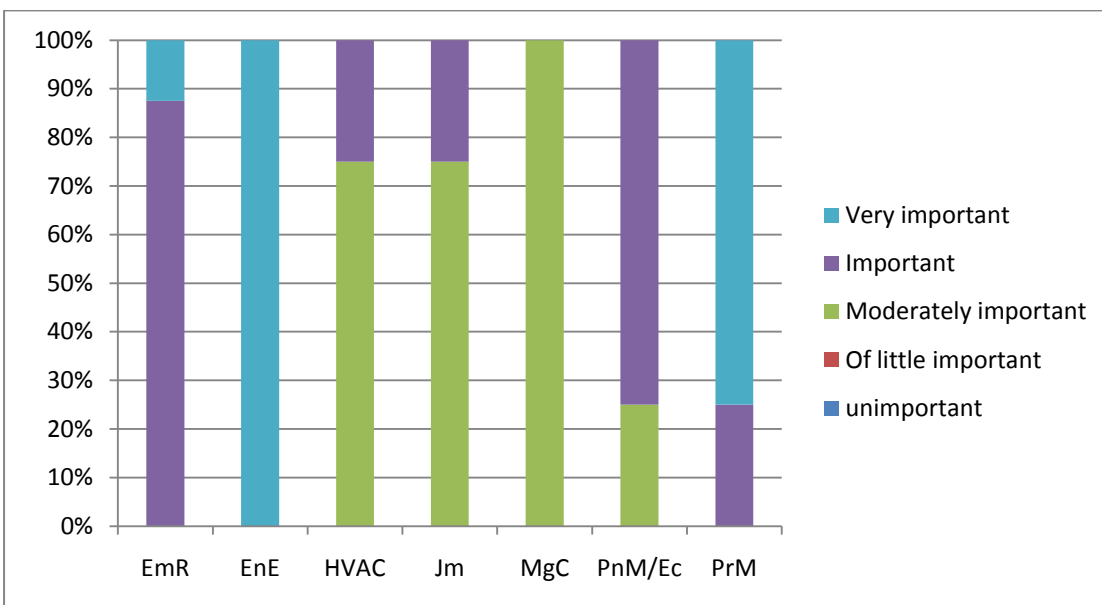


**Figure 15: Consideration factors in recruiting technicians**

The study also revealed that very often there is an accurate account of spare parts usage. Respondents mentioned that door locks, plumbing wares and spare kitchen stoves as some fittings and equipments that hotel should have in reserve for immediate repairs and usage.

**5.3.10 Rating maintenance challenges in hotels**

Regarding the extent to which hotels want to save money by adopting various maintenance techniques as shown in figure 13 above, as well as the fact that some maintenance delivery are either outsourced or delivered in house as shown in figure 9, the survey set a question for managers to rate the difficulties in few specific areas in operation.



EmR-Emergency repairs for plumbing power or gas

EnE- Energy efficiency due to increasing electronic equipment, high volume of lights

HVAC- Heating ventilation and air conditioning depending on hotel policy

Jm- The ability to perform regular janitorial maintenance and inspection

MgC- Management of various contracts for daily maintenance

PnM/Ec- Education of staff on the importance of planned maintenance and energy conservation

PrM – Preventive maintenance, inspection and work order history of items

**Figure 16: Hotel maintenance challenges**

The result shows by a majority of 100 percent responding that attaining energy efficiency with the influx of increasing electronic equipments and high volume of lights is a very difficult challenge for maintenance managers.

The results in figure 16 can further be interpreted that carrying out regular inspection of each hotel room to check faults after which repairs are made and recorded is another very important difficulty. Most respondents would want daily inspection of rooms in order to adopt preventive maintenance but this is difficult to do. Respondents also rated as an ‘important’ difficulty the inability to educate personnel on the significance of planned maintenance and energy conservation. However none of the factors listed for the question was not a difficulty because none was rated ‘unimportant’ or ‘of little importance’ which implies that there are various problems ranging from regular janitorial maintenance, availability of spare parts for emergency plumbing, power and gas repairs.

## 6. Summary/Conclusion

The objective of this study was to identify current maintenance trends and strategies in hotels and to find out factors that influence hotel operators in choosing them as well as difficulties faced by operators in the implementation of these strategies. It was also to identify changes in acquisition of fixtures and fittings because of emerging technological changes.

The result from this study has shown that it is the responsibility of owners to maintain the physical building structure, whilst operators handle fixtures and equipments however environmental responsibility are jointly maintained. In performing these responsibilities they both consider the interest and opinion of employees, customers and other associates very well. Furthermore this study revealed that cost of maintenance is often financed by owners and operators through yearly budget allocation.

Furthermore the results makes clear the underlying practice of outsourcing in hotel maintenance, which helps operators to better manage their hotels and be successful. The study also revealed that painting, electrical, plumbing, janitorial and engineering services are all partly or fully outsourced except air conditioning services which are usually only handled as an in house service because of the strategic value of this service to the hotel activity. Preventive maintenance was also identified as the main technique adopted to save cost and it is achieved by team work and through employee questionnaires, customer questionnaires, inspection and training.

All respondents confirmed that incoming calls reporting faults requires good management, furthermore work crews who are on a job need to monitored to record their daily schedules and return it to complain officer for follow up. Maintenance managers interviewed commented on the difficulty of recruiting technicians in the hotel industry. Worldwide issues that relate to maintenance which are important to hotel operators are escalating renovation cost, increasing operation cost and attaining energy efficiency.

However the study poses this question: Is yearly budget allocation the best approach to financing cost of maintenance? This is because 93 percent of respondents' use this method however lack of commitment on the part of owners and operators was identified by the study as an important impediment to execution of maintenance, therefore there is no guarantee that

fund allocation for maintenance will be used for its intended purpose. Earlier researchers (Hellström and Lind (2006), Muyingo 2009a, cited in Lind, Muyingo, 2011) also wrote that maintenance measures are affected by the budget situation. When the situation is economically good more maintenance is done and when tougher maintenance expenditure is reduced. Hotel operators need to consider and develop other approaches of financing maintenance.

Today, there are many activities that are done to keep a building and its parts in good repair. Most of them are put under maintenance but the peculiarities of the hotel industry require that hotel maintenance is planned to be effective. Hotel operators and maintenance managers should therefore consider having a checklist for planning their activities and schedules. During implementation, managers should be aware that buildings have their original plan, size and facilities. Equally important to implementation is recording of work. For hotels to be well maintained work order form has to be printed out, any worker that sees a fault can initiate a work order. The hotel maintenance manager should then act upon it and should keep record of replacements or repair using an inspection schedule for open spaces and guestrooms. Records for windows, air conditioners, furniture, lights, elevators and carpets among others should be accurately maintained. Presently technology can assist operators and maintenance managers to determine what must be maintained and how frequent to schedule preventive maintenance.

Furthermore preventive maintenance is commonly carried out as a schedule to save cost of emergency repairs. Whilst issuing purchasing orders operators should consider durable finishes, high quality, long-life equipments because these have direct effect on implementation and cost of operation by reducing maintenance expenditure over a period of time. Preventive maintenance should be done daily and on monthly basis. Studies have shown that the stronger the daily and preventive maintenance schedules the fewer occurrences of emergency maintenance and emergency cost.

While pursuing preventive maintenance, consideration must be given to the fact that a building ages as the years go by and its maintenance challenges increases. Owners and operators should consider refurbishment every 8-10 years followed by minor renovation in the years after because minor renovation is rational in this industry which is characterised by rapid changes in hotels building structures and influences by technological and societal

changes. This will restore hotels to a better than new condition and the hotel's revenue generation and value will not decrease.

All hotels should consider energy management and come out with specific policies and actions for the maintenance of their facilities, reduction in energy usage and conservation of the use of water. It is recommended that future researchers should consider management of energy in hotels due to increasing number of equipments required for operating this industry that consume high volume of electric power that results in rising energy cost.



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## Appendices

### Appendix 1

#### 4- Star Hotels in Stockholm- 60 hotels

Idnr	Hotel	Stars	Rooms
528	AlmåsaKonferens	4	51
773	Balingsholm	4	49
525	Bergendal Meetings	4	113
80	Berns Hotel	4	82
752	Best Western Hotel Karlaplan	4	101
458	Best Western Hotel Terminus	4	155
144	Best Western Premier Hotel Kung Carl	4	134
989	Best Western Time Hotel	4	144
130	Best Western Täby Park Hotel	4	147
475	Blue Hotel	4	59
435	Clarion Collection Hotel Wellington	4	60
762	Djurönäset	4	271
457	Elite Hotel Arcadia	4	88
1104	Elite Hotel Marina Tower	4	186
151	Elite Palace Hotel	4	215
60	Elite Stockholm Plaza	4	143
127	First Hotel Royal Star	4	103
97	FreysHotell	4	124
98	FågelbroHus	4	72
186	Grand Hotel Saltsjöbaden	4	140
64	Hotel Birger Jarl	4	235
66	Hotel Diplomat	4	130
100	Hotel Esplanade	4	34
248	Hotel Hansson	4	53
181	Hotel Hellsten	4	78
183	Hotel J Nacka Strand	4	45
76	Hotel Rival	4	99
1097	Hotel Skeppsholmen	4	81
1025	Hotel Stureplan	4	101
58	Hotel Villa Källhagen	4	36

Source: <http://www.hotelsinsweden.com/english/>

## Appendix1

### Cont'd 4- Star hotels

276	HotellHavsbaden	4	50
668	HäringeSlott	4	72
207	Körunda Golf &Konferenshotell	4	51
138	Lady Hamilton Hotel	4	34
143	Mornington Hotel Stockholm City	4	221
141	Nordic Light Hotel	4	175
142	Nordic Sea Hotel	4	367
289	Nova Park Conference	4	117
423	Park Inn Solna	4	247
1106	Park Inn Stockholm Hammarby Sjöstad	4	178
209	Quality Hotel Park	4	157
362	Quality Hotel Winn Haninge	4	114
670	Radisson BluArlandia Hotel	4	335
667	Radisson Blu Royal Park	4	193
671	Radisson Blu Sky City Hotel	4	230
84	Rica Hotel Kungsgatan	4	269
83	Rica Hotel Stockholm	4	292
927	Rica Talk Hotel	4	248
330	SeglarhotelletiSandhamn	4	93
108	SkepparholmenHotell&Konferens	4	104
1057	Skogshem&Wijk Meetings	4	195
117	SmådalaröGård	4	62
125	Stallmästaregården Hotel &Restaurang	4	49
715	Steningevik	4	51
185	SåstaholmHotell&Konferens	4	93
775	UlfundaSlott	4	54
136	Victory Hotel	4	45
722	Villa Aske	4	88
906	Villa Söderås	4	35
695	VårGårdSaltsjöbaden	4	139

Source: <http://www.hotelsinsweden.com/english/>

## Appendix 2

### 5-Star hotels in Stockholm- 6 Hotels

Idnr	Hotel	Stars	Rooms
79	Grand Hôtel Stockholm	5	368
69	Hilton Stockholm Slussen	5	289
1116	Nobis Hotel	5	201
665	Radisson Blu Royal Viking Hotel	5	459
666	Radisson Blu Strand Hotel	5	152
107	Sheraton Stockholm Hotel	5	465

Source: <http://www.hotelsinsweden.com/english/>

## Appendix 3

### An Extract of Criteria 2010-2014 covering building / room furniture and equipments required for 1-5 star hotels

Area	No.	Criterion	Point	★	★★	★★★	★★★★	★★★★★
Building/Rooms								
Cleanliness/Hygiene	1	Cleanliness and a hygienically perfect offer are basic condition			M	M	M	M
Preservation condition	2	Mechanisms and equipments are functional and in faultless condition			M	M	M	M
Guest impression	3	The general impression of hotel is sufficient for requirements		Simple	Middle	Elevated	high	highest
Reception	4 5	Separated Area Separated, independent reception	1 3	M	M	M	M	M
Rooms		Size of Room( including bathroom) >14m <sup>2</sup>	10					
		Size of Room( including bathroom) >18m <sup>2</sup>	15					
		Size of Room( including bathroom) >22m <sup>2</sup>	20					
		Size of Room( including bathroom) >30m <sup>2</sup>	25					
		Bath Room and sanitary facility >5m <sup>2</sup>	10					
		Number of suites	2 for/6					Min. 2
		Min. Of rooms of are non- smoking	3					

Furniture/Equipment	No.	Criterion	Points	★	★★	★★★	★★★★ ★	★★★★ ★★
Sanitary comfort	30	100% of the rooms with shower/wc	1	M	M	M	M	M
	31	100% of rooms with shower/wc separately	10					
	32	30% of rooms with toilet separately	5					
	33	Shower with shower curtains	1	M	M	M	M	M
	34	Wash basin	1	M	M	M	M	M
	37	Washable bathroom rug	1		M	M	M	M
	38	Appropriate lighting of washroom	1	M	M	M	M	M
	39	Mirror	1	M	M	M	M	M
	40	Power socket near mirror	1	M	M	M	M	M
	45	Heating facility in bathroom	3			M	M	M
	48	Tray of large scale	3				M	M
	59	Bathrobe on demand	2				M	
	60	Bathrobe	4					M
	61	Slippers on demand	1				M	
	62	Slippers	3					M
	65	Stool in bathroom	3					M
	69	Single bed in the scale of 0.90m×2.00m Double bed in the scale of 1.80×2.00m	10				M	M
	70	Single bed in the scale of 1.00m×2.00m Double bed in the scale of 2.00m×2.00m	15				M	M

Source: Hotelstars Union - Classification criteria 2010-2014 / page 3 & 5 of 22

## Appendix 4

### Interview questions

#### Maintenance contracts

- a) What maintenance contractual arrangement is used in your hotel?
- b) How long is the duration for this contract? -----years-----months
- c) Are there instances of joint responsibility between operator and owner?
- d) Who pays for maintenance cost?
- e) Any other special arrangements for handling maintenance?

#### Acquisition and installation of fixtures

- a) Hotels are associated with many fixtures and fittings in guest rooms, washrooms, kitchen etc, how often do you work on each of these fixtures at their different location
- b) Are there new and modern fixtures that ensure for example:
  - i) Safety and health, ii) Energy conservation iii) meeting guest expectations
- c) What peculiar fixtures are in the hotels that require day-to-day maintenance scheduling and arrangements? Please specify?

#### Repair and maintenance

- a) Preventive or corrective maintenance procedure, which is more convenient for you as a hotel operator?
- b) Can you give me any reason
- c) What is the main obstacle to maintenance in this hotel? (owner, money, experience, manpower)

#### Adoption of outsourcing and in-house maintenance strategies

- a) Do you use in house technicians?
- b) Which other services are also outsourced to contractors?
- c) Are there any special reasons why you outsource these services?

#### Challenges in implementation

- a) I am curious about your role in maintenance delivery, what do you do?
- b) Can you tell me story about how you overcame a challenge?
- c) Is maintenance therefore an issue worth considering in hotel operation?
- d) Do you have any suggestion to improve maintenance as an experience hotel operator.



## Appendix 5

### Hotel Operators' Questionnaire

The aim of this questionnaire is to identify the contractual responsibility of owners and operators when it comes to maintenance and the provision made by both parties to plan, implement and finance maintenance. It is also to identify challenges faced by operators as well as maintenance control measures adopted while the hotel is operating that will foster efficient delivery of maintenance services.

1. What is nature of ownership and management of your hotel?

- Hotel owned and operated by the same company(If this applies, skip to Q5)
- The operator is not owner

2. If operator is not owner what is the length of contractual arrangement between owners and operators?

Please specify below:

3. Who is responsible for maintenance of the following items?

- |                               | Owner | Operator |
|-------------------------------|-------|----------|
| ▪ Hotel site                  |       |          |
| ▪ Building                    |       |          |
| ▪ Plant and equipment         |       |          |
| ▪ Furnishings and inventories |       |          |
| ▪ Others please write below:  |       |          |

4. How would you characterize the operator and owner in the following areas?

- |                                     | 1    | 2    | 3    | 4         | 5              |
|-------------------------------------|------|------|------|-----------|----------------|
|                                     | Poor | fair | well | very well | extremely well |
| ▪ Risk taking in business operation |      |      |      |           |                |
| ▪ Interest and opinion              |      |      |      |           |                |
| ▪ Communication                     |      |      |      |           |                |
| ▪ Priority and values               |      |      |      |           |                |

If others please write below:

5. When it comes to guests comfort and satisfaction how do you assess the maintenance work you do?

- Very good
- Average
- Less than average
- Not good at all

6. In your experience as a hotel operator which of the following operational functions are usually outsourced in hotels? (You can choose more one answer)

- Accounting
- Maintenance
- Security
- Promotion and Advertisement
- Purchase and Storage Services

7. Which of these are considered in choosing an outsource contractor

- Expertise
- Past Performance
- Company culture and values

8. How would you describe the relationship between your hotel and outside contractors (4 is very good)

1                      2                      3                      4

- Very Good
- Good
- Not very good
- Not good at all

9. What mode of communication do you think should be used to improve mutual understanding and develop trustful relationship between hotels and contractors?

- Regular committee meetings
- Informal gatherings
- Opinion pool for comments and suggestion
- Others (please specify)

10. What provision is made for financing repair, maintenance and renewal programmes in your hotel? (You can choose more than one answer)

- Setting aside a percentage of hotel revenue to a replacement reserve
- Year to year budget allocation
- Negotiations with property owner
- Others (please specify)

11. In your experience an operator which of these three core consumer products have been given much managerial consideration and planning?(3 is the highest rating)

1      2      3

- Accommodation/Room
- Food
- Beverage

12. How often do you think fixtures in hotel rooms should be inspected?

- Once a week
- Twice a week
- Three times a week
- Daily
- Others (please specify)

13. Have you installed new fittings that reduce utility cost and water consumption?

- Yes
- No

If yes, could you please explain the technology of these new fittings:

14. Quality control in maintenance is ensured through:

- Certified quality auditors
- Project managers
- In-house engineers
- Department managers
- Quality managers

15. How do you perform customer satisfaction survey?

- Paper questionnaire filled in when customers check-in
- Customers email contacts later
- Others (please specify)

16. Training of staff in terms of quality assurance and safety measures that relate to maintenance is done:

- Monthly
- Twice a year
- Yearly
- Others (please specify).

17. Do you give certificates to those who undergo training?

- Yes
- No

18. Does the hotel has a set of “work rules” designed:

Yes No

- To maintain orderly conduct among employees
- To eliminate conditions that interferes with efficiency
- To encourage cooperation
- To protect the rights of customers and staff
- Others (please specify)

19. How do you give recognition to personnel who have done their jobs very well?

- Bonus (monetary)
- Non monetary
- Certificate of recognition
- Others (please specify)

20. As a hotel operator how important are the following details:

1 2 3 4 5

Unimportant Of little important moderately important Important Very important

- Daily maintenance of hotel environment
- Listening to employees complains
- Giving feedback on what employees can do to improve work
- Communicating effectively with associates and customers in order to foresee challenges and find solutions

21. How will you rate the following global issues and challenges to hotel management?

- | 1   | 2                   | 3                    | 4         | 5              |
|---|---------------------|----------------------|-----------|----------------|
| Unimportant   | Of little important | moderately important | Important | Very important |
| <ul style="list-style-type: none"><li>▪ Escalating renovation and constructional cost</li><li>▪ Escalating operational cost</li><li>▪ Impact of rising energy cost</li><li>▪ Growing global uncertainty about safety and security</li><li>▪ Evolving customer expectation</li><li>▪ Accelerating change and emerging technology</li><li>▪ Increasing consolidation of hotel companies</li></ul> |                     |                      |           |                |

## Appendix 7

### Maintenance Managers' Questionnaire

The aim of this questionnaire is to identify decision making tools of maintenance managers/ engineers in outsourcing, manpower recruitment, choice of technology in equipment acquisition, assembly opinion on maintenance plan execution as well as control measures implemented for efficient delivery of services.

1. Which of the following maintenance services do you perform yourselves and which ones do you outsource to other companies?

- |   | In house service          | External Provider |
|---|---------------------------|-------------------|
| ▪ | Painting works            |                   |
| ▪ | Air conditioning services |                   |
| ▪ | Electrical services       |                   |
| ▪ | Plumbing services         |                   |
| ▪ | Room cleaning             |                   |
| ▪ | Janitorial services       |                   |
| ▪ | Engineering services      |                   |

2. If you outsource which of the following factors guide your decision to outsource?

- |   | Not considered                             |   |   | extensively considered |   |
|---|--|---|---|------------------------|---|
|   | 1  | 2 | 3 | 4                      | 5 |
| ▪ | Time constraint                            |   |   |                        |   |
| ▪ | Statutory requirement                      |   |   |                        |   |
| ▪ | Skills of in house technicians             |   |   |                        |   |
| ▪ | Availability of in house technicians       |   |   |                        |   |
| ▪ | Use of specialized tools                   |   |   |                        |   |
| ▪ | Financial constraints                      |   |   |                        |   |
| ▪ | Degree of complexity of system             |   |   |                        |   |
| ▪ | Reduced operational cost                   |   |   |                        |   |
| ▪ | Specialised competence of maintenance firm |   |   |                        |   |

3. Which of the following factors guide the decision to do maintenance in house?

- Strategic value of service
- Health and safety regulation
- Availability of resource in the marker
- Others(please specify)

4. What is the duration of maintenance contracts with outsourced contractors?

- 1-2 years
- 2-4 years
- More than 4 years
- Others (please specify)

5. What reason would make you want to renew a contract?

- Efficient and prompt delivery
- Continuity of service
- Familiarity with service providers
- Hotel policy
- Others (please specify)

6. Which of the following reasons do you think is most important for carrying out maintenance activities? (You can choose more than one answer)

- Carry on with competition
- Retain corporate image
- Conform to new trends in the market
- Handle government laws and health and safety regulations
- Satisfy current and impending customers
- Increase long term savings in operational expenses



7. Do you experience any problems in executing your maintenance plans?

- Yes
- No

8. If yes, how important are these impediments when encountered in the execution of maintenance plan?

Not important at all

Most important

1      2      3      4      5

- In sufficient manpower
- Lack of required experience/ skills
- Lack of money
- Lack of commitment
- Hotel owner/operator reluctance

9. To what extent does an accurately completed work order greatly help the planning and scheduling of maintenance work?

- Never
- Rarely
- Sometimes
- Very Often
- Always

10. To what extent does accurate recording of labour and parts allow accurate cost projections for budget and spending justification?

- Never
- Rarely
- Sometimes

- Very Often
- Always

11. To what extent does documentation of parts lists, manuals; drawings which are readily available used in maintenance planning

- Never
- Rarely
- Sometimes
- Very Often
- Always

12. To what extent is spare parts usage captured promptly on work orders or requisitions to keep inventory information accurate.

- Never
- Rarely
- Sometimes
- Very Often
- Always

13. Can you mention some spare parts that should be made readily available for immediate hotel repairs?

14. How will you rate the management of your incoming maintenance calls/ complains?

- Very good
- Average
- Below average
- Not good at all

15. The hotels we maintain have adopted the following maintenance type to save money

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly agree

- Condition- based Monitoring (Predictive)
- Time-based Maintenance (Routine preventive)
- Failure Driven Maintenance (emergency corrective)

16. To what extent are the following considered when employing technicians for maintenance

Not considered					Extensively considered
	1	2	3	4	5

- Guest impression
- Skills
- Appearance (dressing code)
- Life style
- Health care

17. Is it easy to recruit technicians for maintenance delivery in hotel industry?

- Yes
- No

Can you explain your answer?

18. In your opinion as an experienced maintenance manager what can be done to improve hotel maintenance?

- Hotels' should give out more client satisfaction questionnaire quarterly
- Frequent quality control exercises
- Outsourcing of more services
- Others please write below

19. Quality control in maintenance is ensured through:

- Certified quality auditors
- Project managers
- In-house engineers
- Department managers
- Quality managers

20. How do you solicit customer feedback?

- Paper questionnaire filled in when customers check-in
- Customer email contacts later
- Others (please specify)

21. If you seek it through emails contacts approximately how long after a customer has checked out do you contact them?

- 1-2 days
- 2-4 days
- More than 4 days

22. Do you offer incentive for customer feedback?

- Yes
- No

23. If yes, which form of incentive?

24. How often do you train staff in terms of quality assurance and safety measures that relate to maintenance is done:

- Monthly
- Twice a year
- Yearly
- Others (please specify)

25. Does the hotel have a set of “work rules” designed:

Yes                      No

- To maintain orderly conduct among employees
- To eliminate conditions that interferes with efficiency,
- To encourage cooperation
- To protect the rights of customers and staff
- Others (please specify)

26. What kind of communication tools are used to ensure that work crews are where they are supposed to be to execute their maintenance duties?

- Phone calls
- Walkie-talkie
- Record sheet
- If others, please specify...

27. How do you give recognitions to personnel when they have accomplished their work in exemplary manner?

- Bonus (monetary)
- Non monetary benefits
- Opportunity for training and development
- Certificate of recognition
- Others (please specify)

28. How will you rate the following maintenance challenges in hotel operation?

1	2	3	4	5
Unimportant	Of little important	moderately	important	very important

- Emergency repairs for plumbing, power or gas and others
- Energy efficiency in light of increasing electronic equipment, high volume of lights, chillers, air conditioners
- HVAC and furniture maintenance depending on hotel policy or local law
- The ability to perform regular janitorial preventive maintenance and inspection
- Management of various contracts involved in daily or contractual maintenance of hotels
- Education of staff on the importance of planned maintenance activities and energy conservation
- Preventive maintenance, inspection and work order history of items