

A Study on Housekeeping Department and Technological Advancements Post COVID-An Outlook

Suchismita Roy Indra¹, Madhuri Deshbhratar¹

¹Assistant Professor, Sheila Raheja Institute of Hotel Management, Mumbai.

Abstract

Duty of Care is Housekeeping's regular responsibility for maintaining a high standard of cleanliness. For hotels, it is the legal obligation to ensure the safety or well-being of its guests and has always been an important aspect for hotel operations. Not only will government standards dictate new requirements from businesses, but the public's expectations for health and safety will also be different than before. Therefore, Housekeeping's major responsibilities is to set new policies and procedures accepted and practised globally. Standard of cleanliness should align with International standards provided by W.H.O and U.S. centre for disease control and prevention. It is said that, virus lives on metal, glass, and plastic surfaces for 9hrs. Hence, need to increase the frequency of cleaning all common areas (including lobby, dining areas, and meeting rooms) and public high touch points such as elevator buttons, handrails, key cards etc. Special cleaning and disinfection routine for staff areas and public area washrooms should be made. The disinfectant used should have 70% alcohol. Viruses can also survive in air for several hrs. Ensure that all housekeeping staff clean rooms with appropriate protective gear, including gloves and face masks. Do not allow new guests to occupy the room for several hours after the previous guest has checked out. Extremely diligent hygiene standards need to be maintained in areas like pools, spas and fitness areas. Water should be clean, and have acceptable chlorine level, adequate disinfection to neutralise the virus. Hand sanitization and temperature check should be made mandatory before entry to these areas. Enforcing guest hygiene and practices also includes showers with soap and water before entering the pool. Create social distance markers in Public areas to avoid a general crowd. Face shields can be provided to public interaction areas such as the Front office. Reconfiguration of Restaurant, Lobby and Lounge needs to be done. Reduce face to face interaction and promote contactless and keyless procedures like by using mobile apps. Assure clean, safe and comfortable stay for the guest by updating your website and property guide sharing your current cleaning routine, disinfecting policies and a commitment to public health. Respond to guest queries.

You can't afford to ignore your reputation right now. Some hotels believe that technology is one answer to improve cleanliness and fight the Pandemic. They have opted for Sanitizing tunnels, Electrostatic sprayers, and UV light technology etc. as routine. Training employees is a challenge where they have to be told that there is no time to fear but strategic purposeful action and behaviour needs to be implemented. Sanitation, hygiene and awareness has to be inculcated in them. Hand sanitization, temperature checks, medical mask and gloves should be part of the routine. Deploying hand sanitizers at different locations along with the Signage at regular intervals is necessary in Staff as well as Guest areas. Staff should also be trained on identifying the common signs and symptoms. It would become mandatory to follow global sanitation standards. Sanitizing and protective gear would be made compulsory and would also be a part of guest room supplies. There would be increased no. of turns for cleaning and sanitation of areas. Disinfectant wipes can be provided. Easy to wipe and sanitize, plastic coated information booklets would be used. Guestroom supplies would be provided on request and replaced completely. Contactless delivery of material would be followed by leaving the article outside the room. Guests can be given an option to opt out of housekeeping services. Laundry agent having disinfectant would be used. Health Guidelines would be mandatory. This is a study of technological advancements in housekeeping department in 5 star hotels in Mumbai, which will help us understand the advancements in the industry and help in adapting it. This research will help us know the view of the people on these advancements, will these make life easier, will it eat up the employment of the employees, would the people prefer automated machines or semi-automatic or machines having AI (artificial intelligence), will they be ready to adapt with the machines or would want a human touch. The answer to these questions will be found through the survey.

We will see through the crisis together, and emerge stronger.

Keywords: Housekeeping department, Post Covid, Guest, Five star hotels, Hospitality Industry.

Introduction

As technology is making human life easier, as it is a fast-moving generation like in the past the only means of exchange of data was through face-to-face communication. Then later on we came up with letters. Later on, we came up with telephones for long distance communication. Then we had mobile phones and the devices we hold right now. Through the

years we came up evolving in terms of communication from human to human then human to device communication and from there we have come to device-to-device communication. This research will help us know the view of the people on these advancements, will they be able to adapt or would they like to adapt with it, what will they be expecting in the future in the terms of advancements in technologies, what would the upcoming generations prefer, machines or AI, will these make life easier, will it eat up the employment of the employees, would the people prefer automated machines or semi-automatic or machines having AI (artificial intelligence), will they be ready to adapt with the machines or would want a human touch. The answer to these questions will be found through the survey.

Review of Literature

A literature review may be a comprehensive outline of previous analysis on a topic. The literature review surveys critical articles, books, and different sources relevant to a selected space of research. The review ought to enumerate, describe, summarize, objectively assess and clarify this previous research. It should provide a theoretical base for the research and assist you to confirm the character of your research. The literature review acknowledges the work of previous researchers, and in so doing, assures the reader that your work has been well conceived. Through the years we came up evolving in terms of communication from human to human then human to device communication and from there were here to device-to-device communication. The technological advancements are happening at a very quick pace. As in old times, hotel industries used to use basic lock and key systems. Then later on we came up with key cards which was a plastic card with the key which was used to plug in the switch board for electricity supply throughout the room. Which also helped in not misplacing the keys as the keys are going to be with the key card in the switch board. From there we came to a smart card where the keys have been replaced with the card where you just touch the card on the door and it opens the door and just slip it in the key slot given near the switch board to enable the electricity supply throughout the room. These key cards have a separate bar code on it which separates it from the rest of the key cards which is for security purposes. This advancement promises for ease and security in usage. The only drawback is losing the card while moving in around the hotel.

In hotel housekeeping world, there are 7 key things to pay attention on.

1. Ensure the Safety for Staff and Guests

This is the first and the most important thing. To ensure this, prevention will be essential. For prevention, integrating and maintaining the guidelines and recommendations for safe operations will be critical to for the hotel to ensure and meet new cleanliness standards. Recommendations include: Frequent antiviral disinfection and cleaning of high touch areas like elevator buttons, railings etc., in accordance with CDC (Centre for Disease Control and Prevention) and AHLA (American Hotel & Lodging Association) recommendations Offering

of sanitizer and masks to guests upon arrival and enforcing usage (in a kind and hospitable manner).

2. Robust Standard Operating Procedures

Before COVID-19, there were minimums for water temperature for linen cleaning, approved cleaning solutions, and preventative measures for sanitation, but those may not be sufficient against this particular virus.

3. External Communication of Cleanliness

As a hotelier, you might be knowing how clean your hotel premises is, but your guests don't. Guests look for visual indicators, COVID requires sanitization. which is invisible.

4. New Expenses and Management of the Housekeeping Budget

- There are a lot of new expenses coming down the channel. Protective personal equipment (PPE Kit), new cleaning supplies including disinfectant, and physical changes to public space will all put a strain on pre-COVID Housekeeping budget. Even articles like linen might need to be replaced more often with the more caustic laundering.
- Some hotels have introduced disinfectant sprays that require the room to be left untouched for a minimum of three hours; others are requiring that rooms are scheduled to be taken off the allocation list for 24 hours after guests leave to allow for the correct cleaning procedures to be followed.
- Determining what specific changes need to be made to your hotel housekeeping protocols for COVID-19 will help estimate the new expenses. Another consideration would be in a case where lower occupancy means less frequent restocking, as the wear and tear on inventory decreases.

5. Recommendations for management of hotel housekeeping budget

- Estimate your new budget as per the new protocol followed for COVID-19 and communicate the changes and developments to the management immediately.
- Attempt to find areas where you can temporarily reduce the expenses but not at the cost of maintaining the standard of the hotel.

6. Outfitting the Housekeeping Departments with PPE kit

As a protective measure for housekeeping team members and guests, housekeeping staff need to be fully prepared to enter a room to clean it. Confirm that they have all of the items needed including the protective gear (both PPE and items to restock the room) to complete the service before entering the room.

- cleaning supplies disinfectant

- linen (bed & bath) based on need sufficient stock of amenities (sanitizer, shampoo, conditioner, soap, etc.)
- Apply hand sanitizer and put on clean gloves before entering the room.
- Properly fit clean mask or face shield to face
- Verify that the guest is not in the room, if guest is present, do not enter.
- Put an alert on the door to notify the guest that a housekeeper is in the room .When possible, use the housekeeping cart or ‘boat’ to blockade the room.
- Disinfect the high touch articles like Phone or Tablet device, even personal devices
- Disinfect personal protective equipment (Panic Button)
- If possible, use a device or the guest room phone to communicate that the housekeeper has entered the room for cleaning.
- Guests notice the hotel’s precautionary actions which makes them feel safe and secure while traveling and staying in hotels. Seeing employees wearing protective gear like masks and gloves and face shields, reassures guests that the hotels take safety seriously.

7. Opt-In Opt-Out Housekeeping & Safety Consultations

Many hotels have started with the **opt-in** versus **opt-out** for housekeeping services. It is assumed that guests will not receive housekeeping services during their stay until asked for. Bath linen like towels and toiletries are provided in the room based on the number of nights and number of guests staying in a room. This way no one enters the room other than the guests during their stay. In case, any items are needed by the guest during his stay, the housekeeping staff will leave them outside the door.

Five Areas of Development in housekeeping Technology

1. Communications and Apps

The vacation rental business has seen the development of technology systems and apps designed to supply real-time communications between staff, management, housekeepers, maintenance personnel, guests and property owners. LSI, status tracker and several other of the property management software systems have launched tools that free housekeepers from hoping on legacy technology so that they will work smarter and faster. These new systems facilitate housekeeping groups coordinate their tasks with real-time property assignment information to work a lot more efficiently, and mobile housekeeping apps aim to place clipboards and in-unit phone, phone reportage within the rear-view mirror. They are simple to put in and have confidence the property’s wireless network while not a web connection.

2. Scheduling and Route improvement

With advancements in reliable GPS mapping and tracking, Route Optimization is a neighbourhood of technology that has quickly developed within the last 2 years. Florists, work corporations, fleet managers, moving companies and delivery drivers in a very

multitude of companies have reworked their operations victimization route optimization software. Within the vacation rental industry, we are able to expect to examine many technology suppliers white label these solutions into their products. However, you don't have to be compelled to wait. raise your housekeeping technology supplier about route optimization systems, and volunteer to figure with them to try out and integrate the practicality into your software.

3. Key less Locks and good Home Control

The introduction of smart home management has created a large impact on the holiday rental business by reducing the time and expense related to key management, providing guests with safer stays, lowering owner utility bills and providing period notification of maintenance problems within the home. For work departments, the advantages of victimization smart home control conjointly facilitate to lower prices and increase guest and owner satisfaction.

Victimization smart home codes, managers will track once housekeeping and service staff members enter and leave a property while not having to manage keys among cleaners and contractors.

4. Noise, Trash and Parking

For vacation rental opponents, the complaints most frequently raised at council conferences are noise, trash and parking, that once left unaddressed may end up in modification laws and restrictions. As a result, skilled vacation rental managers are forever trying to find ways to be higher neighbors and to encourage guests to be better neighbors. Here are some ideas of however technology could also be able to help.

- Noise watching apps and devices are on the market which offer notifications for sustained high levels of noise.
- Apps may be accustomed alert and prompt guests concerning trash days and parking restrictions.
- Smart home cameras may be utilized in exterior locations to observe trash and parking areas.

5. Lost and Found

VRMs work round the clock to enhance guest satisfaction, thus once they get a decision from a guest who left his iPhone, grandmother's ring, GoPro or child's special pillow, team members jump to respond. However, maintaining with the numerous items left behind and matching these things with their owner can be overwhelming... particularly throughout peak seasons. Technology has been created to assist contour and modify the lost and located process. One system being employed by one or two of savvy property managers is termed Charge back. This free tool has the subsequent practicality:

- Sends emails to each staff and also the guest.
- Generates prepaid shipping labels to come the item to the guest.
- Provides how for guests to self-report lost things from your website.
- Makes it simple for workers to match those reports with items that are turned in.

Screen Time

The devices provide housekeepers with real-time updates on check-ins and check-outs and change them to produce real-time room-status updates and build note of important details. If a guest is checking in via a mobile app, the system is capable of flagging housekeepers to arrange a selected room for his or her arrival.

The Robot Cleaner

Designed to be transported on a housekeeping cart, each “Rosie” unit weighs 9 lbs. In addition to autonomous operation, each unit collects data, including how long it takes to clean a room, and can detect would-be maintenance issues such as the presence of moisture in the carpet.

Employee Training

Hospitality-technology firms are not oblivious to the strain this causes their shoppers and are working on alleviating this pain point.

1. Smart Room Controls

One of the foremost common ways in which hotels are created into smart rooms is thru the addition of individual room controls. For example, IoT technology suggests that a room’s lights, heating, air con and even curtains are controlled from a centralised location, equivalent to a smartphone, smart speaker, smart hub, or tablet.

Brands like Hilton have already unrolled this smart hotel solutions, permitting their guests to regulate the thermostats in their rooms through their smartphones. different hotels have gone further, allowing guests to line desired conditions at intervals their room via their phone, with the devices mechanically keeping the space regulated in this way. Meanwhile, voice-controlled lighting is additionally changing into a lot of widespread, because of devices like Amazon Echo.

2. Voice-Controlled Entertainment

Smart speakers and smart hubs may also be connected to diversion devices contained at intervals a wise edifice room, permitting these devices to be controlled through voice recognition. this will modify guests to issue basic voice commands, so as to show the tv on or aloof from anyplace within the room, or to vary the channel.

However, hotels can go more with this concept, empowering users to issue more advanced commands, equivalent to taking part in personal music playlists through good speakers, or ordering pay-per-view films through voice control. Ultimately, this adds up to a lot of convenient experience, as devices are used from anywhere within the room.

3. Faster Guest Services

A key good thing about the web of Things at intervals a smart edifice is the flexibility to attach devices to hotel services. Crucially, these services might vary from ancient guest services, like room service food or drink orders, through to things like booking a massage session, or associate degree exercise category in the hotel gym.

A smart sleeping room might contain a voice-activated smart hub, or may even offer guests with access to an app through the television, or via a pill device. This will permit customers to order room service by clicking on a slightly screen, or to book spa sessions through straightforward voice commands given to the good hub.

4. Sustainable hotel Rooms

Customers are progressively involved with ideas like sustainability, and plenty of are willing to pay more with eco-friendly brands. Meanwhile, hotel management should even be concerned with sustainability, as a result of opportunities to save lots of cash on energy prices mean opportunities to enhance overall business results.

IoT technology can facilitate with this through machine-driven energy saving. Imagine, for instance, that a space mechanically detects the extent of light in an exceedingly room and so seamlessly reduces or will increase the brightness of the sunshine bulbs; or that the heating is mechanically adjusted, supported room temperature, so as to save lots of money.

5. Interactive Maps

Among the foremost fascinating and distinctive ways in which edifice chains have remodeled a customary sleeping room into a wise room is thru the employment of interactive wall maps

6. Data-Driven Default Choices

One of the challenges joined to smart space technology involves maintaining user privacy and taking the proper level of care with knowledge collection. Nevertheless, some user data is collected and utilize, while not intrusive upon the privacy of individuals, and an example of this can be basic device usage information.

7. Personalized Entertainment

Finally, a sleeping room may also be remodelled into a wise room through the supply of a lot of personalised entertainment options. In most cases, this can incorporate ways in which to

permit edifice guests to make use of their own accounts with third-party on-line services, equivalent to Netflix, Amazon Prime, Spotify and Apple Music.

8. Enhanced check out Procedures

Perhaps the most convenient and favoured advancement in hospitality technology for guests is that the ability to envision out of the edifice whereas still within the comfort of the hotel space. edifice guests can review all room charges on the television screen in the room. If all charges are accurate, guests can complete the checkout with a number of clicks and avoid a visit to the front desk.

9. Automation and Efficiency

Maintaining standardized human personnel includes a vast cost. an organization should search for potential candidates or rent through an accomplishment agency, interview them, pay their wages and face the numerous expenses related to the rapid worker turnover that comes with the territory during this sector. Larger brands possess the resources for hiring vast staffs of competent employees to perform all types of efficient jobs, however smaller, family-owned ones can struggle with their

10. Connecting with guests through apps and voice control

Improving your work operations (and the guest expertise) isn't almost about golf shot new school within the hands of your teams, you've got to form it out there to guests as well. this can be geared up to be a natural next step for several edificers because the digital aspects of a hotel experience dwindle of a human and additional of an expectation. Hotels around the world are already introducing options like apps that enable you to visualize in, check out and access your area via your smartphone. consecutive step is to make it easy to move with connected objects round the area (close curtains, throw lights etc.) or connect with hotel workers at the faucet of a button-or, as is probably going to happen, using voice commands.

11. Making laundry more efficient

Laundry might be one among the less exciting additions to the current list, however The challenge for hoteliers is locate ever-more efficient ways that to figure through huge amounts of laundry. Much of this effort is concentrated on machines and detergent. In particular, chemical suppliers are regularly finding new ways to deliver quality wash cycles whereas victimization less detergent, less water and at lower temperatures. Not solely does this facilitate your housekeeping team keep prices down and maximize their time, it plays a key role in permitting hoteliers to show their property credentials.

Objective

To study about the upcoming technological advancements in the industry and being updated on how it operates and does it increase the satisfactory level of the guest throughout the stay.

Research design

Research design is the framework of research ways and techniques chosen by a researcher. The design permits researchers to hone in on research methods that are appropriate for the subject matter and set up their studies up for success. An impact research style usually creates a minimum bias in information and will increase trust within the accuracy of collected data. A design that produces the smallest amount margin of error in experimental research is mostly considered the specified outcome. For the outcome the researchers conduct a questionnaire or a face-to-face interview to gather information and view of people.

Sources and information collection

Once establishing objectives of the study, the universe has been identified. Among the universe sample has been chosen using sampling technique, followed by decision of sample size and specific kind of instruments of information collection. Then data has been collected followed by analysis of the information victimization descriptive and inferential statistics both. Keeping in mind the main focus of the study and its variables, questionnaires were prepared.

Data Interpretation

From the above survey conducted, the following interpretations were made:

The survey was filled by total of 91 respondents.

The highest number of responses obtained were from the people below the age of 20. After that 29.7% of the respondents were between the age of 21-40, and the rest were above the age of 40.

84% of the respondents are from the state of Maharashtra, and the rest are from different parts of India and few from outside of India

44% of the respondents are students followed by 42.9% of the respondents being full time employees, followed by 6.6% of the respondents being self-employed, 2.2% being part time employees and rest being others

- 38.5% of the respondents agree to that machines taking place of a human will hamper man power causing employment issues, and 27.5% of the respondents strongly agreeing to it, 12.1% of the respondents disagree about the same and 2.2% of the respondents strongly disagreeing about the same and remaining being neutral.
- 59.3% of the respondents prefer man operated machines to be used over automated machines which 40.7% of the respondents prefer.
- 47.3% of the respondents agree that the prices hike up after new technologies have started to be in use in hotels, 8.8% of the respondents disagree about the same and the rest were not sure about the same.

- 87.9% of the respondents have visited 5star hotels, which helps us to understand their personal experiences about the advancements in the technology and whether it helped them to make their stay better, and the rest have not visited a 5-star hotel.
- 64.8% of the respondents found it easy stay with the new technologies come in place, 12.1% of the respondents did not find it easy stay with the new technologies, and the rest were not sure about the same.
- 71.4% of the respondents agree that there were sensor facilities, 11% of the respondents did not have sensor facilities in their visited hotel, and the rest were not sure about the same.
- 80.2% of the respondents felt the housekeeping departments had smooth operations, 4.4% of the respondents disagreed to it, and the rest were not sure about it.
- 78% of the respondents felt the service provided by the housekeeping department were up to mark, 4.4% of the respondents disagreed to it, and the rest were not sure about it.
- 64.8% of the respondents were comfortable with the new technologies, followed by 9.9% of the respondents who were not comfortable with the new technologies. And the rest were not sure about it.
- 60.4% of the respondents feel these advancements will be helpful to human kind. And 7.7% disagree to it and rest are not sure about it.
- 78% of the respondents would trust a human being over a machine which 22% of the respondents would trust.
- The respondents were given a choice over modern methods and traditional methods from which 68.1% of the respondent chose modern methods and 31.9% of the respondents chose traditional methods.
- 46.2% respondents rated 4 out of 5 on how helpful are the machines to the department and 19.8% of the respondents rated 5 out 5 on how helpful are the machines to the department. 31.9% respondents rated 3 out of 5 and rest rated one and 2 out of 5.

Hence, the hypothesis of the study stands true and we can confirm that ‘The new technologies used in department improve guest experience’.

Significance of the study

This research study will help as a model study for Housekeeping technology particularly for the 5-star hotels and also guide them about its benefits and guests’ preferences about it.

- It will act as a helping hand for the 5-star hotels to critically plan their investments in Housekeeping technology and look for the best alternative while doing so.
- It will also help the 5-star hotels to keep up their technological standard in the market as it will directly affect the guest experience and their room sales.
- It shall motivate other researchers from the hospitality industry to conduct further research in similar fields.

Limitations of the study

All possible efforts are created by the man of science to keep up the validity, dependability and objectivity of the research study. Still bound limitations have to be compelled to be considered in mind whenever the findings of the study need to be thought-about for implementation

Conclusion

This research helped to know the view of the people on the technological advancements in the 5-star hotels, guests have presented their preferences between Automatic machines and man operated machines that could be used in the department for the betterment of the employees and the guests. If they were comfortable with the machines and no human interaction. The guests should find it easy and should be able to trust the machines too and will they be able to adapt or would they like to adapt with it, what will they be expecting in the future in the terms of advancements in technologies, what would the upcoming generations prefer, machines or AI, Will these make life easier, will it eat up the employment of the employees, would the people prefer automated machines or semi-automatic or machines having AI (artificial intelligence), will they be ready to adapt with the machines or would they want a human touch. These technological advancements have helped us in a lot of ways to make life easier and helped us do our work faster than before. And these technologies have played an important role in the hotel industry. Which makes the guests stay more comfortable and smoother which makes the guest happy and makes them come back which in turn increases the revenue of the hotel. Hotels also have to be compatible with the new technologies which will attract more guests which will get them business and also motivate them to work and which in turn will help the employees to enjoy their job. Which will decrease the hotel turnover.

References

1. Technology can improve housekeeping practices, S.A.I. Care, Published: 2020, www.iadvanceseniorcare.com/technology-can-improve-housekeeping-practices/.
2. Technology and How It Has Improved Housekeeping Operations-PHDessay.com, Mr Murray Mackenzie School of Hotel & Tourism Management Published: 2020, <https://phdessay.com/technology-and-how-it-has-improved-housekeeping-operations/>.
3. New Developments in Housekeeping Technology for Vacation Rental Professionals, V.I. Staff, Published: 2016, <https://vrmintel.com/new-developments-housekeeping-technology-vacation-rental-professionals/>.
4. Hotelier Magazine, Kostuch Media Ltd. Published: 2018, <https://www.hoteliermagazine.com/housekeeping-is-being-slowly-transformed-by-technology/>.

5. Hotel Housekeeping Technology Holds the Key to Guest Satisfaction (and Clean Rooms, Too), HTN Editors, Published: 2019, <https://hoteltechnologynews.com/2019/04/hotel-housekeeping-technology-holds-the-key-to-guest-satisfaction-and-clean-rooms-too/>.
6. Express Food Hospitality, E. Staff-Mumbai, Published: 2019, <https://www.foodhospitality.in/spotlight/housekeeping-in-the-hotel-industry-trends-opportunities/414679/>.
7. Cleaning Up With High-Tech Housekeeping Tools | Home Tech | Tech News World Author: Vivian Wagner, Published: 2012, <https://www.technewsworld.com/story/74815.html>
8. 7 Ways to Transform a Hotel Room Into a Smart Room, Revfine.com, Published: 2021, <https://www.revfine.com/smart-room/>
9. Housekeeping Technology for Enhanced Efficiency, V.A.P.B.H., Published: 2012, <https://hospitalitytechnology.wordpress.com/2012/01/02/housekeeping-technology-for-enhanced-efficiency/>.
10. How Technology is Changing the Hospitality Industry, M. Lam, Published: 2016, <https://tisoh.edu/how-technology-is-changing-the-hospitality-industry/>.
11. 4 AI Advances in the Hospitality Industry, C. Buttice, Published: 2018, <https://www.techopedia.com/4-ai-advances-in-the-hospitality-industry/2/33339>.
12. Five-housekeeping-innovations-to-transform-your-guest-experience Author: RAI Amsterdam, Unknown, <https://www.intercleanshow.com/news/data/five-housekeeping-innovations-to-transform-your-guest-experience/>.
13. Hotel Tech Report, Alison Guillot, Published: 2019, <https://hoteltechreport.com/news/hotel-housekeeping>.
14. Research Design: Definition, Characteristics and Types, A. Bhat, Published: 2021, <https://www.questionpro.com/blog/research-design/>.
15. hospitalityupgrade.com, hospitalityupgrade.com, Published: Unknown, https://www.hospitalityupgrade.com/_magazine/MagazineArticles/HousekeepingTechnology-Cleaning-Up.asp/.