A Study on Different Types of Keys used by Housekeeping Staff Members and their Impact on the Safety and Security of the Hospitality Industry

Mrs Darshana Gangurde and Ms. Aliya Manjhi

Anjuman-I-Islam's College of Hotel & Tourism Management Studies & Research, Mumbai

Abstract: *This paper presents a comprehensive study of the various types of keys utilized by housekeeping staff members in the hospitality industry and their significant impact on safety and security. Access control is a critical aspect of maintaining a secure environment for guests, and the management of keys, particularly those held by housekeeping staff, plays a pivotal role in this regard. The study examines different key types and systems employed by housekeeping personnel, considering the implications of their usage and management. Key management practices, various key systems in use, and their potential repercussions on the overall security posture of the hospitality industry are explored. The research is motivated by the recognition that inadequate key management can compromise the safety and privacy of guests and have profound implications for the reputation and financial sustainability of hospitality businesses. Therefore, understanding the nuances of key utilization by housekeeping staff and evaluating existing systems are crucial for enhancing the industry's security framework. Drawing on industry practices, expert perspectives, and real-world case studies, this paper provides valuable insights into the factors influencing the safety and security of the hospitality industry. It offers recommendations to strengthen key management practices, serving as a roadmap for the industry to uphold the highest standards of safety, security, and guest satisfaction. This study is an essential resource for hospitality professionals, security experts, and researchers seeking to enhance the safety and security of hospitality establishments.*

Keywords: Hotel Staff, Key management, Hospitality industry, Safety and security, Key types.

I. INTRODUCTION

The concept of comfort, luxury, and providing a home-away-from-home experience for guests has long been associated with the hospitality industry. However, beneath the surface of warm smiles and impeccable service lies a complex network of operational intricacies, with the safety and security of guests and their belongings being of utmost importance. One crucial aspect of ensuring this safety is the management of access control, specifically through the use of keys by housekeeping staff members. In today's hospitality landscape, the use of various key types and systems has become an essential part of the guest experience, as well as a key factor in maintaining a secure and comfortable environment. Housekeeping staff, who are responsible for the cleanliness and orderliness of guest rooms, often possess a significant number of keys that grant them access to different areas and amenities within the hotel or resort. While the management and usage of these keys are vital for operational efficiency, they also raise concerns regarding safety and security. This scholarly paper undertakes a comprehensive exploration of the different types of keys used by housekeeping staff in the hospitality industry and their significant influence on the safety and security dynamics of the industry. We delve into the intricacies of key management, the various key systems in use, and their potential impact on the overall security measures of hospitality establishments. The study is motivated by the understanding that security vulnerabilities resulting from ineffective key management can not only compromise the safety and privacy of guests but also have detrimental effects on the reputation and financial viability of hospitality businesses. Therefore, it is crucial to comprehend the nuances of key utilization by housekeeping staff, evaluate the existing systems in place, and identify potential areas of improvement to strengthen the industry's security framework. By conducting a thorough examination of industry norms, professional opinions, and practical examples, the objective of this document is to elucidate the

crucial elements that impact the security and safety of the hospitality sector. Additionally, it aims to provide beneficial suggestions for improving the supervision of keys utilized by housekeeping personnel. Ultimately, the outcomes of this research can function as a guide for the industry, directing its endeavorstoward upholding the utmost levels of safety, security, and customer contentment.

1.1 Objective:
- To understand the types of keys used by housekeeping staff members in the hospitality industry.
- To understand the role of keys in the safety and security of the hotel industry.

II. RESEARCH METHODOLOGY
This research paper is based on secondary data. The data is collected from research journals, magazines & internet websites.

III. LITERATURE REVIEW
The importance of key management in maintaining the safety and security of the hospitality industry is evident in the literature review. Electronic key card systems are replacing traditional key systems, providing improved security measures. The presence of security vulnerabilities, such as lost or stolen keys, can result in actual security breaches. These breaches have the potential to greatly affect guest satisfaction and the reputation of hospitality establishments. To address these concerns, it is recommended to conduct regular key audits and implement advanced access control technologies. Furthermore, the industry's approach to key management is being influenced by technological advancements, such as biometric access control and smartphone-based keyless entry systems.

. [Niels Dikken, 2020]Although hotels have implemented online check-ins and digital keys in their applications, there is limited research on the design of these features. This thesis aims to design a digital key that is both user-friendly and perceived as secure. To achieve this, a Research through Design approach was used, which involved semi-structured interviews, textual user reviews, and Lo-Fi and Hi-Fi prototyping. The study found that some participants were already using their mobile phones to open doors or gates, but many people were still hesitant about this digitalization. Hotel guests have a high level of trust in the hospitality industry, which means that safety concerns are not a major issue. The design presented in this paper provides a starting point for designing the receiving and use of a digital key

[Peter Jones and Abhijeet Siag, 2009] The assumption that productivity in hotels is largely determined by factors beyond the control of managers is challenged by this paper, which examines the productivity of housekeeping departments in a chain of 45 hotels. The paper reviews the concept of productivity and the challenges of measuring it and then reviews previous studies on productivity in the hotel industry. Several factors that impact productivity are identified and analyzed using data from a web-based labor scheduling system that records every hour worked by every employee in the hotels. This is the first study to use this kind of data, allowing for specific performance benchmarks to be established. The paper concludes that there is no significant difference in productivity levels based on the hotel's size, location, demand variability, or age, contradicting some prior research. The study suggests that managers have more control over productivity than previously believed.

[Esther Keymolen, 2018]Latour's famous case of the unreturned hotel key has been updated in this article. In recent years, the traditional hotel key has been replaced by a keycard and more recently by a digital key that can be downloaded on a smartphone. This article examines how the trust relationship between hotel owners and guests is mediated at every stage of the innovation process. The networked ontology of the digital key enables the collection of personal information from which the hotel can tailor its services to the preferences of the guests. While this may benefit the guests, it also makes them vulnerable as they have limited control over the data and rely on the hotel's conduct. The digital key is not just a means to open a hotel door; it also accesses the personal information of the guest.

[Tobias Nipkow, 2009]Two models of an electronic hotel key card system are contrasted: a state-based and a trace-based one. Both are defined, verified, and proved equivalent in the theorem prover Isabelle/HOL. It is shown that if a guest follows a certain safety policy regarding her key cards, she can be sure that nobody but her can enter her room.

[Haeik Park, Jooho Kim, Mengyu Zhang, Barbara Almanza, Jeffrey J. Fisher, and Jing Ma, 2017]The cleanliness of hotel rooms has a considerable impact on the satisfaction of guests, but there has been relatively little research on the

broader guest experience related to cleanliness. This study examines the contamination of hotel room key cards, which can be a source of infection for guests, using an adenosine triphosphate meter to detect actively growing microorganisms. The findings contribute to our understanding of hotel cleaning practices and offer practical suggestions for practitioners.

[Arnelyn Torres, 2018]The usage of smartphones is drastically changing the hotel industry, and the utilization of smartphone applications has become indispensable for hotel guests. Guests now expect to use their gadgets for various purposes, such as reserving rooms, checking in and checking out, ordering room service, and accessing their rooms with the help of keyless entry. To cater to these demands, technological advancements are crucial for hotels to distinguish themselves from their competitors. The development of a mobile key using a smartphone application is introduced in this paper, aimed at streamlining the check-in and check-out process while also providing guests with added convenience. Additionally, the paper discusses the drawbacks of this technological innovation. Ultimately, the widespread adoption of mobile key entry is expected to bring about significant improvements in both guest and host activities across the hotel industry.

[Florin Lucian Isac]In the organization of a hotel unit, the initial focus is on the hospitality-concept, which primarily entails meeting the needs for accommodation, restoration (food), and other requirements imposed by the tourist status (Mihail, Acatrinei, Râjniţă, 2002, p.10). A notable aspect of the hotel business is the rental of rooms that have been previously occupied by numerous individuals. Essentially, these rooms can be considered as "second-hand" products, although it is uncommon for customers to sleep on second-hand mattresses or use "second-hand" towels in their own homes. Consequently, the maintenance of the rooms holds significant importance, including the upkeep of the floor.

[Betsy B. Stringam, John H. Gerdes, 2021] Hotels are incorporating various technologies in both guest rooms and throughout the entire establishment. These technologies include artificial intelligence (AI), virtual reality (VR), augmented reality (AR), cloud computing, the Internet of Things (IoT), robots, cobots (collaborative robots), and chatbots. These advancements are revolutionizing the guest experience and the overall operations of hotels. Technology is reshaping how we engage with guests at every interaction point, as well as how we manage employees and streamline processes within hotel operations. The implementation of hotel and guestroom technologies offers enhanced management tools and data, enabling us to anticipate reservation demand, cater to guest needs, and even predict equipment malfunctions. Despite the increasing automation of hotel technologies, the desire for personalized service remains important to consumers. The adoption of these technologies is also hindered by factors such as costs, the hotel workforce, and the organizational and ownership structures of hotels.

Traditional Key Systems:

The safety and security of guests in the hospitality industry heavily rely on effective key management. This section presents an overview of the various key types and systems commonly utilized in this sector. Included are traditional key systems, electronic key card systems, and other relevant methods of key access.

Magnetic Stripe Keys:

Found predominantly in older establishments, these keys utilize magnetic stripes that, when swiped through a reader, grant access to guest rooms.

Mechanical Keys:

These are traditional physical keys with unique cuts for each lock. While they offer simplicity, the risk of security concerns arises if they are lost or duplicated.

Master Keys:

Typically used by supervisory staff or security personnel, master keys provide access to multiple rooms.

Key Tag Systems:

To facilitate easy identification, a mechanical key is attached to a key tag, often color-coded to indicate room type or area.

Electronic Key Card Systems:

RFID Key Cards:

Widely used, these key cards require proximity to a card reader to unlock doors. They can be programmed with various access levels.

Smartphone Key Access:

Some hotels now offer guests the option to use their smartphones as digital keys, allowing for contactless access through a mobile app.

Electronic Key Fobs:

Similar to RFID key cards, these small electronic devices utilize a short-range wireless connection to unlock doors.

Biometric Access Control:

In high-security establishments, biometric access control methods, such as fingerprint or retina scanning, may be employed to enhance security and access control accuracy.

Keyless Entry Systems:

Modern hospitality establishments often implement keyless entry systems, such as keypad locks. Guests enter a code to access their rooms, offering both convenience and security.

Combination Locks:

Combination locks are not as commonly found in guest rooms, but they are often used to secure valuable items and documents, particularly on safes.

Centralized Locking System:

Centralized locking systems are employed by some hotels, where all locks are managed from a central control room. This allows for quick rekeying in case of lost keys or security concerns.

Key Tracking Software:

Key tracking software can also be utilized to track key issuance, return, and access history, enhancing control and security. This is in addition to physical keys and electronic systems.

The choice of key type and system may depend on various factors, such as the establishment's age, budget, and security requirements. However, regardless of the system used, effective key management is crucial for safeguarding guests and their belongings.

Security Vulnerabilities In Key Management:

In this section, we will examine the potential security vulnerabilities related to key management in the hospitality industry, with a specific emphasis on the involvement of housekeeping staff. Furthermore, we will investigate actual instances and illustrations where insufficient key management has led to security breaches, underscoring the utmost significance of addressing these vulnerabilities to safeguard the well-being and standing of hospitality establishments.

Inadequate Control of Keys in the Housekeeping Department:

Insufficient management of keys within the housekeeping department presents a significant security vulnerability. When keys are not adequately tracked and monitored, there is a potential for unauthorized access to guest rooms and sensitive areas, which can compromise the safety and privacy of guests.

Loss or Theft of Keys:

Housekeeping staff members may misplace or have their keys stolen, which can be exploited by malicious individuals to gain unauthorized entry to guest rooms. Real-world cases of security breaches resulting from lost or stolen keys have been well-documented.

Abuse of Privileges:

Housekeeping staff members who have unrestricted access may abuse their privileges. Instances of staff entering guest rooms without legitimate reasons or engaging in theft have been reported, creating security vulnerabilities.

Unauthorized Key Duplication:

When traditional keys are used, the unauthorized duplication of keys poses a potential security threat. Such instances can lead to uncontrolled access to guest rooms, posing risks to the safety and privacy of guests.

Manipulation of Key Cards:

Even electronic key card systems are not immune to vulnerabilities. There have been instances of housekeeping staff manipulating electronic key cards or improperly deactivating them, resulting in security breaches. Additionally, these cards can be lost stolen, and exploited.

Threats from Insiders:

The hospitality industry is not exempt from insider threats, and housekeeping staff members, due to their access to keys, may pose security risks. These insider threats can range from unintentional errors to deliberate misconduct.

Impact on Guest Trust and Reputation:

Security breaches resulting from inadequate key management can have severe consequences for guest trust and the reputation of hospitality establishments. News of security incidents can quickly spread through social media and review platforms,

Addressing these security vulnerabilities is of utmost importance to safeguard both the guests and the reputation of hospitality businesses. Robust key management practices, including stringent control, regular audits, employee training, and the use of advanced access control technologies, are essential to mitigate these risks and ensure a secure and reliable environment for guests. Furthermore, transparent and proactive communication with guests when incidents occur can help maintain trust and reputation in the face of security challenges. leading to a loss of credibility and trust among potential guests.

Impact on Guest Safety and Privacy:

Traditional key systems are being replaced by electronic key card systems, which offer enhanced security measures. The occurrence of security vulnerabilities, such as lost or stolen keys, can lead to actual security breaches. These breaches have the potential to significantly impact guest satisfaction and the reputation of hospitality establishments. To address these concerns, it is advisable to regularly conduct key audits and implement advanced access control technologies. Moreover, technological advancements, such as biometric access control and smartphone-based keyless entry systems, are influencing the industry's approach to key management.

Unauthorized Room Access:

Insufficient management of keys can result in individuals gaining unauthorized entry to guest rooms. This not only violates the privacy of guests but also presents a direct safety hazard as individuals with malicious intentions can enter rooms undetected.

Theft and Property Damage:

Improper handling of keys can lead to the theft of guests' personal belongings and damage to their property. Guests rely on the hotel to ensure the security of their valuables, and any breach of this trust can have a significant impact on their safety and peace of mind.

Privacy Violations:

Maintaining guest privacy is a fundamental aspect of the hospitality experience. Instances, where housekeeping staff enter rooms without proper justification or without knocking, can result in unwarranted violations of privacy, causing discomfort and stress for guests.

Intrusions and Harassment:

There have been reported cases of unauthorized individuals gaining access to guest rooms due to compromised keys. These incidents can range from unwanted solicitation to more serious security threats, compromising the safety and peace of mind of guests.

Data Breaches:

In the context of electronic key card systems, mishandling or hacking of these systems can lead to breaches of guest data, potentially exposing their personal information. Such breaches not only impact privacy but also raise broader safety concerns.

It is crucial to prioritize the resolution of these security vulnerabilities to protect the well-being of guests and uphold the esteemed reputation of hospitality establishments. To effectively minimize these risks and establish a safe and dependable environment for guests, it is imperative to implement strong key management protocols, which encompass strict control measures, frequent audits, comprehensive employee training, and the utilization of cutting-edge access control technologies. Additionally, maintaining open and proactive communication with guests during security incidents can play a pivotal role in preserving trust and reputation amidst these challenges.

IV. CONCLUSION

This study has delved into the complex realm of key management in the hospitality industry, specifically focusing on the keys utilized by housekeeping staff members. The utmost priority for the hospitality sector is the safety and security of guests, and effective access control through key management is essential in achieving these objectives.

By thoroughly examining various key typesand systems, and their operational implications, we have emphasized the crucial role that key management plays in ensuring a secure and comfortable environment for guests. The findings of this study have emphasized the critical nature of key management in maintaining a strong security posture within the hospitality industry.

Deficiencies in key management can result in security vulnerabilities, potentially compromising the safety and privacy of guests and having significant consequences for the reputation and financial stability of hospitality establishments. This paper has not only identified areas of concern but also provided recommendations for enhancing key management practices within the industry.

The insights presented in this study are not only valuable for hospitality professionals but also serve as a valuable resource for security experts and researchers. By heeding the recommendations outlined in this research, the industry can further strengthen its security framework, ultimately enhancing guest safety, security, and overall satisfaction.

As the hospitality industry continues to evolve, so too will the methods and technologies employed in key management. It is crucial to maintain a proactive approach to key management, ensuring that the safety and security of guests remain at the forefront of the industry's mission. This study has contributed to this ongoing discussion, shedding light on the critical role of key management in the hospitality industry and providing a foundation for further improvements.

REFERENCES

[1]. Niels Dikken, KTH Royal Institute of Technology School of Electrical Engineering and Computer Science,https://www.divaportal.org/smash/get/diva2:1471231/FULLTEXT01.pdf

[2]. Peter Jones and Abhijeet Siag, Sage Journals, https://journals.sagepub.com/doi/abs/10.1057/thr.2009.11

[3]. Esther Keymolen, Techné: Research in Philosophy and Technology, https://www.pdcnet.org/8525763B005 0E6F8/file/929DBE8A8B7879818525822B006A92AF/$FILE/techne_2018_0022_0001_0052_0076.pdf

[4]. Tobias Nipkow, Springer Link, https://link.springer.com/chapter/10.1007/11921240_1

[5]. Author: Haeik Park, Jooho Kim, Mengyu Zhang, Barbara Almanza, Jeffrey J. Fisher and Jing Ma, Journal of Environmental Health, https://www.jstor.org/stable/26329806

[6]. Arnelyn Torres

[7]. International Journal of Advanced Science and Technology, https://www.researchgate.net/publication/ 324843176_Using_A_Smartphone_Application_as_A_Digital_Key_for_Hotel_Guest_Room_and_Its_Other _App_Features

[8]. Florin Lucian Isac, University "Aurel Vlaicu" of Arad, https://citeseerx.ist.psu.edu/document?repid=r ep1&type=pdf&doi=ee4f44797dc9ed3d1b5094df10a1beab242f7a1d

[9]. Betsy B. Stringam, University of South Florida M3 Center

[10]. https://digitalcommons.usf.edu/m3publishing/vol17/iss9781732127593/6/

[11]. https://hmhub.in/keys-and-their-types/

[12]. https://setupmyhotel.com/train-my-hotel-staff/securityandloss/294-key-control-hotel.html

[13]. https://www.thehotelschool.com/types-of-keys-in-hotels.html