

Innovative Trends and Practices in the Housekeeping Department: A Narrative Review

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ABSTRACT

Background:

The housekeeping department is integral to maintaining cleanliness, comfort, and operational excellence in hotels. With the rapid evolution of the hospitality industry, innovative practices in housekeeping have become essential to enhance efficiency, ensure sustainability, and elevate guest satisfaction. Modern advancements, including technology integration and green initiatives, have transformed traditional housekeeping methods, reflecting the industry's shift towards operational optimization and environmental responsibility.

Aim:

This review aims to examine the significance and impact of innovative trends and practices in the housekeeping departments of hotels. It seeks to explore how these advancements contribute to improved efficiency, environmental sustainability, and enhanced guest experiences.

Method:

A systematic review of peer-reviewed articles, industry reports, and case studies was undertaken. The literature was sourced from databases such as, ResearchGate, and Google Scholar using keywords like "housekeeping innovations," "hotel management practices," and "sustainable housekeeping trends."

Results:

The findings reveal significant trends in housekeeping innovation, including the adoption of technologies such as IoT-based monitoring systems, robotic cleaning devices, and AI-driven inventory management. Sustainability practices, such as the use of eco-friendly products, waste reduction initiatives, and energy-efficient equipment, have gained prominence. Employee training and development programs were consistently highlighted as critical to the successful implementation of these innovations. Despite these advancements, barriers such as high initial costs and technology adoption challenges were noted.

Conclusion:

Innovative housekeeping practices have transformed the hospitality sector, improving efficiency, guest satisfaction, and sustainability. However, challenges remain, particularly in accessibility for smaller hotels and staff adaptation to new technologies. Further research is necessary to understand the long-term implications and to facilitate widespread adoption across the industry.

Keywords: Innovative Housekeeping Practices, Sustainable Hotel Management, Automation in Hospitality, Guest-Centric Housekeeping Trends, and Technology Integration in Hotels.

INTRODUCTION

The housekeeping department plays a pivotal role in the hospitality industry, contributing significantly to a hotel's operational efficiency, guest satisfaction, and overall brand image. Traditionally perceived as a labour-intensive and service-oriented department, housekeeping has evolved to become a centre of innovation, incorporating technology, sustainable practices, and process optimization to meet the demands of a competitive market. The rapid transformation is driven by factors such as rising guest expectations for personalized and

hygienic services, the global push for environmental sustainability, and advancements in technology that streamline operations (Jones et al., 2018; Singh, 2019).

Technological innovations such as robotics, the Internet of Things (IoT), and cloud-based management systems have become integral to modern housekeeping. For example, robotic vacuum cleaners, autonomous delivery systems, and mobile apps for task management allow hotels to enhance efficiency while ensuring consistent service quality (Jones & Lockwood, 2022). These innovations have reduced dependency on manual labor for repetitive tasks, freeing up staff to focus on personalized guest services.

In parallel, the rise of sustainability has revolutionized housekeeping practices. Green initiatives such as the use of non-toxic cleaning agents, energy-efficient equipment, and waste management systems align with global environmental goals while appealing to eco-conscious guests (Smith et al., 2020). Moreover, the implementation of sustainability certifications like LEED (Leadership in Energy and Environmental Design) has encouraged hotels to adopt eco-friendly housekeeping practices as a competitive differentiator (Linnenluecke & Griffiths, 2021).

Another significant trend is the emphasis on guest-centric services. Modern housekeeping departments prioritize customization, offering amenities tailored to individual preferences, such as hypoallergenic rooms, aromatherapy kits, and personalized room layouts. At the same time, the pandemic era has heightened the demand for contactless services and heightened sanitation protocols, leading to the adoption of touchless technologies and app-based service requests (Woo, L., Assaf, A. G., Josiassen, A., & Kock, F. 2019).

Search Strategy for Identification of Studies

The search strategy was designed to access relevant, high-quality published literature on innovative trends and practices in the housekeeping department and comprised the following three stages:

1. Stage One:

Conducted a limited search in Google Scholar, ResearchGate, and Academia to identify relevant keywords contained in the title, abstract, and subject descriptors.

2. Stage Two:

The identified keywords and synonyms, along with Boolean operators (AND, OR), were used to conduct an extensive search in the selected databases and e-journals.

3. Stage Three:

Reviewed the reference lists and bibliographies of articles identified in stage two for additional relevant studies to ensure comprehensive coverage of the topic.

Table 1: Literature Search Details Table

Search Strategy	List of Databases and E-Journals Searched	Keywords Used	Limitations Applied
Initial keyword search using Boolean operators	Google Scholar, ResearchGate, Academia	Innovative housekeeping practices, hotel housekeeping trends, sustainable housekeeping, robotics in housekeeping, IoT in hotels, AI in hospitality	Publications from 2018–2023, English only.
Synonyms search	International Journal of Hospitality Management, Journal	Sustainable hotel housekeeping, automated cleaning technologies,	Peer-reviewed articles only, Full-text

	of Hotel and Business Management, ResearchGate	employee training for innovations, guest satisfaction, green cleaning	availability.
Reference list review	Bibliographies of retrieved articles from stage two	Terms related to trends and innovations in housekeeping (e.g., eco-friendly cleaning, technology in housekeeping, housekeeping efficiency)	Studies from diverse geographic regions.

Table 2: Structured and detailed summary of the findings from the reviewed studies

Author	Country	Study Design/Method	Sample	Result	Discussion
Sharma, A. & Singh, R.(2021)	India	Qualitative study, interviews with hotel managers	15 hotel managers from 5-star hotels	70% of hotel managers have adopted robotic cleaners and AI for inventory management. Sustainability practices like energy-efficient lighting and waste reduction were also common.	Technology adoption improves operational speed and cost reduction, but staff training to manage these technologies remains a challenge.
Wang, Y.-C., Qu, H., & Yang, J.(2020)	USA	Cross-sectional survey	200 hotel employees from mid-range hotels	85% of employees reported positive feedback on eco-friendly cleaning practices. Operational costs reduced by 10%.	Eco-friendly cleaning benefits both the environment and operational efficiency. Initial investment is a barrier for smaller hotels, though employee satisfaction increased.
Zhang, H. & Wang, L.(2022)	China	Case study approach	Case study of a luxury hotel chain in Beijing	IoT-based systems for real-time monitoring increased housekeeping efficiency by 15% and reduced human error.	IoT technologies optimize room turnover rates and resource management. Initial integration challenges were noted.
Ahmed, F. & Kumar, P.(2019)	UAE	Mixed-methods study (quantitative and qualitative)	50 housekeeping staff and 10 hotel managers	Staff training programs on new technologies and sustainability practices improved productivity and guest satisfaction.	Training ensures successful adoption of innovative practices, improving guest feedback and resource use.
Patel, S. & Thomas, J.(2023)	United Kingdom	Survey and observational study	30 luxury hotels in London	60% of hotels used green cleaning technologies, 40% used automated housekeeping robots. Guest satisfaction for cleanliness increased by 12%.	Sustainability and automation are key trends. High upfront costs of automation limit widespread adoption in all hotel segments.
Reddy,	India	Quantitative	100 hotel	Innovations in cleaning	Technological

P. & Gupta, A.(2018)		study, survey-based	staff members from various 3 and 4-star hotels	equipment, such as automated floor scrubbers, led to a 25% reduction in labor costs and improved cleaning efficiency.	advancements, especially in cleaning equipment, reduce labor costs and improve operational efficiency. Challenges remain with training and technology integration.
Green, L. & Hall, J.(2020)	Australia	Action research study	12 hotel housekeeping supervisors	The study revealed that implementing green certifications and eco-friendly cleaning products reduced the hotel's environmental footprint by 15%.	Green certifications and eco-friendly products are effective in promoting sustainability but require an upfront investment in product sourcing and certification processes.
Thomas, R. & Brown, S.(2019)	USA	Longitudinal study	5 luxury hotels over a 2-year period	Over two years, the use of robotic vacuum cleaners and AI-driven scheduling reduced room cleaning time by 20%.	Automation in housekeeping improves time efficiency and reduces human error, although high upfront costs may deter smaller hotels from adopting such technologies.
Choi, E. & Kim, H.(2021)	South Korea	Mixed-methods study (qualitative interviews and quantitative surveys)	15 housekeeping managers and 120 staff members	The integration of smart sensors and energy-efficient equipment helped reduce the hotel's operational energy consumption by 18%.	Smart technologies contribute to both operational savings and environmental sustainability. Challenges include the cost of system installation and training for staff.
Lopez, M. & Sanchez, D.(2022)	Spain	Case study and observational research	A case study of a hotel chain across 5 cities	The implementation of automated cleaning robots and guest-requested room services led to a 30% increase in guest satisfaction for cleanliness.	Automated cleaning and guest-request systems enhance guest experiences but require a significant investment in technology and staff training.

RESULTS AND DISCUSSION

1. Operational Efficiency Through Technological Integration

Findings from Results: IoT systems improve real-time monitoring, robotic devices enhance task precision, and AI-driven management reduces operational delays and waste. Robotic cleaners and automated scheduling have been particularly impactful in reducing room turnover times by up to 20%.

Discussion: These technologies streamline repetitive tasks, enabling faster service delivery and minimizing human error. However, high initial costs and integration challenges, especially in older establishments, limit widespread implementation. For smaller hotels, modular and cost-effective solutions are essential to access these benefits.

2. Advancing Sustainability Practices

Findings from Results: Eco-friendly cleaning products, energy-efficient equipment, and improved waste management practices reduce environmental impact and operational costs. The adoption of sustainability certifications like LEED further enhances brand credibility.

Discussion: Sustainability practices align with global environmental goals and attract eco-conscious guests. Hotels incorporating green initiatives experience improved operational efficiency, such as a reduction in energy consumption by 18%. However, smaller properties often struggle with the upfront costs of eco-friendly products and certification processes. Public-private collaborations can help mitigate these barriers.

3. Enhanced Guest Experience Through Personalization

Findings from Results: Customized amenities like hypoallergenic rooms, touchless technologies, and mobile app-based service requests significantly enhance guest satisfaction. Studies show a 30% increase in guest satisfaction in hotels adopting such practices.

Discussion: Personalization has emerged as a critical differentiator in competitive markets. Modern housekeeping innovations cater to individual preferences while addressing heightened hygiene expectations. However, such innovations require substantial investment in both technology and staff training to maintain consistency in service quality.

4. Importance of Employee Training and Development

Findings from Results: Effective training programs enable staff to adapt to new technologies and sustainability protocols, boosting productivity and guest satisfaction. Hotels that prioritize training report higher success rates in implementing innovative housekeeping practices.

Discussion: Training ensures smooth technology integration and sustainability compliance, reducing resistance to change among staff. However, training programs require ongoing investment and time, which smaller hotels may find challenging. Partnerships with training organizations could provide cost-effective solutions.

5. Barriers to Innovation Adoption

Findings from Results: High costs of robotic devices, IoT systems, and sustainable products are significant barriers for smaller properties. Resistance to technology and limited staff adaptability further constrain implementation.

Discussion: Despite long-term cost savings, the upfront financial burden discourages smaller hotels from adopting these innovations. Collaborative efforts between technology providers and hospitality businesses could offer leasing options or subsidies to make advanced systems accessible to a broader range of hotels.

6. Balancing Technology with Human Touch

Findings from Results: Automation improves efficiency but risks reducing the personal element of service. Studies highlight that while operational efficiency improves, guest satisfaction depends heavily on human interaction for personalized experiences.

Discussion: Hotels must find a balance between automation and human touch. Technology should complement, not replace, personalized guest interactions. Continuous feedback mechanisms can help refine this balance.

7. Long-Term Implications of Innovations

Findings from Results: Long-term adoption of innovations shows significant benefits in operational efficiency, guest loyalty, and sustainability, despite initial hurdles. For example, hotels adopting robotic cleaning systems report consistent reductions in labor costs over two years.

Discussion: Innovations deliver measurable benefits over time, making them a worthwhile investment for future competitiveness. Strategic planning, focusing on gradual implementation, can ensure that even resource-constrained hotels benefit from these advancements.

RECOMMENDATIONS AND CONCLUSION

Hotels should focus on adopting scalable and cost-effective innovations, particularly smaller establishments with limited resources. Modular technologies like standalone robotic cleaners or cloud-based inventory systems can provide immediate efficiency improvements without significant financial strain. Integrating sustainability practices, such as eco-friendly cleaning agents, energy-efficient equipment, and waste management programs, is essential for aligning with global environmental goals and attracting eco-conscious guests. Public-private partnerships and subsidies can help overcome financial barriers to implementing these green initiatives. To ensure smooth adoption of innovations, comprehensive staff training programs must be prioritized. Collaborations with industry organizations or online learning platforms can provide cost-effective training options to enhance staff adaptability and productivity.

It is also critical to focus on personalized guest experiences, ensuring that technological advancements do not replace the human touch but rather complement it. Customization of amenities, efficient service delivery, and personal interaction can enhance guest satisfaction significantly. Hotels can further benefit from partnerships with technology providers, sustainability consultants, and training organizations to reduce costs and share expertise. Implementing pilot programs allows hotels to test and refine innovations before full-scale adoption, reducing risks and optimizing results. Additionally, pursuing certifications like LEED or collaborating with environmental agencies can enhance brand credibility and attract eco-conscious travellers.

The adoption of innovative housekeeping practices is transforming the hospitality industry by improving operational efficiency, sustainability, and guest satisfaction. Technological advancements such as IoT, robotics, and AI streamline processes and reduce manual errors, while green initiatives align with global environmental objectives and appeal to environmentally conscious guests. Despite challenges such as high upfront costs and staff resistance to change, these innovations present significant long-term benefits, including reduced operational costs, enhanced guest loyalty, and a stronger competitive position. Addressing barriers through scalable solutions, robust training programs, and industry collaboration will ensure widespread accessibility and adoption. Ultimately, balancing technological innovation with the human touch is key to meeting evolving guest expectations and achieving sustainable growth in the hospitality sector.

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