From Luxury to Responsibility: The Evolution of Hotel Pools through Smart Technology

Source: Pixabay (2017)

Background

Due to their high water and energy usage, swimming pools have traditionally been viewed as expensive and environmentally unfriendly. However, recent innovations have made it possible for pools to become more efficient and sustainable, showcasing a hotel's commitment to responsible tourism (Hospitality Technology, 2025). This case study will explore how smart, eco-friendly pools are emerging as a new status symbol for hotels.

By integrating water meters, sensors, and software, smart pool systems enable hotels to monitor variables such as water level, temperature, and power usage in real time. This provides actionable insights for managers to minimize excessive water and energy consumption (Fluidra, 2024). Additionally, these systems can detect unusual usage patterns and alert managers to potential leaks, significantly reducing the risks of service disruptions and maintenance costs (Hotel Technology News, 2024a). As a result, smart pool systems promote efficient use of resources while offering cost savings for hotels.

Traditionally, pool maintenance has been carried out manually by hotel staff with sufficient understanding of water chemistry, filtration systems, and compliance protocols. However, smart pool systems can help control water quality and uphold safety standards in a more ideal and efficient way through automation (Hotel Technology News, 2024b). For example, many hotels are now adopting smart dosing technology, where chemicals such as chlorine flocculant are automatically injected into the pool to keep pH levels optimal and maintain a safe, healthy condition for swimmers (Smart Water Magazine, 2022).

Apart from incorporating smart systems to manage their pools, hotels are also seeking more eco-friendly alternatives. For example, some hotels are utilizing sustainable materials, such as recycled glass tiles and nontoxic sealants, to build their pools (Hospitality Technology, 2025).

Similarly, plants and biological filters are also used to replace chlorine-based chemicals in controlling water quality (Hospitality Technology, 2025).

Challenges

While recent innovations have enabled pools to become more efficient and sustainable, the initial investment in smart technology and sustainable materials can be substantial, particularly for existing pools that are heavily invested in legacy systems. Consequently, implementing these advanced technologies often requires extensive renovations, which can lead to prolonged service disruptions. Furthermore, although smart systems reduce much of the manual labor, specialized knowledge and training for staff are still necessary to optimize the use of the smart technology.

Discussion Questions

1. How do smart pool systems help in reducing water and energy consumption for hotels?

2. In what ways can smart pool systems enhance the safety and quality of pool water compared to traditional manual methods?

3. How can hotels facilitate a smooth transition from legacy systems to smart, eco-friendly systems while minimizing service disruption?

4. What role do guests play in supporting or demanding sustainable pool practices?

5. What advancements in smart pool technology can we anticipate in the next five to ten years, and how might they further enhance sustainability and efficiency?

References

Fluidra. (2024). How digital twin technology is the upcoming transformative tool for pool management. Retrieved from https://www.fluidra.com/commercial-solutions/inspiration/blog/digital-twin-technology/

Hotel Technology News. (2024a). VivoAquatics Launches Smart Water Usage and Leak Detection Platform to Help Hotels Meet Conservation Targets. Retrieved from https://hoteltechnologynews.com/2024/05/vivoaquatics-launches-smart-water-usage-and-leak-detection-platform-to-help-hotels-meet-conservation-targets/

Hotel Technology News. (2024b). Why Hotels Need Next-Generation Swimming Pool Water Management Technology. Retrieved from https://hoteltechnologynews.com/2024/04/why-hotels-need-next-generation-hotel-pool-water-management-technology/

Hospitality Technology. (2025). How Smart, Eco-Friendly Pools Are Becoming the New Status Symbol for Sustainable Travel. Retrieved from https://hospitalitytech.com/how-smart-eco-friendly-pools-are-becoming-new-status-symbol-sustainable-travel

Pixabay. (2017). Swimming pool, Outdoor, Hotel. Retrieved from https://pixabay.com/photos/swimming-pool-outdoor-hotel-2386261/

Smart Water Magazine. (2022). Swimming with the tide – smart IoT solutions for pool users and engineers. Retrieved from https://smartwatermagazine.com/news/seko/swimming-tide-smart-iot-solutions-pool-users-and-engineers

Keywords

- Hotel
- Pool Technology
- Smart Pool System
- Property Management
- Sustainability
- Water and energy efficiency