

Chapter 8

AI–Powered Smart Revenue Management in Hospitality: Integrating Innovation, Ethics, and Practical Strategies

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ABSTRACT

This chapter examines the transformative influence of artificial intelligence on rev-

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venue management and yield optimization within the hospitality industry. It provides a comprehensive analysis of AI-driven techniques—including advanced machine learning algorithms, predictive analytics, and IoT integrations—that enable dynamic pricing, demand forecasting, and optimized inventory control. Drawing upon an extensive bibliometric review and thematic synthesis of literature spanning several decades, the chapter critically addresses both the operational benefits and the multifaceted challenges, such as technological integration, organizational restructuring, and ethical considerations, that shape the adoption of AI systems. Additionally, it explores innovative applications designed to enhance guest experiences and secure sustainable competitive advantages, while delineating a robust strategic framework that underscores future advancements in the rapidly evolving hospitality sector.

INTRODUCTION

Hospitality is changing its revenue management methods from simple, immutable systems to complex systems that use artificial intelligence (Seli, 2024). As the demand for hotels fluctuates and competition increases, artificial intelligence helps them improve their prices, anticipate future trends, and adapt their guest experience. These technologies are now at the core of today's revenue management, which relies on forecasts and immediate decision making (Seli, 2024). As a result, demand forecasts are calculated automatically; marketing is tailored to each guest, and rates are regularly adjusted to account for competition, weather, events, and guest activities. With generative artificial intelligence, marketing can send unique content and suggestions based on each person's interests, and blockchain improves price transparency and security (Rubinacci, 2024a). The addition of IoT devices increases the efficiency of operations and their environmental contribution.

Different sectors are using artificial intelligence to help manage their revenues. Hotels using the system claim to have seen increased operating revenues and average hotel prices. Artificial intelligence is making hoteliers more efficient and responsive, making such tools indispensable today (shortlisting by (Vandika, 2024)). For example, the use of artificial intelligence in dynamic pricing by Marriott has resulted in a 5-7 percent increase in revenue per available room (RevPAR), as well as the use of information on guest demand and how other hotels compete. The same thing happened to a boutique hotel in Singapore; in six months, it had seen a 10 percent increase in guests and much fewer booking errors, thanks to the installation of a Revenue Management System (RMS) that was linked to its Property Management System (PMS) by AI. Simultaneously, artificial intelligence is changing how people stay in luxury hotels by offering them special programs and services. Under the General Data Protection Regulation (GDPR), the California Consumer

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