Chapter 22
Beyond the Storm:
Harnessing AI for Effective Tourism Crisis Management

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ABSTRACT

This study explores the impact of artificial intelligence (AI) on both smart human resources and crisis management. It also examines how smart human resources influences crisis management and mediates the relationship between AI and crisis management. PLS-SEM and WarpPLS 7.0 statistical software were employed to analyze survey responses from 464 managers and supervisors at travel agencies, hotels, and airlines in Egypt and Saudi Arabia. The findings indicate that AI positively impacts both smart human resources and crisis management. Furthermore, smart human resources have a positive effect on crisis management and partially mediates the relationship between AI and crisis management. This research provides valuable insights for organizations on implementing AI and smart human resources practices to enhance resilience and crisis management efficiency in the tourism and

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hospitality sector.

INTRODUCTION

Artificial Intelligence (AI) is transformative for the tourism and hospitality sector, significantly enhancing service delivery and business operations. AI technologies revolutionize the industry by personalizing customer experiences, optimizing operations, and improving decision-making processes (Mohamed et al., 2022). Additionally, AI contributes to operational efficiency through predictive analytics, which can forecast demand trends, optimize pricing strategies, and manage inventory more effectively, allowing businesses to maximize profitability while minimizing waste. Moreover, AI's capability to quickly analyze vast amounts of data aids in strategic planning and market analysis, making tourism and hospitality businesses more agile and competitive in a rapidly evolving global market (Gaafar, 2020).

The significance of AI in crisis management within the tourism and hospitality sector is immense, particularly given the industry's susceptibility to unpredictable events such as natural disasters, economic downturns, and pandemics. AI greatly enhances the sector's ability to respond effectively to crises, ensuring both guest safety and operational continuity (Farahat, 2023).

AI technologies enable real-time data analysis, which is crucial during a crisis. This capability allows businesses to rapidly assess information and make informed decisions swiftly (Gupta et al., 2022; Dubey et al., 2021). For example, AI can predict the impact of natural disasters on travel patterns and hotel bookings, allowing businesses to adjust operations and communicate timely information to guests. Additionally, AI-driven systems can automate communication flows, providing instant updates to guests about changes in travel plans or safety procedures, which is essential for maintaining trust and transparency during uncertain times (Farheen et al., 2024; Heilig & Scheer, 2023).

Furthermore, AI can optimize resource allocation during emergencies by predicting areas of greatest need and coordinating logistics accordingly. This might involve managing staff deployments, adjusting supply chains, or reallocating rooms to accommodate displaced guests or emergency workers. AI's predictive analytics also enhance preparedness for future crises, allowing businesses to analyze past incidents and improve their contingency planning (Chen et al., 2019; Agarwal et al., 2024).

AI plays a vital role in smart human resource management within the tourism and hospitality sector. It transforms recruitment and selection processes by using algorithms to efficiently identify the most suitable candidates. AI optimizes workforce planning and scheduling by analyzing historical data and predicting demand patterns, which improves operational efficiency. It also enhances training and de-