

Service innovation as a form of *Omotenashi* at tourism destinations – A case study of Shirahama, Wakayama prefecture

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Abstract

Service innovation has supported the development of the tourism industry for decades. Recently, an increasing number of destinations have applied smart technology to enhance tourists' travel experiences. This study focuses on how service innovation can be a form of *Omotenashi* at a tourist destination using Shirahama as a case study. The findings indicate that tourists' willingness to use such innovations is essential to the success of these initiatives and that the empathy provided by human employees can increase customer satisfaction with the robots used in service. This study offers a broad understanding of the proper use of new technologies at tourist destinations.

Keywords

Service innovation
Facial recognition
Robot
Omotenashi
Shirahama

Introduction

Information and communication technology (ICT) is revolutionizing the tourism industry and influencing service provision (Buhalis, 2019). From assembly lines to complex systems that combine hardware, sensors, data storage, microprocessors, software, and connectivity, intelligent ICTs are reshaping best practices and driving service providers to dynamically optimize performance (Buhalis et al., 2019). As a practice in smart tourism destinations, service innovation has attracted significant attention from businesses and academia. In business, service innovation is seen as an efficient method of increasing customer satisfaction and enhancing the customer experience during service encounters (Tajeddini et al., 2020; Victorino et al., 2005). In academia, service innovation research can be organized around three perspectives: 1) assimilation, which focuses on the impact of new technology; 2) demarcation, which highlights the fundamental differences between the new product and current offerings; and 3) synthesis, which provides an integrative perspective, suggesting that service innovation is more than mere technological innovation (Witell et al., 2016).

Omotenashi, meaning “excellent service,” originated in the Japanese tea ceremony and includes both tangible aspects (e.g., delicious cuisine) and intangible aspects (e.g., tailoring the service to serve customers better). With the rapid development of ICT, service innovation has become a way of revolutionizing *Omotenashi* at tourism destinations. This study approaches service innovation from a synthesis perspective to examine how service innovation can be applied as a form of *Omotenashi* at a tourism destination.

Service innovation in the tourism industry

The tourism industry has been one of the pioneering sectors in applying new technologies. In the early 1950s, mainframe computers appeared in airline electronic reservation systems, coinciding with the rapid growth of the airline industry. Many such systems were applied to the tourism industry between 1960 and 1990 (Law et al., 2014). While the period from 1990 to 2005 is often referred to as the “e-tourism era,” enabled by

internet networking (Buhalis, 2019), during which the Google engine revolutionized online information searches (Xiang & Gretzel, 2010) by providing more options for tourists' decision-making. With the advent of Web 2.0, tourism entered a new era called “tourism 2.0” after 2005, when social media platforms became essential sources for collecting travel-related information (Confente, 2015; Gössling, 2016; Xiang & Gretzel, 2010). Online travel communities and social networks revolutionized communication, shifting from simple producer-to-consumer interactions to more complex models, such as consumer-to-consumer, consumer-to-producer, many-to-one, one-to-many, one-to-one, and many-to-many interactions (Buhalis, 2019).

Since 2015, smart tourism has gained attention and has been perceived as a critical objective for future tourism development in many countries (Najafipour et al., 2019; Ren et al., 2018, Chapter 9). Nowadays, various new technologies, such as artificial intelligence (AI), robotics, augmented reality (AR), virtual reality (VR), and facial recognition, are widely used in the tourism industry, signaling a new era for the sector. Biometric recognition, in particular, has been widely used in recent years. Biometric recognition refers to the automated identification of individuals based on their biological and behavioral characteristics, such as fingerprints, face, iris, voice pattern, heart rate, hand geometry, brain activity, and body movement (Jain et al., 2016). Marketing research first utilized eye tracking for qualitative analyses purposes to accurately track consumers' attention and gaze while shopping and their points of interest while browsing websites (Ohme et al., 2011). In the tourism industry, many businesses are adopting facial recognition technology for customer check-in and room key provision at hotels. These technologies support service innovation and are recognized as decisive to the digital transformation of the tourism industry.

Service innovation in Shirahama, Wakayama prefecture

Shirahama is a resort town on the southern coast of the Wakayama prefecture, known for its hot springs and quartz sand beaches. Many popular tourist spots attract millions of visitors every year. Shirahama is also famous for its efforts in service

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innovation. The following sections will introduce case studies of the town's collaboration with NEC Corporation and Adventure World's engagement with sustainable development goals (SDGs) through new technologies. These case studies will delve into how service innovation functions as a form of *Omotenashi* at a tourist destination.

Findings from the IoT *Omotenashi* service demonstration in Shirahama

Since January 2019, NEC Corporation has engaged into the collaborations with the Nanki-Shirahama Tourism Association to implement facial recognition technology across various touchpoints, including the airport, hotels, restaurants, and a theme park (NEC, n.d.). Tourists using the IoT *Omotenashi* service demonstration must register their facial data and credit card information for biometric authentication via a smartphone web browser or by scanning a QR code in the arrival lobby of Nanki-Shirahama Airport. Once registration is completed, facial recognition cameras installed at hotels, commercial facilities, theme parks, and other tourist attractions allow tourists to conveniently access various services, such as receiving welcome messages (making cashless payments, unlocking doors with keyless access, entering without tickets (Figure 1), taking photos, checking baggage wait times, and more.

Biometric identification enables a new form of personalized tourism tailored to the needs of individual tourists. In addition, facial recognition IDs that can be used throughout the region are expected to improve both the flow of visitors and the per-unit spending of tourists. Accordingly, this initiative is anticipated to enrich tourists' smart experiences during travel. However, staff members directly involved with the service have reported that the number of tourists who have actually used this innovative service has been limited. Indeed, the cost of maintaining facilities that support facial recognition-enabled cashless payments, ticketless entry, and other related services is very high. If use numbers remain low in the future, companies that introduced these facilities have indicated that they may withdraw from the service demonstration. Overall, service innovation in Shirahama still faces

many challenges. The current case is driven by business companies rather than customers, raising questions about whether company-driven innovation can meet customers' potential needs.

Analysis of *OriHime* usage at Adventure World, Shirahama

Adventure World, an amusement park in Shirahama, has been engaged with SDGs for several years. One of their initiatives is using a service robot named *OriHime* to guide tourists. Unlike AI robots such as *LOVOT*, *Pepper*, *AIBO*, and *Romi*, *OriHime* can be remotely operated by individuals who cannot leave their homes due to disabilities, incurable diseases, or caregiving responsibilities. These operators behind *OriHime* guide tourists around the park, introduce animals, and even assist restaurant staff by guiding tourists during peak times (Figure 2). Therefore, *OriHime* can be seen as an "alter ego robot" for the individuals who operate it. By using *OriHime*, which conveys a sense of presence, guests can be served as if the operators were physically present, thereby achieving a unified communication experience. Staff at the restaurant reported that *OriHime* operates well, and many tourists interact positively with the robot while waiting.

This initiative is closely related to SDG #10, "Reduced inequalities," as the inequality caused by disabilities can be mitigated through service innovation. In this context, *OriHime* offers a new interpretation of *Omotenashi*. Traditionally, *Omotenashi* has been provided directly by service staff through high-quality service performance. However, in the case of *OriHime*, *Omotenashi* becomes an empathetic connection between service staff and customers. Service innovation has made it possible to share the desire for connection within society, resulting in social innovation. In recent years, more tourism and hospitality companies have introduced AI robots to serve customers, aiming to increase service efficacy. Although the advantages of AI robots on the service front are well recognized, many companies tend to overemphasize the advantages of using AI robots while undervaluing the essential role of human staff. Thus, the case of *OriHime* prompts reflection on finding the right balance between frontline employees and service innovations.

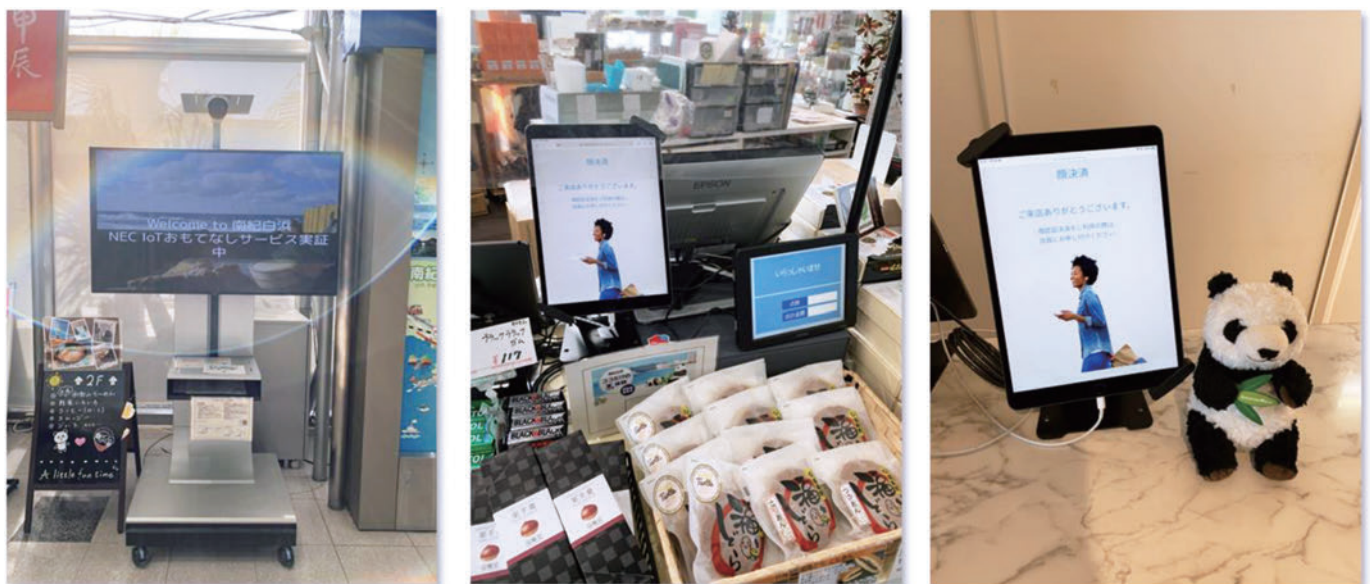


Figure 1. Facial recognition practices in Shirahama Town
(Left) Welcome message at Kumano-Shirahama Resort Airport
(Middle) Cashless payment at Kumano-Shirahama Resort Airport
(Right) Ticketless entrance at Adventure World, Shirahama
Source: All photos were taken by authors, March 1st, 2024

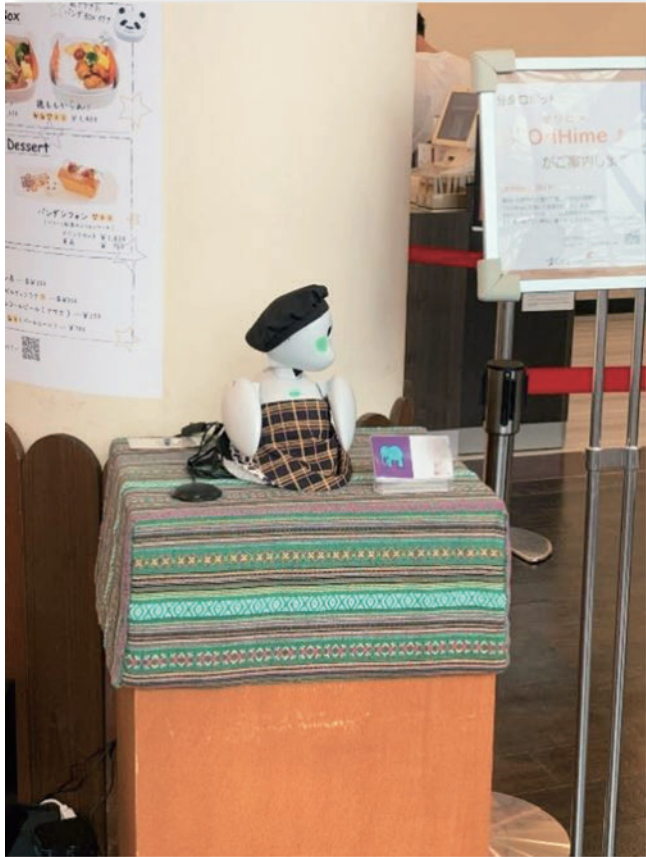


Figure 2. OriHime at Adventure World's Jambo restaurant
Source: Photo was taken by authors, September 9, 2024

Discussion and Conclusions

Tourism is increasingly characterized by changing markets and consumer preferences, resulting in constant modifications to tourism products and processes, seemingly at an accelerating rate (Hall & Williams, 2008). However, service innovation in the tourism industry, as a form of *Omotenashi*, still faces numerous challenges, including tourists' reluctance to adopt new technologies and companies' excessive expectations of nonhuman service providers.

Promoting customers' willingness to use services

Hall and Williams (2008) famously used the phrase "innovate or die" to express the importance of service innovation in the tourism industry, as companies must innovate to survive competitive pressures. However, the reality is that companies' enthusiasm for service innovation does not always reflect customers' willingness to use these innovations, raising the fundamental question of "Why innovate?". Customer experience is considered an essential product output in many tourism areas and is a focal point of innovative business activity. Customer experience is considered an essential product output in many tourism areas. It is a focal point of innovative business activity that requires drivers of innovation (businesses) to better understand why users (end customers) would or would not adopt the new services. Shirahama strives to become a smart destination by applying new technologies to innovate traditional services. Therefore, it is essential to examine the adoption of service innovation through the lens of individual tourists rather than overemphasizing how these new technologies can enhance the tourist experience from the companies' perspective. To encourage tourists to use innovative

services, nudge theory in behavioral economics offers useful insights; practitioners can influence and promote changes in tourist behavior through small triggers.

Empathy created through service robots

Service providers must critically consider how AI applications in hospitality and tourism influence service usage, and AI-enabled robots offer a viable alternative to human employees in tourism (Jabeen et al., 2022). From a managerial perspective, AI-enabled robots are expected to enhance customer experiences and serve customers as effectively as human employees. From an academic perspective, previous studies have indicated that the perceived interactivity of technology is becoming more critical for advanced robot acceptance models (Go et al., 2020). Indeed, Larivière et al. (2017) demonstrated that robots will eventually surpass humans in cognitive tasks, with human input only necessary for duties requiring empathy and emotion. However, customer satisfaction and delight cannot be achieved without empathy and emotion during service encounters. Therefore, the essential role of human employees should be addressed. Although the project's original purpose was a social contribution, *OriHime* is an excellent example of how human employees can convey empathy through a robot. Following this logic, innovation has wider social ramifications and can play a positive role in sustainable tourism development.

In conclusion, although competitive advantages may drive service innovation in the marketplace, innovation is not solely about unfettered competition. It is a way of delivering *Omotenashi* that benefits both tourists and employees. In the future, practitioners will be encouraged to evolve the practice of *Omotenashi* from providing excellent service to offering more customized recommendations that meet the individual needs of tourists. A comprehensive customer database is essential to achieving this goal. Future research should continue to explore this important topic, addressing current gaps in the literature and providing actionable insights for the tourism industry to create more inclusive and empowering experiences for all travelers.

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