An exploratory study of AI intervention on Co-creation of Tourism Services in Oman

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Structured abstract

- **Purpose:**

  There are unprecedent efforts by government to enhance the tourism sector in the Sultanate of Oman. This is in line with the Oman Vison 2040 as to explore diversified income sources other than oil in the short and long run. As AI is omnipresent in contemporary business scenario, there is a dire need to explore the intervention of AI. AI is used not only for enhancing quality but also to improve the impact of tourism services over the whole economy. This paper will provide insights as to how AI may support various players of co-creation in the tourism sector. Moreover, co-creation is important while disseminating satisfaction to the customers in the tourism sector. The proposed research methodology will be descriptive as to go deep with the factors affecting the co-creation of tourism services. As an outcome of this research a model will be proposed exploring the main customer-based factors with technical AI tools for co-creation of tourism services in the Sultanate of Oman.

- **Originality:**

  The proposed study is going to fill the gap in terms The cultural context and acceptance of AI in tourism may present a research gap, particularly regarding Oman's unique cultural characteristics. Although AI's role in tourism has been extensively studied worldwide, the success and effectiveness of AI in co-creation processes may differ due to local consumer behaviors, which may not always align with Western assumptions. Investigating how Omani culture, hospitality traditions, and consumer expectations influence the acceptance and success of AI-driven co-creation could provide valuable insights (Gursoy & Chi, 2020).

  There is a potential research gap regarding the infrastructure needed for AI adoption in Oman's tourism sector. While there have been some advancements in AI, challenges related to the country's readiness—such as limited internet access, varying rates of technology adoption, and digital literacy—may hinder progress. Research is needed to explore ways to overcome these technological barriers to ensure AI can effectively contribute to co-creating tourism services (Sheehan & Morrison, 2019).

- **Brief Literature Review:**

AI's role in personalizing tourism experiences is well-documented, since last two decades. This includes understanding how AI can be used to co-create unique and personalized itineraries, experiences, and services for different types of travelers. There is a need to explore how AI can collaborate with tourists in designing their own experiences, especially in emerging markets like Oman (Ivanov & Webster, 2020). Personalization is not limited to product offerings but also involves the entire customer journey, from pre-trip planning to post-trip services. Personalizing the customer journey helps to ensure a seamless experience. Nielsen (2017) highlighted that modern tourists expect a consistent and personalized experience throughout the entire travel journey, from pre-trip research to post-trip feedback. McKinsey & Company (2019) suggested that personalization in tourism could significantly boost customer loyalty and increase spending, as it leads to a more fulfilling and engaging experience.

The study by Liao & Chou, (2021) explains the research gap lies in how tourists trust AI during co-creation processes. In Oman, with its specific socio-economic environment and traditional tourism practices, understanding how to build trust in AI systems could be crucial. Research could investigate the role of human-AI interaction and how it affects tourists' willingness to engage in co-creation of services. Much of the research around AI in tourism has been focused on large-scale operators and global tech giants. There is limited research on how small and medium-sized enterprises (SMEs) in Oman's tourism industry can adopt AI to enhance their service offerings through co-creation. This gap presents an opportunity for exploring AI's role in empowering local businesses to enhance customer interaction and service delivery (Guttentag, 2020).

Sustainability is a growing priority in the global tourism industry. However, AI's role in promoting sustainable tourism practices in Oman, such as responsible tourism, reducing environmental impacts, or enhancing the sustainability of co-created services, has not been fully explored. Research can delve into AI's potential to foster sustainability within Oman's tourism sector, balancing innovation with environmental and cultural preservation (Sigala & Gretzel, 2021). AI also enhances the sustainability of tourist experiences by providing personalized, low-impact alternatives. For example, AI-driven recommendation systems can suggest eco-friendly destinations, accommodations, and activities that align with sustainable tourism principles. Buhalis & Amaranggana, (2015) highlighted the use of AI in recommending sustainable experiences, such as eco-tourism and cultural heritage activities, based on tourists' preferences. AI is increasingly being used in environmental conservation efforts within the tourism industry. Elia et al., (2022) highlighted AI applications in wildlife conservation efforts, where AI-driven cameras and sensors track endangered species and monitor the impact of tourism on biodiversity.

- **Design/Methodology/Approach:**

Descriptive methodology is an appropriate approach for identifying and understanding the factors influencing the co-creation of tourism services. This methodology allows researchers to explore and describe the various aspects of co-creation in tourism, such as stakeholder involvement, customer preferences, and service quality, in a systematic and detailed manner. The following are the reasons for using a descriptive methodology in studying the factors affecting the co-creation of tourism services The proposed methodology enabled the researchers to *Capture Diverse Perspectives, Identifying Patterns and Relationships, Describing Current Practices and Trends, Flexibility in Studying Different Aspects of Co-Creation and Comprehensive Data Collection. The instrument used was a comprehensive survey, including different stakeholders and their perspective* (Prahalad & Ramaswamy, 2004). By systematically describing these elements, researchers can establish how certain factors, such as cultural differences, customer engagement strategies, or technological tools, contribute to the success of co-created tourism services. The research instrument helped document current practices and trends in the tourism industry, especially regarding customer participation and the role of innovation in co-creation (Hoyer et al., 2010). Versatility in examining different facets of co-creation, including participants' motivations, perceived value, and the influence of technology. Survey analysis illustrated how these factors appear in actual tourism settings (Grönroos, 2011).

- **Results:**

The framework is a result of survey analysis from 200 respondents. The valid population includes the inbound tourist to the Sultanate. The data was collected at various tourist locations within the Sultanate of Oman.

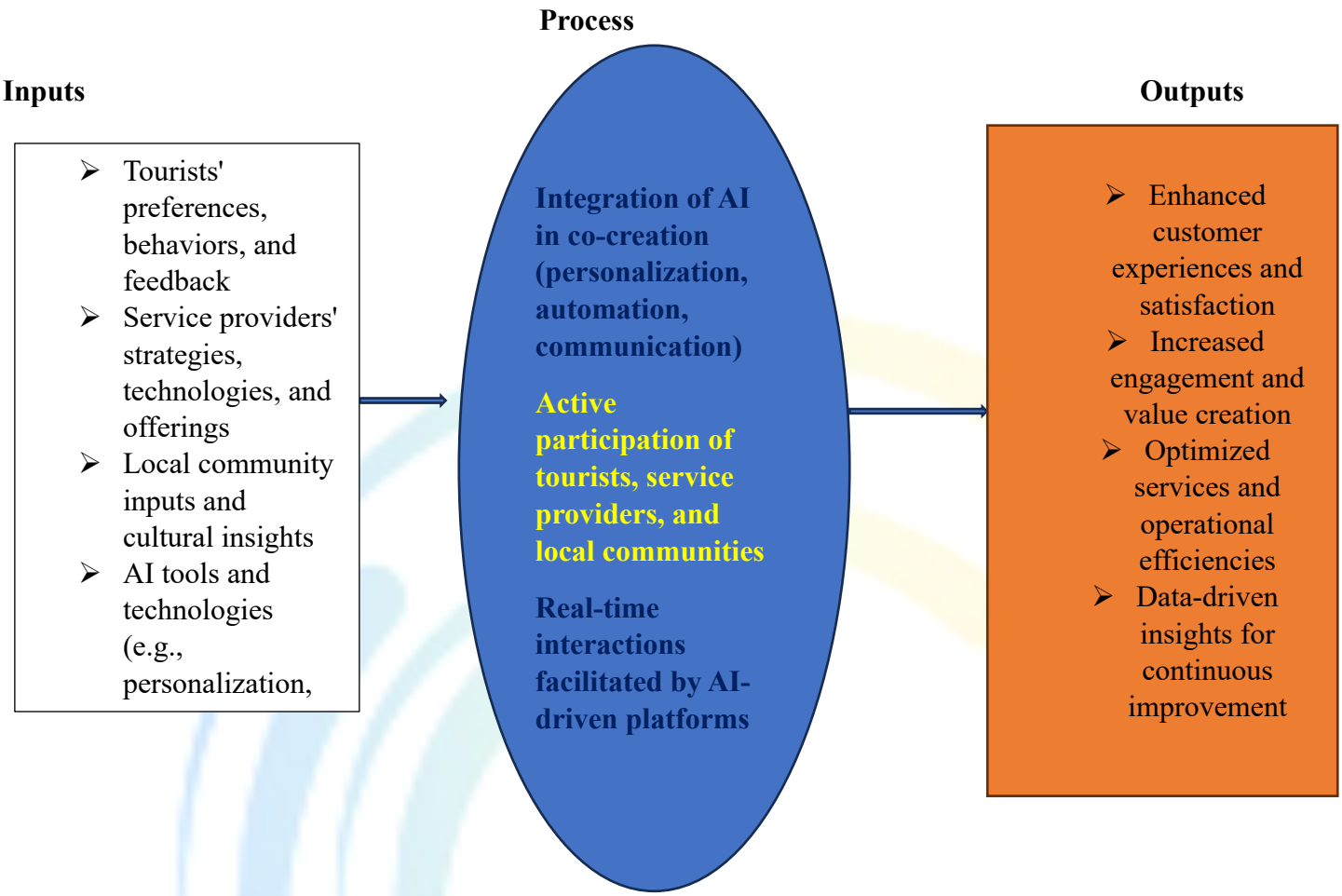

Figure 1: Framework for co-creation of tourism services with AI intervention

Inputs:

1. **Tourists' Preferences, Behaviors, and Feedback:** Tourists' preferences and behaviors are central to the co-creation process in tourism, as they guide the personalization of services. AI tools, such as recommendation systems, collect and analyze data from tourists past behaviors, preferences, and feedback to provide tailored services (Vargo & Lusch, 2008). Understanding these factors allows service providers to align their offerings with tourists' needs and expectations, fostering a more engaging experience.
2. **Service Providers' Strategies, Technologies, and Offerings:** Service providers' use of AI-driven tools (e.g., chatbots, predictive analytics) and their strategies for integrating technology into service delivery are vital for co-creation. By leveraging AI, providers can personalize offerings and streamline services, enhancing operational efficiency and customer satisfaction (Hoyer et al., 2010). Service strategies that focus on AI tools allow providers to respond dynamically to tourists' changing needs.
3. **Local Community Inputs and Cultural Insights:** Local communities provide unique cultural insights and authentic experiences that can be integrated into AI-driven tourism services. AI platforms, such as

destination management systems, use local knowledge to offer authentic, culturally relevant experiences that enhance the value of the co-creation process for tourists (Grönroos, 2011). Understanding local culture and integrating it into AI systems ensures the tourism experience resonates with both tourists and the local community.

4. **AI Tools and Technologies (e.g., Personalization, Predictive Analytics):** AI technologies like personalization engines, predictive analytics, and chatbots are fundamental in driving the co-creation process. These tools allow for dynamic, real-time responses to tourists' needs, providing personalized recommendations, automating service tasks, and predicting future behavior. These technologies are central to enhancing tourists' experiences and optimizing service delivery (Prahalad & Ramaswamy, 2004).

Process:

1. **Integration of AI in Co-Creation (Personalization, Automation, Communication):** The integration of AI into the co-creation process allows for a seamless personalization of services, automation of repetitive tasks, and efficient communication between tourists and service providers. AI algorithms process tourist data to create custom experiences, while automation handles logistics, and communication tools like chatbots enhance engagement and provide immediate support (Vargo & Lusch, 2008).

2. **Active Participation of Tourists, Service Providers, and Local Communities:** The co-creation of tourism services is inherently participatory, with tourists, service providers, and local communities actively involved in shaping the experience. AI enhances this process by providing platforms that facilitate collaboration, allowing tourists to engage in decision-making processes (e.g., selecting activities, providing feedback) and service providers to optimize offerings in real-time (Hoyer et al., 2010).
3. **Real-Time Interactions Facilitated by AI-Driven Platforms:** AI-driven platforms enable real-time interactions between tourists, service providers, and local communities. Through tools like mobile apps, AI-powered recommendation systems, and chatbots, these interactions are dynamic and immediate, offering tourists real-time assistance and engagement opportunities (Grönroos, 2011).

Process explanation

1. Integration of AI in Co-Creation (Personalization, Automation, Communication)
The integration of AI into the co-creation of tourism services involves utilizing AI technologies to enhance personalization, automate processes, and improve communication between tourists, service providers, and local communities. Personalization refers to using AI to tailor experiences and services based on individual preferences, behaviors, and feedback from tourists. Automation focuses on streamlining routine tasks, such as booking, customer support, and operational management, using AI-powered systems. Communication includes the use of

AI-driven platforms (e.g., chatbots, virtual assistants) to facilitate real-time interaction and ensure seamless service delivery (Prahalad & Ramaswamy, 2004).

2. Active Participation of Tourists, Service Providers, and Local Communities

Active participation in the co-creation of tourism services involves the engagement of tourists, service providers, and local communities in creating and delivering tourism experiences. This participation is fundamental to the co-creation process, as each group contributes to the value creation. Tourists provide input on their preferences, feedback, and suggestions, influencing the personalization of services. Service providers offer expertise, resources, and facilitate interactions, while local communities contribute local knowledge, cultural insights, and authentic experiences that enrich the tourist's journey. Together, these groups collaborate to shape the tourism experience (Hoyer et al., 2010; Grönroos, 2011).

3. Real-Time Interactions Facilitated by AI-Driven Platforms

Real-time interactions facilitated by AI-driven platforms refer to the use of AI technologies to enable instantaneous communication and interaction between tourists, service providers, and local communities. AI-driven platforms, such as chatbots, messaging apps, and virtual assistants, allow tourists to access information, resolve issues, and interact with service providers in real-time. This immediate interaction ensures a seamless experience, enabling prompt responses to questions, requests, and feedback, and enhancing the overall service experience (Hoyer et al., 2010; Vargo & Lusch, 2008).

Outputs:

1. **Improved Customer Experiences and Satisfaction:** The integration of AI in co-creating tourism services results in more customized and responsive experiences, ultimately boosting customer satisfaction. Personalized suggestions and immediate assistance help tourists feel appreciated and well-supported, which leads to increased satisfaction and loyalty (Prahalad & Ramaswamy, 2004).

2. **Higher Engagement and Value Generation**
   AI fosters ongoing engagement with tourists throughout their journey, enabling real-time interactions with service providers and the ability to offer feedback. These continuous exchanges create value for both the tourists and service providers, as the insights gained from these interactions allow for improved service quality and strengthened customer relationships (Hoyer et al., 2010).

3. **Enhanced Service Efficiency and Operational Optimization**

   AI tools allow service providers to streamline their operations by automating repetitive tasks and forecasting future demand. This results in better resource management, reduced operational costs, and enhanced service delivery (Grönroos, 2011). Predictive analytics also support service providers in anticipating customer needs, which helps refine service offerings.

4. **Continuous Improvement through Data Insights**

   AI systems gather substantial data during the co-creation process, providing service providers with valuable insights that drive service improvement. These insights can be applied to further personalize services, enhance customer interactions, and optimize operational strategies (Vargo & Lusch, 2008).

- **Implications and limitations:**

Implications of the Framework:

- Service providers can develop stronger customer relationships through tailored, individualized services, leading to competitive advantages in the tourism sector.
- Service providers can reduce costs, increase productivity, and improve service speed, which can lead to enhanced customer experiences and higher profitability.
- Co-creation, enabled by AI, can lead to innovative service offerings, greater customer involvement, and increased perceived value for tourists, ultimately benefiting both parties.
- The framework emphasizes the importance of data-driven decision-making, which allows businesses to stay competitive by adapting their services based on customer insights and preferences.

Limitations of the Framework:

- The framework does not fully account for the balance needed between technological interventions and human interactions in tourism services.
- The framework does not address the potential ethical and privacy concerns related to the collection and use of personal data, which can affect trust and acceptance of AI technologies in tourism.
- The framework does not consider the disparities in technological access and infrastructure between different regions, which could affect the scalability and effectiveness of AI interventions.
- The framework overlooks the potential resistance to AI adoption from both tourists and service providers, which could hinder the successful implementation of AI tools in co-creation processes.

Conclusion:

The framework offers valuable insights into the potential benefits of AI in the co-creation of tourism services, particularly in enhancing customer experiences, increasing engagement, and optimizing operations. However, the limitations highlight important considerations, including the need for a balance between technology and human interaction, addressing data privacy concerns, ensuring equitable access to technology, and adapting to cultural nuances. Recognizing these limitations is essential for successful AI integration in the tourism industry, ensuring that both service providers and tourists can fully benefit from AI-driven co-creation.

Keywords: Artificial Intelligence (AI), Co-creation, Customer experience, Tourism Services, Oman

References

Buhalis, D., & Amaranggana, A. (2015). "Smart tourism destinations." *Information and Communication Technologies in Tourism 2015* (pp. 553-564). Springer, Cham.

Gursoy, D., & Chi, C. G. (2020). "AI in hospitality: The use of artificial intelligence in tourism and hospitality services." Tourism Management, 80, 104114. [https://doi.org/10.1016/j.tourman.2020.104114]

Guttentag, D. A. (2020). "Tourism in the age of artificial intelligence: Prospects and challenges." *Journal of Tourism Futures*, 6(1), 36-46. [https://doi.org/10.1108/JTF-02-2020-0046]

Elia, V., Palumbo, R., & Di Pillo, F. (2022). "AI for conservation: Applications in tourism and wildlife monitoring." *Environmental Sustainability*, 1(2), 45-61.

Ivanov, S., & Webster, C. (2020). "Artificial intelligence in tourism: A systematic review." *Tourism Management Perspectives*, 35, 100696. [https://doi.org/10.1016/j.tmp.2020.100696]

Sheehan, L., & Morrison, A. M. (2019). "Tourism in the age of AI: How artificial intelligence is reshaping the tourism industry." Tourism and Hospitality Research, 19(4), 455-465. [https://doi.org/10.1177/1467358419860916]

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Grönroos, C. (2011). *Value co-creation in service logic: A critical analysis*. Marketing Theory, 11(3), 279-291.

Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S. S. (2010). *Consumer co-creation in new product development*. Journal of Service Research, 13(3), 283-296.

Liao, C., & Chou, S. (2021). "The impact of artificial intelligence on consumer behavior: A tourism industry perspective." *Tourism Management*, 83, 104256. [https://doi.org/10.1016/j.tourman.2021.104256]

McKinsey & Company. (2019). "The Travel Experience: The Next Frontier of Personalization." McKinsey & Company.

Nielsen, J. (2017). "Personalization and User Experience." *Nielsen Norman Group*.

Prahalad, C. K., & Ramaswamy, V. (2004). *Co-creation experiences: The next practice in value creation*. Journal of Interactive Marketing, 18(3), 5-14.

Sigala, M., & Gretzel, U. (2021). "The role of AI and digitalization in advancing sustainability in tourism." *Journal of Sustainable Tourism*, 29(5), 752-769. [https://doi.org/10.1080/09669582.2021.1876909]

Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing, 18*(3), 5-14.

Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing evolution. *Journal of the Academy of Marketing Science, 36*(1), 1-10.

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