Determinants of Consumers' Acceptance of Robotic Restaurants: A Literature Review

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Objectives | Robots are becoming extremely important in the restaurant industry and can represent an innovative dining approach, revolutionizing how food is made and served in restaurants. Considering this transformation brought about by robots in the restaurant industry, the main aim of this study is to identify the determinants of consumers' acceptance of robotic restaurants. In this study, robotic restaurants are restaurants in which the services are provided by robots, such as taking orders, cooking, and delivering food to consumers, instead of humans (Hwang et al., 2020;2021). The findings provide invaluable insights into the adoption of automation in the hospitality sector.

Methodology | A literature review was carried out to find research regarding the use of robots in the restaurant industry. The search was conducted in Science Direct and Google Scholar, using keywords related to robots in restaurants, such as robotic restaurants and restaurant robots. Each article was carefully read to ascertain its alignment with the purpose of the study.

Main Results and Contributions | Consumers' acceptance of robotic restaurants is multifaceted and influenced by several factors. One of the main findings is that studies have consistently found that a favorable Attitude toward robotics in restaurants positively influences consumer acceptance (e.g., Cha, 2020; Hwang et al., 2021; Kao & Huang, 2023; Lee et al., 2018; Sung & Jeon, 2020). A positive attitude indicates that consumers are more open and receptive to robotic restaurants. When consumers have a favorable view of robotic restaurants and believe they enhance their dining experience, they are more likely to visit them.

Perceived Usefulness and Perceived Ease of Use are other determinants from the Technology Acceptance Model that play a significant role in shaping consumers' acceptance of robotic restaurants. Several studies have found that the Perceived Usefulness of the robotic restaurant experience plays a pivotal role (e.g., Lee et al., 2018; Seo & Lee, 2021; Sung & Jeon, 2020). Consumers are motivated to visit these establishments when they perceive that robot technology

enhances the convenience and efficiency of their dining experience. Perceived Ease of Use refers to consumers' perceptions of how effortless or straightforward they believe it is to interact with and use the robots in the restaurant. When consumers perceive robotic systems as easy and user-friendly, it positively influences their intentions to visit these establishments. Attitude is also positively influenced by Perceived Usefulness and Perceived Ease of Use (Choe et al., 2022; Kao & Huang, 2023; Lee et al., 2018).

Trust is another fundamental determinant of consumers' intentions to visit robotic restaurants (Cha, 2020; Lee et al., 2018; Seo & Lee, 2021). Trust refers to consumers' confidence and reliability in the robotic technology and the restaurant itself.

The voice and language used by the robot also can influence consumer intentions. When the service robot has high levels of humanlike voice language style, the likelihood of revisit and WOM intentions increases (Lu et al., 2021). However, regarding the robot's appearance, consumers seem to prefer that robots appear plain, dull, and uninteresting rather than take the form of a humanoid (Zemke et al., 2020). Intentions to visit a restaurant with robots are higher when they do not have a humanoid appearance (Lu et al., 2021).

Another important determinant of consumers' acceptance of robotic restaurants is perceived enjoyment (Cha, 2020; Guan et al., 2022; Sung & Jeon, 2020). If consumers believe dining in a robotic restaurant will be an enjoyable experience, it can significantly increase their intentions to visit. Finally, other determinants of consumers' acceptance of robotic restaurants are robot service competence and servicescape (Guan et al., 2022).

Limitations | While this literature review provides valuable insights into the utilization of robots in restaurant settings, it exclusively relied on a comprehensive literature review approach. While this method provides a comprehensive overview of existing research, it needs primary data collection and original empirical analysis. Although the studies included in this review were sourced from well-known academic databases and journals, some relevant articles may have yet to be identified and, therefore, are not included. Moreover, the literature review only includes studies written in English and Portuguese.

Conclusions | A growing amount of research is exploring consumers' acceptance of robotic restaurants. Understanding the factors that shape consumers' intentions is crucial for restaurant operators and researchers aiming to optimize the adoption of robotics in the dining experience. This paper makes a significant contribution to the literature by comprehensively synthesizing the key factors influencing consumers' acceptance of restaurants with robots, providing valuable insights for both researchers and industry practitioners in understanding and adapting to the evolving dynamics of human-robot interaction in the hospitality sector.

References

Cha, S. S. (2020). Customers' intention to use robot-serviced restaurants in Korea: relationship of coolness and MCI factors. *International Journal of Contemporary Hospitality Management*, 32(9), 2947–2968. https://doi.org/10.1108/IJCHM-01-2020-0046

Choe, J. Y., Kim, J. J., & Hwang, J. (2022). Innovative robotic restaurants in Korea: Merging a technology acceptance model and theory of planned behaviour. *Asian Journal of Technology Innovation*, 30(2), 466–489. https://doi.org/10.1080/19761597.2021.2005466

Guan, X., Gong, J., Li, M., & Huan, T. C. (2022). Exploring key factors influencing customer behavioral intention in robot restaurants. *International Journal of Contemporary Hospitality Management*, 34(9), 3482-3501. https://doi.org/10.1108/IJCHM-06-2021-0807

Hwang, J., Park, S., & Kim, I. (2020). Understanding motivated consumer innovativeness in the context of a robotic restaurant: The moderating role of product knowledge. *Journal of Hospitality and Tourism Management*, 44, 272–282. https://doi.org/10.1016/j.jhtm.2020.06.003

Hwang, J., Kim, H., Kim, J. J., & Kim, I. (2021). Investigation of perceived risks and their outcome variables in the context of robotic restaurants. *Journal of Travel and Tourism Marketing*, 38(3), 263–281. https://doi.org/10.1080/10548408.2021.1906826

Kao, W. K., & Huang, Y. S. (Sandy). (2023). Service robots in full- and limited-service restaurants: Extending technology acceptance model. *Journal of Hospitality and Tourism Management*, 54, 10–21. https://doi.org/10.1016/j.jhtm.2022.11.006

Lee, W. H., Lin, C. W., & Shih, K. H. (2018). A technology acceptance model for the perception of restaurant service robots for trust, interactivity, and output quality. *International Journal of Mobile Communications*, 16(4), 361. https://doi:10.1504/ijmc.2018.092666

Lu, L., Zhang, P., & Zhang, T. (2021). Leveraging "human-likeness" of robotic service at restaurants. *International Journal of Hospitality Management*, 94. https://doi.org/10.1016/j.ijhm.2020.102823

Sung, H. J., & Jeon, H. M. (2020). Untact: Customer's acceptance intention toward robot barista in coffee shop. Sustainability , 12(20), 1–16. https://doi.org/10.3390/su12208598

Zemke, D. M. V., Tang, J., Raab, C., & Kim, J. (2020). How To Build a Better Robot for Quick-Service Restaurants. *Journal of Hospitality and Tourism Research*, 44(8), 1235–1269. https://doi.org/10.1177/1096348020946383