Revisiting Technology Acceptance: A Conceptual Study on Chatbot Adoption in Malaysia's Public Sector

Faezah Othman[1], Goh Mei Ling[2], Nor Fauziana Ibrahim[3]

[1]Faculty of Business Management, Universiti Teknologi MARA, Melaka, Malaysia

[2,3]Faculty of Business, Multimedia University, Melaka, Malaysia

ABSTRACT

The adoption of chatbots in the public sector has the potential to significantly enhance public service delivery. In this regard, government agencies are seeking to leverage technology to enhance service delivery, improve efficiency, and provide round-the-clock assistance to citizens. Understanding chatbots adoption intention among Society towards public sector in Malaysia will enable the resources to be reallocated more efficiently as well as to help in developing chatbots that are culturally and socially relevant. This will then improve the effectiveness and acceptance level of the chatbots adoption from the public community. Thus, investigating the AI chatbots adoption intention towards the public sector among society in Malaysia is crucial. Literature has shown that study on chatbots adoption intention among society towards the public sector in Malaysia is still lacking. Previous studies have suggested future research to explore the effectiveness of chatbot services for purposes beyond health information and healthcare institutions and focus on user-centric approaches to AI chatbot development. Therefore, this study aims to access the chatbots adoption intention among society towards the public sector in Malaysia and examine the mediating role of attitude in this research context. In this study, quantitative research approaches will be employed with target population of Malaysian community. Convenience sampling will be used to recruit a total of 150 respondents for this study. Data will be collected using a set of self-administered questionnaires and analysed using SPSS and SmartPLS. This research would be able to provide an insight into chatbots adaption intention of Malaysian community towards the public sector. The findings of this study would also be able to provide some practical implications for the public sector to enhance service delivery for creating more user-friendly, trusted, and widely accepted AI solutions in the public sector.

Keywords: chatbot, technology acceptance, conceptual, innovation

INTRODUCTION

Malaysia has been making significant strides in the field of artificial intelligence (AI). The government has been actively working towards becoming a leader in AI within the region, leveraging its strategic policies and innovative initiatives to build a robust AI ecosystem. For instance, the National AI Office (NAIO) has been established in August 2024, which aims to position Malaysia as a key player in AI within ASEAN and globally. It focuses on fostering innovation, promoting cross-sector collaboration, and integrating AI into various framework, including government and industry. With regards to this, the government has developed the strategies and policies that guiding the AI initiatives. The purpose is to enhance the AI capabilities and ensure the ethical use of AI technologies in the country. The AI roadmap 2021-2025 also designed with the strategic approach to boost the research and development and drive the local innovation.

In the digital era, chatbots has become an essential component of most of the organisations including public sector. In Malaysia, the government's push towards digital transformation has led to significant investments in IT infrastructure, making it more feasible for public sector organizations to adopt advanced technologies like AI chatbots (Jais et al., 2024).

The adoption of chatbots in the public sector has the potential to significantly enhance public service delivery. AI chatbots can provide instant responses to common queries, reducing wait times and improving overall service

delivery (Microsoft Malaysia, 2024). AI also has an ability to analyse large volumes of data helps in making informed decisions and improving the functionality of chatbots will help to enhance their ability to provide accurate and relevant information to citizens. In this regard, the government agencies are seeking to leverage technology to enhance service delivery, improve efficiency, and provide round-the-clock assistance to citizens. Various public sector projects have successfully implemented AI chatbots. For example, Accountant General's Department of Malaysia has successfully implemented AI for automated document processing, achieving a 99% accuracy rate. This has significantly improved operational efficiency and reduced processing errors, allowing staff to focus on more strategic tasks (Microsoft Malaysia, 2024). Another example like MY Startup initiative by the Ministry of Science, Technology, and Innovation (MOSTI) uses an intelligent chatbot to assist startups in finding resources and funding.

There is a growing demand from citizens for more efficient and accessible public services. A survey revealed that a substantial number of Malaysians interact with chatbots regularly, especially through platforms like WhatsApp, which is widely used in the country (Choo, 2022). Understanding adoption intentions will allow more targeted and effective communication strategies, ensuring that the benefits of AI chatbots are clearly conveyed to potential users (Saadioui, 2024). Public sector organisations are able to allocate resources more efficiently, focusing on areas that will most likely enhance user engagement and satisfaction if the key drivers of adoption intention is identified (Ding & Najaf, 2024). Moreover, understanding the specific needs and concerns of different user groups, such as the society in Malaysia, can help in developing chatbots that are culturally and socially relevant, thereby improving their effectiveness and acceptance (Peng et al., 2024). Thus, investigating the AI chatbots adoption intention towards the public sector among society in Malaysia is crucial.

Previous study has shown that there is a growing number of studies on behavioral intentions toward chatbots' adoption. Study on chatbots adoption intention in Malaysia, however, are still lacking (Gatzioufa & Saprikis, 2022). Previous studies, like Raja Abd Aziz and Ahmad (2023), Jais et al. (2024) and Nasution et al. (2024) are among recent studies explore on the chatbots intention in Malaysia. Jais et al. (2024) explores the chatbots adoption intention in the public sector whereby Nasution et al. (2024) focuses on the powered chatbots adoption in halal marketing communications for small and medium enterprises perspective. These studies did not examine the adoption intention from an individual's perspective. Study by Raja Abd Aziz and Ahmad (2023) examined the acceptability of Malaysian towards the public sector but their study limited to the Ministry of Health chatbot services in disseminating COVID-19 information. Hence, study on the chatbots adoption intention towards the public sector among Malaysian especially society community is lacking. Raja Abd Aziz and Ahmad (2023) suggested that future research should broaden its scope to explore the effectiveness of chatbot services for purposes beyond health information and healthcare institutions. Additionally, Nasution et al. (2024) proposed that future research should focus on user-centric approaches to AI chatbot development. Therefore, this study aims to fill the research gaps by accessing the chatbots adoption intention among society towards the public sector in Malaysia.

Extended UTAUT 1 (Venkatesh et al., 2003) will be used as it has been extensively tested in empirical studies for predicting and explaining technology adoption like chatbots (Lai et al., 2024, Li et al., 2024). Privacy and trust (Rana et al., 2024) will be incorporated into UTAUT 1 to explain the chatbots adoption intention among society towards the Public Sector in Malaysia (see figure 1). This research would be able to provide an insight into chatbots adaption intention of Malaysian Muslim towards the public sector. The findings of this study would also be able to provide some practical implications for the public sector to enhance service delivery for creating more user-friendly, trusted, and widely accepted AI solutions in the public sector.

Therefore, this study aims to identify and examine the relationships between performance expectancy, effort expectancy, social influence and facilitating conditions with chatbots adoption intention among society towards the public sector in Malaysia.

LITERATURE REVIEW

Chatbots Adoption Intention

Chatbots are computational systems designed to engage in natural language conversations with humans (Jyothsna et al., 2024). Chatbots popularity has surged recently due to technological advancements and the shift

from face-to-face interactions to instant messaging for information provision, query resolution, task assistance, and human-like dialogue simulation (Toh & Tay, 2022). In the public sector, chatbots are utilised across various domains, including healthcare, tax, transportation, education, and tourism (Haoyue & Cho, 2024; Malik et al., 2020). These systems offer significant potential for enhancing user engagement by being available 24/7, thereby supporting and improving public interactions, enriching user experiences, and increasing user satisfaction (Kwangsawad & Jattamart, 2022; Sundjaja et al., 2024). However, despite their essential role and widespread adoption, some users remain hesitant or uncomfortable interacting with chatbots (Ashfaq et al., 2020; Senadheera et al., 2024). Consequently, it is crucial to investigate the primary factors influencing the adoption of public sector chatbots. This study employs the Unified Theory of Acceptance and Use of Technology (UTAUT) as the baseline research model, given its established robustness in predicting user behaviour regarding chatbot adoption in the public sector.

Performance Expectancy

Performance Expectancy (PE) refers to an individual's belief that utilising a particular technology will enhance the work performance (Mogaji et al., 2021). PE has been identified as a robust predictor of Behavioural Intention (BI) towards adopting Artificial Intelligence (AI) products like chatbots (Sugumar & Chandra, 2021). In the public sector, AI service integration, such as chatbot applications, is premised on the assumption that these tools can facilitate information seeking, enable online transactions, deliver timely responses, and offer practical solutions (Toh & Tay, 2022). Nguyen et al. (2021) assert that the more useful users perceive chatbot services to be, the higher their confidence and intention to adopt these tools. Within public sector chatbot applications, PE is evident through multiple channels: providing technical support (Malik et al., 2020), enhancing user satisfaction (Sundjaja et al., 2024), streamlining processes, and promoting cost efficiency (Kwangsawad & Jattamart, 2022). Regardless, the direct path from PE to adoption intention for chatbot services may overlook critical contextual factors influencing this relationship. For example, investigating cross-cultural differences in performance expectancy and how these differences may shape BI toward adopting chatbots in Malaysia. PE may not be uniformly perceived across different ethnic groups or across various sectors leading to distinct adoption patterns (Haoyue & Cho, 2024; Peng et al., 2022). Hence, addressing this these gaps, could provide more detailed, context-specific insights into the factors that influence the adoption of chatbots in Malaysia's public sector.

H1. Performance expectancy significantly and positively impacts the intention to adopt Chatbots in the Public Sector.

Effort Expectancy

Effort Expectancy (EE) refer to the perceived ease of use when adopting new technologies, as outlined in the UTAUT model (Sugumar & Chandra, 2021; Toh & Tay, 2022). Past studies have revealed that users are more likely to embrace chatbots because they are seen as user-friendly and effective (Senadheera et al., 2024). In public institutions, chatbots have significantly improved citizen-government interactions by providing faster, more efficient responses to citizens' queries, complaints, and requests (Jais et al., 2024). However, it has been argued that chatbots lack the personal touch and empathy of human interactions, which can hinder the natural flow of conversation and make users feel less comfortable communicating freely (Ashfaq et al., 2020; Senadheera et al., 2024). Nevertheless, research shows that the perceived ease of use is crucial and has a positive impact on users' intention to adopt chatbots in public institutions in Malaysia (Anez et al., 2023; Jais et al., 2024).

H2: Effort expectancy significantly and positively impacts the intention to adopt Chatbots in the Public Sector.

Social Influence

Social influence (SI) refers to the extent to which individuals perceive it important for others to believe they should use a new system, as outlined in the UTAUT Model theory (Sugumar & Chandra, 2021; Yau et al., 2021). The degree of social support a product or service garners is believed to foster user trust and confidence (Toh & Tay, 2022). According to Jyothsna et al. (2024) social influence affects customers' trust in Chatbots through informal rules mutually understood between users, social influencers, peer groups, and social connections. Recommendations from others often increase an individual's likelihood to adopt technology, as they perceive

that others might possess greater insight. Social influence positively impacts on people's intention to adopt AI product and services by reinforcing trust (Faqih, 2016). Notably, social influence has a significant impact on users' decision-making in adopting AI products, and individuals using innovations that are socially disapproved may feel pressured if they lack adequate social support (Jyothsna et al., 2024; Teoh et al., 2021).

H3: Social influence significantly and positively impacts the intention to adopt Chatbots in the Public Sector.

Facilitating Conditions

Facilitating conditions, as defined in the UTAUT Model (Venkatesh et al., 2003), refer to the extent to which individuals perceive the presence of organizational and technical infrastructure that supports the use of a system. Previous research has highlighted that facilitating conditions play a significant role in determining the acceptance and adoption of innovative technologies (Lee & Yoon, 2021). Additionally, this factor is crucial in shaping user behavior toward technology adoption (Chatterjee et al., 2021; Dwivedi et al., 2017). Providing introductory training or enhancing the quality of the technical infrastructure related to the adoption of new technologies falls within the scope of facilitating conditions, helping users gain a clearer understanding of the system (Rana et al., 2024).

H4: Facilitating conditions significantly and positively impacts the intention to adopt Chatbots in the Public Sector.

Conceptual Framework

Figure 1 is the proposed conceptual framework that has been derived from Unified Theory of Acceptance and Use of Technology (UTAUT) research model. Furthermore, based on the constructs demonstrated by previous studies, its suggested conceptual framework include the new factors which are performance expectancy, effort expectancy, social influence, and facilitating conditions.
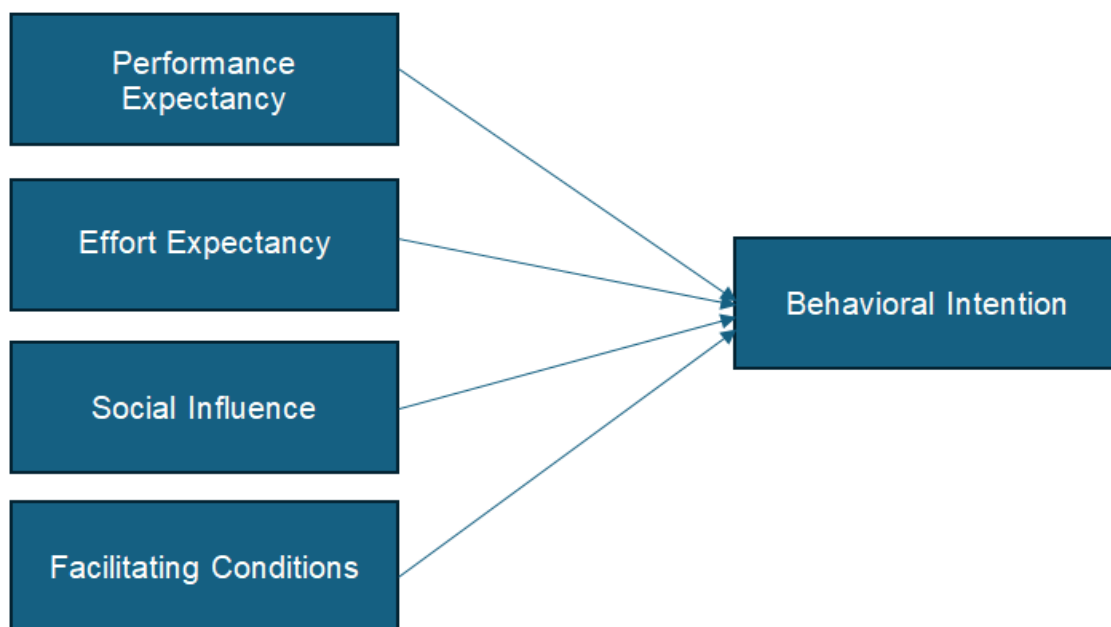

Fig. 1 Proposed Conceptual Framework

METHODOLOGY

This study will employ quantitative research approach. Based on G-power analysis, a minimum sample size required to have sufficient statistical power is 98. Hence, this research will recruit 150 respondents to participant in the survey. Convenience sampling will be used to recruit the respondents as there might be insufficient information available for the sampling frame for the probability sampling (Hulland et al., 2017; Sarstedt et al., 2017). The convenience sampling will employ due to simplicity, low cost, and ease of execution in collecting

the data collection (Jagar et. Al., 2017). The target population will be the Malaysian citizen who has experience in using chatbot on Public Sectors' web page. Data will then be collected using a set of questionnaires which covers the demographic information of respondents and all the measurements of the variables in the proposed research framework via the Microsoft Form. Pilot study will first be conducted by distributing the questionnaire to 30 Muslims before the actual data collection. All the collected data will then be analysed using SPSS and SmartPLS which covers descriptive statistics and structural equation modelling. The constructs convergent validity and discriminant validity will be assessed in the measurement model whereby structural model will examine the relationships between all the variables.

CONCLUSION

This study seeks to examine the factors that influence the adoption intention of AI chatbots among the society within Malaysia's public sector by extending the UTAUT1 model with trust and privacy dimensions. This study will aim to identify the factors influences on the adoption hence the cross-sectional design more consistent with this objective (Yacob et. al., 2025). However, in future research suggested to adopt longitudinal studies to track the changes of acceptance over period. As Malaysia accelerates its digital transformation agenda particularly through the integration of AI technologies in public service delivery for understanding user readiness, expectations, and concerns becomes increasingly critical. The literature highlights that while chatbots can significantly improve service efficiency, accessibility, and user experience, their effective adoption relies heavily on users' perceptions of usefulness, ease of use, social encouragement, and the availability of adequate technological support. By focusing on performance expectancy, effort expectancy, social influence, and facilitating conditions, this study provides a conceptual foundation for investigating behavioural intention toward chatbot adoption in the Malaysian public sector. The findings from the upcoming empirical phase of this research are anticipated to offer deeper insights into how these determinants shape user attitudes and intentions. Furthermore, for future research to incorporate trust and privacy into the research model will enable a more holistic understanding of users' acceptance behaviour, especially in a context where data security and ethical AI deployment are becoming increasingly pertinent. Practically, the study will provide actionable insights for policymakers and public sector agencies to design more user-centric, culturally responsive, secure, and trustworthy AI chatbot services. These implications can guide the development of effective implementation strategies that improve citizen engagement, enhance service quality, and foster greater acceptance of AI-driven public services among the Malaysian society.

REFERENCES

1. Anez, R., Raja, I., Aziz, A., & Ahmad, N. R. (2023). Acceptability of Malaysian Working Adults Towards MOH Chatbot Services in Disseminating COVID-19 Information. 2, 168–180.
2. Ashfaq, M., Yun, J., Yu, S., & Loureiro, S. M. C. (2020). I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents. Telematics and Informatics, 54(101473).
3. Aggelidis, V. P., & Chatzoglou, P. D. (2009). Using a modified technology acceptance model in hospitals. International journal of medical informatics, 78(2), 115-126.
4. Alshare, K. A., & Lane, P. L. (2011). Predicting student-perceived learning outcomes and satisfaction in ERP courses: An empirical investigation. Communications of the association for information systems, 28(1), 34.
5. Burton, J. W., Stein, M. K., & Jensen, T. B. (2020). A systematic review of algorithm aversion in augmented decision making. Journal of behavioral decision making, 33(2), 220-239.
6. Chatterjee S., N.P. Rana, Y.K. Dwivedi, A.M. Baabdullah, Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model, Technol. Forecast. Soc. Change 170 (2021) 120880, https://doi.org/10.1016/j.techfore.2021.120880.
7. Choo, A. (2022). Chatbots In Malaysia and The Benefits for Your Business. https://mydbs.asia/chatbots-in-malaysia-and-the-benefits-for-your-business/.
8. Choung, H., David, P., & Ross, A. (2023). Trust in AI and its role in the acceptance of AI technologies. International Journal of Human–Computer Interaction, 39(9), 1727-1739.

9. Davis, F. D. "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," MIS Quarterly (13:3), 1989, pp. 319-339.

10. D. Lee, S.N. Yoon, Application of artificial intelligence-based technologies in the healthcare industry: opportunities and challenges, Int. J. Environ. Res. Publ. Health 18 (2021) 271, https://doi.org/10.3390/ijerph18010271.

11. Ding, Y., & Najaf, M. (2024). Interactivity, humanness, and trust: a psychological approach to AI chatbot adoption in e-commerce. BMC Psychol 12, 595. https://doi.org/10.1186/s40359-024-02083-z.

12. Dwivedi Y.K., Rana N.P., Jeyaraj A., Clement M., Williams M.D. (2017). Re-Examining the unified theory of acceptance and use of technology (UTAUT): towards a revised theoretical model, Inf. Syst. Front 21, 719–734, https://doi.org/10.1007/s10796-017-9774-y.

13. Elmahjub, E. (2023). Artificial Intelligence (AI) in Islamic Ethics: Towards Pluralist Ethical Benchmarking for AI. Philosophy & Technology, 36(4), 73.

14. Faqih, K. M. S. (2016). An empirical analysis of factors predicting the behavioral intention to adopt Internet shopping technology among non-shoppers in a developing country context: Does gender matter? Journal of Retailing and Consumer Services, 30, 140–164. https://doi.org/10.1016/j.jretconser.2016.01.016

15. Fishbein, M., and Ajzen, I. Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, Addison-Wesley, Reading, MA, 1975.

16. Følstad, A., & Mærøe, A. (2022). The Ethics of Chatbots in Public Sector Service Provision. CUI@ CHI2022: Ethics of Conversational User Interfaces. ACM, New York, NY, USA.

17. Gamal Aboelmaged, M. (2010). Predicting e-procurement adoption in a developing country: An empirical integration of technology acceptance model and theory of planned behaviour. Industrial Management & Data Systems, 110(3), 392-414.

18. García de Blanes Sebastián, M., Sarmiento Guede, J. R., & Antonovica, A. (2022). Application and extension of the UTAUT2 model for determining behavioral intention factors in use of the artificial intelligence virtual assistants. Frontiers in Psychology, 13, 993935.

19. Gatzioufa, P. & Saprikis, V. (2022). A literature review on users'behavioral intention toward chatbots' adoption. Applied Computing and Informatics, https://DOI 10.1108/ACI-01-2022-0021.

20. Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence: Review of empirical research. Academy of Management Annals, 14(2), 627-660.

21. Haoyue, L. L., & Cho, H. (2024). Factors influencing intention to engage in human–chatbot interaction: examining user perceptions and context culture orientation. Universal Access in the Information Society, 0123456789. https://doi.org/10.1007/s10209-023-01087-7.

22. Hulland, J., Baumgartner, H and Smith, K. M. (2017). Marketing survey research best practicesK evidence and recommendations from a review of JAMS articles. Journal of the Academy Marketing Science, 46 (1), 92-108.

23. Jager J, Putnick DL, Bornstein MH. II. More Than Just Convenient: The Scientific Merits Of Homogeneous Convenience Samples. Monogr Soc Res Child Dev. 2017 Jun, 82(2), 13-30. Doi: 10.1111/mono.12296. PMID: 28475254; PMCID: PMC5606225.

24. Jais, R., Ngah, A. H., Rahi, S., Rashid, A., Ahmad, S. Z., & Mokhlis, S. (2024). Chatbots adoption intention in public sector in Malaysia from the perspective of TOE framework. The moderated and mediation model. Journal of Science and Technology Policy Management, Cd. https://doi.org/10.1108/JSTPM-04-2024-0151

25. Jyothsna, M., Subbaiah, P. V., & Natalia, K. (2024). Exploring the Chatbot usage intention-A mediating role of Chatbot initial trust. Heliyon, 10(12), 1–11. https://doi.org/10.1016/j.heliyon.2024.e33028

26. Kwangsawad, A., & Jattamart, A. (2022). Overcoming customer innovation resistance to the sustainable adoption of chatbot services: A community-enterprise perspective in Thailand. Journal of Innovation and Knowledge, 7(3), 100211. https://doi.org/10.1016/j.jik.2022.100211

27. Konda, Sreedhar. (2019). Ensuring Trust and Security in AI: Challenges and Solutions for Safe Integration Introduction. 3. 71-93. 10.5281/zenodo.10779269.

28. Lai, C. Y., Cheung, K. Y., Chan, C. S., & Law, K. K. (2024). Integrating the adapted UTAUT model with moral obligation, trust and perceived risk to predict ChatGPT adoption for assessment support: A survey with students. Computers and Education: Artificial Intelligence, 6(2024), 1-13.

29. Li, L., Peng, W., Rheu, M.J. (2024). Factors Predicting Intentions of Adoption and Continued Use of Artificial Intelligence Chatbots for Mental Health:Examining the Role of UTAUT Model, Stigma, Privacy Concerns, and Artificial Intelligence Hesitancy. Telemedicine and e-Health, 30(3), 722-730.

30. Liao, Y.-K., Nguyen, H.-L. T., Dao, T. C., Nguyen, P.-T. T., & Sophea, H. (2023). The antecedents of customers' attitude and behavioral intention of using e-banking: The moderating roles of social influence and customers' traits. Journal of Financial Services Marketing, 29, 1037–1061

31. Liu, K., & Tao, D. (2022). The roles of trust, personalization, loss of privacy, and anthropomorphism in public acceptance of smart healthcare services. Computers in Human Behavior, 127, 107026.

32. Mahmud, H., Islam, A. N., Ahmed, S. I., & Smolander, K. (2022). What influences algorithmic decision-making? A systematic literature review on algorithm aversion. Technological Forecasting and Social Change, 175, 121390.

33. Malik, P., Gautam, S., & Srivastava, S. (2020). A Study on Behaviour Intention for using Chatbots. ICRITO 2020 - IEEE 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions), 332–338. https://doi.org/10.1109/ICRITO48877.2020.9197782

34. Microsoft Malaysia, (2024). Supercharging public services in the age of AI. https://news.microsoft.com/en-my/2024/10/22/supercharging-public-services-in-the-age-of-ai/.

35. Mogaji, E., Balakrishnan, J., Nwoba, A. C., & Nguyen, N. P. (2021). Emerging-market consumers' interactions with banking chatbots. Telematics and Informatics, 65(101711).

36. Nasution, M. D. T. P., Rafiki, A., Rossanty, Y., & Pahlufi, C. K. (2024). Exploring Small and Medium Enterprises' Intention to Adopt AI-Powered Chatbots in Halal Marketing Communications. IQTISHODUNA: Jurnal Ekonomi Islam, 13(1), 35-58.

37. Nguyen, D. M., Chiu, Y. T. H., & Le, H. D. (2021). Determinants of continuance intention towards banks' chatbot services in vietnam: A necessity for sustainable development. Sustainability (Switzerland), 13(14), 1–24. https://doi.org/10.3390/su13147625

38. Peng, M. L., Wickersham, J. A., Altice, F. L., Shrestha, R., Azwa, I., Zhou, X., Halim, M. A. A., Ikhtiaruddin, W. M., Tee, V., Kamarulzaman, A., & Ni, Z. (2022). Formative Evaluation of the Acceptance of HIV Prevention Artificial Intelligence Chatbots by Men Who Have Sex with Men in Malaysia: Focus Group Study. JMIR Formative Research, 6(10), 1–15. https://doi.org/10.2196/42055

39. Raja Abd Aziz, R. A. I., & Ahmad, N. R. (2023). Acceptability of Malaysian working adults towards MOH chatbot services in disseminating COVID-19 information. Journal of Information and Knowledge Management (JIKM), 2, 168-180.

40. Rana, M. M., Siddiqee, M. S., Sakib, M. N., & Ahamed, M. R. (2024). Assessing AI adoption in developing country academia: A trust and privacy-augmented UTAUT framework. Heliyon, 10(18).

41. Saadioui, Z. (2024). Understanding User Intent & Chatbots: A Case Study. https://www.arsturn.com/blog/understanding-user-intent-chatbots-case-study.

42. Sarstedt, M., Bengart, P., Shaltoni, A. M. and Lehmann, S. (2017). The use of sampling methods in advertising research: a gap between theory and practice. International Journal of Advertising, 37(4), 1-14.

43. Sattikar, A. A., & Kulkarni, R. V. (2012). A role of artificial intelligence techniques in security and privacy issues of social networking. International Journal of Computer Science Engineering & Technology, 2(1), 792-806.

44. Senadheera, S., Yigitcanlar, T., Desouza, K. C., Mossberger, K., Corchado, J., Mehmood, R., Li, R. Y. M., & Cheong, P. H. (2024). Understanding Chatbot Adoption in Local Governments: A Review and Framework. Journal of Urban Technology, 1–35. https://doi.org/10.1080/10630732.2023.2297665

45. Sugumar, M., & Chandra, S. (2021). Do I Desire Chatbots to be like Humans? Exploring Factors for Adoption of Chatbots for Financial Services. Journal of International Technology and Information Management, 30(3), 38–77. https://doi.org/10.58729/1941-6679.1501

46. Sundjaja, A. M., Utomo, P., & Colline, F. (2024). The determinant factors of continuance use of customer service chatbot in Indonesia e-commerce: extended expectation confirmation theory. Journal of Science and Technology Policy Management. https://doi.org/10.1108/JSTPM-04-2024-0137

47. Surahman, E., & Wang, T. H. (2022). Academic dishonesty and trustworthy assessment in online learning: A systematic literature review. Journal of Computer Assisted Learning, 38(6), 1535-1553.

48. Teoh, K. B., Kee, D. M. H., & Nadeem, A. (2021). How Does Psychosocial Safety Climate Affect Burnout Among Malaysian Educators During the COVID-19 Pandemic? Asia-Pacific Social Science Review, 21(4).

49. Toh, T. J., & Tay, L. Y. (2022). Banking Chatbots: A Study on Technology Acceptance among Millennials in Malaysia. Journal of Logistics, Informatics and Service Science, 9(3), 1–15. https://doi.org/10.33168/LISS.2022.0301

50. Uzir, M. U. H., Al Halbusi, H., Lim, R., Jerin, I., Hamid, A. B. A., Ramayah, T., & Haque, A. (2021). Applied Artificial Intelligence and user satisfaction: Smartwatch usage for healthcare in Bangladesh during COVID-19. Technology in society, 67, 101780.

51. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS quarterly, 425-478. Wang, C., Zhang, N., & Wang, C. (2021). Managing privacy in the digital economy. Fundamental Research, 1(5), 543-551.

52. Wilkinson, D., Alkan, Ö., Liao, Q. V., Mattetti, M., Vejsbjerg, I., Knijnenburg, B. P., & Daly, E. (2021). Why or why not? The effect of justification styles on chatbot recommendations. ACM Transactions on Information Systems (TOIS), 39(4), 1-21.

53. Yau, K. L. A., Saad, N. M., & Chong, Y. W. (2021). Artificial intelligence marketing (Aim) for enhancing customer relationships. Applied Sciences (Switzerland), 11(18). https://doi.org/10.3390/app11188562

54. Zhang, W., & Gutierrez, O. (2007). Information technology acceptance in the social services sector context: An exploration. Social Work, 52(3), 221-231.

55. Yacob, N. Haji Ali, and A. D. Roslim, "Innovations and Adoption: Examining the Constructs of Technology Acceptance Theories", Int. J. Adv. Sci. Eng. Inf. Technol., vol. 15, no. 1, pp. 338–344, Feb. 2025.