TECHNOLOGY IN F&B SMEs: A CONCEPTUAL FRAMEWORK TO ENHANCE BUSINESS PERFORMANCE AMONG SME F&B

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Abstract: *This paper represents a conceptual framework that explores the readiness and adoption of technology in food and beverages industry mainly among small and medium enterprise. In technology era nowadays, applying technology within a business has become an essential need for the business to survive in rapidly changing market environment. This study examines the relationship between technology readiness and technology adoption impact on business performance of food and beverages in small and medium enterprise, evolved around the technology acceptance model (TAM) and thus, serves as framework foundation for both academic research and practical implication for the future researcher.*

Keywords*: Technology readiness, technology adoption, technology acceptance, business performance, small and medium enterprise, food and beverages industry,*
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Introduction

In modern business nowadays, technology plays a vital role as a catalyst to helps business operate effectively and efficiently. Technology arises from creativity and knowledge of humans who indeed to solves problem and improve their lives. It was trusted that technology has the ability to ensure business agility in a dynamic market environment. A business which adopts technology usage within the organization can gain competitive edge and enhance promptness (Setiawati et al., 2022). Utilizing technology can helps business to respond quickly to any changes occur in the market and opportunity while maintaining effectiveness of the operation. This is because business agility needs business to respond quickly and being able to shift resources, priorities and resources as needed (Ancillai et al., 2023).

Technology can empower companies by boosting their marketing skills and generate more sales. The usage of sales automation and AI powered selling for an example can helps business to reach more target customers (Ghobakhloo et al., 2022). AI sales assistant and chatbot can enable business to operate and be available all times without need human resources while entertaining customers through the sales funnel (Naatu et al., 2024). In a study on impact of AI usage on customer engagement proof that the benefits of technology enable sales teams to identify high potential leads and enhance customer interactions. Variety of AI technology such as machine learning, natural language processing and predictive analytics has the ability to automate repetitive tasks and forecast sales trends (Benjamin, 2025).

Next, the usage of technology in business can stimulate the decision-making capability of the managers in an organization. This can be done through data-driven decision making (DDDM). DDDM is a process in business where an organization need to use collected data, do analysis and get insights to guide the strategic choices. DDDM is much better than the traditional decision-making skills, because it is based on past facts and metrics rather than intuition or past experiences. For example, to helps business to understand consumer trends and preferences, their buying habits and also market trends, an organization can apply big data and analytics. AI powered insights provide business with forecasting tools to predict demand and suggest best time to engage with the customers. In a study on how effective the technology have on business showed that the organization utilize the usage of technology effectively show improvements in decision making and engage more customers precisely (Comfort Idongesit Michael et al., 2024). Technology also can help business to innovate better their products and services. In retaining the consumer, the innovation process must take place and able to fulfil current customer needs. Through innovation, with the helps of latest technology usage, the research and development on products and services will be more easier and convenience. Innovative products and services not only benefits organization in terms of sales but also in gaining market share in dynamic market (Dibie et al., 2019). This is because enhancing customer experience, can lead to higher customer satisfaction and brand loyalty. Therefore, the customer will likely to build emotional connection and potential to repeat purchasing increase, thus increased the revenue of the firms.

In conclusion, this paper explores how technology usage give impact on business performance of small and medium enterprise particularly in food and beverages industry. This study examines the relationship of technology readiness (TR) and technology adoption (TA) on business performance and revolve around the theory of Technology Acceptance Model (TAM).

Literature Review

Technology Acceptance Model (TAM)

Technology acceptance model (TAM) was developed by Fred Davis in 1986. This theory is based on Azjen and Fishbein's Theory of Reasoned Action (TRA). TAM is used to understand the framework of how and why people adopt and use new technologies in various industries such as e-commerce, education, mobile banking and others (Wang et al., 2023). The main components of TAM are perceived usefulness (PU), perceived ease of use (PEOU), attitude toward use (ATU), behavioural intention to use (BI) and actual system use (AU) (Ma et al., 2024). PU is where the degree to which a user believes that using a particular system can enhance their job performance and efficiency. Second component is perceived ease of use (PEOU) which means the degree to which a user believes that through the system, the effort will be more less. The attitude toward use (ATU) and behavioural intention to use (BI) is the user's overall feeling about using the technology and the actual system use (AU) is the real adoption and usage of the technology (Mazita B. M. et al., 2022).

TAM can predict that user's perceptions of a technology usefulness and ease of use will influence their attitude. For small and medium enterprise, the managers can take advantage of using this theory in their strategic plan because it associates with powerful tools that can helps business to enablers of change understanding why people adopt and resist new technologies (Nurqamarani et al., 2021) . In enhancing the effectiveness of the organization, through TAM, SME can focus on user training and awareness by providing hands-on training to the employees and customers to increase familiarity and reduce resistance to new technology (et al., 2023). For an example, McDonalds company has become the first world franchise who integrate the technology in their menu's selection. This is because McDonalds believe consumers can benefits from a seamless and efficient ordering experience through digital innovation (Yaacob et al., 2021).

To measure the business performance, small and medium enterprise can take advantage from TAM because it has the capability to predict the user's behavioural intention. Aligning products and services with user expectations can helps business to gain market share and meet user needs without need to spend much cost on research and development. In the other side, predicting user's behavioural intention can reduce marketing cost as it enhances targeted advertising by predicting user preferences (Toong et al., 2022). In conclusion, this strategy can encourage loyalty and long-term engagement between the consumers and organization.

Technology Readiness (TR)

Technology readiness is a willingness of an organization to adopt and use new technology within their business. Usually, the readiness of an individual or organization been measured through technology readiness scale which consist of nine levels with the 9 being the highest. Small and medium enterprise can apply TRL within their business to assess and manage their technological innovations by identifying which project is suitable for funding and commercialization (Lavin et al., 2022). The key aspects for technology readiness included the readiness on infrastructure which means having the necessary hardware, software and network capabilities, readiness to possess skills and training among the employees to operate the new technologies, readiness to mindset or generate technology organizational culture and readiness to set specific budgets for technology investments and implementation.

Small and medium enterprise in food and beverages industry can takes advantage from technology readiness (TR) by supporting the development of strategies among the different

readiness levels. TR also helps manager in decision making process by assists in resource allocation, ensuring investments are aligned with the right technologies (Uren & Edwards, 2023). Business can design user-friendly systems based on their TR levels by tailoring product and services right to the target market (Ming Ming et al., 2021). For example, in ordering and delivery, TR can be used to determine the online ordering and delivery platforms that can best suit their cost and capability. In inventory management, TR can get helps in preparing stock based on IoT-based inventory management.

In conclusion, technology readiness (TR) has the capability to improve business performance of small and medium enterprise in food and beverages industry. The readiness of SME to use the new technology can ensure strategic decision making among the managers and helps to allocate resources efficiently. Optimizing investment various aspects of TR actually beneficial for the enterprise itself as it enhances operational efficiency and create technology driven culture. Thus, technology readiness can give positive impact on business performance of SME in food and beverages industry.

Technology Adoption (TA)

In food and beverages industry, the usage of technology can stimulate business growth and development. This can be done by adoption of digital technologies within the organization either by applying online ordering system, POS systems, food delivery apps, and AI driven analytics (Granić, 2022). The adoption of technology is believed able to improve efficiency, quality and customer experience (Sudirman et al., 2025). Adoption refers to process of not only accepting new things, but also integrate the acceptance and committed to use the new systems. Technology adoption means the commitment of an organization to accept and applied the latest technology within their business so that they can get along with the current trend and serve the best to their consumers. The technology adoption in a business can be applied mainly in the production department where innovation of product and service takes place, marketing department where the usage of technology in determining the market and how quickly the product and services been accepted by the consumers. The usage of technology in organizational adoption on the other side, helps business to implement new policies and strategies more efficiently and effectively.

Conceptual Framework

H1 Technology readiness positively influence business performance of SME F&B sector.
H2: Technology adoption positively influence business performance of SME F&B sector.

Conclusion

Despite the cost need to incur by the small and medium enterprise in getting ready and adopt the technology within their business, the benefits of technology usage in boosting the marketing and generating revenue to the firms is far outweigh the expenses. The usage of technology in everyday life has become an essential tool for everyone. Therefore, small and medium enterprise in food and beverages industry must takes the opportunity to willingly ready to applied the technology in serving the customers and adopt technology rightly.

References

Ancillai, C., Sabatini, A., Gatti, M., & Perna, A. (2023). Digital technology and business model innovation: A systematic literature review and future research agenda. *Technological Forecasting and Social Change*, *188*(February 2025). https://doi.org/10.1016/j.techfore.2022.122307

Astiti, N. P. Y., Prayoga, I. M. S., & Imbayani, I. G. A. (2023). Digital Transformation Through Technology Acceptance Model Adoption for Sme Recovery Econo-My During the Covid-19 Pandemic. *Jurnal Aplikasi Manajemen*, *21*(1), 153–166. https://doi.org/10.21776/ub.jam.2023.021.1.11

Benjamin, M. (2025). *AI-Driven Sales Automation : Enhancing Predictive Analytics and Customer Engagement Author : Matthew Benjamin Date : 19 TH Feb 2025 Abstract : February*.

Comfort Idongesit Michael, Oluwaseun Johnson Ipede, Adejoke Deborah Adejumo, Ibrahim Oyeyemi Adenekan, Damilola Adebayo, Adefisayo Simon Ojo, & Praise Ayomide Ayodele. (2024). Data-driven decision making in IT: Leveraging AI and data science for business intelligence. *World Journal of Advanced Research and Reviews*, *23*(1), 472–480. https://doi.org/10.30574/wjarr.2024.23.1.2010

Dibie, V. M., Nto, C. P. O., Unanam, E. L., & Bassey, I. E. (2019). Effect of Product Innovation on Customer Acquisition and Retention. *International Journal of Marketing and Communication Studies*, *4*(1), 50–62. www.iiardpub.org

Ghobakhloo, M., Iranmanesh, M., Vilkas, M., Grybauskas, A., & Amran, A. (2022). Drivers and barriers of Industry 4.0 technology adoption among manufacturing SMEs: a systematic review and transformation roadmap. *Journal of Manufacturing Technology Management*, *33*(6), 1029–1058. https://doi.org/10.1108/JMTM-12-2021-0505

Granić, A. (2022). Educational Technology Adoption: A systematic review. *Education and Information Technologies*, *27*(7), 9725–9744. https://doi.org/10.1007/s10639-022-10951-7

Lavin, A., Gilligan-Lee, C. M., Visnjic, A., Ganju, S., Newman, D., Ganguly, S., Lange, D., Baydin, A. G., Sharma, A., Gibson, A., Zheng, S., Xing, E. P., Mattmann, C., Parr, J., & Gal, Y. (2022). Technology readiness levels for machine learning systems. *Nature Communications*, *13*(1). https://doi.org/10.1038/s41467-022-33128-9

Ma, J., Wang, P., Li, B., Wang, T., Pang, X. S., & Wang, D. (2024). Exploring User Adoption of ChatGPT: A Technology Acceptance Model Perspective. *International Journal of Human-Computer Interaction*, *0*(0), 1–15. https://doi.org/10.1080/10447318.2024.2314358

Mazita B. M., Salme B. Y., Muhammad W. A. K., & Zetty A. B. K. (2022). the Impact of Ir 4.0 Technology Acceptance on Small Medium Enterprises Behavior Intention in the Halal Food and Beverage Industry in Malaysia a Pilot Study. *Journal of Business on Hospitality and Tourism*, *8*(1), 167–186.

Ming Ming, L., Leong, M. Y., & Kwan, J. H. (2021). Technology readiness and UTAUT2 in e-wallet adoption in a developing country. *F1000Research*, *10*, 1–13. https://doi.org/10.12688/f1000research.72853.1

Naatu, F., Selormey, F. S., & Naatu, S. (2024). Determinants of digital technology adoption in sub-Sahara Africa: Ghana. *International Journal of Emerging Markets*, *9*(4), 100610. https://doi.org/10.1108/IJOEM-09-2023-1503

Nurqamarani, A. S., Sogiarto, E., & Nurlaeli, N. (2021). Technology Adoption in Small-Medium Enterprises based on Technology Acceptance Model: A Critical Review. *Journal of Information Systems Engineering and Business Intelligence*, *7*(2), 162. https://doi.org/10.20473/jisebi.7.2.162-172

Setiawati, R., Eve, J., Syavira, A., Ricardianto, P., Nofrisel, & Endri, E. (2022). The Role of Information Technology in Business Agility: Systematic Literature Review. *Quality - Access*

to Success, *23*(189), 144–149. https://doi.org/10.47750/QAS/23.189.16

Sudirman, I. D., Astuty, E., & Aryanto, R. (2025). Enhancing Digital Technology Adoption in SMEs Through Sustainable Resilience Strategy: Examining the Role of Entrepreneurial Orientation and Competencies. *Journal of Small Business Strategy*, *35*(1), 97–114. https://doi.org/10.53703/001c.124907

Toong, S., Toong Hai, S., Pei Wen, Y., Balakrishnan, R., Kim Yew, L., Chee Hoo, W., Hou Hong Ng, A., & Ng, C.-P. (2022). *Technology Acceptance and the Influence Towards Small and Medium-sized Enterprise (SME) Company Performance in Malaysia*. *20*(May), 19–33. https://doi.org/10.14704/nq.2022.20.6.NQ22003

Uren, V., & Edwards, J. S. (2023). Technology readiness and the organizational journey towards AI adoption: An empirical study. *International Journal of Information Management*, *68*(March 2022), 102588. https://doi.org/10.1016/j.ijinfomgt.2022.102588

Wang, C., Ahmad, S. F., Bani Ahmad Ayassrah, A. Y. A., Awwad, E. M., Irshad, M., Ali, Y. A., Al-Razgan, M., Khan, Y., & Han, H. (2023). An empirical evaluation of technology acceptance model for Artificial Intelligence in E-commerce. *Heliyon*, *9*(8), e18349. https://doi.org/10.1016/j.heliyon.2023.e18349

Yaacob, S. A., Abdul Aziz, A., Bakhtiar, M. F. S., Othman, Z., & Ahmad, N. A. (2021). A Concept of Consumer Acceptance on the usage of Self-Ordering Kiosks at McDonald's. *International Journal of Academic Research in Business and Social Sciences*, *11*(13), 11–20. https://doi.org/10.6007/ijarbss/v11-i13/8498