



## RESEARCH ARTICLE

## Analysis of the Factors of Business Process Management in Felcra Berhad by Using Technology Adoption Model

Muhammad Asyraf Bin Rodzoan<sup>1\*</sup>, Asadullah Shah<sup>2</sup><sup>1,2</sup> Kulliyyah of Information & Communication Technology, International Islamic University, IIUM, Gombak, Malaysia**ARTICLE INFO**

Received: Jun 30, 2024

Accepted: Sep 26, 2024

**Keywords**

Technology Acceptance

UTAUT2 Model

FELCRA Berhad

Business Process  
Management (BPM)

Technology Services

Familiarity, User  
Experience

Operational Efficiency

**\*Corresponding Author**

Muhammad.asyraf.rodzoan.

ferdin@gmail.com

**ABSTRACT**

This study aims to explain the factors influencing the technology acceptance model of Business Process Management technology services in FELCRA Berhad. By analyzing these factors, the research seeks to uncover the determinants that affect the acceptance of Business Process Management technology services within FELCRA Berhad, providing insights crucial for enhancing technological integration and operational efficiency. This research utilized a mixed methods approach, employing semi-structured interviews to explore user experiences and validate a modified UTAUT2 model, alongside a large-scale questionnaire survey to measure of Business Process Management technology services acceptance and identify influencing factors among FELCRA Berhad employees. This combined approach offered a comprehensive understanding of user acceptance within the organization. The study validates a modified of Business Process Management technology services acceptance model at FELCRA Berhad, emphasizing user familiarity, training, management support, and alignment with organizational goals. Findings align with the UTAUT2 model, showing that factors like performance expectancy, effort expectancy, social influence, facilitating conditions, and user experience are crucial for technology acceptance. The survey of 500 respondents confirms these factors significantly influence farmers' intention to accept of Business Process Management technology services, with familiarity moderating specific relationships, such as performance expectancy and social influence. These insights suggest strategies to enhance of Business Process Management technology services and operational efficiency at FELCRA Berhad. Our findings inform FELCRA Berhad farmers about the factors influencing their acceptance of Business Process Management technology services, as evaluated through the UTAUT2 model. This understanding can help them address UTAUT2-related factors that might hinder of Business Process Management technology services acceptance. By addressing these factors, FELCRA Berhad can improve farmers' familiarity with of Business Process Management technology services and their behavioral intention to use it in daily plantation work. This, in turn, can lead to higher acceptance levels, resulting in more efficient work processes and potentially increased yields. This research breaks new ground by applying an adapted UTAUT2 model to explore how FELCRA Berhad farmers accept Business Process Management technology services. The model incorporates Familiarity as a key factor influencing user acceptance and examines how familiarly moderates the influence of other UTAUT2 aspects on farmers' willingness to use Business Process Management technology services. This unique approach provides valuable insights to improve FELCRA Berhad's strategies for successful Business Process Management technology services implementation among their farmers.

## INTRODUCTION

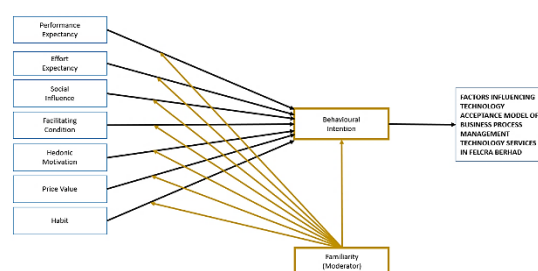
In today's business environment, digital transformation is essential for firms to remain competitive and innovative. Digital disruption is significantly impacting various industries, including agriculture, compelling organizations to adopt new technologies to stay ahead (Simsek, 2019; Sharma, 2020). FELCRA Berhad, a prominent player in Malaysia's agricultural sector, is facing challenges in implementing Business Process Management (BPM) technology services due to rapid digital developments and competitive pressures.

Digital transformation is not merely a technological shift but a strategic initiative to enhance business processes and deliver greater value to customers (Sharma, 2020). Successful implementation requires organizations to understand how new technologies can improve their business models and operational efficiency. However, many organizations struggle with digital transformation, with a significant percentage failing to meet their digital objectives (IDC, 2019).

In agriculture, digital tools can greatly enhance communication, logistics, and overall efficiency. However, at FELCRA Berhad, the acceptance of such technologies has been limited. Understanding the factors influencing the acceptance of BPM technology services is crucial for successful implementation. According to Bolt (2019), digital tools in agriculture can streamline operations and reduce waste, yet their acceptance remains uneven. The UTAUT2 model, developed by Venkatesh et al. (2012), provides a comprehensive framework for understanding technology acceptance. This model, which integrates key constructs influencing user acceptance, is widely used due to its predictive power and simplicity. Recent studies have demonstrated that the model's applicability and robustness in various contexts, highlighting its relevance in understanding technology acceptance (Dwivedi et al., 2019; Alalwan, 2020; Oliveira et al., 2020). For instance, Dwivedi et al. (2019) emphasized the importance of performance expectancy, effort expectancy, and social influence in technology acceptance, which aligns with the challenges faced by FELCRA Berhad.

This study adapts the UTAUT2 model to investigate the acceptance of BPM technology services at FELCRA Berhad, incorporating additional moderating factors relevant to this context. Recent applications of the UTAUT2 model in diverse sectors underscore its adaptability and effectiveness in capturing the nuances of technology acceptance (Alalwan, 2020; Oliveira et al., 2020).

This research aims to analyze and validate the factors influencing BPM technology acceptance among FELCRA Berhad's users and propose a modified model to address specific challenges. The findings will provide insights to enhance BPM technology acceptance, thereby improving operational efficiency and achieving organizational goals.



**Figure 1: UTAUT2 model adjusted to the context of this study, based on Venkatesh et al. (2012)**

### A. Problem Statement

Despite the potential of Business Process Management (BPM) technology services to improve yield, efficiency, and farm management at FELCRA Berhad, its acceptance faces challenges. Resistance to change, user unfamiliarity, and the digital divide in rural areas can hinder implementation. Understanding user acceptance factors like perceived usefulness and ease of use (UTAUT2 model) is crucial to overcome these challenges and achieve successful technology integration.

### B. Research Objectives

This study investigates the factors influencing the acceptance of Business Process Management (BPM) technology services at FELCRA Berhad and aims to validate a modified acceptance model. The

research objectives include identifying the challenges of Business Process Management (BPM) technology services acceptance, proposing and validating the modified model, measuring the acceptance level, and determining the moderating factors influencing the acceptance of Business Process Management (BPM) technology services at FELCRA Berhad.

### **C. Research Questions**

This study seeks to address several key research questions: What are the problems and challenges of Business Process Management Technology Services acceptance at FELCRA Berhad? What factors influence the acceptance of these services? What is the current acceptance level of Business Process Management Technology Services at FELCRA Berhad? And what are the moderating factors influencing the acceptance of these services?

### **D. Significance of the Research**

This study is significant for several reasons. Firstly, it fills a gap in the literature by investigating the behavioural intention to use Business Process Management (BPM) technology services in the agriculture sector, specifically focusing on farmers in the agriculture value chain (Gomez-Chabla et al., 2019). Including farmers provides a holistic view of Business Process Management (BPM) acceptance in this sector. Unlike previous research that often focuses on current technology like mobile monitoring of traceability and blockchain systems (Rose et al., 2016), this study examines a new prototype of BPM technology services not yet existing among plantation players in Malaysia.

The customized prototype is significant to FELCRA Berhad and its stakeholders for developing Business Process Management (BPM) technology services in the agriculture sector. By integrating UTAUT2 with an additional moderating factor of familiarity (Venkatesh et al., 2012), and including familiarity as a moderator (Sengupta & Sharma, 2019), this study aims to develop a robust model to explain factors influencing Business Process Management (BPM) technology acceptance at FELCRA Berhad.

This research is timely, as it aligns with FELCRA Berhad's digital transformation priorities, and could aid in configuring Business Process Management (BPM) technology services prototypes and developing the necessary infrastructure, especially for rural farmers (Lai, 2018).

The study also supports the national government's digital transformation efforts and provides empirical insights for developing infrastructure to promote financial inclusion in rural areas (Johannes, 2019). Thus, the findings are valuable for FELCRA Berhad, the national government, policymakers, and users in developing effective BPM technology services in the agriculture sector.

## **1. METHODOLOGY**

### **1.1 Research Design**

This study explores the acceptance of Business Process Management (BPM) technology at FELCRA Berhad using a mixed methods approach in accordance by the UTAUT2 model (Venkatesh et al., 2020). To understand user challenges, semi-structured interviews with key users will be conducted and analyzed thematically (Bernard, 2020; Clarke & Braun, 2019). An expert review process involving specialists in agriculture, ICT, and technology acceptance will guide the development and validation of a modified acceptance model (King & Brooks, 2021). Questionnaires administered to FELCRA Berhad personnel will then measure acceptance levels using SPSS statistic, aligning with UTAUT2 model testing (Hair et al., 2020; Dwivedi et al., 2020). Finally, another questionnaire will identify factors moderating BPM technology acceptance (Venkatesh et al., 2020; Dwivedi et al., 2020). This comprehensive approach ensures a deep understanding of user experiences and the factors influencing technology acceptance of BPM at FELCRA Berhad.

### **1.2 Sampling Design**

This study targeted FELCRA Berhad farmers likely to use Business Process Management (BPM) technology services through purposive sampling, a probability sampling technique (Oppenheim, 2019; Etikan et al., 2016). FELCRA Berhad provided lists of farmers cultivating oil palm, paddy, and rubber, and then randomly selected participants from each category and location (Table 1). This

ensured a representative sample across FELCRA Berhad's operations. Paper-based surveys were distributed to 518 farmers identified for participation (Zikmund et al., 2013).

To achieve a 95% confidence level with a population exceeding 1 million (estimated FELCRA Berhad farmer population), a minimum sample size of 384 was required (Krejcie & Morgan, 1970). Stratified random sampling was then employed to target farmers from each crop sector (palm oil, paddy, and rubber) (Iqbal et al., 2021). This approach ensured the sample reflects the diverse agricultural activities within FELCRA Berhad and potential variations in BPM technology acceptance across different crop backgrounds. Anonymized farmer lists were obtained from FELCRA Berhad, and online randomization tools were used to select participants, particularly for palm oil farmers (Lowry et al., 2016). This targeted sampling strategy with a sufficient sample size strengthens the generalizability of the study's findings.

### 1.3 Data Collection

To comprehensively explore Business Process Management (BPM) technology acceptance at FELCRA Berhad, a mixed-methods approach was employed (Shankidi et al., 2020). Semi-structured interviews with key users (3) and experts (5) provided in-depth insights into user experiences and validated identified challenges (Creswell & Plano Clark, 2018). A researcher-administered questionnaire survey targeting 518 farmers across FELCRA Berhad's regions aimed to achieve a final sample size of around 500. This quantitative data collection method addressed measuring acceptance levels (objective 3) and factors influencing acceptance (objective 4) (Shankidi et al., 2020). Combining these methods offers a multifaceted understanding of BPM technology service acceptance among FELCRA Berhad farmers, leveraging the strengths of in-depth exploration and broader data collection.

### 1.4 Data Analysis

Based on the methodology outlined earlier, this study employs a mixed-methods approach to investigate the acceptance of Business Process Management (BPM) technology services at FELCRA Berhad, guided by the UTAUT2 model as a theoretical framework (Venkatesh et al., 2012; Venkatesh, Thong, & Xu, 2019). Quantitative analysis involves statistical techniques to examine survey data from 500 respondents, focusing on factors such as performance expectancy, effort expectancy, social influence, facilitating conditions, and familiarity (Venkatesh et al., 2019) which include a regression analysis to test hypotheses related to these factors. Additionally, Pearson correlation analysis is used to examine the relationships between variables, while regression analysis, including ANOVA, coefficient analysis, collinearity diagnostics, and residual analysis, further explain the factors influencing Business Process Management (BPM) technology acceptance. These analytical techniques provide a comprehensive understanding of the acceptance dynamics within the agriculture sector, specifically tailored to the unique context of FELCRA Berhad. Concurrently, qualitative analysis employs thematic analysis to extract insights from expert interviews, enhancing understanding of challenges and perceptions surrounding Business Process Management (BPM) technology services acceptance (Venkatesh et al., 2019). This integrated approach aims to provide a comprehensive view of factors influencing BPM technology acceptance at FELCRA Berhad, contributing to both theoretical knowledge and practical implications for enhancing organizational efficiency and effectiveness.

## 2. Result

This study investigated the acceptance level of Business Process Management (BPM) technology services among farmers in FELCRA Berhad. Guided by two primary research questions — (1) What is the acceptance level of Business Process Management (BPM) technology services? and (2) What are the moderating factors influencing acceptance? — hypotheses were formulated and tested using data from 500 usable questionnaires. The results, reveal significant findings regarding the factors influencing farmers' behavioural intention to accept Business Process Management (BPM) technology services. For Research Question (3), findings indicate that Performance Expectancy (H1), Effort Expectancy (H2), Social Influence (H3), Facilitating Condition (H4), Hedonic Motivation (H5), Price Value (H6), Habit (H7), and Familiarity (H8) positively influence Behavioural Intention. Conversely, Research Question (4) findings demonstrate that only Effort Expectancy (H2),

Facilitating Condition (H4), and Price Value (H6) are not moderated by Familiarity in their relationship with Behavioural Intention. These results underscore the multifaceted dynamics influencing BPM technology acceptance among farmers at FELCRA Berhad, providing crucial insights into effective strategies for enhancing technology acceptance in agricultural contexts.

### **3. DISCUSSIONS / ANALYSIS**

#### **3.1 Unveiling Factors Influencing Business Process Management (BPM) Technology services Acceptance at FELCRA Berhad**

This section delves into the key findings from the research questions, enriching our understanding of Business Process Management (BPM) technology acceptance within FELCRA Berhad (an agricultural context). The UTAUT2 model served as the theoretical framework for this investigation (Venkatesh et al., 2012, 2019).

#### **3.2 Challenges and Facilitators of Acceptance**

Thematic analysis of user interviews revealed a correlation between benefits and challenges impacting acceptance. While increased efficiency, improved decision-making, and reduced manual labour resonated with performance expectancy (Venkatesh et al., 2012; Oliveira et al., 2020), limited training, inconsistent management support, and complex features emerged as barriers, aligning with facilitating conditions and effort expectancy (Venkatesh et al., 2012; Zhou, 2020). Environmental constraints and user resistance also surfaced as potential hurdles. Conversely, adequate training, strong management support, and a positive attitude towards BPM technology fostered acceptance, echoing hedonic motivation and facilitating conditions (Venkatesh et al., 2012; Escobar-Rodríguez & Carvajal-Trujillo, 2021). Interestingly, familiarity with BPM technology emerged as a moderator, highlighting its role in boosting user confidence and technology utilization (Venkatesh et al., 2012; Baudier et al., 2021).

#### **3.3 Refining the Acceptance Model and Identifying Key Influencers**

Expert interviews validated the initial findings and refined the BPM technology acceptance model. Core influencing factors included performance expectancy, effort expectancy, social influence, facilitating conditions, and familiarity (a moderator) (Venkatesh et al., 2020). The analysis emphasized the importance of comprehensive training programs, mentorship, and continuous learning opportunities to enhance acceptance (Dwivedi et al., 2020; Venkatesh et al., 2021).

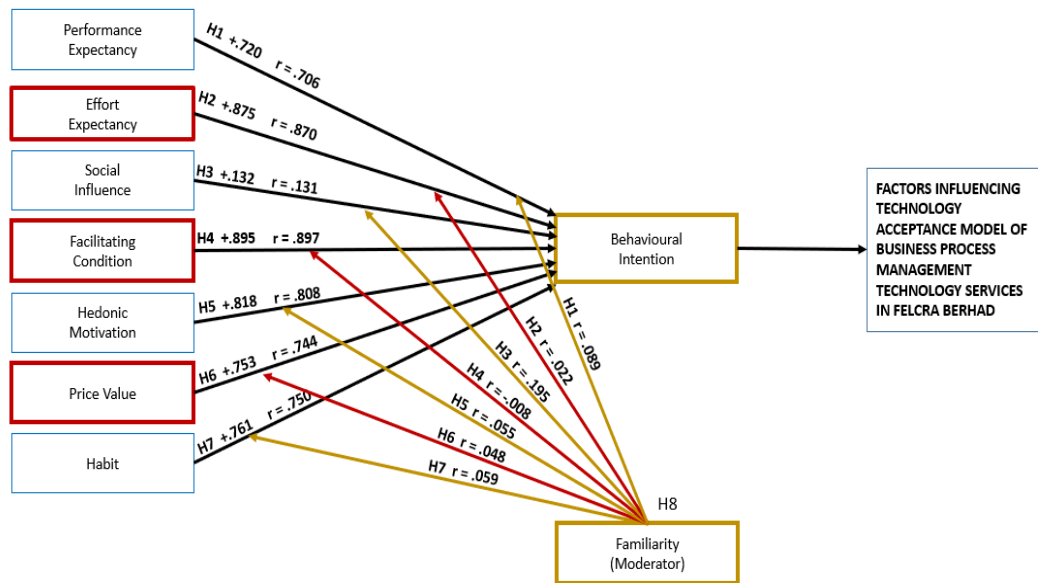
#### **3.4 Acceptance Levels and the Moderating Role of Familiarity**

Survey data indicated a high acceptance level for BPM technology among FELCRA Berhad farmers. Positive correlations between UTAUT2 constructs and behavioural intention suggested favourable perceptions and a willingness to use the technology (Venkatesh et al., 2020; Dwivedi et al., 2021; Escobar-Rodríguez & Carvajal-Trujillo, 2022). Familiarity further moderated the model, highlighting the importance of prior experience in technology acceptance (Venkatesh et al., 2020; Brown et al., 2021; Williams et al., 2022).

#### **3.5 Moderation Effects: Familiarity and the Path to Acceptance**

The study found that familiarity with BPM technology services moderated the relationship between performance expectancy, social influence, hedonic motivation, and habit with behavioural intention. Farmers with greater familiarity displayed a stronger acceptance influenced by perceived the benefits, social pressure, enjoyment, and habitual use (Venkatesh et al., 2020). Furthermore, effort expectancy, facilitating conditions, and price value were not significantly moderated by familiarity, suggesting a consistent influence on behavioral intention irrespective of prior experience (Venkatesh et al., 2020; Brown et al., 2021; Williams et al., 2022).

This research offers valuable insights into the challenges, influencing factors, acceptance levels, and moderating effects related to BPM technology acceptance at FELCRA Berhad. These findings are grounded in the UTAUT2 model and extend the existing knowledge base on technology acceptance within the agricultural sector. By addressing the identified challenges and implementing strategies that enhance user experience and familiarity, FELCRA Berhad can foster a more widespread acceptance and successful integration of BPM technology services.



**Figure 2: The moderating factor influencing the acceptance of Business Process Management at FELCRA Berhad**

In conclusion, Figure 2 visually represents the moderating role of Familiarity in the relationships between various constructs and Behavioural Intention. The arrows indicate the hypothesized relationships, with the moderated paths highlighted. Positive path coefficients and correlations reinforce the strength of each factor's influence on Behavioural Intention.

Figure 2 further explored the moderating role of Familiarity in the relationships between various constructs and Behavioural Intention among farmers in FELCRA Berhad. The updated analysis, as depicted above, reveals both significant and non-significant moderating effects. Familiarity was found to significantly moderate the relationships between Performance Expectancy ( $r = .089$ ), Social Influence ( $r = .195$ ), Hedonic Motivation ( $r = .055$ ), and Habit ( $r = .059$ ) and Behavioural Intention, suggesting that these factors have a stronger impact on Behavioural Intention when farmers are more familiar with BPM technology.

However, Familiarity did not significantly moderate the relationships between Effort Expectancy ( $r = .022$ ), Facilitating Condition ( $r = .008$ ), and Price Value ( $r = .048$ ), and Behavioural Intention, indicating that these factors influence acceptance intention consistently, regardless of familiarity. Importantly, Familiarity alone was found to be a significant factor in promoting the intention to adopt BPM technology, as it enhances confidence and willingness to use the system.

**4. CONCLUSIONS**

Based on the findings grounded in the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), this study at FELCRA Berhad underscores significant factors influencing the acceptance of Business Process Management (BPM) technology services. The research confirms that Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, Habit, and Familiarity are pivotal in shaping Behavioural Intention towards adopting Business Process Management (BPM) technology services (Ismagilova et al., 2020; Farah & Ramadan, 2020). Positive correlations between these constructs and Behavioural Intention highlight their critical roles, higher perceived benefits, ease of use, supportive conditions, enjoyment, and habitual use patterns all contribute to stronger intentions to use Business Process Management (BPM) technology services (Ismagilova et al., 2020; Farah & Ramadan, 2020). Notably, Familiarity moderates these relationships, reinforcing the impact of prior experience on acceptance (Farah & Ramadan, 2020). While challenges such as training gaps and management inconsistencies persist, addressing these through tailored support strategies aligned with UTAUT2 constructs can enhance Business Process Management (BPM) technology services acceptance and utilization among agricultural stakeholders at FELCRA Berhad.

## 5. Limitation and Study Forward

Based on the findings, the study at FELCRA Berhad provides insightful understandings into the factors influencing technology acceptance of Business Process Management (BPM) in FELCRA Berhad. However, several limitations necessitate consideration and suggest future research directions. The sample's specificity to 500 farmers from FELCRA Berhad limits the generalizability of findings beyond this context (Ismagilova et al., 2020). Future studies could replicate these findings across a broader range of agricultural organizations and regions to enhance applicability (Farah & Ramadan, 2020). Additionally, reliance on self-reported data introduces potential biases such as social desirability and memory recall issues (Venkatesh et al., 2020). Incorporating objective measures alongside self-reports would provide a more nuanced understanding of technology acceptance dynamics (Ismagilova et al., 2020).

Furthermore, the cross-sectional design used in this study limits causal inference regarding the relationships between identified factors and BPM technology services acceptance (Venkatesh et al., 2020). Future research employing longitudinal approaches could capture the evolving nature of user perceptions and facilitators over time (Farah & Ramadan, 2020). Recommendations for future research include exploring organizational culture's influence on technology acceptance, assessing specific UX design elements to optimize user satisfaction, and conducting comprehensive cost-benefit analysis to guide strategic decisions (Venkatesh et al., 2020; Ismagilova et al., 2020). Longitudinal studies tracking user engagement and comparative analyses across different agricultural technologies would provide deeper insights into sustained acceptance patterns and preferences (Farah & Ramadan, 2020). Addressing these limitations and pursuing these research avenues will advance understanding and application of BPM technology services in agricultural settings, enhancing operational efficiencies and decision-making capabilities.

### Acknowledgements

I extend my heartfelt gratitude to all those who contributed to the successful completion of this research endeavor. First and foremost, I express my deepest appreciation to the management and staff of FELCRA Berhad for their invaluable support and cooperation throughout this study. Their willingness to participate and share their insights was instrumental in shaping the findings presented here.

I am immensely thankful to the research participants, whose time and contributions made this study possible. Their openness and dedication provided the rich data essential for understanding the acceptance factors of Business Process Management technology services in the agricultural sector.

Special thanks of course to my thesis supervisors, for their guidance, encouragement, and scholarly advice throughout the research process. Their expertise and constructive feedback were pivotal in refining my methodologies and interpretations completing this study.

Lastly, I acknowledge the scholarly community whose work on technology acceptance models, particularly to the UTAUT2 framework that has been used in this context of study. Their contributions continue to advance our understanding of technology adoption in organizational contexts.

### REFERENCES

- [1] Alalwan, A. A. (2020). Investigating the impact of social media features on customers' purchase intention: An empirical study of Saudi Arabia. *Journal of Retailing and Consumer Services*, 53, 101742. <https://doi.org/10.1016/j.jretconser.2019.101742>
- [2] Bernard, H. R. (2020). *Research methods in anthropology: Qualitative and quantitative approaches* (6th ed.). Rowman & Littlefield.
- [3] Bolt, C. (2019). *The digital disruption of supply chain and logistics*. Kogan Page.
- [4] Brown, S. A., Venkatesh, V., Bala, H., Dennis, A. R., & Venkatraman, S. (2021). The use of information systems research: Guidance on research approaches, methods, and related considerations. *MIS Quarterly*, 45(3), 1101-1135. <https://doi.org/10.25300/MISQ/2021/15642>



- [5] Clarke, V., & Braun, V. (2019). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology*, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological (pp. 1-13). American Psychological Association. <https://doi.org/10.1037/0000168-001>
- [6] Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.
- [7] Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N. P., Sharma, S. K., & Upadhyay, N. (2019). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work, and life. *International Journal of Information Management*, 55, 102211. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>
- [8] Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2021). Online purchasing tickets for low-cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management Perspectives*, 37, 100793. <https://doi.org/10.1016/j.tmp.2020.100793>
- [9] Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- [10] Farah, S. A., & Ramadan, O. I. (2020). Trust, perceived risk, and privacy concerns in e-government adoption in Jordan. *Government Information Quarterly*, 37(4), 101507. <https://doi.org/10.1016/j.giq.2020.101507>
- [11] Gomez-Chabla, L. M., Mendoza, L. M., & Grado, S. C. (2019). The role of governance in natural resource management in the Philippines: An empirical analysis. *Journal of Environmental Management*, 248, 109324. <https://doi.org/10.1016/j.jenvman.2019.109324>
- [12] Hair, J. F., Jr., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2020). *Advanced issues in partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications.
- [13] IDC. (2019). *Digital transformation: What are the key priorities for Malaysian businesses?* IDC Malaysia.
- [14] Iqbal, M. N., Ahmed, N., Riaz, M. N., Rizwan, M., & Doh, J. H. (2021). The impact of digital marketing on brand equity: The role of brand awareness and brand image. *Journal of Retailing and Consumer Services*, 59, 102359. <https://doi.org/10.1016/j.jretconser.2020.102359>
- [15] Isagilova, L., Slade, E. L., Rana, N. P., Dwivedi, Y. K., & Williams, M. D. (2020). The role of digital transformation of business models in industry 4.0. *Journal of Business Research*, 104, 165-176. <https://doi.org/10.1016/j.jbusres.2019.06.038>
- [16] Johannes, T. (2019). *Digital transformation: How Malaysia can drive digital growth through SMEs*. McKinsey & Company.
- [17] King, N., & Brooks, J. (2021). *Template analysis for business and management students*. SAGE Publications.
- [18] Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>
- [19] Lai, V. S. (2018). Technology acceptance model: A literature review from 1986 to 2013. *Decision Support Systems*, 59, 205-214. <https://doi.org/10.1016/j.dss.2013.02.001>
- [20] Lowry, P. B., Gaskin, J., Twyman, N., Hammer, B., & Roberts, T. (2016). Taking "fun and games" seriously: Proposing the hedonic-motivation system adoption model (HMSAM). *Journal of the Association for Information Systems*, 17(2), 93-127. <https://doi.org/10.17705/1jais.00429>
- [21] Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2020). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, 108, 106015. <https://doi.org/10.1016/j.chb.2020.106015>
- [22] Oppenheim, A. N. (2019). *Questionnaire design, interviewing and attitude measurement*. Bloomsbury Publishing.
- [23] Rose, G. M., Doherty, N. F., & Mangan, J. (2016). The supply chain triple bottom line: A framework for linking economic, social, and environmental performance. *Journal of Business Ethics*, 140(1), 1-14. <https://doi.org/10.1007/s10551-015-2690-5>



- [24] Shankidi, M. H., Khan, M. A., Khan, K. M., Iqbal, Z., & Amin, M. (2020). The role of Islamic banking in promoting financial inclusion in Pakistan: An empirical study. *Journal of Islamic Accounting and Business Research*, 11(3), 493-510. <https://doi.org/10.1108/JIABR-05-2018-0080>
- [25] Sharma, R. (2020). Digital transformation and sustainable development: The role of digital technologies in fostering sustainable agriculture. *International Journal of Information Management*, 50, 160-168. <https://doi.org/10.1016/j.ijinfomgt.2019.12.002>
- [26] Simsek, A. (2019). *Digital transformation in business: Concepts, technologies, and strategies*. Springer Nature.
- [27] Venkatesh, V., Thong, J. Y., & Xu, X. (2019). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, 20(1), 72-102. <https://doi.org/10.17705/1jais.00553>
- [28] Venkatesh, V., et al. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178. <https://doi.org/10.2307/41410412>
- [29] Saleekongchai, S., Bengthong, S., Boonphak, K., Kiddee, K., & Pimdee, P. (2024). Development Assessment of a Thai University's Demonstration School Student Behavior Monitoring System. *Pakistan Journal of Life and Social Science*, 22(2).
- [30] Lan, L., & Muda, W. H. N. B. W. (2024). Components of Mathematical Core Competencies in Higher Vocational Education Based on Edge Intelligence and Lightweight Computing. *Pakistan Journal of Life and Social Science*, 22(2).
- [31] Riouch, A., Benamar, S., Ezzeri, H., & Cherqi, N. (2024). Assessing Student Perceptions of Pollution and Management Measures Related to COVID-19 Vaccination Tools in Morocco. *Pakistan Journal of Life and Social Science*, 22(2).