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Article

Adoption of Worldcoin digital wallet in Thailand

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ABSTRACT

In the dynamic and ever-evolving digital landscape, the emergence of digital wallets, exemplified by the likes of Worldcoin, represents a significant and transformative trend. This study employed a quantitative research approach to investigate the potential determinants of Worldcoin wallet adoption in Thailand. Data from 1,430 participants were collected through structured questionnaires, and binary regression analysis was used to examine the relationship between key independent variables, including gender, age, education, occupation, income, savings, digital wallet possession, usage frequency, and social media engagement, and the adoption of the Worldcoin wallet. The study found that all these factors significantly influenced individuals' inclination to adopt the Worldcoin wallet in Thailand. These findings carry substantial implications for promoting digital wallet adoption in Thailand. Tailoring marketing strategies to demographic groups based on variables such as gender, age, education, occupation, income, savings, digital wallet ownership, usage frequency, and social media engagement can enhance adoption rates and better meet user preferences.

1. Introduction

The COVID-19 pandemic has led to a substantial economic slowdown, with restrictions on activities like travel and in-person interactions, resulting in the adoption of digital technology to revive the economy. This shift is known as the digital economy, which utilizes digital innovations to improve economic efficiency. Moreover, businesses now offer services online, such as electronic commerce (e-commerce), as well as social commerce (s-commerce), enabling remote purchases. Financial innovations like digital financial systems are crucial in this new economy. The digital economy has also altered consumer behavior, business practices, and government policies, leading to enhanced customer service, cost reduction, and new revenue opportunities for digitally-driven companies. Additionally, it has transformed social and communication sciences, enabling widespread data sharing and access to information (Asanprakit & Kraiwanit, 2023; Banga & te Velde, 2020; Xu et al., 2022).

Financial Technology, or FinTech, involves the use of digital systems to enhance the efficiency and organization of financial transactions. In today's FinTech landscape, it has significantly influenced consumer behavior by integrating online payment systems and FinTech solutions into the buying and selling of goods and services, accessible through various digital devices. The COVID-19 pandemic has accelerated digital disruption, leading to the emergence of the digital economy and substantial growth in various forms of FinTech (Barroso & Laborda, 2022; Subramanian, 2022). Ongoing technological innovations are reshaping society, with the internet's accessibility and smartphones playing a crucial role. Industry 4.0 represents a major transformation driven by technological advancements that enhance digital interactions and affect global economy and society (Limna & Kraiwanit, 2022; Mourtzis et al., 2022). In this evolving digital landscape, the emergence of digital wallets, such as Worldcoin, has become a significant trend. Altman, along with co-founders Alex Blania and Max Novendstern, created Worldcoin, a cryptocurrency initiative and online platform that integrates artificial intelligence (AI) technology and blockchain to provide global economic access. This decentralized project aims to combat income inequality through a unique World ID, which certifies the user as a real person rather than a bot or AI. Worldcoin comprises three key components: a universal digital identity, a global currency in the form of Worldcoin tokens, and an app for cryptocurrency or traditional asset payments, transfers, and purchases. Worldcoin aims to redefine the relationship between individuals and digital currency, potentially revolutionizing financial transactions with unique products (Guo & Renaldi, 2022; Hetler, 2023; Torpey, 2023).

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Numerous studies on digital wallets have been conducted. For instance, Widodo et al. (2019) extended the UTAUT2 model to investigate digital wallet adoption in Indonesia. Moreover, Sudrajat et al. (2023) studied the factors influencing the use of financial technology payment systems among "ShopeePay" digital wallet users, particularly students in Madiun City. Still, there is limited research that specifically addresses the case of Worldcoin digital wallets. In addition, as reported by Worldcoin (2023a), Thailand was among the top 10 countries with the most significant levels of cryptocurrency adoption in 2022. Therefore, this research is dedicated to exploring the factors that may impact the adoption of digital wallet technology in Thailand, with a special focus on Worldcoin digital wallets. According to Hayes et al. (2023), demographics are statistical details that describe a population's characteristics, including factors like age, race, and gender. Demographic analysis involves studying a population based on these factors, along with socioeconomic data like employment, education, income, marriage rates, and birth and death rates. Various entities, such as governments, businesses, and non-government organizations, use demographics to better understand populations for purposes like policymaking and economic market research. Hence, the variables under scrutiny encompassed gender, age, education, occupation, monthly income, monthly savings, possession of a digital wallet, usage frequency, and engagement with social media. This research contributes to the existing body of knowledge by delving into the factors influencing the adoption of digital wallet technology. By focusing on Worldcoin digital wallets, it may provide valuable insights into the acceptance of this specific technology, which may have broader implications for the FinTech industry. Moreover, this research may provide valuable insights for Worldcoin and similar digital wallet providers, as well as other stakeholders, helping them understand the factors that influence user adoption. This knowledge can guide them in refining their strategies and offerings to enhance user engagement and adoption.

2. Literature review

According to Worldcoin (n.d.), Worldcoin's mission is to create a global network that provides inclusive identity and financial access to the majority of humanity. If successful, Worldcoin could significantly increase economic opportunities, establish a reliable means of distinguishing humans from AI online while preserving privacy, enable global democratic processes, and potentially fund universal basic income (UBI) through AI.Worldcoin comprises a privacy-preserving digital identity network known as World ID, which is built on the concept of "proof of personhood." This means confirming that an individual is both human and unique without disclosing their real-world identity. World ID is complemented by a digital currency called WLD, and every human is eligible for a share of WLD simply by being human. World App, developed by the contributor team at Tools for Humanity (TFH), serves as the first frontend to World ID and the Worldcoin Protocol. "Proof of personhood" is a fundamental concept in Worldcoin and addresses the challenge of verifying a person's unique humanity. This verification is crucial for online voting and large-scale value distribution, which currently pose unsolved problems on a global scale. With the increasing power of AI models, distinguishing humans from bots becomes even more challenging. World ID, if successful, could potentially become a global standard for proving personhood.

Worldcoin differs from other digital tokens in that it is distributed for free to individuals who register and verify their identity through the Worldcoin system. This can be done by downloading the Worldcoin application, providing information, and then users must verify their identity by scanning their irises using a device called The Orb. The Worldcoin team will deploy these spherical devices in various cities worldwide. The reason Worldcoin chose iris scanning to confirm identity is that our irises, like fingerprints, are unique to each individual, and they are more challenging to counterfeit. This ensures that individuals registering in the system are genuine humans and not bots or AI. When users successfully scan their irises with The Orb, the device does not store their biometric data but instead creates an IrisHash, a code generated from the scan that can identify the user. Once users have their IrisHash and digital wallet, they will receive a World ID and a digital passport (Dolan, 2023; Hetler, 2023; Rouse, 2023; Worldcoin, 2023b).

Demographic factors are crucial in research on personal characteristics and play a significant role in marketing strategies. These factors influence consumer behavior and are commonly used for market segmentation due to their clear measurability. Gender, age, education, marital status, and income are particularly important variables for segmentation. Gender affects communication and decision-making behaviors, while age reflects varying needs and interests. Education level influences knowledge and preferences, and marital status helps determine family decision-makers. Income indicates purchasing power, and occupation reflects lifestyles and interests. Demographics, including lifestyle and cultural influences, help businesses understand consumer preferences, tailor strategies, and meet diverse target audience needs (Aksorndee, 2017; Patel & Bansal, 2018; Hadi & Aslam, 2023).

A study conducted by Sarker and Wells (2003) emphasized that individuals with lower educational qualifications and lower income levels tend to have a more positive outlook on advertising campaigns delivered through mobile devices. Furthermore, Zolfaghar et al. (2010) revealed that education plays a significant role in shaping users' perceptions and attitudes towards mobile advertising. Ünal et al. (2011) conducted a study on the attitudes of youth and adults towards mobile advertising and discovered that youth have a more positive outlook on mobile advertising compared to adults. Dedeoglu (2012) investigated the connection between individuals' educational backgrounds and their attitudes toward mobile advertising. The results indicated that younger, educated users, regardless of gender, tend to have a favorable attitude towards mobile advertising campaigns.

Engagement with social media can significantly impact an individual's intention to use a digital wallet. Positive experiences, peer influence, educational content, and promotional offers shared on social media can encourage adoption. Conversely, negative stories or security concerns may deter potential users. Social media serves as both a source of information and a platform for social connections, making it a crucial factor in shaping one's decision to embrace digital wallet technology (Shetu et al., 2022; Hamzah et al., 2023; Khan & Abideen, 2023; Rad & Far, 2023).

This study examined several variables, such as gender, age, education, occupation, monthly income, monthly savings, possession of a digital wallet, usage frequency, and engagement with social media. These factors were considered in relation to their potential influence on an individual's intention to adopt the Worldcoin digital wallet. The research aimed to understand how these variables may affect people's intent to embrace the Worldcoin digital wallet.

3. Methodology

This study adopted a quantitative approach for data collection, utilizing an online questionnaire that was meticulously developed as follows. Initially, extensive research was conducted, involving the review of scholarly papers, articles, books, and reputable websites focusing on price war strategy and food delivery competition in the digital economy. Subsequently, questions were formulated based on insights from these sources, and a preliminary version of the questionnaire was evaluated by five experts. Their assessment involved scoring the questionnaire to determine its Item Objective Congruence (IOC) index value, with a minimum acceptable score of 0.50 (Thetlek et al., 2023). Notably, this study achieved IOC values ranging from 0.80 to 1.00, indicating the appropriateness of all questions in terms of context, language, and structure.

The finalized questionnaire was then distributed through various online platforms, including LINE, WhatsApp, and Facebook Messenger. Prior to respondents completing the questionnaire, they were explicitly

asked for permission to use their responses for research publication. Those who declined consent had the option to opt out of participating in the survey. The study's sample consisted of Thai food delivery users who were at least 18 years old. The sample size for this research was determined using Yamane's formula, with a significance level (p) set at 0.5, precision levels at ±5 %, and a confidence level of 95 % (Uakarn et al., 2021). The calculated minimum number required was 384 participants. Consequently, the chosen sample size of 1,430 participants was considered adequate for producing precise and reliable results while minimizing the potential for abnormal data distribution. A convenience sampling method was employed. To mitigate potential bias in the research process, a key measure was implemented: participants were encouraged to respond anonymously. When individuals are assured of the anonymity of their responses, they are more likely to provide candid and unfiltered feedback. This, in turn, helps reduce the impact of social desirability bias. This approach was adopted to enhance the reliability and validity of the collected data.

While the dependent variable used in this study was an individual's intent to use the Worldcoin wallet in Thailand, the independent variables encompassed gender, age, education, occupation, monthly income, monthly savings, possession of a digital wallet, usage frequency, and engagement with social media. These variables were chosen as factors to be considered and analyzed in this study to understand their potential influence on an individual's intention to use a Worldcoin wallet in Thailand. The data underwent comprehensive analysis using a combination of descriptive statistics. Furthermore, a robust statistical technique known as multiple regression was employed to further analyze and extract valuable insights from the dataset.

4. Result

A comprehensive dataset was amassed from a cohort of 1,430 Thai digital wallet users in Bangkok, Thailand, who willingly engaged in the study by diligently completing online questionnaires. Subsequent to data collection, a meticulous process of coding and rigorous analysis was diligently undertaken to effectively align with and fulfill the research objectives.

As depicted in Table 1, the chi-square value of 519.948 surpasses the critical value at a significance level of 0.05, considering the presence of 9 degrees of freedom. This observation signifies that the dependent variable is significantly influenced by all the independent variables encompassed within the model. In essence, this indicates that the combined influence of the independent variables carries substantive significance in determining the outcome of the dependent variable.

As indicated in Table 2, the classification results reveal that the model, incorporating all potential independent variables, demonstrated the capability to predict the Worldcoin wallet usage in Thailand with an accuracy rate of 73.9 % for cases, employing a cut-off value of 0.500 or 50 %.

The predictive regression equation of Model 1 using the coefficients from Table 3 can be described by the following equation:

$$P = \frac{1}{1 + e^{-z}} \qquad \text{(Model 1)}$$

where P is an individual's intent to use the Worldcoin wallet in Thailand, and Z = 3.837 – 1.942(gender) – 0.508(age) + 0.545(education) + 0.236(occupation) – 0.617(monthly income) + 1.064(monthly savings) – 1.800(digital wallet) – 0.413(frequency) – 0.591 (social media).

Table 1
Omnibus test of the model's performance using all the independent variables.

		Chi-square	df	Sig.
Step 1	Step	519.948	9	0.005
	Block	519.948	9	0.005
	Model	519.948	9	0.005

Table 2
Classification table for back-testing (including all the independent variables).

	Observed		Predicted Worldcoin No	Yes	Percentage correct
Step 1	Worldcoin	No	819	124	86.9 %
		Yes	249	238	48.9 %
	Overall percentage				73.9 %

Note: The cut-off value is 0.500.

Table 3
Variables in the model using the potential independent variables.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Gender	−1.942	0.176	122.099	1	0.000	**0.143**
	Age	−0.508	0.095	28.497	1	0.000	**0.602**
	Education	0.545	0.159	11.743	1	0.001	**1.724**
	Occupation	0.236	0.067	12.303	1	0.000	1.267
	Monthly income	−0.617	0.097	40.829	1	0.000	0.539
	Monthly saving	1.064	0.093	132.028	1	0.000	2.897
	Digital wallet	−1.800	0.146	152.480	1	0.000	0.165
	Frequency	−0.413	0.082	25.201	1	0.000	0.662
	Social media	−0.591	0.121	23.725	1	0.000	0.554
	Constance	3.837	0.583	43.361	1	0.000	46.374

a. Variable(s) entered in step 1: Gender, age, education, occupation, monthly income, monthly savings, digital wallet, frequency, social media.

The statistical significance of each independent variable is elucidated in Table 3. The findings reveal that concerning the dependent variable, which is an individual's intention to use the Worldcoin wallet in Thailand, gender, age, education, occupation, monthly income, monthly savings, possession of a digital wallet, usage frequency, and engagement with social media are identified as significant contributors. Specifically, when gender changed from female (coded as 0) to male (coded as 1), a noticeable reduction in the intention to use the Worldcoin wallet in Thailand was observed. This impact was quantified as a decrease from 1 to 0.143, signifying a decrease of 0.857. In other words, the study found that males were less inclined to use the Worldcoin wallet compared to females. Additionally, an increase of one unit in age resulted in a decrease in the intention to use the Worldcoin wallet in Thailand from 1 to 0.602, indicating a decrease of 0.398. Conversely, a one-unit increase in education led to a substantial increase in the intention to use the Worldcoin wallet in Thailand by 1.724. Similarly, a one-unit increase in occupation corresponded to a 1.267 increase in the intention to use the Worldcoin wallet. On the other hand, when monthly income increased by one unit, the intention to use the Worldcoin wallet in Thailand decreased from 1 to 0.539, representing a decrease of 0.461. However, a one-unit increase in monthly savings resulted in a significant increase in the intention to use the Worldcoin wallet by 2.897. Regarding possession of a digital wallet, a one-unit increase led to a decrease in the intention to use the Worldcoin wallet in Thailand from 1 to 0.165, indicating a decrease of 0.835. Similarly, a one-unit increase in usage frequency resulted in a decrease in the intention to use the Worldcoin wallet in Thailand from 1 to 0.662, signifying a decrease of 0.338. A one-unit increase in social media engagement corresponded to a decrease in the intention to use the Worldcoin wallet in Thailand from 1 to 0.554, reflecting a decrease of 0.446.

5. Discussion

The study examined potential factors affecting the adoption of the Worldcoin wallet in Thailand. It identified that an individual's intention to use the wallet was influenced by various factors including gender, age, education, occupation, monthly income, savings, possession of a digital wallet, usage frequency, and engagement with social media.

Gender had an impact on the intention to use the Worldcoin wallet. Males were less inclined to use the wallet compared to females. This gender difference could be attributed to various factors, such as differences in financial behavior, technology adoption rates, or preferences in payment methods. The findings were consistent with a study conducted by Prachayanant et al. (2023), which confirmed gender (male) had a positive influence on the intention to play a cryptocurrency game. This suggests that males tend to have a higher intention to engage in cryptocurrency gaming activities. In addition, the study identified that as individuals' age increased, their intention to use the Worldcoin wallet decreased. This trend may be explained by generational differences in technology adoption and comfort with digital payment methods. Younger individuals may be more familiar with and open to using digital wallets, while older individuals may prefer traditional payment methods. The findings were consistent with those of Doungpitak et al. (2023), confirming that age had an impact on the digital skills of Thai citizens.

Higher levels of education positively influenced the intention to use the Worldcoin wallet. More educated individuals may have a better understanding of the benefits and security features of digital wallets, making them more willing to use this technology. Education can also influence awareness and trust in new payment methods. The findings were in agreement with a study conducted Thetlek et al. (2023), indicating that an individual's education level had a statistically significant positive relationship to the token economy. Doungpitak et al. (2023) also confirmed that education level influenced the digital skills of Thai citizens. Furthermore, individuals with higher-paying or more prestigious occupations showed a higher intention to use the Worldcoin wallet. This correlation could be due to increased financial resources, greater familiarity with financial technology, and a greater willingness to adopt innovative payment methods among those in higher-status occupations. The findings align with Siri and Kraiwanit (2023), discovering that occupation influences cognition in peer-to-peer (P2P) lending transactions among individuals in Bangkok and its vicinity.

An increase in monthly income was associated with a decreased intention to use the Worldcoin wallet. This could be due to a perception that higher income individuals may have more traditional or established financial habits and may be less inclined to experiment with new payment methods. In line with Shaengchart et al. (2023), which confirmed that the effects of the Starlink project on the competitive structure of the Internet service provider market in Thailand can be described by income, it suggests that income plays a significant role in determining how the project impacts the competition among internet service providers in the country. This implies that individuals with different income levels may experience varying effects on the competitive landscape within the market as a result of the Starlink project. Thetlek et al. (2023) also confirmed that monthly income played a significant role in influencing the token economy. Moreover, higher monthly savings were linked to a higher intention to use the Worldcoin wallet. Individuals with greater savings may feel more financially secure and may be more open to exploring and adopting new financial technologies. The findings are consistent with Siri and Kraiwanit (2023), which revealed that monthly savings played a significant role in influencing cognition in P2P lending transactions among individuals in Bangkok and its surrounding areas.

Having an existing digital wallet had a negative impact on the intention to use the Worldcoin wallet. This result suggests that individuals who are already using a different digital wallet may be less inclined to switch to a new one, as they are already comfortable with their current choice. The findings align with Wannasawang and Kraiwanit (2023), confirming that the choice of e-wallet service provider platform and the benefits of using an e-wallet influence the adoption of the Central Bank of Thailand's digital currency. Additionally, increased usage frequency of the Worldcoin wallet was associated with a decreased intention to use it. This might be due to a saturation effect, where individuals who are already using the wallet extensively may not feel the need to increase their usage or explore other options. The findings align with Duangsin and Kraiwanit (2023), revealing that the usage of counter service as a banking agency in Thailand can be described by the frequency of its usage. Last but not least, greater engagement with social media was linked to a decreased intention to use the Worldcoin wallet. This could be because individuals highly engaged with social media might have concerns about privacy and security related to digital wallets, or they may simply be content with their current payment methods and less open to change. The findings align with Jangjarat et al. (2023), indicating that ChatGPT awareness and usage are influenced by variables such as social media usage. Singharat et al. (2023) revealed that for online shopping, the concept of the lazy economy in Thailand could be described as utilizing Facebook and Twitter.

6. Conclusion

The study examined potential factors influencing the adoption of the Worldcoin wallet in Thailand. The findings revealed that gender, age, education, occupation, monthly income, savings, possession of a digital wallet, usage frequency, and engagement with social media all played roles in an individual's intention to use the Worldcoin wallet. Males were less inclined to use the wallet than females, and age influenced the intention, with older individuals being less likely to adopt it. In addition, higher education and prestigious occupations had a positive impact, while higher monthly income had a negative effect on adoption. Savings and existing digital wallet possession were positively associated with intention. Increased usage frequency and extensive social media engagement were linked to decreased adoption intention. These findings offer insights into the diverse factors shaping the adoption of Worldcoin digital wallets in Thailand.

The practical implications of this research offer valuable guidance for businesses, policymakers, and digital wallet providers in Thailand. By customizing marketing strategies to demographic groups based on variables such as gender, age, education, occupation, income, savings, digital wallet ownership, usage frequency, and social media engagement, adoption rates can be enhanced, and user preferences better met. Financial inclusion initiatives can leverage these findings to bridge the gap in digital wallet adoption among underserved populations. For digital wallet providers, a focus on user experience, security, and privacy concerns is crucial in attracting and retaining users. From an academic perspective, this study highlights the relevance of quantitative research methods and the potential for interdisciplinary research in the fields of finance, marketing, and technology adoption. Replicating this study in different contexts can test the generalizability of the findings and further contribute to the academic literature in this area.

The research offers valuable insights into the factors that influence individual preferences in digital wallet adoption, yet there are notable limitations to consider. The study, grounded in a quantitative approach, primarily used convenience sampling. This method, despite generating a substantial sample, might not fully represent Thailand's diverse population, potentially leading to sampling bias. Additionally, its cross-sectional nature limits insights into how adoption patterns evolve over time. The reliance on self-reported data also poses risks of response bias and inaccuracies. A critical oversight is the absence of research into regional variations in digital wallet usage across Thailand, indicating an area needing further exploration. To enhance our understanding and address these limitations, future research should incorporate a qualitative approach, such as interviews or focus groups. It is also advisable to implement longitudinal research methods, diversify sampling techniques, incorporate a range of data sources, and conduct comparative regional analysis within Thailand. This multifaceted approach will provide a more comprehensive and nuanced perspective on digital wallet adoption, crucial for developing strategies that promote financial inclusion and digital transformation. Furthermore, exploring the impact of government initiatives, user experiences, and market-specific factors will broaden our understanding of this significant trend in the digital

realm, offering valuable insights to boost adoption and aid in financial inclusion.

CRediT authorship contribution statement

Tanpat Kraiwanit: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Pongsakorn Limna:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Peerapat Wattanasin:** Conceptualization, Formal analysis, Investigation, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. **Saranchana Asanprakit:** Investigation, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. **Ruangchan Thetlek:** Investigation, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Aksorndee, P. (2017). *Behaviors and demand of consumers along the market fairs in Bang Lamung District, Chon Buri Province* (Independent Study, Ramkhamhaeng University). http://www.me-abstract.ru.ac.th/index.php/abstractData/viewIndex/104.

Asanprakit, S., & Kraiwanit, T. (2023). The utilization of social commerce platform in developing economies. *Journal of Governance & Regulation, 12*(4), 134–143. https://doi.org/10.22495/jgrv12i4art13

Banga, K. & te Velde, D. W. (2020). *COVID-19 and disruption of the digital economy; Evidence from low and middle-income countries*. Digital Pathways at Oxford Paper Series, 7. Oxford, United Kingdom. https://pathwayscommission.bsg.ox.ac.uk/Covid-19-and-disruption-of-the-digital-economy/.

Barroso, M., & Laborda, J. (2022). Digital transformation and the emergence of the Fintech sector: Systematic literature review. *Digital Business, 2*(2), Article 100028. https://doi.org/10.1016/j.digbus.2022.100028

Dedeoglu, A. O. (2012). The symbolic use of mobile telephone among Turkish consumers. *European Perspectives in Marketing, 6483*, 143–161. https://doi.org/10.1300/J037v13n02_08

Dolan, J. (2023, August 9). *What is the cryptocurrency Worldcoin? And how does it work?*. MakeUseOf. https://www.makeuseof.com/worldcoin-cryptocurrency-what-and-how-work/.

Doungpitak, M., Chomtohsuwan, T., Kraiwanit, T., Jangjarat, K., & Chutipat, V. (2023). Factors influencing digital technology skills in the developing country. *Corporate & Business Strategy Review, 4*(2 Special issue), 251–259. https://doi.org/10.22495/cbsrv4i2siart4

Duangsin, V., & Kraiwanit, T. (2023, March). Counter service as a banking agency in Thailand. In *International Conference on E-Business, E-Commerce and Internet* (pp. 55-61). Kyoto, Japan. https://www.researchgate.net/publication/369912899.

Guo, E., & Renaldi, A. (2022, April 6). *Deception, exploited workers, and cash handouts: How Worldcoin recruited its first half a million test users*. MIT Technology Review. https://www.technologyreview.com/2022/04/06/1048981/worldcoin-cryptocurrency-biometrics-web3/.

Hadi, N. U., & Aslam, N. (2023). Demographic factors and consumer attitude towards unsolicited mobile-based marketing messages: A factorial design. *Online Journal of Communication and Media Technologies, 13*(1), e202302. 10.30935/ojcmt/12784.

Hamzah, M. I., Ramli, F. A. A., & Shaw, N. (2023). The moderating influence of brand image on consumers' adoption of QR-code e-wallets. *Journal of Retailing and Consumer Services, 73*, Article 103326. https://doi.org/10.1016/j.jretconser.2023.103326

Hayes, A., Potters, C., Beer, K. (2023, September 30). *Demographics: How to collect, analyze, and use demographic data*. Investopedia. https://www.investopedia.com/terms/d/demographics.asp.

Hetler, A. (2023, August 9). *Worldcoin explained: Everything you need to know*. TechTarget. https://www.techtarget.com/whatis/feature/Worldcoin-explained-Everything-you-need-to-know.

Jangjarat, K., Kraiwanit, T., Limna, P., & Sonsuphap, R. (2023). Public perceptions towards ChatGPT a s the Robo-Assistant. *Online Journal of Communication and Media Technologies, 13*(3), e202338. 10.30935/ojcmt/13366.

Khan, W. A., & Abideen, Z. U. (2023). Effects of behavioural intention on usage behaviour of digital wallet: The mediating role of perceived risk and moderating role of perceived service quality and perceived trust. *Future Business Journal, 9*(1), 73. https://doi.org/10.1186/s43093-023-00242-z

Limna, P., & Kraiwanit, T. (2022). The rise of Fintech: A review article. *STOU Academic Journal of Research and Innovation (Humanities and Social Science), 2*(2), 35–46. https://so04.tcithaijo.org/index.php/InnovationStou/article/view/260155.

Mourtzis, D., Angelopoulos, J., & Panopoulos, N. (2022). A literature review of the challenges and opportunities of the transition from industry 4.0 to society 5.0. *Energies, 15*(17), 6276. https://doi.org/10.3390/en15176276

Patel, J., & Bansal, A. (2018). Effect of demographic variables on e-marketing strategies: A review. *International Journal of Academic Research and Development, 3*(1), 311–321. https://www.multidisciplinaryjournal.in/assets/archives/2018/vol3issue1/3-1-140-828.pdf.

Prachayanant, P., Kraiwanit, T., & Chutipat, V. (2023). Cryptocurrency gamification: Having fun or making money. *Journal of Governance & Regulation, 12*(2), 184–193. https://doi.org/10.22495/jgrv12i2art17

Rad, A. I., & Far, S. B. (2023). SocialFi transforms social media: An overview of key technologies, challenges, and opportunities of the future generation of social media. *Social Network Analysis and Mining, 13*(1), 42. https://doi.org/10.1007/s13278-023-01050-7

Rouse, M. (2023, July 26). *Worldcoin ($WLD)*. Techopedia. https://www.techopedia.com/definition/worldcoin-wld.

Sarker, S., & Wells, J. D. (2003). Understanding mobile handheld device use and adoption. *Communications of the ACM, 46*(12), 35–40. https://doi.org/10.1145/953460.953484

Shaengchart, Y., Kraiwanit, T., & Butcharoen, S. (2023). Factors influencing the effects of the Starlink Satellite Project on the internet service provider market in Thailand. *Technology in Society, 102279*. https://doi.org/10.1016/j.techsoc.2023.102279

Shetu, S. N., Islam, M. M., & Promi, S. I. (2022). An empirical investigation of the continued usage intention of digital wallets: The moderating role of perceived technological innovativeness. *Future Business Journal, 8*(1), 43. https://doi.org/10.1186/s43093-022-00158-0

Singharat, W., Kraiwanit, T., & Shaengchart, Y. (2023). The lazy economy in a developing country. *Corporate & Business Strategy Review, 4*(4), 8–15. https://doi.org/10.22495/cbsrv4i4art1

Siri, P., & Kraiwanit, T. (2023, March). Knowledge and understanding of public P2P lending transactions in Bangkok and its vicinity, Thailand. In *International Conference on E-Business, E-Commerce and Internet* (pp. 44-48). Kyoto, Japan. https://www.researchgate.net/publication/369913226.

Subramanian, M. (2022). The impact of COVID-19 pandemic on innovative Fintech in India. In *Innovative Finance for Technological Progress* (pp. 288-310). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781003220220-17/impact-covid-19-pandemic-innovative-fintech-india-subramanian.

Sudrajat, M. A., Devi, H. P., Nurdianta, A., & Romadhina, I. N. S. (2023, July). Factors Affecting the Use of Financial Technology Payment Systems (Case Study on ShopeePay Digital Wallet Users in Madiun City). In *3rd International Conference on Education and Technology (ICETECH 2022)* (pp. 531-546). Atlantis Press. 10.2991/978-2-38476-056-5_54.

Thetlek, R., Kraiwanit, T., Jangjarat, K., Limna, P., & Shaengchart, Y. (2023). The token economy in a developing country. *Journal of Governance & Regulation, 12*(3 Special issue), 368-376. 10.22495/jgrv12i3siart18.

Torpey, K. (2023, May 9). *OpenAI CEO's Worldcoin releases crypto wallet*. Yahoo! Finance. https://finance.yahoo.com/news/openai-ceo-worldcoin-releases-crypto-024115042.html.

Uakarn, C., Chaokromthong, K., & Sintao, N. (2021). Sample size estimation using Yamane and Cochran and Krejcie and Morgan and green formulas and Cohen statistical power analysis by G*Power and comparisons. *APHEIT International Journal, 10*(2), 76–88. https://so04.tci-thaijo.org/index.php/ATI/article/view/254253/173847.

Ünal, S., Ercis, A., & Keser, E. (2011). Attitudes towards mobile advertising–A research to determine the differences between the attitudes of youth and adults. *Procedia-Social and behavioral sciences, 24*, 361–377. https://doi.org/10.1016/j.sbspro.2011.09.067

Wannasawang, W., & Kraiwanit, T. (2023). An adoption of digital currency of Central Bank of Thailand. *Lawarath Social E-Journal, 5*(1), 1–14. https://so04.tci-thaijo.org/index.php/lawarathjo/article/view/259742.

Widodo, M., Irawan, M. I., & Sukmono, R. A. (2019, July). Extending UTAUT2 to explore digital wallet adoption in Indonesia. In *2019 International Conference on Information and Communications Technology (ICOIACT)* (pp. 878-883). IEEE. https://ieeexplore.ieee.org/abstract/document/8938415.

Worldcoin. (n.d.). *A new identity and financial network: Introducing Worldcoin*. https://whitepaper.worldcoin.org/#introducing-worldcoin.

Worldcoin. (2023a, July 13). *Crypto around the world: Which countries use the most cryptocurrency?*. https://worldcoin.org/articles/which-country-trades-the-most-cryptocurrency.

Worldcoin. (2023b, September 2). *What is Worldcoin, and how does it work?*. https://worldcoin.org/blog/worldcoin/what-is-worldcoin-how-does-it-work.

Xu, A., Qian, F., Pai, C. H., Yu, N., & Zhou, P. (2022). The impact of COVID-19 epidemic on the development of the digital economy of China—Based on the data of 31 provinces in China. *Frontiers in Public Health, 9*, Article 778671. https://doi.org/10.3389/fpubh.2021.778671

Zolfaghar, K., Khoshalhan, F., & Rabiei, M. (2010). User acceptance of location-based mobile advertising: An empirical study in Iran. *International Journal of E-Adoption, 2*(2), 13. https://doi.org/10.4018/jea.2010040103