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Determinants of Artificial Intelligence Adoption among Working Adults in Personal Financial Planning

Zahir Osman
Faculty of Business Management Open University Malaysia
Corresponding Author Email: zahir_osman@oum.edu.my

Ratna Khuzaimah Mohamad
Open University Malaysia
Email: ratna_mohamad@oum.edu.my

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Abstract

This study explores the pivotal role of artificial intelligence (AI) in enhancing personal financial planning among working adults. As AI tools increasingly influence financial decision-making processes, understanding the factors that lead to their adoption becomes crucial. The study investigates how perceived usefulness and ease of use of AI applications affect adoption rates, with digital readiness and self-efficacy mediating variables. This research draws on primary data collected through surveys distributed to a purposive sample, ensuring the relevance and reliability of the findings. Out of 409 surveys distributed, 332 responses were received, providing a robust sample size for analysis, with 299 deemed suitable for data analysis. The data analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the relationships between variables and test the study's hypotheses. Results indicated strong support for most hypotheses, demonstrating that both perceived ease of use and usefulness significantly influence AI adoption, moderated by digital readiness and self-efficacy. Notably, ease of use had a more pronounced effect on adoption, underlining the importance of intuitive AI interfaces in encouraging user acceptance. The study suggests that future research could explore the long-term impact of AI adoption in financial planning and examine demographic factors that may alter adoption dynamics. Additionally, future inquiries might consider integrating qualitative insights to capture user experiences more deeply, providing a richer understanding of AI's role in personal finance. Implications from this research are profound, suggesting organizations focus not only on technological innovation but also on enhancing user training and building supportive ecosystems that foster digital readiness and self-efficacy. As such, by addressing these areas, organizations can significantly increase AI adoption, empowering individuals to leverage advanced tools for improved

financial decision-making and ultimately achieving more robust financial health within the workforce.

Keywords: Perceived Usefulness, Perceived Ease of Use, Self-Efficacy, Digital Readiness, Artificial Intelligence Adoption

Introduction

Artificial intelligence (AI) is revolutionizing personal financial planning, particularly among working adults seeking effective, efficient financial management. The importance of AI adoption in this area lies in its ability to provide personalized financial insights and manage complex data sets to offer tailored advice (Waliszewski & Warchlewska, 2020). By utilizing AI, working adults can automate budgeting, optimize investment portfolios, and receive real-time analytics to make informed financial decisions, which is essential for long-term financial stability (Priya & Sharma, 2023). However, the adoption of AI in personal financial planning is not without its challenges. The primary issues include data privacy concerns (Pelote, 2022), the digital divide that limits access to AI technologies for some demographics, and the need for increased digital literacy among users (Nguyen, 2022). Furthermore, current trends indicate a growing trust in AI systems due to their ability to offer more accurate predictions and personalized advice, but skepticism remains among those wary of technology managing intricate personal financial matters (Nashold Jr, 2020; Cugurullo & Acheampong, 2023). Research gaps in this field primarily involve understanding the behavioral aspects of AI adoption among working adults (Kebah et al., 2019). There is a need for more comprehensive studies on how different demographics interact with AI technologies and what barriers they face in adopting these solutions (Waliszewski & Warchlewska, 2021). Understanding the psychological factors influencing trust and reliance on AI in financial contexts remains under-researched (Kessler & Martin, 2017). Additionally, studies focusing on the long-term impacts of AI-driven financial advice on personal wealth building could fill significant gaps in the current literature (Hamza, 2022). The significance of understanding AI adoption among working adults extends to policymakers, higher education institutions, and employees (Kebah et al., 2019). For policymakers, insights into AI adoption can inform regulations that protect consumers and encourage innovation (Pathan et al., 2022). Higher education institutions can benefit by incorporating AI literacy into curriculums, preparing graduates for a tech-driven financial landscape. For employees, understanding AI adoption aids in navigating financial planning tools, improving financial literacy, and enhancing economic well-being. Thus, comprehensive research and application in this domain are critical for facilitating the effective integration of AI in financial planning endeavors. This study evaluates the direct and indirect relationship between perceived ease of use and perceived usefulness and artificial intelligence adoption among working adults with digital readiness and self-efficacy as mediators.

Literature Review

Underpinning Theory

The Technology Acceptance Model (TAM), developed by Davis (1989), is a foundational framework for understanding how users accept and use a technology. It explains user behavior in technology adoption primarily through perceived usefulness and ease of use. In the context of AI adoption in personal financial planning among working adults, these constructs play significant roles. Perceived usefulness refers to the degree to which a person believes using a particular system would enhance their job performance. For working adults

engaging in personal financial planning, AI technologies are perceived as helpful when they effectively streamline financial tasks and improve financial outcomes. Similarly, perceived ease of use pertains to the extent to which a person believes using the system will be free of effort. When AI tools are user-friendly and accessible, working adults are more likely to adopt them due to lower perceived barriers.

Digital readiness and self-efficacy serve as mediators in this adoption process. Digital readiness, which encompasses digital tools' skills and comfort level, influences how users perceive AI technologies' usefulness and ease of use. Higher digital readiness can enhance one's ability to effectively use AI tools, increasing their perceived usefulness and ease of use. Self-efficacy, the belief in one's capability to execute actions required to manage future situations, also plays a critical mediating role. It affects how confidently users can engage with AI technologies. Those with high self-efficacy are more likely to positively perceive AI tools, believing they can master their use and integrate them into their financial planning activities. By understanding these relationships within the TAM framework, developers and policymakers can better design AI technologies and educational interventions to foster higher acceptance rates among working adults in personal financial planning scenarios.

Relationship between Perceived Ease of Use and Perceived Usefulness

As outlined in several studies, the relationship between perceived ease of use (PEOU) and perceived usefulness (PU) is critical in understanding technology adoption. According to Tahar et al. (2020), PEOU significantly influences PU, indicating that when users find technology easy to use, they are more likely to perceive it as beneficial. This ease of interaction reduces the cognitive effort required, making the technology more appealing and perceived as more practical. Al-Gasawneh et al. (2022) further explore this relationship within mobile-customer relationship management, demonstrating that PEOU and PU play pivotal roles in shaping post-purchase behavior. When technologies are user-friendly, users experience fewer barriers to accessing their benefits, thus enhancing their perceived value. Keni (2020) highlights how PEOU and PU affect users' intention to engage with technology continuously. This relationship underpins users' satisfaction and willingness to repurchase, emphasizing that straightforward technology enhances perceived utility and effectiveness (Li et al., 2020). Research by Liesa-Orús et al. (2023) using structural equation modeling confirms that in educational technologies for older adults, PEOU positively impacts PU, shaping attitudes toward technology adoption. Lastly, Wicaksono and Maharani (2020) and Kurniawan et al. (2022) reinforce that higher ease of use directly correlates to increased perceived usefulness, fostering trust and intent to use technologies, including online services like travel agencies. This body of work collectively underscores the interconnectedness of these constructs in affecting user acceptance across various technology platforms. Therefore, the following hypothesis was proposed for this study:

H1: Perceived ease of use has a relationship with the perceived usefulness of artificial intelligence adoption among working adults in personal financial planning.

Relationship between Perceived Ease of Use, Self-Efficacy and Adoption

The relationship between perceived ease of use (PEOU) and technology adoption can be significantly mediated by self-efficacy, as highlighted by several studies. Self-efficacy, the belief in one's capability to execute necessary actions, significantly influences how users perceive and interact with technology. Lui et al. (2021) demonstrate this relationship in the

context of Alipay adoption in Malaysia, emphasizing that higher PEOU can enhance users' confidence in their ability to use the service, thus facilitating adoption. When users find technology easy to use, they are more likely to develop self-efficacy and integrate it effectively into their daily routines. Pan (2020) further explores this dynamic, showing that technological self-efficacy can enhance attitudes toward technology-based self-directed learning, where increased ease of use bolsters confidence and, consequently, the likelihood of adoption. Similarly, Yoon et al. (2020) illustrate how self-efficacy impacts the use of DIY laboratories, with PEOU reducing perceived barriers and increasing users' confidence to adopt. Daher et al. (2021) highlight the mediating role of self-efficacy in teaching environments where PEOU increases self-efficacy, thus motivating the adoption of digital tools. In educational technology, Alkhawaja et al. (2022) show how improved system quality and PEOU can enhance self-efficacy, fostering system acceptance. Hence, the following hypotheses were proposed for this study:

H2: Perceived ease of use has a relationship with self-efficacy of artificial intelligence adoption among working adults in personal financial planning.

H3: Self-efficacy has a relationship with the adoption of artificial intelligence among working adults in personal financial planning.

H4: Perceived ease of use has a relationship with the adoption of artificial intelligence among working adults in personal financial planning.

H5: There is a mediating effect of self-efficacy on the relationship between perceived ease of use and the adoption of artificial intelligence among working adults in personal financial planning.

Relationship between Perceived Ease of Use, Digital Readiness and Adoption

The relationship between perceived ease of use (PEOU) and technology adoption can be significantly influenced by digital readiness as a mediator. Digital readiness encompasses an individual's preparedness and confidence in using digital technologies, which can impact how easily they perceive a technology to be used and adopted. Tahar et al. (2020) emphasize that technology readiness plays a crucial role in the intention to use systems like e-filing. When individuals perceive a system as easy to use, their digital readiness can enhance this perception, increasing their likelihood of adoption. This readiness involves familiarity and comfort with digital tools, which can reduce resistance and enhance engagement. Similarly, Damerji and Salimi (2021) highlight that technology readiness and PEOU mediate AI adoption in accounting. Individuals with higher digital readiness are better equipped to perceive the ease of using AI tools, thus facilitating their adoption. The research by Andrea et al. (2021) further supports this by indicating that in e-banking contexts, users with high digital readiness perceive the systems as more straightforward to use, positively impacting their adoption intentions. These findings collectively suggest that enhancing users' digital readiness can amplify new technologies' perceived ease of use, promoting higher adoption rates. For practitioners and developers, boosting users' digital competencies can be as crucial as improving the design and usability of technological systems. Thus, the following hypotheses were proposed for this study:

H6: Perceived ease of use has a relationship with digital readiness of artificial intelligence adoption among working adults in personal financial planning.

H7: Digital readiness has a relationship with the adoption of artificial intelligence among working adults in personal financial planning.

H8: There is a mediating effect of digital readiness on the relationship between perceived ease of use and the adoption of artificial intelligence among working adults in personal financial planning.

Relationship between Perceived Usefulness, Self-Efficacy, and Adoption

Perceived usefulness (PU) significantly affects technology adoption, with self-efficacy as a crucial mediating factor. Self-efficacy, the belief in one's capabilities to execute necessary actions, can enhance the influence of PU on adoption by fostering a supportive attitude towards engaging with new technologies. Lui et al. (2021) examine the adoption of Alipay in Malaysia and highlight how users who recognize the utility of a technology, when also possessing high self-efficacy, are more likely to adopt it. Users feel more confident in leveraging a technology's usefulness if they believe in their ability to operate it effectively. Chen and Aklikokou (2020) support this notion in the context of e-government adoption. They find that PU enhances individuals' likelihood of adopting technology, mainly when they are confident in their abilities to use these systems, thus facilitating a smoother adoption process. Pan (2020) further examines self-efficacy in technology-based learning, showing that it mediates the relationship between PU and the user's attitude toward technology. This includes how beneficial the individual perceives the technology to be, significantly influencing their intention to continue its use. Zhang et al. (2020) and Yoon et al. (2020) also confirm that self-efficacy can amplify the perceived benefits of technology, promoting higher adoption rates by empowering users to utilize these benefits effectively. Integrating self-efficacy-building strategies in technology implementation plans can thus enhance PU's impact on adoption. Thus, the following hypotheses were proposed for this study:

H9: Perceived usefulness has a relationship with self-efficacy of artificial intelligence adoption among working adults in personal financial planning.

H10: Perceived usefulness has a relationship with the adoption of artificial intelligence among working adults in personal financial planning.

H11: There is a mediating effect of self-efficacy on the relationship between perceived usefulness and the adoption of artificial intelligence among working adults in personal financial planning.

Relationship between Perceived Usefulness, Digital Readiness and Adoption

Recent research shows that the relationship between perceived usefulness (PU) and technology adoption is significantly mediated by digital readiness. Digital readiness, which encompasses an individual's preparation and capability to engage with digital tools, enhances the influence of PU on the adoption process by ensuring that users are ready to leverage technological benefits effectively. Tahar et al. (2020) highlight that individuals with high digital readiness perceive technologies like e-filing as more practical, which increases their likelihood of adoption. Users can better appreciate technology's functional benefits when they are digitally ready, fostering higher acceptance rates. Similarly, Andrea et al. (2021) demonstrate that in e-banking contexts, technology readiness bridges PU and the intention to use digital platforms. Users who feel prepared to navigate digital interfaces are more likely to find these platforms helpful, thus enhancing their adoption intentions. Ashrafi and Easmin (2023) further explore QR code payments, finding that digital readiness helps users overcome barriers in perceiving the utility of such payments, which drives adoption, particularly among digital natives. Furthermore, Peng and Yan (2022) emphasize that digital readiness strengthens the impact of PU on behavioral intentions toward using multi-media kiosks.

Overall, enhancing digital readiness can thus amplify the perceived usefulness of technology, leading to greater adoption and sustained usage. Hence, the following hypotheses were proposed for this study:

H12: Perceived usefulness has a relationship with digital readiness of artificial intelligence adoption among working adults in personal financial planning.

H13: There is a mediating effect of digital readiness on the relationship between perceived usefulness and the adoption of artificial intelligence among working adults in personal financial planning.

Relationship between Digital Readiness, Self-Efficacy, and Adoption

The relationship between digital readiness and technology adoption is significantly influenced by self-efficacy as a mediator. Digital readiness, which involves the preparation and capacity to utilize digital technologies effectively, sets the stage for users' self-efficacy—confidence in their ability to use these technologies. Okuonghae et al. (2022) highlight that technological readiness and computer self-efficacy significantly predict student e-learning adoption. When individuals are digitally prepared, their self-efficacy improves, facilitating technology adoption (Osman & Sentosa, 2013). Arleen et al. (2023) emphasize that self-directed learning and e-learning readiness enhance ICT self-efficacy, increasing student engagement with digital tools. This suggests that fostering digital readiness can boost self-efficacy, creating a smoother path to adoption (Osman et al., 2018). Moreover, Kim and Kim (2022) discuss how self-esteem impacts technological readiness, with self-efficacy facilitating readiness for change and enhancing adoption likelihood. Collectively, these studies demonstrate that digital readiness enhances self-efficacy, which then positively impacts the adoption of technology, highlighting the importance of cultivating digital skills and confidence to boost technological integration successfully. Thus, the following hypotheses were proposed for this study:

H14: Digital readiness has a relationship with self-efficacy of artificial intelligence adoption among working adults in personal financial planning.

H15: There is a mediating effect of self-efficacy on the relationship between digital readiness and the adoption of artificial intelligence among working adults in personal financial planning.

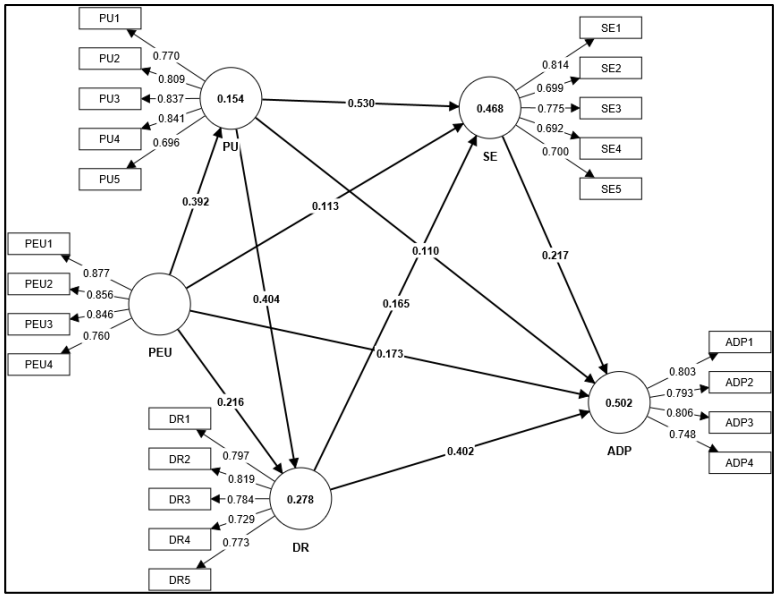

Figure 1: Research Framework

Note: PU=Perceived usefulness PEU=Perceived Ease of Use SE=Self-Efficacy DR=Digital Readiness ADP=Adoption

Methodology

This study aimed to comprehensively explore the direct and indirect relationships between perceived ease of use, perceived usefulness, and AI adoption among working adults, with digital readiness and self-efficacy as mediators. Researchers carefully gathered primary data to meet this goal by selecting reliable and valid measurements from a thorough literature review. Given the lack of a complete population list, survey questionnaires were emailed to selected participants using purposive sampling. The analysis focused on 23 observed variables, including independent variables of perceived usefulness (5 items) and perceived ease of use (4 items), with measurement items sourced from Davis (1989) and Pan (2020), respectively. The mediators were self-efficacy (5 items) from Kang et al. (2019) and digital readiness (5 items) from Shjin et al. (2021), along with the dependent variable of adoption (4 items) from Gao et al. (2011). Respondents rated aspects of each construct on a five-point Likert scale, yielding comprehensive data. Of the 409 surveys distributed, 332 were returned, achieving a response rate of 81.2%, suitable for structural equation modeling (SEM). Ultimately, 299 surveys were analyzed using Smartpls4, chosen for their effectiveness in SEM and multivariate data analysis, aligning with Ringle et al. (2022). Smartpls4 enabled detailed hypothesis evaluation and comprehensive model assessment.

Data Analysis

Respondents' Profiles

The respondent profile analysis reveals several critical demographics regarding gender, age, years of service, employment sector, and income levels. Out of 299 participants, males comprise the majority, with 178 respondents (59.5%), while females comprise 121 respondents (40.5%). The most significant group is aged 41 to 50, with 121 participants (40.5%). This is followed by those aged 31 to 40 at 69 respondents (23.1%) and those aged 51 to 60 years at 60 respondents (20.1%). Participants under 30 and over 60 are the most minor age groups, with 24 (8.0%) and 25 respondents (8.4%), respectively. In terms of years of service, the largest group is those with 11 to 15 years of service, accounting for 90 participants

(30.1%). Those with 16 to 20 years of service follow, numbering 85 individuals (28.4%). Smaller groups include those with 6 to 10 years (41 respondents, 13.7%), 21 to 25 years (38 respondents, 12.7%), and both the 26 to 30 years and over 30 years categories, each with 14 respondents (4.7%). Regarding employment, most respondents work in the private sector, with 200 individuals (66.9%), while the public sector employs 99 respondents (33.1%). Income distribution shows that the most significant segment earns between RM4,851 and RM10,970, comprising 129 respondents (43.1%). Those earning less than RM4,850 comprise 105 respondents (35.1%), and those earning more than RM10,971 include 65 respondents (21.7%).

Common Method Bias

The standard method bias assessment, based on Kock (2015) and Kock & Lynn (2012), utilized the full collinearity test, examining variance inflation factors (VIFs) for key constructs: adoption, perceived usefulness, perceived ease of use, self-efficacy, and digital readiness. VIF values exceeding 3.3 might indicate common method bias, but all constructs in this analysis show VIFs well below this threshold. Specifically, adoption's VIF with other constructs ranges from 1.598 to 1.933, perceived usefulness from 1.459 to 1.889, perceived ease of use from 1.266 to 1.317, self-efficacy from 1.851 to 1.937, and digital readiness from 1.418 to 1.723. These results suggest no significant multicollinearity issues, indicating that common method bias is not problematic in this study. This ensures that the data reflects genuine relationships between variables rather than being skewed by measurement methodologies, supporting the validity of the research model and its findings.

Table 1
Full Collinearity Test

	ADP	PU	PEU	SE	DR
ADP		1.933	1.866	1.856	1.598
PU	1.889		1.882	1.459	1.857
PEU	1.266	1.307		1.315	1.312
SE	1.851	1.489	1.932		1.937
DR	1.418	1.687	1.717	1.723	

Measurement Model

In this investigation, we employed the methodology suggested by Hair et al. (2017) to assess measurement constructs in the first and second order, allowing us to identify items with loadings below the 0.7 threshold. The analyses of construct reliability and validity revealed that the Average Variance Extracted (AVE) for all constructs ranged from 0.545 to 0.699, exceeding the 0.5 benchmark, which confirms strong convergent validity (Hair et al., 2017) (Table 2). Additionally, the composite reliability for every construct was over 0.7, ranging from 0.791 to 0.867. Cronbach's alpha values were also above 0.7, ranging from 0.790 to 0.856 (Table 2). To ensure discriminant validity, we initially evaluated cross-loadings to verify that constructs were represented and measured accurately (Table 2). We then used the Heterotrait-Monotrait (HTMT) ratio for further assessment, following the recommended criteria for assessing discriminant validity in Variance-Based Structural Equation Modeling (VB-SEM) (Henseler et al., 2015). Table 3 displayed the HTMT ratios, original sample, and 95% confidence intervals, confirming adherence to the HTMT threshold of 0.85.

Table 2
Constructs Reliability and Validity & Items Loadings

Constructs	Items	Loadings	CA	CR	AVE
Adoption	ADP1	0.803	0.797	0.803	0.621
	ADP2	0.793			
	ADP3	0.806			
	ADP4	0.748			
Digital Readiness	DR1	0.797	0.840	0.844	0.610
	DR2	0.819			
	DR3	0.784			
	DR4	0.729			
	DR5	0.773			
Perceived Ease of Use	PEU1	0.877	0.856	0.864	0.699
	PEU2	0.856			
	PEU3	0.846			
	PEU4	0.760			
Perceived Usefulness	PU1	0.770	0.852	0.867	0.628
	PU2	0.809			
	PU3	0.837			
	PU4	0.841			
	PU5	0.696			
Self-Efficacy	SE1	0.814	0.790	0.791	0.545
	SE2	0.699			
	SE3	0.775			
	SE4	0.692			
	SE5	0.700			

Notes: CA=Cronbach Alpha CR=Composite Reliability AVE=Average Variance Extracted

Table 3
Hetrotrait-Monotrait (HTMT) Ratio

	ADP	DR	PEU	PU
DR	0.748			
PEU	0.538	0.443		
PU	0.605	0.561	0.446	
SE	0.671	0.563	0.457	0.786

Structural Model

In this study, the evaluation of the structural model followed the methodology described by Hair et al. (2017), which included a detailed analysis of pathway coefficients (β) and coefficients of determination (R^2). The Partial Least Squares (PLS) method was employed, utilizing 5000 sub-samples to assess the significance of path coefficients. Hypothesis testing results, including confidence intervals for path coefficients (beta), t-statistics, and p-values, are thoroughly detailed in Table 4. This rigorous approach provides significant insights into the robustness and importance of relationships among the variables in the structural model. The detailed presentation in Table 5 offers an in-depth analysis of each hypothesis, featuring Beta coefficients, T-statistics, P-values, and the conclusions regarding hypothesis support. As

a result, this method enhances the study's findings by providing a more precise and comprehensive understanding of the interactions among the investigated variables.

Analyzing the hypotheses and testing results provides insights into the complex relationships among perceived ease of use, perceived usefulness, digital readiness, self-efficacy, and adoption. *H1*, examining the effect of perceived ease of use on perceived usefulness, showed a significant beta of 0.392, a t-statistic of 6.531, and a p-value of 0.000, leading to its acceptance. *H2*, focusing on perceived ease of use's impact on self-efficacy, evidenced significance with a beta of 0.113, t-statistic of 2.141, and p-value of 0.032, thus accepted. *H3* validated self-efficacy's influence on adoption, displaying a beta of 0.217, a t-statistic of 3.153, and a p-value of 0.002, consequently accepted. *H4* demonstrated that perceived ease of use directly affects adoption, supported by a beta of 0.173, t-statistic of 3.181, and p-value of 0.001, thus accepted. *H5* explored the mediation of self-efficacy between perceived ease of use and adoption, presenting a beta of 0.025, a t-statistic of 1.941, and a p-value slightly above the conventional threshold at 0.052. However, it was accepted due to near-threshold significance.

H6 showed that perceived ease of use significantly influences digital readiness, with a beta of 0.216, t-statistic of 3.770, and p-value of 0.000, leading to acceptance. *H7* underscored digital readiness' robust effect on adoption, marked by a beta of 0.402, a t-statistic of 7.728, and a p-value of 0.000, resulting in acceptance. *H8* confirmed that digital readiness mediates the impact of perceived ease of use on adoption, supported by a beta of 0.087, t-statistic of 3.365, and p-value of 0.001, which is thus accepted. *H9* established the significant influence of perceived usefulness on self-efficacy, with a beta of 0.530, t-statistic of 10.471, and p-value of 0.000, thereby accepted. *H10*, investigating perceived usefulness' direct impact on adoption, was not significant (beta = 0.109, t = 1.523, p = 0.128), leading to its rejection.

H11 showed self-efficacy mediates between perceived usefulness and adoption, confirmed by a beta of 0.115, t-statistic of 2.988, and p-value of 0.003, resulting in acceptance. *H12* confirmed that perceived usefulness significantly affects digital readiness, indicated by a beta of 0.404, t-statistic of 7.076, and p-value of 0.000, thus accepted. *H13* demonstrated that digital readiness mediates the relationship between perceived usefulness and adoption, supported by a beta of 0.162, t-statistic of 4.912, and p-value of 0.000, therefore accepted. *H14* verified that digital readiness influences self-efficacy, as shown by a beta of 0.166, a t-statistic of 3.302, and a p-value of 0.001, leading to acceptance. Finally, *H15* confirmed the mediation effect of self-efficacy between digital readiness and adoption, marked by a beta of 0.036, t-statistic of 2.067, and p-value of 0.039, therefore accepted. Table 4 shows all the hypotheses testing results.

Table 4
Hypotheses Testing Results

Hypotheses	Beta	T statistics	P values	2.50%	97.50%	Decision
H1: PEU -> PU	0.392	6.531	0.000	0.268	0.503	*Accepted*
H2: PEU -> SE	0.113	2.141	0.032	0.007	0.214	*Accepted*
H3: SE -> ADP	0.217	3.153	0.002	0.082	0.352	*Accepted*
H4: PEU -> ADP	0.173	3.181	0.001	0.062	0.272	*Accepted*
H5: PEU -> SE -> ADP	0.025	1.941	0.052	0.005	0.058	*Accepted*
H6: PEU -> DR	0.216	3.770	0.000	0.098	0.321	*Accepted*
H7: DR -> ADP	0.402	7.728	0.000	0.295	0.498	*Accepted*
H8: PEU -> DR -> ADP	0.087	3.365	0.001	0.040	0.140	*Accepted*
H9: PU -> SE	0.530	10.471	0.000	0.425	0.622	*Accepted*
H10: PU -> ADP	0.109	1.523	0.128	-0.031	0.251	*Rejected*
H11: PU -> SE -> ADP	0.115	2.988	0.003	0.043	0.196	*Accepted*
H12: PU -> DR	0.404	7.076	0.000	0.286	0.509	*Accepted*
H13: PU -> DR -> ADP	0.162	4.912	0.000	0.105	0.232	*Accepted*
H14: DR -> SE	0.166	3.302	0.001	0.066	0.262	*Accepted*
H15: DR -> SE -> ADP	0.036	2.067	0.039	0.011	0.080	*Accepted*

Notes: significance p<0.05

Table 5 provides an extensive summary of effect sizes (f^2), carefully assessed using Cohen's (1992) guidelines, which classify them as minor (0.020 to 0.150), medium (0.150 to 0.350), or large (0.350 or greater). The effect sizes observed ranged from small (0.012) to large (0.375), highlighting the varied impact of the studied variables. Furthermore, the Intrinsic Value Inflation Factor (VIF) values listed in Table 5 consistently fell below the more lenient threshold of 5, with the highest value being 1.936. This indicates a low level of collinearity, ensuring that comparisons of effect sizes and interpretation of coefficients within the structural model remain robust. The endogenous construct exhibits a substantial degree of explained variance, demonstrated by an R^2 value of 0.502 (Figure 1). For the mediators, the model effectively explains approximately 27.8% and 46.8% of the variance, as indicated by R^2 values of 0.270 and 0.468, respectively. This underscores the model's effectiveness in accurately capturing the mediation dynamics and illustrating the underlying processes.

Table 5
Effect Sizes(f^2) & Variance Inflation Factor (VIF)

	f^2				VIF			
	ADP	DR	PU	SE	ADP	DR	PU	SE
DR	0.226			0.037	1.437			1.386
PEU	0.047	0.055	0.182	0.019	1.271	1.182	1.026	1.247
PU	0.012	0.191		0.375	1.936	1.182		1.408
SE	0.050				1.880			

The model's inference and managerial implications were rigorously assessed through out-of-sample predictive analysis using the PLSpredict method, as Shmueli et al. (2016, 2019) recommended. Table 6 illustrates that the application of PLS-SEM resulted in significantly superior Q^2 predictions (>0) compared to naive mean predictions, consistently showing lower Root Mean Square Error (RMSE) values than those from linear model (LM) benchmarks,

thereby underscoring its predictive solid capabilities. Notably, in fifteen out of nineteen cases, RMSE values from PLS-SEM predictions outperformed those of the LM prediction benchmark, highlighting the proposed model's predictive strength as detailed in Table 6. The introduction of the Cross-Validated Predictive Ability Test (CVPAT) by Hair et al. (2022), along with its integration with PLSpredict analysis by Liengaard et al. (2021), marks significant advancements in predictive modeling. Additionally, Table 7 confirms the superior predictive capabilities of PLS-SEM, as evidenced by lower average loss values compared to indicator averages and LM benchmarks, providing strong evidence of its enhanced predictive performance.

Table 6
PLSpredicts

	Q^2predict	PLS-RMSE	LM_RMSE	PLS-LM
ADP1	0.131	0.678	0.683	-0.005
ADP2	0.122	0.651	0.653	-0.002
ADP3	0.121	0.717	0.728	-0.011
ADP4	0.089	0.751	0.759	-0.008
DR1	0.089	0.680	0.687	-0.007
DR2	0.054	0.675	0.681	-0.006
DR3	0.070	0.699	0.697	0.002
DR4	0.085	0.725	0.725	0.000
DR5	0.095	0.658	0.663	-0.005
PU1	0.059	0.816	0.811	0.005
PU2	0.096	0.819	0.817	0.002
PU3	0.128	0.78	0.787	-0.007
PU4	0.092	0.846	0.847	-0.001
PU5	0.061	0.75	0.752	-0.002
SE1	0.064	0.754	0.756	-0.002
SE2	0.039	0.67	0.673	-0.003
SE3	0.08	0.662	0.669	-0.007
SE4	0.089	0.704	0.714	-0.010
SE5	0.082	0.791	0.798	-0.007

Table 7
Cross-Validated Predictive Ability Test (CVPAT)

	Average loss difference	t-value	p-value
ADP	-0.064	3.058	0.002
DR	-0.040	2.642	0.009
PU	-0.062	2.717	0.007
SE	-0.040	2.634	0.009
Overall	-0.051	3.393	0.001

The Importance-Performance Map Analysis (IPMA), as outlined by Ringle and Sarstedt (2016) and Hair et al. (2018), gives insights into AI adoption in personal financial planning. From Table 8, perceived ease of use holds the highest importance in adoption at 0.45, followed by digital readiness (0.438), perceived usefulness (0.401), and self-efficacy (0.217). Performance-wise, perceived ease of use also scores highest at 67.429, followed by perceived usefulness

(66.423), self-efficacy (65.994), and digital readiness (60.808). Improving perceived ease of use through intuitive interfaces is crucial to enhance these metrics. Strengthening digital readiness with user training programs can boost confidence and competency. Additionally, showcasing the tangible benefits of AI through testimonials can enhance perceived usefulness, while increased support and resources can bolster self-efficacy. These steps can significantly enhance the adoption of AI in personal financial planning.

Table 8
Importance-Performance Map Analysis (IPMA)

	Importance	Performance
DR	0.438	60.808
PEU	0.45	67.429
PU	0.401	66.423
SE	0.217	65.994

Discussion & Conclusion

Discussion

Several targeted strategies can be implemented to strengthen perceived usefulness and ease of use in adopting artificial intelligence (AI) among working adults in personal financial planning, considering self-efficacy and digital readiness as essential mediators. Enhancing user training and support can significantly boost digital readiness and self-efficacy (Okuonghae et al., 2022). Comprehensive training programs should focus on the practical aspects of AI tools, demonstrating their capabilities in personal financial planning. Interactive workshops and online tutorials can empower users, increasing their confidence (self-efficacy) and preparedness (digital readiness) to integrate AI into their financial strategies (Arzeen et al., 2023). Improving user interface design by simplifying AI interfaces to make them more intuitive can greatly enhance perceived ease of use. Conducting user experience research to identify barriers and incorporating feedback into design updates can make AI tools more accessible, ensuring that these tools are easy to navigate (Tahar et al., 2020). Demonstrating practical benefits is crucial for increasing perceived usefulness, where showcasing AI's impact on improving financial outcomes through case studies, success stories, and data-driven results can enhance users' perceptions of its value (Lui et al., 2021). Tailoring examples to everyday financial tasks, such as budgeting or investment planning, can resonate more effectively with working adults (Chen & Aklikokou, 2020). Additionally, fostering a community of users where experiences and tips are shared can amplify self-efficacy. Forums, webinars, and social media groups can facilitate knowledge exchange, problem-solving, and support, reinforcing user confidence in utilizing AI. Regular feedback loops involving surveys and focus groups can engender user engagement in the development process, ensuring AI tools evolve to meet their expectations and enhancing perceived ease of use and usefulness. By executing these strategies, organizations can effectively leverage AI in personal financial planning, promoting its adoption among working adults through improved perceptions of usefulness and ease of use bolstered by increased self-efficacy and digital readiness.

Theoretical Implications

The theoretical implications of this study, rooted in the Technology Acceptance Model (TAM), highlight significant insights into the dynamics of AI adoption among working adults in personal financial planning. The TAM model posits that perceived usefulness and ease of use

are crucial determinants of technology adoption (Davis, 1989). This study reinforces these constructs by demonstrating that enhancing digital readiness and self-efficacy can mediate and strengthen these perceptions, thereby increasing the likelihood of AI adoption (Lui et al., 2021; Tahar et al., 2020). By integrating digital readiness into the TAM framework, this research extends the model's applicability, showing that preparation and competence in digital environments play pivotal roles in shaping user attitudes toward new technologies (Okuonghae et al., 2022). Moreover, incorporating self-efficacy highlights the importance of users' confidence in their abilities to effectively use AI tools, aligning with Arzeen, Arzeen, and Muhammad's (2023) findings that emphasize the mediating effect of personal belief systems in technology engagement. These theoretical advancements suggest that TAM can be effectively adapted to include additional personal and contextual factors. This offers a more comprehensive understanding of technology acceptance behaviors, particularly in rapidly evolving AI capabilities in financial management contexts (Chen & Aklikokou, 2020).

Practical Implications

The practical implications of this study offer valuable insights for organizations aiming to enhance the adoption of artificial intelligence (AI) in personal financial planning among working adults. By emphasizing key factors such as digital readiness and self-efficacy, organizations can develop targeted strategies to improve the perceived usefulness and ease of use of AI tools. Training programs focusing on building digital skills and confidence can significantly increase user competence and willingness to use AI technologies. Moreover, aligning AI solutions with user expectations by showcasing their practical benefits in personal financial management can enhance perceived usefulness, thereby increasing adoption rates. By designing user-friendly interfaces and incorporating user feedback, companies can address perceived ease-of-use barriers, ensuring that AI tools are accessible and intuitive. Additionally, fostering user communities and providing ongoing support through forums and webinars can amplify self-efficacy, encouraging more users to explore and utilize AI applications effectively. Overall, these strategies facilitate the integration of AI in financial planning and empower working adults to leverage AI for improved financial outcomes, aligning with contemporary technological advancements.

Suggestions for Future Study

Future studies should explore the longitudinal effects of AI adoption in personal financial planning to understand how perceptions of usefulness and ease of use evolve with increased digital literacy and self-efficacy. Investigating demographic variations, such as age, income level, and educational background, could provide deeper insights into the differing impacts of digital readiness on AI adoption. Additionally, examining external factors such as privacy concerns and data security could refine our understanding of barriers to technology acceptance. Another valuable avenue would be to assess the role of organizational support and policy frameworks in facilitating AI implementation. Integrating qualitative research methods, such as interviews or focus groups, could enrich the quantitative findings by capturing nuanced user experiences and perceptions. These studies can build a more comprehensive picture of AI's role in financial planning, allowing for tailored strategies that address specific user needs and foster broader acceptance and utilization of AI tools.

Conclusion

This study underscores the critical role of perceived usefulness and ease of use in fostering the adoption of artificial intelligence (AI) within personal financial planning among working adults. By identifying digital readiness and self-efficacy as significant mediators, the research highlights the need for targeted interventions that enhance users' digital skills and confidence, making AI tools more accessible and beneficial. These findings have profound contextual implications, suggesting that organizations must focus on technological advancements and develop comprehensive training programs and user-friendly interfaces to facilitate AI acceptance. Moreover, the study's insights into the importance of demonstrating AI's real-world benefits indicate that organizations should consistently update their strategies to reflect new user expectations and market dynamics. Building supportive user communities can enhance self-efficacy and mitigate resistance to new technologies. In a broader context, these strategies align well with the accelerating pace of technological integration in financial services, enabling individuals to manage their finances through AI-enhanced solutions better. As AI continues to gain prevalence, fostering an environment that supports user development and addresses digital barriers will be crucial for individual financial empowerment and organizational success in the modern technological landscape.

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