The Role of Consumer Technology Optimism in the Age of AI

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Objective

Recent years have witnessed unprecedented integration of artificial intelligence (AI) across consumer service sectors. Characterized by automation, unmanned systems, and intelligent information technologies, these services now encompass not only essential domains such as commerce but also critical sectors such as education, healthcare, and financial services, permeating nearly every aspect of daily life. As consumers increasingly adopt AI-based services, accessibility is improved, physical constraints are transcended, and everyday interactions are fundamentally reshaped. Consequently, understanding how consumers accept and utilize these services has become a critical issue for enhancing consumer welfare.

Explaining the adoption of AI-based services requires attention not only to technological features but also to consumer personality traits that shape acceptance. Parasuraman (2000) introduced the concept of technology readiness to capture such individual predispositions, later refined into four dimensions: two motivators—technology optimism and innovativeness—and two inhibitors—discomfort and insecurity (Parasuraman & Colby, 2015). Of these, technology optimism, defined as "a positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives" — has emerged as a particularly important driver of consumer adoption. When consumers hold positive expectations of using technologies, they are more likely to adopt technologies, continue using technologies once adopted, and experience greater satisfaction (Jo & Baek, 2023; Chen, 2024; Barachi et al., 2022). Some studies have examined the role of technology optimism in AI-based service adoption—for instance, in financial services such as robot-advisors (Flavián et al., 2022), in educational settings where technological attributes like perceived usefulness and ease of use were considered along with the consumer trait of optimism (Cui, 2025), and in media services (Yang et al., 2025). However, despite the rapid spread of AI-based services across domains, studies examining how consumer technology optimism is related to adoption remain relatively limited.

Therefore, this study investigates how technology optimism is related to intentions to use AI-based services. Specifically, we examine the nine domains—healthcare, finance, education, media, health, security, leisure, shopping, and workplace— that are closely related to consumers' daily lives. We hypothesize that technology optimism is positively associated with intention to use such services. Our study contributes to advancing consumer well-being by identifying factors that promote beneficial AI-based service adoption.

Method

This study utilized data from the 2023 Intelligent Information Society User Panel Survey conducted by the Korea Communications Commission and the Korea Information Society Development Institute in South Korea. The nationally representative sample (N = 4,581) assessed both technology optimism toward AI-based services and intention to use AI-based services across nine domains: healthcare, finance, education, media, health, security, leisure, shopping, and workplace. Technology optimism and intention to use AI-based services were each measured with nine items, corresponding to the nine service domains. Both constructs employed 5-point Likert scales, with higher values indicating greater optimism or stronger intention to use. Responses of "Don't know" were treated as missing values.

Control variables comprised sociodemographic characteristics, including age, gender, education, income, marital status, parental status, and residence. Other variables that have been considered related to the technology adoption included digital literacy, trust in service providers, AI device usage experience, generative AI usage experience, perceived privacy risk, and privacy sensitivity, which is defined as the reluctance to disclose personal information such as name, address, identification numbers, or biometric data.

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The mean level of technology optimism ranged from 3.24 (leisure) to 3.42 (medical), with relatively small variation across respondents and higher averages in medical and finance services. The mean intention to use AI-based services ranged from 2.93 (education) to 3.26 (medical), with moderate variation and a slight skew toward higher values. Regression analyses were conducted to examine the associations between technology optimism and intention to use AI-based services across the nine domains.

Results

Across the nine AI-based service domains, technology optimism consistently showed the strongest positive association with intention to use (β=0.318–0.529, $p<.001$). Digital literacy and trust in AI-based service providers also positively influenced intentions, whereas privacy sensitivity and older age were associated with lower intentions in several domains. Perceived privacy risk showed small but significant positive effects in some cases. The explanatory power of the models ranged from R^2=0.134 (health management) to R^2=0.299 (workplace), indicating moderate predictive validity.

Conclusion

Results indicate that technology optimism is a consistent predictor of intention to use AI-based services across nine domains, with stronger associations in healthcare, workplace, and finance. Digital literacy and trust in service providers were positively associated with intention, whereas privacy sensitivity and age showed negative associations in several domains. These findings underscore the role of consumer dispositions, alongside technological attributes, in shaping AI-based service adoption. This implies that promoting optimistic perceptions toward the use of AI-based services, building digital competence, and ensuring trust and privacy protections are critical to promoting consumer AI-based service adoption.

This study contributes to the literature on AI-based service adoption by extending the role of consumer traits, particularly technology optimism, across a comprehensive set of nine domains. In doing so, it advances theoretical understanding of consumer adoption processes and offers practical insights for enhancing consumer satisfaction in the era of AI technologies.

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Table 1
Domain-Specific Regression Results for AI-Based Service Usage Intention

	Intention to use: Medical	Intention to use: Workplace	Intention to use: Education
Technology optimism	0.529(0.017)***	0.435(0.017)***	0.375(0.018)***
AI device usage	0.059(0.009)***	0.112(0.011)***	0.135(0.013)***
Generative AI usage	0.012(0.031)	0.046(0.035)	0.043(0.041)
Trust in AI-based service providers	0.114(0.020)***	0.107(0.022)***	0.079(0.026)***
Privacy sensitivity	-0.022(0.007)***	-0.017(0.008)**	-0.016(0.009)*
Digital literacy	0.042(0.015)***	0.206(0.018)***	0.083(0.021)***
Age	0.032(0.009)***	-0.050(0.010)***	-0.078(0.012)***
Metropolitan residence	0.101(0.021)***	0.081(0.023)***	0.111(0.027)***
Observations	4244	4117	4102
F-statistic	104.343***	124.683***	90.426***
R-squared	0.257	0.299	0.246
Adj R-squared	0.254	0.296	0.243

Note. Only the three domains with the largest coefficients are reported. Control variables (income, education, gender, marital status, and parental status) are included in all models but not shown. Standard errors are reported in parentheses.
*p<.05, **p<.01, ***p<.001.