A Comparative Analysis of Resistance Across Two Digital Technologies

Completed Research Paper

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Abstract

Research on innovation resistance has revealed various barriers to the use of digital technologies. However, these studies are typically constrained to siloed perspectives, which prevent comparisons between digital technologies. Therefore, this paper is an initial attempt to explore barriers to adoption across two digital technologies of recent years: generative artificial intelligence (GAI) and distributed ledger technology (DLT). To critically assess the continued applicability of Innovation Resistance Theory (IRT) in relation to these two digital technologies, we analyze a dataset containing over 38,000 Reddit comments. Notably, we identify functional, psychological, and environmental barriers pertaining to both digital technologies, thus enabling us to propose an extension to IRT. Our insights contribute to a better understanding of the adoption of complex digital technologies by uncovering both unique and shared barriers. Thus, this work goes beyond mere absence of adoption factors and can inform the design of digital technologies and organizational adoption management strategies.

Keywords: Innovation Resistance Theory, Digital Technologies, Generative Artificial Intelligence, Distributed Ledger Technology, Technology-Organization-Environment.

Introduction

The emergence of digital technologies often creates novel opportunities for digital innovation and enables organizations to improve or reshape their strategies and products (Kohli & Melville, 2019; Yoo et al., 2010). However, realizing these benefits is not guaranteed. Technology implementation is often met with resistance which can manifest as postponement, rejection, or objection (Szmigin & Foxall, 1998). Such responses can hinder the exploitation of business opportunities (Kohli & Melville, 2019). For this reason, scholars acknowledge resistance as a critical factor in understanding adoption outcomes (Lapointe & Rivard, 2005). In general, scholarly literature suggests that consumers develop resistance to technological innovations due to perceived barriers associated with them (Claudy et al., 2015).

Interestingly, even after decades of scholarly investigation, resistance is still perceived as a black box (Lapointe & Rivard, 2005; Mou et al., 2025), and our understanding of it remains fragmented. One helpful lens for explaining resistance, including in the field of information systems, is innovation resistance theory (IRT), which suggests that resistance is based on functional and psychological barriers (Ram & Sheth, 1989. However, the differences in these barriers among digital technologies and whether the same barriers inform resistance levels have not yet been studied. Thus, we examine resistance to two popular digital technologies

that have emerged in recent decades, namely distributed ledger technology (DLT) and generative artificial intelligence (GAI) (Lowry et al., 2025). While DLT has received a notable amount of academic and industry attention over several years following the publication of the Bitcoin whitepaper in 2008 (Nakamoto, 2008), GAI is a more recent technology that was widely adopted only since the release of conversational GAI applications such as ChatGPT in late 2022. Both technologies demonstrate great potential, but also face notable barriers to adoption (Wang et al., 2025; Wells et al., 2025). To understand the differences and similarities in the barriers and resistance levels to DLT and GAI adoption as well as to critically assess the continued applicability of IRT (Ram & Sheth, 1989), we raise the following research question:

How do barriers and levels of resistance compare across digital technologies?

To answer our research question, we conducted an in-depth qualitative content analysis of over 38,000 Reddit comments, with 1,400 of them expressing resistance toward DLT and GAI (Mayring, 2021). Using both deductive and inductive reasoning, we expanded upon the integrated IRT (Ram & Sheth, 1989) and the Technology-Organization-Environment (TOE) framework (Tornatzky & Fleischer, 1990). Our twofold goal was first, to determine whether barriers are technology-specific or technology-independent and second, to understand whether resistance levels stem from similar or different barriers. Our analysis reveals that although the technologies differ in terms of their primary application domains and maturity stages, we find that they share several similar barriers, particularly functional ones. However, we also uncovered patterns, such as user autonomy, that appear to be inherent only to GAI. By advancing the IRT-TOE framework, our work improves our understanding of adoption barriers related to complex digital technologies. Additionally, our work complements the growing body of research on adoption in the information systems field; a search of "adoption" and "resistance" in the AIS Senior Scholars List of Premier Journals yielded 518 and 65 records, respectively (as of May 2026). Our findings help practitioners improve adoption strategies for future digital technologies, as this work generalizes resistance across technologies.

Background

Digital Technologies

While DLT and GAI are considered two popular digital technologies (e.g., Berente et al., 2021; Lumineau et al., 2021) that exhibit shared characteristics such as reprogrammability and self-referentiality (Yoo et al., 2010), they also introduce specificities that lead to different patterns of diffusion (Yoo et al., 2024). In the following, we will outline these specificities, along with the previous research on adoption and resistance.

First introduced as the technology underlying the Bitcoin cryptocurrency (Nakamoto, 2008), the proposed applications of DLT – such as blockchain – now range from digital assets, such as nonfungible tokens (NFTs), over institutional mechanisms to digital infrastructures (Wang et al., 2025). Against this background, we follow an early characterization by Iansiti and Lakhani (2017, p. 8) who stated that "in a blockchain system, [a] ledger is replicated in [many] identical databases, each hosted and maintained by an interested party. When changes are entered in one copy, all the other copies are simultaneously updated." Following an initial hype and enthusiasm, users, organizations, governments, and researchers have become more cautious and sceptic in approaching the technology and its potential applications. The hype and skepticism surrounding blockchain and DLTs is the outcome of adoption drivers and barriers emerging over time. Key drivers of DLT adoption have traditionally laid in economic and social benefits (Gao & Leung, 2022; Liu et al., 2022), support for libertarian values (Lichti & Tumasjan, 2023), as well as distrust in established financial intermediaries. In addition to these drivers of DLT adoption, researchers have previously identified barriers to DLT adoption, including a tendency to evaluate them based on criteria usually applied to centralized paradigms (Dierksmeier & Seele, 2018), their technical complexity (Wenke et al., 2022), as well as concerns about the relationship between transaction immutability and needs for business flexibility (Toufaily et al., 2021). While prior research acknowledges both adoption drivers and barriers, research drawing on technology resistance in general and IRT in specific is still scarce in the context of DLT and blockchain adoption (Dwivedi et al., 2023).

GAI can be broadly defined as a class of AI models designed to translate user prompts into seemingly new output, such as audio, image, text (Feuerriegel et al., 2024). GAI systems with built-in chatbot interfaces typically aim to solve real-world problems and drive innovation (Feuerriegel et al., 2024) and are often described as easy to use (Van Dis et al., 2023). Consequently, GAI is increasingly being adopted in the

workplace, transforming the way organizations communicate and do business (Feuerriegel et al., 2024). For instance, these tools can help users complete specific tasks – even those that previously required human cognitive effort, such as creativity (Benbya et al., 2024) – faster and with higher quality (Noy & Zhang, 2023). However, increasing adoption also presents managerial challenges, especially regarding the generation of inaccurate or harmful content and algorithmic biases (Berente et al., 2021). This has prompted researchers to address questions about the interactions between humans and GAI systems (Feuerriegel et al., 2024) and investigate those concerns that may hinder adoption of GAI (Wells et al., 2025). Scholars shed light on several barriers related to GAI use, including fear that GAI diminishes cognitive skills or produces inaccurate or unoriginal output (Wells et al., 2025). However, studies that draw on IRT in the context of GAI resistance are scarce. One of the most recent studies by Kalmus and Nikiforova (2024) argues that, although usage and value barriers persist, several other barrier types were found to have no impact. Thus, the existing discourse on IRT in the context of GAI suggests that (1) known sources of resistance remain relevant, and (2) no new sources of resistance have emerged. This seems surprising, given that GAI is fundamentally different from earlier forms of AI or information technology artefacts more broadly (Feuerriegel et al., 2024). One possible explanation is that most studies tend to adopt a heterogeneous perspective that emphasizes broad, deductive approaches (e.g., Huang et al., 2021), rather than basing their observations on real-world practice and collecting qualitative data. Therefore, we argue that a more thorough analysis is needed to better reflect GAI barriers and specify the structural relationships of IRT and resistance levels.

Innovation Resistance Theory

Innovation resistance theory, developed in the 1970s and widely employed in various disciplines, provides a structured framework for understanding why individuals may resist adoption of innovations, even when considered desirable (Ram & Sheth, 1989). Innovation resistance research recognizes that non-adoption is an active state of resistance (Yapa & Mayfield, 1978) beyond the absence of adoption factors: Academic literature identifies various barriers, such as functional or psychological ones, causing individuals to hesitate or refuse to adopt new technologies (e.g., Kaur et al., 2020). Functional barriers are barriers that emerge when individuals anticipate that adopting something new will disrupt their workflows or be incompatible with their existing habits, while psychological barriers arise when individuals feel that adoption conflicts with their prior beliefs or stems from stereotypical thinking (Ram & Sheth, 1989). Previous studies have demonstrated that barriers negatively impact the adoption of innovations (e.g., Kaur et al., 2020; Sangari & Mashatan, 2024).

To account not only for individual-level barriers but also for macro-level barriers related to organizational readiness or the regulatory environment, past research has extended the IRT by the TOE Framework (e.g., Rath et al., 2024). In general, the TOE framework proposes that the context in which an organization is embedded helps explain technology adoption (Tornatzky & Fleischer, 1990). The framework includes three main elements: the technological context (i.e., the technologies already in use); the organizational context (i.e., the organization's structure); and the environmental context (i.e., the structure of the industry and the regulatory environment) (Baker, 2012). For the GAI context, Rath et al. (2024) developed an IRT-TOE extension including factors such as competitive pressure to explain GAI adoption in manufacturing. We also see initial confirmation that the IRT is relevant in the context of DLT. For example, Thompson and Rust (2023) indicate that blockchain poses a threat to the perceived favorable principal-agent relationships (value barrier) and efforts to preserve traditions (tradition barrier). According to Laumer & Eckhart (2012) resistance is a dynamic process that can manifest at three distinct levels: postponement, rejection, and opposition (Szmigin & Foxall, 1998). The first is the mildest form, which involves delaying the use of innovations. The other two are more active forms of resistance. Rejection involves refusing to use a technology, while opposition involves actively fighting against it. Thus far, no study has investigated innovation resistance barriers across multiple digital technologies. Consequently, this study provides practitioners and scholars with holistic insights on which barriers to adoption not to overlook.

Method

To study innovation resistance and barriers across two digital technologies, namely DLT and GAI, we conducted a qualitative content analysis of publicly available Reddit data. Reddit is well-suited for researching sensitive topics, such as innovation resistance, as, in contrast to other platforms, it enables

users to share their experiences and opinions largely anonymously (Prakasam & Huxtable-Thomas, 2021). In the following, we first describe the data collection and eligibility criteria before detailing our analysis.

Data Collection

For this study, we collected data from Reddit, a social networking site where users known as Redditors can share their opinions and experiences on various topics. Users can create throwaway accounts (Ammari et al., 2019), which increases their willingness to self-disclose on sensitive topics and to share their concerns about innovations building on digital technologies such as DLT and GAI without fear of repercussions (e.g., De Choudhury & De, 2014). This level of anonymity is not available on platforms, where users are more easily identifiable, such as LinkedIn and Facebook (e.g., Robards & Graf, 2022).

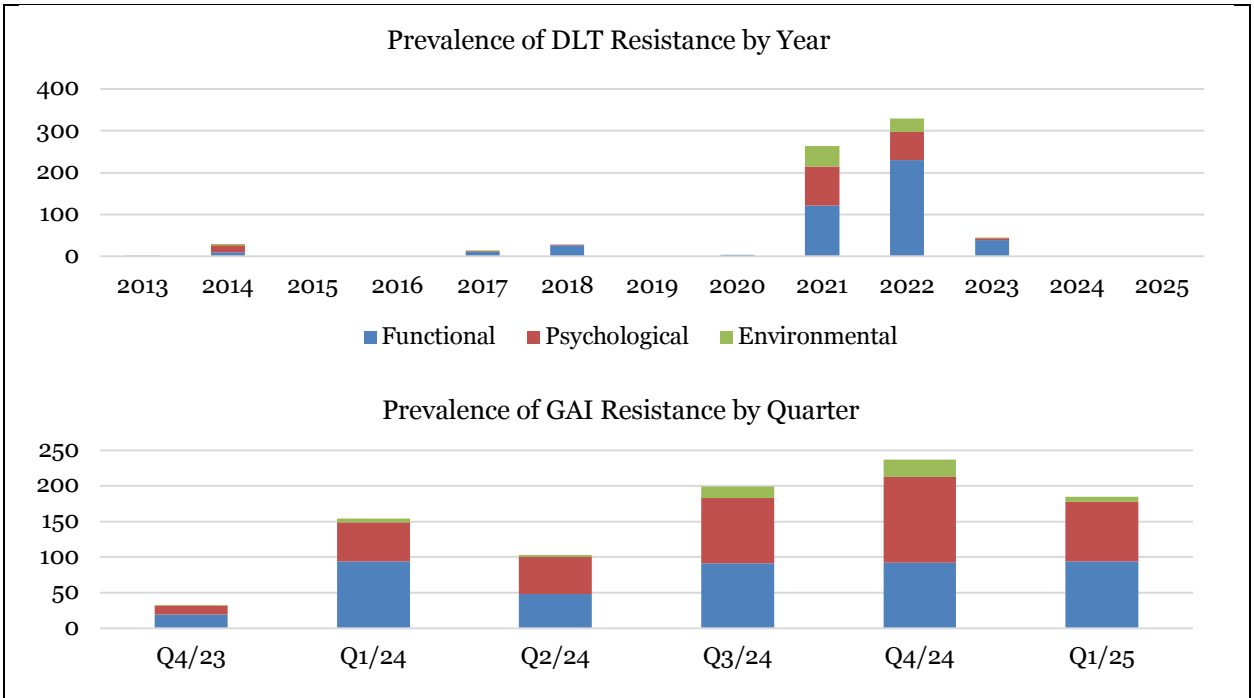

Figure 1. Prevalence of Barrier Types in DLT (top) and GAI (down) over time

To collect relevant Reddit posts, we searched for posts related to DLT from 2010, when the first blockchain-dedicated Subreddit was created, until June 2025, using the terms "blockchain," "distributed ledger technology," or "DLT." We avoided using case-specific search terms, such as "Bitcoin" or other cryptocurrencies. We applied a similar strategy for GAI, using the search terms "genAI" or "GAI" or any combination of "artificial intelligence" or "AI" and "generated" or "generative." We covered a period from September 2022 (when the first post appeared) until February 2025. We refrained from using keywords such as "Ethereum," "Solana," or "ChatGPT" as responses to related threads naturally relate to specific instances rather than to the underlying digital technologies themselves. Both searches using the Python Reddit API Wrapper (PRAW) yielded 2,311,935 comments for DLT and 167,066 comments for GAI, respectively. To reduce noise and handle the high volume of posts, we applied three exclusion criteria. First, we removed all posts that did not portray any resistance. This included competitions, such as "r/millionairemakers," as well as tutorials. Second, we removed all posts with unspecific descriptions (e.g., daily or weekly general discussions). Finally, we excluded posts that did not address work contexts, whether in organizations or for self-employed individuals (e.g., artists or developers). This process was systematically repeated until the first three co-authors reached an agreement. The final subset contained 60 posts with 28,106 comments related to DLT and 191 posts with 10,333 comments related to GAI.

Data Analysis

We employed qualitative content analysis (Mayring, 2021) in combination with a deductive and inductive approach, which allowed us to transition between theory and revise it as new insights from the data emerged. First, we built on the integrated IRT-TOE framework to deductively analyze Reddit posts and identify known resistance barriers to DLT and GAI. Next, we used an inductive approach to search for relevant IRT barriers. To ensure consistent coding and classification, the authors took a rigorous approach. First, each of the first three authors individually reviewed a random, equal share of the over 38,000 comments. Then, they discussed and aligned the results. The qualitative content analysis revealed at least one type of barrier in 708 comments about DLT and 720 comments about GAI. Figure 1 displays the prevalence of barrier types for DLT and GAI over time, respectively. While resistance to GAI has steadily increased each quarter, resistance to DLT has dramatically peaked in 2021 and 2022. Notably, functional barriers dominate the DLT discourse, while psychological barriers have steadily increased in GAI discourse and have surpassed the number of functional barriers in 2024. For both technologies, environmental barriers only appear towards the end of the examined time periods.

Findings

Our qualitative content analysis reveals that the higher-level innovation resistance barriers identified by Ram and Sheth (1989) persist across technologies. These barriers include functional barriers related to usage, value, and risk, as well as psychological barriers related to tradition and image. However, our analysis also reveals novel macro-level barriers to innovation that affect both digital technologies. These new barriers resemble the dimensions of the TOE framework (Tornatzky & Fleischer, 1990). Table 1 highlights the prevalence of these barriers across the two investigated technologies. The gray-shaded cells represent the original IRT barriers (Ram & Sheth, 1989). Note that one comment may contain several codes representing different barrier types. Therefore, the total number of codes (GAI: n=1032; DLT: n=789) exceeds the number of comments (GAI: n=720; DLT: n=708) identified.

Table 1. Overview of Barrier Classification and Prevalence by Technology

Aggregate dimensions	2nd-order barriers	1st-order barriers	DLT	GAI
Functional	Usage	Accessibility	151	27
		Complexity	17	55
	Value	Replaceability	113	284
		Reliability	44	62
	Risks	Economic	152	53
		Legal	46	7
Psychological	Tradition	Belief	63	152
		Norm	23	65
	Image	Deterioration	93	121
		Originality	n/a	88
	Autonomy	Stewardship	8	39
		Enjoyment	n/a	20
Environmental	Sustainability	n/a	43	19
	Policies	n/a	27	28
	Governance	n/a	9	12

Examining the descriptive statistics reveals that DLT faces a greater number of functional barriers (n=523), most of which are economic risks (n=152), than GAI (n=488). In contrast, GAI is confronted with a significantly higher number of psychological barriers (n=485) than DLT (n=187). In the following subsections, we first present the barriers identified across each digital technology. Then, we outline how

each barrier type relates to varying levels of resistance. This informs the development of propositions. Unless stated otherwise, we will exemplify our findings with one code from the DLT context followed by one from the GAI context. Please note that we have corrected any grammar or spelling errors. The content of the posts remains unchanged.

Identifying Barrier Types Across Digital Technologies

In the first step of our analysis, we examined the barriers associated with digital technologies. Interestingly, despite selecting two different technologies, we found significant overlap in barriers, indicating commonalities in barriers that persist across technologies.

Functional barriers capture tangible factors that make the usage of the innovation unsuitable for a given purpose. Through our analysis, we identified usage, value, and risks as 2nd-order functional barriers to DLT and GAI adoption which we highlight – in combination with 1st-order barriers and exemplary codes – in Table 2. *Usage barriers* arise because innovations such as DLT and GAI require their users to change their established behaviors and routines to use them effectively (Ram & Sheth, 1989). Research has substantiated that the perceived effort to acquire usage skills influences adoption intentions (Venkatesh et al., 2003). Specifically, their Unified Theory of Acceptance and Use of Technology (UTAUT) posits that as the level of complexity and effort increases, people are less likely to adopt a particular technology, and vice versa. According to our analysis, accessibility and complexity are indeed the main driving forces behind these usage barriers. Accessibility refers to the cognitive effort required to set up the technology correctly. Redditors specify that "The 'too complicated to use' argument is valid for now. If the usability stays like this, most people won't be able to use it even in a few decades" and "You have to know what you're asking for which takes knowledge and experience." Complexity refers to the cognitive effort required to use the technology as intended once it is set up, as the following statements indicate: "Crypto really funks their mind up, too much to take in" and "Sad to say, I'm not that fluent in taking advantage of [G]AI."

Table 2. Overview of Functional Barrier Types

2nd-order barriers	1st-order barrier	Exemplary Code
Usage	Accessibility	"I do think that the utility of AI tools (generative and otherwise) is somewhat limited when used by people in domains they have no expertise in." [GAI]
	Complexity	"I do not understand blockchains, NFTs, or any of this but it all sounds like a grift." [DLT]
Value	Replaceability	"GPT is novel and it's entertaining, but it's utterly useless beyond extremely basic functions that people do better anyway." [GAI]
	Reliability	"This is the #1 reason I did not go heavy crypto. Although I do have some crypto, I knew that eventually the 0-day vulnerabilities would begin to show up." [DLT]
Risks	Economic	"They put in information that's classified or secret company stuff and that AI company now has that data." [GAI]
	Legal	"We have seen the vulnerability in real time. The crypto world is rife with scams and a criminal element." [DLT]

Value barriers arise if innovations, here DLT and GAI, fail to provide functional value beyond incumbent solutions (Ram & Sheth, 1989), making the change redundant or potentially even disadvantageous. Our analysis revealed two value-related barriers: replaceability and reliability. Replaceability captures users who actively explore the usage of the technology but find that it does not provide value beyond what other solutions offer. Redditors point out: "I call crypto an anti-technology. It's an invention that makes things less efficient" and "I'm still not convinced the Google search isn't faster." Reliability refers to the absence or malfunctioning of functionalities that the user anticipated, as the following statements indicate: "Then the

validators voted to hit the pause button on the blockchain. I [opted out] immediately" or "Given the amount of times I've seen LLMs just hallucinating, I would not want to entrust that kind of work to an LLM."

Risk barriers refer to the resistance that arises from uncertainty inherent in any innovation. These barriers affect user intentions and behaviors (Kaur et al., 2020) may impede the adoption of digital technologies when they are perceived to pose a significant risk to individuals, organizations, or even society as a whole. We found that legal and economic risks dominate the Reddit discourses on both technologies. Legal risks encompass usage that could expose individuals or companies to lawsuits or other legal implications. Redditors stress "Right now, one of the biggest risk factors facing Bitcoin and other virtual assets is the concern that the US or some other powerful nation will pass draconian laws essentially banning Bitcoin" and "Be very careful about using it [GAI] for anything compliance related." Economic risks include upfront and continuous investments as well as other factors, such as security and privacy concerns that could result in economic damage, as emphasized by the following statements: "Imagine buying a burger at a drive through with Bitcoin. You'd have to renegotiate the price because of currency fluctuations on your way to the window" and "[GAI users] put in information that's classified or secret company stuff and that AI company now has that data. That's a security risk."

Psychological barriers encompass the mental models and values that influence users' decisions and behaviors (Rokeach, 1973). Therefore, if a user's personal values and the values of an innovation are not aligned, it will affect their intention to use or adopt the innovation, here DLT and GAI in a workplace setting. Through our analysis, we identified tradition, image, and autonomy as 2nd-order psychological barriers to DLT and GAI adoption, which we highlight – in combination with 1st-order barriers and exemplary codes – in Table 3. *Tradition barriers* arise when the adoption of a new technology requires users to change previously established customs, beliefs, or routines. Consequently, under those barriers fall beliefs and norms. Beliefs capture the attitudes toward technology that do not align with an individual's opinions and ethics. For example, Redditors voice that "I feel like Cryptocurrency is a cash grab that's contributing to the ill health of the world while it lasts right now" and "I don't want to be a prompt engineer. Sometimes I wish [GAI tools] were never invented." Norm barriers arise when the use of a technology questions or goes against shared expectations or societal rules. This type of barrier is exemplified by remarks such as: "A lot of NFTs [Non-Fungible Tokens] are still basically stolen artwork and they're all just image files on repositories with the only thing you're paying for is the receipt. It is absolutely shitty and most are low quality shit" and "The ethical concerns of AI and ChatGPT keep me rigid in my refusal to use them at all."

Table 3. Overview of Psychological Barrier Types

2nd-order barriers	1st-order barrier	Exemplary Code
Tradition	Belief	"Blockchain can be a system of transparency but guess what? I won't allow the filthy corruption that actually dictates what can be done and what not" [DLT]
	Norm	"I decided to wing it with ChatGPT, […] and I felt completely off. Maybe it was my guilty conscience for 'cheating'." [GAI]
Image	Deterioration	"They also steal arts from deceased artists too which is absolutely vile." [DLT]
	Originality	"I don't care what a glorified chat bot has to say." [GAI]
Autonomy	Stewardship	"Please do not use Chat GPT to learn anything!" [GAI]
	Enjoyment	"The whole fun part of art is actually creating it, why we would want to automate […] this is beyond me." [GAI]

Image barriers arise when users have negative perceptions and impressions of innovative technologies. Our analysis revealed that concerns about deterioration were a prevalent barrier for both DLT and GAI. The deterioration barrier encompasses negative perceptions and concerns about the consequences of using digital technologies for one's abilities and skills. Redditors have highlighted that "Crypto has given rise to an entire crop of global hustlers cum fraudsters who get away with people's hard-earned money" and "[GAI] is for the lazy." In the context of GAI, another image-related barrier is originality. This captures the negative

sentiment that output is not 'human-like' as highlighted by the following comment: "A machine learning algorithm cannot create genuinely unique content."

Autonomy barriers arise when individuals perceive that innovative technologies impair their personal autonomy or are concerned that it may impede the autonomy of others. Our analysis revealed two 1st-order barriers related to autonomy: stewardship and enjoyment. Stewardship captures an individual's intention to protect others from the detrimental effects of technology, as evident in the following comments: "My likelihood of ever touching bitcoin again is about the same as recovering those gox coins [coins that were stolen or went missing during the collapse of Mt. Gox, an exchange active from 2010 to 2014]. I'm also going to tell others to stay away" and "Work is pushing people to use [G]AI and I am telling the junior [developers] to stop using it." Enjoyment captures an individual's resistance to using a digital technology because they enjoy doing tasks without it. It was only prevalent for the GAI context, with an example being: "I want [G]AI to do the tedious crap so I can be the creative. I don't want [G]AI doing the bits I live for."

Environmental barriers capture the environment of innovations in their respective contexts, similar to dimensions of the TOE (Baker, 2012). Through our analysis, we identified sustainability, policies, and organizational governance as 2nd-order environmental barriers to the adoption of DLT and GAI, which we highlight – in combination with 1st-order barriers and exemplary codes – in Table 4. *Sustainability barriers* refer to users resisting the use of a technology resulting from their (perceived) negative environmental impact. One Redditor stated, "The thing is I like crypto, but I hate the environmental effect around them. It caused me to stop trading crypto." Another one highlighted, "If you care about the environment and climate change you should strongly oppose [G]AI."

Policy barriers include organizational bans on specific technologies or organizational policies that discourage, restrict, or prohibit certain offerings for either current or potential future customers. Redditors explain: "All banks I've talked to are denying a crypto-based business account" and "All of my main clients have a blanket institutional ban on using [G]AI."

Governance barriers refer to aspects such as organizational structure, readiness, and requirements. Users repeatedly mentioned having difficulty integrating technologies into their organizations due to issues related to processes and efficiency. One Redditor noted that, "The applications of DLT in large enterprises are niche and are predicated on the convergence of several factors such as need for a trustless majority-based consensus system, acceptance of an inefficient high latency database [...]." Similarly, in the context of GAI, another Redditor pointed out, "It only works as well as your documentation, which often lags quite a bit behind."

Table 4. Overview of Environmental Barrier Types

2nd-order barriers	1st-order barrier	Exemplary Code
Sustainability	n/a	"The easiest reason to be against crypto: it's horrible for the environment" [DLT]
Policies	n/a	"Using any AI tools is prohibited in our company because of privacy security rules" [GAI]
Governance	n/a	"We considered doing this, but coinbase took forever to respond to our institutional request for signing up." [DLT]

Resistance Levels

In the second step of our analysis, we investigated how the identified barriers correspond to different levels of resistance. Generally, we observe that functional barriers tend to result in postponement and rejection, whereas psychological barriers tend to result in rejection and opposition. Depending on the nature of environmental barriers, they can lead to different levels of resistance. Differences between technologies are minor, with some barrier types exhibiting higher levels of resistance in DLT discourse. We will elaborate further on these proposed relationships below.

Functional Barriers. When aiming to adopt an innovation, such as DLT or GAI, users must take initial steps to correctly set the technical environment up. Although most users are familiar with the process, as it

is comparable to that of other applications, some Redditors still report difficulties related to accessibility. This is especially true when choosing the right model is crucial. One Redditor highlights this issue for corporate clients: "Large companies still have security, pricing […] concerns." Accessibility appears to be a larger issue in DLT. As one Redditor explained, "I got two people interested in crypto and I had to set up everything for them, because it was too much effort for them." Other Redditors appear to have lost faith that the accessibility will be addressed in the short- to mid-term: "So it's been 11 years and is it that much easier to operate with it? I don't think so." Our first proposition (P) is as follows:

P1a: Accessibility barriers are likely to result in postponement or rejection of DLT and postponement of GAI.

Using DLT or GAI requires new skills and abilities that not everyone can easily acquire. From a theoretical perspective, this reflects low perceived ease of use construct in the technology acceptance model (TAM) (Davis, 1989), as these difficulties increase the cognitive effort required to effectively use a digital technology. When individuals perceive technologies as difficult to use, it hampers their self-efficacy and the benefits of adoption. This is reflected in Reddit discussions where Redditors report difficulty acquiring the necessary skills to make GAI technology do what they want, as illustrated by the following post: "Ironically, you have to have enough skill in a particular subject matter to recognize when it's outright making up bullshit." Similarly, Redditors note that the technology "isn't quite there for the average layperson to use yet," indicating that complex and increasing technical skill requirements result in postponement strategies. This aligns with prior work stating that people need to feel that digital technologies like GAI are easy to use in order to adopt them (Morandini et al., 2023). A similar situation can be observed with DLT. One Redditor explained, "I took a look at the source code the other day and was overwhelmed." This finding is in line with prior research identifying technical complexity as a core impediment to blockchain use (Wenke et al., 2022), leading us to the following proposition:

P1b: Complexity barriers are likely to result in postponement of DLT and GAI.

Value barriers arise when the innovation is seen as ineffective or not providing sufficient value to users compared to existing tools that perform similar tasks (Ram & Sheth, 1989). In the DLT discourse, Redditors frequently compare blockchain technology to databases: "A blockchain is a slow database. Anyone telling you differently is selling you the Brooklyn Bridge." In line with Ram and Sheth (1989), if users do not see value, they reject it, as the following Redditor expresses: "Nobody wants or needs 'blockchain' when conventional solutions are superior." Regarding GAI, our analysis reveals that the desired output levels are much lower than expected due to inaccuracy, unreliability, and questionable quality, which is consistent with findings in recent literature (see, e.g., Wells et al., 2025). One Redditor shares: "Most of my colleagues were up on it at first, and then, when they realized it wasted their time more often than not, they gave up on it." Other users pointed out that GAI does not provide sufficient value: "I don't see it useful at all for the arts. […] It doesn't really do much to production for art than speeding shit up and pushing quality down." It is noteworthy that, this seems to be temporary in some cases, as users recognize the potential value of the technology, but choose to wait for new features and more reliable output: "The tech is so promising, but it will just take all the feedback from the early adopters to improve it over time because it's just not there yet." Therefore, we assume:

P1c: Replaceability barriers are likely to result in postponement or rejection of DLT and GAI.

Another strong concern is the possibility of unreliable results (e.g., Wells et al., 2025), particularly when the outcome significantly impacts decision-making processes. This clearly undermines trust in technology, which is essential for adoption processes (Lacity et al., 2024) and can eventually lead to rejection and opposition. In the DLT discourse, reliability refers to the stability of the cryptocurrency values, as one Redditor warns: "All cryptos are volatile." Reliability is also reported to be an issue due to the characteristics of the decentralized validation mechanisms: "I held a lot of SOL [Solana]. A LOT. Then the validators voted to hit the pause button on the blockchain. I GTFO immediately and will never look back." In the discourse on GAI, unreliable output is often referred to as hallucinations. Users indicate that they perceive hallucinations as a conceptual challenge that cannot be solved by the incremental nature of current model releases, but rather point to conceptual challenges of GAI: "AI is wonderful technology, and developing it may lead to more accurate results, but verifying information is an entirely different unsolved problem that is not as simple as just stepping onto the next rung of the ladder." As a result, reliability barriers often lead to rejection. A software engineer remarks on GAI code generation: "I tried and just dropped it completely

when I wasted like an hour to figure out it 'invented' a non-existent 'Ansible' module - I'd rather stick to official documentation." Concerns about reliability can even lead to active resistance. After a financial loss due to a security incident, one Redditor describes: "My likelihood of ever touching bitcoin again is about the same as recovering those gox coins. I'm also going to tell others to stay away." Also, regarding the adoption if GAI, one Redditor warned others, "Please do not use ChatGPT to learn anything! […] Not only does it get stuff wrong and hallucinate[s], it has no concept of what 'teaching' or 'learning' even are, and it will give people a false sense of confidence in what they learned when it could be completely wrong." In light of this, we suggest the following:

P1d: Reliability barriers are likely to result in rejection or opposition of DLT and GAI.

Risk barriers refer to the resistance that arises from uncertainty inherent in any innovation and affect user intentions and behaviors (Kaur et al., 2020). Studies have demonstrated that the level of uncertainty has a direct influence on the acceptance of innovations (e.g., Luo et al., 2010). One of the key risk barriers is related to economic risk (Ram & Sheth, 1989), where users perceive that the use or adoption of GAI is costly, and that their investment may not be worthwhile. Redditors mention not only high upfront infrastructure costs, but also maintenance costs: "It's just expensive. Expensive to build features with true business value, expensive to run them, and hard to capture that value back from users." Because of GAI's inherent uncertainty, return on investment is not guaranteed. As a professional explicitly warns, using GAI can "lower the quality of your products, lower the consumer base, and lower the profits—it's simple, really." A professional points out similar issues in enterprise DLT usage: "But in reality (and I would know because I work in IT in a big company) the applications of DLT in large enterprises are niche." However, some Redditors also indicate they expect to observe improvements over time: "Bitcoin is very volatile because it is in the early days of adoption. What I meant to say is that Bitcoin has the opportunity to become a solid store of value since it has very good characteristics for money." In addition, security risks also lead to considerations for rejecting GAI use: "I imagine there will be a sleuth of companies that ban using it because of this. They put in information that's classified or secret company stuff and that AI company now has that data." Similarly rejecting behavior is present in the DLT discourse, where Redditor share their frustrations: "Used to be a fan of cryptocurrencies, until I realized it's nothing more than a purely speculative bunch of collectables, masquerading as revolutionary technology. It's all smoke and mirrors." We thus assume:

P1e: Economic risk barriers are likely to result in postponement or rejection of DLT and GAI.

Another source of resistance is the potential legal risk that could be introduced by using the innovation One Redditor explains: "I run a bitcoin node and I would never consider running a TOR node. I don't need the FBI knocking on my door." Individuals often perceive the legal landscape concerning GAI as highly dynamic, with rulings that are vague and difficult to interpret, leading to uncertainty about what actions are permissible (Söllner et al., 2025). Their uncertainty is fueled by court rulings that hold companies legally responsible for the information provided by GAI-based chatbots to their customers. Because of this high level of uncertainty about legal risks and liabilities, users tend avoid using it: "It's garbage [,] […] sometimes it's essentially the same as an existing work (so potential legal issues […]. I'm just gonna say on that subject that if I don't know where everything needed to create that came from, and it has been proven to include highly illegal and unethical content (not talking about copyright stuff), then I'm the opposite of interested and I don't wanna be anywhere near that shit." We thus propose:

P1f: Legal risk barriers are likely to result in rejection of DLT and GAI.

Psychological Barriers. Typically, values guide an individual's decisions and behaviors (Rokeach, 1973), so if personal values and the values of an innovation are not congruent, it will affect the user's intention to use or adopt it. We see that, for both DLT and GAI, users clearly reject using it when they feel it conflicts with their belief systems. One Redditor highlights: "I echo the sentiment here that these [blockchain] games are scams. Not once in the past year have I played one of these games. Not once have I ever even kind of wanted to try one." In the context of GAI, individuals also express concerns about how ethical GAI technology works, perceiving it as dishonest and even involved in unlawful activities. This perception is consistent with recent findings by Wells et al. (2025). Some people feel that GAI should not exist at all, which leads them to reject it: "I refuse to use it for any purpose. Thou shall not make a machine in the likeness of a man's mind." Another Redditor makes it clear that no compensation would make the use of GAI attractive to them: "You couldn't pay me to use it." This leads to the following proposition:

P2a: Belief barriers are likely to result in rejection of DLT and GAI.

Our analysis also highlights that behavior that goes against norms create barriers (Ram & Sheth, 1989). In the context of DLT, users perceive the practices surrounding NFTs as going against their norms, especially when they feel the NFTs are based on artwork without the artist's consent. One Redditor explains: “I never was on the idea of NFT. […] A lot of NFT are still basically stolen artwork and they're all just image files on repositories with the only thing your paying for is the receipt.” In the context of GAI, users value traditional ways of creating output, especially when it comes to code generation or art: “Yeah call me old fashioned but I like art made by artists.” As a result, they strongly object to using GAI for this: “I'd much rather learn to draw and draw them myself, personally. Which is exactly what I’ve been doing!” Even in the educational context, we see a clear preference for rejecting GAI and banning it from classrooms as the following statement illustrates: “Just like we don't allow calculators in math assessments, we shouldn't allow AI for writing assignments.” Norm barriers, however, do not necessarily lead to rejection but can also motivate more active resistance behavior. In some cases, Redditors actively discourage others from using GAI due to the ethical concerns associated with how the technology produces output: “Don't use something which has stolen the works of thousands only to replace them.” Taken together, our qualitative results suggest that technologies perceived as violating norms and values, create moral dilemmas, leading individuals to reject or actively discourage their use. Therefore, we propose the following:

P2b: Norm barriers are likely to result in rejection or opposition of GAI.

Based on our qualitative analysis, we see a recurring discrepancy between the actual image of GAI and the self-image of individuals, which can be explained by drawing on self-concept theory. Established in the context of marketing, this theory posits that if the self-image is positive and the image of the product, in our case technology, is negative, it will trigger avoidance behavior and no purchase (Sirgy, 1982). However, if you feel that your self-image will benefit from using a technology, then you would use it. In the context of DLT, people's negative perception of these technologies turns into strong opposition, as expressed by the following Redditor: “Everything about crypto, NFTs, blockchain, Web 3.0, etc is garbage. Pure garbage. It should be pushed back against as forcefully as possible.” Returning to the GAI context, and in line with Wells et al. (2025), we observe that some people have very negative perceptions of technology that conflict with their self-image. For example, one Redditor highlights that GAI makes them lazier, which why they reject it: “[G]AI doesn’t promote, stimulate or encourage any self-improvement on the user, only the technology. I don’t learn anything about drawing, painting, or writing from using. […] As far as I’m concerned, this trade-off isn’t worth it.” The impact of negative emotions cannot be ignored, as previous studies have indicated that emotions significantly shape attitudes toward a technology, which in turn influence adoption (Gerli et al., 2022). As such negative emotions may lead to resistance, we assume:

P2c: Deterioration barriers are likely to result in opposition of DLT and rejection of GAI.

Another prevalent theme in comments about GAI, but not DLT, is the perception that the output of innovative technologies is not even close to human quality, but rather is classified as strange or soulless. GAI is heavily criticized for not being able to produce what humans can and for lacking originality (Wells et al., 2025). As a result, Redditors express dislike and are unwilling to use it, as can be seen in this post: “Tired of seeing the same soulless AI art. […] why we would want to automate stuff like this is beyond me?” This may be rooted in people's suspicion of technology’s ability to replace humans (Chou, 2015), which has been confirmed in the context of GAI (Wells et al., 2025). Hence, we assume:

P2d: Originality barriers are likely to result in rejection of GAI.

Resistance may also manifest as an active attempt to protest against DLT or GAI by warning or discouraging others from accepting them. For this reason, Kleijnen et al. (2009) classified this form of resistance as rather aggressive. It is worth highlighting that Redditors engage in this explicit form of resistance because they seek to protect others from harm (Hernandez, 2012). One Redditor states: “Every time I tell someone about DeFi I make it a point to show them the erc20 fees and suggest a different starting network.” Another Redditor discusses their concern that young artists may damage their careers and deprive themselves of the opportunity to grow and acquire the skills necessary to become successful by using GAI. This is why they post a warning that reads: "If you are a younger/beginner […] artist: please don't use AI as a tool. I say this because while it may seem like it's helping you right now, the images it produces are bad references due to their lack of intentionality." Consequently, we expect stewardship to result in opposition to DLT and GAI:

P2e: Stewardship barriers are likely to result in opposition of DLT and GAI.

In the context of GAI, but not DLT, a unique barrier to resistance emerges when people endorse the activity that the technology would replace. One Redditor explains the issue: "Using AI for ideation and problem solving in my opinion takes the fun out of the whole process. Just like how baking isn't fun when you just have to put the right ingredients into a machine and it'll make it for you. I'm in this field because I love doing it, using tools that allow me to do it less is insane to me." It becomes clear that individuals perform activities because they are intrinsically motivated and actually enjoy doing them (Deci & Ryan, 1985). So having a tool that can do what you enjoy and are passionate about leads to outright rejection of GAI, as people are willing to protect what makes them happy and gives them satisfaction (Baron & Spranca, 1997). One Redditor firmly states the following about GAI: "I'd never use it to replace my thinking, since I enjoy forming my own ideas." Therefore, we expect the following:

P2f: Enjoyment barriers are likely to result in rejection of GAI.

Environmental Barriers. Redditors repeatedly raise concerns about the sustainability of DLT and GAI, revealing that their environmental values and concerns are at odds with the resources needed to make the technology work. One Redditor points out: "My biggest problem with it is the amount of water the technology uses and how much carbon emission it contributes to. Newer technologies like [G]AI and crypto, which are both somewhat limited in their use case, have extreme implications for the future of our planet. That's why it doesn't sit right with me." Since such concerns are strong behavioral drivers (Bouman et al., 2020), they can lead to rejection, as our analysis reveals. For example, one Redditor iterated, "The thing is I like crypto but I hate the environmental effect around them. It caused me to stop trading crypto." Others pointed out that they avoid using GAI because it makes them feel guilty: "I try to almost never ask it to generate an image because I feel guilty of the carbon footprint." Environmental concerns can also lead to opposition, when people call for radical countermeasures, as one Redditor voices: "Bitcoin demonstrated value but ultimately it's an appalling waste of resources and environmental nightmare that should be put out to pasture." In the context of GAI, one Redditor requests, "If you care about the environment and climate change, you should strongly oppose [G]AI." Consequently, we propose the following:

P3a: Sustainability barriers are likely to result in rejection or opposition of DLT and GAI.

Regulations significantly impact people's ability to use DLT or GAI. For example, banning specific cryptocurrencies in certain countries makes them impossible to use. As one Redditor highlights, such legal frameworks are not always perceived well: "Bitcoin got banned in [Country A]? F[***] [Country A's] law." Uncertainty about upcoming regulations also leaves people on edge, as reiterated by the following Redditor: "But I am still on guard." Similarly, regulatory pressures are turning many workplaces into no-GAI zones, forcing professionals to refrain from using GAI. Especially in highly regulated environments, people are shielded from the AI hype, as a Redditor explains: "How about working for an organization that is restricted by HIPAA [i.e., Health Insurance Portability and Accountability Act] and tons of other regulations… I guess, job security here is pretty solid […], but the overall environment is exactly the opposite to [G]AI hype everywhere." Generally, these regulatory constraints are often perceived as external and potentially temporary, as they depend on legal framework and organizational policies. As a result, user tend to postpone the use of such technologies in order to comply with the regulatory requirements formulated through laws such as the GDPR or the AI Act in the European Union (Söllner et al., 2025), or policies implemented by their organization. Therefore, we propose the following:

P3b: Policy barriers are likely to result in postponement of DLT and GAI.

Organizational readiness can also impede adoption efforts (Jöhnk et al., 2021), particularly when companies lack the necessary governance mechanisms, infrastructure or resources to implement new technologies. For example, in the context of DLT, uncertainty about the governance structure of decentralized autonomous organizations (DAOs) is a substantial barrier. As one Redditor points out: "How would a new corporation handle day to day management? Would managers fully be replaced by code?" In the context of GAI, issues arise when companies either lack the data or the knowledge and resources necessary to properly train the GAI models. As one commenter noted: "When I looked for the documentation, I found three different APIs to do the task, all of which were mutually incompatible, and the package names were so ambiguous that I couldn't easily tell which version was which." As a result, they put off using it in the workplace: "Meanwhile, I have removed it [GAI] from my workstation. […] I don't want it autocompleting to the thing I just tried that didn't work." Importantly, these challenges are not considered an inherent issue of the technology itself, but rather, they are viewed as potentially resolvable if

the organization allocates the necessary resources. Consequently, users tend to postpone rather than reject the technology. In light of the above, we expect organizational readiness to lead to postponement:

P3c: Governance barriers are likely to result in postponement of DLT and GAI.

Table 5 summarizes our findings regarding the types of innovation barriers and the likelihood of specific resistance strategies to occur. Notably, psychological barriers are more likely to result in rejection and opposition for both technologies, while functional and environmental barriers are more likely to result in postponement and/or rejection. It appears that functional barriers are considered temporary issues that will be resolved over time. Consequently, they tend to result in postponement. Interestingly, for DLT, these barriers also tend to result in rejection. This may be explained by the frustration that comes with perceiving DLT as inaccessible over an extended period without substantial improvements. In contrast, psychological barriers stem from conflicts with norms and self-concepts that cannot easily be resolved with technical solutions. Therefore, they more often lead to rejection and opposition. This is especially true for GAI, where the technology challenges users' intrinsic motivation (Deci & Ryan, 1985) and human qualities, such as creativity. In comparison, DLT does not pose a threat to self-identity. Environmental barriers are somewhat in between. When they concern external constraints, such as organizational readiness, they result in postponement. When they concern sustainability, they result in resistance for both technologies.

Table 5. Overview of Innovation Barriers and Resistance Levels

Barrier		**DLT**			**GAI**		
		Postponement	Rejection	Opposition	Postponement	Rejection	Opposition
Functional	Accessibility (1a)	x	x		x		
	Complexity (1b)	x			x		
	Replaceability (1c)	x	x		x	x	
	Reliability (1d)		x	x		x	x
	Economic risk (1e)	x	x		x	x	
	Legal risk (1f)		x			x	
Psychological	Belief (2a)		x			x	
	Norm (2b)		x	x		x	x
	Deterioration (2c)			x		x	
	Originality (2d)	n/a				x	
	Stewardship (2e)			x			x
	Enjoyment (2f)	n/a				x	
Environ-mental	Sustainability (3a)		x	x		x	x
	Policies (3b)	x			x		
	Governance (3c)	x			x		

Discussion

In this paper, we integrate insights from the IRT and the TOE framework to develop a comprehensive model explaining why individuals resist innovation across digital technologies. Drawing from an in-depth analysis of over 38,000 Reddit comments, we validate the model across two of the most widely discussed digital technologies of recent years. Our work provides researchers and practitioners with a tool to better understand resistance to DLT and GAI. This allows the latter to develop strategies for overcoming functional, psychological, and environmental barriers. In the following, we will discuss the paper's theoretical and practical contributions, as well as its limitations, which point to future research avenues.

Contributions and Implications

Our main contribution is our comprehensive conceptualization and extension of the IRT, which is based on a comparative study of innovation resistance to adoption of two digital technologies, DLT and GAI. Along these lines, our work combines existing knowledge and the TOE framework, to present a comprehensive overview of the barriers leading to resistance across technologies. Unlike most recent IRT studies that use a deductive, survey-based approach (e.g., Rath et al., 2024), our study uses a combined deductive-inductive, qualitative approach. This allows us to identify sources of resistance that were previously overlooked. Additionally, while previous research has extended the IRT in domain-specific (e.g., Rath et al., 2024) or technology-specific (e.g., Kalmus & Nikiforova, 2024; Laukkanen et al., 2008; Rath et al., 2024) settings, our theory extension has been empirically validated across two technologies providing researchers with a more granular understanding of why individuals opt out of using digital technologies.

Furthermore, our work reveals how barriers relate to different levels of resistance, offering a more nuanced understanding of these relationships. This enables scholars to build on our research and use it as a foundation for additional investigations. At the same time, our work provides practical guidance for technology managers and others who need to make decisions about implementing digital technologies. Our comprehensive framework enables them to address current barriers and promote future adoption. Based on our investigations, functional barriers seem to be more prevalent when discussing DLT. Therefore, it appears that the technical aspects need to be decoded. This aligns with the findings of Dwivedi et al. (2023). Meanwhile, psychological barriers are relatively more prevalent in GAI-related discussions. Notably, we identify the 1st-order barrier enjoyment as key psychological barrier to GAI adoption. However, we find no significant impact to the DLT adoption. This leads us to the notion of intrinsic motivation: Whenever the adoption of a technology would replace what is at the core of one's autonomous mindset, e.g., one's creativity, it triggers a stronger resistance. On the other hand, if extrinsic motivation, such as the desire to earn money through crypto, drives one's actions, resistance, if any, can be classified as postponement.

Findings by Laukkanen et al. (2008) further indicate that psychological barriers are stronger determinants of resistance than functional ones. Given the high prevalence of psychological barriers in GAI-related discussions, practitioners must mitigate human inertia regarding technology adoption when designing GAI systems for workplace contexts. For example, they should pay attention to how people perceive artificial interactions with GAI systems and their outputs (Wells et al., 2025). Hallucinations also raise challenges.

Limitations and Future Research

While our research provides valuable insights into innovation resistance across digital technologies, it is not without limitations. First, although our study compares resistance to innovation of two prominent digital technologies, DLT and GAI, which provides some generalization, it would be valuable to see if our comprehensive conceptualization of IRT persists with other digital technologies, such as quantum computing or the Internet of Things. In addition, our work thus far is based on a qualitative analysis of over 38,000 Reddit posts. Therefore, future research could quantitively test the extended IRT framework using surveys and develop new scales following established guidelines, (e.g., Carpenter, 2018) before conducting a survey to identify new adoption barriers.

Second, we observe differences in the prevalence of specific barriers to adoption of these technologies. Previous research has found the technologies' maturity stages as a key determinant of resistance over time (e.g., Lapointe & Rivard, 2005; Talwar et al., 2020). While the GAI barrier prevalence appears to be shifting from predominantly functional towards psychological barriers, indicating a potentially higher maturity but also resistance over time, we can only speculate about its dynamic impact. We plan to address this in subsequent studies; specifically, we will examine resistance patterns across technologies and time to identify which barriers are more prevalent over time.

Third, our work is among the first to explicitly link barriers and resistance levels. Outside the scope of this work, but valuable to examine, is how different barriers translate into different implementation outcomes or organizational strategies. One useful method in this context is fsQCA (e.g., Choudhary & Kar, 2025), which allows one to examine how combinations of barriers lead to specific resistance outcomes or implementation patterns rather than isolated factors.

Conclusion

Although digital technologies are frequently considered to have the potential to reshape and improve business models and products, many organizations in the public and private sectors fail to consistently capitalize on these potentials. Instead, they face a wide variety of innovation barriers and resistance throughout their organizations. At the same time, while the adoption of digital technologies is widely explored, in information systems research (e.g., through TAM and UTAUT) and beyond, innovation resistance and its key barriers remain underexplored. Against this background, this study sheds light on which barriers are prevalent across two digital technologies and which barriers lead to which levels of resistance. Our findings provide insights into the main reasons for why individuals and organizations might postpone, reject, or oppose the use of digital technologies such as DLT and GAI. We also found that, despite major differences in user exposure and technology diffusion, DLT and GAI share most barriers.

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