Satisfaction to Stay, Regret to Switch: Understanding Post-Adoption Regret in Choosing Competing Technologies When Herding

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Abstract

Faced with uncertainty when choosing among a wide range of similar competing technologies, users often take a herding in technology adoption (HTA) strategy to make heuristic adoption decisions. The HTA strategy brings users cost and time savings and also casts doubt on user staying power. The extant adoption research has long focused on user satisfaction with the performance of the chosen technology (also known as the EDT perspective), but does not sufficiently account for the consideration of the decision process across competing alternatives. To fill this void, this research employs a holistic post-adoptive evaluation by introducing a regret perspective in relation to competing technologies. Specifically, we theorize and operationalize a new multi-dimensional construct of post-adoption regret and construct a research model to examine how HTA leads to post-adoption regret and how such regret influences user staying power. The results suggest: Post-adoption regret is formed primarily through two routes, outcome and process; and it is found to be more related to user switching while satisfaction is related to user retention. The research model is supported by two longitudinal field studies of users in Asia and Europe who chose between competing technologies in both forms of free software and paid hardware. Findings from this research have significant implications for IS research as well as industry practice.

Keywords: Regret, competing technologies, post-adoption, herding in technology adoption, switch, longitudinal study

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Introduction

Technology advances have brought a great number of competing technologies for users to choose from for any technology adoption decision. For example, a search in the app store returns dozens of similar results. When choosing an IT gadget, users are exposed to several brands and models with similar features. In the meantime, technology advances have also changed how users choose for an adoption decision.

Overwhelmed by the uncertainty associated with similar features and a large number of alternatives, users are inclined to employ herding in technology adoption (HTA), a popular heuristic strategy that suggests following the wisdom of the crowd (Pavlou et al. 2007; Sun 2013). Due to this, the industry has widely utilized reference information such as previous downloads and purchases, experts' reviews, and friends' endorsements to facilitate the use of HTA (Duan et al. 2009; Walden and Browne 2009).

While HTA has been continuously confirmed as an influential force for user adoption (Feng et al. 2022; Kim and Viswanathan 2019), the research on whether it has a long-lasting distal effect on user staying power in post-adoption is scant. Among the very few studies, Sun (2013), which premises on a single focal technology context and the expectation-disconfirmation theory (EDT), attempts to approach this relationship by assuming that users may adopt an unfit technology from HTA and will discontinue using it due to low satisfaction, following a logic chain of HTA→negative disconfirmation→unsatisfactory performance→discontinue.

Yet this assumption based on EDT alone cannot sufficiently address the three major issues identified below, preventing the field from fully understanding the useful HTA strategy in the new era with competing technologies. First, it assumes that HTA only leads to negative outcomes, when in fact it may also lead to positive outcomes depending on the herd and herding strategy being followed (Zhang and Liu 2012). Moreover, IT products nowadays are easy to use and similar in performance, so users are likely to find them good enough, as suggested in the empirical results of (Sun 2013). In this case, the EDT perspective may

not be able to explain the abandonment phenomenon after HTA even if the users are satisfied with the performance. Second, its focus on the outcome and the single focal technology context has neglected the influences of the decision process and competing technologies. Recent IS research proposes to expand EDT by considering competing technologies in performance evaluations (Ho et al. 2020; Lin et al. 2022). But how the adoption process (HTA in this case) can play a role in post-adoption evaluations is currently missing in EDT, especially when the decision process is an important element to evaluate a decision (Parker et al. 2016). Third, it takes a unitary view of user staying power (either stay or not stay, switch or not switch), following the assumption of EDT on the focal technology. With more competing technologies available, subscribing to an ambivalent view (users can exhibit both positive and negative attitudes and both continuance and switching intentions) (Qahri-Saremi and Turel 2020; Turel 2015) may be more appropriate to understand the diverse forms of usage behaviors in post-adoptive use (Bhattacherjee et al. 2012; Maier et al. 2021).

Against this backdrop, this research aims to re-examine the linkage between HTA and user staying power in the competing technologies context. Specifically, we take a holistic view and formally introduce a regret perspective, regret about the adoption decision (depicted as post-adoption regret), to supplement the existing EDT perspective. We define post-adoption regret in this context as a painful cognitive and emotional state of feeling sorry about choosing a technology over foregone (unchosen) alternatives.

We choose the new regret perspective to re-examine the relationship between HTA and user staying power for several reasons. First, regret by nature is highly relevant in a condition such as HTA where users have to compare across and choose from competing technologies (Rao et al. 2001; Schwartz 2004). In fact, regret can be triggered even with positive outcomes, for example, not spending sufficient time in the search or discounting one's own information when following others in HTA (Das and Kerr 2010; Pieters and Zeelenberg 2005). Second, regret captures the influences of the competing technologies and the concern about the process because regret stems from the counterfactual thinking of "what might have been" if a different choice were made, where individuals compare the foregone decisions and trace them back to the

decision process (e.g., HTA) for evaluation (Zeelenberg and Pieters 2007). Third, although often mistakenly used interchangeably with (dis)satisfaction, regret and satisfaction (representative of the EDT perspective) are indeed two distinct internal and external mechanisms that co-exist in the literature and empirical settings (Tsiros and Mittal 2000), supporting the ambivalent view.

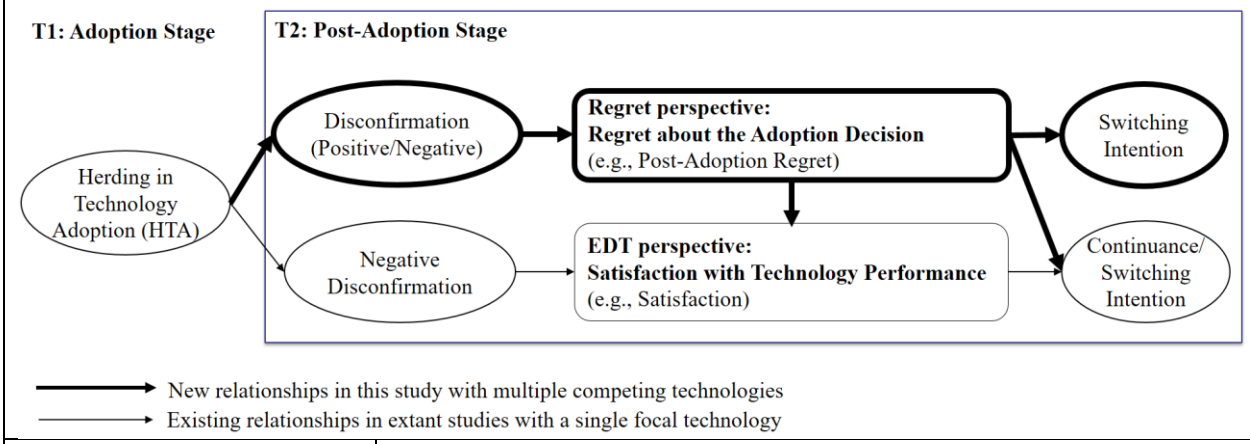
Within the IS research, however, the understanding of such an important perspective is limited in two aspects. First, the theoretical treatment of regret is minimal – it has been oversimplified as a unidimensional construct that overlooks its complex underlying mechanism as a counterfactual emotion. Also, its decision-orientation has been often mixed up with two other similar concepts of satisfaction and relative usefulness/advantage, which are indeed outcome-oriented (Bhattacherjee et al. 2012; Chang et al. 2014). Second, its nomology has not received sufficient attention. There are few systematic reviews of regret antecedents, especially on the new process concern. The new linkage to the co-existence of both continuance intention and switching intention in the competing technologies context will also enrich our understanding of the regret mechanism in post-adoption evaluations.

We therefore systematically theorize post-adoption regret to capture its decision-orientation nature and multi-faceted counterfactual emotion mechanism. In addition to the existing EDT perspective on satisfaction, we investigate how HTA leads to post-adoption regret through the process and outcome routes, and how such regret influences user staying power. The research model is empirically examined using two longitudinal field studies on user adoption and subsequent evaluations across competing technologies in both forms of free software and paid hardware, with samples collected in Asia and Europe.

The contributions of this research are threefold (Table 1). First, it addresses the emerging context of multiple competing technologies and adds to the HTA and IS post-adoption research by introducing the perspective of regret about the adoption decision, thus supplementing the existing exclusive focus on satisfaction with technology performance in EDT. Second, it systematically conceptualizes and operationalizes a new multi-dimensional construct of post-adoption IT regret, clarifying and enriching the understanding of regret over foregone technologies in the technology adoption context. Third, it develops

a holistic research model that investigates how HTA leads to post-adoption regret and how such regret influences user staying power and receives empirical support in diverse samples and IT contexts, thus contributing to the HTA, IS post-adoption, and regret research.

Table 1. Contributions of This Research



Contribution	State of the Current Literature
1. Introduces the regret perspective to HTA and IS post-adoption research	The HTA and IS post-adoption literature has largely focused on satisfaction with technology performance (EDT perspective) in the single focal technology context. With the emerging context of multiple competing technologies, a new perspective (i.e., regret about the adoption decision) is in need that accounts for the influences of the foregone technologies and decision process concerns in post-adoption evaluations and holistically explains user staying power.
2. Conceptualizes and operationalizes a new multi-dimensional construct of post-adoption regret	In the extant IS literature, regret has been oversimplified as a unidimensional construct to manifest performance comparisons with other technologies available on the market, restricting an in-depth understanding of its complex decision-orientation nature and counterfactual emotion mechanisms involving foregone technologies in prior searches.
3. Investigates how HTA leads to post-adoption regret and how such regret influences user staying power in diverse samples and IT contexts	There are few systematic reviews on antecedents of regret in the IS research. The HTA research mostly explains user post-adoption evaluations from the EDT perspective, providing a condition to systematically study how HTA leads to post-adoption regret. Most of the extant IS research assumes a unitaryness on user staying power (either stay or not stay, switch or not switch) without fully considering the competing technologies and differentiating internal and external comparison mechanisms in depth.

Theoretical Background

Post-Adoption Regret

Regret is a common emotion in decision-making that involves competing alternatives (Loomes and Sugden 1982; Tsiros and Mittal 2000; Zeelenberg and Pieters 2004). It has been defined as "a negative, cognitively

based emotion that we experience when realizing or imagining that our present situation would have been better had we acted differently" (Zeelenberg 1999, p. 325). Regret is also known as a *counterfactual* emotion (Kahneman and Miller 1986; Zeelenberg 1999), wherein counterfactual refers to a cognitive mental simulation process: a comparison between "what happened" in the present situation and "what could have happened" if a different decision were made (Van Dijk and Zeelenberg 2005; Zeelenberg and Pieters 2007). Individuals may experience regret if this comparison is unfavorable or experience rejoicing if it is favorable (Tsiros and Mittal 2000; Zeelenberg 1999). Extending the more encompassing conceptualization of regret to the post-adoption context, we define post-adoption regret as a painful cognitive and emotional state of feeling sorry about choosing a technology over foregone (unchosen) alternatives.

Post-Adoption Regret as an External Comparison of the Adoption Decision

Post-adoption regret has received increasing attention in IS studies for its consideration of external comparisons of competing technologies (see Appendix A for the literature review). Yet it has often mistakenly manifested user evaluations with better technology alternatives, usually based on performance outcomes, which is similar to other streams of research on satisfaction or relative usefulness/advantage (Bhattacherjee et al. 2012; Chang et al. 2014). This approach does not, however, address the important decision-orientation nature of regret beyond the focus on outcomes.

Post-adoption regret is a distinctive concept that is conceptually different from (dis)satisfaction, the core concept in EDT (Table 2). Satisfaction is a summative judgment of the focal technology, which is mainly determined by *technology performance* (e.g., perceived usefulness and disconfirmation) (Bhattacherjee 2001; Bhattacherjee and Premkumar 2004). After adopting a technology, users gain first-hand experience and are able to evaluate whether their user experience is as pleasurable as expected (Bhattacherjee 2001). In this evaluation, users compare the performance of the chosen technology against the expectations of the same technology. Satisfaction is achieved when the performance meets or exceeds user expectations (Bhattacherjee 2001; Bhattacherjee and Premkumar 2004), and thus represents an *internal* comparison within the chosen technology from the EDT perspective (Tsiros and Mittal 2000).

Post-adoption regret, on the other hand, concerns the *adoption decision* (Tsiros and Mittal 2000). In the context of competing technologies, users compare alternatives across different technologies and make an adoption decision. At the post-adoption stage, users evaluate their adoption *decision* on the chosen technology (in terms of decision outcome and process) against the *decisions* of choosing the foregone technology in counterfactual thinking (Connolly and Zeelenberg 2002; Das and Kerr 2010; Zeelenberg and Pieters 2004). Post-adoption regret is experienced when the *decision* to choose the foregone technology is perceived as more favorable (Tsiros and Mittal 2000; Zeelenberg 1999). In this regard, post-adoption regret represents an *external* comparison in relation to *foregone decisions* (Tsiros and Mittal 2000).

Because of the respective reference point, these internal and external comparisons work independently yet simultaneously: users can evaluate whether the chosen technology meets their expectations and whether the adoption decision outperforms foregone decisions. Indeed, there is evidence that users can be both satisfied with their decision and regretful at the same time (Boles and Messick 1995; Tsiros 1998).

Table 2. Comparison between Satisfaction and Post-Adoption Regret

	Satisfaction	**Post-Adoption Regret**
Focus	Satisfaction with the technology performance	Regret about the adoption decision
Comparison	Expectations of the chosen technology versus Performance of the chosen technology	Adoption decision of the chosen technology versus Adoption decision of the foregone technologies
Reference Point	Internal comparison	External comparison

Post-Adoption Regret as a Counterfactual Emotion with Three Dimensions

Post-adoption regret has also been oversimplified as a unidimensional construct, limiting an in-depth understanding of its complex operating mechanism as a *counterfactual emotion* based on foregone (unchosen) d*ecisions* (Chang et al. 2014; Kang et al. 2009; Liao et al. 2017; Liao et al. 2011).

Since there is no readily available operationalization, we theorize the multi-dimensionality of post-adoption regret based on the seminal work on emotion that defines the five essential dimensions of an emotion: feelings, thoughts, emotivational goals, action tendencies, and actions (Roseman et al. 1994). With reference to Zeelenberg et al.'s (1998, 2000) specific examination of the regret emotion, we only

retain the first three dimensions to avoid overlaps with other similar behavioral intention constructs in this research and theorize the three dimensions in the IS post-adoption context. Specifically, we conceptualize post-adoption regret as a multi-faceted construct with the following three dimensions: *negative feelings about the adoption decision (NF), thoughts about missing foregone technologies (FT),* and *emotivational goals for a second chance (EM)* (Table 3).

Table 3. Three Dimensions of Post-Adoption Regret

	Definition	**Example in the Technology Adoption Context**
Negative Feelings about the Adoption Decision (NF)	User's unpleasant feelings regarding the technology adoption decision	A user was previously using an iPhone. Recently he lost his phone and replaced it with an Android phone for some reason. He soon found out that he not only could not use the apps he purchased in the Apple app store on the new Android phone, but also needed to change his existing habits in using the phone. *He felt bad about his decision to adopt the Android phone*.
Thoughts about Missing Foregone Technologies (FT)	User's counterfactual comparison of the chosen technology and foregone technologies	A user downloaded a citation management software from a few options and has spent time learning how to use it and maintaining a library in it. When getting to know how others are using other software in her prior search, she kept thinking about these options she evaluated and passed up, *wondering what she would have been like if she has chosen them.*
Emotivational Goals for a Second Chance (EM)	User's goals to acquire a second chance to undo the technology adoption decision	A user felt bad about his decision of choosing a particular blog-hosting website after uploading a number of content. *To leave this negative emotional state, he formulated step-by-step goals*: stop using the current blog to avoid further investment, search for other blog-hosting websites (preferably supporting content imports), and migrate to the new blog.

First, post-adoption regret includes *negative feelings about the adoption decision*, which we define as a user's unpleasant feelings (e.g., feeling sorry, self-blame) regarding the technology adoption decision. It is an emotion associated with the adoption decision whereas satisfaction is associated with an evaluation of the technology's performance (Tsiros and Mittal 2000). Post-adoption regret can be also distinguished from other emotions in the IS research such as enjoyment and anxiety, which are derived from technology-use experience (Beaudry and Pinsonneault 2010; Compeau et al. 1999). In a post-adoption regret state, users feel sorry for choosing the technology when they realize that they could have been better off had they chosen the foregone technology. This negative emotion can be attributed to personal responsibility because

the individuals generally blame themselves for making this decision and passing up the foregone opportunities (Zeelenberg and Pieters 1999).

Second, post-adoption regret implies *thoughts about missing foregone technologies*, which we define as a user's counterfactual comparison of the chosen technology in relation to foregone technologies. This is a key dimension in distinguishing post-adoption regret from other external comparisons in IS (Chang et al. 2014; Kang et al. 2009; Park et al. 2016) or similar research on relative usefulness/advantage (e.g., Bhattacherjee et al. 2012; Bhattacherjee and Park 2014; Choudhury and Karahanna 2008; Lin et al. 2022). Essentially, it clarifies that the negative feeling of regret emotion comes from the counterfactual thinking about foregone technologies, but not better alternatives with relative usefulness and advantage. The logic follows that users will not feel regret and blame themselves for finding technologies with better performance on the market (e.g., relative usefulness/advantage), but they would likely do so for making a decision to give up technologies (i.e., foregone technologies) in prior search that turns out to be better technologies than the chosen one (Zeelenberg et al. 2000).

Third, post-adoption regret indicates *emotivational goals for a second chance*, which we define as a user's goals to acquire a second chance to undo the technology adoption decision. Any specific emotion is associated with a unique emotivational goal.[1] For example, anxiety motivates individuals to avoid potential harm as a goal; threat motivates them to take on coping behaviors as a goal; and anger motivates them to take actions to hurt someone as a goal (Liang and Xue 2009; Liang et al. 2019; Roseman et al. 1994; Yin et al. 2014). The respective emotivational goal fuels each emotion and then shapes subsequent cognitive judgments and decisions (Beaudry and Pinsonneault 2010; Han et al. 2007). In a post-adoption regret emotion, users are motivated to achieve a unique goal: pursue a second chance of undoing the adoption

[1] An "emotivational goal" is conceptually different from an "action tendency" such as switching intention (Roseman et al. 1994; Zeelenberg et al. 2000). Emotivational goals stress the end-goal state (i.e., for what) while action tendency is a consciously formed action to respond to (i.e., inclination to do what) (Chaplin 1975; Ortiz de Guinea and Markus 2009). For example, if a user regrets a choice, the emotivational goal is to get a second chance to undo and improve the current situation. The specific action tendencies or actions can be switching to other technologies or discontinuing the chosen technology, whichever can actualize the goal of improving the current situation. Please also see Ortiz de Guinea and Markus (2009) for further comparisons of goal and behavioral intention.

decision. This is because, in this emotion, users are triggered by the counterfactual thinking for making the undesirable decision and feel sad – they are thus motivated to undo it and alleviate this emotional distress (Zeelenberg and Pieters 2004; Zeelenberg et al. 2000).

In fact, regret can be *anticipated* before the decision and *experienced* after the decision (i.e., post-adoption) (Zeelenberg and Pieters 2007), with both serving as counterfactual emotions. The three dimensions of post-adoption regret also differentiate the anticipated and experienced regrets in operating mechanisms, which affect their subsequent behaviors differently. In post-adoption regret, the negative feeling is actually experienced due to counterfactual thinking, whereas in anticipated regret, users conduct counterfactual thinking in an imagined scenario without incurring real cost and effort (Zeelenberg 1999). As a result, the experienced negative feeling can be so painful, that it motivates users to acquire a second chance to undo the decision and leave the negative state as a subsequent behavior. But the same negative feeling in anticipated regret may motivate the user to simply delay the decision to avoid such regret (Zeelenberg and Pieters 2007; Zeelenberg et al. 2000).

Antecedents and Consequences of Post-Adoption Regret

As there has been limited systematic understanding of the antecedents of regret in the IS literature (Liao et al. 2011; Park et al. 2016), we review these antecedents and investigate how HTA leads to post-adoption regret in our hypotheses development.

Regret research has suggested that individuals generally consider two factors that can form a sense of regret: an *undesirable decision outcome* and/or an *unjustified decision process* (Connolly and Zeelenberg 2002; Das and Kerr 2010; Keaveney et al. 2007; Pieters and Zeelenberg 2005). The *undesirable decision outcome* is a common source of regret (Keaveney 1995; Tsiros and Mittal 2000; Zeelenberg and Pieters 2004), where the negative outcome makes individuals feel bad and triggers their counterfactual thinking about missing an opportunity to become better-off (Tsiros and Mittal 2000; Zeelenberg and Pieters 2004).

The *unjustified decision process* has received increasing attention since it is found to be an independent source of regret rather than being based on the decision outcome (Connolly and Zeelenberg 2002; Das and

Kerr 2010; Inbar et al. 2011; Pieters and Zeelenberg 2005). This means that users may regret their decision process when evaluating it as suboptimal, flawed, or not well justified, even if the decision outcome is desirable – because they believe that they could have done better in an imagined foregone decision process (Connolly and Zeelenberg 2002; Das and Kerr 2010). In the same vein, regret can be lessened when the decision process is perceived as justified, even though the outcome is undesirable (Inman and Zeelenberg 2002; Pieters and Zeelenberg 2005).

In IS research, regret has also been found to influence satisfaction and user staying power, where continuance intention or switching intention can be interchangeable (Chang et al. 2014; Kang et al. 2009; Liao et al. 2017). With the updated understanding of the three dimensions, this study intends to uncover the nuanced mechanism of how post-adoption regret affects the two forms of user staying power (i.e., continuance intention or switching intention) through internal and external comparisons.

Research Model and Hypotheses

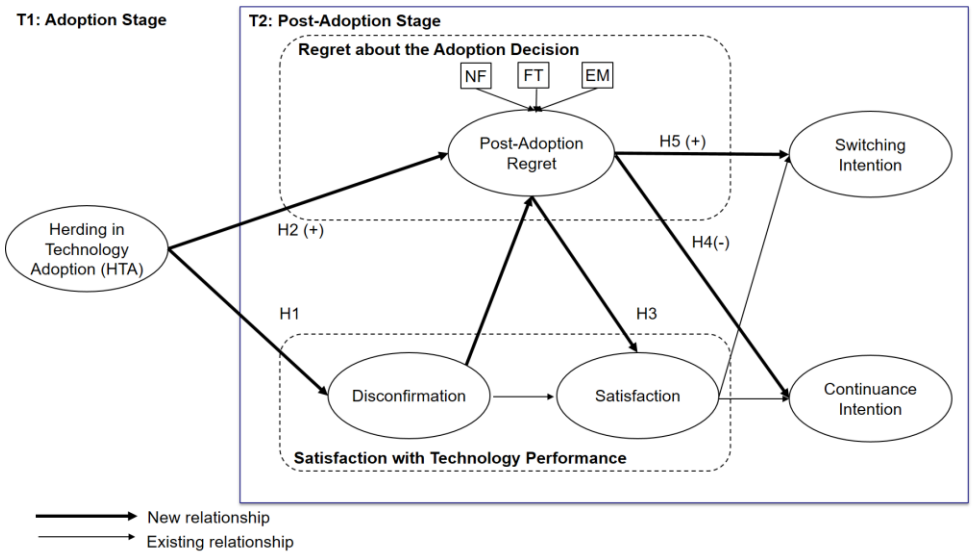


Figure 1. Research Model

In general, individuals evaluate both the performance of the technology and the decision process after making an adoption decision (Parker et al. 2016). To holistically reflect these components in user post-adoption evaluations, we build a research model on the premise of EDT (i.e., the perspective of satisfaction

with technology performance) and incorporate post-adoption regret (i.e., the perspective of regret about the adoption decision). Specifically, we investigate how HTA leads to post-adoption regret and how such regret influences user staying power (Figure 1).

How Herding in Technology Adoption (HTA) Leads to Post-Adoption Regret

Faced with similar competing technologies, users may experience difficulties in assessing the alternatives in the adoption decision, thus perceiving high uncertainty and do not know which to choose (Pavlou et al. 2007; Schwartz 2004; Sun and Fang 2010). One common coping strategy is the heuristic approach, herding in technology adoption (HTA), which is defined as "follows others when adopting a technology, even when his/her private information suggests doing something else" (Sun 2013, p. 1016). The HTA strategy includes imitating others (as in observing and following others' adoption) and/or discounting own information (as in disregarding one's own beliefs in favor of a predecessor's adoption) (Sun 2013). We propose that HTA induces post-adoption regret through the two routes of decision outcome and process (Connolly and Zeelenberg 2002; Das and Kerr 2010; Keaveney et al. 2007; Pieters and Zeelenberg 2005).

The Decision Outcome Route

In technology adoptions, disconfirmation has been defined as the discrepancy between user expectations on and the actual performance of the chosen technology (Bhattacherjee and Premkumar 2004). The expectations can be positively disconfirmed (meeting and going beyond expectations) or negatively disconfirmed (falling short of expectations). Although HTA may lead to both positive and negative outcomes depending on the herd and herding strategy that is employed (Zhang and Liu 2012), we argue that both the positive and negative outcomes of HTA will make users negatively disconfirmed, and thus experience regret in the decision outcome route.

When the users incur *negative outcomes* from their choices, such as following an incorrect herd and adopting an unfit technology, they are highly likely to become negatively disconfirmed. The low-informative nature of the herd can account for this, where users employing HTA do not know how each prior adopter made their purchase decision; only the aggregated final behavior (e.g., download number) is

available (Duan et al. 2009; Sun 2013; Walden and Browne 2009). These adopters' true preferences and attitudes toward each technology alternative are missing in this form of observable herd behaviors, making it difficult for users to accurately evaluate technology alternatives, hence resulting in the incorrect herd and unfit performance and negatively disconfirming the expectations (Banerjee 1992; Bikhchandani et al. 1992; Sun 2013; Sun et al. 2016).

When the users receive *positive outcomes* such as finding a good-enough technology, however, they may still get negatively disconfirmed, which can result from an overvaluation of the herd. In the uncertain situation of choosing from competing technologies, herding through imitating what others do is a common strategy to cope with such uncertainty (Bandura 1977; Walden and Browne 2009). By observing others who are all adopting the same technology, users may feel "they know something I don't know" and take the behavior as social proof, that they believe it must be correct (Bikhchandani and Sharma 2000; Cialdini 2009). If the majority of reputable early adopters are making the same adoption decision, the number and identity of prior adopters can further strengthen this belief (Bikhchandani et al. 1992; Sun 2013). Users in this case are more likely to overvalue this collective wisdom and have high expectations of the chosen technology compared to foregone technologies, especially when they discount or disregard their own information (Duan et al. 2009; Rao et al. 2001). Indeed, research has found that users may have rejected a better alternative due to the discard of their own private information (Banerjee 1992; Duan et al. 2009). As a result, the potentially huge contrast between this high expectation and the actual performance of the technology thus negatively disconfirms users' expectations.

According to regret studies, undesirable outcomes can trigger user counterfactual thinking and lead to regret (Zeelenberg and Pieters 2004). This form of negative-disconfirmed performance triggers users to think about what "could have been" if another technology was chosen. Because satisfaction and post-adoption regret usually operate independently, comparisons with better technologies can be rather spontaneous when assessing the technology attributes at the post-adoption stage (Keaveney et al. 2007). Such counterfactual thinking may remind users of their own discounted private information and foregone

technologies they gave up because of HTA, making them sad and regret the adoption decision. Existing regret studies also lend support to this that individuals are likely to regret a decision given an undesirable outcome, as is the case here, manifested through the negative form of disconfirmation (Connolly and Zeelenberg 2002; Tsiros and Mittal 2000; Van Dijk et al. 1999; Zeelenberg and Pieters 2004). We thus hypothesize that:

H1: Disconfirmation mediates the influence of HTA on post-adoption regret.

The Decision Process Route

Based on the regret literature, users will regret a decision if they feel the process is unjustified, irrespective of the positive and negative outcomes. Our research argues that HTA can directly influence post-adoption regret in the process route.

In HTA, user effort or involvement in the adoption decision process is viewed as limited, partly because the approach by nature is heuristic in taking the shortcut of imitating the prior adopters' behaviors (Bandura 1977; Rao et al. 2001; Walden and Browne 2009). But in the regret studies, effort or time involved in information search is a common way for users to evaluate whether their decision process is justified, compared to a foregone decision exhibited in counterfactual thinking (Keaveney et al. 2007; Liao et al. 2017; Pieters and Zeelenberg 2005; Van Dijk et al. 1999). For example, individuals who are under tight time pressures may regret their rush decisions for not spending more time on the decision process (Inbar et al. 2011). On the other hand, parents who have dedicated considerable effort to doctor consultations, however, may feel less regret despite the undesirable outcome that their children get side effects in a vaccination scenario (Connolly and Zeelenberg 2002). Research has found that users tend to associate their insufficient effort involvement with responsibility, such that they would likely blame themselves for making the decision poorly and experience regret (Liao et al. 2017; Van Dijk et al. 1999).

Similarly, technology users may also regret discounting their own information in the HTA condition. The act of discounting one's own information is regarded as an active change in the decision-making status quo, compared to a foregone decision of maintaining the status quo, where users do not attribute the

culpability to others but hold responsibility for it (Simonson 1992; Van Dijk et al. 1999). Although spotting the potential problem and not being fully convinced by the crowd, users may still choose to defer to the herd and discount their own information (Duan et al. 2009; Sun 2013). They may therefore perceive themselves as responsible for their actions in HTA and blame themselves for not being faithful to their own information. Regret studies have found that this feeling of responsibility comes from the user's sense of control over the environment, where they could experience higher regret if the decision outcome is under their control (Zeelenberg et al. 2000). We hence posit that:

H2: HTA is positively related to post-adoption regret.

How Post-Adoption Regret Influences User Staying Power

Incorporating the regret perspective into user post-adoption evaluations, we further argue that post-adoption regret affects user staying power in continuance intention and switching intention through internal and external comparisons, respectively.

Continuance Intention: The Route through Internal Comparisons

We posit that post-adoption regret leads to continuance intention. First, the indirect route is proposed herein, where post-adoption regret influences user continuance behavior via user satisfaction through internal comparisons (Bhattacherjee 2001; Tsiros and Mittal 2000). Exposed to the information about foregone technologies (e.g., superior features on the Internet or word-of-mouth recommendation on social media), users inevitably take foregone technologies into consideration when evaluating the performance of their chosen technology (Dutta et al. 2011; Taylor 1997; Zeelenberg and Pieters 2004). Moreover, these features of foregone technologies could be incorporated as "should expectations" that users feel they deserve (Inman et al. 1997). This response could be because users have derived a sense of ownership with foregone technologies they considered but rejected before, such that in counterfactual thinking, they should have used those foregone technologies and enjoyed a superior performance if not giving up them (Shu and Peck 2011). On some occasions, users have tried foregone technologies for a while before their adoption decision (e.g., used a trial version for several days before the purchase, or touched the device candidates in-store)

and developed a sense of ownership through this form of "touch" (Peck and Shu 2009). The expectation standard for the chosen technology is thus inflated (Taylor 1997; Zeelenberg and Pieters 1999). Users adjust satisfaction "depending on how this outcome compares against the foregone outcome" (Tsiros and Mittal 2000, p.405). Prior research has also suggested that dissatisfaction is a function of regret, with empirical support coming from the marketing and IS studies to verify the influence of foregone alternatives on the focal one (Inman et al. 1997; Oliver 1997; Sun et al. 2014; Taylor 1997; Tsiros and Mittal 2000; Zeelenberg and Pieters 2004). As satisfaction has long been found to affect user continuance intention with the incumbent technology (Bhattacherjee and Premkumar 2004; Limayem et al. 2007), we posit that:

H3: Satisfaction mediates the influence of post-adoption regret on continuance intention.

Second, we also propose a direct linkage between post-adoption regret and continuance intention with the incumbent technology to replicate the existing findings (Kang et al. 2009; Liao et al. 2017; Liao et al. 2011):

H4: Post-adoption regret is negatively related to continuance intention.

Switching Intention: The Route through External Comparisons

This research proposes that post-adoption regret directly leads to switching intentions through external comparisons. This means that in the counterfactual comparison with foregone competing technologies, users discover they could have been better. They will likely feel sad about their adoption decision for missing superior foregone technologies and are thus motivated to leave this negative emotional state by switching technologies (Zeelenberg and Pieters 2004; Zeelenberg et al. 1998).

Switching technologies is a natural solution for post-adoption regret. Switching, on the one hand, is to discontinue the incumbent technology (Bhattacherjee et al. 2012). Implied in emotivational goals, regret motivates users to pursue a second chance to undo the wrong technology adoption decision (Zeelenberg et al. 2000; Zeelenberg et al. 1998). Rather than continue using the inferior chosen technology and being deeply engaged in regret about their technology adoption decision (which could constantly trigger user counterfactual thinking about what could have happened), stopping the use of the chosen technology is one way to cease the pain and repair the decision (Zeelenberg 1999). Switching, on the other hand, means

accepting a new (and sometimes better) technology (Bhattacherjee et al. 2012). When users regret an adoption decision indicates that there are better foregone decisions to switch to (Zeelenberg and Pieters 2004). After experiencing painful regret, users may remember their mistakes and learn that they should choose a better technology to minimize the chance of experiencing regret again (Zeelenberg 1999; Zeelenberg and Pieters 2007). Because regret is associated with active actions for improvement in emotion studies (Zeelenberg 1999; Zeelenberg et al. 1998), users driven by regret may switch to a technology that they believe is better than the chosen technology. Existing research also finds that users will switch service providers when regretting their adoption decision (Zeelenberg and Pieters 1999; Zeelenberg and Pieters 2004). We thus propose that:

H5: Post-adoption regret is positively related to switching intention.

Methodology

Survey Administration

To study the adoption decision and post-adoption evaluations and user staying power across the adoption and post-adoption stages, longitudinal surveys are best suited for the purpose and can reduce common method bias that is prevalent in survey research (Karahanna et al. 2015).

Survey methodology in general is strong in generalizability but weak in precision and realism (McGrath 1981). To compensate for these constraints, we designed the surveys to be field surveys in real-life scenarios, incorporating experimental design to simulate the HTA condition, and setting open-ended qualitative questions to triangulate and supplement survey responses (Bhattacherjee and Premkumar 2004). To further strengthen robustness and generalizability, we also diversified the samples (by using student samples from Asia in Study 1 and non-student samples from Europe in Study 2) and technology adoption scenarios (choosing free software in Study 1 and paid hardware in Study 2). To minimize repetitions, the research design and general shared findings across both studies are presented first, followed by discussions on interesting nuanced differences in the respective studies.

Study 1

In Study 1, we simulated the simple adoption decisions for free software. Specifically, we invited students enrolled in a Management Information Systems elective at an Asian university to choose a wiki system between PBworks and Google Sites to complete an optional reflection assignment for bonus course credits.

We did the following setups to simulate uncertainty and provide observations, fulfilling the two critical conditions that encourage the users to employ HTA (Duan et al. 2009; Sun 2013). In addressing *uncertainty*, we (1) chose two competing technologies (e.g., PBworks and Google Sites) and ensured the alternatives were similar in features and comparable in scale; and (2) ensured that the respondents had little user experience with either wiki system when making the adoption decision (as confirmed from the user prior experience in Appendix D). In terms of *observation*, we (1) provided information on the prior adoption in terms of identity and number of prior adopters (Rao et al. 2001; Sun 2013); and (2) varied the levels of observations in two conditions to ensure the variance of HTA perceptions, following (Sun 2013).

At Time 1 (T1), since students had little prior experience, they were first directed to read feature information about PBworks and Google Sites to inform their adoption decision. They were then presented with prior adopters' behaviors toward both wiki systems to observe for HTA. Using two separate classes, one class of students came across information with the number of prior adopters (low-observation condition) while the other was exposed to information with both the number and identity of prior adopters (high-observation condition). Manipulation checks were applied. Students were then requested to make an independent adoption choice for their assignment between the two wiki systems based on the information provided. Discussion with peers was discouraged for making independent decisions. Responses on students' HTA perceptions, demographic information, and prior user experience were collected. Four weeks later at Time 2 (T2), students completed the second questionnaire based on their actual experience with the chosen wiki system. This questionnaire includes questions about their actual adoption and perceptions of disconfirmation, satisfaction, post-adoption regret, continuance intention, switching intention, and switching costs. We verified students' actual adoptions with the URLs they supplied for the assignment.

In this research, 204 students participated at T1 and 183 students were retained, representing an overall response rate of 89.71%. After screening for missing data and dropping responses from those who did not use either wiki system, a valid sample of 175 responses was obtained. The respondents in both conditions were comparable in size and demographics (the low-observation condition is 74 and the high-observation condition is 101). The manipulation check questions were designed based on facts about PBworks and Google Sites, and to check whether the two groups of respondents could differentiate the observation information in terms of the number and identity of prior adopters (Sun 2013) (Appendix F). All means were almost below 1.5 (on a scale of 1, 2, and 3 for "yes, maybe, no"), indicating that respondents received the manipulation messages. The mean between the low-observation group (mean: 1.84) and high-observation group (mean: 1.36) was statistically significantly different ($p < 0.001$) on the question of prior adopter identity (Q6 in Study 1, Appendix F), indicating a successful manipulation to differentiate the two conditions for the variance of HTA perceptions.

Study 2

To improve generalizability and robustness, in Study 2, we tested the model with non-student samples for a more sophisticated decision of buying a paid hardware using respondents' own money. Specifically, we used the Qualtrics panel service and recruited UK consumers who planned to buy an IT gadget within our data collection window. To motivate participation, respondents received approximately £5 for each survey. The study was launched before the Black Friday mega sales and Christmas season to recruit eligible respondents and encourage participation at T1.

We tried to replicate Study 2 settings in Study 1 to simulate *uncertainty*. For the competing technologies, we (1) chose major wearable technologies (limited to smart watches/fitness trackers) from the well-known tech firms of Apple, Fitbit, Garmin, Samsung, Huawei, and Xiaomi, making sure the alternatives are similar and comparable; and also (2) restricted the respondents to be first-time users by only disclosing the survey purpose on wearable technologies after they passed the screening questions on general purchase intentions.

Since respondents could possess certain knowledge about wearable technologies when they joined the study with purchase intentions, we did not replicate the same observation settings in Study 1 (i.e., low- and high-observations), as respondents may not make a noticeable impact between the number and identity of prior adopters. To ensure respondents in this field survey were exposed to HTA cues and had a certain variance in their HTA perceptions, we presented the *observations* in two conditions: heuristics and comprehensive. In the heuristics condition, respondents only read the common HTA cues they can generally find online, such as reference information about UK wearable technology ownership (number and identity), brand market share in the UK wearable market (ranking), and UK expert reviews (ranking, review, and identity) (Duan et al. 2009; Li and Wu 2018; Sun 2013). In the comprehensive condition, respondents were provided with reference information (same as the heuristics condition) as well as product features from the major brands.

At T1, respondents joined the online questionnaire after the screening questions, and were asked for their adoption preferences before the observation treatment. Respondents were then randomly assigned to a heuristic or comprehensive condition and read the information. Manipulation checks on the observation information were enforced in the survey, so that respondents could only proceed after getting all checking questions correct, which can ease reward management. Respondents were then asked to make a choice on adoption and answer questions related to HTA. To ensure data quality, attention checks were included that screened out careless online respondents. Three months later at T2, we went through a similar procedure used in Study 1 and collected responses on the actual adoption choice and principal constructs. To overcome the limitations associated with unsupervised online surveys, we verified the survey responses by including open-ended questions on users' evaluations of the decision process and technology performance beyond screening questions. We also verified the purchase by asking for their adoption choice, recalling the technology features, and repeating the questions on the adoption choice at the end of the questionnaire. We used identical measures across the two studies for consistency, unless otherwise specified. Table 4 summarizes the research design.

In Study 2, 601 qualified responses were received at T1. After checking the data quality based on duration and unique identity, 570 respondents were invited to join the T2 survey. At T2, 189 respondents made a qualified purchase and 181 valid responses were retained after checking (response rate: 33.16%). Non-response bias was tested (Armstrong and Overton 1977). Appendix D shows the demographic characteristics of both samples.

The respondents in both conditions were shown to be comparable: the heuristics group is 85 and the comprehensive group is 96. Because we enforced the manipulation checks on the observation information, we compared the means across the two conditions on uncertainty and two HTA dimensions: imitating others (IMI) and discounting one's own information (DOI). Due to their only reading the reference information, the heuristics group's mean (3.23) was found to be significantly higher than the comprehensive group (2.74) in uncertainty ($p < 0.016$), which is a critical condition of HTA. Although not statistically significantly different, the means of the heuristics group were also higher than the comprehensive group in both IMI (3.96 > 3.89) and DOI (2.91 > 2.62). This might indicate a stronger likelihood for the heuristic group to adopt HTA than the comprehensive group when making the adoption decision.

Table 4. Research Design of Two Longitudinal Field Studies

		Study 1	**Study 2**
Scenario		Chose a wiki system for one's own reflection assignment	Purchased a wearable technology for own use
Respondents		Students enrolled in an MIS elective at an Asian university	Consumers registered with the Qualtrics panel in the United Kingdom
Competing Technologies		PBworks vs Google Site (free software)	Wearable technologies (limited to smart watches/fitness trackers) (paid hardware)
Time 1 (T1)	Pre-treatment measures	Prior experience (confirmed most are first-time users) Situating task (read technology features of both wiki systems)	Screening (only retained first-time buyers) Pre-treatment adoption preference
	HTA treatment	Random assignment within two classes: Class 1: low-observation (number of prior adopters) Class 2: high-observation (number and identity of prior adopters) Manipulation checks	Random assignment to either condition: Heuristics condition (observation of HTA info only): reference information (UK ownership, UK market share ranking, UK expert review ranking); Comprehensive condition (observation of both HTA and product info): reference information (UK ownership, UK market share ranking, UK expert review ranking) and product features from major brands on the market; Manipulation checks

	Post-treatment measures	Adoption choice HTA (imitating others, discounting own information) Demographics	
Interval		Four weeks	Three months
Time 2 (T2)		Screening: Actual technology choice (only retained respondents who used a wiki system for the assignment)	Screening: Actual adoption choice (only retained respondents who bought the wearable technology for own use) during the window
		Disconfirmation, satisfaction, post-adoption regret, continuance intention, switching intention, switching costs, and variety seeking	
			Qualitative responses on technology performance and adoption process
		Verification of the adoption through wiki URL	Verification of the adoption through identifying product features and repeating questions on the adoption choice

Survey Measures

Wherever possible, we adapted validated measures, including HTA (Sun 2013), disconfirmation, satisfaction, continuance intention (Bhattacherjee and Premkumar 2004), and switching intention (Bhattacherjee et al. 2012) (Appendix B). Control variables such as switching costs (Bougie et al. 2003; Kim and Son 2009) and variety seeking (van Trijp et al. 1996) were also included.

As there are no existing multi-dimensional measures for regret across the marketing and IS literature, we developed new instruments based on the conceptualization of regret in psychology and marketing fields (Roseman et al. 1994; Zeelenberg et al. 2000; Zeelenberg et al. 1998). The instrument development process was guided by Moore and Benbasat's (1991) procedure (Appendix C). After two rounds of card sorting, 13 reflective items achieved a hit ratio of 93.33%. As theorized, we conceive post-adoption regret as a second-order formative construct with three reflective first-order constructs. This approach was used because the three dimensions together define the unique characteristics of post-adoption regret, where missing any of them would cause changes in the construct (Petter et al. 2007; Wright et al. 2012).

Data Analysis and Results

Measurement Model

Partial least square (PLS) was used to examine the measurement and structural models, chosen due to its component-based SEM method that has been recommended for dealing with formative constructs (i.e., post-adoption regret in this model) (Chin 1998; Petter et al. 2007).[2]

The measurement model was examined for reliability, convergent validity, and discriminant validity. Table E1 shows the descriptive statistics and composite reliability (CR). The CR of all latent variables was shown to exceed 0.7, suggesting good reliability (MacKenzie et al. 2011). We then tested the construct validity of the reflective constructs. Convergent validity was assessed using average variance explained (AVE) and item loadings. As seen in Table E1, all the AVEs were greater than 0.5 and the loadings of most retained items were greater than 0.7 (Tables E2-3), suggesting that all the reflective constructs demonstrate good convergent validity (Barclay et al. 1995; Chin 1998; Fornell and Larcker 1981). Three approaches were applied to assess discriminant validity. First, all items loaded well onto their own construct, and were found to be greater than the cross-loadings of other constructs (Gefen and Straub 2005). Second, following Fornell and Larcker (1981), we found that the construct correlations were lower than the square root of the AVE of their constructs (Tables E4-5). Third, we assessed the heterotrait-monotrait ratio (HTMT) of the correlations and found them all below 0.9 (Hair et al. 2016; Henseler et al. 2015). Results confirm that discriminant validity is satisfactory.

Multicollinearity was tested through variance inflation factor (VIF) to assess the reliability of the formative construct of post-adoption regret. It ranged between 1.542 and 1.870 in Study 1 and 1.843 and 2.524 in Study 2, smaller than the recommended threshold of 3.3 (Diamantopoulos and Siguaw 2006; Petter et al. 2007), implying that there is no serious concern about multicollinearity. We assessed the indicator weights and found high consistency in the results across the two studies (Table E6). No negative weights

[2] The results were verified using CB-SEM.

were identified (Cenfetelli and Bassellier 2009). Although the FT dimension was non-significant in weight in Study 1, it was retained for its significant weight in Study 2 and content validity due to significant loadings (Cenfetelli and Bassellier 2009; Hair et al. 2016; Polites and Karahanna 2012).

The longitudinal nature of this study was able to overcome potential common method bias (Karahanna et al. 2015). We conducted three tests that further confirm that common method bias is not a major concern. One was Harman's single-factor test, where the largest factor did not account for a majority of the variance, indicating that no general factor is apparent. Another was the correlation matrix of all the constructs (Lowry et al. 2015). No single correlation was found higher than 0.9 (Pavlou et al. 2007). We also took a latent marker variable approach by including a theoretically irrelevant market variable (Chin et al. 2012; Chin et al. 2013). Results confirm that common method bias has been minimized.

Structural Model

To simplify the model, we first examined the measurement model of the first-order constructs and then re-ran the model using the latent variable scores as indicators (Wright et al. 2012). Figure 2 shows the results.

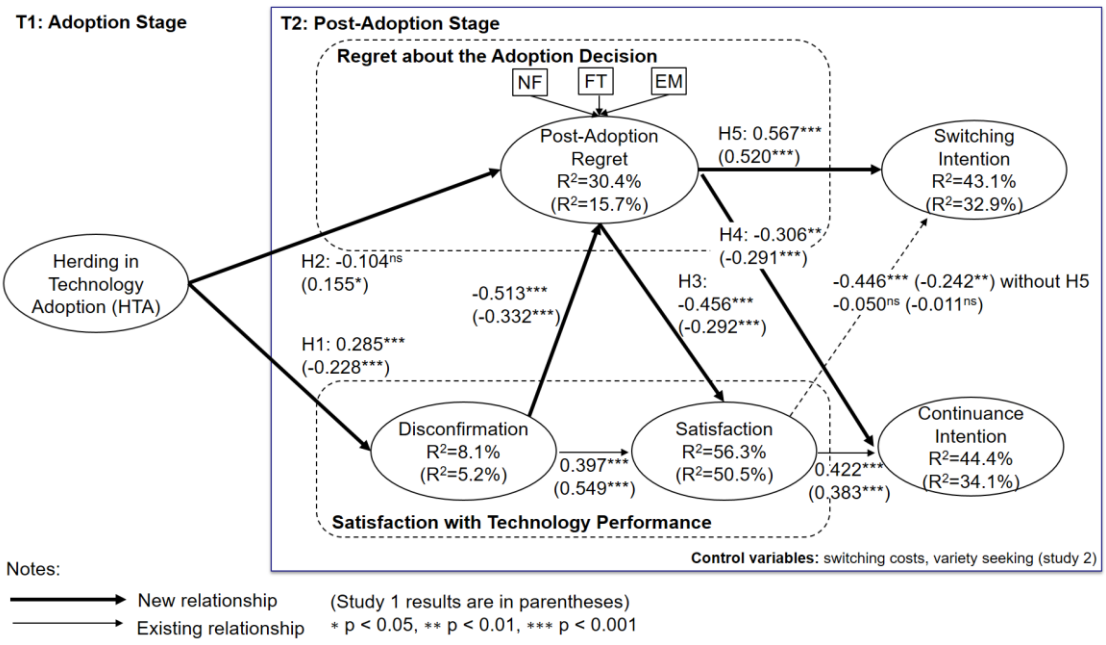


Figure 2. Structural Model

Overall, the model explains 30.4% (15.7%) of the variance in post-adoption regret, 56.3% (50.5%) in satisfaction, 44.4% (34.1%) in continuance intention, and 43.1% (32.9%) in switching intention (Study 1 results are in parentheses). In the outcome route of HTA→disconfirmation (DC)→post-adoption regret (H1), it was found that HTA was negatively related to DC in Study 1 (b = -0.228, t = 3.310), whereas the same relationship was positive in Study 2 (b = 0.285, t = 4.055). DC was consistently negatively related to post-adoption regret. In the process route of HTA→post-adoption regret (H2), HTA was positively related to post-adoption regret in Study 1 (b = 0.155, t = 2.135), supporting H2. Yet the hypothesis was not supported in Study 2 (b = -0.104, t = 1.570). Regarding the influence of post-adoption regret on user staying power, the direct mechanism of post-adoption regret on continuance intention (H4) and switching intention (H5) were supported. Although not hypothesized herein, it was interesting to observe that the existing relationship between satisfaction and switching intention was non-significant after considering the influence of post-adoption regret on switching intention (i.e., H5).

The two mediating relationships (H1 and H3) were examined using Preacher and Hayes's (2008) approach with the recommended bias-corrected (BC) bootstrap algorithm for a small sample size. Based on the results shown in Table 5, both H1 and H3 were supported because the 95% BC bootstrap confidence interval (CI) did not contain zero, meaning the indirect effects were significantly different from zero. The direct effects were still significant after including the mediators, indicating that the mediators (DC in Study 1 and satisfaction in both studies) are partial mediators for respective relationships. It should be noted that the relationship between HTA and post-adoption regret in Study 2 (H1) became non-significant after DC was involved, indicating that DC is a full mediator. The reversed signs in H1 across both studies were also worth investigating. We will re-examine all these inconsistent results in the post-hoc analyses and discuss the alternative explanations in the discussion section.

Table 5. Summary of Mediating Effects									
		Total Effects of IV on DV		Direct Effects of IV on DV		Indirect Effects			Mediator Type
		Coefficient	T- value	Coefficient	T-value	Point Estimate	BC 95% CI		
							Lower	Upper	
H1: HTA →DC →Regret	Study 1	0.23	3.11	0.15	2.16	0.08	0.02	0.14	Partial
	Study 2	-0.25	-3.45	-0.10	-1.59	-0.15	-0.25	-0.07	Full
H3: Regret → Satisfaction → Continuance intention	Study 1	-0.48	-7.20	-0.29	-4.08	-0.19	-0.28	-0.10	Partial
	Study 2	-0.59	-9.75	-0.31	-4.05	-0.28	-0.43	-0.11	

Table 6 shows the effect sizes of post-adoption regret on satisfaction, continuance intention, and switching intention using Cohen's f^2 formula. The effect sizes indicate the importance of considering the factor of post-adoption regret. In summary, the effect size of post-adoption regret on continuance intention is small, but the ones on satisfaction and switching intention range from medium to large across the two studies, implying that post-adoption regret is an important addition in post-adoption evaluations, and that it is more impactful on satisfaction and switching intention.

Table 6. Effect Sizes of Post-Adoption Regret					
Dependent Variable		R-Squared with Regret	R-Squared without Regret	Effect Size	Contribution
Satisfaction	Study 1	0.505	0.430	0.15	Medium
	Study 2	0.563	0.415	0.34	Medium to large
Continuance intention	Study 1	0.341	0.277	0.10	Small
	Study 2	0.444	0.393	0.09	Small
Switching intention	Study 1	0.329	0.126	0.30	Medium to large
	Study 2	0.431	0.267	0.29	Medium to large
Notes: Effect size (f^2) is calculated by the formula $(R^2_{full} - R^2_{partial})/(1-R^2_{full})$. Cohen (1988) suggested 0.02, 0.15, and 0.35 as operational definitions of small, medium, and large effect sizes, respectively.					

Post-Hoc Analyses

Re-examining HTA →Disconfirmation (Positive, Negative) →Post-Adoption Regret

In the structural model, we observed the following inconsistent results: (1) H1: The relationship between HTA and DC was negative in Study 1 but positive in Study 2, as also observed in the flipping signs in the mediation analysis. (2) H2: The relationship between HTA and post-adoption regret was positive in Study 1 but non-significant in Study 2, which was also consistent with the finding of the full mediator in the mediation analysis.

Interestingly, the finding that HTA was both positively and negatively related to DC in H1 is consistent with our argument that HTA may lead to both positive and negative outcomes. Validating with the means of DC (4.56 in Study 1, 5.22 in Study 2 in Table E1), it indicated that respondents in Study 1 in general were slightly positively disconfirmed while the ones in Study 2 were highly positively disconfirmed, suggesting the main outcome may be relatively negative in Study 1 and relatively positive in Study 2. To further examine this, we recoded disconfirmation (DC) to negative (NDC) and positive disconfirmation (PDC), following the existing practice (see the recoding rule in Appendix B), and re-ran the structural models (Figures G1-2) and mediation analyses (Table G1) using NDC and PDC. Table 7 summarizes the results and shows the comparisons with our main structural model using DC.

Table 7. Summary of the Structural Models (DC, NDC, PDC)

	Study 1			**Study 2**			**Hypothesis supported?**
	DC	**NDC**	**PDC**	**DC**	**NDC**	**PDC**	
H1:							
HTA →DC/NDC/PDC	-0.228***	0.215**	-0.209**	0.285***	0.179*	0.289***	Yes. Significant mediating effect. HTA was positively related to NDC in both studies.
DC/NDC/PDC → Regret	-0.332***	0.273**	-0.341***	-0.513***	0.472***	-0.489***	
Mediation: HTA →DC/NDC/PDC →Regret	Partial	Partial	Partial	Full	Partial	Full	
H2: HTA→Regret	0.155*	0.165*	0.164*	-0.104^{ns}	0.165*	-0.108^{ns}	Only supported in Study 1.
H3:							
Regret→Satisfaction	-0.292***	-0.344***	-0.286***	-0.456***	-0.463***	-0.504***	Yes
Satisfaction →Switching intention	-0.242** (without H5) -0.011^{ns} (with H5)	-0.243** (without H5) -0.012^{ns} (with H5)	-0.242** (without H5) -0.010^{ns} (with H5)	-0.446*** (without H5) -0.050^{ns} (with H5)	-0.446*** (without H5) -0.061^{ns} (with H5)	-0.446*** (without H5) -0.045^{ns} (with H5)	
Mediation: Regret →Satisfaction →Switching intention	Partial			Partial			
H4: Regret →Continuance intention	-0.291***	-0.291***	-0.292***	-0.306***	-0.317***	-0.299**	Yes
H5: Regret →Switching intention	0.520***	0.524***	0.515***	0.567***	0.552***	0.575***	Yes

The results were insightful. First, HTA was positively related to NDC and negatively related to PDC in Study 1, but HTA was positively related to both PDC and NDC in Study 2. This again suggests that the outcomes in Study 1 may be relatively negative. Considering the signs and the DC mean, the outcomes in

Study 2 are more likely to be mainly positive, further supporting our arguments that HTA can lead to both positive and negative outcomes. Second and more interestingly, although HTA was positively related to PDC in Study 2 (given the mainly positive outcomes), it was also positively related to NDC. Moreover, HTA was found positively related to NDC in both studies while NDC was also a partial mediator with consistent signs in both studies (Table G1). This implies that as theorized, users are likely to be negatively disconfirmed when deferring to the herd, supporting H1. Third, the relationship between HTA and post-adoption regret is intriguing. In Study 1, the relationship was significant in both NDC and PDC conditions, supporting H2 that posits HTA leads to regret in the process route irrespective of positive and negative outcomes (both NDC and PDC act as partial mediators, as shown in Table 7). Yet if the linkage was intervened by PDC as a full mediator in Study 2, it became non-significant. When trying to explain this with their qualitative responses, we found respondents justified their decision process with reasons such as getting recommendations from family/friends/colleagues/fellow runners, conducting additional searches and comparisons, making the purchase during a promotion, and compatibility with other devices, etc.

Robustness for Competing Mechanisms (Post-Adoption Regret versus Satisfaction) and Staying Power

This research proposes the regret perspective as a competing external comparison mechanism with the existing internal comparison through satisfaction. We performed a series of post-hoc analyses to enhance the robustness of our findings.

First, we confirm that post-adoption regret and satisfaction are two distinct constructs and that their operating mechanisms on the two forms of user staying power (i.e., continuance intention and switching intention) are independent and simultaneous. Specifically, (1) we recoded satisfaction to be dissatisfaction (1→7, 2→6, …, 7→1) and re-ran the structural model in the two studies (Figure G3).[3] The results were consistent with the ones in our structural model, while only reversing the direction of some relationships. (2) We conducted a two-step cluster analysis using the 2*2 high/low conditions of switching intention and

[3] We thank the anonymous reviewer for this suggestion.

satisfaction to better understand the respondents' perceptions of satisfaction, post-adoption regret, continuance intention, and switching intention (Table G2). The cluster of high satisfaction/high switching intention (cluster 4) clearly shows that users who are high in satisfaction can also exhibit high regret attitudes and high switching intentions.

Second, we confirm our observation that post-adoption regret is more effective to predict switching while satisfaction is for retention. Specifically, (1) we ran a competing model and calculated the effect sizes of satisfaction (Table 8) and found consistent results with the ones of post-adoption regret in Table 6.

Table 8. Effect Sizes of Satisfaction

Dependent Variable		R-Squared with Satisfaction	R-Squared without Satisfaction	Effect Size	Contribution
Continuance intention	Study 1	0.341	0.219	0.19	Medium
	Study 2	0.444	0.351	0.17	Medium
Switching intention	Study 1	0.329	0.355	-0.04	Negative and small
	Study 2	0.431	0.434	-0.01	Negative and minimum

Notes: Effect size (f^2) is calculated by the formula $(R^2_{full} - R^2_{partial})/(1-R^2_{full})$. Cohen (1988) suggested 0.02, 0.15, and 0.35 as operational definitions of small, medium, and large effect sizes, respectively.

(2) On a related note, we looked into the non-significant relationship between satisfaction and switching intention in a stepwise fashion and found that satisfaction was significantly related to switching intention before adding post-adoption regret into the model, as confirmed in previous IS research. We thus further conducted mediation analyses of the possible competing mechanisms on continuance and switching intentions (details in Table G3). Table 9 summarizes the post-hoc mediating analyses and suggests that satisfaction is more related to continuance intention rather than switching intention, while post-adoption regret is important for both but has a stronger impact on switching intention (as a full mediator).

Table 9. Summary of Post-Hoc Mediating Analyses

H3: Post-adoption regret → Satisfaction → Continuance intention	Significant partial mediator
Post-hoc mediating analyses	
Post-adoption regret → Satisfaction → Switching intention	Non-significant
Satisfaction → Post-adoption regret → Continuance intention	Significant partial mediator
Satisfaction → Post-adoption regret → Switching intention	Significant full mediator

Discussion

Major Findings

This research yields several important findings regarding our newly proposed regret perspective. Given the popularity of the HTA strategy for choosing competing technologies, our study adds to the understanding of how an adoption strategy affects user post-adoption evaluations and subsequent user staying power, in addition to the predominant focus on the technology performance outcomes in the extant literature. Overall, the research partly supports the conjectures that HTA leads to post-adoption regret through the outcome and process routes (H1-2), as discussed in detail below. We also confirm that the regret perspective – as in regret about the adoption decision in relation to foregone technologies – influences satisfaction with the technology performance of the chosen technology (H3). It also exhibits a significant impact on both user continuance intention and switching intention (H4-5), thus supplementing the existing EDT perspective.

HTA→Post-Adoption Regret: Outcome and Process Routes

This research also suggests interesting new findings. Although HTA can lead to positive and negative outcomes, users are likely to be negatively disconfirmed in the outcome route of HTA, as examined in the post-hoc analyses. When the HTA outcome is *negative*, for example, users may have formed wrong expectations by following a wrong herd and get negatively disconfirmed due to the low informativeness nature of HTA (Bikhchandani et al. 1992). When the HTA outcome is *positive*, users follow the wisdom of the crowd and adopt a good-enough technology. However, they are also likely to be negatively disconfirmed due to the high expectations imposed by the herd. This may sound counter-intuitive, but it is consistent with the explanations in social proof, which is also known as informational social influence where the wisdom of the crowd and HTA literature draws from (Rao et al. 2001). By taking others' consistent adoption behaviors as social proof, the users perceive the behaviors as *correct* and raise their expectations (Cialdini 2009). Social proof is not only related to social compliance (e.g., imitating others) but also private acceptance (e.g., incorporating this overvaluation into own belief of others' behaviors and making adjustments, for example, discounting one's own belief) (Cialdini 2009; Kelman 1961).

Yet post-adoption regret can be formed (and also lessened) through the other route, process. As a heuristic strategy, HTA implies low involvement and discounting own private information in the process, which may cause post-adoption regret. For example, in Study 1, users regretted the HTA decision irrespective of positive and negative outcomes (both PDC and NDC as partial mediators in Table 7). This is also true when this unjustified process leads to a negative outcome because users in Study 2 regretted the HTA decision in the NDC condition, consistent in the literature that a bad process may give rise to a bad outcome (Pieters and Zeelenberg 2005).

It was observed that respondents in Study 2 were more positively disconfirmed and their PDC fully intervened in the relationship between HTA and post-adoption regret, meaning that positive disconfirmation may justify the process and reduce the regret caused by HTA. As verified in their qualitative responses, these users rationalized their behaviors in various ways. First, they shared the responsibility of their choice with others. As theorized in the three dimensions of the mechanism of regret, the negative feeling of regret comes from responsibility and self-blame. Compared to respondents who made a solo decision in Study 1, many respondents in Study 2 actively invited their significant others (e.g., family and friends) to join the decision-making. By doing so, they would likely feel less regret because the responsibility for the outcome can be attributed to others, including the herd, or external circumstances beyond their control (Gilovich and Medvec 1995). In the herding literature, some users are found to join a herd to receive group acceptance and share the shame (Bikhchandani et al. 1992; Bikhchandani and Sharma 2000). Therefore, taking opinions from the reference group (e.g., colleagues, fellow runners) on the wearable technologies in Study 2 is also a valid justification for taking the HTA approach. Second, the users also *actively* participated in herding. When taking on a herding strategy, users can decide to *passively* mimic other behaviors or *actively* evaluate the attributes in the observations (Zhang and Liu 2012). By actively reading reviews and searching for additional information, as found in the qualitative responses, users may arrive at the same decision as the herd, also known as spurious (unintended) herding (Sun 2013).

Post-Adoption Regret and User Staying Power

We have two discussion issues regarding the influence of post-adoption regret on user staying power. One is the established linkage between satisfaction and switching intention, which became non-significant after considering post-adoption regret in this model. We thus tested the competing mechanisms in the post-hoc analyses (summarized in Table 9). Satisfaction, as an outcome of an internal comparison, is found to be more related to continuance intention rather than switching intention, since post-adoption regret is a full mediator in the relationship involving switching, and satisfaction does not mediate the relationship. Post-adoption regret, on the other hand, is found to have an effect on both continuance intention and switching intention, although its impact on switching intention is more noticeable, consistent with the finding on its effect sizes in Table 6.

The influences of post-adoption regret on switching intention and continuance intention may be explained by applying the new multi-dimensionality developed in this research. The unique emotivational goal associated with regret emotion is a goal for a second chance to undo the decision (the EM dimension) (Zeelenberg 1999). This goal motivates users to explore options to leave the negative emotional state, where switching can be a possible option. Consistent with the theorization differences between anticipated regret and experienced regret, post-adoption regret, as experienced regret, is more related to undoing the decision rather than delaying it, as in anticipated regret (Zeelenberg and Pieters 2007; Zeelenberg et al. 2000). On the other hand, post-adoption regret is a partial mediator in the relationship involving continuance intention. This influence can be enacted through incorporated "should expectations" in internal comparisons of counterfactual thinking (the FT dimension).

The second issue is the potential reversed relationships (e.g., satisfaction→post-adoption regret→ continuance intention/switching intention) although post-adoption regret has been hypothesized to cause satisfaction in most of the literature (Chang et al. 2014; Kang et al. 2009; Tsiros and Mittal 2000). First of all, we tested the possibility of the reversed relationship (as summarized in Table 9) and received consistent results on the relative focus between satisfaction and post-adoption regret. We also tried to make sense of

the existing hypotheses and explain this in the context of the focal technology: the relationship formed in this direction (i.e., post-adoption regret →satisfaction) may better examine how the foregone technology affects the evaluation of the focal technology. Based on the results, we believe that the internal (satisfaction) and external (post-adoption regret) comparisons function independently yet affect each other, so that either of them serves as a significant partial mediator in the respective path to continuance intention. But satisfaction with technology performance may not be effective in changing users' evaluations when it comes to switching intention, because switching is dominated more by regret, which considers foregone alternatives in the external comparison. Interestingly, Lin et al. (2022) had a similar finding that satisfaction of system A was not found to be significantly related to the continuance intention of system B.

IT Context

In looking at adoption decisions involving competing technologies, it is meaningful to discuss the specific IT elements in our research. In the research design, we simulated two common IT adoption scenarios. Study 1 is a simple adoption decision for users to choose a free software. Similar to downloading an app from the app store, users in general do not go through a complex decision-making process, but refer to the ratings, reviews, and editors' choice endorsements, and make a quick decision using HTA. So we designed two conditions (high- and low-observations), both in HTA. In Study 2, users needed to pay for the purchase, which requires more involvement and commitment. This is similar to the adoption decisions for a smartphone, a smart home device, or a video game console, wherein users generally search for more information and sometimes also simply rely on HTA. We thus designed the heuristic and comprehensive conditions for this study based on their considerations. Most of our hypotheses were supported across two studies, where the results were all significant and consistent in the NDC condition, thus lending robust support to the generalizability of our research model to different IT adoption scenarios.

The non-significant linkage between HTA→post-adoption regret in the DC/PDC conditions can be also explained by the nature of IT. In Study 1, respondents chose a wiki for an utilitarian task of writing an assignment. The wiki systems are easy to use and similar in features, so the herding information on the

number and identity of prior adopters may contribute to the unrealistically high expectations about the herd. Users in this case were later negatively disconfirmed by the satisfactory but normal performance of the wiki system in contrast. On the other hand, the wearable technologies in Study 2 allow more justifications by the IT nature. The wearable technologies are externally visible, and enable users to identify or fit in with a social group (e.g., work or workout groups). Such compatibility between devices can ease users' need for data backup and synchronization in the same ecosystem (e.g., iPhone, Apple Watch), and facilitate habit transfer in usage behaviors. All these benefits justify the adoption choice that goes with the herd, even when the technology's performance may be inferior to the more desirable alternatives in the prior search.

The nature of IT products also has a different implication when applying the findings in the regret literature. For example, reversibility (whether the outcome is reversible) is found an important concern to regret (Tsiros and Mittal 2000; Zeelenberg and Pieters 2007). For general products, users are concerned about return/refund policies and product warranty for reversibility. If a product offers a return option, it means that the decision can be somehow reversed and hence less regretful. Yet for IT products, although IT vendors also offer return and free trial options, it does not save the users from the time spent on learning the IT and the data sunk in it, if these cannot be easily transferred to the switching option. In IS research, Bhattacherjee et al. (2012) proposed a concept called "partial switching" wherein users can engage several technologies at the same time (very common examples are browsers or social media) whereas users have to fully switch one technology to some other technologies in complete switching. Interestingly, IT vendors are now building up switching barriers that may discourage partial switching by transforming them into complete switching. These include locking users into the same ecosystem by any means, or creating compatibility issues where users can hardly transfer the data outside that have to stay with the chosen technology. The IT contexts in our two studies are arguably in the context of complete switching because users have invested in the wearable technology and are bounded by the ecosystem in Study 2. Even without the cost and ecosystem concerns, users in Study 1 may find it hard to move the content they created in the wiki system to another one, making the adoption decision more irreversible and hence more likely to regret.

Limitations and Future Studies

We acknowledge the following limitations in this research. First, it is inevitable to have branding effects when dealing with multiple competing technologies. In Study 1, the respondents chose between two wiki systems (PBworks versus Google Sites), where Google Sites will be more familiar to most users. We did the following to minimize the influence. (1) We chose PBworks, which is a reputable wiki system with a comparable scale and similar features to Google Sites. (2) We verified that over 55% of respondents have never used Google Sites before (Appendix D). (3) We chose competing technologies from well-known brands in Study 2. (4) We focused on comparing mechanisms of satisfaction with technology performance as well as regret about the adoption decision in this research. Albeit the influence of branding effects could play a role, this study largely represents a real-life adoption decision situation, where users may need to choose between a specialized technology with alternatives developed by an IT giant. This was also witnessed in Study 2, in that some users actually chose a wearable technology from a lesser-known brand. Second, we measured user continuance and switching intentions rather than the actual usage/switching behaviors, because we were only able to observe user adoption behaviors at T2. By providing another wave at T3, we might be able to extend the model to cover user usage/switching behaviors. Future research could verify this while also considering the challenges of drop-out rates at T3, and setting the right interval window to observe actual behaviors.

A few topics are suggested for future studies. First, this research investigates how HTA leads to post-adoption regret, demonstrating the adoption process also plays a part in post-adoption evaluations. We encourage research into other adoption strategies, leveraging this systematic review. Second, our research focuses on the impact in post-adoption evaluations and user staying power. Further research could investigate other consequences of regret such as complaints in other scenarios (Zeelenberg and Pieters 1999; Zeelenberg and Pieters 2004). Third, this research is only valid within the scope of the technology itself, and does not include next-generation products or their associated ecosystems, or hardware/software in the IoT context. Future studies could consider this and include context-specific factors in the model.

Research Implications

This research contributes to the IS field in several ways. First, we add to HTA and IS post-adoption studies. Given the impactful influence of HTA on user adoption (Feng et al. 2022; Kim and Viswanathan 2019), this research sheds light on the distal effect of HTA on post-adoption evaluations and user staying power, extending the understanding to the post-adoption stage. To account for the prevailing context of multiple competing technologies, this research introduces the regret perspective about the adoption decision, addressing the three new issues that cannot be sufficiently explained by the existing predominant EDT perspective in the context of single focal technology (Sun 2013): HTA can have both positive and negative outcomes; the post-adoption evaluations need to consider the decision process and the performance of competing technologies; the staying power can be disentangled to allow a more nuanced examination on the operating mechanisms subscribing to an ambivalent view (Turel 2015). It thereby supplements the existing HTA literature that primarily builds on the EDT perspective and extends the understanding.

In the meantime, to the best of our knowledge, this research is also among the first in IS post-adoption research to systematically consider both satisfaction with technology performance (i.e., EDT perspective) and regret about the adoption decision (i.e., regret perspective) in explaining post-adoption evaluations. This extended holistic model is more relevant to today's industry practices, where competing technologies with similar purposes and utilities are often available to users (Ho et al. 2020; Lin et al. 2022; Shen et al. 2021). By formally introducing the regret perspective and investigating its mechanisms, this research also adds to our understanding of the variance in post-adoption evaluations and behaviors.

Second, this study contributes to the IS regret research. Drawing on the psychology and marketing literature (Roseman et al. 1994; Tsiros and Mittal 2000; Zeelenberg et al. 2000), it advances the conceptualization of post-adoption regret in the technology adoption context. Specifically, our research takes this phenomenon to the next step by defining post-adoption regret and clarifying its multi-dimensional nature. We propose that there should be a counterfactual comparison between the chosen and foregone adoption decisions involving competing technologies, in contrast to the existing understanding in the

literature, where comparison is normally between the chosen and any available alternatives on performance in a unidimensional manner in external comparisons (Chang et al. 2014; Kang et al. 2009; Liao et al. 2011; Park et al. 2016) or relative advantage/usefulness (Bhattacherjee et al. 2012; Chang et al. 2014). Specifically, the clarification of the counterfactual thinking mechanism and the emotivational goal property in the newly developed multi-dimensionality also helps explain the operating mechanism of regret in post-adoption evaluations. This research also develops and validates a set of measurements for post-adoption regret, thus providing future research with necessary survey instruments. Moreover, we enrich the understanding of the nomological network by systematically reviewing the antecedents of post-adoption regret (the outcome and process routes) (Connolly and Zeelenberg 2002; Das and Kerr 2010; Keaveney et al. 2007; Pieters and Zeelenberg 2005) and investigating the influence of post-adoption regret on continuance and switching intentions simultaneously, therefore further extending the extant research on either one interchangeably (Chang et al. 2014; Kang et al. 2009; Liao et al. 2011).

Third, by developing a holistic research model and testing it using diverse samples and IT adoption scenarios, this research provides strong empirical support to the model for future study in both HTA and IS post-adoption. The extensive discussion on the different conditions of outcomes of HTA and in the IT context also enriches our understanding of how HTA, as an adoption strategy in the adoption stage (compared to the existing discussion on technology performance in the post-adoption stage in EDT) (Bhattacherjee 2001; Bhattacherjee and Premkumar 2004), influences post-adoption regret in the post-adoption stage, as well as advancing our conceptual understanding of the mechanisms of HTA and post-adoption regret.

Finally, the new discussion of the consequences of regret gives meaningful advancement to IS post-adoption and regret research. Specifically, the differentiation between continuation intention and switching intention provides a more nuanced understanding, and reflects the emerging competing technology context and internal/external comparison mechanisms in post-adoption evaluations. It provides new support to the claim that continuance and discontinuance (switching in our research) do not share the same set of

antecedents, wherein research is called for to investigate the different operating mechanisms in alignment with the ambivalent view (Turel 2015). The robust post-hoc analyses on the competing mechanisms also contribute to recent discussions on the crossover effect among competing technologies (Lin et al. 2022) and clarify the focus of internal and external comparisons.

Practical Implications

The results of this research imply that in addition to improving product functionality (for satisfaction with technology performance), IT vendors should also realize that the competition among technologies commencing at the adoption stage continues long after a technology has been chosen, and this external competition in the decision-making process can exert greater influence on user post-adoption evaluations. These findings add to the existing understanding that improving product offerings would help retain current users, but preventing post-adoption regret is the key to stopping users from switching.

Our research also provides a balanced view of using the HTA strategy for adoption decisions involving competing technologies. Its heuristic nature saves users from time involvement but may result in subsequent disappointment in the performance, largely due to the low informativeness or unrealistically high expectations for the herd approach. In the meantime, users may regret not putting enough effort into decision-making or discounting their own information in the HTA process, especially when bad outcomes are associated with this process of "deciding badly" (Pieters and Zeelenberg 2005). On the other hand, justifying the process may effectively attenuate regret. To cope with these challenges, and to facilitate users' formation of realistic expectations, vendors are advised to provide objective and well-balanced information, in addition to impressive downloads and rankings in the HTA approach. These efforts can be witnessed by the new multimedia presentation formats introduced in the app store, where user involvement is generally low for adopting a free app and the HTA strategy is commonly in use (Fu et al. 2021; Xiong et al. 2019). To help users justify the benefits received from HTA and improve user engagement, IT vendors can highlight the social nature of IT, since it is profound and unique in the HTA approach. Going beyond the existing HTA cues that "your friend XYZ has recommended this" – which is effective in influencing user

adoptions – IT vendors can consider redesigning the decision-making process to actively engage the users' social contacts. For example, it would be useful to facilitate the focal decision-maker to invite others to join the shared navigation and communication process in collaborative online shopping (Zhu et al. 2010).

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Satisfaction to Stay, Regret to Switch: Understanding Post-Adoption Regret in Choosing Competing Technologies When Herding

Appendix A: Literature Review of Regret Research in IS

Table A1. Literature Review of Regret Research in IS

Author	Context	Conceptualization	Measurement	Antecedent	Consequence
(Kang et al. 2009)	Online service (e.g., SNS)	Regret is the resultant judgment of comparing one's outcome with a better outcome, which would have occurred had a different alternative been selected.	Unidimensional	/	Satisfaction; Continuance intention
(Chang et al. 2014)	SNS	Regret is a negative emotion that occurs when people identify a better alternative than the current one.	Unidimensional	/	Dissatisfaction; Switching intention
(Sun et al. 2014)	Fashionable technology (e.g., iPhone)	Post-adoption regret is a painful cognitive and emotional state of feeling sorry for choosing a technology in relation to a foregone technology.	Text-mining	Adoption of a fashionable technology	Post-adoption satisfaction
(Park et al. 2016)	C2C online auction	Winner's regret is defined as regret associated with the subjective emotional assessment of having overpaid for an item (regardless of whether the amount paid actually exceeds what the item is objectively worth).	Unidimensional	Trait impulsiveness; Sunk cost	/
(Liao et al. 2011)	E-commerce	Regret is a negative emotion that occurs when a foregone alternative turns out to be, or is imagined to be, a better choice than the selected alternative.	Unidimensional	Information quality disconfirmation; System quality disconfirmation; Service quality disconfirmation	Satisfaction; Reuse intention
(Liao et al. 2017)	E-commerce	Regret is a negative, cognitively based emotion that individuals experience when realizing or imagining that their present situation would have been better had they decided differently (Zeelenberg 1999).	Unidimensional	Confirmation; Search effort; Alternative attractiveness	Satisfaction; Repurchase intention

Appendix B: Survey Measurements

Table B1. Survey Measurements	
Construct	**Items** All items are measured using a seven-point Likert scale, where 1 indicates "Strongly Disagree" and 7 indicates "Strongly Agree."
Time 1 (Adoption Stage)	
Herding in Technology Adoption (HTA) —Discounting Own Information (DOI) (Sun 2013)	1. My acceptance of this (technology) did not reflect my own preferences. 2. I did not make the decision based on my own research and information. 3. If I did not already know that a lot of people had accepted this (technology), I might have chosen another one.
Herding in Technology Adoption (HTA) —Imitating Others (IMI) (Sun 2013)	1. It seems that this (technology) is a dominant one, so I would like to use it as well. 2. I follow others in accepting this (technology). 3. I chose this (technology) because many other people are already using it.
Prior Experience (Kim and Malhotra 2005) (in Study 1)	How long have you been using PBworks/Google Sites? (Never used it before, less than 3 months, 3 to less than 6 months, 6 to less than 12 months, 1 to less than 2 years, 2 years or more)
Time 2 (Post-Adoption Stage)	
Disconfirmation (DC) (Bhattacherjee and Premkumar 2004)	Compared to my initial expectations, the ability of this (technology)_____ 1. to improve my (fitness) performance is… 2. to increase my (fitness) productivity is… 3. to enhance my (fitness) effectiveness is… 4. to be useful for my (work or study/fitness) is… (1 indicates "much worse than expected," 4 indicates "neutral," and 7 indicates "much better than expected") Recoding rule (Sun 2013; Sun et al. 2016) Negative disconfirmation = 4, if disconfirmation = 1 Negative disconfirmation = 3, if disconfirmation = 2 Negative disconfirmation = 2, if disconfirmation = 3 Negative disconfirmation = 1, if disconfirmation = 4 Negative disconfirmation = 0, if disconfirmation = 5, 6, or 7 Positive disconfirmation = 4, if disconfirmation = 7 Positive disconfirmation = 3, if disconfirmation = 6 Positive disconfirmation = 2, if disconfirmation = 5 Positive disconfirmation = 1, if disconfirmation = 4 Positive disconfirmation = 0, if disconfirmation = 1, 2, or 3
Satisfaction (SAT) (Bhattacherjee and Premkumar 2004)	All things considered, I am feeling _____ with the performance of this (technology). 1: 1 "Extremely displeased" ——— 4 "Neutral" ——— 7 "Extremely pleased" 2: 1 "Extremely frustrated" ——— 4 "Neutral" ——— 7 "Extremely content" 3: 1 "Extremely terrible" ——— 4 "Neutral" ——— 7 "Extremely delighted" 4: 1 "Extremely dissatisfied" ——— 4 "Neutral" ——— 7 "Extremely satisfied"

Post-Adoption Regret —Negative Feelings about the Adoption Decision (NF) (self-developed)	1. I have a sinking feeling when thinking about choosing this (technology). 2. I feel bad about choosing this (technology). 3. I have a negative feeling about choosing this (technology). 4. I feel uneasy/anxious when thinking about choosing this (technology). 5. I am sorry for choosing this (technology).
Post-Adoption Regret —Thought about Missing Foregone Technologies (FT) (self-developed)	1. Another (technology) might be better. 2. The other (technology) that I did not choose seems to be better than the one I am using. 3. I would have been better off with another (technology). 4. I really wish that I had chosen another (technology).
Post-Adoption Regret —Emotivational Goals for a Second Chance (EM) (self-developed)	1. I want to get a second chance to choose this (technology). 2. If I had another chance, I would make a different choice than choosing this (technology). 3. I want to undo my decision of choosing this (technology). 4. I would replace this (technology) with another one, if there was a chance.
Continuance Intention (CI) (Bhattacherjee and Premkumar 2004)	1. I intend to use this (technology) in the near future. 2. I plan to use this (technology) in the near future. 3. I predict that I will use this (technology) in the near future.
Switching Intention (SWI) (Bhattacherjee et al. 2012)	1. I will likely start to use another (technology) in the near future. 2. I plan to abandon using my current (technology) in the near future. 3. I intend to switch from my current (technology) to another one in the near future.
Switching Costs (SWC) (Bougie et al. 2003) (Study 1)	1. All things considered, I would lose a lot in changing the (technology). 2. Generally speaking, the costs in time, effort, and grief to switch the (technology) would be high. 3. It is very easy to switch the (technology). (R)
Switching Costs (SWC) (Kim and Son 2009) (Study 2)	1. Switching to a new (technology) would involve some hassle. 2. Some problems may occur when I switch to another (technology). 3. It is complex for me to change the (technology). 4. If I stop using this (technology), I will waste a lot of the effort that I have already made in it.
Variety Seeking (VS) (van Trijp et al. 1996) (in Study 2)	1. I would rather stick with a brand I usually buy than try something I am not sure of. (R) 2. When I go to a restaurant, I feel it is safer to order dishes I am familiar with. (R) 3. If I like a brand, I rarely switch from it just to try something different. (R) 4. I am very cautious in trying new or different products. (R) 5. Even though certain food products are available in a number of different flavors, I tend to buy the same flavor. (R) 6. I enjoy taking chances in buying unfamiliar brands just to get some variety in my purchases.

Appendix C: Measurement Development for Post-Adoption Regret

We followed Moore and Benbasat's (1991) procedure for developing the measurement in this research. We first generated a list of items based on the original definition of regret (Zeelenberg et al. 2000; Zeelenberg et al. 1998) and existing unidimensional three-item measures in the marketing research (Keaveney et al. 2007; Tsiros and Mittal 2000). The content validity of all the items was verified with experts, and we then confirmed seven items from each of the constructs of Negative Feelings about the Adoption Decision (NF), Thoughts about Missing Foregone Technologies (FT), and Emotivational Goals for a Second Chance (EM). We then put these 21 items into card sorting.

The card sorting consists of two rounds. In the first round, four doctoral student judges were invited to sort all the items into categories; they then named and defined these categories. These names and descriptions were close to the definitions of our target constructs. We also evaluated the sorting results using Moore and Benbasat's (1991) placement hit ratio. This measure reveals inter-judge agreement and construct validity and generated a ratio of 69.05% for the first round. Two items from NF, three from FT, and one from EM had been put into categories other than designated by at least two judges. We therefore dropped these items and achieved an updated hit ratio of 83.33%.

In the second round, another four judges were invited to sort the remaining items into three categories, as defined. The hit ratio of the second round was 93.33%. After a pilot test, we refined the three dimensions and dropped two EM items, leaving 13 items for the three-dimensional construct of post-adoption regret (Appendix B).

Appendix D: Demographic Characteristics of the Samples

Table D1. Sample Characteristics							
Study 1				**Study 2**			
		Frequency	**Percentage**			**Frequency**	**Percentage**
Age	18-20	34	19.4%	Age	18-24	2	1.1%
	21-25	118	67.4%		25-34	15	8.3%
	26-30	12	6.9%		35-44	31	17.1%
	31-35	6	3.4%		45-54	35	19.3%
	>36	5	2.9%		55-64	53	29.3%
					>65	45	24.9%
Gender	Male	101	57.7%	Gender	Male	93	51.4%
	Female	74	42.3%		Female	88	48.6%
Highest Education Level Currently Pursuing	Bachelor's degree or below	64	36.6%	Highest Education Level Obtained	High school	75	41.4%
	Master's degree	111	63.4%		Associate degree	17	9.4%
	PhD, MD, JD, or other degrees	1	0.6%		Bachelor's degree	55	30.4%
					Master's degree	28	15.5%
					PhD, MD, JD or other degrees	6	3.3%
Prior Experience with PBworks (Google Sites in parentheses)	Never used it before	164 (97)	93.7% (55.4%)	Personal annual income	<£30,000	79	43.6%
	<6 months	9 (37)	5.1% (21.1%)		£30,000-£44,999	44	24.3%
	6 months-2 years	2 (13)	1.1% (7.4%)		£45,000-£59,999	18	9.9%
	>2 years	0 (28)	0% (16%)		£60,000-£74,999	12	6.6%
					£75,000-£89,999	8	4.4%
					>£90,000	6	3.3%
Total:		175	100%	Total:		181	100%

Appendix E: Data Analysis and Results

Table E1. Descriptive Statistics

	Study 1				Study 2			
Construct	**Mean**	**Std. Dev.**	**CR**	**AVE**	**Mean**	**Std. Dev.**	**CR**	**AVE**
Herding in Technology Adoption (HTA) —Discounting own information (DOI)	3.86	1.32	0.76	0.62	2.76	1.18	0.83	0.71
—Imitating others (IMI)	4.26	1.43	0.89	0.81	3.92	1.36	0.85	0.74
Disconfirmation (DC)	4.56	1.04	0.94	0.79	5.22	1.22	0.97	0.88
Satisfaction (SAT)	4.70	0.98	0.94	0.81	5.66	1.39	0.97	0.90
Post-Adoption Regret —Negative feelings about the adoption decision (NF)	2.96	1.23	0.96	0.82	1.84	1.29	0.97	0.87
—Thought about Missing Foregone Technologies (FT)	3.62	1.11	0.94	0.83	2.54	1.51	0.93	0.87
—Emotivational Goals for a Second Chance (EM)	3.22	1.23	0.96	0.85	2.07	1.41	0.89	0.81
Continuance Intention (CI)	4.56	1.22	0.97	0.91	5.87	1.48	0.97	0.91
Switching Intention (SWI)	3.26	1.17	0.93	0.81	2.29	1.62	0.95	0.87

Table E2. Loadings and Cross-Loadings (Study 1)										
	CI	**DC**	**DOI**	**EM**	**FT**	**IMI**	**NF**	**SAT**	**SWC**	**SWI**
CI1	***0.95***	0.43	-0.10	-0.30	-0.29	-0.02	-0.50	0.52	0.06	-0.39
CI2	***0.96***	0.42	-0.09	-0.32	-0.27	0.04	-0.46	0.50	0.10	-0.38
CI3	***0.94***	0.37	-0.11	-0.27	-0.21	0.01	-0.42	0.48	0.08	-0.36
DC1	0.36	***0.88***	-0.24	-0.16	-0.18	-0.12	-0.29	0.53	0.18	-0.20
DC2	0.37	***0.88***	-0.18	-0.16	-0.23	-0.06	-0.28	0.60	0.12	-0.22
DC3	0.38	***0.91***	-0.19	-0.21	-0.27	-0.10	-0.30	0.59	0.22	-0.26
DC4	0.42	***0.88***	-0.21	-0.25	-0.32	0.02	-0.42	0.62	0.24	-0.35
DOI2	-0.09	-0.20	***0.85***	0.10	0.10	0.13	0.18	-0.24	-0.09	0.17
DOI3	-0.07	-0.15	***0.71***	0.08	0.13	0.28	0.23	-0.13	0.00	0.15
EM1	-0.24	-0.16	0.11	***0.90***	0.54	0.01	0.44	-0.23	-0.16	0.52
EM2	-0.32	-0.20	0.11	***0.92***	0.57	-0.03	0.48	-0.27	-0.17	0.51
EM3	-0.25	-0.22	0.12	***0.93***	0.59	0.00	0.54	-0.25	-0.11	0.54
EM4	-0.32	-0.23	0.09	***0.94***	0.64	0.01	0.54	-0.26	-0.16	0.55
FT1	-0.28	-0.30	0.13	0.58	***0.92***	0.08	0.47	-0.30	-0.12	0.40
FT2	-0.20	-0.26	0.12	0.54	***0.91***	0.07	0.48	-0.25	-0.16	0.35
FT3	-0.25	-0.21	0.15	0.63	***0.90***	0.05	0.51	-0.22	-0.22	0.43
IMI2	0.05	-0.03	0.26	0.02	0.09	***0.82***	0.01	-0.02	-0.04	0.03
IMI3	-0.01	-0.08	0.21	-0.01	0.06	***0.97***	0.05	-0.09	-0.06	0.02
NF1	-0.35	-0.22	0.12	0.46	0.42	0.00	***0.81***	-0.42	-0.03	0.39
NF2	-0.46	-0.36	0.26	0.51	0.50	0.03	***0.95***	-0.49	-0.10	0.41
NF3	-0.46	-0.36	0.26	0.54	0.52	0.06	***0.94***	-0.48	-0.07	0.40
NF4	-0.44	-0.33	0.22	0.47	0.48	0.04	***0.93***	-0.50	-0.07	0.40
NF5	-0.47	-0.36	0.29	0.48	0.48	0.03	***0.89***	-0.43	-0.08	0.43
SAT1	0.51	0.62	-0.26	-0.23	-0.23	-0.03	-0.51	***0.91***	0.13	-0.28
SAT2	0.40	0.61	-0.24	-0.19	-0.20	-0.06	-0.41	***0.90***	0.12	-0.23
SAT3	0.52	0.54	-0.16	-0.27	-0.32	-0.10	-0.42	***0.88***	0.10	-0.22
SAT4	0.46	0.60	-0.21	-0.29	-0.30	-0.08	-0.49	***0.91***	0.14	-0.25
SWC3R	0.08	0.22	-0.07	-0.16	-0.18	-0.06	-0.08	0.14	***1.00***	-0.26
SWI1	-0.22	-0.21	0.17	0.54	0.42	0.13	0.30	-0.19	-0.26	***0.85***
SWI2	-0.45	-0.29	0.19	0.47	0.36	-0.02	0.45	-0.29	-0.23	***0.92***
SWI3	-0.39	-0.28	0.17	0.55	0.39	-0.02	0.45	-0.26	-0.22	***0.92***

CI: Continuance intention
DC: Disconfirmation
DOI: Discounting own information (HTA)
EM: Emotivational goal for a second chance (Regret)
FT: Thoughts about missing foregone technologies (Regret)
IMI: Imitating others (HTA)
NF: Negative feelings about the adoption decision (Regret)
SAT: Satisfaction
SWC: Switching costs
SWI: Switching intention

Notes: DOI1, IMI1, FT4, SWC1, and SWC2 were dropped due to problematic loadings.

Table E3. Loadings and Cross-Loadings (Study 2)											
	CI	**DC**	**DOI**	**EM**	**FT**	**IMI**	**NF**	**SAT**	**SWC**	**SWI**	**VS**
CI1	***0.94***	0.50	-0.11	-0.41	-0.32	0.27	-0.51	0.57	0.25	-0.53	0.02
CI2	***0.98***	0.56	-0.19	-0.51	-0.39	0.24	-0.62	0.64	0.22	-0.60	0.02
CI3	***0.95***	0.50	-0.14	-0.47	-0.36	0.16	-0.55	0.59	0.22	-0.60	0.00
DC1	0.51	***0.94***	-0.16	-0.41	-0.43	0.23	-0.56	0.63	0.24	-0.31	-0.11
DC2	0.52	***0.95***	-0.17	-0.32	-0.36	0.23	-0.45	0.58	0.27	-0.29	-0.13
DC3	0.49	***0.95***	-0.17	-0.31	-0.30	0.22	-0.49	0.59	0.27	-0.27	-0.11
DC4	0.51	***0.91***	-0.25	-0.38	-0.36	0.15	-0.56	0.61	0.24	-0.31	-0.04
DOI1	-0.12	-0.16	***0.82***	0.16	0.16	-0.05	0.14	-0.10	-0.15	0.09	0.05
DOI2	-0.14	-0.18	***0.86***	0.06	0.09	-0.10	0.16	-0.12	0.01	0.13	-0.03
EM1	-0.28	-0.30	0.02	***0.85***	0.61	-0.01	0.49	-0.37	-0.20	0.50	-0.08
EM3	-0.55	-0.37	0.18	***0.94***	0.66	-0.10	0.67	-0.56	-0.13	0.63	-0.18
FT1	-0.37	-0.36	0.17	0.64	***0.94***	-0.17	0.54	-0.53	-0.17	0.55	-0.09
FT2	-0.32	-0.36	0.10	0.68	***0.92***	-0.14	0.51	-0.48	-0.18	0.50	-0.08
IMI1	0.24	0.24	-0.13	-0.10	-0.19	***0.97***	-0.19	0.22	0.07	-0.09	-0.05
IMI2	0.13	0.09	0.05	0.02	-0.05	***0.74***	-0.17	0.18	0.02	-0.04	-0.05
NF1	-0.46	-0.48	0.20	0.52	0.49	-0.19	***0.86***	-0.49	-0.03	0.42	-0.11
NF2	-0.56	-0.51	0.12	0.62	0.55	-0.20	***0.95***	-0.61	-0.07	0.50	-0.07
NF3	-0.56	-0.52	0.18	0.64	0.55	-0.18	***0.96***	-0.62	-0.07	0.50	-0.07
NF4	-0.57	-0.53	0.16	0.65	0.54	-0.19	***0.96***	-0.59	-0.09	0.50	-0.08
NF5	-0.59	-0.54	0.19	0.65	0.51	-0.18	***0.95***	-0.66	-0.08	0.55	-0.09
SAT1	0.62	0.64	-0.14	-0.50	-0.52	0.24	-0.62	***0.93***	0.29	-0.43	-0.10
SAT2	0.60	0.56	-0.12	-0.51	-0.50	0.23	-0.60	***0.96***	0.23	-0.41	-0.08
SAT3	0.54	0.62	-0.08	-0.48	-0.52	0.19	-0.57	***0.94***	0.28	-0.34	-0.12
SAT4	0.61	0.62	-0.14	-0.54	-0.52	0.21	-0.62	***0.97***	0.28	-0.47	-0.09
SWC1	0.20	0.23	-0.01	-0.17	-0.15	0.06	-0.08	0.22	***0.87***	-0.12	-0.17
SWC2	0.15	0.19	0.00	-0.11	-0.13	0.00	-0.05	0.19	***0.86***	-0.07	-0.18
SWC3	0.15	0.20	0.02	-0.08	-0.11	0.01	-0.01	0.20	***0.81***	-0.04	-0.25
SWC4	0.25	0.27	-0.17	-0.17	-0.21	0.08	-0.07	0.30	***0.87***	-0.16	-0.19
SWI1	-0.45	-0.21	0.17	0.56	0.52	-0.05	0.40	-0.33	-0.12	***0.90***	-0.21
SWI2	-0.63	-0.37	0.11	0.62	0.53	-0.10	0.61	-0.48	-0.12	***0.93***	-0.19
SWI3	-0.58	-0.28	0.10	0.60	0.54	-0.09	0.44	-0.39	-0.15	***0.96***	-0.22
VS2R	0.04	-0.11	0.03	-0.19	-0.08	-0.13	-0.07	-0.09	-0.08	-0.22	***0.86***
VS3R	-0.11	-0.25	0.07	-0.06	0.01	-0.11	0.02	-0.19	-0.29	-0.08	***0.73***
VS4R	0.01	-0.02	0.01	-0.10	-0.12	0.12	-0.13	-0.03	-0.26	-0.18	***0.80***
VS5R	0.04	-0.04	-0.03	-0.12	-0.07	-0.06	-0.06	-0.08	-0.17	-0.18	***0.85***

CI: Continuance intention
DC: Disconfirmation
DOI: Discounting own information (HTA)
EM: Emotivational goal for a second chance (Regret)
FT: Thoughts about missing foregone technologies (Regret)
IMI: Imitating others (HTA)
NF: Negative feelings about the adoption decision (Regret)
SAT: Satisfaction
SWC: Switching costs
SWI: Switching intention
VS: Variety seeking

Notes: DOI3, IMI3, EM2, EM4, FT3-4, VS1R, and VS6 were dropped due to problematic loadings.

Table E4. Inter-Construct Correlations (Study 1)										
	CI	**DC**	**DOI**	**EM**	**FT**	**IMI**	**NF**	**SAT**	**SWC**	**SWI**
CI	***0.95***									
DC	0.43	***0.89***								
DOI	-0.11	-0.23	***0.79***							
EM	-0.31	-0.22	0.12	***0.92***						
FT	-0.27	-0.29	0.14	0.64	***0.91***					
IMI	0.01	-0.07	0.24	0.00	0.08	***0.90***				
NF	-0.48	-0.36	0.26	0.54	0.53	0.04	***0.90***			
SAT	0.53	0.66	-0.24	-0.27	-0.29	-0.07	-0.51	***0.90***		
SWC	0.08	0.22	-0.07	-0.16	-0.18	-0.06	-0.08	0.14	***1.00***	
SWI	-0.40	-0.29	0.20	0.58	0.43	0.03	0.45	-0.27	-0.26	***0.90***

Table E5. Inter-Construct Correlations (Study 2)											
	CI	**DC**	**DOI**	**EM**	**FT**	**IMI**	**NF**	**SAT**	**SWC**	**SWI**	**VS**
CI	***0.96***										
DC	0.54	***0.94***									
DOI	-0.16	-0.20	***0.84***								
EM	-0.49	-0.38	0.13	***0.90***							
FT	-0.37	-0.39	0.15	0.71	***0.93***						
IMI	0.23	0.22	-0.09	-0.07	-0.16	***0.86***					
NF	-0.59	-0.55	0.18	0.66	0.57	-0.20	***0.94***				
SAT	0.63	0.64	-0.13	-0.54	-0.54	0.23	-0.64	***0.95***			
SWC	0.24	0.27	-0.08	-0.17	-0.19	0.06	-0.07	0.28	***0.85***		
SWI	-0.60	-0.32	0.13	0.64	0.57	-0.09	0.53	-0.44	-0.14	***0.93***	
VS	0.01	-0.10	0.01	-0.16	-0.09	-0.05	-0.09	-0.10	-0.22	-0.22	***0.81***

Notes:
CI: Continuance intention
DC: Disconfirmation
DOI: Discounting own information (HTA)
EM: Emotivational goal for a second chance (Regret)
FT: Thoughts about missing foregone technologies (Regret)
IMI: Imitating others (HTA)
NF: Negative feelings about the adoption decision (Regret)
SAT: Satisfaction
SWC: Switching costs
SWI: Switching intention
VS: Variety seeking

The diagonal elements (in bold) are the square roots of the average variance explained (AVE).

Table E6. Weights and Loadings of the Formative Construct (Post-Adoption Regret)								
	Study 1				Study 2			
Dimension of Post-Adoption Regret	**Weights**	**T-value**	**Loadings**	**T-value**	**Weights**	**T-value**	**Loadings**	**T-value**
Negative Feelings about the Adoption Decision (NF)	0.77	6.98	0.96	27.89	0.65	5.48	0.95	30.70
Thought about Missing Foregone Technologies (FT)	0.10	0.96	0.67	7.08	0.23	2.29	0.77	10.32
Emotivational Goals for a Second Chance (EM)	0.27	1.71	0.74	7.71	0.24	2.10	0.84	13.28

Appendix F: Manipulations

Study 1

Low-observation condition (number of prior adopters):

Both PBworks and Google Sites have been used by thousands of millions of users globally. People use PBworks or Google Sites for online knowledge management and collaborations, as they enable businesses to work more efficiently and effectively. PBworks is the largest business and educational wiki host in the world, serving teams at Fortune 500 and being home to three presidential campaigns. Millions of students and teachers around have been users of wiki systems.

High-observation condition (number and identity of prior adopters):

Both PBworks and Google Sites have been used by thousands of millions of users globally. People use PBworks or Google Sites for online knowledge management and collaborations, as they enable businesses to work more efficiently and effectively. PBworks is the largest business and educational wiki host in the world, serving teams at Fortune 500 and being home to three presidential campaigns. Millions of students and teachers around have been users of wiki systems.

In addition, it has been known that the late Steve Jobs (former Apple CEO), Tim Cook (current CEO of Apple), Bill Gates (founder of Microsoft), Mark Zuckerberg (CEO of Facebook), among other well-known fashion leaders, have been users of these two wiki systems.

Manipulation check (yes/maybe/no)

1. PBworks is the largest business and education wiki host in the world.
2. PBworks can be used for knowledge management projects.
3. Google Sites is an alternative technology to PBworks.
4. Google Sites allows editing pages as PBworks does.
5. A lot of people have adopted wiki systems.
6. PBworks has been adopted by a lot of well-known individuals and fashion leaders.

Study 2

Heuristics condition (observation of HTA info only):

Below is some information we extracted from the web to facilitate your purchase decision. Please read it carefully and answer the questions below.
Please feel free to click on the link if in doubt.

Smart watches / fitness trackers household ownership by countries

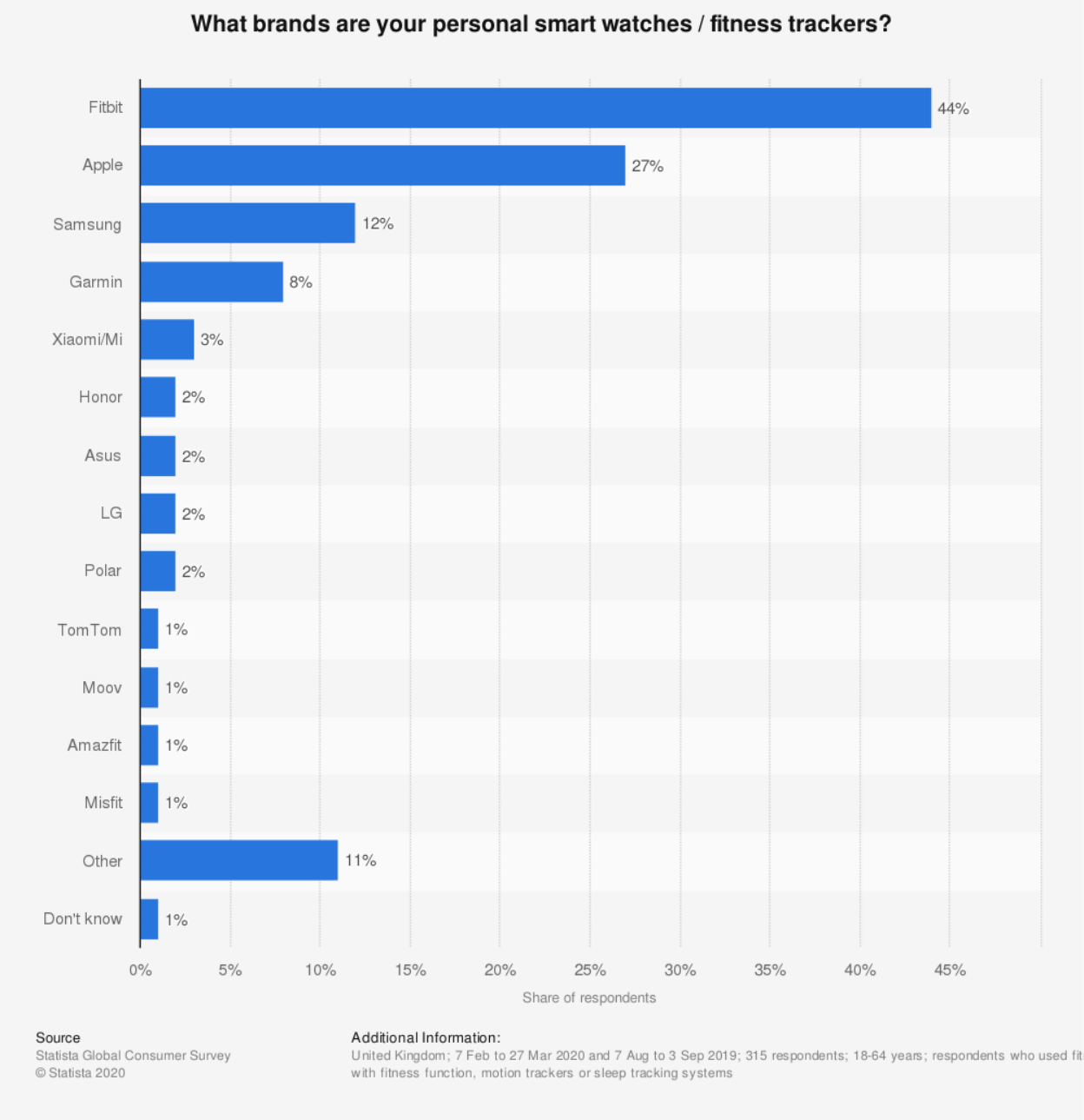
	Wearable ownership	No wearable ownership
China	42%	58%
United States	41%	59%
India	40%	60%
Sweden	37%	63%
United Kingdom	36%	64%
Canada	34%	65%
Netherlands	30%	70%
Germany	25%	75%
South Korea	21%	79%

(source: Statista@March 2020)
https://www.statista.com/forecasts/1101101/wearable-devices-ownership-in-selected-countries

Manipulation check (yes/no)

1. Nearly 36% of UK households own wearable technology.

Smart watches / fitness trackers household ownership by brands in the UK



(source: Statista@June 2020)
https://www.statista.com/forecasts/997782/ehealth-tracker-smart-watch-ownership-by-brand-in-the-uk

Top 10 smart watches / fitness trackers review

	Fitness tracker	**Smart watch**
1	Fitbit Charge 4	Samsung Galaxy Watch 3
2	Fitbit Charge 3	Apple Watch 5
3	Garmin Vivosmart 4	Samsung Galaxy Watch Active 2
4	Huawei Band 3 Pro	Fitbit Versa 2
5	Fitbit Inspire HR	Fossil Sport
6	Garmin Vivosport	Fitbit Versa Lite
7	Honor Band 5	TicWatch E2
8	Xiaomi Mi Band 4	Honor Magic Watch 2
9	Amazfit Bip	Apple Watch 4
10	Garmin Vivofit 4	Ticwatch Pro

(source: TechRadar@August 2020)
https://www.techradar.com/uk/news/wearables/10-best-fitness-trackers-1277905
https://www.techradar.com/uk/news/wearables/best-smart-watches-what-s-the-best-wearable-tech-for-you-1154074

Manipulation check (yes/no)

2. Fitbit has the highest ownership in the UK wearable market.

3. Apple has the highest ownership in the UK wearable market.

4. Samsung is ranked high in the smart watch category by TechRadar.

Comprehensive condition (observation of HTA info and product info):

HTA info (same as above)

Product info (omitted here for page constraints)

Appendix G: Post-Hoc Analyses

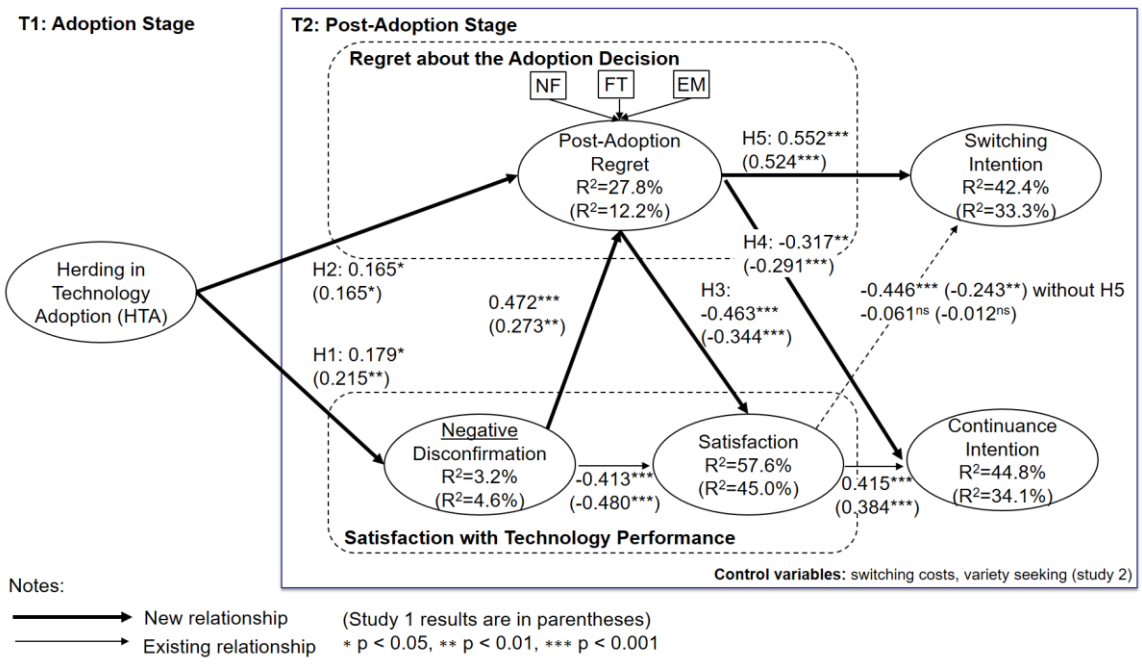


Figure G1. Structural Model using Negative Disconfirmation (NDC)

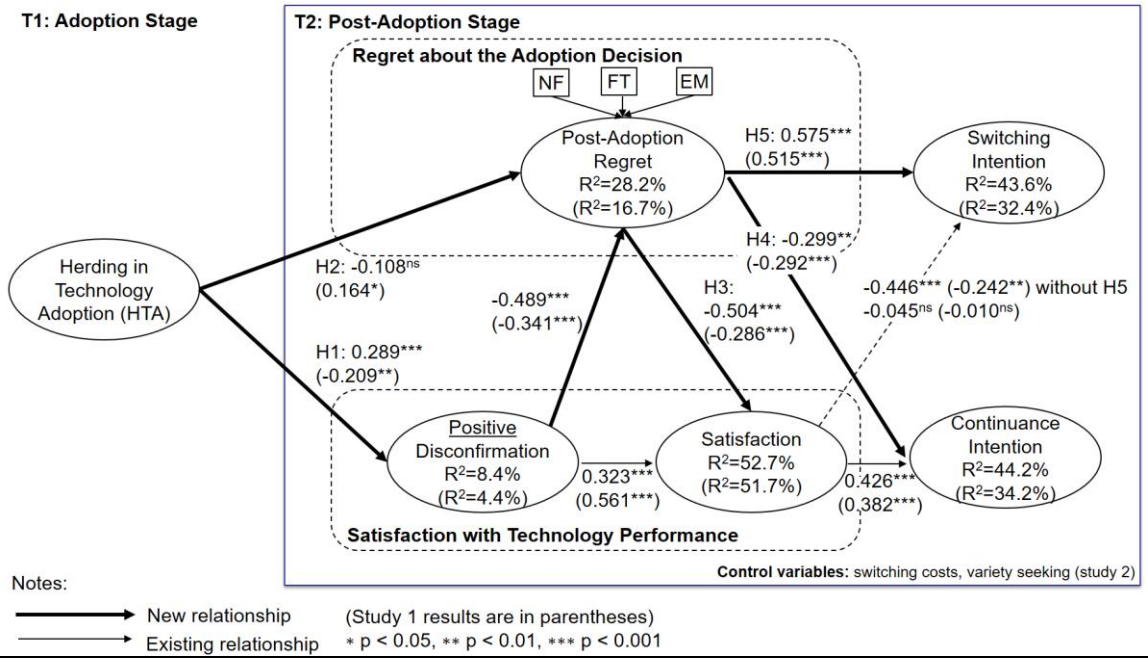


Figure G2. Structural Model using Positive Disconfirmation (PDC)

Table G1. Summary of the Mediating Effects using NDC and PDC									
		Total Effects of IV on DV		Direct Effects of IV on DV		Indirect Effects			Mediator Type
		Coefficient	T- value	Coefficient	T- value	Point Estimate	BC 95% CI		
							Lower	Upper	
HTA →NDC →Regret	Study 1	0.22	3.03	0.17	2.26	0.06	0.01	0.12	Partial
	Study 2	0.25	3.44	0.17	2.55	0.08	0.00	0.18	
HTA →PDC →Regret	Study 1	0.24	3.18	0.16	2.30	0.07	0.02	0.14	Partial
	Study 2	-0.25	-3.44	-0.11	-1.62	-0.14	-0.22	-0.07	Full

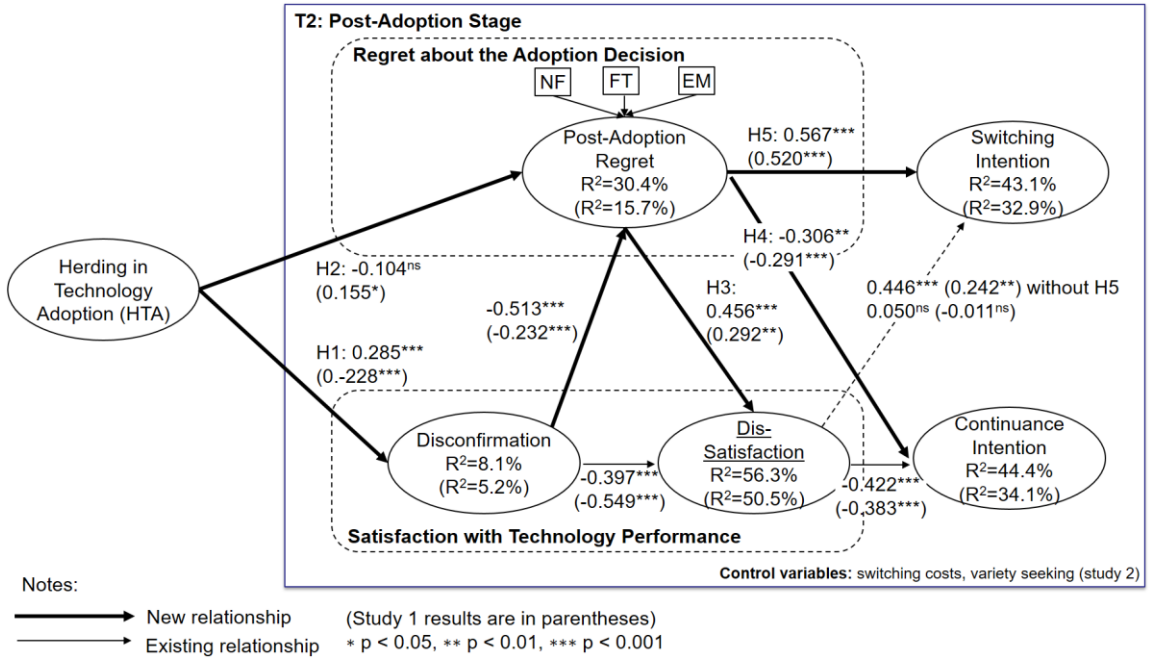


Figure G3. Structural Model with Post-Adoption Regret and Dissatisfaction

Table G2. Cluster Analysis Results					
Study 1					
	Low switching intention		**Overall sample mean**	**High switching intention**	
	Low satisfaction (Cluster 1)	**High satisfaction (Cluster 2)**		**Low satisfaction (Cluster 3)**	**High satisfaction (Cluster 4)**
Number of observations	44 (25.1%)	62 (35.4%)	175	9 (5.1%)	60 (34.3%)
Switching intention	3.14	2.25	3.26	5.37	4.07
Satisfaction	3.73	5.35	4.70	2.58	5.05
Post-adoption regret —Negative feelings about the adopted decision	3.39	2.18	2.96	4.60	3.20
—Thoughts about missing forgone technologies	3.46	3.33	3.62	5.48	3.76
—Emotivational goals for a second chance	2.97	2.85	3.22	5.33	3.48
Continuance intention	4.05	5.22	4.56	2.67	4.54
Study 2					
	Low switching intention		**Overall sample mean**	**High switching intention**	
	Low satisfaction (Cluster 1)	**High satisfaction (Cluster 2)**		**Low satisfaction (Cluster 3)**	**High satisfaction (Cluster 4)**
Number of observations	9 (5%)	108 (35.4%)	181	35 (19.3%)	29 (16%)
Switching intention	1.30	1.25	2.29	4.87	3.38
Satisfaction	2.75	6.24	5.66	4.18	6.19
Post-adoption regret —Negative feelings about the adopted decision	2.69	1.33	1.84	3.23	1.83
—Thoughts about missing forgone technologies	2.56	1.94	2.54	4.34	2.61
—Emotivational goals for a second chance	1.89	1.43	2.07	3.96	2.25
Continuance intention	4.78	6.55	5.87	4.29	5.60

Table G3. Summary of the Mediating Effects on Competing Mechanisms									
		Total Effects of IV on DV		**Direct Effects of IV on DV**		**Indirect Effects**			**Mediator Type**
		Coefficient	**T-value**	**Coefficient**	**T-value**	**Point Estimate**	**BC 95% Confidence Interval**		
							Lower	**Upper**	
H3: Post-adoption regret → Satisfaction → Continuance intention	Study 1	-0.48	-7.20	-0.29	-4.08	-0.19	-0.28	-0.10	Partial
	Study 2	-0.59	-9.75	-0.31	-4.05	-0.28	-0.43	-0.11	
Post-adoption regret → Satisfaction → Switching intention	Study 1	0.54	8.42	0.53	7.23	0.01	-0.07	0.08	Non-significant
	Study 2	0.63	10.93	0.62	7.89	0.01	-0.11	0.17	
Satisfaction → Post-adoption regret → Continuance intention	Study 1	0.52	8.15	0.38	5.38	0.14	0.06	0.24	Partial
	Study 2	0.63	10.77	0.42	5.59	0.21	0.07	0.38	
Satisfaction → Post-adoption regret → Switching intention	Study 1	-0.27	-3.74	-0.01	-0.13	-0.26	-0.39	-0.15	Full
	Study 2	-0.44	-6.50	-0.02	-0.27	-0.42	-0.57	-0.27	

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