When the Dark Side of Post-Adoptive Use Leads to IT Discontinuance: an Exploration of the Role of Intervention

Completed Research Paper

Abstract

This study aims to improve our understanding of how the dark side of post-adoptive behavior can lead to IT discontinuance and the role of intervention. To this end, we developed a qualitative case study by investigating the case of Online Reverse Auctions (ORAs) in the context of the retail industry.

We identified four forms of IT discontinuance, namely, chosen because of IT artifact, triggered by the unethical use of IT, imposed by intervention, or emergent as the consequences of a change in the stakes linked to IT use.

Our contributions are threefold; first, we extend the existing literature on discontinued use by emphasizing the role of the dark side of IT use and the perceived IT use risk. Second, we highlighted the extent to which unsatisfied users can enact their context of use. Finally, we improve our understanding of IT intervention during the post-adoption phase.

Keywords

IT discontinuance, post adoption, intervention, dark side of post-adoptive behavior

Introduction

The literature on the post-adoption phase of IT use has benefited from numerous rich contributions (e.g., Jasperson, Carter and Zmud, 2005; Saeed and Abdinnour, 2011; Veiga, Keupp, and Floyd, 2013). However, most of this literature has tackled the issue of continued use of the IT in question while, with a few rare exceptions (Bhattacherjee, 2001), little is known about its discontinuance, notably when it is influenced by a dark side of IT use. A growing body of research is now emphasizing the extent to which IT can be used unethically (Charki and Josserand, 2008), or ways in which it can be harmful to people, businesses and institutions (Stylianou et al., 2013). Given their alarming consequences, these negative aspects of IT use constitute significant challenges for managers (Bush et al., 2010). This is particularly true when it comes to IT discontinuance since the expected benefits of an IT depend on its continued use during the post-adoption phase (Kim and Mlhotra, 2005).

In this article, we explore the extent to which the dark side of IT use can lead to its discontinuance in the post-adoptive phase, and investigate the extent to which an under-investigated form of intervention - legal intervention - can influence such discontinuance.

Taking the status of the literature on the topic into consideration, we opted for a qualitative approach where we investigated a sensitizing case of a technology involving B2B Electronic Reverse Auctions, whose dark side in the post-adoptive phase led to one of the most controversial debates on the topic according to academics (Charki, Josserand and Boukef, 2011), practitioners (Gartner, 2007) and the business press (Wall Street Journal, 2011). More precisely, we investigated our research questions in the context of a large international French retailer, where serious unethical usage of B2B Electronic Reverse Auctions led to the discontinuance of the IT in question. We examine the discontinuance of ORA
technology through a focus on the use made by buyers and suppliers, since they hold a boundary-spanning responsibility. Our findings revealed four forms of discontinuance that can either be chosen, triggered, imposed or emergent.

Our contributions are threefold; we first extend the existing literature on IT discontinuance by emphasizing the role of the dark side of post-adoptive behavior and the perceived risk related to IT use which can outweigh its perceived positive outcomes. Second, we highlight the extent to which dissatisfied users can enact the context of use. Finally, we contribute to the IT literature by improving our understanding of IT interventions during the post-adoption phase.

Theoretical Background

Post-adoption behavior is defined by Jasperson et al. (2005) as “the myriad feature adoption decisions, feature use behaviors, and feature extension behavior made by an individual after an IT application has been installed, made accessible to the user, and applied by the user in accomplishing his/her work activities” (p.531). When it comes to IT discontinuance, IS scholars have found that factors explaining use are also unable to account for why users stop using a technology after initially accepting it (Bhattacherjee, 2001).

Reflective sensemaking and post-adoption behavior

In the post-adoption phase, users engage in a sensemaking endeavor (Weick, 1990) that has been described as an ongoing process where people interact with the technology (Hsiao et al., 2008). Jasperson et al. (2005) argue that sensemaking takes place in the post-adoption phase through observations of gaps in IT outcome expectations, and that it represents the difference between desired and observed IT outcomes. As users become experienced with IT, they develop their own sensemaking based on their post-adoption experience, adjusting their initial sensemaking accordingly. In this sense, Kim and Malhotra (2005) emphasized the users’ evaluation of Perceived usefulness and Perceived ease-of-use as they gain IT usage experience. Through their handling of the technology, users compare the perceived IT use outcomes with those initially expected, consequently making sense of the technology based on their interaction experience (Jasperson et al., 2005) and evaluating the extent to which their initial cognition is confirmed or disconfirmed (Bhattacherjee, 2001). Bhattacherjee and Premkumar (2004) demonstrated that as users gain experience with IT, the effects of satisfaction and disconfirmation on beliefs and attitudes are ongoing and alter previous cognitions in an iterative way. Users can either reinforce or change their initial perceptions through their recurrent use (Saeed and Abdinnour-Helm, 2009), and even develop new ones (Orlikowski and Gash, 1994). This “evaluative cognitive process” (De Guinea and Markus, 2009) based on the ongoing experience with IT may alter users’ post-adoption intentions (Jasperson et al., 2005) and even lead to IT discontinuance.

Thus, individual cognition has been considered as the main determinant of IT post-adoption (Ortiz de Guinea and Markus, 2009). While we acknowledge the role of reflective sensemaking, we argue that focusing on user behavior alone will narrow our understanding of IT use since we have a limited understanding of its utilization context (Lamb and Kling, 2003). In the next section, we put forward another explanation for IT users’ behaviors, which takes their negotiation of IT use into account as well as its capacity to enact their context of use.

Dark side of post-adoptive behavior, IT use negotiation and intervention

Technology is subject to several interpretations and even misunderstandings (Griffith 1999). This is all the more likely as so many stakeholders are involved in its interpretation at different stages of the technology design, implementation, and use. The seminal work by Desanctis and Poole (1994) explained that each technology encompasses a spirit that underpins its philosophy, values and goals in order to reduce its ambiguous character and limit the multiplication of interpretations. The spirit of the technology explains the manner in which, according to the IT originators and decision-makers, the specific IT must be used. Indeed, because it encapsulates a set of values regarding its appropriate use (Desanctis and Poole, 1994),
the spirit of the technology serves as a basis for the establishment of ethical judgments regarding the said technology. Unfortunately, users may violate the spirit of the technology and this violation may appear as unethical.

However, given the capacity of users as social actors to negotiate its utilization (Lamb and Kling, 2003), the latter can be adapted (Desanctis and Poole, 1994) and even deviated (Griffith, 1999) in a way that can lead to a darker side of IT use. Indeed, IT users are relatively uninhibited (Sproull and Kiesler, 1992) and IT can provide many opportunities for immoral behavior (Argandona, 2003). Charki and Josserand (2008), for instance, showed that when IT users deviate from the technology’s original spirit, it can trigger this dark side of IT use, leading to considerable distrust between the users and declined investment in such IT use, or even its rejection.

Jasperson et al. (2005) highlighted the role of intervention during the post-adoption phase and emphasized the extent to which it can impact on post-adoptive behavior. However, intervention has generally been overlooked during this phase, with the notable exception of Rodon et al. (2011) who emphasized its role in achieving assimilation in the post-adoption phase.

Thus, while most studies have focused on the effect of cognition on intention to continue using a specific IT (Bhattacherjee, 2001; Bhattacherjee and Prumkamar, 2004), in this paper we offer a complementary explanation for IT discontinuance, given the capacity of users as social actors (Lamb and Kling, 2003) to negotiate its use and the extent to which this negotiation can impact on discontinuance.

**Method**

In view of the exploratory nature of our research question, we adopted a case study design. Case study is an acknowledged empirical research method for investigating complex phenomena since it allows researchers to leverage human interpretations and meanings (Walsham, 2006). We opted for a qualitative method to enable the capture of rich and subtle patterns of complex details, to get closer to the actors perspectives and interpretations, and to understand the world from the perspective of those studied (Pratt, 2009).

1. **The case study context**

We conducted an in-depth case study in the context of a leading French retail organization and focused our research questions on the use of B2B online reverse auctions (ORAs) organized between buyers and suppliers. For Smart and Harisson (2003), “Online reverse auctions are exactly the way they sound: traditional auctions in Reverse. Instead of a seller offering a product for sale to the highest bidder, a buyer offers a tender or contract for the supply of specific goods or services. Suppliers compete for the right to the contract by bidding reducing prices, until a final price – the lowest – brings the auction to an end” (p. 257). These auctions have become an important means of conducting business transactions that are widely used by procurement organizations.

However, the ORA technology has suffered from a number of unethical behaviors and misuses (Lehner, 2002). Numerous articles have denounced the dark side of this technology, such as allowing unqualified suppliers to bid, obliging suppliers to honor unfairly low bids, misrepresenting facts, and phantom bidding (e.g., Emiliani, 2005).

In our context, as this dark side of IT use triggered a significant amount of debate and controversy, French law-makers decided to intervene by enacting a legal framework in order to govern the use of private B2B ORAs, and to deal with misconduct in the use of this technology (the Dutreil law). Legal intervention

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1 For reasons of confidentiality and simplification, we will use the term Retailer to refer to our French retailer, the object of our investigation.
sought to define the appropriate form of IT use and introduced severe sanctions and controls in the event of its misuse.

2. Data Collection & Analysis

Our data collection lasted eight months in total. We conducted 52 semi-structured interviews in total. The interviews lasted between 30 minutes and 2 hours and 15 minutes. In the course of our study, we interviewed 4 initiators of the technology (those who manage IT use), 29 buyers and 22 suppliers (the technology users).

For the data analysis, we followed the steps of grounding theory. Thus we first examined each text comprehensively, line-by-line, in order to become familiar with our informants’ different interpretations. We then followed three major coding steps: open, axial and selective.

Step 1: Identifying initial broad categories

We started by exploring the interpretations the informants provided of their IT use, discontinued use and the role of intervention. In this way, we were able to ascribe text segments to different coding categories. These categories materialized from an iterative process, in which we alternated between the exploration of our empirical data and the study of theoretical constructs presented in the literature.

Step 2: Applying axial and selective coding

In the second stage of our data analysis, we applied axial coding procedures to put the different constructs into categories (Strauss and Corbin, 1998). The axial coding was performed by relating categories and concepts with one another via a combination of inductive and deductive thinking to identify explicit connections between these categories and sub-categories.

Step 3: Defining our theoretical framework

We refined our labels and understandings, established causal relationships and identified the actors’ understandings of IT discontinuance and the effects of intervention. During these different steps, all discrepancies or divergences were resolved through intensive discussion and debate between the authors until a shared consensus was reached.

Findings

1- The dark side of ORA use and discontinuance

Our results show that even though ORA adoption was initially imposed by the buyers, its use became problematic since suppliers no longer wanted to work with the technology and buyers began having trouble finding suppliers willing to use it: “…we’re having problems finding any and it’s getting worse…suppliers have increasingly been refusing to use the tool.” Buyers even had to cancel scheduled ORAs because there were not enough participants: “we’re increasingly having trouble finding suppliers willing to take part in ORAs. We’ve organized three ORAs and we had to cancel all of them…” (Buyer).

Another buyer also mentioned the frequent cancellation of ORAs: “We have frequently had to cancel the bidding because we have no more participants willing to take part in ORAs…”

This discontinued use was justified by the economic loss caused by the IT’s use and the proliferation of unethical behaviors. The technology significantly reduced suppliers’ price and squeezed their margins, which sometimes became so tight that it eliminated any potential benefits from the ORA use: “…indeed, with ORAs we can choose how we die… we can win an ORA and at the same time be a loser. Last time I won an ORA with a 0% margin, which means that I’m working for nothing… it’s so frustrating.”

Another supplier said: “…it’s getting unbearable; we’re the main losers in ORA use since it significantly reduces our margins…” The magnitude of unethical uses reinforced the suppliers’ suspicions regarding
any potential benefits they could gain from the technology. These unethical tactics aimed to further squeeze prices and suppliers' margins. The latter were confronted with reductions in profits from abuses that included inviting fake suppliers who did not really want to win the bid. The aim behind inviting such 'phantom' suppliers was to step up the pressure during the negotiation, thereby inciting the other suppliers to drop their prices even more: "some suppliers are invited just to push prices down," (Supplier). Suppliers also complained about unreliable suppliers being invited who would be unable to honor the bid but whose presence could dramatically compress their margin. Other unethical behavior denounced by suppliers was the buyers' intrusion during the bidding process: "buyers interfere during the bidding event to push suppliers to further reduce prices" (Supplier).
The amplitude of such unethical behavior strengthened the suppliers' belief that ORAs were uniquely in the economic interest of buyers, destroying the producers' margins and even putting their survival at risk, as suggested by the following supplier: "ORAs kill companies; we cannot build a firm's strategy with ORAs. There's no trust. Cost is the only driver. We're really afraid that ORAs will destabilize the market." Buyers acknowledged the legitimacy of suppliers' concerns following such abuses which at times had a dramatic economic impact on their companies. "I mainly work with small and medium international companies; they're very concerned whenever we mention ORAs…I can understand why they're afraid..."

Given the extent of unethical IT use and its dramatic consequences on their margins, suppliers became reluctant to take part in ORAs, as one supplier indicated: "I don't like ORAs, we don't want to take part anymore because of all the transgressions mentioned..." (Supplier). Moreover, this refusal affected all retailers, whether they used ORAs ethically or not: "Whoever the inviting retailer, I won't take part in ORAs again."

Suppliers' discontinuance of use was confirmed by the buyers as illustrated by the following statement: "we sometimes have refusals from suppliers to take part in ORAs for either economic or ethical reasons..." Far from just individual refusals to continue using ORAs, our findings suggest that many suppliers decided to no longer take part in ORAs, as indicated by the following buyer: "Suppliers have agreed not to take part in ORAs...I don't know what we can do to remedy this situation..." (Buyer). In joining forces, the suppliers' action is more effective and can have a significant impact on ORA use, as insinuated by this supplier: "when a supplier boycotts the use of ORAs, he takes the risk of not winning the bid...but if all the suppliers do the same, it could put an end to the use of ORAs."

In addition, such IT discontinuance crystallizes the fact that suppliers became unwilling to listen to any form of intervention from buyers hoping to reassure them sufficiently to persuade them to use the tool again, as emphasized by the following buyer: "I even told the suppliers that I was ready to invite them during the bidding so they could be physically present to make sure that everything is fair and above board. I wanted to reassure them. It still wasn't enough to convince them to use the tool...it's a question of principle to refuse to take part in the process..." (Buyer).

2- Supplier lobbying and legal intervention

Given the proliferation of unethical behaviors that undermined ORA use, different forms of intervention were brought in to regulate ORA use by the retailer as well by the electronic marketplace that hosts ORAs. However, both attempts failed to deal adequately with ORA misuse since they only enunciated enforceable guidelines for ORA use. Suppliers decided to form a lobbying group to convince the legislator to intervene through the promulgation of a law to govern ORA use so as to combat the transgressions and misuses the technology suffered from. One of our informants explained that "the legislators gave way to the suppliers' lobbying by passing this law," and another added: "it's all a question of lobbying in France and the suppliers managed to get this law passed" (IT initiator).

Aware of the very severe and negative economic consequences of unethical IT use on firms as well as the propagation of these unethical uses, the legislator decided to regulate ORA use by guaranteeing negotiation transparency and the ethical use of ORAs, thereby giving suppliers more reassurance when it came to ORAs. Thus, the legislator introduced new protective measures to regulate ORA use through controls and sanctions. The application of the law is guaranteed by public bodies with the power to monitor practices, either systematically or at the specific request of suppliers. Moreover, to facilitate controls, the law obliges buyers to record all bidding processes for one year.

• "The buyer or the person organizing the auction registers the process of the auction and stores the data for a period of one year. This must be presented in the event of an investigation being carried out in the conditions as foreseen in section 5 of the commercial code" (article L.442.10.2).

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According to the new law, any party found guilty of making false claims, introducing phantom suppliers, or using unauthorized means to disrupt the transparency of ORAs risks up to two years of prison and fines of up to €30,000 ($44,124). The existence of such sanctions has forced users to be more careful in their application of ORAs, as one supplier told us: “There is a high risk of controls and the sanctions are considerable, which make users wary of this law.” This was confirmed by the following buyer: “Controls are now written into the law and they are highly constraining for buyers. We're really concerned about them. If we have problems with suppliers, they can ask for an investigation to be carried out…” (Buyer)

3- Legal intervention and IT discontinuance

Our data analysis revealed that the legal intervention led to two forms of IT discontinuance. While the first was imposed by the law, the second was emergent. First, because of the lobbying effort, legal intervention restricted the scope of ORA use by forbidding it for agricultural products: “Reverse e-auctions organized by a buyer or by his representative are prohibited for agricultural products (...) as well as for products for daily consumption resulting from a first transformation” (article L442-10-3).

Simultaneously, and unexpectedly, by introducing such control mechanisms and sanctions, the law has even led to buyers discontinuing ORA use to avoid the risk of being investigated and punished, as the following buyer explained: “all these regulations increase the risk. We do everything we can to avoid it, especially as using ORAs increases the chances of an investigation. So we organize fewer ORAs to avoid the risk...ORAs are now highly controlled with a high risk of sanctions that people try to get round by all the means at their disposal...” The following IT initiator added: “After the law came into force, we had a serious slap in the face and a lot more worries...in other words, using IT in this case meant greater risk of being investigated...so the less you use ORAs, the less risk there is of controls” (IT initiator).

Thus, despite the perceived benefit of using ORAs, the increased complexity introduced by the law has curbed the buyers' enthusiasm due to the risk of controls and sanctions which dissuade them from using the IT: “the law has increased inhibitors of ORA use...” (Buyer). This has led to a reduction in ORA use, as confirmed by suppliers: “we are certainly invited to fewer auctions compared to previous years.” It appears that this discontinuance was indeed unexpectedly triggered by controls and sanctions.

To summarize, our results point to four forms of discontinuance of use

<table>
<thead>
<tr>
<th>Nature of discontinuance</th>
<th>Characteristics</th>
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<tr>
<td>Chosen</td>
<td>From their ongoing use of ORAs, suppliers understood how harmful ORA use was for their business and decided to stop using it.</td>
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<tr>
<td>Triggered</td>
<td>IT discontinuance was triggered by the proliferation of unethical behaviors which increased suppliers’ losses.</td>
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<tr>
<td>Imposed</td>
<td>The law imposed discontinuance of its use for agricultural products.</td>
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<tr>
<td>Emergent</td>
<td>Unexpectedly, by imposing tough controls and sanctions, legal intervention discouraged buyers from using ORAs since it raised the stakes (controls and sanctions) linked to the dark side of IT use.</td>
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Discussion

The purpose of our study was to explore the extent to which the dark side of IT use can lead to its discontinuance in the post-adoptive phase, and to investigate the extent to which intervention can influence such discontinuance. Our results identified four forms of discontinued use of IT: chosen because of the IT artifact, triggered because of the unethical use of IT, imposed because of legal intervention, and emergent because of changes to the stakes linked to IT use.

Our theoretical contributions are threefold. First, our study provides further insights into users’ reflective sensemaking through their ongoing use of the IT. Jasperson et al. (2005) argue that as users become
experienced with IT, they develop their own understanding of the system based on their post-adoptive experience, which can either confirm initial cognition or the contrary. Previous studies have emphasized the extent to which the perceived usefulness and the realization of expected outcomes of IT use influence satisfaction and, consequently, the intention to continue using the technology (Bhattacherjee, 2001; Bhattacherjee and Prumkamar, 2004). We show that ORAs are a zero-sum game technology, which is in favor of buyers at the expense of suppliers. This asymmetry of gains between buyers and suppliers was confirmed during the post-adoption phase. Users validated their initial understanding of the ORA artifact as an unfair technology which severely reduces suppliers' margins. We also showed the extent to which IT can be deviated and used unethically. This dark side of post-adoption behavior heightened users' resentment and prevented them from appreciating any of the benefits that could potentially be gained from its use, consequently provoking IT discontinuance.

Moreover, users improved their understanding of IT use, providing a means to reassess the gap between the expected and the actual outcomes of IT use. By changing the rules of the game between the buyers and suppliers, intervention impacted on IT use in both expected and unexpected ways, as the regulations pertaining to ORA use, the tough sanctions and the strict controls dissuaded buyers from using ORAs despite the potential economic gains. In an attempt to get round the controls and sanctions they would be subject to by misusing the IT, buyers began limiting its use.

We contribute to the existing literature by showing that a decision to discontinue use is not merely explained by user satisfaction alone (Bhattacherjee, 2001; Bhattacherjee and Premkumar, 2004), given the realization of the expected outcomes and perceived usefulness in our example. We argue that satisfaction with IT use is related to expected outcomes from its artifact features, while at the same time, the IT in question is appropriated by different users which can lead to it being unfaithful to its original spirit (Desanctis and Poole, 1994). Charki and Josserand (2008) identified such discontinuance related to unethical IT use, and we have taken the explanation further. In addition, we show how perceived IT-related risk can outweigh its perceived positive outcomes.

Second, we illustrate the way in which unsatisfied users are ready to deal with the constraining effects of IT, leading to the regulation of its use through legal intervention. While the literature on discontinuance has emphasized dissatisfied user reactions by their refusal to use IT (Bhattacherjee, 2001), we show that as social actors (Lamb and Kling, 2003), users enact their use through their interaction with the IT as well as shaping the context of use.

Third, we investigate the role of intervention in dealing with the dark side of post-adoptive behavior and the extent to which it may impact on IT use. Orlkowsik et al. (1995) demonstrated how IT use can be altered and subsequently shaped through intervention. Such intervention can occur initially during implementation (Sharma and Yetton, 2003) or through use in the post-adoption phase (Rodon et al., 2011). This has largely been overlooked in the post-adoption phase (Jasperson et al., 2005), however, with some exceptions such as Rodon et al. (2011). While Rodon et al. (2011) demonstrated the role of intervention in achieving IT assimilation, we investigated how it can affect deviant IT use. Intervention can thus impact on IT use by modifying its scope, but it can also have an unexpected effect.

**Conclusion**

Our study nonetheless has some limitations. We investigated the case of ORA use, which is a zero-sum technology, in a specific context of intervention through the law. Thus, our results cannot be generalized to other IT usage in different contexts. Despite this limitation, our study provides valuable insights to improve our understanding of IT discontinuance, an under-investigated phenomena. In particular, we draw attention to the role of perceived risk of IT use to explain some cases of IT discontinuance. We also highlighted examples of the dark side of post-adaptive IT use and the extent to which it can impact on use. Future studies could investigate IT discontinuance in other contexts, notably the extent to which other forms of perceived risk and intervention can impact on practice. Managers dealing with IT implementation and use should keep in mind that people may stop using a technology even after it has been widely accepted and adopted. This discontinuance can be explained by the features of the IT artifact, but also by the dark side of post-adoptive behavior. It is therefore crucial to
pay careful attention to the way IT is adapted during its use and to be aware of the potentially dark side of IT use that may be detrimental to its continued utilization. Managers also need to initiate early intervention to avoid discontinuance from occurring and to avert a situation where users become insensitive to any arguments designed to persuade them to use the IT again. Our study also emphasized the extent to which intervention can have unexpected outcomes and even trigger IT discontinuance. It is thus important for firms to carefully consider the potential consequences of the actions they undertake and to examine the efficiency of their intervention.

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