Abstract

Owing to the complex nature information system investment decisions, the present study presents an interpretative framework for addressing the postponement of decisions to invest in this kind of technology. An instrumental case study is used to conduct an analysis based on the proposed framework, which is based on Cognitive Dissonance (CD) Theory. The illusion of explanatory depth and cognitive miser theories are also used to interpret the analysis. The case in question is a legal firm in São Paulo, Brazil, that operates in three areas of law. The contribution of the study is a new form of interpreting the postponement of information system investment decisions. The non-investment behavior of the managers concerning IS can change if they are given information that strengthens their cognitive dissonance, resulting in their becoming sufficiently uncomfortable to change this behavior.

Keywords

Cognitive dissonance, investment decisions, illusion of explanatory depth, cognitive miser.

Introduction

Irrespective of the company’s stance on the use of Information Systems (IS), the effectiveness of expenditure and investment can be questioned by an interested party involved in the processes or services supported by IS, including partners, employees, clients or even suppliers. This study addresses a common issue regarding the use of IT in companies using a new approach to the problem, focusing on how the decision makers of the company perceives IS in relation to the services offered or made possible by this technology. More precisely, when a company knows that it can offer its clients more services through the use of IS, it knows that a competitor can also offer these services, but even so it does not invest in similar technology. In other words, this study seeks to bridge a theoretical gap and understand decisions not to invest in IS. The theory used to address this phenomenon can also be regarded as a contribution to the field of Management Information Systems (MIS), as we have found no other studies in this field that use the theory of cognitive dissonance as it is articulated in this study.

To examine how those in charge of a company justify not investing in IS, from a perspective of the theory of cognitive dissonance, we identified a case that met the necessary conditions for this study to be conducted. The firm would not offer a given service enabled by IS and it would have to be easy to identify that such services were offered by the firm’s competitors. Despite this fact, those in charge of the firm would maintain their decision not to invest while recognizing that it would be possible to do so. Finally, those responsible would have to be willing to answer question on why they had decided not to invest in a technology that their competitors were offering to their clients. This study involves a legal firm that does
Cognitive Dissonance

To address how managers justify not investing in information systems, this study uses cognitive dissonance theory. In this section, we review the literature and describe the constructs used in the study. Cognitive dissonance appeared in the field of psychology in the 1950s (Festinger, 1962; Festinger & Carlsmith, 1959). It claims that individuals seek coherence between their cognitions, i.e., their beliefs, values and opinions. When there is dissonance between their beliefs or between one or more of their beliefs and behavior, something needs to change to remove the incoherence or dissonance. In the case of a discrepancy between beliefs and behavior, it is more likely that the belief will change to accommodate the behavior (Festinger & Carlsmith, 1959). However, the greater the force of the external justification, the less it will tend to have an impact on attitude (Aronson & Carlsmith, 1963).

The strength of dissonance can be affected by the number of dissonant convictions or the importance attributed to each belief. Dissonance is generally eliminated by reducing the importance of dissonant convictions by identifying more consonant beliefs that outweigh the dissonant convictions or by changing the dissonant convictions. Many studies have been conducted to understand how cognitive dissonance operates and how it is minimized, since the results of this minimization of cognitive dissonance are often counterintuitive (Festinger & Carlsmith, 1959).

There are other mechanisms for reducing cognitive dissonance (CD). An individual can avoid information or situations that are likely to increase CD, attempting to persuade other individuals to adopt the same attitudes or seeking support from individuals that share these attitudes (Dillard & Pfau, 2002, p. 101). A further mechanisms for reducing CD is exaggeration caused by a desire to achieve a certain goal (Aronson & Mills, 1959). Finally, criticizing what you cannot have can also be considered a mechanism for reducing CD (Elster, 1985, p. 123) adopted by a manager.

The theory of Cognitive Dissonance has already been used in the field of information technology management to address changing attitudes to the acceptable use of IT over time, from the first experience with a technology and its continuing use. Some studies have examined changing attitudes to IT using theories based on cognitive dissonance theory, the expectation-disconfirmation theory (EDT) (Bhattacherjee & Premkumar, 2004; Venkatesh & Goyal, 2010) and the expectancy confirmation theory (ECT) that also stem from CD theory (Chea & Luo, 2005). There are studies that have addressed the evaluation of service, user satisfaction and alignment between business and IT using CD theory (Benlian, 2013; Szajna & Scamell, 1993). There is also a study that uses CD theory to address the turnover of IT professionals (Ryan, Prybutok, & Zhang, 2006)

As the aim of this work is not to analyze the changing attitude of managers regarding the use of IS but to analyze how they support their arguments not to use these systems, the adopted theory is that of cognitive dissonance.

Expenditure and Investments in IS

Concern over expenditure and investment in information systems is a key point for organizations, considering that there is evidence that announcing the value of these systems can affect the value of the
business and also forecast future returns (Boyko, Rogova, Roztocki, & Weistroffer, 2014; Dehning, Richardson, & Zmud, 2003; Henderson, Kobelsky, Richardson, & Smith, 2010; Kohli & Ow, 2012).

Justifying expenditure and investments in IS has been a concern among researchers for decades (Brian L. Dos Santos, 1991; Gartner, Zwicker, & Rödder, 2009; Keen, 1981; McRAE, 1970), and how to evaluate IS investment and expenditure has been addressed from several different viewpoints, including business productivity (Brynjolfsson & Hitt, 1996; Brynjolfsson & Hitt, 1998; Hitt & Brynjolfsson, 1996), profitability (Bharadwaj, 2000; Brian L Dos Santos, Peffers, & Mauer, 1993) and quality and results (Mukhopadhyay, Rajiv, & Srinivasan, 1997). Due to the complexity and diversity of results concerning the evaluation of IS investments, especially considering the impact of the problems that the current globalized scenario can have on academic research (Rush & Melville, 2014), different theoretical approaches have also been used (Quan, Hu, & Hart, 2003; Matt E Thatcher, 2004; Matt E Thatcher & Oliver, 2001; Matt E. Thatcher & Pingry, 2004).

Another way of analyzing information system expenditure and investments is to compare them with market indicators. Although this is a simple principle, there are difficulties involved in obtaining reliable data on how the market spends and invests in IS. The Getulio Vargas Foundation has a secondary database that can be used to obtain these indicators: the Annual IT Survey. This survey includes data from over two thousand companies over the last twenty-five years. It is segmented into sectors of the economy and company size (Meirelles, 2014). This type of database can provide indicators when it is necessary to compare IT expenditure of a company and the market in which it operates. The indicators provided by this database enabled a comparison between the IT expenditure of the case in question and the mean expenditure on IT on the market. It is important to avoid outlier cases.

**Cognitive Dissonance and the decision not to invest in IS**

When a manager sees his competitors offering new services to clients and does not invest in solutions so that he can offer the same services, this decision not to invest can lead to a conviction that is dissonant with the following attitude (beliefs, values and opinions): our competitors are offering something that we are not. The cognitive dissonance theory claims that this dissonant conviction causes discomfort that leads an individual to change his attitude, behavior and even to adopt other attitudes to minimize the dissonance. A manager who decides not to invest can change his behavior by investing in solutions to offer the same services as his competitors. He could use consonant attitudes to minimize dissonance, such as believing that the return does not justify the investment or believing that this type of service is not important to his own clients. Thus, the attitude regarding the fact that our competitors offer something that we do not could be minimized. A manager attempting to avoid information or situations that increase his cognitive dissonance could seek support or arguments that could help him do so in groups that share his views, attitudes or behavior. The manager could claim that his goal is to keep costs as low as possible. This argument could be disproportionately important when compared with the real financial condition of the firm. As a result, any argument in favor of investing in an IS could not be a source of CD or could be automatically minimized. The manager could also criticize a solution without even knowing whether his criticism actually carries any weight due to the illusion of explanatory depth that his familiarity with IT might cause (Rozenblit & Keil, 2002).

Due to the complexity of evaluating investments in IS, it is possible for the manager to accept investment in IS as an attitude that is consonant with the argument that our competitors offer something that we do not (e.g., the return does not justify the investment), thereby minimizing the dissonance of his decision not to invest), or as a dissonant conviction (e.g., investing in this type of system can improve the quality of our results and increase client satisfaction) by deciding not to invest.

Without considering how managers evaluate their investments in IS, it is probable that these managers do not wish to risk the chance of ceasing to be a competitive company to the point that they will lose part of their market share. However, they will not invest without obtaining a justifiable benefit. Comparing their own expenditure and investment in IT with what the rest of the market does would be one way for a manager to discover whether the argument that the return does not justify the investment is actually coherent.

**Framework**

In the review of the literature on cognitive dissonance theory, we addressed five mechanisms for reducing CD: adding consonant beliefs, change of attitude or behavior, avoidance of information or situations that might increase CD, exaggerating the desirability of a goal and criticizing what you cannot get.
Figure 1. Framework of Cognitive Dissonance generated by a manager's decision

Source: Prepared by the authors
The framework presented in Figure 1 shows, from the manager investment decision, the CD reduction mechanisms. Irrespective of the manager’s decision, he will face a CD reduction process (Brehm, 1956; Egan, Bloom, & Santos, 2010; Gächter, Nosenzo, & Sefton, 2010). A manager, like any other individual, may be more inclined to act with a certain level of cognitive miser, using mental shortcuts to make assessments and decisions regarding subjects and ideas of which he knows very little, and also in the case of highly relevant issues. This cognitive miser is a way for the human brain to handle high volumes and intensity of information and stimuli to which individuals are subjected (Fiske & Taylor, 2013). Owing to these mental shortcuts, an individual can be subject to an illusion of explanatory depth regarding a given theme or subject when, in reality, his knowledge of it is only superficial. Asking an individual to provide a detailed explanation of a subject may lead him to have an illusion of explanatory depth, which will result in him evaluating better how much he actually knows of the subject in question (Rozenblit & Keil, 2002). In other words, identifying the mechanism or mechanisms that a manager is using to reduce CD can help to identify which arguments he would use to support or not support an investment in IS or any other kind of investment. Therefore, asking a manager to provide an in-depth explanation of each argument that he uses to support his decision could be a way of reviewing a decision not to invest.

To identify which CD reduction mechanism a manager is using, the proposed framework is utilized to analyze the selected instrumental case. This study assumes the definition of an illustrative case presented by Stake (1995, cap. 14).

As presented in the framework, figure 1, irrespective of the manager’s decision to invest or not invest, according to the CD theory, the manager will face a CD reduction process (Brehm, 1956; Egan et al., 2010; Gächter et al., 2010). This study focuses on the period prior to the decision to invest in IS, i.e., the time during which the managers frequently found arguments to avoid or postpone the investment.

Research and Methodology

In this study, we use a case, but our aim is not to generalize or test CD theory. The aim of the case is to illustrate how the proposed framework should be made operational, as the single case is interesting when it successfully provides an empirical illustration of the theoretical argument developed in the article (Siggelkow, 2007). This may be considered an instrumental case, used to provide a vision or refinement of a theory, being of secondary interest and offering a supportive role to facilitate the understanding of the phenomenon proposed in this study (Stake, 1995, cap. 14).

To explore how those in charge of the company justified their decision not to invest in IS, from the perspective of the cognitive dissonance theory, a case was identified that met the necessary conditions. These conditions, as briefly outlined in the Introduction, were: 1) the company could not offer a service enabled by information systems that was offered by its competitors. For this purpose, an IS was chosen that enabled clients to access information on the firm through its website. The use of the system is easily identified by accessing the websites of the competitors of the firm in question. 2) The company had to have made a decision not to invest in this type of IS; 3) The people responsible for making decisions to invest in technology had to be aware that the service could be offered and had to be willing to answer questions regarding this decision not to invest in a technology offered by the competition.

All these criteria were met by a law firm that does not allow its clients to consult the progress of their legal cases using the company website. This case meets the requirements of the study, as the partners are aware of the existence and purpose of the technology and, even so, decided not to invest in a similar IS for their firm. We collected the data for the study through individual interviews lasting approximately thirty minutes with the five partners of the law firm in the second half of 2014, four visits to the firm, field notes, an evaluation of the firm’s website and the websites of its competitors and conversations with employees and outsourced IT service providers. Before the interviews were begun, it was clearly explained to each interviewee that all the questions would refer to the information system that allows their clients track the status of their case on the firm’s website. Three interviewees pointed out that the same information system that allows clients to track their status on the website helps them to organize the case internally. This may lead the reader to assume that they are sometimes talking about IT in general, but they are always referring to the status tracker information system. The interviews were recorded and transcribed by the author to enable ready access to the data. To help codify the data, RQDA (R package for Qualitative Data Analysis) was used. This is freely available open code software. We categorized the data into the five CD reduction mechanisms presented in the framework.
The Law Firm

With its head office located in São Paulo (SP), Brazil, the law firm operates in three areas of law: criminal, civil and labor. It was founded fifteen years ago and its clientele is made up of individuals in a high income bracket, medium size companies and large multinationals. The majority partner is the president of a subsection of the Brazilian bar, the Order of Brazilian Attorneys (OAB). In 2014, the firm was listed in the Análise Advocacia, which is published annually and includes the 500 law firms most admired by their clients. As the firm has no IS specialist to advise on investment decisions in this field, the five partners are responsible for making these decisions. The partners are four men and one woman, aged between thirty and forty. The five partners have been given the fictitious names of Dr. Paulo, Dr. Tatiana, Dr. Guto, Dr. Breno and Dr. André to protect their identities. As yet, they have made no investments in IS to manage the cases handled by the firm or for their clients to access information on the progress of their cases on the firm’s website. The whole IT infrastructure, including desktop computers and laptops, is based on products and solutions by Apple, which is not recognized as a low-cost brand. Therefore, we can assume that keeping costs down is not a strong guiding principle when it comes to making decisions on IT investments. As mentioned above, the firm operates in three fields. Dr. Tatiana heads the civil law branch of the firm, which handles approximately 150 cases at a time. Dr. Guto heads the labor law area, which handles approximately 250 cases. Dr. Paulo heads the business crime branch, handling approximately 620 cases. Each of these areas has teams of associate attorneys, contract attorneys and interns. The structure maintained in each area, the number of cases per area and the independent contracts with companies for the legal monitoring of civil and labor cases indicate that the areas are sustainable. However, an alleged dependence on the criminal department is an argument used by the managers of these departments against investment in IS.

“[...] we don’t have an information system because our firm mainly works in criminal law [...]”
(Dr. Guto)

This argument is used even when those responsible for decisions to on IT investment can see the advantages that could result from this investment.

“In the areas outside criminal law, I can see the advantage, indeed I can. [...]” (Dr. Guto)

Dr. Guto, head of the labor law department, believes that an IS would give the firm some advantages. However, to justify not investing in IS, he claims that the criminal law department is larger and, externally, it is an area in which this type of IS is not used:

“No, I really don’t know, the information... ah, especially in the field of criminal law. Firms are just starting to professionalize in this way. It’s something to think about. A lot of them have a website, created recently. It’s another world.” (Dr. Guto)

Another argument used by Dr. Guto against investment in IS is the security and confidential nature of the information the firm handles:

“[...] we prefer to keep this type of information safely locked up. We, we don’t supply... we don’t intend to supply any information about this type of case publicly [...]” (Dr. Guto)

This attorney knows the advantages that information systems can bring to the business, and although he has not invested in this type of technology yet, he is seeking a way to supply his clients with the information they need:

“[...] It’s an interesting tool because it really saves time and time can be used more efficiently. The client needs to contact his lawyer directly and the lawyer has to go and get hold of the information. All you have to do is make the tool available and the client can get direct access to the information by himself.[...]” (Dr. Guto)
“[...] So, to my clients who are private individuals, I advise them to register step by step with the court websites in general and there they can get e-mails sent to them about the progress of every case they’re involved in. [...]” (Dr. Guto)

Dr. Guto uses the method of adding consonant attitudes to reduce CD, as he knows the advantages that an information system can bring to a legal firm, and was once a partner in a firm that used a system for consulting cases. He uses the mechanisms made available by the courts to supply information that the firm could offer its clients.

Although she is in favor of investing in IS, Dr. Tatiana, head of the civil law department, appears to seek consonant cognitions to handle the unwillingness of most of the partners to make investments in IS:

“Look, I even think it could be a good idea for us to have here at the office, but I’ve always been outvoted and we have to have a lot of people on our side. There are five partners, so it has never been approved because the criminal department would have to use it, we’d have to make it available to those clients, so it would be a kind of double launch and a lot of hard work. And we, at the end of the day, we’ve never used it, and we’ve had this structure for seven years, so we’ve created our own organization methods without any system. I think a system would make things easier, but, well....” (Dr. Tatiana)

For Dr. Tatiana, identifying the mechanism adopted by her partners to reduce cognitive dissonance could facilitate her argument with the partners for the purpose of altering their attitude.

Dr. Breno sees the advantages of investing in information systems in the firm’s largest department, which handles criminal law cases:

“The advantage would be to use one of these systems that I’ve already mentioned. Tedesco, right? For when a company has two hundred criminal cases with us, and even the teams don’t know what to tell you, but now the answer is right there in front of you, right? [...]” (Dr. Breno)

However, he uses the argument that there is a weak commercial appeal for investing in this type of technology:

“Yes, as I’ve already said, I don’t think it’s all that necessary, you know? Of course, when the time comes to sell the services I offer, I can include this and tell the client, look, you’re going to be able to follow the case on the firm’s website, but you’ll also be in touch with a professional that’s looking after you. So I don’t think it’s essential. It’s a plus, but not essential.” (Dr. Breno)

All of the partners use the addition of consonant cognitions to reduce CD, with the exception of Dr. Paulo, head of the criminal law department and the majority partner. He adopts the mechanism of exaggerating desirability of goals to keep expenditure as low as possible, with arguments such as:

“OK, we could invest in a system for your clients to access our site, but you’re the ones who’ll have to pay for it. I don’t need this and our expenses must always be kept under control. (Dr. Paulo, in a field note)

He also uses the mechanism of criticizing what he cannot have:

“[...] These systems aren’t all they’re cracked up to be! Big companies use this stuff because they have a lot of money to spend. I don’t think there’s even a demand for this, but as it’s not an expressive cost to them, they use it because the suppliers pay kickbacks to the people that hire them. [...]” (Dr. Paulo, in a field note)
Although Dr. Paulo uses these arguments to justify not investing in IS, no evidence was found showing that he knows exactly how much it would cost to invest in the system. Even with this information to hand, as seen in the review of the literature, measuring whether this investment would be negative or would bring an advantage to the firm would not be an easy task. Interaction between IT professionals and business professionals means that expectations in terms of performance and satisfaction concerning an information system become less divergent (Benlian, 2013). When information is exchanged between business and IT professionals, the influence that one has on the other reduces both positive and negative false expectations. As the firm has no internal IT team, there is no interaction with professionals who could provide counterarguments regarding the advantages and disadvantages for those who have to make the decisions. IT professionals could show them how the market spends and invests in information systems. This would reduce false expectations regarding the investments that could be made in IT.

It could be argued that Dr. Paulo may be right and this technology does not apply to criminal cases, but he, as the senior partner of a firm that operates in three areas of law, is expected to look at the firm’s operations as a whole rather than only considering his own field when considering IT investments. The firm has a respectable labor law department and the online status tracker on a law firm’s website is a widely used technological tool by law firms in this field. Moreover, it might be imagined that Dr. Paulo has a limited understanding of the potential of IT, but during the interviews he showed a clear perception regarding the workings of a status tracker.

**Final Considerations**

Understanding the psychological effects involved in investment decisions is a fertile field for research in IS, as these decisions are usually high complex due to the degree of abstraction and difficulty in measuring the returns that are intrinsic to IT solutions.

Investment decisions concerning information systems are generally difficult and managers do not always use data to conduct a rational analysis when the time comes to make a decision. The illustrative case used in this study helps to answer the proposed research question, presenting the cognitive dissonance (CD) reduction mechanisms adopted by those responsible for information system investment decisions when faced with arguments for and against a decision to invest. Irrespective of how the decision is made, individuals undergo a process of cognitive dissonance reduction. The present study offers a new form of interpreting the postponement of information system investment decisions and presents an interpretative framework based on the theory of cognitive dissonance, the illusion of explanatory depth and cognitive miser. With the aid of an instrumental case, it demonstrates and conducts an analysis using the proposed framework.

With the proposed approach, it is possible to understand the individual internal mechanisms of the managers regarding a decision. This improves our understanding of their decision or its postponement, enabling the managers to share the decision, structure their arguments to increase the CD of their peers and improve their chances of persuasion. The non-investment behavior of the managers concerning IS can change if they are given information that strengthens their cognitive dissonance, resulting in their becoming sufficiently uncomfortable to change this behavior, before doing this as a laggard adopter.

This study contributes to the literature by filling a theoretical gap regarding understanding of non-investment in IS. The theory used to address the phenomenon can be considered a contribution to the field, as we have not found any other studies in this field that use the theory of cognitive dissonance in this way. The practical contribution of the study is a new way of viewing the psychological consequences of information system investment decisions, enabling managers to identify ways of arguing more convincingly in favor of IS investments.

Some limitations of the study and opportunities for future studies should be considered. Future studies should undertake the task of proving that the framework can be generalized. A limitation of this study is that psychometric tests were not used to evaluate the degree of CD of each manager responsible for information system investment decisions. This limitation provides an opportunity for future studies. Through psychometric tests and conducting experiments, it would be possible to understand how to interfere in the CD of managers who decide not to invest in IS.

Another limitation of the study is that it does not address the power relationship between the majority partner and the other partners. Although this is not the objective of this study, the power relationship between the decision makers may have an influence on or play a role in the formation of CD in each manager in question, which opens up yet another possibility for future studies.
Another interesting opportunity for a future study would be to investigate the role of confirmation bias in the dissonance reduction process.

The fact that the phenomenon in question was not investigated through the lenses of the Status Quo Bias Theory, as done by Kim and Kankanhalli (2009), or through the lenses of the Theory of Planned Behavior (TPB) from Ajzen (1991), can be seen as a limitation of this study. Our understanding is that when investigating how to accelerate the behavior change of decision makers, the CDT fits better.

REFERENCES


