Sunk Cost and Target Achievement Biases in Subsequent IS-Outsourcing Decisions

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SUNK COST AND TARGET ACHIEVEMENT BIASES IN SUBSEQUENT IS-OUTSOURCING DECISIONS

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Abstract

Early IS-outsourcing research is mainly based on three assumptions: the research results are normative, the decision maker acts in a completely rational manner, and the decision is made at a single point in time. Within the last decade, some of these assumptions have been softened, and studies have attempted to broaden the research by investigating the IS-outsourcing decision process from a more descriptive point of view. Our aim is to extend IS-outsourcing research from a static and mostly rational view to a continuous view with decisions that are influenced by non-rational biases. In this research-in-progress paper, which delineates the conceptual foundation for a larger ongoing research project, we present a research model that depicts some of these non-rational biases based on path dependencies between subsequent decisions. The model states two propositions that can be logically derived from cognitive dissonance and prospect theory: sunk cost influences the adherence of a decision maker to the chosen course of action, and the degree of target achievement of a previous decision influences the risk tolerance of the decision maker in an ensuing decision. An upcoming empirical study using an experimental setting will be conducted to confirm these hypotheses.

Keywords: IS-Outsourcing Decisions, Path Dependencies, Non-Rational Biases, Cognitive Biases, Sunk Cost, Prospect Theory, Cognitive Dissonance Theory.
1 INTRODUCTION

In recent years, there has been a dramatic increase in outsourcing. This phenomenon has in turn led to an increase in the number of articles addressing the topic. Looking back at the last decade of outsourcing research, it is evident that the field of information systems has been a pioneering force in this area. Numerous research and practitioner articles have been published examining IS-outsourcing activities (Dibbern et al. 2004, Gonzalez, Gasco and Llopis 2006, Lacity, Khan and Willcocks 2009).

The first body of research on the topic of IS-outsourcing, mainly initiated by the large Eastman Kodak outsourcing deal in 1989, is typically based on three assumptions. First, the decision maker acts in a completely rational manner. This means that all decisions can be calculated through mathematical models based on full information with the target of profit maximization. Second, research on IS-outsourcing decisions is mainly normative. Hence, the course of action resulting from the decision becomes the research focus, rather than the decision process. Third, the decision is mostly seen as one event at a distinct point in time. This implies no connection to previous decisions; therefore, there are no dependencies considered that may appear between decisions on the time continuum (Dibbern et al. 2004, Dibbern, Heinzl and Leibbrandt 2003).

Within the last decade, research on IS-outsourcing decisions has evolved. The strict assumption of rationality has softened over time. A change can be seen from the new institutional economics with fully rational agents alongside dynamic theories with opportunistic agents, towards behavioralism based on agents acting with at most bounded rationality (Dibbern 2004, Simon 1947). Recent research has proposed that the prospect of success can be increased if decision makers take psychological and sociological phenomena into consideration when it comes to IS-outsourcing decisions. The sounder the psychological and sociological fundamentals, the more comprehensive the instructions that can be derived for future practice (Arnott 2006, Rouse and Corbitt 2007). Furthermore, research has changed from a purely normative to a more descriptive approach. Not only is the course of action now in the focus of research, but the decision process itself is also the focus. Researchers are becoming increasingly interested in the question of how decisions are made in real situations and by which effects they are influenced (Rouse and Corbitt 2007). The third assumption of early IS-outsourcing research remains rather unexplored. There is very little analysis of temporal effects on IS-outsourcing decision making. Nonetheless, research in other areas of decision making provides evidence that there are effects resulting from dependencies between subsequent decisions that are expressed as path dependencies in this paper (e.g., Garland and Newport 1991, Laughhunn and Payne 1984, Soman 2001).

Even though there is a visible movement away from the three mentioned assumptions and the viewpoint on IS-outsourcing decisions in academic literature, there are still many research gaps that need to be filled to fully understand the influence of non-rational biases on IS-outsourcing decisions. Our research contributes to IS research by the conceptualization of non-rational biases triggered by sunk cost and the degree of target achievement (called sunk cost bias and target achievement bias in the paper at hand), which appear in a continuum of subsequent decisions. Hence, we tried to further close the demonstrated research gap by extending the field of research from a static and mostly rational view on outsourcing decisions to a continuous view with decisions that are influenced by non-rational biases. The paper at hand is to be seen as a research in progress, which is one part of a larger research approach that attempts to advance our understanding of IS-outsourcing decisions as well as information for practitioners on how to handle non-rational biases in IS-outsourcing decision situations.

In order to give an overview of the overall research program and to address the research question on path dependencies in IS-outsourcing decisions, the remainder of the paper is structured as follows: Section 2 states our research agenda on non-rational biases in IS-outsourcing decisions. It also depicts our taxonomy of causes for non-rational biases. Section 3 builds the theoretical foundation of the paper by defining sunk cost and target achievement through the lens of path dependencies.
Furthermore, it specifies the theory of cognitive dissonance and the prospect theory, which together are the main explanatory approaches of our research model. In Section 4, our research model is developed based on the assumptions made by the theories shown in Section 3. Two hypotheses are derived from this model. Our paper reaches its conclusion in Section 5 with the elaboration of a research methodology that will be used in an upcoming empirical study to validate the propositions, and an argument for further investigation into this interesting area of research.

## 2 OVERALL RESEARCH AGENDA

The overall framework of the research program is primarily based on non-rational biases that can be derived from psychological literature. Various authors (e.g., Arnott 2006, Nitzsch 2006, Rouse and Corbitt 2007) have argued that these non-rational biases occur within a certain system, rather than by accident, and can be logically grouped by their causes, such as behavioral affective motives and cognitive restrictions (see Table 1: Taxonomy of causes for non-rational biases).

The former cause consists of two entities that unconsciously control humans: the motive for the reduction of cognitive dissonances and the motive of control. A detailed description of these motives and the inclusion in our research question are done in Subsection 3.2.

Cognitive restrictions can be observed in each step of the human information processing process: information availability, cognition and processing. These are further described in Section 5.

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*Table 1: Taxonomy of causes for non-rational biases*

The causes of behavioral affective motives and cognitive restrictions lead to non-rational biases in decision-making situations. These biases are the main focus in our research approach. As the field of psychological biases is extremely multifaceted and heterogeneous the list in Table 1 is not exhaustive; rather, it shows some typical representatives. Furthermore, it has to be recognized that all of these non-rational biases are not as discrete as the taxonomy in Table 1 implies. They are likely to overlap in definition and connection to the cause. Hence, the categorization in this paper is not the only possible one. In fact, it is an adaptation of some important biases to our research questions. Other authors have followed similar approaches to make use of the biases for their research (Arnott 2006, Rouse and Corbitt 2007).

Although our overall research program shall cover both of the causes depicted in Table 1: Taxonomy of causes for non-rational biases, in this research-in-progress paper, we only prepare the empirical study to examine the biases triggered by the appearance of cognitive dissonances (see the marked area in Table 1). Further research, approaching the biases caused by the motive of control and cognitive restrictions is presented in Section 5.

## 3 THEORETICAL BACKGROUND

The ideas behind our research in the paper at hand are based on the cognitive dissonance theory (Festinger 1957) and the prospect theory (Kahneman and Tversky 1979), which are used to explain non-rational biases in subsequent IS-outsourcing decisions. To fully understand the deduction of the
hypotheses in Section 4, the following subsections explain these non-rational biases in the context of subsequent IS-outsourcing decisions. They are caused by the appearance of cognitive dissonances through sunk cost and a varying degree of the target achievement. Furthermore, the two theories (cognitive dissonance and prospect theory) are introduced to explain the development of the hypotheses.

3.1 Biases resulting from path dependencies in IS-outsourcing decisions

A central element of our research framework is the dependency between subsequent decisions, called “path-dependencies” in the academic literature. As single decisions in organizations are normally integrated in a complex network of decisions which are taken over time it seems to be obvious that there are dependencies between these decisions. Greener (2002, p.614) for example strengthens this proposition by stating that “history matters in understanding organizations”. One effect that has been observed in strategic decision making is called the commitment to a course of action (e.g. Brockner 1999, Moon 2001). We argue that this also applies to IS-outsourcing decisions. The main idea behind the concept of path decisions is that “actors are hemmed in by existing institutions and structures that channel them along established policy paths” (Wilsford 1994, p.251). In the case of IS-outsourcing decisions and our research framework, these structures result from previous decisions on an IS object concerning the question whether to “make” or to “buy.” Hence, the introduction of a temporal component to IS-outsourcing research expressed by path dependencies in decisions seems to be of vital importance (Greener 2002).

In our research framework, we looked at two non-rational biases that occur through path dependencies and which are important for our purposes, especially in IS-outsourcing decisions: these biases result from the appearance of sunk cost and a varying degree of target achievement.

The phenomenon of sunk cost is not new in academic literature. Nevertheless, it seems to be quite important in IS-outsourcing decisions, as those deals are mostly coupled with high expenses for, e.g., hardware, software or human resources, depending on the kind of IS object. In fact, the sunk cost bias is easily described. The main proposition is that past costs are deemed irrelevant for current decisions because they cannot be changed (Horngren, Foster and Datar 2000). Hence, the sunk cost of an asset in outsourcing decisions is the unrecoverable portion of the asset’s value. This is determined by subtracting the asset’s current resale value from its present book value (Hurley and Schaumann 1997). Typical sunk costs in IS-sourcing situations are hardware and software assets. Furthermore, a lock-in effect may be evident when employees are trained in specific hard- or software. The costs for training are seen as sunk costs, as soft skills are highly asset specific and cannot be sold. Besides research on consumer behavior, the sunk cost bias has also been investigated in organizational environments, as well as in the area of outsourcing decisions, with the exception of information systems or information technology. Roodhooft and Warlop (1999) demonstrated the influence of asset specificity and sunk cost in outsourcing decisions concerning health care organizations. They proved that managers in this sector appear inappropriately sensitive to sunk cost, which leads to an under-engagement in outsourcing (Roodhooft and Warlop 1999). Based on these results, Laing and Geno (2005) conducted another study concerning asset specificity and sunk cost biases in outsourcing decisions of private and public hospitals in Austria (Laing and Geno 2005). Coming from the purely rational assumption that only future costs are relevant for decisions, they also showed that this assumption is contradicted by past costs, like sunk cost (Arkes and Blumer 1985) and asset specificity (Williamson 1985). The results also provided evidence to solidify the assumption that the majority of managers do not act optimally in the sense of the rational decision model. It is also possible to show that the amount of sunk costs paid also negatively influences the rationality of the decision maker.

The second bias we analyze in this paper is triggered by the degree of target achievement concerning previous IS-outsourcing decisions. Whyte and Bytheway (1996, p.74) state that “there is continuing difficulty in achieving success with information systems, particularly in the sense of meeting users’ expectations” (Whyte and Bytheway 1996). Hence, we use the construct of target achievement for our
research framework. The proposition is that the achievement of the main targets in the present affects the decision maker’s level of cognitive dissonance and thus influences his decision behavior in terms of risk tolerance when it comes to a reconsideration of this outsourcing deal (McNamara and Bromiley 1997, Thaler and Johnson 1990). Contrary to the well-known sunk cost bias, the influence of the performance or, in other words, the target achievement of a past decision on a subsequent one is rather unexplored.

The following subsection further depicts the connection between the cognitive dissonance and prospect theory to the behavioral affective motives that influence the rationality of humans in decision situations.

3.2 Cognitive dissonance and prospect theory as explanations for the biases

Human decision-making behavior is influenced by a variety of motives that unconsciously control humans. One of these behavioral affective motives seeks for the reduction of cognitive dissonances. Cognitive dissonances can be triggered by several biases, e.g., sunk cost bias and target achievement bias. The resulting non-rational behavior of the decision maker can on the one side be explained by the cognitive dissonance theory, formalized by Festinger (1957), and on the other side, by the prospect theory, which was developed by Kahneman and Tversky (1979).

The theory of cognitive dissonance is one of the most important and influential theories in the history of social psychology. Cognitive dissonance refers to the ability of a person to simultaneously hold two opinions or beliefs that are logically or psychologically inconsistent (Festinger 1957). According to Festinger (1957), a person who experiences the pressure of this aversive motivational state will seek to remove it; otherwise, the maintenance of cognitive consistency will give rise to non-rational behavior (Bem 1967, Festinger 1957). Typical behavior in answer to cognitive dissonance is described as follows. First, the decision is revised. Second, the decision maker looks for information that supports the choice. Information that devaluates a decision is avoided (Nickerson 1998, Wason 1968). Third, increased, risky investment is attempted, in order to bring the decision toward a successful outcome, which leads to the so-called sunk cost bias, which is described in Subsection 3.1 and builds one of the constructs of our research framework (Arkes and Blumer 1985).

The prospect theory criticizes the assumptions proposed by the former expected utility theory for decision making under risk. In the 1979 Econometrica publication “Prospect Theory: An Analysis of Decision under Risk,” Kahneman and Tversky (1979, p.263) showed through several experiments that there are “[…] several classes of choice problems in which preferences systematically violate the axioms of expected utility theory”.

Prospect theory is based on three effects, which are not explicitly mentioned in the categorization framework in Table 1, as these effects are special assumptions made by the prospect theory, which itself serves as a scientific explanation for the propositions in Subsection 4.2. Furthermore, there is already enough evidence given by the investigations of Kahneman and Tversky (1979) that these effects appear in decision situations under risk, which perfectly applies to IS-outsourcing decisions. In contrast to the expected utility theory, where the outcomes are weighted by their probabilities, Kahneman and Tversky (1979) showed that this assumption is violated in some cases. The certainty effect describes that people systematically “[…] overweight outcomes that are considered certain, relative to outcomes which are merely probable” (Kahneman and Tversky 1979, p.265). Hence, people prefer to reduce the chance of something negative occurring from something to nothing than by the same amount but not to zero. The reflection effect is similar to the certainty effect. The main difference is that the certainty effect is based on positive prospects, while the reflection effect is based on negative prospects. Kahneman and Tversky (1979) showed that decision makers tend to be risk averse when it comes to positive prospects and risk loving when it comes to negative prospects. Hence, people prefer a gain that is certain over a larger gain that is merely probable in the positive domain. In the negative domain, this trend is reversed. People favor a merely probable loss that is higher than a certain loss that is lower. The isolation effect shows that people generally discard
components that are shared by all prospects under consideration. These effects lead to inconsistent preferences when the same choice is presented in different forms. In summary, Kahneman and Tversky (1979, p.279) “[…] have proposed that the value function is (i) defined on deviations from the reference point; (ii) generally concave for gains and commonly convex for losses; (iii) steeper for losses than for gains […]”. The behavior proposed by the assumptions of the prospect theory also reflects the propositions of the cognitive dissonance theory, as the perceived value affected by gains and losses can be expressed in a change of the level of cognitive dissonance perceived by the decision maker.

Based on the theoretical background, Section 4 develops our research model and hypotheses, which are based on the assumption that the sunk cost and target achievement biases affect subsequent sourcing decisions.

4 RESEARCH MODEL AND HYPOTHESES

The previous section explained the main assumptions of the two fundamental theories used in our research approach. Now, the two theories are combined to explain the assumed non-rational behavior of decision makers triggered by sunk costs and the degree of target achievement of previous decisions.

Generally, every decision at a time $t_0$ affects the reality and therefore influences subsequent decisions at time $t_1$-$t_n$. This is what we call path-dependencies in our research approach. To reduce the complexity of our research model, we picked two effects that appear through the change of reality in $t_0$ and are especially influential in IS-outsourcing decisions: the appearance of sunk cost and a varying degree of target achievement. Hence, we assume that the decision in $t_0$, on the one side creates sunk cost that affects the adherence to the chosen course of action at time $t_1$. On the other side, the decision made in $t_0$ can be evaluated in $t_1$, which changes the risk tolerance of the decision maker in forthcoming decisions. Both assumptions can be explained by the cognitive dissonance and the prospect theory.

To convey a brief overview about the model, Figure 1 depicts these path dependencies between sunk cost and the adherence to the chosen course of action as well as between target achievement and risk tolerance. Our research model is based upon two independent variables. The first is the formative formulated latent variable $\eta_1$ (sunk cost), which is caused by several indicators, such as hard- and software costs, costs for training and lock-in effects ($x_1$-$x_n$). These have to be further specified. The second is the manifested variable $x_{n+1}$ (target achievement) that can be measured directly. These two variables affect the two dependent variables $\eta_2$ (adherence to the course of action) and $\eta_3$ (risk tolerance of the decision maker).

![Figure 1: Research model](image)

Hypotheses 1 and 2 are developed in detail in the following subsection. Subsection 4.1 combines the sunk cost bias and the two theories mentioned in Section 3 to derive hypothesis 1 before Subsection
4.2 adapts the theories to build hypotheses 2a and 2b in combination with the target achievement of IS-outsourcing decisions.

4.1 Hypothesis 1

As stated by Arkes and Blumer (1985, p.124) “[the] basic sunk cost finding that people will throw good money after bad appears to be well described by prospect theory […].” Therefore, prospect theory is also used in this scenario to explain why people may tend to stick to their course of action when it comes to a subsequent sourcing decision on the same IS object despite not being the ideal decision. Based on the certainty effect described in Subsection 3.2, individuals overweigh outcomes that are considered certain, relative to outcomes that are merely probable. In the case of IS-outsourcing decisions, changes in the course of action that cause sunk cost, like investments in hard- and software as well as in training, would lead to a sure loss of these investments. Conversely, if the decision maker sticks to the previous course of action, regardless of whether the decision is the best opportunity from an economical point of view, there might be some probability of turning the sunk cost into gains, or in other words, of achieving the breakeven point of the whole investment (Arkes and Blumer 1985, Arkes and Hutzel 2000).

Another explanation of the sunk cost bias in IS-outsourcing decision making can be derived from the cognitive dissonance theory. As described in Subsection 3.2, individuals strive for harmony and consistency in their behavior (Festinger 1957). Adapted to the case at hand, a decision in the past influences a decision at present; the decision maker tends to stay consistent in his decisions. Therefore, the decision maker tries to find arguments that support past decisions and omits arguments that would lead to a change in the course of action (Arkes and Hutzel 2000). Roodhooft and Warlop (1999, p.365) expressed this behavior, which is based on the cognitive dissonance theory, as follows: “Managers who have been responsible for these past ‘make’ decisions may avoid outsourcing, merely because it would create the appearance that they are trying to correct for a prior mistake”.

Altogether, the assumptions of prospect theory and theory of cognitive dissonance can be integrated as follows in hypothesis 1.

Hypothesis 1: “The higher the perceived sunk cost of a decision at the time t₀, the higher the probability that a decision maker will stick to the course of action when it comes to a new decision on the same object at the time t₁.”

The connection between sunk cost and adherence to a chosen course of action is to be seen as non-rational bias when the decision to stick to the course of action is not the optimal one from a rational viewpoint.

4.2 Hypothesis 2

Another effect assumed by prospect theory is the reflection effect (for details, see Subsection 3.2). Based on this effect and the cognitive dissonance theory, it is possible to derive two hypotheses concerning the risk tolerance of IS decision makers.

As mentioned in Subsection 3.2, prospect theory assumes that a decision maker experiences gains and losses relative to a reference point. This point is marked as A in Figure 2 and is to be seen as the neutral starting point before a decision is made at time t₀. Furthermore, the value function proposed by prospect theory has two branches. On the one side, it shows a steep and convex slope on the left side of the reference point that stands for losses. On the other side, it assumes a concave slope for gains on the right side of the reference point. The vertical axis depicts the perceived value gain or loss for the individual concerning a decision (Kahneman and Tversky 1979).

For the research model at hand, gains and losses are expressed in terms of the performance of a decision, i.e., how well the targets of the decision in the past were achieved. In terms of cognitive
dissonance theory, losses induce dissonant feelings, as the decision in the past turns out to be wrong, while gains do not cause dissonances.

For the following derivation of the hypothesis, consider, for example, that a decision maker was at the neutral point A (reference point) in Figure 2a before he made his decision in the past (at time t₀ based on the model in Figure 1). That means all further gains and losses concerning the decision are expressed as deviations from this point. The measurement of success at time t₁ shows that the decision has not performed well; thus, the targets could not have been achieved. The decision maker suffered a value decrease in terms of cognitive dissonances and is at point B after the decision. At this point, further performance losses to point C (ΔLC) do not result in large decreases in value (ΔVC); however, comparable gains (ΔGD) do result in large increases in value and dissolve the dissonance (ΔVD) due to the shape of the function. Therefore, an investor in point B will risk small further performance losses in order to obtain possible large performance gains. Compared to a person at point A, a person at point B is more likely to make a risky decision (at time t₁). Hence, his risk tolerance is higher. Altogether, the following hypothesis 2a can be derived from the assumptions of prospect and cognitive dissonance theory (Arkes and Blumer 1985, Festinger 1957, Kahneman and Tversky 1979).

Hypothesis 2a: "The worse the target achievement of a decision at the time t₀ is at t₁, the higher the risk tolerance of a decision maker in a decision on the same object at the time t₁."

\[ \Delta LC = \Delta GD \]
\[ \Delta VC < \Delta VD \]

\[ \text{a)} \]

**Figure 2: Value functions assumed by prospect theory**

Following the assumptions made by prospect theory, a similar phenomenon can be assumed in the case of performance gains and thus the achievement of the decision targets. As illustrated in Figure 2b, a decision maker is at point A (reference point), before having made his decision in the past (at time t₀). The measurement of success shows that the decision has performed well; thus the targets have been achieved. The decision maker has gained value and is in a consonant state at point B after the decision in terms of cognitive dissonance theory. At this point, performance losses to point C (ΔLC) do result in larger decreases in value as well as an increase in cognitive dissonance (ΔVC) compared to possible increases in value (ΔVD) through further gains (ΔGD). Therefore, an investor in point B has no incentive to leave the consonant state by risking high value losses, as possible comparable gains only result in a smaller increase in value. Compared to a person at point A, a person at point B is less likely to make a risky decision (at time t₁). Hence, his risk tolerance is lower. This leads to hypothesis 2b (Arkes and Blumer 1985, Festinger 1957, Kahneman and Tversky 1979).

Hypothesis 2b: "The better the target achievement of a decision at the time t₀ is at t₁, the lower the risk tolerance of a decision maker in a decision on the same object at the time t₁."

\[ \Delta LC = \Delta GD \]
\[ \Delta VC > \Delta VD \]

\[ \text{b)} \]

The hypotheses 2a and b are non-rational in the sense that the experienced gains and losses of the decisions are equivalent. Only the perceived value of the decision maker differs, which is not a rational basis for decision.
5 CONCLUSION AND FURTHER RESEARCH

The paper at hand is one facet of an expanding and ongoing field of IS-outsourcing research. As non-rational behavior in IS-outsourcing decisions is emerging as a multifaceted and diverse area of research, it is of vital importance that research in this area be built on a solid theoretical framework. Therefore, we used the theory of cognitive dissonances and the prospect theory, which are already well known in the fields of psychology, sociology and economics, to derive our hypotheses. The hypotheses proposed in Section 4 assumed that the temporal component is crucial in IS-outsourcing decisions. We assumed that the sunk cost of previous decisions affects the adherence to the chosen course of action in a subsequent decision and that the target achievement of a decision in the past influences the risk tolerance in a following decision. This non-rational behavior is triggered by the appearance of cognitive dissonances and can be explained by the two mentioned theories.

An important next step of this research approach is the empirical test of the hypotheses. Related work shows that a common methodology for investigating non-rational biases in a decision situation is an experimental setting (e.g., Arkes and Blumer 1985, Garland and Newport 1991, Kahneman and Tversky 1979, Laughhunn and Payne 1984, Roodhooft and Warlop 1999). The experiment can be either conducted with students or with real IS decision makers. As Laughhunn and Payne (1984, p.167) stated, “[t]he use of managers as subjects is especially important because of the central role they play in resource allocation decisions. In addition, managers provide an interesting focal point for research because they are not naive subjects […], but have experience in making real-life choices where history and sunk outcomes are involved”. Therefore, the planned experiments are to be conducted with IS decision makers. Due to time constraints of the target group the experiments are to be paper based. To get as realistic data as possible the respondents have to answer questions to their last IS outsourcing deal concerning the cost structure and the degree of target achievement. These data build the scenario for the following experiment which shows the adherence to the course of action and the risk tolerance of the decision maker.

Coming from the two hypotheses derived in Section 4.1 and 4.2, the following correlations can be assumed. Decision makers that perceived high sunk cost in their last project show more adherences to their cause of action than decision makers that perceived moderate or even low sunk cost. On the other hand, decision makers that experienced a low degree of target achievement show a higher risk tolerance than decision makers that experienced a moderate of high degree of target achievement.

If the empirical study gives enough evidence for the propositions of this research, the research program will be extended to further effects caused by the second branch of behavioral affective motives. One possible representative in this area is overconfidence. Caused by the motive of control, overconfidence is expressed in an overestimation of chances for success in the self-entrepreneurial engagement or in an overly secure assessment of facts that are relevant for a decision (Camerer and Lovallo 1999, Langer 1975), which can lead to crucial biases in IS-outsourcing decisions.

Furthermore, investigations in the area of cognitive restrictions will be conducted. We assume biases in the different steps of information processing. First of all, there is a different availability of memorized information. Arnott (2006) argued that information that is mentioned first does influence the decision process more intensely than does information that emerges later (primacy effect). Second, cognitive restrictions lead to biases in the cognition of information, as humans unconsciously filter information (confirmation bias) and only take in the information that matches their expectations, which compromises the rationality of the decision (Nickerson 1998, Wason 1968). Third, to reduce the complexity of information processing, people unconsciously make use of heuristics (e.g., the anchoring effect) by orienting themselves in benchmarks (Arnott 2006).

In an effort to investigate non-rational biases, we would like to be able to better understand and explain the effects that affect IS-outsourcing decisions.
References


