The role of intuition in strategic decision making

One important part of strategic management research examines the question how strategic decisions are made. The wide array of scholarly works and practitioner contributions on this topic makes it necessary to provide a definition of a strategic decision. Following Eisenhardt and Zbaracki, strategic decisions are “ infrequent decisions made by the top leaders of an organisation that critically affect organisational health and survival” (1992, p. 17). Strategic decision making describes the process of making those “ infrequent decisions”, in contrast to “ routine operating decisions” (Mintzberg, Raisinghani & Theoret, 1976, p. 133).

In strategic decision making, the precision with which a decision achieves the intended effect is often viewed as related to the speed of decision making (Dane & Pratt, 2007). Richard Abdoo, former Chairman and CEO of Wisconsin Energy Corporation, describes this tension as inherent to the practice of strategic decision making: “ At the point when you have gathered enough data to be 99. 99% certain that the decision you’re about to make is the correct one, that decision has become obsolete” (cited in Hayashi, 2001, p.?). Reconciling this conflict by finding means to make quick but accurate decisions, has therefore been the focus of many authors (Eisenhardt, 1989; March & Ohlson, 1976; Mintzberg, 1973; Perlow, Okhuysen & Repenning, 2002). For this purpose, researchers include approaches that relate decision speed to the amount of information used, and the number of alternatives considered and analysed (Frederikson & Mitchell, 1984; Mintzberg, 1973). Other approaches examine decision making on group-level, underlining the importance of collective decision making unhampered by intergroup conflicts

and disagreement among team members in order to improve decision making speed and accuracy (Mintzberg et al., 1976).

More recently, the number of researchers giving attention to the concept of intuition as a way to mitigate the conflict between speed and accuracy has increased (Khatri & Ng, 2000). Dane and Pratt, for example, suggest, that “ intuition draws on our inborn ability to synthesize information quickly and effectively” (2007, p. 33). This view of intuition as a driver for efficient strategic decisions, i. e. quick and with the desired effect, is supported by a range of empirical studies. Testing the relationship between the use of intuition in strategic decision making, and financial and non-financial firm performance, the findings confirmed a positive correlation (Allinson & Hayes, 1996; Hough & Ogilvie, 2005; Khatri & Ng, 2000; Ritchie, Kolodinsky & Eastwood, 2007; Sadler-Smith, 2004). The results show that intuition helps top managers to improve speed and quality of their decisions, and to avoid decisions that adversely affect firm performance.

However, research findings also indicate that the impact of intuition on successful decision making depends on the conditions of a specific decision situation. Agor (1986), for example, identifies the circumstances when intuition is most helpful, and the conditions which impede managerial intuition. He shows that intuition is useful for decisions when the analysis of the decision situation does not cover all relevant risks and benefits involved. Focusing on the organisational environment, Eisenhardt (1989) asks how executives make a decision in high-velocity environments, and suggests real-time information to be crucial for the deep and intimate knowledge of the choice situation that is required to allow a quick, intuitive reaction to a

changing environment. Khatri and Ng (2000) can show that intuition helps improve performance when cautiously and less frequently used in a stable environment, but freely and more frequently used in an unstable environment.

Numerous conceptual contributions can be found, with scholarly works embedded in Greek and Western philosophy, Buddhism, modern psychology, and management research (Henden, 2004; Dane & Pratt, 2007). Many of them provide a different perspective on where intuition comes from, what it is and how it affects our decisions and actions. This variety of views and research approaches illustrates that the existing concepts of intuition in decision making remain elusive. Carl Jung, the psychologist who pioneered in this field, and of whom Westcott (1968) said, that he probably presented " the only grand theory of intuition, which has arisen in psychology" (cited in Henden, p. 48), admitted that besides some rather general insights on intuition, he does not know " how it works" (Jung, 1968, cited in Henden, p. 48).

Two main obstacles appear to hinder research on intuitive decision making. Firstly, a comprehensive and coherent definition of intuition that is generally accepted does not exist. As a result, factors affecting strategic decision making, such as the use of intuition, experience of the decision maker, and the relevant information available, are not always differentiated from the conditions under which intuition is preferably used (e. g. high -velocity and unstable environments, time constraints). For example, a high level of managerial experience does not necessarily indicate that the use of intuition is beneficial in every circumstance. The second obstacle is that authors

frequently overlook the difference between the effectiveness of intuitive decisions and the conditions facilitating the use of intuition. Referring to the tension between speed and accuracy for an example, time constraints affect the use of managerial intuition (Agor, 1986). However, a question that arises is whether intuition merely accelerates the decision making process without improving the accuracy of the decision (Dane & Pratt, 2007).

To enhance the understanding of the link between factors influencing decision making, the effectiveness of intuitive decisions, and inhibiting and promotive conditions, this paper addresses the first obstacle. It introduces a model that attempts to show how the factors, or pillars on which decision making rests, are interrelated. Three main research approaches to investigating the pillars of strategic decision making can be identified. One stream of literature explores intuition in the context of cognition theories, including social cognitive neuroscience. Cognition research distinguishes between information processing based on analysis and intuition. Variables which represent those differences are used in management theory to examine how information processing affects decision making on organisational level (Chaiken & Trope, 1999). Analytical and intuitive cognition styles are associated with the performance of decision-making and with characteristics of heuristics and biases (Parker & Fischhoff 2005; Tetlock, 2000). The current discourse, however, is divided into two major perspectives. The first approach describes analysis and intuition as parts of the same cognitive process. Within this process, individuals tend to use one or the other when processing information (Hayes et al. 2003). The second approach views analysis and intuition as two different, independent cognitive

processes. Decision-makers rely either on their analytic thinking, or their intuition, and switch between them when necessary (Dane & Pratt 2007; Hodgkinson et al. 2008). This has implications for strategic decision making on individual level, e. g. for the use of decision heuristics, and on group level, e. g. for selecting optimal teams for strategy making (Hodginson & Healey, 2008).

The second research stream concentrates on how experience of decision makers influences intuitive decision making (Prietula & Simon, 1989; Simon 1987). Simon (1987) suggests that intuition is compressed and structured knowledge and “ analyses frozen into habit and into capacity for rapid response through recognition” (p. 63). This view is often confirmed by executives assessing the value of experience for decision making. Bob Lutz, former president of Chrysler, finds “ that in general management, people with varied and diverse backgrounds are, all other things equal, going to probably be more valuable and will learn faster because they’ll recognize more patterns” (Bob Lutz cited in Hayashi, 2001, p. 64). A third stream lays emphasis on the limitations of intuitive decisions brought about by irrational decision makers. Tversky and Kahneman (1983) initiated research on the misjudgement of probability and decisions that defy logical arguments. They suggest that heuristics of thinking determine people’s judgment particularly under uncertainty. The intuitive assessment of a decision situation is therefore always burdened with cognitive biases and heuristics.

While the model introduced in this paper will draw on all three approaches, it goes also a step further by looking at the integration of intuitively conceived ideas on group level. Although intuition is an individual process, the

communication of a vague intuition to others is critical for formulating a more concrete idea, which can be assessed and eventually implemented by the top management team. Crossan, Lane & White (1999) suggest three levels of strategic renewal between the individual level and the group level. A new strategy begins on the individual level as an intuition, which is then interpreted and integrated on group level. This allows linking individual decision-making to the practice of strategic decision-making in organisations, where strategic decisions usually result from a collective decision making process, e. g. decision-making groups such as the Board of Directors (Forbes & Milliken, 1999; Maljers, 1990). In brief, while intuitive decision-making is an individual process, decision-making in organisations is not.

Concepts of information processing

Intuitive and rational, or analytical, information processing have been examined as two differing, or even opposed, concepts (Hodgkinson, Sadler-Smith, Sinclair, Ashkanasy, 2007). Recent findings in psychology seem to confirm the assumption of a dichotomy between rational and non-rational thinking, which can be dated back as far as Platonic-Aristotelian tradition in Greek philosophy (Henden, 2004; Sloman, 1996). Rational thinking is analytic and conscious, and employs reasoning for exploring complex issues. Information is absorbed and processed deliberately, and can be used to solve specific tasks. The results of an analytic process can be communicated in symbols that reflect the reasoning process (Barnard, 1938). In contrast, intuition is believed to be related to a non-rational, non-conscious way of thinking, where information is processed automatically (Bargh & Chartrand, 1999) and effortless (Stanovich & West, 2000). It is therefore often difficult to

precisely explain where the intuition came from and what triggered it. To better understand the concept of intuition, the following section describes intuition by examining its properties.

Intuition is non-conscious

A generally accepted characteristic of intuiting is the lack of rational thinking (Hogarth, 2001). While several different terms are used to describe this property (e. g. subconscious, preconscious, unconscious, or non-conscious), all have in common that intuition is non-conscious (Dane & Pratt, 2007). That is to say, that intuiting is detached from conscious thinking, and not a part of it. An intuitive realisation, for example an intuition for a new marketing strategy, cannot be generated deliberately, although the intuitive thought often comes while poring over a problem (Rowan, 1990). Consequently, the coupling of non-conscious information processing and intuiting defies control efforts over the structured and purposeful use of intuition for specific problems. Moreover, even if intuiting did follow certain rules, those could not be discovered.

Intuition is fast

As mentioned above, intuiting is considered by most authors to be quick compared to analytic information processing (Burke & Miller, 1999; Khatri & Ng, 2000). Based on the assumption that intuitive thinking preceded analytical thinking in the development of human information processing, the capability to process information fast helped react to changes in the environment (Epstein, 1994). In addition, missing information that would slow an analytic process does not pose a threat to the speed of intuitive decision-making. It would rather result in a loss of accuracy. Since intuiting is

non-conscious, the crucial problem is to raise awareness of, and recognise that relevant information is not included.

Intuition is linked to knowledge

There is some common understanding in the literature on decision-making that intuiting relates a variety of different exogenous information, and matches them with previously acquired knowledge (Hogarth, 2001; Isenberg, 1991; Raidl & Lubart, 2001). This approach defines knowledge as cognitive patterns stored in memory. These stored patterns evolve when individuals process exogenous stimuli non-consciously by developing cognitive procedures. Intuiting is the comparison of stored cognitive patterns with patterns of perceived environmental stimuli using cognitive procedures (Dane & Pratt, 2007; Rosenblatt & Thickstun, 1994). Because the process of comparing is non-conscious, information cannot be selected and processed in piecemeal fashion. Epstein (1990) therefore proposes that intuiting is holistic. Researchers investigate cognitive procedures in intuiting from two different angles. First, the holistic nature of intuiting results in the inclusion of a wide range of exogenous stimuli into complex patterns. Judgemental heuristics are a cognitive procedure that simplifies this intuitive process. Heuristics are sometimes referred to as “ rules of thumb”, and are particularly useful in situations of uncertainty (Tversky & Kahneman, 1974). However, the use of judgemental heuristics comes at a cost. Tversy & Kahneman (1972) could show in a pioneering work on the connection between heuristics and biases that heuristics in intuitive decision-making can result in cognitive biases that adversely affect the decision accuracy. Second, a more sophisticated cognitive procedure may draw non-consciously

on a large number of highly complex cognitive patterns. Intuiting is seen as a cognitive procedure that retrieves cognitive patterns “ from innumerable experiences that are stored” (Agor, 1986, p. 8). These cognitive patterns are matched with the perceived patterns, and may increase the accuracy of decisions (Prietula & Simon, 1989). Baylor (2001) emphasises that the level of experience (e. g. novice, expert) is important for the availability of intuition, and determines whether a decision achieves the intended effect.

Intuition is linked to emotion

The majority of research conducted on the connection between intuition and affect recognises that intuiting is affected by emotion (Agor, 1986; Raidl & Lubart, 2001; Simon, 1987; Vaughan, 1990). Based on this common perspective, two different lines of argument have developed. The first argues that emotion can induce intuiting, and may influence which cognition patterns are stored and retrieved (Burke & Miller, 1999; Epstein, 1990; Hogarth, 2001). The second suggests that this connection is a mere interference of emotion with intuitive decision-making (Kathri & Ng, 2000). Intuiting is therefore not a result of feeling, and intuition is not an emotion (Simon, 1987). This paper adopts the second view.

In summary, intuiting is the non-conscious fast, and linked to knowledge and emotion. It involves processing of complex information, and allows decision makers to balance subtle differences in the decision-relevance of information.

The dissimilarity between conscious thinking and non-conscious thinking is paramount in defining the difference between rational and intuitive strategic

decision-making. Analysis incorporates a deliberately structured approach to finding a solution. This solution process is consciously chosen to increase the probability for an accurate decision. The relevance of information is evaluated based on reasoning. A thorough analysis takes time, but may reduce the exposure to cognitive biases. Moreover, intuiting is also different from other forms of quick information processing, which are often conflated (Hodgekinson et al., 2009). Hayashi (2001), for example, uses intuition, instinct, insight, and gut feeling interchangeably. This confusion can also be observed in practice, when executives struggle to find words that describe intuitive decision making. Nevertheless, findings in cognitive neuroscience and psychology hint at fine distinctions between these concepts. Instincts are “ hardwired”, autonomous responses to environmental stimuli (e. g. fear of the dark) (Dane & Pratt, 2007). Insight is frequently described as an “ eureka” effect, and as a sudden and unexpected idea for a solution to a problem, that came after a long period of researching and analysing (Hogarth, 2001). It is the result of a conscious and comprehensive thinking process (Liebermann, 2000), when a logical connection between two seemingly unrelated information is made. Insight might be preceded and induces by a non-conscious intuition (Hodgkinson et al., 2009). The so called “ gut feeling” refer to the emotional aspect of intuitive decision making that has been described above. In brief, emotion can influence cognitive processes, and, thus, strategic decision making (Damasio, 1997). However, affect and cognition are not equivalent. The influence of emotion, cognitive heuristics, biases, and experience on intuiting will be examined below in more detail.

The model

Having gained a better understanding of intuition by comparing it to other forms of information processing, a model is introduced to examine the relationship between the factors that determine intuiting in strategic decision-making. In examining these factors, the main body of literature has concentrated on how individuals use intuition to make decisions. Only few authors have attempted to explore how an intuitive thought is integrated into strategic decision-making at group level (Crossan et al., 1999; Hodgkinson et al., 2009). While both the individual level and the group level are reflected in the model (figure 1), the focus of this paper is on those factors affecting intuiting at individual level.

In the following, the interpretation and integration of intuition on group level is examined briefly, before intuiting at individual level is discussed. Crossan et al. (1999) follow the lead of Kolanczyk (1989) in suggesting that intuitive thoughts emerge as vague “ metaphors” from the matching process of stored cognitive patterns with perceived patterns of exogenous stimuli. Using language, the metaphor is communicated to others, and thus transferred to the group level, where it is interpreted. This process eventually sharpens the imprecise initial metaphor, and translates it into patterns that can be understood by group members. Huff (1990) refers to those patterns as “ cognitive maps”. When a metaphor is communicated, only conscious elements of the intuition can be accessed by the individual (Crossan et al., 1999). By building cognitive maps, the strategic decision-making process emerges from a non-conscious, individual level, and can be formulated into a concrete corporate strategy. At the same time, the

interpretative process provides the individual with new arguments and information, which are included into the intuiting process (figure 1). The interpreted metaphor provides a new exogenous stimulus to the intuiting process. Thus, intuitive information processing at the individual level draws on the interpretative process as a source of information. The individual thereby enhances the understanding of the strategic decision to be made.

Proposition 1 (P1): Interpreting intuition on group level is a source of information that enhances the understanding of the strategic decision.

Figure 1: Factors influencing intuitive strategic decision making

Strategic decision-making in development cooperation programmes: the GTZ in Mongolia

The German Technical Cooperation (GTZ) is an international development agency that implements development cooperation programmes on behalf of the German Ministry for Economic Cooperation and Development. In January 2006, the GTZ started a development programme in Mongolia that aimed to promote regional economic development. When the experienced German programme manager arrived in Ulaanbaatar, Mongolia, he faced a situation he had been in many times before. Besides some rather general information, he was lacking all substantial information about: the Mongolian culture; economic conditions on regional and national level; existing laws and regulations that would directly impact the programme; and the Mongolian partner institutions. Since the timeframe of the project was only four years, he was bound to make strategic decisions in a highly uncertain environment at an early stage. One of his first strategic decisions was to employ a junior

manager for managing one of the sub-programmes, so called “ components”. The senior manager was convinced that by granting the junior manager the freedom to run the component on her own, not only the component would succeed, but the whole programme would benefit. However, after 12 month it became apparent that: wrong strategies had been implemented; the component was not meeting its performance indicators; and that the junior manager was overwhelmed with her challenging task. As a consequence, she resigned from her position after two years as a component manager. An external consultant who evaluated the component shortly after the junior manager had left, noted that components of such a complexity should be assigned only to experienced managers, and that more ‘ backstopping’ by the programme manager is essential.

This case illustrates the conceptual model above. The decision situations during the first year of the component were characterised by a lack of relevant information. Surveys and baseline studies conducted by component and programme were not available during the first 6 month of component. This hindered the junior manager to follow an analytic approach to assess the decision situation. She had to rely on her intuition instead. Since her experience was insufficient for her position, the perceived patterns of exogenous information did not match the stored cognitive patterns precisely enough, and the intuiting process consequently lead to wrong strategic decisions. Moreover, the lack of communication between senior and junior manager made it difficult to fully utilise the experience of the senior manager in the interpretative process for improving the strategic decisions of the junior manager. The junior manager could not adequately reflect

(consciously) on her intuitive thoughts, or include the programme manager's interpretations as new information (non-consciously).

Factors influencing intuitive strategic decision making

Emotion

Recent works on intuiting suggest that decision-making could involve emotion when intuitive decisions are made (Chen & Chaiken, 1999). In contrast, Khatri and Ng argue that intuition and emotion are not related, because " intuition does not come from emotion" (2000, p. 6). At the core of this debate are two opposing views, each representing a different interpretation of the same observation: Intuiting is not isolated from emotion. One view contends that feeling and intuiting are two distinct processes, relying on two completely different physical systems (Agor, 1986; Vaughan, 1990; Kathri & Ng, 2000). The other view maintains that intuitive thinking cannot be understood without the involvement of emotion (Burke & Miller, 1999; Bastick, 1982; Hodgekinson et al., 2009). Although these two approaches differ considerably, researches agree on the interference of emotion with intuitive information processing. Agor (1986) describes the excitement of top managers when making an intuitive decision. Using several case studies, Hayashi (2001) gives details about how executives make strategic decisions because it " feels" right. According to Dane and Pratt, those " gut feelings" are evidence for " an affective component to intuitive judgements" (2000, p. 38). Burke and Miller (1999) and Bastick (1982) suggest that emotion can initiate the intuiting process. Furthermore, Vaughan (1990) notes that emotion might influence the receptiveness to, and the balancing of, information. To illustrate, the junior manager of the

GTZ component identified at the start of the component period several “ strategic products”, of which sea buckthorn appeared to be very promising. Since sea buckthorn products were infrequently offered in the supermarkets of Ulaanbaatar, the main market, the junior manager was enthusiastic that she could have discovered a market niche. This positive mood affected all subsequent intuitions, for example, when she repeatedly overestimated the market potential for various new sea buckthorn products. Non-consciously, she might have favoured sea buckthorn products over other rather ‘ classic’ strategic products, such as wool or wood.

Proposition 2 (P2): Intuitive strategic decisions are influenced by emotion, but intuition is not an emotion.

Cognitive biases

A perspective in decision research views intuitive thinking as biased (Kahneman, Slovic, Tversky, 1982; Tversky & Kahneman, 1974). This view is rejected by several authors emphasising that intuitive strategic decisions are often accurate (e. g. Mark & Simon, 1993). Referring to Kleinmutz (1990), Khatri and Ng argue that managerial decision-making in day-to-day business resembles the use of “ formal statistical principles” (2000, p. 6), and are therefore unbiased. Those “ routine operating decisions” (Mintzberg et al, 1976, p. 133) are, however, not equivalent to infrequent strategic decisions. Strategic decisions are not made on a daily basis. They are usually surrounded by more uncertainty, and accurate decisions are more difficult to achieve (Busenitz & Barney, 1998). Routine decisions are typically underpinned by a reliable set of control data for everyday operations, which is likely to be secondary for strategic decisions. As a consequence, the

influence of cognitive biases on intuitive information processing for routine decisions is likely to be distinct from its impact on strategic decisions. Reliable, “ decision-specific” data sets are often unavailable for strategic decision-making. In order to make strategic decisions, executives are more reliant on intuitive information processing than on analysing. Strategic decision-making is therefore more prone to biases than routine decision-making.

Furthermore, Illgen and Feldmann (1983) refute that biases affect intuiting, because routine and strategic decision-making is founded on an identical underlying cognitive process. Seebo (1993) applies this argument to cognitive biases in rational thinking and intuitive thinking, suggesting that both processes are fraught with bias. This line of argument, however, only extends biases to forms of information processing other than intuiting. It does not yield the conclusion that intuition is unbiased.