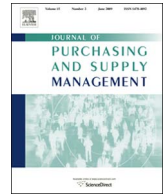




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Individual modes and patterns of rational and intuitive decision-making by purchasing managers

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ABSTRACT

This study extends the literature on decision modes in purchasing. While decision modes have traditionally been divided broadly into *rational* and *intuitive* processing modes (dual-process approach), following the tenet of recent psychology research, we further differentiate the latter into experience-based and emotional processing (multiple systems approach). Previous decision-making research has been inconsistent in its findings about the relationship between decision modes and performance. Using the purchasing manager's supplier selection decision process as our unit of analysis, we first investigate the relationship between *individual decision modes* and the financial and non-financial performance of the selected supplier. Hierarchical regression analyses indicate that rational processing is positively related to both financial and non-financial performance, while emotional processing is negatively related to financial performance, and the interaction of rational and emotional processing is positively related to both performance outcomes. Because recent cognitive psychology assumes that some combination of rationality and intuition is commonly used, we then apply a configuration approach and develop a taxonomy of decision-making modes surrounding supplier selection. Cluster analysis results show five *decision-making patterns* that are related to the performance of the selected supplier.

1. Introduction

Purchasing research traditionally characterizes decision-making processes as analytical, or rational, processes that include extensive information-gathering and detailed analyses (Riedl et al., 2013; Weber et al., 1991). For example, the comprehensive supplier selection literature, which can be grouped into two major categories (Carter et al., 2010; for a recent review see Igarashi et al. (2013)) – (1) selection criteria (e.g., Choi and Hartley, 1996; Sharland et al., 2003) and (2) decision models (de Boer and van der Wegen, 2003; Singh, 2014) – typically assumes rational behavior.

In practice, however, the increasing external volatility and complexity, on the one hand, and the internal time pressures and resource constraints on the other hand, make gathering, structuring, and extensively analyzing data before making a purchasing decision often difficult if not impossible (Ellis et al., 2010; Mantel et al., 2006).

In that vein, a large body of literature rooted in cognitive psychology, “demonstrates that individuals are boundedly rational, use heuristics for decision-making, and suffer from systematic biases” (Bendoly et al., 2010, p. 439). The still nascent behavioral operations management (BOM) and the more specific behavioral supply manage-

ment (BSM) streams therefore argue that a behavioral perspective is also necessary for the supply chain management (SCM) discipline (Bendoly et al., 2010; Carter et al., 2007; Gino and Pisano, 2008). Recent findings from the general human judgment and decision-making (HJDM) research further point to the need to investigate both the risks *and* the benefits of the use of non-rational decision-making modes, such as intuition (Ariely, 2010; Kahneman and Klein, 2009).

While intuition as a phenomenon has a long-standing history in the general HJDM research, it has typically been rooted in psychology (e.g., Bendoly et al., 2010; Kahneman and Klein, 2009) and has only recently become a focus in business studies (e.g., Dayan and Di Benedetto, 2011; Kaufmann et al., 2014; Khatri and Ng, 2000). Findings about the relationship between intuition and outcome variables generally have been mixed. One explanation might be the heterogeneous conceptualization and operationalization of the intuition construct (Akinçi and Sadler-Smith, 2012). Another explanation might be that until this point, studies have either investigated intuition in isolation (Khatri and Ng, 2000), or they have treated rationality and intuition simply as polar ends of a continuum (Dayan and Di Benedetto, 2011). However, recent decision-making research concedes that both can be used together in a complementary fashion (e.g., Hodgkinson et al., 2009): “A purely

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intuitive strategy relying only on pattern matching would be too risky because sometimes the pattern matching generates flawed options. [But] a completely deliberative and analytical strategy would be too slow (...)" (Klein, 2008, p. 458). Hence, a combination of rational and intuitive modes seems to be an effective approach.

The assumption of rationality and intuition as distinct but interacting cognitive systems is the central tenet of dual-process and dual-systems theories (Dane and Pratt, 2007; Epstein, 2010; Evans, 2010; Healey et al., 2015). However, the terms “dual-processing” and “dual systems” (for simplicity, in the remainder of the paper we use the term *dual-process*) might in fact be misleading because recent psychological research assumes the involvement of *several* decision-making dimensions or systems involving complex interactions that combine rational and intuitive processing (Evans, 2014). We therefore conceptualize *intuition* as a two-dimensional construct consisting of *experience-based* and *emotional processing* (Leybourne and Sadler-Smith, 2006; Sinclair and Ashkanasy, 2005; Stanczyk et al., 2015). These dimensions describe the processes of (a) linking new cues to experiences stored in memory, thus influencing the current action, and (b) perceiving positive or negative gut feelings that guide the decision process. We conceptualize *rationality* following Simon's (1978) concept of procedural rationality, which involves the processes of defining relevant decision criteria, gathering information, and making analysis-based decisions.

Recent behavioral purchasing research (Kaufmann et al., 2014) has investigated the use of *rational and intuitive* processing in the context of cross-functional sourcing *teams*. But, one might raise the question of whether this research has jumped too far ahead, considering recent psychology research that emphasizes the importance of investigating the interplay of *multiple cognitive systems* at the level of the *individual decision maker* (e.g., Evans, 2014). Therefore, this study focuses on the *multiple systems approach* starting with the *purchasing manager* as the *individual* decision maker, and examines (a) the *impact of several* decision modes (rational, experience-based, and emotional) on the outcome of a supplier selection decision, (b) the *interaction* among these three modes, and (c) how *patterns* of the decision modes are related to supplier performance.

The unit of analysis is the purchasing manager's supplier selection decision. Supplier selection is an appropriate context for behavioral purchasing decision research because B2B purchasing is traditionally assumed to be a rational process for which objective criteria and rational decision models have been developed and studied extensively. Supplier selection can therefore be assumed to be a tough environment for non-rational behavior. Findings from this context on the constructs and relationships of interest would consequently add to the external validity of the study. For instance, a purchasing manager might be responsible for selecting a new supplier for an automotive material procured on a regular basis. While combing through the information at hand and finding that the material price might lead to favor supplier A, the purchasing manager might experience a negative gut feeling about choosing that supplier without exactly knowing at first why. Therefore, she follows her instincts and looks extensively for further information before coming to a conclusion. Further, the purchasing manager detects parallels towards previous supplier selection decisions which she can use for focusing on specific aspects such as the company's credit status and employee structure. Finally, important aspects might be found that prove or disprove the gut feeling and after thorough analysis the final supplier selection decision is made.

Our research contributes to purchasing and supply management knowledge in two important ways. First, we examine the relationship among the three *individual* decision modes—rational, experience-based, and emotional processing—and two different dimensions of supplier *performance*—financial and non-financial performance. Second, we derive *patterns* of the *three* processing modes to delve more deeply into how they work together within the context of supplier selection (Evans, 2014). By investigating the mix of rational and

intuitive decision making modes on the level of the individual purchasing manager, we put forth the notion of using more than one decision mode in a complementary fashion in purchasing contexts, strengthening the assumption of multiple systems.

We now turn to developing the theory, describing the study, and then presenting and discussing our results. We conclude by outlining implications for managers and providing suggestions for future research.

2. Theory and hypotheses

2.1. Individual decision-making modes in supplier selection

We begin by theorizing about how *individual* modes of decision processing are related to supplier performance and to each other in supplier selection decisions.

2.1.1. Relationship between rational processing and supplier performance

Following Dean and Sharfman (1993, p. 589), we define procedural rationality as “the extent to which the decision process involves the collection of information relevant to the decision, and the reliance upon analysis of this information in making the choice.” Information processing theories distinguish several elements or steps that are part of rational decision-making—for example, collecting relevant information, extensively analyzing the data using a set of criteria, evaluating several alternatives, and making probability assumptions about outcomes (Dean and Sharfman, 1993; Evans, 2010; Miller, 2008; Sadler-Smith and Shefy, 2004).

We differentiate our outcome variable—supplier performance—into financial and non-financial performance, as defined in previous research (Cai and Yang, 2008). Financial supplier performance strongly focuses on costs paid by the buyer (Talluri, 2002), while non-financial supplier performance includes buyer-relevant characteristics of the supplier such as quality of the delivered product, delivery time, and responsiveness (Carr and Smeltzer, 2000).

Using information processing approaches, recent supply management research has underscored the importance of procedural rationality in supplier selection processes in light of its capacity to substantially influence the decision outcome (Kaufmann et al., 2014). The reason is that the conscious analytical system of decision-makers is able to deal with high levels of abstraction, to identify complex cause-effect relationships, and to develop effective long-term strategies (Allen, 2011; Epstein, 2010; Evans, 2010; Miller, 2008). In addition, the activities of clarifying decision criteria, identifying a set of potential suppliers based on their strengths and weaknesses, and generating a list of alternative suppliers, can create greater negotiation power for the buying firm (Giunipero et al., 1999; Kaufmann et al., 2012). Further, the thorough evaluation of information gathered on individual suppliers and of overall supply and demand developments in the market helps purchasing managers to form a comprehensive view of the decision context; such a view is more likely to prevent the hasty (re) actions and cognitive biases that can lead to the selection of an underperforming (whether financially or non-financially) supplier (Carter et al., 2007; Glöckner and Wittman, 2010; Kaufmann et al., 2014). Thus, for the first *individual* decision-making mode, we posit the following:

Hypothesis 1a. Rational processing is positively related to the financial performance of the supplier.

Hypothesis 1b. Rational processing is positively related to the non-financial performance of the supplier.

2.1.2. Relationship between experience-based and emotional processing and supplier performance

Existing decision-making research conceptualizes *experience-based*

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