5 Study D: An Ambidextrous Perspective on Business Intelligence and Analytics Support in Decision Processes

5.1 Introduction

Data-centric decision support is vital for managerial decision making in organizational decision processes. Business intelligence and analytics (BI&A) equips analytics experts (i.e., analysts or data scientists) with the technological capabilities to support decision processes with reliable information and analytic insights (Chaudhuri et al., 2011; Chen et al., 2012; Davenport and Harris, 2007; Davenport and Patil, 2012). The added value of BI&A is based on increasing the utilization of “data-driven” decision making and thus improving decision quality and organizational performance (Brynjolfsson et al., 2011; McAfee and Brynjolfsson, 2012; Pfeffer and Sutton, 2006). However, realization of these benefits is not assured, and the very nature of organizational decision processes poses challenges for effective BI&A support.

First, the reality of organizational decision processes has often been characterized as nonroutine and ill-structured (Eisenhardt and Zbaracki, 1992; Elbanna and Child, 2007; Mintzberg et al., 1976; Nutt, 2008). In these situations, ambiguity prevails and the right questions are not always obvious at the outset. Rather, questions and solution alternatives are developed as part of the decision process and are subject to change (Eisenhardt and Zbaracki, 1992; Mintzberg et al., 1976). As a consequence, data processing and analytics requirements can change frequently (Viaene and Van den Bunder, 2011). To achieve effective decision support in such nonroutine processes, the analysts who are involved must be able to adjust to these changes and, as a consequence, must maintain a high degree of adaptability and flexibility in their procedures.

Second, effective decision support with BI&A requires analysts to have a high level of specialization in analytics, which is different from the domain knowledge of decision makers, and this leads to further challenges (Viaene, 2013). Specifically, a high degree of analytics elaboration often makes it difficult for decision makers to assess the quality of the analytic advice they receive, due to their lack of analytics knowledge (Viaene, 2013; Viaene and Van den Bunder, 2011). Findings from the cognitive sciences suggest that such knowledge gaps induce information asymmetries, and these can lead decision makers to neglect analysts’ advice and to instead overly rely on their own assessment of the decision situation (Bonaccio

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and Dalal, 2006; Yaniv and Kleinberger, 2000). To mitigate this risk, analysts are supposed to provide transparency and alignment with decision makers regarding their procedures and goals in deriving the analytic advice (Sniezek and van Swol, 2001; van Swol and Sniezek, 2005). This means that analysts have to ensure the rigor of their procedures in order to achieve coherence and traceability in the decision support that they provide.

In summary, analysts face decision process requirements that appear to be conflicting, or at least difficult to achieve simultaneously. Failure to meet these conflicting demands can thwart the potential benefits of BI&A support. However, despite their critical importance for the success of BI&A support, prior research has not considered these conflicting demands and their implications for managerial decision making. Therefore, in-depth research on this topic is required in order to gain a better understanding of the challenges that analysts face in supporting decision processes with BI&A. Organizational ambidexterity describes the capability of managing conflicting demands and as such provides a useful theoretical lens for our research (Gibson and Birkinshaw, 2004; Raisch and Birkinshaw, 2008). We use a multiple case study approach to investigate BI&A support of managerial decision making and thus respond to the identified need for research on actual decision processes (Arnott and Pervan, 2008, 2014; Sharma et al., 2014).

This paper makes several contributions. (1) We characterize and present previously unexplored tensions that pose a challenge for analysts’ ability to provide effective BI&A support in organizational decision processes. (2) We provide insights into the tactics that analysts use to successfully manage those tensions, i.e., tactics that facilitate ambidexterity. (3) Through an investigation of decision processes with varying levels of ambidexterity, we provide initial evidence concerning the effects of ambidexterity by examining its impact on decision quality as well as its influence on decision makers’ reliance on rationality and intuition in decision making. (4) Grounded in these empirical findings, we propose a theory of ambidexterity in decision support that addresses how this ambidexterity can be facilitated and how it affects decision outcomes. These contributions have great practical significance, as analysts need to be aware of the tensions and tactics in order to ensure the effectiveness and utilization of their BI&A support.

The remainder of this paper is structured as follows. In Section 2, we discuss the theoretical background for BI&A, conceptions of decision making, and organizational ambidexterity. In Section 3, we describe the details of our empirical study design and the data analysis procedure for our multiple case study research approach. In Section 4, we present the results from the multiple case study. Finally, in Section 5, we close with a discussion of the study’s findings and limitations as well as possible directions for future research.