



Qualitative case studies in operations management: Trends, research outcomes, and future research implications

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ABSTRACT

Our study examines the state of qualitative case studies in operations management. Five main operations management journals are included for their impact on the field. They are in alphabetical order: *Decision Sciences*, *International Journal of Operations and Production Management*, *Journal of Operations Management*, *Management Science*, and *Production and Operations Management*. The qualitative case studies chosen were published between 1992 and 2007. With an increasing trend toward using more qualitative case studies, there have been meaningful and significant contributions to the field of operations management, especially in the area of theory building. However, in many of the qualitative case studies we reviewed, sufficient details in research design, data collection, and data analysis were missing. For instance, there are studies that do not offer sampling logic or a description of the analysis through which research outcomes are drawn. Further, research protocols for doing inductive case studies are much better developed compared to the research protocols for doing deductive case studies. Consequently, there is a lack of consistency in the way the case method has been applied. As qualitative researchers, we offer suggestions on how we can improve on what we have done and elevate the level of rigor and consistency.

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1. Introduction

Since the early 1980s there have been calls for empirical research methods in response to the over-reliance on the predominant analytical research paradigm in operations management (OM) (Buffa, 1980; Chase, 1980; Flynn et al., 1990; Meredith et al., 1989; Swamidass, 1991; Wood and Britney, 1989). More recently, there have been calls for more relevance and rigor when conducting empirically based research (Boyer et al., 2005; Eisenhardt and Graebner, 2007; Fisher, 2007; Roth, 2007). Academics in the OM field responded with predominantly deductive survey-based empirical studies (Scudder and Hill, 1998). Recently there have been a number of reviews of empirical research, focusing on specific topics such as operations strategy (e.g. Boyer et al., 2005), interdisciplinary and inter-organizational research (e.g., Buhman et al., 2005), sustainability (e.g., Kleindorfer et al., 2005), new product development (e.g., Krishnan and Loch, 2005), quality management (e.g., Schroeder et al., 2005), and supply chain management (e.g., Kouvelis et al., 2006). There have also been other studies that reviewed the state of survey research methods and data collec-

tion techniques (Gupta et al., 2006; Rungtusanatham et al., 2003; Scudder and Hill, 1998).

As an alternative to survey-based research, other OM scholars have promoted the use of qualitative case study research (Lewis, 1998; McCutcheon and Meredith, 1993; Meredith et al., 1989; Voss et al., 2002). We define a qualitative case study as an empirical research that primarily uses contextually rich data from bounded real-world settings to investigate a focused phenomenon (adapted from Benbasat et al., 1987; Bonoma, 1985; Meredith et al., 1989; Meredith, 1998; Roth, 2007; Yin, 1994). This approach has appealed to researchers, as the field of OM has many emerging areas of research such as the integration of OM with other functional areas of the supply chain (e.g., Hines et al., 2002; Pagell, 2004). The intent is to build and extend theories (Eisenhardt, 1989; Yan and Gray, 1994) and to explore and better understand emerging, contemporary phenomena or issues in their real world settings (Flynn et al., 1990; Meredith, 1998).

This paper seeks to examine the state of and research outcomes from qualitative case studies in the OM field, as captured by the *inductive* and *deductive* articles published in five main OM journals (Barman et al., 2001, 1991; Olson, 2005). There have been similar papers in disciplines outside the OM field. For instance, Dubé and Paré (2003) reviewed the rigor and quality of case studies published in leading information systems journals during the period 1990–1999. We are not aware of any similar papers in the OM dis-

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cipline, and we intend to fill this void. The purpose of our paper is four-fold. (1) It provides a summarizing review of the numerous guidelines for undertaking *inductive*-based case study research. (2) It captures the state of the scarce literature for undertaking *deductive*-based case study research. (3) It provides a review of the current state (1992–2007) of qualitative case studies and performs a gap analysis between the guidelines and the current state. The journals include four US-based journals and one European-based—*Decision Sciences* (DS), *International Journal of Operations and Production Management* (IJOPM), *Journal of Operations Management* (JOM), *Management Science* (MS), and *Production and Operations Management* (POM).¹ (4) It provides a review of theoretical contributions made by the use of qualitative case studies and identifies subsequent opportunities to improve such theoretical contributions.

We begin by reviewing the literature on qualitative case-study methods, for both inductive and deductive approaches, focusing on the various research frameworks and guidelines that have been proposed to facilitate increased usage and level of rigor. After this, we present our research methodology and the results of our analyses. We then focus on the details of contributions made by the qualitative case studies, relative to the existing guidelines. We end with a general discussion and implications for future qualitative case studies.

2. Literature review

Across various management disciplines there has been recognition of the importance of bringing clarity and increased rigor to theory building and testing from case studies. A number of articles have attempted to provide guidance as to how to undertake such research from a variety of disciplines—management (Bittektine, 2008; Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Harris and Sutton, 1986; Langley, 1999; Yin, 1989, 1994), information systems (Benbasat et al., 1987; Cavaye, 1996; Lee, 1989), marketing (Bonoma, 1985; Hillebrand et al., 2001; Johnston et al., 1999), and operations management (Meredith et al., 1989; Stuart et al., 2002; Voss et al., 2002). Based on this extant literature, we identify the key areas of consideration (i.e., inductive or deductive) and methodological approaches (i.e., sampling, data collection, and analysis).

We have divided the literature review into two sections—one on inductive qualitative case studies and the other on deductive qualitative case studies. To the best of our knowledge, we are the first to explicitly consider both inductive and deductive case approaches in a single review. In general, there has been much more extensive literature discussing the former, and our review reflects this state.

2.1. Inductive use of qualitative case studies

Much has been written about how to conduct an inductive case study (e.g., Eisenhardt, 1989; Meredith, 1998; Yin, 1989). We looked for basic requirements that are common to the articles that have provided such guidance.

2.1.1. Justification of research approach

An important consideration for undertaking theory building case studies is to clearly articulate the rationale behind why such research is being conducted (Eisenhardt and Graebner, 2007). Justifications can include: there is a gap in existing theory that does not adequately explain the phenomenon under investigation (Benbasat et al., 1987; Eisenhardt and Graebner, 2007; Meredith,

1998; Rothlisberger, 1977); the research is exploratory and therefore calls for case research to build theories (Meredith, 1998; Yin, 1989); the research is explanatory (i.e., asking “how” and “why” types of questions) and the context and experiences of actors are critical (Benbasat et al., 1987; Bonoma, 1985), especially the experiences of managers so as to increase the practical relevance of the findings (Fisher, 2007).

2.1.2. Research focus and specification of unit of analysis

When attempting to build theory from case studies, researchers should have a clear focus to collect specific data in a systematic manner (Mintzberg, 1979). This focus helps to define the research question, the types of data to be collected and the types of organizations to be approached (Leonard-Barton, 1990; Pettigrew, 1990). Although research questions may evolve over time and constructs may be modified (Eisenhardt, 1989; Voss et al., 2002), there must be focus which helps maintain consistency throughout data collection and analysis (Benbasat et al., 1987).

Once the research focus has been specified and the research questions have been articulated, the unit of analysis must then be clearly specified (Yin, 1989; Dubé and Paré, 2003). When the unit of analysis is unclear, this influences the research questions and outcomes (Yin, 1989). Dubé and Paré (2003: 610) suggest that clearly defining the unit of analysis “is critical if we want to understand how the case relates to a broader body of knowledge.” Markus (1989: 23) further suggests that in exploratory research, clearly stating the unit of analysis “helps to define the boundaries of a theory which in turn set the limitations in applying the theory.” A clearly stated unit of analysis can help identify applicable extant literature that can help clarify the phenomenon under investigation.

2.1.3. Research purpose and role of existing theory

Case studies are used primarily to develop new theories (e.g., Benbasat et al., 1987; Gersick, 1988; Harris and Sutton, 1986; Van de Ven, 1989). Researchers employ an inductive logic, utilizing a variety of methods to collect primarily qualitative data from which to develop relevant and testable theories (Eisenhardt and Graebner, 2007; Fisher, 2007; Roth, 2007; Voss et al., 2002).

An important question arises then as to the role of existing theories in this theory-building process. On the one hand, the grounded-theory approach, proposed by Glaser and Strauss (1967), is based on pure inductive logic, where the new theory is derived strictly from the data. On the other, Eisenhardt (1989) has suggested that this “clean slate” approach has generated confusion over role of extant literature and existing theories in the use of case studies for theory building purposes. She has proposed that this approach, as implied by the grounded theory approach, is impractical, since the study’s purpose, site selection, and data gathering require some rationale or preconceived ideas. Subsequently, a number of articles have suggested the use of *a priori* constructs to help shape the initial design of theory building research (Bourgeois and Eisenhardt, 1988; McCutcheon and Meredith, 1993; Voss et al., 2002). However, such *a priori* constructs are only to be considered as tentative and may not be in the resultant theory (Eisenhardt, 1989; McCutcheon and Meredith, 1993). In the end, the higher the level of consistency between the emergent theory and existing theory, the higher the external validity achieved.

2.1.4. Sampling issues, case selection, and number of cases

Instead of statistical sampling from the defined population, case study researchers utilize a theoretical or biased sampling approach where cases are chosen for theoretical reasons (Glaser and Strauss, 1967; Meredith, 1998; Eisenhardt, 1989; Yin, 1989). Cases are chosen that either predict similar results or contrary results (Yin, 1989). The use of polar extreme-types has also been suggested where cases

¹ We also considered *Manufacturing and Service Operations Management* (MSOM) as a sixth potential journal, but it had not, since its inception in 1999, published any qualitative case study papers that met our sampling criteria.

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