



Case studies and generalization in information systems research: A critical realist perspective



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ABSTRACT

The status of case study research as a legitimate scientific method in IS research is often challenged by the view that case findings are not readily generalizable. Positivist and interpretivist perspectives have typically dominated discussions of this important methodological issue. I provide an alternative perspective by presenting a critical realist view of generalizing from case findings. I show that critical realism represents a very different view than either positivism or interpretivism. Critical realism recognizes the role of case study research in empirical generalization, theoretical generalization, and theory testing. In contrast, the role of case study research in empirical generalization and theory testing is either ignored or neglected by interpretivism and positivism. Embracing critical realism would therefore enable researchers to more fully explore the potential for case finding generalization.

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1. Introduction

Even though this case study was conducted longitudinally and six major IS decisions made over a 17-year period were examined, it is very difficult to generalize this study's results to other organizations (Newman and Sabherwal, 1996, p. 47).

The above comment reflects a typical concern regarding generalizing from case findings. As Bryman (1989, p. 172) well argued over 20 years ago, “[t]he problem of generalization is often perceived as the chief drawback of case study research”. Case studies are frequently challenged on the grounds that their findings are not readily generalizable to other settings due to the small-*N* problem (Dubé and Paré, 2003; Steinmetz, 2004). This is a very serious criticism because a key objective of the social sciences is to elucidate and articulate the generalities of social life (Danermark et al., 2002; Hägg and Hedlund, 1979). The status of case study research as a legitimate scientific method is therefore threatened.

IS researchers voice different and varied opinions concerning the generalizability of case study results. For instance, using the analogy between a case study and a natural science experiment (and adopting a positivist perspective), Lee (1989a, p. 41) concludes that, “generalizability poses no more, and no less, of a problem for MIS case research than it does for the studies conducted in natural sciences”. Case study research is a legitimate scientific method of investigation, on par with natural science experiments. Discussing IS case study research from an interpretivist perspective, Walsham (1995) proposes four types of generalization that can be drawn from the results of a case study. Nevertheless, his view is in contrast with that of some interpretivists such as Denzin (1983), Lincoln and Guba (1985), and Taylor (discussed in Martin, 1994) who simply deny the possibility of generalization. To summarize, the literature presents an incoherent picture; yet this methodological

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issue—generalizing from case findings—is indeed important as there is “a strong case-study tradition in the academic field of management information systems” (Lee, 1989a, p. 33).

Orliowski and Baroudi's (1991) review of IS research articles published from 1983 to 1988 found that positivism was the dominant philosophical perspective, followed by interpretivism. This situation has not changed during the following decades (Myers and Klein, 2011; Wynn and Williams, 2012). Discussions of case studies and the generalizability of case findings by IS researchers are mostly based on these two perspectives alone (e.g., Cavaye, 1996; Dubé and Paré, 2003; Klein and Myers, 1999). This article discusses how the results of a case study can be generalized from a critical realist perspective, showing that critical realism provides an enriched view of this methodological issue relative to positivism and interpretivism. It also represents a response to Wynn and Williams' (2012, p. 18) comment that “generalizability has a particular significance in critical realism and requires further elaboration relative to case study research”.

I begin by defining the terms “case study research” and “generalization”. I adopt Easton's (2010a, p. 119) definition of case study research as a method that “involves investigating one or a small number of social entities or situations about which data are collected using multiple sources of data”. The subject being investigated is usually a contemporary phenomenon in its real-life context (Yin, 2009). A case study is therefore an intensive investigation of a phenomenon in its natural setting, and often makes use of a variety of data sources (Benbasat et al., 1987). I follow Schwandt (1997, p. 57) and define generalization as a “general statement or proposition made by drawing an inference from observation of the particular”. This definition is consistent with that put forward by logicians such as Copi and Cohen (1990) and Hurley (2003).

The remainder of this article is organized as follows. Section 2 presents a brief comparison of three philosophical perspectives, including critical realism and the two current dominant perspectives in IS research—positivism and interpretivism. Section 3 provides a more in-depth discussion of critical realism. Section 4 discusses empirical generalization, theoretical generalization, and theory testing with a contrast of the three perspectives. Section 5 draws some implications for strategic information systems (SIS) research, and Section 6 offers some conclusions.

2. A brief comparison of key philosophical perspectives

Positivism and interpretivism still dominate IS research in spite of Weber's (2004, p. xi) comment that “it is time to assign the rhetoric of positivism versus interpretivism to the scrap heap”. This section briefly compares the ontological, epistemological, and methodological assumptions between positivism, interpretivism, and critical realism before introducing a more in-depth overview of the relatively new perspective of critical realism. The comparison is summarized in Table 1 with some key references suggested for each perspective.

Positivism assumes an objective reality, adopting the Humean conception of causality which treats the constant conjunction of events as an indicator of a causal relationship. Following Hempel's (1965) covering-law model of explanation, positivists adopt a hypothetico-deductive approach and aim at discovering law-like relationships among a set of empirically measurable constructs that have predictive power. Using statistical methods in data analysis is a major way of establishing a nomothetic body of knowledge. Since positivism relies on correlations between variables to identify empirical regularities and infer causation, reliability of results increases with sample size. Thus, positivist researchers tend to use quantitative methods such as questionnaire surveys, experiments, and analysis of archival data.

Unlike positivism, interpretivism considers the methods of natural science inadequate for conducting social science research. While the natural sciences seek to explain non-intentional phenomena, the job of the social sciences is to understand intentional phenomena by interpreting the meanings attached to the phenomena by their actors (Schutz, 1970). Viewing reality as socially constructed (Berger and Luckmann, 1967), interpretivists adopt a relativist stance “such that diverse meanings are assumed to exist and to influence how people understand and respond to the objective world” (Gephart, 2004, p. 457). They aim to “interpret the meanings and actions of actors according to their own subjective frame of reference” (Williams, 2000, p. 210). Intentional phenomena are therefore meaningful in the sense that they are what they are according to

Table 1
Comparison of positivism, interpretivism, and critical realism with respect to assumptions.

	Positivism	Interpretivism	Critical realism
Ontology	Objective reality with the Humean conception of causality as a constant conjunction of events	Reality socially constructed by humans via subjective meanings; multiple realities possible	Objective, stratified reality (i.e., domains of the real, actual, and empirical) consisting of structures, mechanisms, and events
Epistemology	Discovering law-like relationships that have predictive power using a hypothetico-deductive approach	Knowledge generated by interpreting the subjective meanings and actions of subjects according to their own frame of reference	Retroduction used to create theories regarding the structures and mechanisms that generate the observable events, emphasizing explanation over prediction
Methodology	Tendency towards employing quantitative methods based on large samples such as surveys, experiments, and analysis of archival data	Primarily qualitative methods such as ethnographies and case studies	No preference for a particular form of research methods
Key references	Ayer (1966) and Hempel (1965)	Berger and Luckmann (1967) and Schutz (1970)	Bhaskar (1978) and Sayer (1992)

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