## Chapter XVIII

# Using Critical Realism in IS Research

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## ABSTRACT

*Different strands of postmodern, poststructuralist, postrealist, and nonpositivistic approaches and theories have gained popularity in information systems (IS) research. Since most of these approaches have a flat treatment of the agency/structure dimension, focus almost exclusively on micro phenomena, and reject objectivist elements, it can be argued that they are problematic to use in IS research. An alternative approach and philosophy is critical realism, which suggests, for example, that social reality is not simply composed of agents' meanings but that there exist structural factors influencing agents' lived experiences. Critical realism starts from an ontology which identifies structures and mechanisms through which events and discourses are generated as being fundamental to the constitution of our natural and social reality. This is in direct contrast to a constructivist ontology. This chapter presents critical realism and Derek Layder's critical-realism-based adaptive theory and exemplifies how they can be used in IS research.*

# INTRODUCTION

Commentators on IS research have pointed out weaknesses in positivist, realist, and quantitative approaches for research on the design, development, and use of ICT-based information systems (IS). The commentators have called for the use of alternative approaches and theories. In response, IS researchers have used different types of postmodern, poststructuralist, and postrealist approaches and theories, for example, grounded theory, structuration theory, ethnography, and actor-network theory. Most of the alternative approaches and theories are heavily oriented towards interpretations and agents' meanings. Although the alternatives overcome some problems associated with traditional positivist and realist approaches and theories, they at the same time are problematic to use in IS research. For example, they treat the agency/structure dimension in a collapsed and flat manner, they have in some cases an exclusive focus on micro phenomena, and they reject objectivist elements. As will be discussed, the alternatives' focuses and rejections can be problematic in developing theories on the design, development, and use of ICT-based IS. Given that we in the last years have seen an increase in published IS research utilizing postmodern, poststructuralist, postrealist, and nonpositivistic approaches and theories, these alternative approaches and theories, as well as IS research based on them, need to be scrutinized. (For simplicity, we will refer to these different approaches and theories as "post-approaches" and "post-theories" when distinction is not required.)

The purpose of this chapter is threefold. First, to point out some of the limitations and weaknesses in different post-approaches and post-theories to the study of design, development, and use of ICT-based IS. Second, to present critical realism and discuss how it overcomes some of the problems associated with the different forms of post-approaches and post-theories. Third, to present and exemplify how Derek Layder's (1998) adaptive theory approach can be used in IS research—Layder's adaptive theory builds on critical realism.

Research in the IS field can, from a research approaches perspective, be characterized as quite broad. Our concern here is primarily theory development and theory testing in IS research, but we will briefly discuss how theories can feed into design science and constructive research, for example, how they can feed into the design or construction of a new systems development method. We will not explicitly address pure conceptual analytical research but discuss it as an element of an empirical research process. (For classifications and discussions of different IS research approaches see Galliers, 1991; Järvinen, 1999, 2000; March & Smith, 1995; and Walls, Widmeyer, & El Sawy, 1992.)

The remainder of the chapter is organized as follows: the next section sets the scene by briefly presenting and discussing different responses to the cry for alternatives to positivist and realist approaches. The section also points out some limitations and weaknesses in the postmodern, postrealist, and poststructuralist approaches and theories. Next we present critical realism as an alternative approach and discuss how it overcomes the noted problems. This is followed by a presentation of Derek Layder's adaptive theory approach. We also exemplify how critical realism and adaptive theory approach can be used in IS research. The final section presents conclusions and suggests further research.

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