

THE NATURE OF THEORY IN INFORMATION SYSTEMS<sup>1</sup>

Gregor/The Nature of Theory in IS

By: Shirley Gregor

School of Accounting and Business Information Systems  
 College of Business and Economics  
 The Australian National University  
 Canberra ACT 0200  
 AUSTRALIA  
 Shirley.Gregor@anu.edu.au

Abstract

The aim of this research essay is to examine the structural nature of theory in information systems. Despite the importance of theory, questions relating to its form and structure are neglected in comparison with questions relating to epistemology. The essay addresses issues of causality, explanation, prediction, and generalization that underlie an understanding of theory. A taxonomy is proposed that classifies information systems theories with respect to the manner in which four central goals are addressed: analysis, explanation, prediction, and prescription. Five interrelated types of theory are distinguished: (1) theory for analyzing, (2) theory for explaining, (3) theory for predicting, (4) theory for explaining and predicting, and (5) theory for design and action. Examples illustrate the nature of each theory type. The applicability of the taxonomy is demonstrated by classifying a sample of journal articles. The paper contributes by showing that multiple views of theory exist and by exposing the assumptions underlying different viewpoints. In addition, it is suggested that the type of theory under development can influence the choice of an epistemological approach. Support

is given for the legitimacy and value of each theory type. The building of integrated bodies of theory that encompass all theory types is advocated.

**Keywords:** Theory, theory taxonomy, theory structure, information systems discipline, philosophy of science, philosophy of social sciences, interpretivist theory, design theory, design science, explanation, prediction, causality, generalization

Introduction

The aim of this essay is to examine the structural nature of theory in the discipline of Information Systems. There are a number of grounds for believing that this meta-theoretical explanation is both necessary and timely. Calls continue for "good theory" in IS (Watson 2001) and the development of our "own" theory (Weber 2003). Despite the recognition of the need for theory development, however, there is limited discussion in IS forums of what theory means in IS and what form contributions to knowledge can take.

To place this discussion in context, consider the questions that arise about the bodies of knowledge or theories encompassed in a discipline. These questions fall into a number of inter-related classes<sup>2</sup>:

1. Domain questions. What phenomena are of interest in the discipline? What are the core problems or topics of interest? What are the boundaries of the discipline?

<sup>2</sup>The last three of these four classes have parallels in the three sets of issues distinguished by Godfrey-Smith (2003) for thinking about the philosophy of science: (1) the logical structure of science, (2) epistemological and methodological issues, and (3) scientific thinking, or the social organization of science. When thinking about one discipline in particular, we need to add the first class to define the range of phenomena of interest in that discipline.

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