

## Chapter 7.21

# The Structure of Theory and the Structure of Scientific Revolutions: What Constitutes an Advance in Theory?

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### ABSTRACT

From a Kuhnian perspective, a paradigmatic revolution in management science will significantly improve our understanding of the business world and show practitioners (including managers and consultants) how to become much more effective. Without an objective measure of revolution, however, the door is open for spurious claims of revolutionary advance. Such claims cause confusion among scholars and practitioners and reduce the legitimacy of university management programs. Metatheoretical methods, based on insights from systems theory, provide new tools for analyzing the structure of theory. Propositional analysis is one such method that may be applied

to objectively quantify the formal robustness of management theory. In this chapter, I use propositional analysis to analyze different versions of a theory as it evolves across 1,500 years of history. This analysis shows how the increasing robustness of theory anticipates the arrival of revolution and suggests an innovative and effective way for scholars and practitioners to develop and evaluate theories of management.

### INTRODUCTION

As scholars, we seek to improve our understanding of management practices. An important part of this process is how we advance our theories. While an advance in understanding might be understood as relating to individual perception,

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advances in theory relate to the development of formal structures that are communicable, testable, and useable across our discipline. The question of what actually constitutes an advance in theory is still open, and new answers to that question are only now emerging. For example, it has been claimed that a theory of greater complexity should be considered as one that is more advanced (Ross & Glock-Grueneich, 2008). Another approach claims that improved theories are those that combine multiple theoretical lenses (Edwards & Volkmann, 2008). Still another approach suggests that theories of greater structure may be considered more advanced (Wallis, 2008b).

For scholars outside this growing metatheoretical conversation, the standard method for advancing a theory is to determine if that theory works in practice. However, each theorist seems to claim that his or her theory is best, so this is not a very useful measure. Investigating the Faust-Meehl Strong Hypothesis for Cliometric Metatheoretical investigations, Meehl notes that many authors claim their theories are good because they are parsimonious. However, Meehl (2002, p. 345) notes, this claim is misused, and represents a weak claim for successful theory.

Popper (2002) suggests that the best theories are those that are falsified. Yet, this level of testing seems to represent too high a hurdle for social scientists (Wallis, 2008d). Few theorists even attempt to falsify their own theories, or encourage others to do so. Some authors, in claiming that they have developed an advanced theory, invoke the spirit of Thomas Kuhn and his description and discussion of paradigmatic revolution.

Drawing on centuries of hindsight, Kuhn (1970) developed the idea of scientific paradigms; each of which includes laws, theories, application and instruments which combine to support “coherent traditions of scientific research” (Kuhn, 1970, p. 10). A paradigmatic revolution is said to occur when the traditions of a science change in significant ways. For example, moving from the Ptolemaic view of the solar system (where the

Earth is at the center, surrounded by nested crystal spheres on which are embedded stars, planets, etc.) to a Copernican view where the sun is at the center. Revolutions also result in major improvements to the effectiveness of practitioners. With modern physics, it is possible to have communication satellites, while under the Ptolemaic paradigm, no such achievement would be possible.

Some authors in the field of management claim that their theories are not only effective and useful, but have achieved the status of paradigmatic revolution – ushering in a new age of management, presumably as great as the shift in thinking between Ptolemy and Copernicus. For example, after the development of Total Quality Management (TQM) by Ishikawa, a Kuhnian revolution was claimed. It was argued of TQM that, “All of these characteristics and underlying philosophies point to fundamental changes in the rules of business--a paradigm shift” (Amsden, Ferratt, & Amsden, 1996). While some authors claim revolution, others lend legitimacy to such claims. For example, Clarke & Clegg (2000, p. 45) refer to a proliferation of paradigms and describe over twenty publications that claim significant paradigmatic changes. They closely investigate some claims of paradigmatic revolution including, “*Transition From Industrial To Information Age Organization*.” On the other hand, some authors are content to strongly imply a revolution, as would be found in a shift toward more spiritual management practices (Steingard, 2005). Still others do not make such claims, but explicitly seek revolution in their field (e.g. Stapleton & Murphy, 2003).

The nature of these claims seems to suggest that management science, as with the broader social sciences, does not have a shared understanding of what constitutes a Kuhnian revolution, or even the advance in theory needed for such a revolution. This lack of advance is reflected in management studies where the field is disparaged as being fragmented (Donaldson, 1995) by academics and where practitioners have little interest in the

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