

## Chapter 18

# Toward a More Pragmatic Knowledge Management: Toyota's Experiences in Advancing Innovation

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### ABSTRACT

*Managers often conceive knowledge management processes in ways that unduly limit its potential. Toyota has avoided falling into this narrow paradigm trap by creating its own version of knowledge management that is well suited to its culture. They have woven their knowledge management strategy together with process improvement and innovation methods. Toyota's knowledge management system is a theoretically sound, yet practical, business approach built on a set of scientific principles based on a philosophy known as Pragmatism. This chapter examines how Pragmatic principles used by Toyota can achieve superior innovation results. The chapter concludes by explaining why the Pragmatic approach delivers superior performance at lower cost than conventional knowledge management methods.*

### INTRODUCTION

Some researchers see organizational innovation as a product of individual skills, such as creativity and imagination. Conventional wisdom regards it as being an art, not a science. Still others, such

as many management theorists, regard innovation as being the organizational outcome of a properly designed business strategy. In their eyes, strategy becomes the activator of predictable organizational processes where 'B' follows 'A' - as if a clockwork. They envision a tightly controlled system capable of driving innovative ideas through a pipeline

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flowing through various phases of development toward an outcome - releasing a product or service to market. For example, Bacon and Butler (1998:11) define innovation as a commercially successful use of invention, and invention as being a “solution to a problem (unmet needs)”. Similarly, Davila et al (2006), propose that innovation IS a management process – one requiring specific tools, rules, and discipline.

This chapter’s purpose is to explore an alternate paradigm for innovation. It suggests a strategy based in the logic of scientific reasoning and experimentation. Specifically, this alternative spurs innovation by radically improving the quality of knowledge held by an organization’s members. Its theoretical basis is a system designed to improve the quality of scientific discoveries known as *Pragmatism*. Pragmatism’s founder, scientist Charles Sanders Peirce, set forth a number of principles for being pragmatic in improving the effectiveness of one’s action. Many management theories, such as Total Quality Management, incorporate pragmatic principles. Peirce’s (1958:293) approach to scientific discovery begins with *the pragmatic maxim* that holds we should always,

*“Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object.”*

This maxim is the basis for an innovation strategy that focuses on conducting frequent mini-experiments throughout an organization. For example, Spear (2009:215) cites an example of how plant-floor workers at Aisin—a first-tier supplier for Toyota – routinely use such an experimental approach to improving the quality of their common knowledge.

*“Problem solving is done in a disciplined fashion. Assumptions about cause and effect are made explicit and stated clearly, then they are tested in*

*rigorous fashion so improvement efforts both make processes better and deepen process knowledge.”*

To Peirce, the key to creating high quality knowledge is through rigorous experimentation and the integrated application of three types of inferential reasoning, namely deduction, induction, and abduction. Abduction produces radical insights of the sort that companies seek for gaining competitive advantage. The chapter proposes an innovation strategy based on pragmatic principles designed to leverage the power of *abductive* reasoning (Wiener, 1958). Toyota is one of the leading companies in both applying pragmatic principles for increasing knowledge quality, experimentation, and innovation. This chapter examines Toyota’s methods for increasing knowledge quality and innovation and their origins in pragmatic philosophy.

## **WHAT IS INNOVATION?**

What is innovation? Research by Baregheh (2009:1334) found the term *innovation* describes, “the multi-stage process whereby organizations transform ideas into new/ improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.” By contrast, such flow-oriented definitions oppose those that focus on identifying the sources of knowledge necessary to produce innovations. For example, scholars, such as Peirce and noted economist Joseph Schumpeter (1950), view knowledge as being the primary force behind innovation. Peirce’s main interest in studying knowledge was in discovering how it drives processes of scientific discovery, whereas Schumpeter’s primary interest was in how knowledge influences the entrepreneurial economic potential of a firm. Peirce studied how scientists conduct research and how their methods lead to breakthrough innovations. He concluded that scientific innovations often happen suddenly, but

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