Chapter 3
Reconsidering a System for Measuring Dynamic Knowledge:
Extending a Novel Line of Research

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ABSTRACT

It is axiomatic to say that knowledge is key to competitive advantage, but it is inherently invisible, intangible, and resistant to quantification, particularly when in dynamic motion. Recent research builds upon emerging knowledge measurement techniques and well-established knowledge flow theory to develop a system for measuring dynamic knowledge in the organization. Results from application to archetypical organization processes are encouraging and highly consistent with extant theory. The research described in this chapter summarizes three notable extensions to such work. It makes a theoretic contribution by extending a coherent approach to dynamic knowledge measurement, and it makes a practical contribution through illustration in the organization context. A related goal is to stimulate considerable thinking, discussion, debate, and continued research.

INTRODUCTION

It is axiomatic to say that knowledge is key to competitive advantage (Cole, 1998; Grant, 1996; Spender, 1996): Knowledge enables effective action; effective action drives superior performance; and superior performance supports competitive advantage (Nissen, 2014). Indeed, some scholars argue that knowledge represents the only sustainable source of competitive advantage (Drucker, 1995).

However, it is understood that knowledge does not represent a single, monolithic concept: different kinds of knowledge (e.g., tacit, explicit, individual, group, created, applied) have qualitatively different properties and behaviors, and hence affect action, performance and competitive advantage differently (Nissen, 2006a). It is understood also that knowledge cannot remain static in support of competitive advantage: knowledge must move or flow rapidly and reliably from where and when it is located to where and when it is needed in the organization.

This places particular importance on understanding the dynamics of knowledge as it moves or flows, but unfortunately, knowledge is inherently intangible, invisible and resistant to quantification (Ahn & Chang, 2004), particularly when it's in dynamic motion. This makes knowledge a considerable and persistent challenge to understand, visualize and measure.

Recent research builds upon emerging knowledge measurement techniques and well-established knowledge flow theory to develop a novel system for measuring dynamic knowledge in the organization (Nissen, 2017). Results from application to archetypical organization processes are encouraging and highly consistent with extant theory. For instance, measured differences between dynamic flows of tacit and explicit knowledge mirror theoretic predictions closely.

The research described in this chapter summarizes three notable extensions to this line of work. First, the chapter generalizes a system of dynamic knowledge equations to accommodate measurement across a variety of different knowledge organizations and processes. Then it extends such system to incorporate *knowledge flow efficiency* as a novel factor that establishes a new decision support capability. Finally, it illustrates the use and utility of these extensions through application to the Spiral Model in addition to two archetypical knowledge flow patterns from the literature.

This research makes a theoretic contribution by extending a novel and coherent approach to dynamic knowledge measurement, and it makes a practical contribution through illustration in the organization context. A related goal is to stimulate considerable thinking, discussion, debate and continued research.

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