

Relationships between knowledge inertia, organizational learning and organization innovation

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Abstract

Both as power and a resource, knowledge is a significant asset both for individuals and organizations. Thus, knowledge management has become one of the important issues for enterprises. However, when facing problems, people generally resort to their prior knowledge and experience for solutions. Such routine problem-solving strategy is termed “knowledge inertia”. This study aims to establish the constructs of knowledge inertia and examine the relationships between knowledge inertia, organizational learning and organizational innovation. Structural equation modeling is employed to discuss the degree of influence each construct has on each other and whether their relationships vary in different organization types. A questionnaire survey was conducted to collect data from government organizations as well as state-run and private enterprises. A total of 485 valid responses were collected. Our results reveal that knowledge inertia comprises both learning inertia and experience inertia. The relationships between the three variables are as follows. First, knowledge inertia exerts a mediating effect on organizational innovation through organizational learning. Second, when a firm’s members have either less learning inertia or more experience inertia, the performance of the organizational learning will be better.

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Keywords: Knowledge inertia; Organizational learning; Organizational innovation; Principal analysis; Structural equation modeling

1. Introduction

Both as power and a resource, knowledge is strategically important for individuals and enterprises. The third industrial revolution is based on knowledge which changes the way an individual, an enterprise or even a nation can create wealth and prosperity. Thus, successful knowledge management can be the chief determinant for the survival of an enterprise in a knowledge-based economy.

Since the 1990s, there has been much interest in the exploration of knowledge management and the development of knowledge management theories. Nonaka (1994) proposed a theory of organizational knowledge creation where enterprises are encouraged to adopt novel ideas while reforming old operational procedures and creating new ones. Innovations are the prerequisite of knowledge creation and the essence of knowledge management. Faced with an ever-changing environment, innovations provide

an enterprise with flexibility for changes, which is the key to its survival and success. Drucker (1985) considers knowledge the only source of an enterprise’s competitive advantage. Hence, to meet current challenges, enterprises should seek ways to strengthen the research and development of knowledge, to manage it efficiently and to utilize it effectively.

Nevertheless, hurdles to efficient and effective knowledge management are many. Using the principles of inertia in physics to knowledge management, Liao (2002) states that knowledge inertia may inhibit an organization’s capability to learn and solve problems. Often routine problem-solving procedures are adopted to save time and effort as well as to avoid risks. Stagnant knowledge sources and obsolete prior experience result in the same solutions and approaches being employed to deal with problems. Such predictability in management behavior may make an enterprise more risk in a highly vulnerable competitive environment. Inertia not only has negative impact on knowledge utilization, but may also disclose an enterprise’s commercial secrets and strategies. In other words, organizations showing inertia in

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thinking and policy-making may suffer loss and failure. This further highlights the importance of innovations in knowledge management and that enterprises should devote efforts to avoid inertia.

The theory of knowledge inertia proposed by Liao (2002) has not been tested empirically. Therefore, this research attempts to establish the constructs of knowledge inertia using principal analysis and examines the relationships between knowledge inertia, organizational learning and organizational innovation with structural equation modeling approach. The sample of organizations studied includes government organizations (officials on central and regional government) as well as state-run and private enterprises (manufacturing and services industry).

2. Theoretical framework

2.1. Knowledge inertia

In physics, the principle of inertia states that objects continue in a state of rest or uniform motion unless acted upon by forces. Unless interrupted, an object's motion is subject to physical constraints and objects will move in the predicted trajectory. That human(s) can track and reach moving objects by predicting where the objects are going. This phenomenon suggests that human cognition also has inertia (Hofsten et al., 1998; Kavcic et al., 1999). The overall procedure explains several things. Firstly, prediction is based on the understanding that there is a trajectory *if* objects move *then* we can track and reach them according to their inertia. Secondly, changes in moving trajectory only happen if objects are interrupted by outside forces. This means that any change of inertia is caused by outside forces. Thirdly, change does not spontaneously, but must be implemented.

In human cognition, there is an explanatory process, which derives understanding from a view that other things have already been done (Schank, 1986). For example, as we read a text or listen to a discussion, we use our knowledge about what has already been written or spoken to help us tie together the pieces of what we hear. Our past knowledge helps us predict what we will hear next, disambiguate words, resolve pronouns, and make connections between the various things being discussed. This implies that our past knowledge of what has happened in some situations allow us to infer similar things and to explain it (Kolonder, 1994). In system logic programs, there is a commonsense law of inertia, which states that things do not change unless they are made to change. The fact that revision programming is easily captured in logic programs using such inertia rules can help to clarify the nature of the revisions captured by programming. It also provides a crucial element of proposals for representing knowledge about actions in default logic and logic programming (Przymusinski and Turner, 1997). On the other hand, people are usually either right-handed or left-handed from infancy, which is a physical inertia that is used throughout life and is very

difficult to change. We can also consider if there is evidence to show that a phenomenon similar to inertia, exists in knowledge use. In both individuals and organizations, a high degree of the solution of a problem is generated by the knowledge acquired from past experience and its extension to fit new situations (Sternberg, 1985). People use a memory of past experiences and knowledge as a guide to generate planning for new problems. Re-using past knowledge to solve a new problem becomes a law or principle that similar things will remain static or uniform until the situation is no longer feasible and then is changed by outside forces.

Applying the concept of inertia to human behavior shows that individuals often resort to constant methods for dealing with problems. Routine problem-solving approaches and similar reasoning will be adopted to save time and effort and also avoid risks. In the context of strategic change, Huff et al. (1992) describe inertia as an “overarching concept that encompasses personal commitments, financial investment and institutional mechanisms supporting the current ways of doing things...inertia describes the tendency to remain with the *status quo* and the resistance to strategic renewal outside the frame of current strategy” (p. 55). This definition leads us to the concept of *mental inertia*, which originates in cognitive and learning approaches, thus linking the firm's difficulties to change to cognitive structures, perception and interpretation. On the other hand, everything stemming from past experience and knowledge without revision and updating would imply predictable management behavior and problem-solving strategy of an enterprise (Liao, 2002). That is to say, inertia would result in lack of innovation and expected behavior, which may jeopardize the survival or undermine the advantage of an enterprise in a highly competitive environment. Hence, it is important for an organization or enterprise to avoid the negative impact of inertia on its capability to learn and it should utilize knowledge efficiently and effectively.

2.2. Organizational learning

All humans are born with the ability to learn and it is through learning that they adapt to the changing and evolving environment. Learning leads to new insights and concepts. It often occurs when we take effective actions and when we detect and correct our own mistakes (Argyris and Schon, 1978). As to the learning of an organization, Morgan and Ramirez (1983) suggest that organizational learning occurs when members use learning to solve a common problem they are facing. Every organization will develop the most suitable learning method taking into consideration the needs and characteristics of the organization itself (Helleloid and Simonin, 1994).

There are two types of organizational learning commonly discussed in the literature. Firstly, exploitative learning (March, 1991) is the acquisition of new behavioral capacities framed within existing insights. Exploitative

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