Organizational Routine and Coordinated Imitation

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Abstract: The technical term “organizational routine” has been broadly used in management and organizational science. The study by Nelson and Winter (1982) is considered to be the origin of this terminology. However, Nelson and Winter (1982) were not management scientists, but they were evolutionary economists. Researchers in both evolutionary economics and management science used organizational routine as a unit of analysis, but three major conceptual differences exist with the definition of organizational routine used in management science. For example, Nelson and Winter (1982) explain that (a) each company has an organizational routine; (b) organizational routines change through natural selection after random mutation; and (c) the organizational routines of one organization can be easily transplanted to other organizations. However, observation of actual firms from management science perspective reveals that (a) each company has many organizational routines that combine in a mosaic-like fashion; (b) the creation, imitation, and selection of organizational routines are intentional; and (c) transplanting an organizational routine is difficult due to needs for coordination. These points are clear from a review of the literature on these topics called as “routine dynamics.” In recent years,
scholars have regarded routine dynamics as a new framework for the theory of organizational routine. However, routine dynamics tends to focus less on the need for the coordination mentioned in (c). This study employs a case study of the failure of Company A—an automaker—to implement Toyota’s production methods and to indicate that future analysis for changes in organizational routines must be considered from the perspective of coordination.

Keywords: organizational routine, evolutionary economics, routine dynamics, size of routine, dynamics or evolution, coordination in an organization, Toyota (Lean) Production System

**Introduction**

The concept of organizational routine has been used in the management science domain to explain the source of actions of firms and organizations (Becker, 2004; Feldman, 2000; Feldman & Pentland, 2003, etc.). Although the origin of the concept is unclear, the study of Nelson and Winter (1982) made this a well-known concept in the management science domain (Becker, 2004, 2005; Becker, Lazaric, Nelson & Winter, 2005). In business management studies, Nelson and Winter (1982) are almost always cited when discussing the concept of organizational routine, and the concept of organizational routine is considered to be synonymous with the concept of production functions.

1 As to the first researcher to propose the concept of organizational routine, some (e.g., Fujimoto, 1999) claim it was Nelson and Winter (1982); others (e.g., Nelson & Winter, 1982) say it was March and Simon (1958) or Simon (1947); and still others (e.g., Feldman & Pentland, 2003; Simon, 1947) claim it was Stene (1940).

2 According to a May 22, 2015, search on Google Scholar, 46 of the first 50 business management papers cited Nelson and Winter (1982); moreover, these papers cited Nelson and Winter (1982) when defining organizational routine.
However, this study notes the following differences in the concept of organizational routine between the evolutionary economics studied by Nelson and Winter (1982) and the management science domain that frequently cites their study.

When the concept of organizational routine is used in evolutionary economics, it is understood that (a) one organizational routine as a whole is retained as one organization, and (b) change occurs stochastically. However, the management science domain uses the term differently. For example (a) components of an organizational routine are considered to be divided among the members of the organization, who are thus responsible for that portion, and (b) changes to an organizational routine are considered intentional.

This study first reviews the studies on organizational routine and subsequently analyzes the case of Company A that implements a production method used by Toyota. Thereafter, this paper asserts that (c) coordination is necessary when changing or transplanting an organizational routine and that such a perspective of coordination is the key to identify the relation between organizational change and business performance in management science.

Concept of Organizational Routine in Evolutionary Economics

In An Evolutionary Theory of Economic Change, Nelson and Winter (1982) presented the concept of organizational routine based on their review of numerous behavioral science studies, such as the Carnegie School’s Simon, March, and Cyert.3

Organizational routine—as used by Nelson and Winter—decides the production functions of a firm4 and mostly

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3 This is why Nelson and Winter refer to them as “allies and antecedents of evolutionary theory” (Nelson & Winter, 1982, p. 33, Chapter 2, paragraph 3). Cyert is known as the author of Cyert and March (1963).
4 Nelson and Winter (1982) discuss organizational routine in only two of the
has the same meaning as production function (Wakabayashi, Higuma, & Okamoto, 2010). Each industry does not have just one production function, as assumed in neoclassical economics; rather, production functions differ across firms. Each firm (i.e., organization) \(^5\) will have only one organizational routine to determine its production function. Nelson and Winter (1982) used the concept of organizational routine to explain that each company in an industry has a different production function and asserted that organizational routines undergo a process of natural selection within industries (rather than corporations). Because corporate organizations with relatively superior production functions win out over other firms, the losing firms choose either to imitate the superior organizational routine or to exit the market. Nelson and Winter (1982) claimed that this theory explained the source of Schumpeter-type innovation, \(^6\) which improves the overall average production function of an industry (or of a country’s economy, which is the aggregate of multiple industries) (Nelson, 1991). \(^7\)

Variations in organizational routines in the study by Nelson and Winter (1982) are determined by random variables ranging between 0 and 1. From Chapter 6, organizational routine is held to be equal with production functions, and then this term disappears entirely from this book.

\(^5\) Nelson and Winter (1982) do not differentiate between organizations and companies. As organizations and companies are, strictly speaking, not the same, the reader should refer to Takahashi (2014) for a more detailed discussion.

\(^6\) Research on the topic of innovation is in a state of confusion (Akiike & Iwao, 2015).

\(^7\) Their assertion led to the new field of “evolutionary economics” within economics and also helped create the *Journal of Evolutionary Economics*. In addition, in the field of evolutionary economics, one company is held to have one organizational routine, although three types of organizational routines are recognized as follows: 1) routines that determine production functions; 2) routines that determine amounts of investment; and 3) search routines that change routines into new forms (Dosi & Nelson, 1994; Fagerberg, 2003).
and 1, and the discovery of superior routines through a search routine is also a random variable. In other words, change in an organizational routine occurs randomly (spontaneously).

Concept of Organizational Routine in Organizational Science

In contrast, researchers of management science and those of organizational science differ in their view of organizational routine on several points. For example, Stene (1940), a political scientist and researcher of organizational theory, defined organizational routine as follows: “Organization routine is that part of any organization’s activities which has become habitual because of repetition and which is followed regularly without specific directions or detailed supervision by any member of the organization” (Stene, 1940, p. 1129). Moreover, organizational routines enable actor’s actions to match organizational goals. Actors rely on individual judgments when they find it difficult to respond to changes (Stene, 1940). Simon (1947), in citing Stene’s study, similarly focused his analysis on individual actors in an organization (Simon, 1947, p. 100), and March and Simon (1958) fundamentally agree on this point. In other words, organizational routine is defined in the organizational theory (and science) domain at the level of members of an organization or actors. Organizational theory also states that components of organizational routines within an organization are retained as procedural memory by members of an organization (Cohen, 1991; Cohen & Bacdayan, 1994). Moreover, members of an organization can intentionally change the components of the

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8 However, it must be noted that there have been multiple changes to Simon (1947) in the 2nd, 3rd, and 4th editions since the original (Takahashi, 2015).

9 See Mitomi and Takahashi (2015) regarding the treatment of the Carnegie School’s organizational routine.
organizational routine that they retain through training (Cohen, 1991).

In recent years, the field of “routine dynamics” has also adopted the notion that members of an organization can intentionally change their organizational routine, further clarifying the theory. Routine dynamics theorizes the reasons for a continuous change in organizational routines based on empirical results (Pentland & Rueter, 1994; Feldman, 2000), showing the everyday changes of organizational routines that occur despite an absence of crisis or environmental change. Feldman and Pentland (2003) define an organizational routine as follows: “an organizational routine is a repetitive, recognizable pattern of interdependent actions, involving multiple actors.” Assuming that organizational routines are retained by the members of an organization, they divide routines into two groups: those that remain in the minds of an organization’s members and those that are actual routinized actions. They further posit that actual actions change according to the changing environment and that if variations in actions caused by such a change are perceived to “lead to a more desirable result,” the routine in one’s mind can be intentionally changed.

As noted in the aforementioned literature review, variations in an organizational routine—which were only a random variable in the evolutionary economics study of Nelson and Winter (1982)—have been redefined in the organizational science domain to mean intentional change caused by members of a corporate organization. This understanding dilutes the notion of evolution, or the selection that occurs after a random change (i.e., mutation), and thus the management/organizational science domain tend to use the word “dynamic(s)” instead of “evolutionary.”
Necessity for Coordination for Organizational Change

Differences also exist between evolutionary economics and management/organizational science in the case of coordination for change. The evolutionary economics of Nelson and Winter (1982) states that the superior organizational routines (production functions) of other companies found through search routines may be quickly imitated.

In contrast, the management science domain holds that as with routine dynamics, it is difficult to imitate an organizational routine when viewed from the level of the organizational member. The tradition of the Carnegie School has individuals within an organization retaining the organizational routine (Gavetti, Levinthal & Ocasio, 2007), in which case one must consider the impact of a change to the organizational routine of one actor of an organization on the routines of other actors (Simon, 1969, chap. 3). In other words, an organizational routine is a mosaic of diverse routines (Clark, 2000; March & Simon, 1958). Therefore, coordination with other members of the organization is necessary when a change occurs in an organizational routine of one member (Feldman & Pentland, 2003).

Recently, there has been an increasing awareness of the need for coordination among members of an organization when organizational routine changes. However, few studies have focused on linking the need for coordination of organizational routines with business performance. In other words, few studies have considered the impact of ineffective coordination on business performance.

In contrast, dynamic capability, which links changes in organizational routines with long-term business performance, does not comprehensively describe the organizations’ internal workings and thus does not perceive the aforementioned coordination to be as critical as does routine dynamics. For example, Teece and Pisano
Iwao

Table 1. Comparison of “organizational routine” concepts

|                     | Size of routine | (Un) intended change (evolutionary)? | Necessity of coordination for change | Viewpoint of firm’s profit |
|---------------------|-----------------|--------------------------------------|-------------------------------------|---------------------------|
| Evolutionary        | Firm level      | Unintended (evolutionary)             | Unnecessary                         | Considered                |
| economics           |                 |                                      |                                     |                           |
| Organizational      | Actor level in  | Intended (dynamics)                   | Necessary                           | Not considered            |
| science             | organization    |                                      |                                     |                           |
| Dynamic capability  | Firm level      | Intended (dynamics)                   | Unnecessary                         | Considered                |

(1994), Teece, Pisano and Shuen (1997) and Zollo and Winter (2002) view the search routines of Nelson and Winter (1982) as routines for changing routines (“meta-routines”) and as the source of competencies that create continuous innovation (dynamic capability). However, these studies do not describe the type of coordination that occurs when a “superior” organizational routine found through a search routine is transplanted. In addition, some studies note that members of organizations retain meta-routines (Adler, Goldoftas & Levine, 1999; Hackman & Wageman, 1995); however, even these cases do not focus on coordination.

In other words, studies thus far on changes in organizational routine either (a) ignore the need for coordination despite changes in organizational routine, or (b) show no awareness of a link with business performance, even when discussing a need for coordination (Table 1).

However, as can be viewed from the case study in the following section, in fact, coordination is necessary for imitating the superior organizational routines of other companies, and companies that fail
to coordinate will reduce their business performance.

**Case Study: Transplantation of Toyota Production System**

Company A is an automaker with sales of $3 billion and profit of $200 million as of February 2015. Around the past decade, Company A has benchmarked itself against its peers to improve productivity and quality. Approximately 10 years ago, the company started upgrading its plants for improving their productivity and quality to rival that of Toyota plants from imitating Lean Production System. In doing so, a consultant of Lean Production System who was originally from Toyota told Company A that Toyota had adopted a work method called “Set Parts Supply” (SPS). In SPS, a set of parts for each car model is provided to assembly workers. They think that SPS is a new and advanced work method; Company A adopted SPS at its plants’ assembly operations in 2010. In other words, Company A attempted to imitate the organizational routine of Toyota, namely SPS. However, quality remained unchanged after the imitation, and productivity somewhat worsened than before.

This is because Company A did not understand that SPS is only effective when used in a mixed production system (MPS) organizational routine that combines production control with upstream processes. MPS improves plants’ flexibility and promotes the effective use of factory equipment, but the drawback is that the increase in the number of models produced leads to a larger number of parts, causing downstream workers to attach the wrong parts, thus declining quality. However, if other workers use SPS to gather parts for each model, they can balance flexibility, quality, and cost advantages. A division that adopts SPS will find it useless unless other divisions have adopted MPS.

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10 The simultaneous production of multiple models on a single production line.
Despite this fact, Company A did not require its production control group to implement MPS even as it implemented SPS. This did not change quality because there were no problems involving miss-attached parts, although costs rose because more workers were required to pick up parts.

Thus, a company often ends up imitating only part of the routine within the organization even when it tries to imitate the entire superior organizational routine of another company. Moreover, when imitating only a part of a routine at once, companies often do not see the expected results without coordinating with the routines of other groups, such as the production control group and upstream processes. Companies must therefore be aware of the need for coordination when organizational routine changes.

**Conclusion**

As we have reviewed thus far, the concept of organizational routine can differ in three basic ways: (1) the size of object being analyzed (the actor(s) or organization retaining an organizational routine); (b) whether change is intentional; and (c) whether coordination among actors is required when organizational routine changes.

However, as we can see from the case study, an organizational routine cannot be quickly imitated whenever a superior routine, such as that posited by Nelson and Winter (1982), is discovered. Rather, coordination is required with the organizational routines of other actors within the organization to ensure that changes are linked with business performance. Thus, it is imperative that future research on sources of organizational change use the concept of organizational routine with an awareness of imitation by coordination.
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