ACCOUNTING INNOVATIONS AND ORGANIZATIONAL LEARNING:
LESSONS FROM THE SOCIOLOGY OF ADOPTION-DIFFUSION RESEARCH

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ABSTRACT

The adoption-diffusion research in sociology describes the process whereby organizational innovation is planned and implemented. Organizational learning describes the type of learning: incremental single-loop or transformational double-loop that is required to successfully adopt and diffuse the innovation. The success of management accounting innovations depends on the types of learning strategy that the organization adopts to implement the innovations. We suggest that the innovation process in management accounting systems can be either autonomous-division or transformational-organizational wide focused intervention strategies for change. Accordingly, the scope of the change, autonomous or systemic, affects the mode of organizational learning associated with either single and/or double loop learning strategies.

Key Words: Organizational learning, process innovation, organizational innovation, accounting change, management accounting innovation

INTRODUCTION

Innovation as a learning mechanism is a continuous process of adaptive learning that requires breaking away from existing assumptions that focus on knowledge stabilization and inhibit change and adopting those activities that make viable the emergence of possible knowledge from new instruments. These new instruments may involve dialogue, intervention techniques, reflections from transactions, and constructions of positions in the field or area of interventions—all in order to destabilize existing knowledge and open up new possibilities and movements in different directions (Engestroom, 2007, pp. 271-275; Engestroom et al., 2007, Weinjert, 2002; Zaltman et al., 1973). On the other hand, innovation as a process of intervention strategy follows a sequence of two stages, namely adoption and diffusion.

We suggest that there are cultural and organizational factors that explain why some innovations fail to be adopted even when such innovations would meet the requirement of having positive expected economic returns to the organization and the managers. We identify these factors to be associated with the failure of the rewards to be perceived by the potential adopters as meeting their needs (rewarding them) or requiring too great an expenditure of resources (time and effort as well as money) on their part relative to their expected benefits. It is also possible that what may be beneficial from the organization’s perspective is detrimental to a specific manager(s).
This can occur for a variety of reasons ranging from poor leadership to an inappropriate reward structure. Thus, the adoption and diffusion of innovations is contingent upon organizational contextual and structural characteristics. The contingency framework best describe those factors that either create barriers or impediments and/or facilitate the design and implementation of process innovations.

**CONTINGENCY FRAMEWORK OF SOCIOLOGY**

The sociological contingency framework applies open systems theory and decision-making approaches that take into consideration external environmental factors. These include social, economic, political, governmental, environmental, socio-cultural, market, and technological developments (Steiner, 1979; Steiner et al., 1982; and Sisaye and Birnberg, 2012). These factors are of interest to researchers whether or not contingency guidelines are appropriate and adaptable to specific decision-making situations/contexts (Tushman et al., 1986).

The sociological contingency framework relates the development of strategic decisions as mediating organizational resource allocation decisions as organizations attempt to allocate their limited scarce resources or competencies to maximize business opportunities by minimizing current potential environmental threats (Porter, 1980). The contingency approach thus provides a situational and an “if-then” strategic decision-making guideline, tailored to specific organizational decisions, which include management accounting innovations. An "if-then" perspective allows the consideration of the extent to which changes in external ecological and environmental factors influence decisions regarding the allocation of organizational resources. The contingency framework thus enables organizations to develop strategies to match the requirements of their external environment with internal resources and capabilities in order to adopt and diffuse the appropriate process innovations (Sisaye and Birnberg, 2012).

Organizations attempt to change and adapt their strategies contingent upon both institutional (internal) and market (external) forces. The characteristics of leadership and top management composition, i.e., whether or not there exists heterogeneity involving age, sex, tenure, education, values, experience; influences, whether or not management takes a broad or narrow scope in viewing problems/opportunities that shapes the type of strategic change the organization undertakes. Naranjo-Gil and Hartman (2007) utilized the prospector vs. defender typology from the strategy literature to determine whether or not management utilized broad or narrow views of strategic change in adopting management accounting systems (MAS). They found that prospector organizations looked for flexibility and a broader and more interactive scope in their MAS compared to defender organizations. The latter opted for a narrower scope of MAS to support the strategies they adopt to manage the institutional and market forces faced by the organization. It would appear that organizational performance is contingent upon the existence of a fit between selected strategic structural factors related to strategy type – prospectors and defenders (Simons, 1987).

In general, contingency factors shape the strategic posture and performance of organizations. Simon (2007) discussed several contingency factors related to strategy deliberations arising from emergent and ambiguous to planned conditions and market orientations. He suggested that where accountants were involved in decision making, management accounting systems had roles in strategic decisions of organizations. Strategic decisions in organizations involve contingent situations that are ambiguous and unknown.
Process innovations in organizations are strategic decisions because they require resource allocations and management’s willingness to accept the risks-failures or benefits-success associated with the initiations and adoption of innovations. The learning strategy that the organization utilizes in the adoption of innovations shapes the scope (breadth or depth) of the innovations. Sociology offers two competing approaches; the Structural Functional (SF) and the Conflict Radical (CR) approaches (see Sisaye, 2011). We have incorporated both of them to describe organizational learning effectiveness in process innovations decisions. We will utilize both approaches as is appropriate to better understand organizational learning.

**Adoption and Diffusion Issues Related to SF- and CR-Based Technological Innovations**

Both SF and CR frameworks assume that the learning process starts with adoption of technological changes that affect production relations and economic organizations in society. The learning process is shaped by organizational power and structures, conflictual and coalition-based relationships, individual goals, social order, and distribution of resources. Learning and innovations have the potential to alter existing political power structures in the organization if they are adopted by those that are not part of the coalition. In other words, there are risks and uncertainties associated with learning that are mostly related to technological innovations, which could result in delays in adoption, resulting from power conflicts among coalition members. Such delays in adoption makes the result of the “technologically improved product” short-lived and obsolete (Butler, 1988, p. 20).

While risks and uncertainties explain delays in adoption of innovations, differences in early and late adoption may be attributed to factors related to cohesion and structural arrangements that define individual and social relationships as well as timing differences in investment decisions. In a study of medical innovation, Burt (1987) discovered that SF attributes of physical proximity, structural equivalence, friendliness, and network relationships caused social contagion of diffusion of innovation. Structural equivalence indicated that in medical innovations, physicians adopted new formulations, for example, prescription drugs, when their peers in the medical hierarchy profession adopted these innovations.

Soete and Turner (1984) noted that costs and resource outlays associated with innovations are the principal reasons for delays in innovation investments. SF-based economic assumptions stress return on investment and cost-saving mechanisms when making investments in technological innovations. It is assumed that organizations make different decisions about investment choices: when to adopt, how to seek the most profitable investment technique, where to invest, how to determine the cost of new investments, and obtain more information about time, costs, and alternatives. It may involve a rational decision to delay action until all the relevant information about other organizations’ experiences is obtained (Soete and Turner, 1984, p. 615).

To this effect, Witt (1997) expressed the economic risks associated with early adoption decisions as follows: “The agents who adopted the new technology or variant at an early stage would have to bear a negative total relative benefit resulting from the initial network diseconomies. In contrast, those who adopt at a time when the diseconomies have already turned into network economies would profit from the ‘investments’ of the early adopters” (p. 769).
While some organizations learn the success of technological innovation through trial and error, other organizations have a policy of adopting and imitating only those innovations which already have proven to be successful. The economic rationale behind this decision is that the adoption of innovation “will increase a firm’s present value above the pre-innovation level” (Jensen, 1983, p. 162. See also Jensen, 2001. See also Baptista, 1999). While it is true that innovations born through trial and error succeed, there are structural, cultural, and power distributions as well as differential factors that hinder adoption and diffusion of innovations, thereby contributing to innovations lag. In the case of an innovation that has positive economic benefits to the organization, there may still be individuals/groups that lose resources, power, etc. These individuals/groups may benefit from and, therefore, prefer the status quo or an alternative innovation.

**Adoption-Diffusion and Innovation Lag**

In general, organizational lag refers to the relative differences in the degree by which organizations adopt technical and/or administrative innovations (Damanpour and Evan, 1984, p. 394). There are individual, group, and organizational differences that contribute to innovation lag. While individual factors deal with personality, behavior, and attitudinal constraints, organizational factors are more general and address institutional environmental factors that affect innovations. Divisional structures and arrangements influence the degree and success of innovations in organizations. These characteristics explain whether or not there is an innovation lag in organizations. For example, administrative innovations face organizational constraints. Bureaucratic procedures in operating systems of mechanistic structures and difficulties in establishing cost-benefit linkages in administrative innovations have contributed to innovation lag. Accounting control systems as part of administrative operating systems have experienced innovation lag over the years. However, recent developments in information technology have contributed to incremental changes in accounting, recording, and reporting of production and quality costs in business and manufacturing organizations.

In addition to organizational type, divisional structures, work arrangements, as well as individual and group characteristics, all influence innovation behavior and the degree to which innovation can impact organizational performance. Information and communication are considered critical in the dissemination of innovation and in the creation of adoption lag. As noted earlier, some (Jamali 2005) believe that a matrix organizational structure facilitates the adoption of innovations.

**APPROACHES TO INNOVATION**

Researchers in the social sciences have studied the process by which new ideas are adopted (implemented) and how acceptance is generated among those charged with accepting and implementing an innovation. Sociology, in particular, has developed an extensive literature on diffusion analysis which examines how innovations are diffused (see Coleman et al., 1966; Davenport, 1993; Leagans and Loomis, 1971; Rogers, 1971; Rogers and Shoemaker, 1971). While many of these studies dealt with the adoption and diffusion of a new product, e.g., seed corn or drugs, the same analysis has been applied to process innovations, i.e., system and organizational change.
Process innovation has been defined as an intentional attempt to bring change and/or new methods of arranging work structures, processes or procedures in organizations, as well as changes in individual and group behaviors and roles (Damanpour, 1987; West and Farr, 1989). Organizations adopt process innovations for different reasons. Typically the reasons focus on the need to maintain or improve the performance of the organization or a sub-unit and/or to respond to changes in the organization’s external environment. Process innovation can be a discrete response to a particular change in the competitive environment or it can be ongoing, i.e., evolving over a period of time, because of either internal or external change. In management accounting, process innovations include the introduction of quality improvement programs and changes in management accounting, reporting, and control systems. It is important to remember that process innovations are usually introduced within existing organizations whose cultures, domains, and boundaries may affect and be affected by the innovation. This can facilitate or inhibit the adoption and implementation of the process innovation.

Process innovations in organizations are strategic decisions because they require resource allocations and management’s willingness to accept the risks-failures or benefits-success associated with the initiations and adoption of innovations. The learning strategy: single and/or double loop learning that the organization utilizes in the adoption of innovations shapes the scope (breadth or depth) of the innovations. Single-loop and double-loop learning are associated with each of the SF and CR approaches. Sociological contingency frameworks of both the SF (single-loop) and CR (double-loop) approaches are applied to examine the extent to which environmental factors, industrial organizational structures, technological developments, ecological issues, government regulatory agencies, and cultural and social forces shape decisions that may contribute to conflicting goals in society. As we discuss below, the two approaches view problems facing the organization quite differently and take sharply differing views of organizational learning.

Organizational Learning: Single- and Double-Loop

Organizational learning has been viewed as a source of competitive advantage. It helps organizations to develop and adopt innovation strategies that enable organizations to respond effectively to changes in their institutional environments in order to improve their performance. Organizational learning has been viewed as entailing “new insights and modified behavior. [It] occurs through shared insights, knowledge, and mental models” (Stata, 1989, p. 64).

Researchers from diverse disciplines: sociology, organizational behavior, to mention a few of them, have argued that an organization’s effective utilization of innovations is enabled primarily by an appropriate learning strategy (Lant and Mezias, 1992; Attewell, 1992; Mezias and Glynn, 1993; Fichman and Kemerer, 1997; and Schulz 2001). Learning increases the organization’s ability to adapt to its changing competitive environment and successfully implement appropriate strategic changes intended to improve its performance (Windrum, 2001; Lopez et al. 2005). Thus, both the adoption and diffusion of innovations and organizational learning are important to organizations confronted with the need to innovate in order to improve long-term performance (Sandberg, 2007).

Lumpkin and Lichtenstein (2005) have identified three approaches to organizational learning: behavioral, cognitive, and action. Behavioral learning deals with the capacity of organizational
processes, structures and systems to support learning (pp. 453-454). Cognitive learning, on the other hand, focuses on individuals’ capacity to change their mental cognition and abilities in order to acquire, assemble, and interpret knowledge (pp. 454-455). Action learning addresses the application, practicality, and effectiveness of acquired knowledge in solving problems. It has implications for an improvement in an organization’s performance.

The Argyris and Schon (1978, 1996) and Argyris (1992) classification of learning into single- and double-loop is based on action learning and the impact learning has as incremental (single-loop) or radical (double-loop) change. Action learning enables individuals to be reflective, ask questions, increase their willingness to uncover problems, discontinue extant routines that hinder performance, and take appropriate actions that impact the organization at large. It changes patterns and styles of communication and interaction among members. Argyris and Schon (1978) suggested that, in action learning, there is openness and willingness to take competitive advantage in innovations and productivity (pp. 455-457). Members exchange ideas, commit themselves to problem-solving, and adapt to the new learning environment. There is discovery, awareness, and cooperation in creating synergies of the new knowledge that enhances the organization’s capabilities and competencies.

Learning and Process Innovation

Organizational learning, thus deals with developing knowledge and enabling organizations to become competitive to adapt to their environment. For example, in marketing, Kandemir and Hult (2005) suggested that learning broadens the scope of organizational market orientation in order to achieve a competitive advantage. It influences the culture and orientations that organizations have towards their customers. Organizations that have culture with innovative systems orientations are customer-oriented in terms of their products and services. Learning enables multinational corporations to compete globally by acquiring knowledge that is unique, develop new insights and have experiences that help them adjust to the international market environment. The global market is competitive and firms need new technological innovations, and products to meet consumers’ demands and needs. According to Vera and Crossman (2004), organizational learning can become a source of competitive advantage that drives the future strategic direction of an organization for renewal. When learning is institutionalized, it becomes a part of the operating activities of the organization, and eventually is embedded in policies, procedures and daily routines (pp. 222-225).

Learning organizations are able to differentiate themselves from others by their ability to use their knowledge to obtain a relative advantage over their competitors. This entails management knowledge. In strategic learning, it refers to the ability of top management to use accumulated knowledge to improve and advance organizational performance visa-vis their competitors. Thus, strategic learning involves the use of experts with diverse backgrounds to gather, collect, interpret and analyze data for decisions that place the organization at a competitive advantage (Thomas et al. 2001, pp. 331-342). Bapuji and Crossan (2004) suggested that the strategies of organizations shape learning and context in order to align learning with environmental changes. Thus, the structure (which is the context) shapes the learning process and its outcomes (p. 408).

When an organization introduces an innovation, the nature and effect of that innovation will be determined by the learning strategy that the organization adopts. This choice will influence the
magnitude of the organization’s change in terms of extent and scope. When process innovation is supported by organizational learning, it facilitates diffusion and adoption. Stata (1989) viewed organizational learning as a competitive advantage for organizations able to respond quickly to changes in their institutional environments (p. 64). In other words, in order to respond to competitive changes, organizations cannot effectively utilize process innovations without a well-developed learning strategy (Lant and Mezias, 1992; Mezias and Glynn, 1993; Porter, 1980).

CONCLUSION

Although organization innovation refers to the adoption of new behaviors, ideas, or systems; usually process innovations that involve administrative processes or services that affect employees’ behaviors and organizational structures are more complex. They are context-dependent where decentralized structures which have complex job structures with flexibility in the diffusion of innovations. In general, centralized structures facilitate the adoption process. In the context of management accounting systems, the success of adoption-diffusion of innovations depends on the choice of learning intervention strategies/typologies: single or double loop. In general, single loop innovations involve both technical and administrative innovations in accounting. When single loop focuses on technical improvements, accounting innovations address incremental changes that are targeted at formalization, specialization, and efficiency in operations, e.g., work structures, processes or procedures, and changes in individual and group behaviors. Damanpour (1987), Damanpour and Evan (1984), and West and Farr (1989) refer to these changes as having micro-orientation, focusing on division and/or departmental structural changes.

On the other hand, when double loop learning innovation is accompanied by transformational changes, accounting changes entail an administrative reform that corresponds to OT intervention strategies. The change is broader and addresses reorientation learning focused on new methods, e.g., search for new market opportunities and product innovations, or seek alternative responses to environmental changes. Fox-Wolfgramm et al. (1998) associated these changes with organizational adaptation commonly pursued by prospector organizations. Davis and Albright (2004) and Speckbacher et al. (2003) argued that BSC is successful in companies that are willing to invest in a longer time horizon to implement and realize the benefits of BSC. These characteristics are commonly associated with prospector organizations and support the argument that single loop’s administrative innovations promote integrative and systemic changes when the time horizon is longer to support double loop organization-wide interventions.

Van de Ven (1986) noted several factors that facilitate and inhibit the development of innovations associated with technical and transformational changes. He suggested that “these factors include[d] ideas, people, transactions, and context over time” (p. 591). Molinsky (1999) argued that employees’ mores, customs and cultures can impede the management of organizational change innovations. Perera et al. (2003) highlighted the importance of the implementation stage of the innovation adoption when organizational values, norms, social systems, and past experiences of adopters affect choice of accounting innovations and their subsequent adoption decisions.

Accordingly, differences in institutional and organizational behaviors and cultural processes among institutions of various sizes at either divisional or field levels contribute to variations in
the adoption and diffusion of process innovations, e.g., new practices, as discussed by Loundsbury (2001) in university recycling programs. It is widely accepted that, in larger organizations, greater structural complexity and interdependence require an emphasis on incremental as opposed to transformational changes. While organizations may prefer incremental approaches because of their desires for short-term, less disruptive improvements, they are more likely to pursue radical transformations of strategic change following a trial-and-error period of unsuccessful incremental changes. They undertake these radical reorientations primarily for two major reasons: first, because of sustained low performance, i.e., internal cause; or, second, because of the need to address major technological, social, and environmental changes, i.e., external cause (Tushman and Romanelli, 1985; Barley, 1986). Although innovation involves learning, the nature of the learning process does not completely describe the manner in which an innovation affects the organization.

REFERENCES


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Accounting Innovations and Organizational Learning


