Strategic Experimentation and Knowledge Management

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INTRODUCTION

Historically, the focus of IT infrastructure has been to capture the knowledge of experts in a centralized repository (Davenport & Prusak, 1998; Grover & Davenport, 2001). These centralized databases contained knowledge that was explicit and historical (e.g., competitor pricing, market share), and the IT infrastructure served to facilitate functional decision-making or to automate routine tasks (i.e., in re-engineering). The users of technology approached the repository to obtain data in a narrowly defined domain (Broadbent et al. 1999). Consequently, IT originally played a significant yet ultimately limited role in the strategy creation process. Management information systems (MIS) arguably generated information that was less applicable to strategy creation, as noted in early writings on the linkage between MIS and strategic planning (Holmes, 1985; Lientz & Chen, 1981; Shank et al., 1985).

The active management of knowledge was similarly underdeveloped. Despite the fact that strategic decision makers had always emphasized the role of tacit knowledge, the actual importance of knowledge was not *explicitly* recognized. Formalized knowledge management (KM) (Davenport & Prusak, 1998), with its associated terminology and tools, is a recent development and, as such, did not inform the strategic planning process.

However, the shifts that have taken place in IT infrastructures over the last decade and the recent developments in knowledge management have brought them closer to the creators of strategy. Indeed, both IT and knowledge management are increasingly enablers in the contemporary strategic management practice.

1. IT infrastructure is transitioning in its focus from the functional work unit to a process orientation. Whereas computer systems were once the focal point, the new infrastructure is network-centric, with an emphasis on business knowledge (Broadbent et al., 1999). For example, traditional search engines utilized rule-based reasoning to identify elements matching specific search criteria; the "state-of-the-art" knowledge management systems employ case-based search techniques to identify all relevant knowledge components meeting the user's request (Grover & Davenport, 2001).
2. IT now takes into account contexts that include cross-functional experts that are knowledgeable in a wide variety of potentially relevant issues. Additionally, there is a greater emphasis on the integration of infrastructure with organization, structure, culture (Gold et al., 2001), and organizational roles (Davenport & Prusak, 1998). In many ways, the newer IT infrastructures have enabled the garnering of explicit knowledge throughout the organization improving the speed of strategy creation.

The objective of this article is to outline how the developments in IT and KM are facilitating the evolution of strategic management to strategic experimentation in order to create quantum improvements in strategy creation and unprecedented developmental opportunities for the field of IT.

BACKGROUND

Information Technology (IT)

For the purposes of this chapter, IT is defined as physical equipment (hardware), software, and telecommunications technology, including data and image and voice networks employed to support business processes (Whitten & Bentley, 1998). The overarching plan for IT deployment within an organization is called the *IT architecture*. Technology infrastructure refers to the architecture as including the physical facilities, the services, and the management that support all computing resources in an organization (Turban et al., 1996).

Knowledge Management (KM)

As used in this chapter, data are objective, explicit pieces or units; information is data with meaning attached; and knowledge is information with an implied element of action.

Knowledge is the fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms (Davenport & Prusak, 1998, p. 5).

KM is "a set of business practices and technologies used to assist an organization to obtain maximum advantage from one of its most important assets—knowledge" (Duffy, 2000, p. 62). In other words, it is actively capturing, sharing, and making use of what is known, both tacitly, informally, and explicitly, within the organization. IT often facilitates knowledge management initiatives by integrating repositories (e.g., databases), indexing applications (e.g., search engines), and user interfaces. Davenport and Prusak (1998) note that KM also incorporates traditional management functions: building trust among individuals, allocating resources to KM, and monitoring progress.

Strategic Management

The concept of "strategy" explicated in strategic management is one of marketplace strategy (i.e., winning in the marketplace against competitors, entrenched or incipient). The underlying premise is that "to enjoy continued strategy success, a firm must commit itself to outwitting its rivals" (Fahey & Randall, 2001, p. 30). A large body of literature on strategic management has persuasively argued that effective strategy creation and execution are central to a firm's performance (Covin et al., 1994).

Strategy creation involves both goal formulation—defined in terms of external stakeholders rather than operational milestones—and crafting of the strategic means by which to accomplish these goals (Hofer & Schendel, 1978). The means typically include business scope, competitive posture, strategic intent, and the organizational mechanisms for implementation. In practice, the process of strategy creation has often taken the form of strategic planning. Comprehensive strategic planning (Gluck et al., 1978) has historically been practiced in large corporations. A celebrated example is the use of scenarios by Royal-Dutch Shell. Planning usually consisted of several sequential stages of decision-making involving diagnosis, alternative development, evaluation and choice, and implementation. In each step, the strategic planners emphasized deliberate juxtaposition of "objective data" and careful analysis with top management judgment, thus highlighting the role of tacit knowledge.

Strategic planning has evolved over the years. Writing in the 1970s, Gluck et al. (1978) identified four phases of evolution: budgeting, long-range planning, strategic planning, and strategic management. Each phase of evolution incorporated the lessons from the earlier phases, but also took into account the emerging realities faced by corporations. Gluck et al. (1978) noted that during the 1980s the "strategic management" phase would represent the cutting edge of practice in the world.

TOWARD STRATEGIC EXPERIMENTATION

The 1990s witnessed a revolution in organizational environments often characterized as "hypercompetition" (D'Aveni, 1994). These environments have created three major imperatives for organizations: time compression, globalization, and technology integration (Narayanan, 2001). The increased environmental dynamism also contributes to an increase in the degree of uncertainty confronted by strategic managers, calling into question traditional planning practices. Consequently, a new type of strategy creation process is evolving, which is termed "strategic experimentation." With this evolution, the relationship between strategy creation, knowledge management, and IT is undergoing a profound shift.

All four phases of strategic planning documented by Gluck et al. (1978) incorporated a sequential approach to strategy creation and execution, leading to the identification of one winning strategy that has the highest probability of success. Consequently, firms found it logical to commit the maximum available resources to the implementation of one wining strategy. The goal was to obtain a sustainable competitive advantage vis à vis the firm's rivals, and to reduce uncertainty ex ante using analytical forecasting techniques as well as market research. This approach to planning seems to have been effective during the 1980s when the environment was moderately dynamic.

In hypercompetitive environments, market participants frequently confront great uncertainty over technological possibilities, consumer preferences, and viable business models. This high level of ambiguity often results in a situation where (a) traditional methods of ex ante uncertainty reduction (e.g., market research) fail, and (b) the costs and risks of the traditional "big bet" strategic management approach outweigh the advantages in terms of focus, decisiveness, and concentrated resource commitment. It is in this situation that the emerging strategic experimentation approach holds significant promise.

Strategic experimentation (Brown & Eisenhardt, 1998; McGrath, 1998; McGrath & MacMillan, 2000) draws on real-options reasoning (McGrath, 1997), discussions of exploration vs. exploitation, and trial-and-error learning (Van de Ven & Polley, 1992).