Intellectual Capital

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INTRODUCTION

Today's economy is characterized by a rapid rate of change, globalization, and knowledge-intensive products. This makes knowledge management (KM) vital to organizations. The resource-based view of the firm postulates that a firm's profitability is not only a function of its market and competitive position but also a function of its internal capabilities and know-how in combining its resources to deliver products and services and to enhance organizational performance (Alavi, 2000).

The goal of an effective KM strategy should be to enhance the creation, transfer, and utilization of all types of organizational knowledge (Alavi, 2000). Corporations not only realize that knowledge is the critical resource but also try to manage organizational knowledge more intensely and effectively. For example, Stewart (1997) defined intellectual capital (IC) as the intellectual material—knowledge, information, intellectual property, and experience—that can be put to use for creating wealth.

Several researchers (Bontis, 1996, 2001, 2002a, 2002b; Van Buren, 1999; Mykytyn, Bordoloi, Mckinney, & Bandyopadhyay, 2002; Pike, Rylander, & Roos, 2002) identified the importance of intellectual capital (IC) with Bontis (2002a) indicating that human capital is a major component of IC. Human capital, as well as other components of IC (e.g., innovation capital) is an integral part of knowledge in KM research (Bontis, 2001, 2002a, 2002b; Van Buren, 1999; Pike et al., 2002).

Finally, it does the organization little good if effective KM does not lead to success. This success can be defined as how well an organization engages in KM to innovate and reduce uncertainty. Ultimately, an organization should hope to achieve a competitive advantage.

While there is no clear division between KM and IC, there is an intuitive link between them. Numerous researchers have investigated knowledge components, KM issues, and success achievement in organizations. However, none has included IC components into an integrated research framework. This article presents such a framework.

BACKGROUND

According to Barney (2002), firm resources are "all assets, capabilities, competencies, organizational processes, firm attributes, information, and knowledge that are controlled by a firm" (p. 155). These resources enable the firm to implement strategies that increase its effectiveness and efficiency. Most importantly, the resource-based view of the firm focuses the idiosyncratic, costly to duplicate resources that may give the firm a competitive advantage, such as highly skilled and creative workers, effective managers, and institutional leaders. Barney (2002) further defines these too-costly-to-copy resources as "resource immobility."

Dierickx and Cool (1989) point out that firm resources can be divided into tradable (i.e., unskilled labor, raw materials, and common intellectual property) and nontradable (i.e., firm-specific skills/capabilities, quality reputations, partners royalty, R&D capability, brand loyalty, and customer trust). Whereas tradable resources are mobile and can be acquired easily, the nontradable resources are immobile and must be developed, accumulated, and maintained through time (Hunt, 2000).

"Immobility" in this article differs slightly from Barney's definition. The argument is established by the "how" and "what" to produce those too-costly-to-copy resources. For example, a top management of Toyota can move to Ford but cannot perform at the same scale as in Toyota because of different organizational capabilities, structures, dynamics, processes, and culture. The immobile resources are those that cannot be physically moved from one firm to the others regardless of whether they are copied or stolen. This article attempts to distinguish between mobile and immobile assets, and perhaps establish the argument on increasing the value of mobile assets by the facilitation of immobile assets.

In the spirit of Barney (1991, 1997, 2002), a firm's resources were defined as "capitals." As such, the firm's resources can be divided into financial capital, physical capital, human capital, and organizational capital (Barney, 1991, 1997, 2002). Financial capital includes all money

resources. Physical capital is physical technology in a firm. Human capital refers to the training, experience, judgment, intelligence, relationships, and insight of individuals. Organizational capital includes a firm's formal reporting structure; formal and informal planning, controlling, and coordinating systems; its culture and reputation, and its informal relations among groups within firm, between firms and those in its environment (Barney, 2002, p. 156).

Bontis (2002a) defined similar concepts, referring to them as human capital, structure capital, and customer capital. Van Buren (1999), however, replaces Stewart's "structure capital" with two new measures: innovation capital and process capital. Innovation capital is the capability of an organization to innovate and to create new products and services, and process capital represents an organization's processes, techniques, systems, and tools.

Among three definitions of IC, Stewart (1997), Van Buren (1999), and Bontis (2002) all include human capital. Customer capital is the relationship between firms and their customers. Pike et al. (2002) referred to customer capital as relational capital; however, customer capital and relational capital are defined similarly. Structure/process capital by Bontis (2002), innovation/process capital by Van Buren (1999), or organizational capital by Pike et al. (2002) are the most controversial components of IC. Those definitions are titled differently, but they are overlapped in terms of the categories of IC.

Quite controversially, the evaluation of IC also inherits split directions. One direction includes accounting cost base and financial value base. The conventional accounting-based evaluation adjusts its traditional instruments, such as historical transactions, and balanced scorecards (Norton & Kaplan, 1996). These accounting indices were criticized as "lagging measures" (Pike et al., 2002) because they are "cost-based." Acting as a supplemental evaluation to cost-based calculation, the financial value-based approach utilizes net present value to estimate a company's IC with a market value. However, it still demonstrates problems of homogeneity, nonfinancial benefits, and forecasting (Lewis & Lippitt, 1999).

Tobin's q gains its prevalence as an indicator of a firm's intangible value (Hall, 1993; Megna & Klock, 1993). It is a ratio of the capital market value of a firm to its replacement value of its assets. These assets incorporate a market measure of a firm value that is forward-looking, risk-adjusted, and less susceptible to changes in accounting practice (Montgomery & Wernerfelt, 1988). Tobin's q can be as high as 7.00 where intellectual capital is resourceful, such as software industry, whereas q is as low as 1.00 where firms have large capital assets (i.e., steel industry) (Bontis, 2002b).

Other than accounting and financial evaluations, a business-based model is assessed by relative effectiveness of different approaches. Four criteria were established by KnowNet Group (EU/ESPRIT, 2000): (1) it is auditable and reliable; (2) it does not impose a large overhead; (3) it facilitates strategic and tactical management; and (4) it generates the information needed by stakeholders in a firm. Incorporating those criteria of a business-based model into Gold's process capabilities becomes our conceptual model.

Knowledge content can be mobile, which is a characteristic of human capital and innovation capital. KM processes and structures can be immobile, and that is structure capital and KM processes capabilities. This article takes an inward look at an organization's KM processes capabilities that specifically include IC. Of particular interest is a firm's effectiveness captured from mobile and immobile assets, that is, IC, through KM processes capabilities and structure capital.

KM Processes Capabilities

In addition to knowledge capital, integral to KM are processes associated with KM, referred to by Gold, Malhotra, and Segars (2001) as organizational capabilities. Gold et al. (2001) studied KM in an organizational capability perspective, and knowledge processes are perceived as an enabler of the organization to capture, reconcile, and transfer knowledge in an efficient manner. Knowledge processes are acquisition-oriented, conversion-oriented, application-oriented, and security-oriented.

Their descriptions of processes are as follows: (1) The acquisition process includes accumulating knowledge, seeking brand new knowledge, and creating new knowledge out of existing knowledge; (2) the conversion process detects the ability to make knowledge useful; (3) the application process offers effective storage and retrieval mechanisms and enables the organization to quickly access the knowledge depository; (4) the protection process is designed to protect the knowledge within an organization from illegal or inappropriate use or theft.

Intellectual Capital (IC)

- **Human Capital:** Bontis (2001) defined human capital as the combination of knowledge, skill, innovativeness, and ability of a company's individual employees to meet the task. Based on Nonoka (2002), knowledge is created and organized by the very flow of information, anchored on the commitment and beliefs of its holder. Human capital refers to the tacit knowledge embedded in the minds of employees. Ulrich (1998) proposed a measurable