

Introducing the Intellectual Capital Interplay Model: Advancing Knowledge Frameworks in the Not-for-Profit Environment of Higher Education

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Abstract

Knowledge management has the potential to develop strategic advantage and enhance the performance of an organization in terms of productivity and business process efficiency. For this reason, organizations are contributing significant resources to knowledge management; investing in information location and implementing knowledge management processes and systems. However, most of these processes and systems focus only on knowledge management and omit the critical element of value.

This paper examines intellectual capital and knowledge management within the not-for-profit environment of higher education. The research is focused on intellectual capital and is framed by the perspective of the strategic importance of knowledge. It is argued that the understanding and application of knowledge management within institutions of higher education is underdeveloped which resulted in a model and framework being proposed.

Keywords: Not-for-Profit, Higher Education, Knowledge, Knowledge Management, Intellectual Capital, Models and Frameworks

1. Knowledge as a Strategic Advantage

Knowledge, vital to an organization because of the actions and consequences to which it leads, is a fundamental key to maintaining and gaining competitive advantage (Bartlett & Ghoshal, 1993; Davenport & Prusak, 1998). Increasingly, knowledge has been conceptualized as a potential source of competitive advantage for an organization (Badaracco, 1991; Davenport & Prusak, 1998; Leonard-Barton, 1995; Nonaka & Takeuchi, 1995; Prahalad & Hamel, 1990; Schiuma & Lerro, 2008; Winter, 1987). According to Teece (1998), the importance of knowledge is emphasized as a strategic asset in order to secure the competitive power of organizations. Recognized as a valuable corporate resource, knowledge has been cited as the most valuable resource in creating a sustainable and lasting competitive advantage in the marketplace (Nonaka, Toyama & Nagata, 2000). Moreover, Nonaka (2008) claims the one sure source of lasting competitive advantage is knowledge.

The utilization and effective management of knowledge is not a new concept. Knowledge plays an important role either implicitly or explicitly in many streams within the strategy literature. Organizational learning and memory are processes by which an organization acquires and transfers knowledge (Argyris & Schon, 1978; Daft & Weick, 1984;

Huber, 1991; Walsh & Ungson, 1991). The resource-based view (Barney, 1991; Wernerfelt, 1984) contends knowledge as a strategic asset with the potential to be a source of sustainable competitive advantage for an organization. Nahapiet and Ghoshal (1998) view social capital theory as knowledge creation and knowledge transfer based on the social interaction of individuals within the organization. And, finally, the knowledge-based view of the organization (Grant, 1995 & Grant, 1996) discusses the facets of knowledge integration.

In today's knowledge economy, tangible assets are clearly transient as they rarely provide a distinct competitive advantage (Frappaolo, 2006; Marr, 2003; Stewart, 1999). Knowledge has become a crucial strategic resource in most organizations as it plays a more important role than tangible assets. Companies are now competing on their ability to create and utilize knowledge (Kipley, Lewis, & Helm, 2008; Leonard-Barton, 1995; O'Dell & Grayson, 1998; Senge, Kleiner, Roberts, & Ross, 1994; Stewart 1997). Moreover, Eftekhazadeh, (2008) states that effective and efficient knowledge management is a predictor for organizations remaining competitive over time. Since the success of an organization lies more in its intellectual capabilities than its physical assets, the capacity to leverage knowledge is fast becoming a critical advantage. Yet, determining the value of an organization is becoming increasingly complex.

2. Valuation of Knowledge

In an industrial-based economy, a company's valuation is determined predominately by the value of its physical and financial assets. Organizational physical assets such as furniture, fixtures, and equipment, are relatively easy to quantify. Physical assets are tangible, they can be bought and sold in an open market, and over time they tend to decline in value. The global economy is now moving from an industrial-based economy to a knowledge-based economy. In a knowledge-based economy, a company's valuation should be determined by the value of its knowledge assets. Knowledge and intellectual capital are considered a primary source of production and value (Nonaka & Takeuchi, 1995). Unlike physical assets, knowledge assets are much harder to quantify; they are not tangible, they are not bought and sold in an open market, but over time, they tend to increase in value.

Stewart (1999) explains the value knowledge contributes to organizational worth through stock market values. Lev (2001) estimates that the market value of S&P 500 companies is more than six times what is on their books. Nakamura (2001) estimates that the investment value in knowledge capital, represented by intangible assets, is approximately \$1 trillion dollars. In addition, "the portion of intangible assets has increased from 40 percent of the market value of an organization to approximately 80 percent" (Daum, 2002). Intangible assets have become drivers for an organization's competitive advantage (Stewart 2003; Sudarsanam, Sorwar, & Marr, 2006) and a legitimate source of capital within organizations (Edvinsson & Malone, 1997; Petty & Guthrie, 2000; Stewart, 1997; Sveiby, 1997).

Knowledge, its acquisition, and its dissemination is intangible and therefore does not show up on the balance sheet as an asset. Physical assets, however, may have a limited life and are subsequently depreciated due to wear and tear and whose valuation and measurement is often based on the comparison of expected flows of expenditures with potential revenues. Given the possibility that knowledge has an unlimited life and theoretically may increase in value, its value is, for the most part, open-ended. With physical assets, there is no one-to-one linear relationship of effort in creating a knowledge asset of tangible value that a product or service yield.

One version of an asset is, 'a stock from which a number of future services are expected to flow and whose costs at the time of acquisition can be objectively measured' (Anthony & Reece, 1983). Knowledge assets are defined (Boisot, 1998) as; 'stocks of knowledge from which services are expected to flow for a period of time that may be hard to specify in advance.' Evaluating knowledge assets poses a dilemma in that they cannot be directly observed; their existence can only be inferred from their use and effectiveness. Therefore, in contrast to existing principles, which emphasize the measuring of tangible physical asset outcomes, the measuring and understanding of knowledge asset outcomes requires a different set of skills that understand the overall organizational performance outcomes derived from knowledge assets.

3. Valuation of Intangible Assets

In 1997, three books (Edvinsson & Malone, 1997; Stewart, 1997; Sveiby, 1997) were released asserting that "economic value had shifted from investments in fixed assets to investments in intangible assets" (Daum, 2002). Stewart (1997) explains when stock market values are two to ten times the book value of company assets, hard assets contribute less to the value of the company than the intangible assets.

Still, the ability to measure intangible assets has not developed as intangible assets have increased (Stewart, 2003). Many valuation models have been proposed including performance management models (Kaplan & Norton, 1992; Sveiby, 1989), market based models (Rodov & Leliaert, 2002), economic based models (Mintz & Lev, 1999; Pulic, 2000), and real option models (Chen & Chen, 2005). However, none of these models have been able to provide a

methodology for calculating intangible asset value as its own unique number. Some realize that ‘the valuation of all assets is a subjective process, especially for intangible assets’ (Organization for Economic Co-operation & Development, 2003). Intangible assets are non-financial, non-tangible, and have the ability to produce future income streams or value (Federal Accounting Board Standards, 2001; Caddy, 2000; Edvinsson & Malone, 1997; Luthy, 1998).

4. For Profit vs. Not-for-Profit

Historically, organizations were seen distinctly either as ‘for profit’ (FP) or ‘not-for-profit’ (NFP); for-profit organizations were viewed as internally efficient, externally entrepreneurial and aggressive, and having a single-mindedness of maximizing corporate profit. Conversely, not-for-profit organizations were viewed as internally bureaucratic, economically inefficient, and lacking inspiration; whose sole purpose was to provide some nebulous form of ‘public service’ with no intent of maximizing profit or drive to increase effectiveness.

Currently, the division between the two has become increasingly difficult to distinguish. As the national budget deficit grows and legislative events, such as the development and passage of the Sarbanes-Oxley Act, designed to deter fraud in the corporate sector, occur, concerns over accountability have driven several professional associations to issue guidelines to not-for-profit members. These guidelines outline compliance such as adopting written conflict of interest, document retention, and whistleblower policies. These ongoing concerns clearly illuminate that NFP organizations are under greater scrutiny to be more accountable, transparent, and efficient like their counterparts in the private sector. Thus, not-for-profit organizations are now becoming increasingly concerned with efficient use of resources and capabilities- a trait that until recently was only attributed to the for profit organizations.

The private sector is also under pressure to restrain from its prime directive of profit-seeking and now conforms to such social concerns as greenhouse gas emissions, pollution, carbon foot printing, and global warming; areas that previously were of little concern to the traditional profit-seeking organizations. Consequently, the differences and the functions between the two types of organizations are no longer distinct.

Given that the rise of attention to public legitimacy and accountability is an increasing concern, a new paradigm now exists for not-for-profit organizations. It has become essential that their very existence confirm public legitimacy in order to receive current and future support from their stakeholders. As organizational theorists have reminded us, ‘not-for-profits face normative pressures to adopt certain policies and practices in order to demonstrate their public legitimacy’ (DiMaggio & Powell, 1983). One way to create legitimate standing is through the successful integration of best practices. It is, therefore, critical that the NFP’s corporate policy conform to and support ‘best practice’ guidelines in both the organizations current operations as well as their future strategic plan.

Mirroring the problems of legitimacy that many organizations face, not-for-profit organizations are faced with diminishing resources as they design corporate policy and practice, which conform to and support ‘best practice’ guidelines. Leaders of NFPs, similar to their counter-parts in profit-making organizations, must be effective strategists and must be able to create value by building and leveraging organizational strengths while minimizing or overcoming organizational weaknesses and challenges.

It is an ever-increasing challenge for not-for-profit organizations to create organizational standing because stakeholders judge an organization according to the criteria they choose and their ‘perceived views’ (Fombrun & Shanley, 1990; Bromley, 2002). As a result, a dichotomous view forms between the organization and the stakeholder over which objectives and strategies provide the best value and assistance in achieving organizational legitimacy. If the organization cannot establish its effectiveness against stakeholder criteria, stakeholders are likely to withdraw their support.

To prevent a dichotomy from forming between the organization and the stakeholder over which objectives and practices achieve legitimacy, it is critical, and a pre-requisite for organizational success, that NFP organizations understand the significant influence stakeholders wield and the practices or performance measures which best predict or influence the organizations reputation. In for-profit environments, researchers have found that organizational performance factors predicting reputation assessments are commonly related to economic considerations (Fombrun, 2006). However, in not-for-profit environments, predicting factors that affect reputation are more complex (Vidaver-Cohen, 2007).

5. Challenges to the Not-For Profit

The environments in which not-for-profit organizations operate have become increasingly uncertain in recent years producing changes that are often unpredictable (Bryson, 2004). Currently, NFP organizations are operating in highly competitive environments characterized by diminishing resources and an increased demand to innovate services (Bryson, 1995; Kong, 2007b; Ramia & Carney, 2003). Similar to profit-seeking organizations, NFP organizations are

increasingly required to utilize and leverage their existing organizational resources and, simultaneously, generate new resources in order to remain competitive and demonstrate value. ‘Layoffs, downsizing, economizing, stretching every dollar; if there’s a money-saving strategy that works, not-for-profit organizations are employing it’ (Phillips, 2008). NFP organizations must leverage the knowledge available to them to build reputation and gain strategic advantage in the competitive not-for-profit environment. This involves developing new strategies, implementing best practices, and leveraging organizational knowledge. Darroch (2005) maintains that knowledge management capabilities, when linked with resources and routines, create knowledge growth and therefore underpin the organization’s financial success. Research supports the concept and benefits of developing an alignment of knowledge management strategy with corporate strategy as a critical success factor. (Chua, 2004; Lam & Chua, 2005; Wong, 2005).

6. Importance of Intellectual Capital in the Not-for-profit Sector

When knowledge has become the primary result of economic input, intellectual capital (IC) has become hidden gold (Stewart, 1999). In not-for-profit organizations, knowledge is a strategic lever for sustainable performance and organizational legitimacy. Mouritsen, Larsen, and Bukh (2005) underline the value of IC as related to questions about corporate identity, such as “who you are and what you want to be.” Thus, IC is not merely an operational objective, but a strategic component of the mission; an identity crafted around the ability and knowledge of what an organization can do (Mouritsen et al., 2005; Roos, Roos, Dragonetti, & Edvinsson, 1997). Gollmar (2008) found that organizational effectiveness and reputation were positively affected by capacity building, activities that an organization engages in to better achieve its mission. Further, intellectual capital is capable of adapting to the unique challenges NFPs face in the knowledge economy due to the association of the theoretical roots of IC with the internal focus as prescribed by the core competence theory (Kong, 2007b; Mouritsen et al., 2005).

In profit-making organizations, profits serve as a simple common means to measure organizational success and benchmark performance (Sawhill & Williamson, 2001; Speckbacher, 2003). NFPs, however, have no uniformity of financial goals that can be applied as a means of measurement in comparing the goods they produce or the services they offer (Kong, 2007b; Speckbacher, 2003). Yet, NFP organizations are beginning to take note of the strategic advantages knowledge creates. Moreover, NFP organizations are beginning to find that knowledge can be leveraged beyond increasing efficiency in operations. Knowledge can be used as leverage to create and promote organizational legitimacy and reputation. Hence, values embedded in IC are useful for NFPs, particularly in today’s NFP environment. Therefore, it is critical that NFP organizations find ways to identify and leverage their intellectual capital.

7. Higher Education

Among not-for-profits, the role of intellectual capital (IC) is particularly relevant in Higher Education (HE) as it adds economic value – most notably through the creation and dissemination of knowledge (Newman, 1996; Flexner, 1968). Looking back at the history of work and labor, Drucker (1999) postulated that it is not skill and hard work that have accounted for increased productivity and the stratification of economies. In his view, it is knowledge and knowledge management that account for the rise and fall of national economies; the (in)ability to manage knowledge sets developed economies apart from underdeveloped economies (Drucker, 1999).

Clearly, knowledge is central to higher education because higher education is, by its very nature, a knowledge-rich organizational environment.

“Universities, by their very essence, were intended to meet exactly the needs that the prophets of knowledge management spoke of in the 1990s. For generations, universities have dealt with the creation and preservation of human knowledge through research and evaluation, in a society that places the highest value on physical and financial assets. In a knowledge society, where the most important assets are knowledge assets and human capital, instruction and education play a very central role; they are its core business” (Shoham & Perry, 2009, p. 241).

The primary business of higher education is knowledge creation, knowledge organization, and knowledge transfer; for this reason, higher education is organized around the knowledge management process. Etzkowitz, Ranga, Benner, Guarany, Maculan, and Kneller, (2008) conducted a multi-nation survey of endogenous and exogenous factors driving knowledge management in the United States, Japan, Sweden, and Brazil. Their study concluded that American higher education institutions as well as those in Asia, Europe, and Latin America have come to see knowledge management as central to their *raison d’être* in today’s knowledge economy. Further, Shoham and Perry (2009) believe knowledge management to be critical to this process stating:

“Knowledge management offers higher education an infrastructure for planning and managing innovation and change powered by cooperation, collaboration, and transmission of knowledge, as part of the organizations activity, while relying on and using information technology and supporting cooperation (p. 244).”

However, the value or management of intellectual capital at HE institutions is rarely discussed (Fairchild & De Vuyst, 2005; Secundo, Margherita, Elia & Passiante, 2010).

Creating and sharing knowledge are primary functions of educational institutions. However, today, one of those primary functions has become a reputation management function, one by which both internal and external publics measure an institution's effectiveness. In the present competitive environment, knowledge management has become central to the mission and reputation of higher education institutions and therefore a strategic public relations function. In Mintrom's (2008) view, the reputation of a university among stakeholders greatly depends upon intellectual capital, such as, the quality and quantity of its research outputs.

8. Research Problem

Today, higher education institutions faced with increasing environmental turbulence, are immersed in an intense transformation process triggered by the need to make universities more flexible, transparent, competitive, and comparable. Shoham and Perry (2009) list factors impacting universities to include: increased competition, diminishing resources, and government regulation; the demands of the economy, technology, and students require that universities abandon the "ivory tower" and adapt itself to the present environment (p. 233). Furthermore, with the profoundly shifting position of higher education due to multiple factors such as, public opinion, and shifting political ideologies (Levine, 2001; Losco & Fife, 2000), it is crucial that institutions of higher education learn to efficaciously manage and utilize the knowledge which it holds to improve their strategic position and ultimately bolster their organizational legitimacy. As environmental turbulence increases and competition intensifies, higher education institutions will need to engage and respond to the pressures of the marketplace (Levin, 2001).

Higher education has historically demonstrated its ability to successfully grapple with difficulties with which it is presented (Altbach, Gumport, & Johnstone, 2001). To face these challenges, higher education institutions must purposefully examine the processes of creating, managing and leveraging their knowledge. Since knowledge assets underpin core competencies of any organization – particularly higher education institutions – they play a key strategic role and need to be considered and measured (Marr, Schiuma, & Neely, 2004). Researchers have declared the need for a more focused effort to manage knowledge in the not-for-profit sectors (Bezhani, 2010; Bryson, 2004; Frappaolo, 2006; Grummer, 2000; Kelman, 2005; Secundo, Margherita, Elia & Passiante, 2010; Shoham & Perry, 2009). Yet, despite the recent growing interest in the field, the concepts remain unclear to many not-for-profit strategy scholars and practitioners; understanding of organizational capacity surrounding knowledge is still fairly limited (Bezhani, 2010; Bohn, 1994; Inkpen, 1996; Secundo, Margherita, Elia & Passiante, 2010).

Thus, there are several key reasons why the creation and management of intellectual capital in higher education should represent a key area of investigation. First, identification of IC can help shift strategic focus towards intellectual resources (Secundo, Margherita, Elia & Passiante, 2010). Second, IC is a key value driver for organizational competitiveness and strategic advantage (Secundo, Margherita, Elia & Passiante, 2010). And, third, IC contributes significantly to business school reputation (Vidaver-Cohen, 2007). Indeed, institutions that adopt a strategic approach to managing knowledge create an opportunity to enhance their market position (Klein, 1998; Secundo, Margherita, Elia & Passiante, 2010).

9. Kong's Intellectual Capital Framework

Intellectual Capital has been described as the knowledge and knowing capability of organizations, intellectual communities, or professional practices (Nahapiet & Ghoshal, 1998). Kong's (2007a) work in understanding the strategic importance of IC in not-for-profits provides a valuable framework for understanding how areas of held knowledge may impact higher education institutions. Drawing upon a wealth of prior research, Kong (2007a) approaches the notion of IC in the context of a NFP by clearly identifying three forms of capital which impact the life and functionality of NFP organizations: *Human Capital*, *Structural Capital*, and *Relational Capital* (Figure 1). Human capital contains various human resource elements including, expertise, competencies, experience, and skills (Skaggs & Youndt, 2004; Kong, 2007a). Structural capital addresses knowledge lived out in day-to-day activities of an organization which ought to remain in the organization beyond its personnel. Finally, relational capital represents the characteristics of an organization's connection with its external stakeholders.

There have been various definitions and models pertaining to forms of intellectual capital (Edvinsson and Malone, 1997; Bontis, 1998; Grasenick and Low, 2004; Guerrero, 2003) which have shaped the understanding of this area of knowledge management, rendering the topic of the expression of intellectual capital within the organizational environment as one which is yet open for discussion. This dearth of an established formalized model places any model proposed as merely one amongst many notions of the formation and development of intellectual capital. This is also true of the framework identified for utilization within this proposed model.

Nevertheless, of this emergent body of work, Kong's (2007) intellectual capital model was selected to serve as the basis of the present proposed conceptual framework due to the not-for-profit focus of the model. This focus is significant due to the changing nature of not-for-profit organizations and the expectations placed upon them concerning issues of resource allocation, social responsibility, and beyond (Kiple, Lewis, and Helm, 2008). Kong's work keenly focuses upon the strategic importance of intellectual capital pertaining to organizations within the not-for-profit sector. This distinct focus upon not-for-profit organizations is paramount to the higher education institutions, which are the foci of the proposed conceptual framework.

More pointedly, higher education literature has continued to recognize the changing environment in which these institutions function, highlighting the need for colleges and universities to improve the allocation of their own resources to improve sustainability (Losco and Fife, 2000). The model of intellectual capital, as presented in Kong's approach, sub-categorizes forms of such knowledge in a form which is fitting for the discussion of the utilization of resources present within higher education institutions. The direct connection of these sub-categories to the understanding of the creation and maintenance of strategic advantage in not-for-profit organizations (Kong and Prior, 2008) make them attractive to apply to the study of higher education organizations to create opportunity for the assessment of present resource allocation, and where possible areas of improvement may exist.

10. Intellectual Capital (IC)

According to Barney (1991 and 1996), an organization's resources are defined as "capitals" and could be divided into financial capital, physical capital, human capital, and organizational capital. Barney (1991 and 1996) identified financial capital to include all money resources, physical capital to include the physical technology in a organization, human capital to include training, judgment and intelligence, and organizational capital to include a formal and/or informal structure in a organization in addition to its culture and reputation (Barney, 1996 and 2002).

In the spirit of Barney, Stewart (1997) defines IC in terms of organizational resources relating to wealth creation through investment in knowledge, information, intellectual property, and experience. An organization creates value from what it captures during the processes of knowledge creation (Hsiu-Yueh, 2006). From accumulation, the stock of knowledge and capabilities is unique to an organization's learning and experience (Choo & Bontis, 2002). Choo and Bontis (2002) referred to this stock as "the organization's intellectual capital" (p. 16).

More recently, many conceptualizations of IC have been proposed (Bontis, 1998, 2001, 2002; Edvinsson & Malone, 1997; Kaplan & Norton, 2004; Klein & Prusak, 1994; Seemann et al., 2000; Stewart, 1998). Most IC researchers (Stewart, 1997; Bontis, 2001; Van Buren, 1999) and Barney's resource-base view (1991, 1997, and 2002) agree that IC is a critical and strategic resource of the organization. IC has been described as intellectual material that has been formalized, captured and leveraged to produce a higher valued asset (Klein & Prusak, 1994). IC is about how to let the knowledge of an organization work for the organization by creating value (Roberts, 1999); it includes all intangible resources as well as their interconnections (Bontis et al., 1999). Another more focused definition was supplied by Hsiu-Yueh (2006), ICs are intellectual materials that can be captured as assets, such as knowledge, information, intellectual property, and employees' experiences, commitments or capabilities. These assets may increase an organization's performance and translate into competitive advantage (Barney, 2002), especially if they are deemed "immobile" resources - organizations resources that are idiosyncratic and costly to duplicate, (Barney, 1991, 1997, 2002). Accordingly, intellectual resources that contribute value to the organization can be categorized as IC (Kong, 2008; Massingham, 2008; Stewart, 1997; Sullivan, 1998). Youndt et al. (2004, p. 337) define IC as "the sum of all knowledge an organization is able to leverage in the process of conducting business to gain competitive advantage." Edvinsson and Malone (1997, p. 44) describe IC as "the possession of knowledge, applied experience, organizational technology, customer relationships and professional skills that provide ... a competitive edge in the market."

Intellectual capital consists of different capitals that are rooted in employees, organizational routines, intellectual property, and relationships with customers, suppliers, distributors, and partners (Choo & Bontis, 2002). Stewart (1997) defined IC as the intellectual material - knowledge, information, intellectual property, and experience - that can be put to use for creating wealth. In particular, IC can be thought as the economic value of two categories of intangible assets of a company, i.e. organizational capital and human capital (OECD, 1999). Thus, IC includes intangible elements (resources, capabilities and competences) that drive the organizational performance and value creation (Bontis, 1998; Bontis et al., 2000; Roos & Roos, 1997) suggesting a causal relationship between intellectual capital and organizational value creation (Marr & Roos, 2005). An interesting conceptualization sees IC as the combination of intangible resources and activities that allow organizations to transform a bundle of material and resources in a system capable of creating stakeholder value (European Commission, 2006).

11. Components of Intellectual Capital (IC)

Several IC studies (Bontis, 1996, 2001, 2002a, 2002b; Van Buren, 1999; Pike et al., 2002; Stewart, 1997) examined components from a classification and conceptual model perspective; however, there is no agreement as to the various types of capitals to include as IC components. In terms of definition, a given capital can have the same name as another but the meaning of each is different (Bontis, 2001). For example, structural capital a component of IC, has been ill defined in previous studies, in which it had different labels but similar meanings among different IC models. Structural capital (Bontis, 2001, 2002a, 2002b) can be process capital (Van Buren, 1999) and organizational capital (Pikes, 2002), and it also intertwines with innovation capital (Van Buren, 1999).

According to Choo and Bontis (2002), intellectual capital consists of different capitals rooted in employees, organizational routines, intellectual property, and relationships with customers, and partners. Bontis (2002a) defined similar concepts, referring to them as human capital, structure capital and customer capital. Following the work of a number of scholars in the field, IC is generally taken to encompass three primary interrelated components: human capital, relational capital, and structural capital (Bontis, 1998; Dzinkowski, 2000; Roos, et. al., 1997; Saint-Onge, 1996; Stewart, 1997). Specifically, Kong (2007) and Bontis (1999) argue the IC framework in the NFP environment includes: human capital, structural capital and relational capital. In addition to Kong (2007) and Bontis (1999) and following the work of a number of scholars in the nonprofit management field, IC encompasses three primary interrelated non-financial components:

- (1) human capital (HC) (Bontis 2002a; Stewart 1997; Van Buren, 1999);
- (2) structural capital (SC) (Bontis 2002a; Grasenick & Low, 2004; Kong 2007; Roos et al., 1997; Stewart, 1997);
- (3) relational capital (RC) (Bontis, 1998; Fletcher et al., 2003; Grasenick & Low, 2004; Roos et al., 1997).

Relational capital refers to the stakeholders, constituencies, or communities to which a HE institution must answer. These groups can be categorized broadly as internal or external (Jongbloed, Enders, & Salerno, 2008). Internal stakeholders include students, faculty, staff, administration or trustees (Burrows, 1999 & Jongbloed, Enders, & Salerno, 2008). External stakeholders may refer to alumni, donors, local businesses and communities, government agencies, accrediting agencies, parents and families, or potential employers (Burrows, 1999 & Jongbloed, Enders, & Salerno, 2008). HE institutions are types of NFP organizations in which the stakeholders generally have a complex relationship (Hearnyakij, Chan, & Thitthongkham, 2010) and can hold various positions at one time (Burrows, 1999). Within these positions the stakeholder can have different levels of interest including scholarship, moral, and personal interest as well as different types of influence including formal, economic, and political (Burrows, 1999). How HE institutions define their stakeholders is critical to how these levels of interest and types of influence are defined and categorized.

12. Theory of Capital Interplay

Moran and Ghoshal (1996) describe shifts towards organizations increasing understanding of their own knowledge and forms of IC as representative of an organization's movement from value appropriation to value creation as a means of creating advantage. Kong's (2007a) theory, identifying three forms of IC, provides an efficient means of organizing the categories of knowledge for higher education institutions. As the economic climate continues to fluctuate domestically and globally, it becomes an even greater importance for higher education organizations, which are dependent upon recruitment of students and endowments from external sources for fiscal sustainability, to be keenly attune to the management of their knowledge for strategic advantage.

Continuing on from this point, it is pertinent for higher education institutions to not only understand the current status of their position concerning the IC which they possess, but also to identify methods to improve awareness of the forces that impact the knowledge capital either positively or negatively. Nahapiet and Ghoshal (1998) submit that IC is constructed through the active process of combination and exchange within and between organizations. For this reason, the forms of IC within an higher education institution should not be viewed as static, but rather ought to be understood as dynamic, ever-engaging, and possibly influencing one another. This process is what we will refer to as *capital interplay*. Understanding the capital interplay that takes place within higher education institutions becomes increasingly important to the growth of an organizational legitimacy. Figure 2 describes the components that shape the forms of IC within higher education institutions and identify the possible forms of interplay between them.

13. Discussion and Analysis

As presented in Figure 2, there are three segments to the proposed model: *macro environment*, *industry environment*, and *forms of intellectual capital*. Each of these segments uniquely identifies an area of knowledge that influence the

strategic position and organizational legitimacy of a given organization (Skaggs & Youndt, 2004). Similar to other organizations (Taylor, 1968; Osborn & Hunt, 1974), higher education institutions use these segments represent significant areas of concern within the future life of the institution and its ability to remain viable and successful in fulfilling its stated objectives.

13.1 Level 1: Macro Environment

The macro environment is characterized by the general context of significant external and uncontrollable factors that have an important influence upon an organization's decision making, performance, strategies, and other characteristics (Osborn & Hunt, 1974). Higher education institutions must be mindful of the ongoing motion of the macro environment as it often has direct ramifications upon the well-being of the organization. While these factors are usually well removed from the physical institution representative of happenings within a much larger geographical context (Taylor, 1968), their impact may be lived out in various facets of the institution, such as the value of assets held, the make-up of the student body, or the availability of capital. The macro environment includes the following inputs:

- Economy (domestic and global)
- Competitive Forces
- Diminishing Resources
- Organizational Legitimacy
- Population Demographics

13.2 Level 2: Industry

The industry environment level of the model is defined by multiple factors which more directly influence higher education institutions in their operations. The term industry is prevalent in business literature, but in this context it is extrapolated from the early work of Taylor (1968), which identifies the aggregated environment of organizations as containing associations, interest groups, and constituencies impactful upon the life of an organization. It must be held that within the industry level of the organizational environment, these inputs are often directly addressed by the institution on an annual basis or less frequently. One example of a component comprising the industry level are ranking reports, which higher education institutions frequently utilize to establish and broadcast their location amongst other institutions in the marketplace (Institute for Higher Education Policy, 2007; Institute for Higher Education Policy, 2009). Another example is accreditation, an ongoing cycle ranging from three to eight years, depending upon the accrediting body, carrying great influence upon the life of an institution (Hedrick, Henson, Krieg, & Wassell, 2010). Each of these areas constructing the level of industry has an impact upon the performance of higher education institutions. The industry level of the model contains:

- Ranking
- Accreditation
- Online Reputation
- Institutional Memberships

13.3 Level 3: Forms of Intellectual Capital

Utilizing Kong's (2007a) aforementioned framework of IC, the Forms of Intellectual Capital are inclusive of the three specific areas of IC, which are germane to NFP organizations. While all of these areas are representative of one level, it must be noted that each of these specific areas of capital cover a different number of independent forms of knowledge relative to the day-to-day life of the institution. Concerning human and structural capital, Nahapiet and Ghoshal (1996) note that these are both valuable resources in the life of an organization that aid in the facilitation of productive and economic activity. Furthermore, studies have indicated that relational capital is the level of trust and respect shared between alliance partners and central to the formation of a relationship which can lead to the exchange of valuable resources between organizations or individuals (Kale, Singh, & Perlmutter, 2000; Dhanaraj, Lyles, Steensma, & Tihanyi, 2004).

It is within this environmental level of the model that the interplay of IC takes place. In the proposed level of the model, each form of the IC is associated to higher education-specific sub-categories. These categories detail concrete functions of the institution, which constitute the three forms of capital. The Forms of IC level of the model are inclusive of:

- Human Capital
 - Faculty Scholarship
 - Faculty Teaching
- Structural Capital
 - Technology

- Organizational Culture
- Physical Assets
- Fiscal Resources
- Academic Programs
- Relational Capital
- Trustees
- Donors
- Students
- Parents
- Faculty
- Staff
- Administration
- Local Community
- Accrediting Agencies
- Potential Employers
- Government Agencies

The arrows that intersect and surround the forms of IC are representative of the multiple directions of continuous capital interplay (Figure 3). This interplay is a descriptions of ways in which forms of IC may have direct impact upon one another, either positively or negatively. This is representative of the possible constant fluctuation of the status of capital within institutions of higher education.

14. Limitations of the Model

While the proposed model is constructed utilizing the review of established studies, it does not completely take into account the diverse nature of higher education institutions. Therefore, the model is limited in that it is dependent upon the make-up of a given institution and the categories and sub-categories of each level of the model may differ significantly. Confidence can be taken in the uniformity of some categories across higher education institutions but others will differ significantly depending on organizational structure. Additionally, as the interplay of IC is focused upon the results of such, study will potentially render differing results from institution to institution. It is important to recognize that a limitation of the model is a lack of data produced through utilization of the model to be wholly applicable across organizations.

An additional limitation is the model's constraint in the categories and sub-categories utilized to inform each of its levels. There may be categories not listed on any of the given levels that are pertinent fixtures of the capital holdings of a particular higher education institution or group of institutions. Prior to the model being applied in any active study, it is vital to identify categories of IC that are specific to the particular higher education institution(s) of study.

Finally, a significant limitation to the model is its lack of testing through formal utilization within a study of a particular higher education institution. The validity of the model will only be proven through its application in a formal research context preferably focused upon one particular institution to improve understanding of areas of strength and weakness of the model as well as the theoretical framework of IC and capital interplay that underpin it. As the model is applied in active study and results are published and made available for review, the utility of the model will be effectively examined.

15. Conclusion

It is of increasing importance that not-for-profits understand how to leverage their knowledge in a market context that is quickly shifting. The mode of capital interplay is focused upon the way in which the components of intellectual capital, represented within higher education institutions', impact one another on an ongoing basis. More directly, this model proposes that these forms of capital ultimately shape one another as they experience growth and contraction. Beyond the identification of how these areas of intellectual capital impact one another, either positively or negatively, the model proposes to potentially be efficacious in the identification of which components of each form of capital is more impactful and therefore valuable to the life of the institution.

As higher education institutions identify which components of the forms of capital they possess, internally rendered results which are positive to the life of the organization stand to make marked improvements within their own internal decision making processes. Direct improvements to the decision-making process ought to foster more efficacious outcomes for the organization. In the face of an era in which organizations must be cognizant of issues of organizational legitimacy, but are increasingly impacted by the reality of diminishing resources, the possibility of improving the management and utilization of internal knowledge is paramount. These improvements in the areas of

management and utilization of knowledge position higher education institutions for gains in organizational achievement ultimately improving organizational position concerning issues of public legitimacy.

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Notes

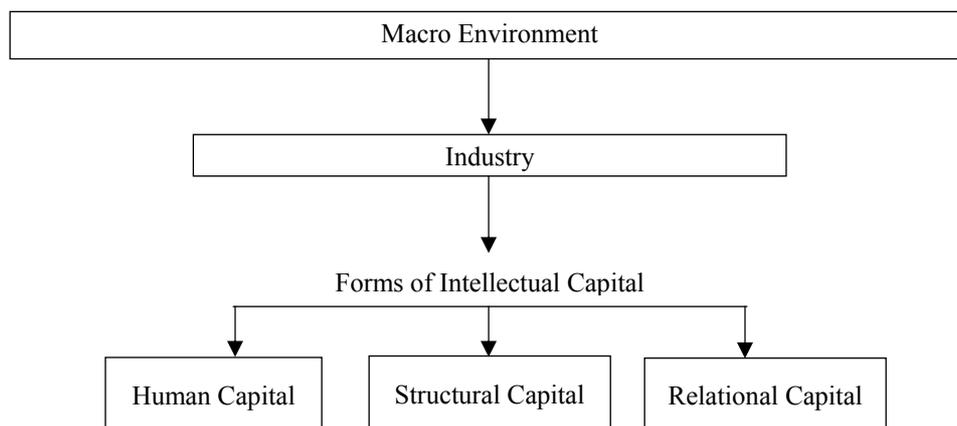


Figure 1.

The figure above represents our interpretation of Kong's model of knowledge management he presents for not-for-profit organization. The forms of intellectual capital identified as human capital, structural capital, and relational capital, are shown as stand-alone elements that do not relate to each other.

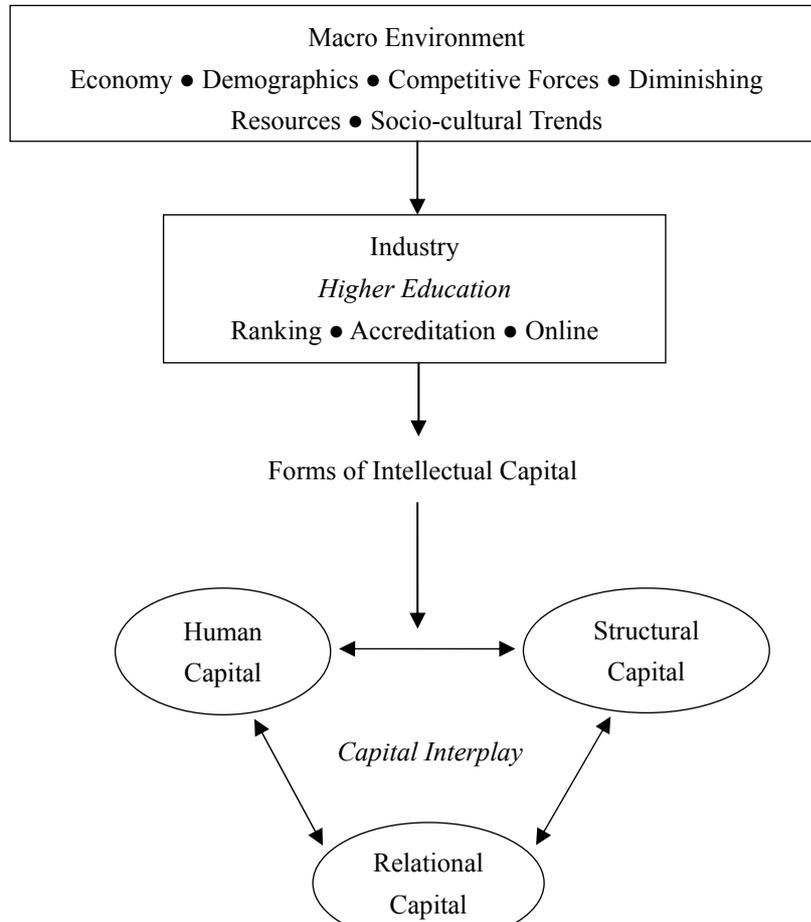


Figure 2.

The figure above represents our proposed model of Knowledge Management as it relates to not-for-profit organizations, specifically Higher Education. Our model suggests that the forms of intellectual capital including human capital, structural capital, and relational capital, influence one another through a process of capital interplay.

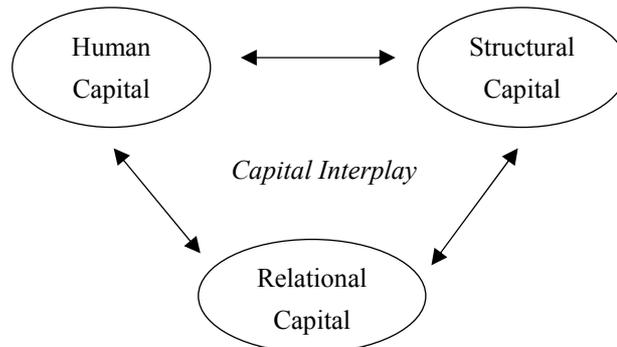


Figure 3

The graphic above represents capital interplay between human, structural, and relational capital.