Culture and intellectual capital: towards a conceptual framework

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Abstract

Purpose – The purpose of this paper is to represent the findings from the first phase of an ongoing research project whose primary goal is to identify the most significant organizational internal and external cultural variables that leverage and enable a firm's intellectual capital (IC) to make it more competitive in the marketplace.

Design/methodology/approach – The authors build on their earlier work in which Ulrich's definition of IC as Competence × Commitment was expanded to include two additional dimensions, Creativity and Culture. The previous model explored the relationship between IC and the following five critical variables: Competence, Commitment, Control, Creativity and Culture. Here, the authors identify the most significant organizational internal and external cultural variables that leverage and enable a firm's IC to make it more competitive in the marketplace.

Findings – This paper demonstrates the interplay between different cultural types and levels of business volatility on IC. The authors argue that the more volatile the industry is, the greater the need to secure and capitalize on IC, and the more critical it is for firms to adopt a flexible and adaptive organic culture that encourages the creation and leveraging of IC.

Originality/value – This framework is original and expands on Ulrich's classical work on IC. It helps senior leaders and managers explore how to effectively and proactively capitalize on IC and leverage complex IC assets. The preliminary exploration into these convergent strands has provided a foundation to further develop and establish the interrelationships between organizational culture and IC.

Keywords Organizational culture, Tacit knowledge, Knowledge management, Intellectual capital, Intellectual assets

Paper type Conceptual paper

Introduction

Traditionally, economists have emphasized physical and human capital as the two key resources vital for economic activity (Grant, 1996; Nahapiet and Ghoshal, 1998; Guthrie *et al.*, 2012). The rise of the new economy, characterized by global competition, advanced information technologies, a virtual 24×7 workforce and an almost ubiquitous world of online business transactions free of geographical boundaries, has made information, structural and tacit knowledge, intuition and domain expertise including its net nuanced outputs, namely, intellectual capital (IC), integral and invaluable in contributing to sustainable competitive advantage (Petty and Guthrie, 2000; Barney, 2001; Kamukama, 2013).

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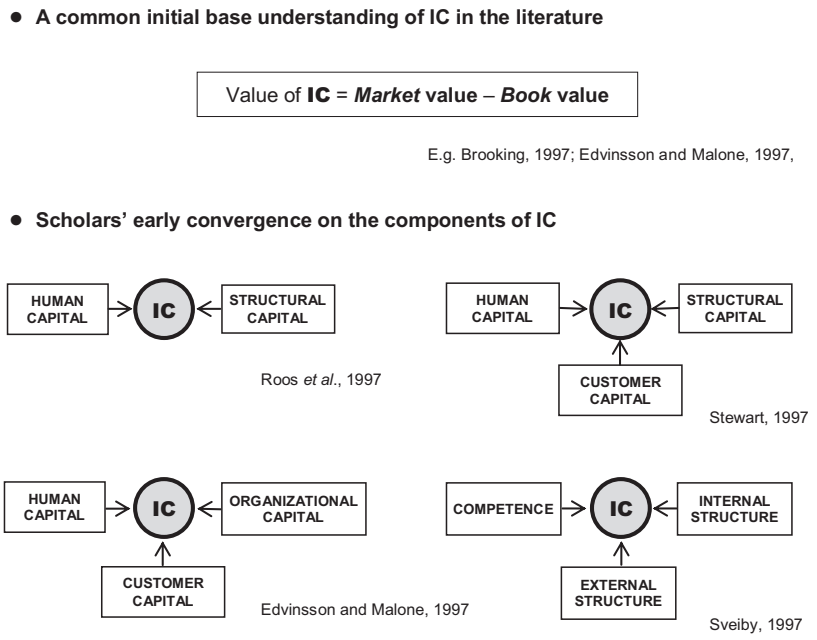
While it is beyond the scope of this paper to undertake an extensive chronological review of evolving IC theories and frameworks, we present a brief history and key definitional interpretations of IC. As the mid-1980s "information age" took hold, the gap between book value and market value became marked for many companies (Petty and Guthrie, 2000). One early popular definition of IC equated it in accounting terms to *market value* less *book value*. By the turn of the millennium, more elaborate definitional convergence became evident. For example, the OECD (1999) described IC as "the economic value of two categories of intangible assets", – namely, organizational (structural) capital and human capital (Petty and Guthrie, 2000, p. 158; Guthrie 2001). This perspective consolidated the contemporary work of several scholars such as Roos *et al.* (1997), Stewart (1997), Edvinsson and Malone (1997) and Sveiby (1997), all of whom emphasized "human capital" or attendant "competence" (Sveiby, 1997) as a key IC component. The other IC components established by these scholars were "structural capital" (Roos *et al.*, 1997; Stewart, 1997) or associated "organizational capital" (Edvinsson and Malone, 1997); "internal structure" (Sveiby, 1997); and "customer capital" (Edvinsson and Malone, 1997; Stewart, 1997), or "external structure" (Sveiby, 1997) (Figure 1).

Emphases on these components in the conceptualization of IC constructs have persisted in extant literature (Mahdi *et al.*, 2012).

> While the names used for IC are at times different, they basically refer to: human capital: the knowledge embedded in people; structural capital: the knowledge embedded in the



Sources: Authors' consolidation from the works of Brooking, 1997; Edvinsson and Malone, 1997; Roos *et al.*, 1997; Stewart, 1997; Sveiby 1997

Figure 1.
Towards defining IC: scholars' early convergence on the dimensions and components of IC as stock

> organization and its systems; and relational capital: the knowledge embedded in customers and other relationships external to the organization (Dumay and Garanina, 2013, p. 12; see also Guthrie *et al.*, 2012).

In summary, besides system aspects that entail, for example, repositories of information and structured knowledge, at a fundamental level, the core dynamic components of organizational IC reside at the individual level. In other words, the human element is the quintessential "lowest common denominator" for all IC. Indeed, while even "structural capital" is considered by scholars to be "essentially captured human capital", relying on attendant skills and human capability, "such as the ability to communicate and the willingness to share information and allow it to be encapsulated in structural capital" (Kamukama, 2013, p. 262; Bontis, 2002) – so too are customer or "relational capital" inextricably linked to the human element (Welbourne, 2008; Kamukama, 2013).

IC framework

Although there are various IC models and frameworks, our research led us to focus on Ulrich's early definition of IC. We were drawn to Ulrich's (1998) model of IC because it identifies and defines key pillars that drive the intellectual resources of today's organization. Ulrich (1998, p. 16) defined IC as "Competence × Commitment" – "a simple yet measurable" definition (Bukh *et al.*, 2001). Ulrich (1998, p. 16) emphasized that "skilled employees who are committed to business goals are a company's most important asset". He examined IC assets from two perspectives:

(1) by how each employee learns, applies, expands and leverages his or her intellectual resources to advance the organization; and

(2) by how an organization creates policies and systems to facilitate employees to build and apply their inventory of IC for the benefit of the organization.

Ulrich argued that although within a unit, the overall competence of an employee is intuitively expected to increase over time; this by no means secures or guarantees the full utilization of IC within an organization. In other words, an organization with high competence derived through extensive and in-depth levels of IC resources but low employee commitment will fail to deliver the benefits of its full range of capabilities. Alternatively, an organization with high employee commitment but low competence or limited IC inventory may fall short of advancing the organization.

> Both are dangerous. Intellectual capital requires both competence and commitment. Because the equation multiplies rather than adds, a low score on either significantly reduces overall intellectual capital (Ulrich 1998, p. 16).

We use an analogy to elaborate on this concept. If the IC of employees is viewed as a seed and the organization as the soil, the characteristics of the soil and its nurturing elements enable the seed to flourish. The soil for IC is the culture of an organization, and an individual employee's IC can be capitalized only if managers provide the nutrients required. In other words, managers must foster the culture and cultural frameworks required to create a conducive environment, enabling the capture, growth and leverage of employees' IC, while aspiring for the commitment and motivation of each individual to relentlessly expand and apply their IC towards enhancing the organization's potential for sustainable competitive advantage.

Though fundamental, Ulrich's initial model was somewhat simplistic yet flexible enough to accommodate a more comprehensive IC framework. Ulrich's (1998) conceptualization of IC as Competence × Commitment was later extended to include Control as another key element for measuring and leveraging IC (Burr and Girardi, 2002). Given the crucial role of organizational culture in the success of IC, in an earlier paper, we extended Ulrich's model to include two additional dimensions: Creativity and Culture (Gupta and Azzopardi, 2013). Our five-dimensional framework (Competence, Commitment, Control, Creativity and Culture) provides a strong and useful foundation for organizations to strengthen IC development, enhance existing intellectual resources, integrate new and innovative IC resources into the organization and influence the application of IC at the level of the lowest common denominator, namely, the individual (Gupta and Azzopardi 2013).

Organizational culture

In this paper, we build on the importance of one of the five IC framework variables, namely, culture. Culture is influenced by a number of internal and external factors, including dynamic macro forces of the industry within which the organization operates, its maturity cycle, industry volatility and competitive pressures, leadership style of senior management, employee morale, motivation and reward structures, the age of the organization and its organizational structure, to name a few. Because of its intrinsic and abstract nature, culture is perceived and valued differently by different individuals and leaders, even within the same organization. These differences are even more accentuated across organizations, industries, communities, regions and countries.

Culture is a critically important and highly impactful element on organizational dynamics and IC assets. While several other elements of an organization may be replicated, such as structures, systems and even products and services, an organization's culture that promotes continuous learning and the ability and capacity of employees to leverage knowledge for competitive advantage is hard to imitate (Barney, 1986). A healthy and conducive organizational culture contributes to critical components of IC, such as human capital, technology capital, business capital and social capital (Martin-de-Castro *et al.*, 2006). This is not to say that the other four elements, namely, Competence, Commitment (Ulrich, 1998), Control (Burr and Girardi, 2002) and Creativity (Gupta and Azzopardi, 2013), are less valuable. Instead, we infer that if an organization does not pay close attention to the impact of its culture, the other four "C" elements that support the development and leverage of IC are likely to be adversely affected, compromised or diminished. In short, the culture of an organization is critical to an organization's key competitive arsenal, namely, IC (Petty and Guthrie, 2000; Barney, 2001; Kamukama, 2013), and therefore to its competitive success and innovation (Barney, 1986; Deshpande *et al.*, 1993; Martins and Terblanche, 2003; Martín-de-Castro *et al.*, 2013).

In this regard, Bontis (1998) suggests that cross-references between IC data and the cultural dimensions proposed by Hofstede (1980) can reveal interesting relationships and interfaces between key organizational concepts. These, in turn, influence the capacity and competencies of an organization and its workforce to build and leverage existing and future IC assets. In this respect, culture is valued as much, if not more than, as tangible assets in mergers and acquisitions because it is not only hard to imitate, but it may also take competitors many years and many mistrials to imitate and to cultivate

a successful and healthy organizational culture. This is aligned with resource-based view perspectives of the firm, where such characteristic attributes are the core of superior performance, extending to competitive advantage and the extent of its sustainability (Wernerfelt, 1984; Barney, 1986). Complementarily, such perspectives consider "organizational capital as competitive advantage of the firm" (Martín-de-Castro *et al.*, 2006, p. 324).

While culture is almost unanimously understood to be a critical and defining characteristic of the DNA of an organization and core to its competitive success and innovation (Barney 1986; Deshpande *et al.*, 1993; Martins and Terblanche, 2003; Martín-de-Castro *et al.*, 2006), there is no single definition of organizational culture (Martins and Terblanche, 2003; van den Berg and Wilderom, 2004). Though much has, and continues to be, been written about organizational culture, it remains bereft of universal definitions (Martins and Terblanche 2003). Along with Schein's (1984, 1990) seminal works, definitions of culture range from "the way we do things over here" (Lundy and Cowling, 1996; Deal and Kennedy, 1982) to the unique styles that organizations use to extract work from people (Kilmann *et al.*, 1985) to informal and shared perceptions of life in an organization that binds people together and influences the way they think and the way they look at work (Wagner and Hollenberg, 2010). While an extent of convergence is evident, ongoing academic debate and research initiatives adopt varying perspectives derived from different theoretical approaches to the definition of culture. This is understandable, as by its nature, organizational culture and its myriad interrelated dynamics presented by diverse organizational contexts and internal and external forces is complex. Martín-de-Castro *et al.* (2006, p. 324) observe that "organizational capital can be depicted as a set of: valuable assets; difficult to imitate; to replace; to transfer; with a prolonged life expectancy; and with a feasible rent appropriation". Consequently, while highlighting that organizational culture can be a source of sustainable competitive advantage (Barney, 1986), Jung *et al.* (2009, p. 1087), in their extensive review of instruments for exploring organizational culture, concluded that:

> […] there is no ideal instrument for [organizational] cultural exploration. The degree to which any measure is seen as "fit for purpose" depends on the particular reason for which it is to be used and the context within which it is to be applied.

Lacking a universal definition, it becomes imperative for each organization to be able to define and develop a language that captures the essence of its character, values, traits and personality – as well as acknowledge that while the characteristics of the other "Cs" that influence IC are also important and influential, ultimately they are, in turn, impacted by the underlying organizational culture. For example, all organizations need control mechanisms. Still the culture of the organization determines whether such controls stifle or enable organizational learning. Often, there are indirect references to the role of organizational culture in IC literature, particularly as it relates to structural capital, where structural capital is defined as the organization's "strategies, processes and policies" (Dzinkowski, 2000). However, an organization's culture is more than the sum of its strategies, processes and policies.

Based on the above discussion, we use the following definition of organizational culture in this paper (Wu, 2008, p. 2540):

> Organizational cultures consist of interactions among critical masses of people with different preferences and past choices that have the capacity to wield critical influences upon each other,

both in the short and long terms, within and beyond the confines of organizations and resource constraints.

This definition contains the necessary ingredients that fit the purposes of this study that sees the IC of individual people as a "critical influence" for the long-term success of organizations, especially those that operate in fast-changing, dynamic and complex industries. The culture of these organizations determines the extent to which the IC of the "critical masses of people" and the way they interact with one another promote the capitalization of IC by the organization.

In the following sections, we discuss an established model that classifies different types of organizational cultures. This model can help senior leaders and identify their organization's cultural traits relative to their generic strategy and environmental scanning. We elaborate further on this existing model and juxtapose the relative strategic importance of tacit knowledge along various cultural dynamics. This also provides a platform upon which to analyse IC and culture dynamics in relation to broad industry characteristics within which organizations seek to thrive and survive.

Organizational culture and strategic orientation

In this section, we present an organizational culture model that can assist leaders and managers to study and strengthen their IC assets within the context of their culture. This model, which is easily adaptable to different types of organizations, also strengthens comparative research across different organizational types, sectors or industries, and offers an analytical strategic tool for management practice, consulting purposes and IC asset development.

Our model builds on the organizational culture types which Deshpande *et al.* (1993) adapted from the "competing values framework" of Quinn and Rohbraugh (1983), in addition to Cameron and Freeman's (1991) research, which established "control-flexibility" and "internal-external" as the two major indicators that influence organizational culture. It merges theoretical traditions derived from organizational behaviour, systems-structural domains and transaction cost perspectives (Williamson 1975), with the seminal works of Ouchi (1980), Mintzberg (1979) and Williamson (1975) on organizational forms. This paper also adopts and builds further on the modified representation of the organizational cultural model put forward by Saxby *et al.* (2002), which incorporates generic strategy with environmental scanning methods. Generic strategy and organizational culture are inextricably linked (Weick, 1985). Environmental scanning is a behavioural characteristic critical to organizational culture, as it impacts the effectiveness of strategy and competitive advantage. This framework overcomes some of the limitations of earlier models wherein the large number of inbuilt cultural analysis factors inhibited their practical application by senior leaders and managers (Quinn and Rohbraugh 1983). This approach aligns well with applied stance of this paper and our earlier arguments that IC is core to a firm's sustainable competitive advantage.

In Figure 2, which presents the enhanced model of organizational culture types established for the purposes of this research, we posit that the relative importance and strategic relevance of tacit knowledge (Polanyi, 1966 and Nonaka and Takeuchi, 1995) tends to comparatively increase along the "flexibility-control" continuum on the vertical axis as one moves towards less mechanistic and more organic and unstructured, flexible

Figure 2.
Adapted model of organizational culture types, generic strategy and the relative importance of tacit knowledge

Source: The authors, adapted from Deshpande (1993) and Saxby *et al.* (2002), based on Quinn (1988)

organizational contexts. Relative strategic relevance of tacit knowledge is crucially important, as all else being equal, and as competition intensifies, greater critical importance is placed on tacit forms of IC (Hall, 1992). This is fundamentally also in line with the resource-based and knowledge-based views of the firm (Barney, 1991; Grant, 1991, 1996; Wernerfelt, 1984). Conversely, organizations competing in dynamic contexts characterized by volatility and high levels of uncertainty tend to be less responsive to the competition when organizational cultures are based on stable, mechanistic processes that lack dynamic capability (Teece *et al.*, 1997). Figure 2 presents the enhanced model of organizational culture types established for purposes of this research.

This model distinguishes among four key organizational culture archetypes identified along two dimensions: organizational structure, and organizational focus. Organizational structure presents a continuum from predominantly "mechanistic" to "organic" processes associated with an organization's *modus operandi*. These are characterized by an emphasis on control, structured processes, order and stability, on one end, and flexibility, dynamism and individuality on the other end. Along the horizontal axis of this matrix, the "organizational focus" continuum discerns between an organization's intent and emphasis in relation to "internal" or "external" orientation.

The various attributes and distinguishing characteristics of the four culture types are shown along with the likely complementary generic strategy relevant to those organizational contexts *vis-à-vis* external environmental conditions typically associated with each culture type for the purposes of strategic fit.

Saxby *et al.*'s (2002) integration of Miles and Snow's (1978) typology of strategic orientation based on a business' intended rate of product-market development (new product development, penetration of new markets) effectively links the fundamentals of organizational culture in this model to organization strategy, structure and process within the context of the competitive market realities faced. Miles and Snow (1978) argued that different company strategies derive from the ways organizations seek to address three fundamental problems – namely, problems of an entrepreneurial nature, those of an engineering or operational nature and those associated with administrative aspects. In line with the objective of this paper, the inclusion of Miles and Snow's (1978) strategic orientation enhances Deshpande *et al.*'s (1993) model of organization culture types for our purposes, and complements its two key dimensions – organizational structure and focus (Table I).

With respect to strategic orientation, the "internal maintenance" end of this continuum typifies organizations' intent on conformance, maintaining current *modus operandi* and passive environmental engagement. This is manifested by either "reactor" strategies susceptible to drift and *ad hoc* response, or an entrenched "defender" strategy seeking to maintain established market presence in a centralized, tightly controlled way – plausible in stable predictable environments, but ineffective in dynamic contexts. Conversely, the "external positioning" characterized by a greater extent of market orientation emphasizes competition, differentiation and active environmental adjustment. Here, the strategic orientation associated is either "prospector", flexible and intent on innovation and opportunity exploitation in dynamic environments or "analyzer" based on efficiency, control and incremental development and innovation.

Along the vertical continuum of the organizational culture typologies model, "organizational structure" ranges from more staid structures emphasizing mechanistic control and stability at one end (matched with "defender" and "analyzer" strategy attributes) to organizational cultures characterized by more organic processes promoting flexibility, agility and individuality in dynamic environments (associated with either "reactor" or "prospector" generic strategies).

In summary, the components contained in the individual quadrants in Figure 2 portray the given culture of an organization. Each quadrant can help leaders identify the type and nature of culture that is the best fit for its ongoing success and that of its employees. For example, Quadrant II represents adhocracy and requires that Wu's (2008, p. 2540) "critical masses of people" embrace more organic, flexible organizational processes – maintaining interaction with the intention of maximizing learning, leveraging tacit knowledge and capitalizing on their IC to promote innovation, entrepreneurship, risk-taking, exploration and growth in competitive contexts – underlying the need for dynamic capabilities (Teece *et al.*, 1997; Teece, 2007). Conversely, organizations operating in Quadrant IV, the hierarchy, are characterized by a culture whereby people interact to ensure stability, order, compliance with rules and regulations and uniformity. The leadership style in this case, as opposed to adhocracy, may be minimally concerned with capturing the IC of employees. This could, in increasingly cut-throat contexts, with time be severely detrimental to the

Table I.
Miles and Snow's strategy typology

Strategy categories	Strategy	Environment	Organizational characteristics
Prospector	Innovate. Find new market opportunities. Grow. Take risks	Dynamic, growing	Creative, innovative, flexible, decentralized
Defender	Protect turf. Retrench, hold current market	Stable	Tight control, centralized production efficiency, low overhead
Analyzer	Maintain current market plus moderate innovation	Moderate change	Tight control and flexibility, efficient production, creativity
Reactor	No clear strategy. React to specific conditions. Drift	Any condition	No clear organizational approach; depends on current needs

Source: Based on Miles *et al.* (1978)

competitiveness and survival of organization – as a result of cultural traits and attributes emanating from entrenched mechanistic organizational processes and passive environmental scanning. Organizations that lean towards organic processes with an active external focus are more likely to rely on, and leverage, intricate and complex IC assets and therefore are likely to be strong competitive players in the marketplace with an ability to keep other rivals at bay (Barney, 1991; Grant, 1991; Peteraf, 1993; Teece *et al.*, 1997; Teece, 2007). Here, the need for an organizational culture that promotes the development, effective utilization and maximization of its IC becomes critical.

Figure 2 reinforces the fact that there is no universally acceptable definition of culture or even an "ideal" culture. Every organization is unique, driven by its mission, leadership style, industry and operating processes. Therefore, every organization needs to proactively strike the right balance between its culture and the circumstances that it finds itself under. Diverse and dynamic situations, including internal and external forces and pressure points, demand that every organization should build and nurture a culture that adapts, thrives and facilitates its growth and the well-being of its employees.

Against this backdrop of organizational structure, focus and strategic fit, we seek to conceptualize the role of IC, the unique characteristics and culture of the organization and the realities of its concomitant industry dynamics.

Competitive characteristics of the firm and nature of IC

The impact of IC on the profits of a firm depends on its relevance and ability to "play in its chosen field" – its exploitation. In other words, the internal currency of a firm's IC can be converted into market "gold" only if a firm leverages its IC in ways that are more efficient, effective, valuable and sustainable than its competitors. It is not enough to just "play". Instead, organizational growth and sustainability demand that leaders become exceptionally proficient in swiftly changing and adapting the rules of the game to the shifting landscape, the rapidly changing environment, the priorities and preferences of the players and spectators and other factors that influence the ability of an organization to win in the marketplace (Barney, 1991; Grant, 1991; Peteraf, 1993; Teece *et al.*, 1997; Teece, 2007). This is why it is not enough to simply use the same pool of IC that a firm's competitors have access to, but instead to seek and find higher-order or more complex IC that often lies hidden in the crevices between the interfaces of different categories or components of IC.

The matrix below conceptualizes the association between competitive characteristics of a firm and the nature of IC, and its knowledge characteristics (explicit or tacit) that are key success factors for effective competition in such contexts (Figure 3). Hence, to achieve sustainable competitive advantage, a firm must systematically elevate itself to be a high-level competitor among rivals and, secondly, must apply its IC to adapt as well as leverage the market dynamics to its advantage.

On the low–low quadrant (low firm competitiveness–low IC), a firm's ability to compete is low and its IC assets are also of low value. In this case, the firm has to expand and strengthen its IC assets as a means to strengthen its competitive positioning in its industry. Alternatively, if IC assets are inherently of low value because of the nature of the industry and the business, then the firm must compete heavily using non-IC assets. In this case, IC holds an inherently weak position in the industry. However, an

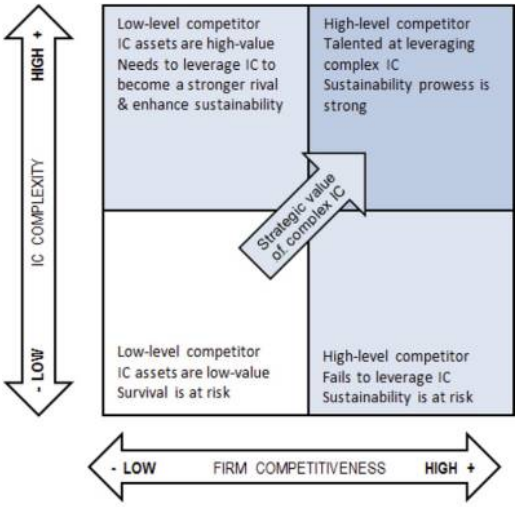


Figure 3.
IC complexity versus firm's level of competitiveness

Source: The authors

organization that can find unique and creative ways to strengthen its IC assets and leverage them to increase its competitive positioning may strike gold.

The low–high quadrant (low firm competitiveness–high IC) reflects missed opportunities. The inability or lack of foresight to capitalize on one's high-valued IC assets may, in fact, contribute to the firm's low competitiveness. Over the long run, repeated neglect of a firm's IC assets leads to missed market opportunities, which further aggravate the competitive positioning of the firm. Also, competitors who are better positioned or inclined to capitalize on their IC assets will gain significant advantage over firms that don't and in the long run, will make it difficult for the low competitive firm to play catch up.

The high–low quadrant (high competitiveness–low IC assets) reflects a degree of risk in sustaining or strengthening one's competitive position in the marketplace. A firm may have achieved a strong competitive position in the marketplace because of many factors, including market dynamics, timely and innovative products and services, global expansion, strong leadership or sophisticated technologies, to name a few. No firm achieves a strong competitive position by ignoring its IC. However, achieving a superior competitive position in the marketplace and retaining it are not the same. History is full of companies that achieved enviable and coveted market positions, only to lose them by being blind-sided by a number of factors. This quadrant addresses the issue of how IC can be a critical component that ensures the ongoing success of such firms. Firms that fall in this quadrant should closely examine their IC assets and leverage them in ways that are unique, timely and valuable in serving the needs of their customers.

Finally, the high–high quadrant (high competitiveness–high IC assets) can be viewed as the ideal position. While beyond theorizing, little empirical evidence exists to prove the exclusive role of IC in the high competitive positioning and strength of the firm (Grant and Verona, 2015), the role of IC in innovation is now a

common theme in the business literature (Bontis, 1998; Ricceri, 2008; Subramaniam and Youndt, 2005; Lu *et al.*, 2010; Manzari *et al.*, 2012; Ramezan, 2011). Like firms in the previous quadrant, firms in this quadrant should continue to build, strengthen and leverage their IC assets for their continued success.

In summary, business leaders should pay close attention to the strategic value of IC to their organization's growth and success. Like tangible resources, intangible resources like IC can easily be overlooked or short-changed with regard to ongoing investments. A competitively strong IC position can over time have its strategic significance and relevance diluted, especially in dynamic volatile environments – if such assets are not actively and effectively managed and maintained in response to ever-shifting markets and morphing industry realities. Although at a micro level, IC fundamentally resides with the individual, firms lay the groundwork for capitalizing on this inherent and invisible resource by building a culture that enables the growth, sharing and application of IC among all its employees. Strategy discussions and directions should pay close attention to this intangible resource. Our framework shows how managers can determine the quadrant within which their firm is positioned, and then actively identify strategies, policies, procedures, cultural enhancements and investments that will systematically move them towards the high–high quadrant, this being the most significant way to enhance the prospects for sustaining one's competitive position in a dynamic marketplace.

Conclusion

In an earlier paper, we expanded Ulrich's framework for IC to include two additional dimensions – Culture and Creativity – in addition to the three that are currently noted in the literature, namely, Competence, Commitment and Control (Ulrich, 1998; Burr and Girardi, 2002). In this paper, we focus on the interrelationship between the culture of a firm and its ability and capacity to leverage its IC. We view IC as the seed for enhancing superior performance and competitive advantage, and organizational culture as the soil and environment within which it may thrive. We show how IC thrives only when the organizational culture supports and nurtures the lowest common denominator, namely, the individual employee, by creating a cultural climate that is conducive to creativity, innovation, flexibility and risk-taking. Although there is no "perfect" culture, we emphasize the importance of building a culture that is conducive to leveraging IC assets for organizational growth and sustainability.

We demonstrated the interplay between different cultural types and levels of business volatility on IC. We argue that the more volatile the industry is, the greater the need to secure and capitalize on IC, and the more critical it is for firms to adopt a flexible and adaptive organic culture that encourages the creation and leveraging of IC.

We developed a framework that can help senior leaders and managers explore how to effectively and proactively capitalize on IC in view of dynamic environmental forces, towards taking actionable steps to leverage complex IC assets as one way to enhance sustainability prowess *vis-à-vis* competitive advantage. Our preliminary exploration into these convergent strands has provided a foundation to further develop and establish the interrelationships between organizational culture and IC.

Implications for further research and practice

This paper represents the initial phase of ongoing research by the authors to develop an instrument that would assist managers to self-assess the organizational culture that will contribute to the best deployment of their IC assets. The next phase will involve the development of a survey questionnaire to test the parameters and variables at play, and the level of their significance in identifying the culture that would best fit the nature of the organization and the industry. The third and final phase will be the development of a self-assessment instrument to guide managers and leaders of organizations in the direction they want to take their organization by nurturing the right culture that capitalizes on the organization's IC.

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