

Antecedent Conditions for Leveraging Intellectual Capital: A Contingency Perspective

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Abstract- *In the new global economy, leveraging intellectual capital (IC), in a manner in which such competitive advantage would be gained and sustained, has become a central issue. Drawing primarily on contingency theory, this paper aims to empirically explore the antecedent conditions necessary for an effective development of intellectual capital (IC). In this respect, some contextual factors, namely organizational culture, industry type, and firm size were investigated for their potential impact on IC. The paper reports the results of a study carried out in Iran through a questionnaire survey of Chief Financial Officers (CFOs) in 128 companies within Tehran Stock Exchange (TSE). Partial least squares (PLS) was employed for confirmatory factor analysis as well as hypothesis testing. The results of the survey reveal that organizational culture and size could provide some impacts on IC within Iranian public listed companies. While the influence of knowledge-related resources on measurable performances has been considerably examined in the IC literature, little is known concerning the antecedent conditions necessary to leverage IC more effectively. Hence, this paper extends the current IC literature and contributes to the field through scrutinizing the influence of a series of contextual factors on IC. From practical angle, addressing the antecedent conditions necessary for IC may highlight the importance of firm-specific variables and traits which must be taken into consideration by managers and organizations for a sustainable IC development. Such insight could support organizations to remedy the deficiency in managing and leveraging their knowledge-based assets as their most critical and strategic resources.*

Keywords- *Intellectual capital(IC); Organizational culture; contingency view; Tehran Stock Exchange (TSE); Iran*

1. INTRODUCTION

Globally, information-age economy has superseded the industrial and retail economy (Clarke, Seng, & Whiting, 2011). The effective use of intellectual capital (henceforth referred to as IC) factors, mainly includes knowledge, relationships, and intellectual property is considered as a cornerstone for value creation in today's hyper-competitive environment (Usoff, Thibodeau, & Burnaby, 2002). Knowledge-based view, which itself derived from resourced-based view of the firm, argue that knowledge is the fundamental intangible asset crucial in gaining and sustaining competitive advantage because of its essence of non-substitutable, path-dependent, and difficult-to imitate (Alavi & Leidner, 2001; Nonaka, 1994; Zack, 1999). Such emphasis on organizations' knowledge, either in term of resources embedded within an organization or those relied heavily upon its external networks, has driven entities into a raising awareness of the notion of "intellectual capital". While research on measuring and analyzing IC as well as investigating its influence on firm performance arouse great interest, little is known concerning the antecedent conditions necessary to leverage IC. Although numerous

studies focusing on performance and valuation have proved a positive impact of IC on firm's market value (Chen, Cheng, & Hwang, 2005; Choi, Kwon, & Lobo, 2000) and financial performance (Bontis, Keow, & Richardson, 2000; Chen et al., 2005; Wang & Chang, 2005; Youndt, Subramaniam, & Snell, 2004), some reveal a negative relationship as well. Huang and Liu (2005) who studied the association among innovation, IT, and performance showed a nonlinear association between innovation capital and business performance. Firer and Williams (2003) detected a negative relationship between human capital and VAIC measure within the South African context. On the other hand, some other studies revealed that there is no association between specific components of IC and performance (Chen et al., 2005; Fernandes, Mills, & Fleury, 2005). These findings may plausibly convey the notion that IC itself could be explained by some other factors including contextual variables. This, in turn, drives us to the contingency view in which IC may significantly vary according to the context. In effect, addressing IC with regard to contingency theory has received scant attention in the literature. Hence, the main purpose of this research is to

explore which factors are potentially able to account for differences between organizations concerning the level of IC development. While previous studies focus largely on IC and its implications for organizational outcome (De Silva, Stratford, & Clark, 2014; Mention & Bontis, 2013; Tan, Plowman, & Hancock, 2007), this study links some contingency variables to the availability of IC within organizations.

IC encompasses the knowledge derived from the company's manpower, from the competencies of the firm, and from the connections and interactions between an organization and its external parties such as clients, partners, and suppliers. IC is defined as the value of organizational experience which is embedded in an organization's process, course of actions, systems, and corporate structures (Edvinsson & Malone, 1997). Intellectual property, data accumulated in knowledge management (KM) procedure, as well as KM practices which aim to capture the value of the company's knowledge resources are also incorporated in the foregoing definition (Stewart & Ruckdeschel, 1998). Nonetheless, a precise conceptualization and definition of IC still remains disputable despite the general consensus about the importance of IC as a cornerstone for value creation. For instance, Hudson (1993) narrows the scope of the concept to merely individual knowledge. Some scholars, among others, Brooking (1996) and Roos and Roos (1997) incorporate organizational relationships, infrastructure, culture, routine, and intellectual property into the conceptualization of IC as well. Given the above discussion and concerning the foregoing problems, unlike previous studies, this study aims to conceptualize the multidimensional and complex concept of IC by incorporating social capital as the fourth element along with other three general elements (i.e. human capital, structural capital, and relational capital) which in turn could provide a more robust and comprehensive conceptualization of IC.

This paper is organized as follows. First, literature on IC and its antecedent variables are discussed, followed by the hypotheses development. After the research method is presented, the results are reported. Finally, the study findings are discussed together with the study limitations, implications and the conclusions.

2. LITERATURE & HYPOTHESES DEVELOPMENT

Drawing on 'contingency' view, the scope of the current study is narrowed to organizational culture, organization size, and industry type as contextual variables of interest since they are capable of exerting a significant effect on organizational systems and capacities (R. Cooper, 1995; Johnson & Kaplan, 1987; Woodward, Dawson, & Wedderburn, 1965). The foregoing three contextual factors as well as their relationships with the criterion variable, i.e. IC, are elaborated in this section.

From the contingency lens, the optimal design for an organization is contingent on the nature of its operating environment (Burns & Stalker, 1961; Galbraith, 1983; Otley, 1980; Woodward et al., 1965). That is, contingency theory assumes that the environment or the internal and external context of a system or an organization has a strong impact on the performance and efficiency of the system. It is assumed that there is no such thing as universally applicable systems, but often the situation that systems have to adapt to a specific context to be efficient (Schreyögg & Steinmann, 1987). The contingency-based view is a combination between the decision-based approach and the system-theory. The decision-based approach has a very narrow perspective, whereas the system theory is strictly formalistic. Resulting from this combination, the contingency theory represents an open system with "if-then"-relationships focusing on relations within and around the corporation as the defined system (Lawrence, Lorsch, & Garrison, 1967). Contingency theory is guided by the general hypothesis that organizations whose internal features best match their situation-specific demands will achieve the best adaptation (Scott, 1967).

2.1 Intellectual Capital

Klein and Prusak (1994) define IC as "packaged useful knowledge". It mainly embodies knowledge, lore, ideas and innovations (Sullivan, 2000). There is a strong consensus among IC researchers which IC falls into human capital, structural capital and relational capital despite the fact that they are not in agreement generally about the particular definition of IC (Bontis, 1998; Edvinsson & Malone, 1997; Edvinsson, Roos, Roos, & Dragonetti, 1997; Edvinsson & Sullivan, 1996; Lynn, 1998; Stewart & Ruckdeschel, 1998). However, drawing from extant literature, this study intends to supplement the fourth element labeled as social capital with aforementioned general dimensions. Social capital (SOIC) is the sum of the actual and potential knowledge embedded within the networks of mutual acquaintance and recognition among employees (Nahapiet & Ghoshal, 1998; Subramaniam & Youndt, 2005). The social network develops over time through informal interactions and provides the basis for trust and cooperation in an organization (Granovetter, 1985). Human capital (HIC) refers to the knowledge, specialized abilities and experience, and innovativeness of human resources. Structural capital (SIC) encompasses innovation capital (intellectual assets such as patents) and process capital (organizational procedures and processes). Finally, Relational capital (RIC) represents the knowledge of market channels, customer and supplier relationships, and governmental or industry networks. Accordingly, IC mainly contains factors such as knowledge and experience, professional skill and know-how, strong relationships, and technological capabilities, that when employed would bring about competitive advantage for an entity (CIMA, 2001).

2.2 Antecedents of IC

Some scholars in the context of the IC have recently advocated the absolute necessity for establishing a framework with regard to the antecedent conditions which are essential for the efficient IC development (Bratianu, Jianu, & Vasilache, 2011; Isaac, Herremans, & Kline, 2009; O'Brien, Clifford, & Southern, 2010)). In this regard, Usoff et al. (2002) suggested that more systematic analysis is required in order to determine which attributes are pivotal to organizations' most critical resources. Besides, research with regard to IC antecedents and determinants could be drawn upon external disclosure literature (Huang, Tayles, & Luther, 2010). Chen et al. (2005) examined the relationship between the value creation efficiency and firms' market valuation and financial performance using data drawn from Taiwanese listed companies. Claycomb, Dröge, and Germain (2001) investigate the relation between applied process knowledge and firm market performance taking the environmental uncertainty into consideration. Meanwhile, Bontis et al. (2000) explored the associations among three main components of IC, namely human capital, structural capital, and customer capital and their impact on the business performance within Malaysian context. Yau, Chun, and Balaraman (2009), demonstrate that to what extent firm-specific factors could account for the differences in IC disclosure in Malaysian public listed companies. The foregoing stream of research showed that IC is positively related to company's market value and financial outcome. Nevertheless, as mentioned earlier, a few attempts to address the contextual factors which could potentially account for differences in the IC development within organizations. Accordingly, the current paper is aimed at closing this gap through examining some firm-specific variables which affect the process of IC development in Iranian public listed companies.

As stated earlier, relying on 'contingency' view, the scope of the current study is narrowed to organizational culture, organization size, and industry type as contextual variables of interest due to their significant potential in influencing organizational systems and capacities (Johnson & Kaplan, 1987; Cooper, 1995; Woodward, 1965). These factors along with their associations with IC are discussed in this section.

2.3 Organization Culture and IC

This study adopts Competing Values Model (CVM) for capturing the construct of organizational culture. The CVM was initially developed by Quinn and Rohrbaugh (1983) for the primary purpose of scrutinizing different organizational phenomena, including culture (Quinn & McGrath, 1985; Zammuto & Krakower, 1991). The CVM embraces two sets of competing values along two axes as follows: the first one is the control/flexibility dilemma that reflects preferences concerning structure, stability, and change, and the second is concerned with the people/organization dilemma that reflects differences in organizational focus. Following Henri (2006b), this

research aims to identify the particular position of each company according to the control/flexibility continuum, that is to say dominant type. Cultural types related to control values foster tight control of operations, highly structured channels of communication, and restricted flows of information (Burns & Stalker, 1961). In contrast, flexibility values are representative of spontaneity, change, openness, adaptability and responsiveness. Overall, cultural types that are linked to flexibility values promote loose and informal controls, open and lateral channels of communication, and free flow of information throughout an organization (Burns & Stalker, 1961).

IC forms the basis for the wealth and prosperity of organizations. The ample evidence indicated that knowledge related resources and capabilities bring about radical success in many companies; Buckman Laboratory is one of the best examples (Buckman, 2004). Although the knowledge economy is advocating for changing the way organizations operate, success lies with successful cultural change. According to Baker (2002), there is a strong indication that the cause of failure when instituting changes (such as TQM and reengineering) is linked to the failure in instigating cultural changes within an organization (Index, 1994; Kotter & Heskett; Pascale & Goss, 1993). For instance, despite the fact that acquiring brilliant human resources and laying emphasis on workforce learning increases the value of organizations, reaping the advantages of IC is only viable when companies are able to translate the knowledge of human resources into reusable and sustained functions. This needs a culture through which staff commitment is established, learning is promoted, knowledge sharing is encouraged, and organizational members have been participating in decision making (Weston, Estrada, & Carrington, 2007).

Bratianu et al. (2011) posited that the culture of an organization acts as a very strong glue, as it brings together the intelligence of an individual and their respective core values in instigating a culture of excellence. Organizational leaders who are visionaries always understood the salient role of corporate cultures, thus they worked hard towards the development of a strong and inspirational culture in their respective organizations. Acting as organizational glue, organizational culture is salient in the construction of IC that has the potential to innovate (Bratianu et al., 2011).

Literature regarding "organizational culture" is numerous, and there are many authors who prioritize culture as being more than merely the basis of an organization's success (Nazari, Herremans, Isaac, Manassian, & Kline, 2009). The theory that is mentioned by Flamholtz (2002) is in line with this notion, due to the fact that culture is thought of as "an area of essential organizational development, a strategic keystone for a successful company". Meanwhile, Copeland (2001) regards company culture as imperative to the construction of IC. In the same vein, literature regarding organizational effectiveness is more and more focused upon the role of organizational culture towards

motivating and maximizing the potential of their respective intellectual assets (Yu & Yanfei, 2008). Mouritsen (2003) argued that culture is pivotal to either effective organizational modification or augmenting the value of IC. Petty and Guthrie (2000) advocate that organizational culture is crucial towards corporate success, and is capable of increasing IC within that organization. This is especially true in today's organization, due to the fact that fluctuating environments and k-economy characterizes it, and this requires an impregnable organizational culture in the context of prescribing commonality and behavioral patterns that will inevitably hoard intangible resources that might have been present in the past.

Different kinds of corporate culture would have different impacts on IC. For example, supportive or flexible dominant cultural type could play a big part in fostering the IC (Bontis et al., 2000). In the context of the current study, control values embody predictability, stability, formality, rigidity and conformity. More specifically, the rationality of culture is reflective towards an orientation prone to efficiency and profit. Heavy emphasis is paid upon factors such as planning, productivity and clarity of the goal. The hierarchical nature of the culture is highly reflective of bureaucracy and its inherent stability, emphasizing roles, rules and regulations. In summary, the types of culture that are linked to control promote rigid control of operations, highly structured channels of communications, and limited flows of information (Burns & Stalker, 1961). Moreover, the value of flexibility generally refers to spontaneity, changes, openness, adaptability and responsiveness. In particular, the culture of development is heavily reliant upon adaptability and the readiness to realize growth, innovation, and creativity. The culture of a group is reflective of cohesion, teamwork, and morale as conduits that are meant to foster development, empowerment, and unwavering commitment to human resources. In a nutshell, the types of culture that are linked to flexibility are supportive of loose and informal controls, open and lateral channels of communication, and organizational free flow of information (Burns & Stalker, 1961). Such flexible dominant cultural type, as opposed to control culture, is more appropriate in today's knowledge-based environment and is an important driver and enabler to support and guide the intellectual capital management and development (Lynn, 1998). Accordingly, the following hypothesis is put forward based on the foregoing discussion:

H1. There is an association between the organizational culture and the level of IC.

2.4 Organization Size and IC

It is assumed that organization size may impact on levels of IC (Usoff et al., 2002). Usoff and colleagues argued that larger and more sophisticated organizations are possessed of greater strength to invest resources necessary for leveraging IC more effectively. Previous studies, especially in the management control system literature treat organization size as a factor determining the

management accounting (MA) information. For example, Taylor and Taylor (2013) detect the presence of size effect on of the main elements of MA i.e. performance measurement system. In the same vein, Luther and Longden (2001) observed that size, operationalized by annual turnover, could augment the effect of MA on organizational effectiveness. Libby and Waterhouse (1996) also demonstrated that larger organizations are more oriented towards MA change due to the fact that such firms enjoy more abundance of resources and capacities towards change.

Moore and Chenhall (1994) also argued that ample evidence suggests that size is pivotal to the utilization of more sophisticated management systems. Hence, bigger companies typically possess more developed MAS since such entities are more plentiful and powerful in terms of resources and capacities to embark on innovative systems. Moreover, several scholars acknowledged that the size and level of external IC disclosures are significantly associated (Beaulieu, Williams, & Wright, 2004; Bozzolan, Favotto, & Ricceri, 2003; Brüggem, Vergauwen, & Dao, 2009; Guthrie, Petty, & Ricceri, 2006). However, they failed to reach a consensus on how size accounts for variation in voluntary disclosure (Bukh, Gormsen, Nielsen, & Larsen, 2002). Drawing upon the foregoing argument, it is expected that larger organizations are likely to enjoy more intangible resources due plausibly to the fact that they are vastly superior to investing in resources necessary to develop intellectual properties. Therefore the following hypothesis is formulated as follows:

H2. There is a positive association between the organization size of and the level of IC.

2.5 Industry Type and IC

Prior studied in the context of IC disclosure reported that industry type is a determining factor in external IC reporting since the emphasis is placed on intangible assets may vary according to the industry type (Bozzolan et al., 2003; Brennan, 2001; Brüggem et al., 2009). In a survey carried out in Malaysia, nevertheless, Bontis et al. (2000) observed that IC and business performance are associated regardless of the industry in which a company belongs. In the same vein, Huang et al. (2010) fails to observe a significant association between industry and the availability of aggregate internal IC information of Malaysian companies.

However, the industry in which a company belongs is referred as a contributing factor to determine some organizational phenomena typically (Abdel-Maksoud, Dugdale, & Luther, 2005; A Bhimani, 1993, 1994; Lee, 1987). Organizations within various industries encounter various demands, difficulties, and opportunities. In this case, they tend to vary in their input processes, throughputs, and outputs (Duh, Xiao, & Chow, 2009). Spender (1989) argued companies within different sectors are inclined towards the development of different business models and configurations of internal operations. Foster and Gupta (1994) observed that the use of accounting

information in marketing decision-making has also placed emphasis on the role played by industry factors.

Huang et al. (2010) argued that firms belong to the service sector may possess more IC information since they are in a close interaction with end-user customers in which relational capital and customer capital lie at the heart of knowledge assets and intangibles. Service companies, generally speaking, have a propensity for managing assets which are more intangible in essence and therefore it is not easy to capture their value efficiently given that their value varies. Accordingly, it is hypothesized that service companies are likely to enjoy greater IC development.

H3. There is an association between the type of industry to which a company belongs and the level of IC.

From the foregoing discussion on literature and hypotheses development, a theoretical framework is developed as

shown in Figure 1. Contingency theory principally underpins the current study in which organizational culture, organization size, and industry type serve as the contextual variables of interest. Specifically, contingencies stemming from the operational environment influence the components of IC that can be perceived as characteristics of an entity. According to the selection type contingency theory, it can be assumed that organization's IC adapts to fit contextual or contingency factors (Huang et al., 2010; Selto, Renner, & Young, 1995) that in turn brings about optimization between structural variables (dimensions of IC) and contingency variables. In the selection approach, organizational context drives organizational design. According to Selto et al. (1995), explaining performance is outside the scope of selection approach as it is held that just good performers survive to be observed.

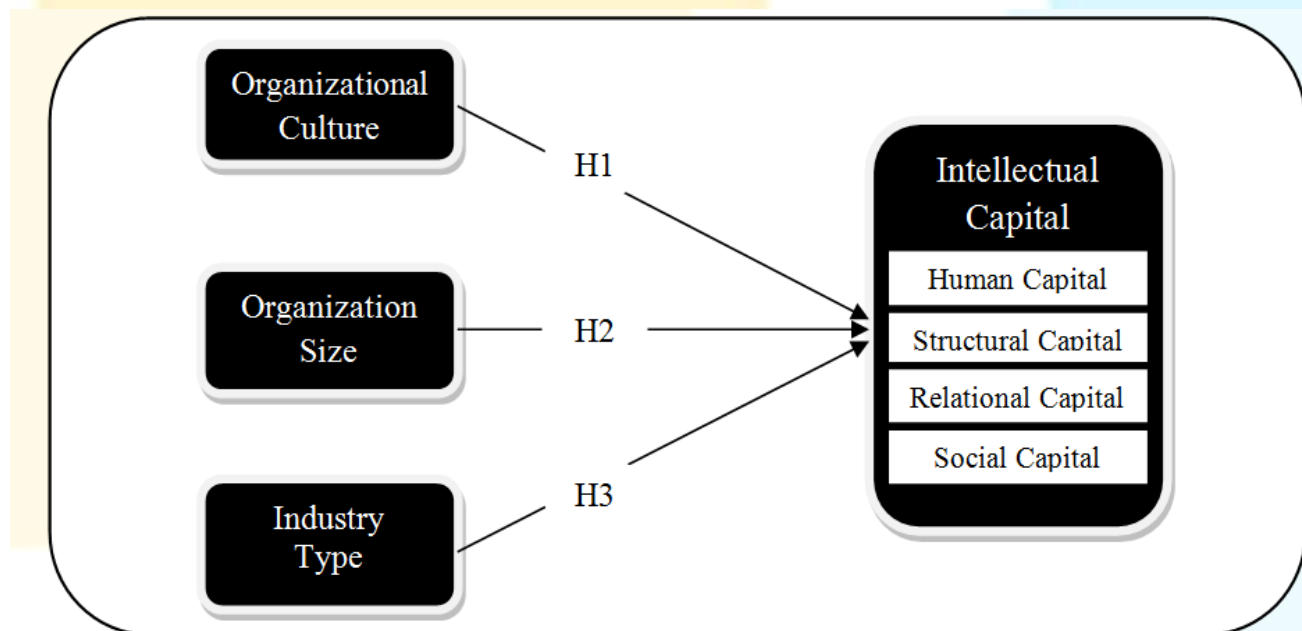


Figure 1: Theoretical Framework

3. RESEARCH METHOD

3.1 Variables and Measurement

3.1.1. Organizational culture

Organizational culture was captured according to the competing-values approach. This instrument was validated by previous studies (Zammuto & Krakower, 1991). Beside, some recent accounting researchers have applied the instrument in their studies (Bhimani, 2003; Henri, 2006). The instrument asked key informants (CFOs) to distribute 100 scores among the four ideal cultural types along each of the following four dimensions of culture: institutional character; institutional leader; institutional cohesion; and, institutional emphases. For each dimension, respondents should distribute 100 points among four sentences where organization A represents “group culture”, organization B refers to “developmental culture”,

organization C refers to “hierarchical culture”, and organization D refers to “rational culture”.

Following Henri (2006), this research aims to identify the particular position of each company according to the control/flexibility continuum, that is to say dominant type. Cultural-type score and a value score determine the dominant-type score. In this regard, firstly, the cultural-type score is computed for each culture through averaging the ratings obtained on the four dimensions. For each organization, the sum of the four cultural types equals 100. Secondly, the value score is calculated for the control/flexibility continuum in the following manner:

Flexibility-value score = (Group-culture score + Developmental-culture score)

Control-value score = (Hierarchical-culture score + Rational-culture score)

Finally, the dominant-type score is achieved through deducting the control-values score from the flexibility

values score. Concerning that the flexibility and control value scores are the extremes of a competing-values continuum, a difference score specifies the particular position of each company on this continuum. That is, a positive score represents a flexibility dominant type and, on the contrary, a negative score represents a control dominant type.

3.1.2. Organization size

Although previous studies have adopted many different approaches, among others, gross sales or gross value of assets (Kettinger, Grover, Guha, & Segars, 1994), sales turnover (Hoque, Mia, & Alam, 2001), natural log of total revenue (Elijido-Ten, 2009; Habib, 2010; Hoque & James, 2000) to define and measure organization size, the number of employees is the most frequently used proxy (Aiken, Bacharach, & French, 1980; Chenhall, 2003; Dewar & Dutton, 1986; Ezzamel, 1990; Govindarajan, 1984; Kopp & Litschert, 1980; Merchant, 1981) and is practically interchangeable with other measures (Agarwal, 1979). For the purpose of current research, organization size is measured based on the number of employees extracted from Tehran Stock Exchange (TSE) directory. Given the non-normality of Size, it was transformed logarithmically to adjust for expected nonlinearity or non-normality (Carpenter & Fredrickson, 2001).

3.1.3. Industry type

As explained earlier, the literature demonstrates that the use and implementation of various organizational initiatives may significantly vary according to the industry type like manufacturing and service companies (R. G. Cooper, 1988)(Cooper, 1988). In this study, therefore, dummy variable differentiates between manufacturing and non-manufacturing companies in consistent with the IC and management accounting literature (e.g. Cagwin & Bouwman, 2002; Widener, 2006). Dummy variable 1 was designated for manufacturing company while 0 was assigned to non manufacturing organizations.

3.1.4. Intellectual Capital

For measuring IC level, the respondents asked to express their opinions regarding a total of 29 questions on a range of questions in relation to their organization's emphasis on IC. The instrument was adopted from Tayles, Pike, and Sofian (2007) as well as Subramaniam and Youndt (2005), which originally drew upon the core ideas of the social structure literature (Burt, 1992). Specifically, IC was subdivided into four components, namely human, structural, relational, and social capital which were operationalized with six, nine, ten, and four items respectively. All the four independent variables quantified by using the 7-point Likert scale (1=strongly disagree, 4=neither disagree nor agree, 7= strongly agree).

It is imperative to mention that, instead of being treated individually, the IC elements are considered in aggregate in this study. This is in harmony with some recent work in IC literature (e.g. Herremans, Isaac, Kline, & Nazari, Herremans, Isaac, Kline, & Nazari, 2011; Huang et al., 2010; 2009). They do not even split up the IC into three or

more dimensions and employ an aggregate IC construct given the strong intercorrelations among the IC elements.

3.2 Sample

This study selected all the public listed companies within the Tehran Stock Exchange (TSE) in Iran as the unit of analysis, inasmuch as these organizations are perceived as the most prominent and dominant group among the organizations in Iran. The economy of Iran is diversified economy with over 40 industries directly involved in the Tehran Stock Exchange. As recommended by Bontis (1998), a multi-industry sample would allow an investigation of inter-industry effects and potentially broaden the study's generalization. The data collection procedure for the current study was carried out using a structured questionnaire. The questionnaire supplemented by a cover letter posted to the Chief Financial Officers of the sampled 339 companies within TSE as the largest stock exchange in Iran. Nowadays TSE has become a thriving and flourishing market in which either individual or institutional investor deal in securities of more than 330 organizations with a market capitalization of US\$104.21 billion. A total of 136 questionnaires were received, from which 128 usable questionnaires with a response rate of 37.7 % were eventually coded and used for the purpose of data analysis.

4. DATA ANALYSIS AND RESULTS

Two statistical software programs were employed to analyze the data collected in this study. SPSS18.0 was used for descriptive statistics and reliability testing and SMARTPLS V2.0 M3 (Ringle, Wende, & Will, 2005), which using partial least squares (PLS), was employed for confirmatory factor analysis and hypothesis testing. PLS was used due largely to its power for handling relatively small data samples. PLS has been widely used by the scholars in the field (e.g. Bontis, 1998; Bontis et al., 2000; Cabrita & Bontis, 2008; Cleary, Kennedy, O'Donnell, & O'Regan, 2007) due largely to its capability to model linear associations regardless of the limitations of other SEM techniques, such as normality and large sample size that coordinates with estimated indicators (Chin, Marcolin, & Newsted, 2003). Similar to the other structural equation modeling techniques, a two-step process is typically utilized in PLS (Chin et al., 2003; Chwelos, Benbasat, & Dexter, 2001; Karimi, Somers, & Gupta, 2004; Ko, Kirsch, & King, 2005; Teo, Wei, & Benbasat, 2003; Wixom & Watson, 2001). The measurement model is assessed at the outset, along the same lines as factor analysis and tests of unidimensionality. The second phase is assessing the structural model with the aim of providing path coefficients which demonstrate the associations of each variable. The estimation of the measurement model provides factor loadings and reliability measures from items to latent constructs whereas the assessment of the structural model illustrates the path coefficients for significant effects on the relationships between constructs.

4.1 Measurement Model Assessment

Unidimensionality is presented by composite reliabilities of the constructs that are shown in Table 1. The reliability level is desirable at 0.8 for the basic study while it is acceptable at 0.7 for the exploratory study (Hair, Anderson, Tatham, & Black, 1998). An internal consistency measure (Cronbach's α) developed by Fornell and Larcker (1981), and composite reliability calculated by Bacon, Sauer, and Young (1995), are typically reported. In this study Cronbach's α varies between 0.89 (IC) and 1 (organizational culture, size, and industry type). Furthermore, the composite reliabilities are shown in Table 1 range from 0.92 (IC) to 1 (organizational culture, size, and industry type) which are acceptable by the guideline suggested by Hair et al. (1998).

Construct validity can be captured through the estimation of each measure's convergent, discriminant validity or factor loadings of each item in each construct. Construct, convergent and discriminant validity were demonstrated in several articles (e.g. Ko et al., 2005; Karimi et al., 2004; Teo et al., 2003; Chin et al., 2003; Chwelos et al., 2001). A publicly acknowledged rule of thumb is to accept items with loadings of 0.70 and higher, that implies that there is more shared variance between the construct and its measures than error variance (Barclay, Higgins, & Thompson, 1995; Hair et al., 1998). According to Bollen (1998), the larger the factor loadings, the stronger the evidence of unidimensionality is.

Convergent validity is defined as the extent to which constructs which must be associated theoretically are actually interrelated (Campbell & Fiske, 1959) whereas discriminant validity is defined as the extent to which constructs which must not be associated theoretically are not interrelated in effect (Campbell & Fiske, 1959). Convergent validity is obtained when the average variance extracted (AVE) between the constructs exceeds 0.5 (Chin et al., 1998). AVE provides a measure of the variance shared between a construct and its indicators. In Table 1, the AVEs range from 0.757 (contribute to IC) and 1 (organizational culture, size, and industry type), exceeding the cutoff point of .50 suggested by Fornell and Larcker (1981).

Table 1: Results of confirmatory factor analysis

Variables	AVE	Composite Reliability	Cronbach's Alpha
Organizational Culture	1	1	1
Intellectual Capital	0.757	0.925	0.893
Industry Type	1	1	1
Organization Size	1	1	1

This research drew upon the suggestion of Fornell and Larcker (1981) in order to assess discriminant validity: the square root of AVE must be larger than the correlations of

the constructs to achieve acceptable discriminant validity. Hence, the value of diagonal elements must be higher than those of off-diagonal elements (Fornell & Larcker, 1981; Hulland, 1999). According to the values presented in Table 2, discriminant validity is acceptable. Overall, all the statistics reveal that the measurement model is adequate and sufficient for testing the structural model.

Table 2: Discriminant Validity

Variables	Organizational Culture	Intellectual Capital	Industry Type	Organization Size
Organizational Culture	1			
Intellectual Capital	0.156	0.757		
Industry Type	0.002	0.003	1	
Organization Size	0.008	0.012	0.005	1

4.2 Structural Model Assessment

In PLS path modeling, the structural model is assessed through estimating the path coefficients along with the R^2 value. While path coefficients show the strength of the associations among the predictor and criterion constructs, the R^2 value is a scale of the predictive intensity of a model for the criterion (dependent) constructs (Ko et al., 2005; Chin et al., 1998, 2003). The significance of path coefficients in the model lends support for hypothesized associations (Bentler, 1989). SMARTPLS V2.0 M3 (Ringle et al., 2005), was chosen to use a bootstrap resampling method (5000 resamples) to determine the significance of the paths within the structural model. Table 3 presents results of the SEM assessment which consists of standardized path coefficients β in addition to their corresponding t-statistics extracted from PLS estimation. The bootstrap resampling technique with 5000 resamples was conducted for estimating the standard errors.

The standardized coefficient of the effect of organizational culture on intellectual capital provides support for hypothesis one. That is, culture (flexibility dominant cultural type) has a significant positive impact on IC with a path coefficient of 0.407, t-value 6.107 and significant at $p < 0.01$ (H1). Similarly, there is a significant relationship between size and the level of IC with a path coefficient of 0.153, t-value 1.840 and significant at $p < 0.01$. Thus, H2 is supported. Conversely, the results do not support the hypothesis H3 since no statistical significance was found between industry type and the level of IC development ($\beta=0.046$, t-value=0.530). R^2 in the IC for the structural model was 18.1%, which was explained by the following factors: culture, size, and industry. In other words, overall, 18.1% of the IC was explained by the aforesaid independent variables.

Table 3: Results of the Structural Equation Model Estimation

No.	Hypothesis	Path	Parameter Estimate (β)	Sample Mean	Standard Error	T Statistics	Results
1	H1	Culture --> IC	0.407***	0.409	0.066	6.107	Supported
2	H2	Size --> IC	0.153***	0.157	0.083	1.840	Supported
3	H3	Industry --> IC	-0.046 ^{ns}	-0.046	0.086	0.529	Not Supported

Variance explained (R²) in IC (dependent variable) = 18.1%,

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$; ^{ns} not significant

5. DISCUSSION & CONCLUSION

The findings significantly underline this fact that culture plays a leading part in relation to IC development overall. This implies that while the knowledge economy appears to endorse move towards changing the way organizations operate, success essentially hinges upon successful cultural change. It is self-evident that intangibles and knowledge assets are the cornerstone of value creation in today's knowledge-based era. However, reaping the benefits of these assets lies with translating the knowledge and capacities of the organizations into reusable and sustained actions. This requires a culture that creates employee commitment, encourages learning, fosters sharing, and involves employees in decision making (Weston et al., 2007).

The results are consistent with those of Kannan and Aulbur (2004) who pointed out sustained knowledge management and IC development requires the establishment of an organizational memory which is flexible and adaptive for changing requirements. This is not achieved without a robust organizational culture which promote IC through fostering innovation, knowledge sharing, and learning via the use of various communication channels (Kannan & Aulbur, 2004). The findings also lend empirical support to the theoretical observations and corroborate the idea of scholars in the field (David, Long, & Fahey, 2000; Janz & Prasarnphanich, 2003; Leidner, Alavi, & Kayworth, 2008; McDermott & O'Dell, 2001; Nazari et al., 2009; Young, Sapienza, & Baumer, 2003)

As expected, the results also signify that larger organizations attach much importance to intellectual capital. This in turn implied that bigger, more sophisticated organizations are likely to possess more resources and capabilities necessary to invest in as well as manage intangible assets. This finding corroborates the idea of Usoff et al. (2001) who found that companies with larger internal audit department tend to lay emphasis on IC than companies with smaller internal audit department.

This finding is also in agreement with observations within some related fields such as management accounting (e.g.

Taylor & Taylor, 2013; Luther & Longden, 2001; Libby & Waterhouse, 1996; Moores and Chenhall, 1994) as well as external IC disclosure (e.g. Bozzolan et al., 2003; Guthrie et al., 2006; Beaulieu et al., 2002; Bruggen et al., 2009) in which size is found to be significantly related to organizational initiatives and phenomena.

Although some certain industries and sectors could be characterized by their heavy dependence upon knowledge assets, manufacturing and non-manufacturing entities cannot be differentiated in this study. It is admitted that different industry types may entail different level and types of intellectual capital. This is not the case in the current research in which the industry type failed to explain differences in IC overall (aggregate form). However, this may open an avenue for further research whereby researchers could delve deeply into IC within several different industries in more detail, perhaps addressing the individual dimensions of intellectual capital, namely human, structural, relational, and social capital.

5.1. Implications

The findings of this study have several implications. First and foremost, this study combines literature on IC across diverse academic fields. The complex conceptualization of IC with four subdimensions offers a more systematic manner to combine several knowledge-based drivers towards performance which have not been addressed simultaneously in a comprehensive framework. According to the model, it seems that the majority of the earlier studies have mainly emphasized merely some particular dimensions of IC like structural capital and human capital. In contrast, components such as relational capital and social capital have overlooked in the literature (Jansen, Van Den Bosch, & Volberda, 2006). Responding to this issue, this study offers a more comprehensive set of empirical evidence to shed light on the role of IC in increasing desirable organizational outcomes through synthesizing the multiple aspects of IC in one research model.

Second, this study contributes also by empirically investigate organizational culture, size as the two important determinants of intellectual capital. In other

words, regarding theoretical perspective, this study extends prior intellectual capital literature employing a contingency view by exploring the effect of organizational culture and size on the intellectual capital development. Therefore, the other main contribution of this research lies in its being among the very early research on exploring the linkage between context (contingency factors) and intellectual capital development. In line with the organizational effectiveness literature as well as contingency theory, the findings of the study highlight the importance of organizational culture and size in motivating and maximizing the value of its intellectual assets (Yu & Yanfei, 2008; Usoff et al., 2002).

Finally, the study has gone some way towards enhancing managers' understanding of the importance of antecedent conditions which are necessary for IC development within organizations. The provision of an IC contingency framework as well as addressing various sub-elements of intellectual capital support executives detect, capture, and assess the different kinds of knowledge resources in addition to their determining factors which must be all taken into consideration for reaping the benefits of the organizations' most critical assets.

5.2. Limitations and Future Research

In spite of its contributions, this research is also subject to some potential limitations. First and foremost, the instrument of the study was the questionnaire survey which this consequently made the study as a whole relies seriously on the perception and opinions of key informants. Even now the research's instrument was tested either in terms of the reliability or the validity, there should exist some type of bias when the key informants assess their own IC level. The bias would be alleviated if there was a possibility to analyze the annual reports to verify the information provided by the respondents.

Secondly, the data presented in this research is regarded cross-sectional or one-shot. Those critical factors were captured and measured just once and at a static point instead of as they were developing, thereby missing the value of time explanation. It is imperative to attach importance to long-term effects, particularly on the creation and development of the IC and organizational culture. Besides, survey data derived from cross-sectional analyses is incapable of producing conclusive evidence of causality. Instead, the evidence should be regarded in line with theoretical arguments and expected associations. Future research could embark on longitudinal survey in order to investigate the causality and interrelationships among factors which are pivotal to intellectual capital development.

Thirdly, the data were collected in a single country (Iran). Potential culture limitations should be noted, especially the cultural differences among developing countries and developed nations that influence the perceptions of knowledge sharing practices. The framework of the study must be examined further through including samples from other countries to generalize or modify the concepts.

Moreover, concerning the concept of organizational culture, despite an acceptable reliability and validity of the instruments, richness could not be completely acquired via a survey instrument as organizational culture is perceived as a broad construct. It is also worthwhile investigating other potential explanatory factors that could account differences in the level of IC development such as technology, business strategy, competition, environment, etc. considering a larger set of industry sectors, instead of designating only two broad categories of industry type as manufacturing and non-manufacturing.

This study treated intellectual capital in an aggregate form instead of addressing them individually. Future studies may delve into the dimensions of IC in isolation for providing better understanding of each element in particular. Nevertheless, some scholars have pointed out that addressing the IC components individually may not be desirable due to the fact that the interconnections and complementarity among them is more advantageous (Huang et al., 2010; Isaac et al., 2009). A sustained interaction between components of IC for a company could support the leverage of its knowledge overall. Further research dealing with the inter-relationship between IC components may shed light on understanding IC more effectively.

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