

# KNOWLEDGE MANAGEMENT: EXPLORING THE RELATIONSHIP BETWEEN HUMAN CAPITAL AND ORGANISATION STRUCTURE CAPITAL

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## Abstract

*Human capital and its impact on the organisation structure capital are of paramount importance in the modern business organisations. This research in progress, which investigates and analyses the role that human capital plays in the determination of the organisation structure capital. The study is based on wide spectrum of current literature, which presents theoretical and practical research on the subject of study. Knowledge Management (KM) is systematic process based on models and technological integration, which helps in the development of the conceptual framework. It is assumed that KM leads to benefits for the organisation and provides a platform for future research. Also, it addresses KM impacts on human capital and the enhancement of organisational effectiveness. The procedure is established for the measurement of the effectiveness of knowledge management criteria. The study aims at large businesses in Syria. It is confirmed through the results and findings that models and processing of information through systematic structure is essential for the development of the manager's capabilities which plays an important factor in defining the impact of human capital on the success of the organisation structure of a business.*

*Keywords: Knowledge Management, human capital, Information system, organisation structure capital.*

## 1 INTRODUCTION

This research investigates and describes the relationship between Human capital (HC) and Organisation structure capital (OSC). A gap in the research of the impact of HC and OSC has been identified in the current literature; this paper is attempted to provide an insight to the impact of HC and OSC. According to Bontis (2001) HC defined as skills of an employee that help meet the task at hand. It is the combined knowledge, skill, innovativeness and ability of the organisation's individuals. On the other hand OSC is the hardware, software, databases, organisational structure, patents,

trademarks and everything else that employees use to support their business activities and processes (Bontis, 2001).

Knowledge management (KM) involves creating a learning culture to continuously create, share, and use knowledge for the purposes of developing new opportunities (Nonaka and Takeuchi, 1995; Senge, 1990). Knowledge and knowledge management (KM) play a big part in HC and OSC. Knowledge is considered as the new wealth of organisations by which superior business performance and a competitive advantage can be achieved (Al-Alawi, Al-Marzooqi and Mohammed, 2007; Gloet and Terziovski, 2004; Grover and Davenport, 2001; Kalling, 2003; Liu and Tsai, 2007).

According to Al-Alawi et al. (2007, p. 22) who stated that, “knowledge management is currently one of the hottest topics in information technology and management literature.” Knowledge management has become one of the most important trends in business because organisations are trying to achieve greater value from the knowledge they possess (Grossman, 2006 and MacGillivray, 2003), such as finding better ways to value, or elicit, and apply knowledge to create new knowledge (Denning, 2006). More than 25% of Fortune 500 companies employ Chief Knowledge Officers and another 43% are planning to do so within a few years (Bose, 2004). In addition, approximately 81% of the largest U.S. and European companies use some form of knowledge management (Becerra-Fernandez, Gonzalez and Sabherwal, 2004).

However, it has been difficult for firms to implement and maintain effective knowledge management systems (Gold, Malhotra and Segars, 2001; Rigby, Reichheld and Schefter, 2002; Jolly and Thérin, 2007).

This research intends to take an inward look and to have a deeper understanding of the organisation performance. Therefore, human capital, and organisation structure capital need to be examined more closely in order to fill the gap in KM research. Additionally, the research presents a conceptual framework (see figure 4) with “processes” and “contents” perspectives instead of just Information technology (IT) effects that were heavily focused in the early KM initiatives. In addition to IT, there are also human capital and organisation structure capital that are critical to KM and its processes.

## **2 BACKGROUND**

### **2.1 Human Capital (HC)**

As the service economy grows, the importance of human capital increases (Ulrich, 1998). Human capital refers to skills of an employee that help meet the task at hand. It is the combined knowledge, skill, innovativeness and ability of the organisation’s individuals (Bontis, 2001). Human capital is similarly defined by Van Buren (1999) as the knowledge, skills, and competencies of people in an organisation.

For an organisation to use knowledge as a resource or capability, it should develop as absorptive capacity—a concept introduced by Cohen and Levinthal (1990) meaning the ability to value, assimilate, and apply knowledge to create new knowledge. According to Gold et al. Nahapiet and Ghoshal (2001; 1998) creating new knowledge requires the presence of human capital. In the context of knowledge management, the idea of human capital theory is that the social interactions of people become a resource for creating and storing collective knowledge (Nahapiet and Ghoshal 1998). Human capital is the collective sum of the resources that are held in, accessible through, and derived from a network of social relationships (Nahapiet and Ghoshal 1998). From the perspective of human capital theory, Grant (1996) argued that the firm’s collective knowledge resources that are networked, linked, and transferred to the organisation define organisation structure capital. The seminal work of Grant provided the framework for defining the process of knowledge integration.

### 2.1.1 *Knowledge Integration*

Knowledge can be held by individuals as well as collectively by an organisation (Spender, 1996). Collective knowledge exists when the efforts of people with complementary skills are combined (Grant, 1996), and through the process of knowledge integration, that collective knowledge is transformed to the organisation (Grant, 1996; Nahapiet and Ghoshal, 1998). Firms with better knowledge-integration processes will have stronger knowledge management capability (Grant, 1996, 1997; Newell and Huang, 2003), which helps to sustain competitiveness (Chuang, 2004; Drucker, 1992; Grant, 1996).

## 2.2 Organisation structure capital (OSC)

According to Bontis (2001), an organisation structure capital is the hardware, software, databases, organisational structure, patents, trademarks and everything else that employees use to support their business activities and processes. The essence of organisation structure capital, however, focuses on “the knowledge embedded within the routines of an organisation” (Bontis, 2002a, p.165). Also, Bontis’ organisation structure capital combined with Van Buren process capital (Van Buren, 1999) define in Gold et al. knowledge infrastructure (Gold et al., 2001) which involves organisation structure, culture, and technology. Thus, organisation structure capital includes a technological component and architectural competencies (Bontis, 2002a).

Bontis (2002a) interpreted the social network concept and further demonstrated the relationship between organisation structure capital and human capital. The social network perspective views organisation as consisting of social units with relatively stable patterns of relationships over time (Tichy, Tushman and Fombrun, 1979). A social unit is a set of relations that link each individual in an organisation. The social unit also refers to the “node” in Bontis’ (2002a) research. Nodes are the owners of tacit knowledge within their social networks. They are intermediaries that transform knowledge from explicit to tacit or vice versa.

The most complex among the different components in an organisation are Intellectual capital (IC), organisation structure capital (OSC) and human capital (HC), and they intertwines with other capitals in terms of functioning. This research adapts Bontis’ (2002a) definition of organisation structure capital and human capital, and attempts to avoid possible overlapped meanings (see figures 1 and 4). Therefore, organisational learning, culture, knowledge management strategy, knowledge management and knowledge management systems are components represent the focus of organisation structure capital and human capital that embraces a sound foundation to this research.

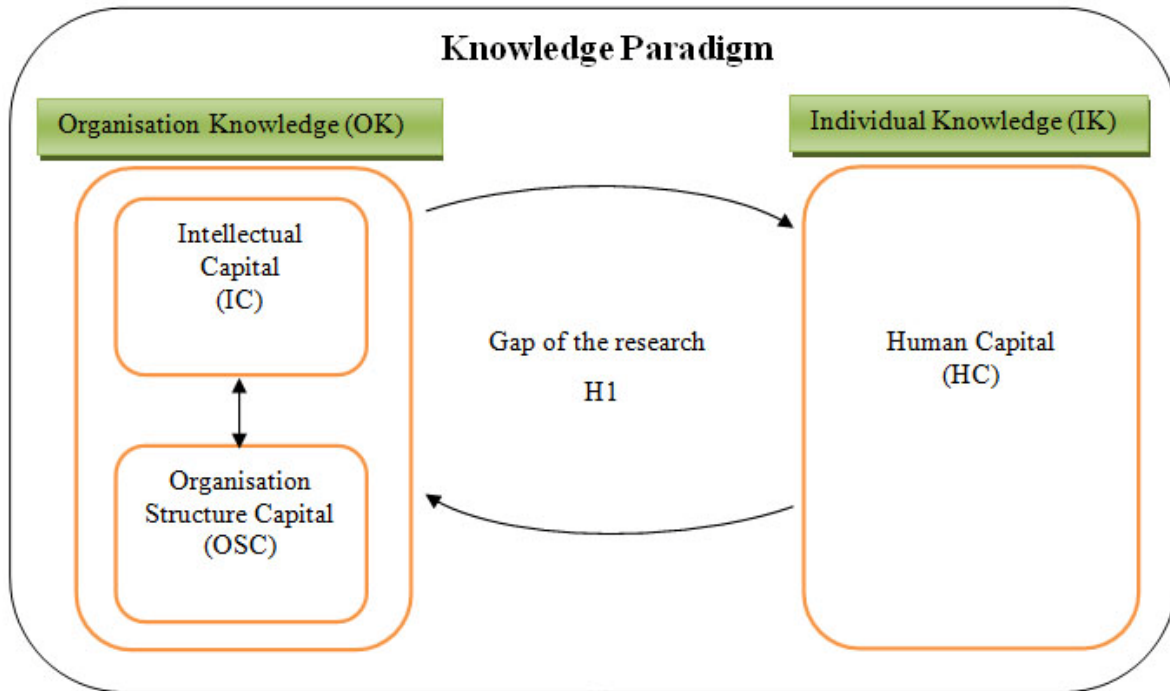


Figure 1. Conceptual framework of Organisation Knowledge and Individual Knowledge upper layer.

### 3 LITERATURE REVIEW

The literature review provides an insight into the issue of Knowledge Management especially taking in consideration the human capital which affects Knowledge Management. It is important to understand the current literature in relation to Knowledge Management strategies, influences, models presented and dimension in order to comprehend the link between human capital factor and its relation to organisation structure capital. In the present age the link between competitive advantage and Knowledge is considerable, which reinforces the need to in depth evaluation of the concept of knowledge management. The human capital factors are of significant importance to determine human capital and its role within the organisation structure capital.

There are different frameworks which have been presented which distinguish the varieties of Knowledge that exists e.g. A common framework which has been introduced is a framework which categorises the dimensions of knowledge which distinguishes between tacit knowledge and explicit knowledge. The tacit knowledge emphasises the internalisation process of the acquisition of knowledge in which the candidate does not know how to accomplish a particular task. The approach of explicit knowledge is just the opposite, where the knowledge acquired by the individual is done consciously and there is a focus and knowledge can be communicated easily to others (Alavi et al., 2001). Tacit Knowledge is the concept which has been introduced by Michael Polanyi (1891-1976) which is the foundation for assessment of knowledge Management (Polanyi, 1966).

Itami (1987) based his research on the assessment of the intangible economy, which can be exploited to generate superior performance. The theoretical development of intangible assets is linked with superior performance (Itami, 1987). Amidon (1988) introduced innovation in relation to strategy for knowledge economy with focus on the 21<sup>st</sup> century. This initiative was taken as first roundtable conference of Knowledge assets. She focused on how learning could be enhanced by technology (Amidon, 1988). Also Ray Stata (1989) propounds a strong argument which addresses the US industry most seriously in the area of competitive decline in innovation which has impacted the

management, product and technology. His innovative suggestions are to increase performance with competitiveness and innovation (Stata, 1989).

The framework presented by Wiig (1997) (see figure 2) identifies six strategies what reflects the nature and the strengths of the organisation which is involved in the process. His focus was on the knowledge strategy as representation of the business strategy, which provides a comprehensive approach to Knowledge Management. Also his focus was on the intellectual asset management strategy which is also based on the personal knowledge and asset responsibility which involves creation of knowledge and development of strategy. This will result it knowledge transfer strategy and customer focused strategy (Wiig, 1997; Monasco, 1996).



Figure 2. The strengths of the organisation which is involved in the process by Wiig (1997)

Day and Wendler (1998) recommend five knowledge strategies which needs to be employed by large corporations. These involve the development and transference of best practices to dispersed network locations, also creation of knowledge which is embedded in new industry, which encourages exploitation of the market for new product with recognition and organisation of knowledge. The shaping of corporate strategy is necessary around the knowledge which is innovation based. This is further supported by fostering and commercialisation of the innovation process to effectively target market in reduced timeframe. The final process involves creation of standard proprietary knowledge which establishes specific standard which encourages shared and complementary product (Day and Wendler, 1998).

Zack (1999) proposes a framework which establishes explicit connection between competitive strategy and knowledge management (see figure 3). Zack approach is supported by O’Dell and Grayson (1998). Binney (2001) offers a synthesised approach based on classification of knowledge and framework which addresses knowledge management spectrum. Hansen (1999) suggests that organisations should aim at operations which have mixture of an explicit codified knowledge in combination with highly creative strategic procedure which is customised, in good ration not necessarily equal proportions (Hansen et al., 1999). The engineering approach to knowledge is provided by Schreiber (2000) who focuses on CommonKADS methodology. It is one of the most



admired classifications of knowledge. Which is based on wide range of knowledge classified under “analytic “tasks (Schreiber, 2000).

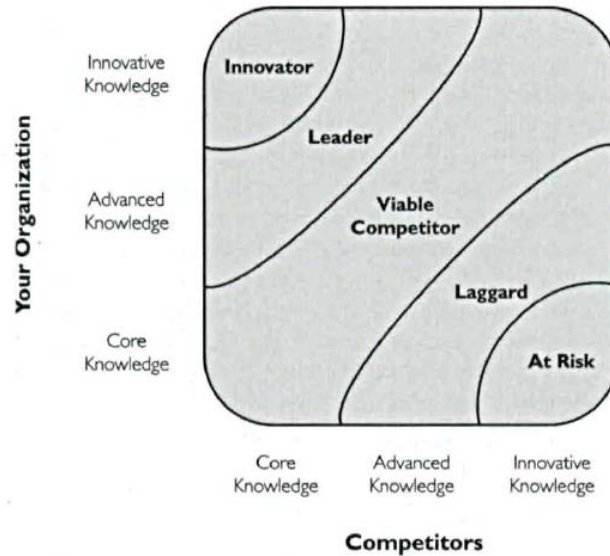


Figure 3. Human competitive strategy and knowledge management framework by Zack (1999)

Nickols (2000) proposes that the categories presented by Nonaka and Takeuchi should be broken down into more procedural knowledge which is declared (Nickolas, 2000). Scarbrough and Swan (1999) have introduced a collection of studies which suggests that many knowledge management initiatives over-emphasise the role of IT systems and result in failure to address the human factor. On the other hand Hackett (2000) focuses on practices associated with management and organisational learning he made a substantial contribution to the companies or organisation. The study by Choo and Bontis (2002) addresses the strategic management of the intellectual capital for well informed organisational set up; the emphasis of the study is on intellectual capital disclosure.

Abell and Oxbrow (2001) lay emphasis on the existing environmental conditions which impacts the operation of business. It focuses on business drivers for various sectors which influences the manner in which Organisation achieves knowledge management. Feigenbaum et al. (1988) discussed force use of military personnel for execution of knowledge management. Alavi et al. (1999) talk about knowledge management systems which can be adopted as a challenge for the benefit of the organisation.

Jashapara (2005) concludes that knowledge management is processed through four direct channels such as, system technology, organisational culture, culture and strategy. The strategic knowledge management is implemented using intellectual capital and organisational performance. The systems technology and organisational learning supports the management of knowledge at various levels. The study of intellectual capital based on his frameworks represents that knowledge and learning are important factors in assessment and measurement of organisational success.

The conceptual framework presented by Ashok Jashapara (2005) takes into account the principal challenges which have been presented in the field of knowledge management to generate organised, effective and informal process. It is based on the assumption of the rapid advances which have been made in the field of technology and information systems in the last decade. This knowledge has led to significant impact on the organisational process. It has also been introduced as the primary driver in the field of development of knowledge management. Jashapara (2005) theory based on the convergence of the information systems and organisational literature. There is significant role of tacit knowledge which entails the individual and collective domains. There is serious consideration for cognitive mapping techniques which help the convergence of tacit knowledge into explicit in the

process of conceptualization. The integrative framework also involves the influence of culture and social environments. The role of intellectual capital is phenomenal in the determination of the strategy, which guides organisational performance. There is need for effective change management and implementation. This ultimately results in organisational learning which involves exploration, exploitation and knowledge sharing. The combined outcome is seen in the implementation process of knowledge management. “The final element of this framework is a focus on strategy from an institutionalise perspective. Knowledge management is assumed to deliver enhanced performance in organisations” (Jashapara, 2005, p.142). There is intimate link between competition and strategic change.

## 4 OBJECTIVE AND RESEARCH QUESTIONS

A number of KM studies have conceptually established different dimensions of knowledge issues, e.g., knowledge creation (Nonoka, 1994 and 2002), knowledge process capabilities (Gold et al., 2001), KM systems (Alavi et al., 2001), and knowledge ownerships/rewards systems (Jarvenpaa et al., 2001). Most of either KM or IC research utilised interpretive case studies (Massey et al., 2002; Davenport et al., 1998a, 1998b, 1998c and 2002).

However, there are few empirical studies examining the relationship between IC and KM process, and the relationship between human capital and organisation structure capital. The research emphases are uniquely set.

The research will satisfy the following objectives:

- To explore the relationship between human capital and organisation structure capital. Also to address the knowledge management strategy on the organisation structure capital.
- Examine the effects of organisational learning on the human capital.
- To identify the effect of culture on the human capital.
- To develop a framework in order to satisfy the research and maximise the future businesses profit and to test the results.

### 4.1 Research questions

The research objectives will aim to address the following research questions

- How does knowledge management significantly contribute to human capital and organisation structure capital and what degree of impact?
- How does human capital (HC) and organisation structure capital (OSC) interact in knowledge management (KM) paradigm?
- What is the influence of knowledge management (KM) on both human capital (HC) and organisation structure capital (OSC)?

## 5 HYPOTHESES

The study test six hypotheses to establish that there is a relationship between human capital and organisation structure capital (see figure 4).

Hypothesis 1 – To confirm that intellectual capital and organisation structure capital are positively linked to human capital

Hypothesis 2 – Organisational learning is positively linked to human capital.

Hypothesis 3 – Culture is positively linked to human capital

Hypothesis 4 – Knowledge management strategy is positively linked to organisation structure capital

Hypothesis 5 – To establish knowledge management is positively linked to human capital and organisation structure capital

Hypothesis 6 - Knowledge management system (KMS) is positively linked to human capital and organisation structure capital

## 6 METHODOLOGY

The methodology of the study will be mixed quantitative and qualitative nature, hence the study attempts to identify the research gap between Human capital and organisation structure capital through gathering and interpreting responses of top executives and professional individuals of various Syrian businesses corresponding to their business knowledge and experiences. A core study research methodology will be employed these responses and gathered through surveys that involve formulating research questions based on the research framework stated in the study (see figure 4). A combination of interview-based and/or postal surveys and surveys via email could be used to obtain responses in this study.

The questions in the survey will be quantitatively coded or scaled thus acquiring quantitative responses for the analysis. The quantitative responses will be evaluated using statistical methods such as factor Analysis (SPSS). Factor analysis is a multivariate statistical method whose primary purpose is to define the underlying structure of interrelationships among many numbers of variables by defining a set of common underlying dimensions known as factors. Thus factor analysis appears as the appropriate statistical method for this study, since it would comprise of large number of items or questions for the underlying components of IC which are human capital and organisation structure capital.

Also the research will be qualitative which intended to provide a deeper understanding of the subject and reliability between HC and OSC. It involves an interpretive, naturalistic approach to its subject matter and gives priority to what the data contribute to important research questions or existing information.

## 7 DISCUSSION

The conceptual framework presented in this paper focuses on two main areas of research, the upper level (see figure 4), which includes organisation knowledge (OK) and individual knowledge (IK) in which the research gap is identified, this upper layer explore the relationship between the human capital and organisation structure capital which is the core of this research, the upper layer will be assisted by different elements in the lower layer of the conceptual framework, such as organisational learning, culture, knowledge management strategy, knowledge management and knowledge management systems.

The starting point is organisational learning as shown in the conceptual framework in Figure 4. When an organisation is successful, there is a tendency towards maintaining the status quo and conservative risk-averse behaviours. This can lead to efficiency gains as organisations learn to 'exploit' behaviours that enabled their former success. However, in dynamic competitive environments, these exploitation behaviours embedded in organisational routines can lead to failure as organisations respond inappropriately to markets driven by needs for more innovative products or services rather than outdated and low cost alternatives. Failure drives organisations to increase its individual learning activities such as: training, increasing skills, formal education and work experience.

The second element is the influence of culture on human capital practise and process, Culture is comprised of the assumptions, values, norms and tangible signs (artifacts) of organisation members and their behaviours. Members of an organisation soon come to sense the particular culture of an organisation. Culture is one of those terms that are difficult to express distinctly, but everyone knows it when they sense it. For example, the culture of a large, for-profit corporation is quite different than that of a hospital which is quite different that of a university, the organisation management could change and be implemented according to the culture.



The third element focuses on knowledge management strategy, it is assumed to deliver enhanced performance in organisations. Strategy and strategic change are considered synonymous from an institutionalise perspective. Strategic change is informed by a manger's or employee's understanding and learning of a situation over time. The emphasis is on learning and a shift away from the traditional planning mode of strategy.

The final element is knowledge management systems which have had a significant impact on organisational processes and their associated learning. This has become the primary driver for the development of the knowledge management literature where the discourse has been shaped and influenced by the convergence of the knowledge management systems and organisational learning literature.

The five elements in the lower layer conceptual framework in figure 4 show that some definitions come from a strong information systems perspective such as knowledge management systems, while others come from a human capital perspective such as organisational learning and culture while knowledge management strategy comes from organisation structure capital perspective, these different elements have been brought together into an integrated, interdisciplinary perspective; this relationship between each of them will contribute to the research and research framework.

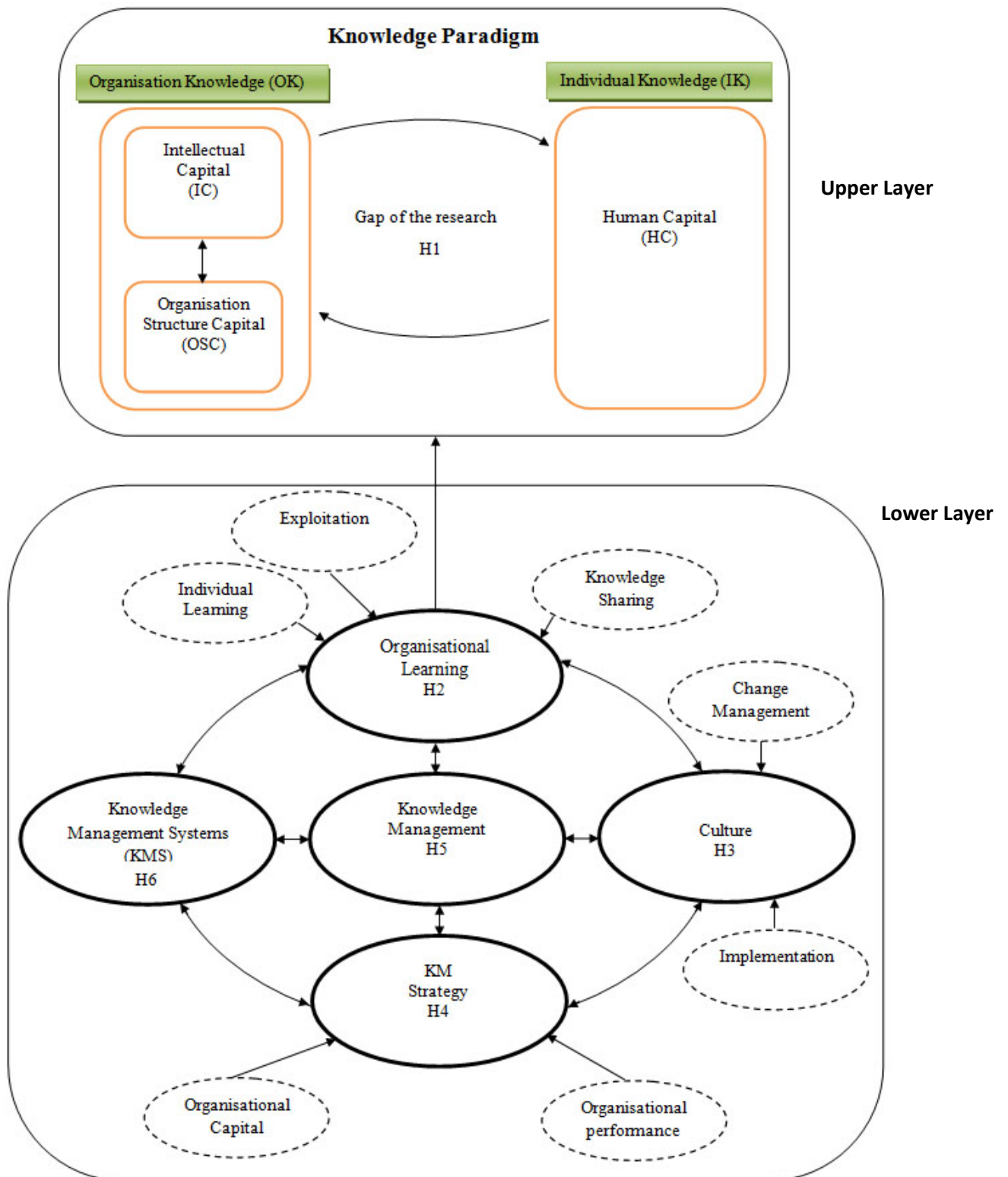


Figure 4. The Conceptual framework of the research.

## 8 PRIMARILY RESEARCH FINDINGS

The research findings is in its primarily stages, that it is shaped to provide indication of the constructs based on the conceptual frameworks presented in the literature review. The strategies, the influences and the dimensions of Knowledge Management in the context of human capital assessment are gathered with special focus on the five step analysis provided by Nonaka and Takeuchi (1995). The measurement model is assessed based on the operational benefits, strategic benefits, top management support, technological readiness and knowledge management capabilities. The assessment also needs to be focused on the internal aspects as well as external aspects.

The human capital assessment is based on socialisation, externalisation, combination, internalisation and learning by doing. The individual's knowledge, motivation and skills are evaluated against their income potential to determine that their success is based on the effective Knowledge Management. This is what yields fulfilment and satisfaction. In the context of an organisation where human capital impact is to be evaluated the collective value of the existing human resource factor is determined using the measurement of competencies, knowledge and skill. It has to be recognised that the human capital in an organisation is renewable source of creativity and innovativeness, which is not necessarily reflected in the financial statement, but has considerable impact on the success of the organisation.

## 9 CONCLUSION

As stated in the abstract and in the introduction that this research is work in progress. However, this study indicates a tangible consideration for focusing on the rewards of assessing the need to evaluate the role of human capital (HC) and organisation structure capital (OSC). Also, the management needs to reflect on the need of collective action based on the theories presented in this paper for effective knowledge management. There is need for active collection, dissemination, and regular updating of important and relative data is an important influence. The desire to build knowledge bases in order to capture intellect is building a momentum. The direct benefit from this research will result in the reduction of the project life cycle which is an important issue to address the specific problems that is the focus of many business organisations.

The conceptual framework presented in this paper provides a progressing on the model provided by Ashok (2003), also the research is linked to the model presented by Nonaka and Takeuchi (1995) which has been a valid consideration to evaluate the process of "organisational knowledge creation" in the form of the spiral which is presented as "amplified" form through these four modes of knowledge transfer. The emphasis is also on the fact that knowledge becomes "crystallised" within the organisational setup, and moves from higher levels from the individual mode to the group down to the organisational and inter organisational levels.